Oracle® Communications

Diameter Signaling Router

C-Class Software Installation and Configuration

Procedure 2/2

Release 8.0/8.1

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ORACLE®

Oracle ® Communication Diameter Signaling Router DSR C-Class Software Installation and Configuration Procedure 2/2

CAUTION: Use only the Upgrade procedure included in the Upgrade Kit.
Before upgrading any system, please access My Oracle Support (MOS) (https://support.oracle.com) and review any Technical Service Bulletins (TSBs) that relate to this upgrade.

My Oracle Support (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.

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.

See more information on MOS in the Appendix section.

Note: This document represents the 2nd part of the DSR Installation Process.
Prior to executing this document, make sure that the 1st part was fully executed:

- **DSR Hardware and Software Installation:** Use document [7] as Part 1

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List of Procedures

Tables and Figures

1.0 INTRODUCTION

1.1 Purpose and Scope

This document describes the application-related installation procedures for an HP C-class Diameter Signaling Router system.

This document assumes that platform-related configuration has already been done. Before executing this document, please ensure that all procedures from [7] have already been performed successfully.

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.

In scenarios where the DSR installation has already been executed, and system growth, de-growth is necessary; refer to **Appendix L**: Growth/De-Growth.

1.2 References

[1] DSR Meta Administration Feature Activation Procedure
[2] DSR Full Address Based Resolution (FABR) Feature Activation Procedure
[3] DSR Range Based Address Resolution (RBAR) Feature Procedure
[4] SDS SW Installation and Configuration Guide
[5] MAP-Diameter IWF Feature Activation Procedure
[6] DSR IPv6 Migration Guide
[7] DSR Hardware and Software Installation Part 1
[8] DSR GLA Feature Activation Procedure
[9] DSR PCA Activation Guide
[10] DSR DTLS Feature Activation Procedure
[11] DSR Radius Shared secret encryption key revocation MOP MO008572
[12] Platform 7.2 Configuration Procedure
[13] DSR Security Guide
[14] DCA Framework and Application Activation and Deactivation Guide

1.3 Acronyms

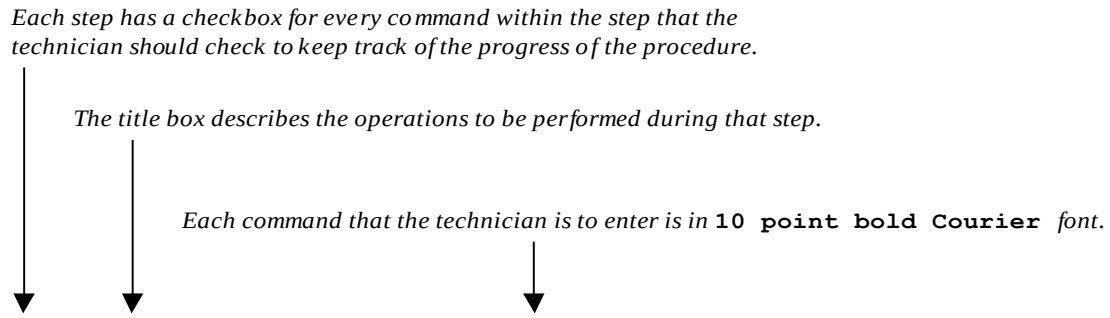
An alphabetized list of acronyms used in the document

Table 1 Acronyms

Acronym	Definition
BIOS	Basic Input Output System
CD	Compact Disk
DVD	Digital Versatile Disc
EBIPA	Enclosure Bay IP Addressing
FRU	Field Replaceable Unit
HP c-Class	HP blade server offering
iLO	Integrated Lights Out manager
IPM	Initial Product Manufacture – the process of installing TPD on a hardware platform
MSA	Modular Smart Array
NB	NetBackup
OA	HP Onboard Administrator
OS	Operating System (e.g. TPD)
RMS	Rack Mounted Server
PMAC	Platform Management & Configuration
SAN	Storage Area Network
SFTP	Secure File Transfer Protocol
SNMP	Simple Network Management Protocol
TPD	Tekelec Platform Distribution
TVOE	Tekelec Virtual Operating Environment
VM	Virtual Machine
VSP	Virtual Serial Port
IPFE	IP Front End
PCA	Policy and Charging Application
IDIH	Integrated Diameter Intelligence Hub

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. For example:



5 ☐	**ServerX:** Connect to the console of the server	Establish a connection to the server using cu on the terminal server/console. `$ cu -l /dev/ttyS7`

Figure 1 Example of an instruction that indicates the server to which it applies

Table 2 Terminology

Management Server	HP ProLiant DL360/ DL380 deployed to run TVOE and host a virtualized PMAC application. Can also host a virtualized NOAM or IDIH. It is also used to configure the Aggregation switches (via the PM&C) and to serve other configuration purposes.
PMAC Application	PMAC is an application that provides platform-level management functionality for HP G6/G8/G9 system, such as the capability to manage and provision platform components of the system so it can host applications.

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. 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. For the Policy & Charging DRA application, when configuring a Site only put DA-MPs and SBR MP servers in the site. Do not add NOAM, 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. 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. 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.
Three Site Redundancy	Three Site Redundancy is a data durability configuration in which Policy and Charging data is unaffected by the loss of two sites in a Policy & Charging Mated Sites Place Association containing three sites. Three Site Redundancy is a feature provided by Server Groups configuration. This feature provides geographic redundancy. Some Server Groups can be configured with servers located in three 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 two sites fail.

Session Binding Repository Server Group Redundancy	The DCA application may use SBR Server Groups to store Application Session data. The SBR Server Groups with support both Two and Three Site Redundancy. The Server Group Function name is “Session and Binding Repository”.
SBR Server Group Redundancy	The Policy and Charging application will use SBR Server Groups to store the application data. The SBR Server Groups will support both Two and Three Site Redundancy. The Server Group Function name is “SBR”.
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. For the Diameter Custom application, these Sites (Places) are configured in “Applications Region” Place Association. The Primary Site may be in a different Site (Place) for each configured SOAM or SBR Server Group . 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. For the Diameter Custom application, these Sites (Places) are configured in “Applications Region” Place Association. The Secondary Site may be in a different Site (Place) for each configured SOAM or SBR Server Group. 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 or Three Site Redundancy is wanted, a Secondary Site is required for all SOAM and SBR Server Groups.

Server Group Tertiary Site	A Server Group Tertiary Site is a term used to represent location in addition to the Primary & Secondary Sites 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. The Tertiary Site may be in a different Site(Place) for each configured SOAM or SBR Server Group . A Tertiary Site is described as the location in which only Preferred Spare servers reside. The Active and Standby servers cannot reside within this location. A Tertiary Site only applies if Three Site Redundancy is wanted for SOAM and SBR Server Groups.
Software Centric	The business practice of delivering an Oracle software product, while relying upon the customer to procure the requisite hardware components. Oracle provides the hardware specifications, but does not provide the hardware, and is not responsible for hardware installation, configuration, or maintenance.
Enablement	The business practice of providing support services (hardware, software, documentation, etc) that enable a 3rd party entity to install, configuration, and maintain Oracle products for Oracle customers.

1.5 Revision History

Date	Description
October 2016	Initial Release

2.0 GENERAL DESCRIPTION

This document defines the steps to execute the initial installation of the Diameter Signaling Router (DSR) application on new HP C-Class Hardware.

DSR 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.

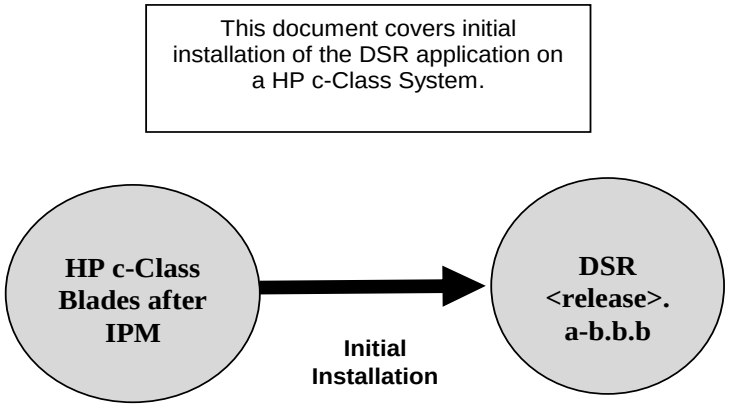


Figure 2 Example of Initial Application Installation Path

3.0 INSTALL OVERVIEW

This section provides a brief overview of the recommended method for installing DSR software that is on an HP c-Class system. The basic install process and approximate time required is outlined in **Figure 4**.

3.1 Required Materials

1. One (1) target release Application Media, or a target-release ISO
2. One (1) ISO of TPD release, or later shipping baseline as per Oracle ECO

3.2 Installation Overview

This section describes the overall strategy to be employed for a single or multi-site DSR installation. It also lists the procedures required for installation with estimated times. **Section 3.2.1 Installation Strategy** 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.

3.2.1 Installation Strategy

A successful installation of DSR requires careful planning and assessment of all configuration materials and installation variables. Once a site survey has been conducted with the customer, the installer should use this section to map out the exact procedure list that will executed at each site.

Figure 3 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 servers at each site and their role(s)
    - Does DSR's networking interface terminate on a Layer 2 or Layer 3 boundary?
    - Number of enclosures at each site -- if any at all.
    - Will NOAMs use rack-mount servers or server blades?
    - (Per Site) Will MP's be in N+ 0 configurations or in active/standby?
    - What time zone 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.
3) For each SOAM /MP/DR-NOAM only site (i.e. sites NOT containing the main NOAM server), the installer will execute the procedures in document [7] to set up the PMAC, HP enclosures, and switches. Then, using the procedures in this document, all servers will be IPM-ed with the proper TPD and DSR application ISO image. **Figure 4** details the exact procedures that are to be executed for the 2nd part of this install. When this is complete, all non-NOAM sites will be reachable through the network and ready for further installation when the primary NOAM site is brought up.
4) The installer will then move to the "main" site that will contain the primary NOAM. Again, [7] will be executed for this site. Then, moving on to the procedures in this document, **Figure 4** is consulted to determine the procedure list. During this install, the user will "bring up" the other sub-sites (if they exist) that were configured in step 3. For single sites where the NOAM/SOAM/MPs are all located together, then step 3 is skipped and the entire install is covered by this step.
5) Once the primary NOAM site has been installed according to [7] and this document, then full DSR installation is complete.

    Note: An alternative install strategy will swap steps 3 & 4. The main NOAM site is installed first, and then the sub-sites (DR-NOAM, SOAM/MP only) are installed and brought up on the NOAM as they are configured. This approach is perfectly valid, but is not reflected in the flow-charts/diagrams shown here.

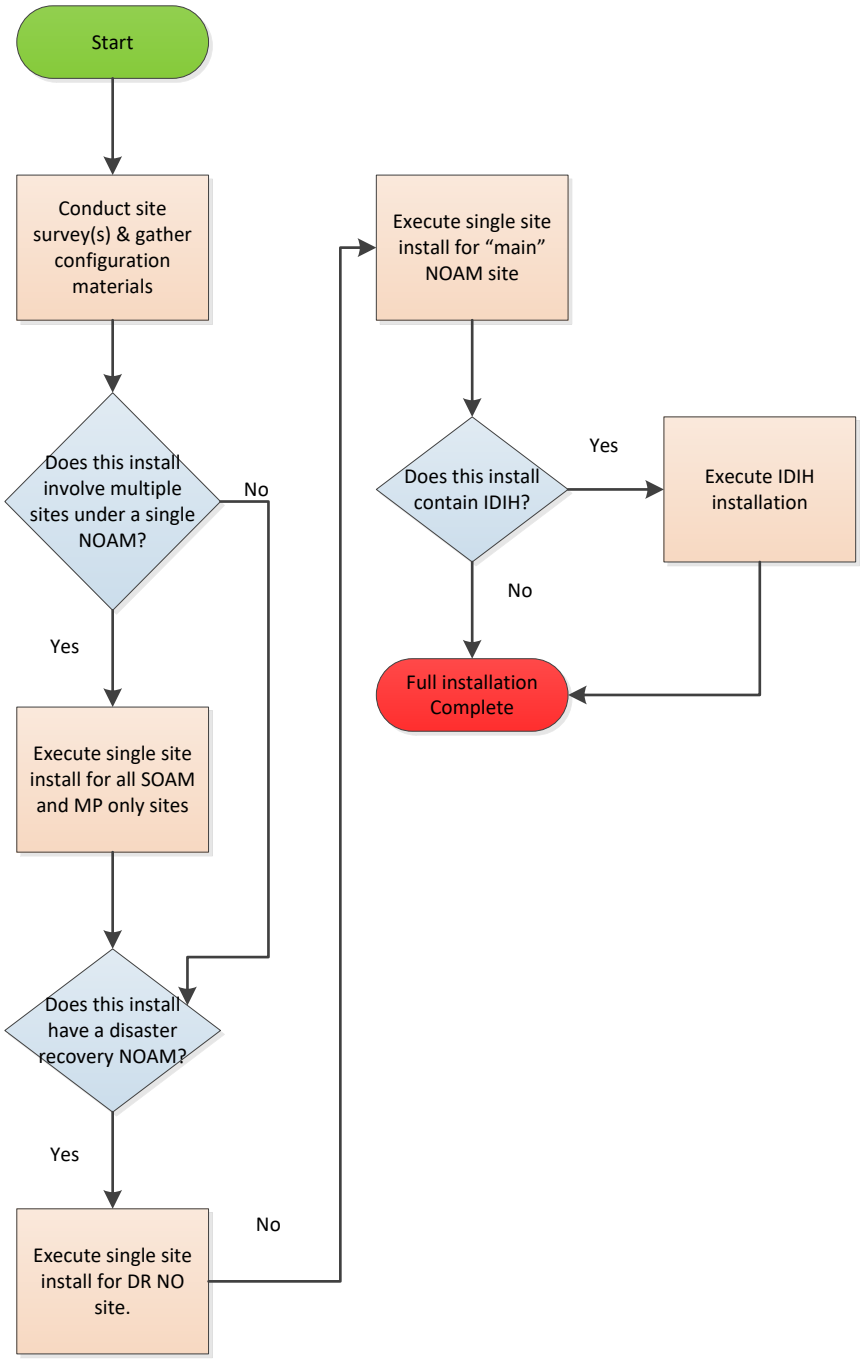


Figure 3 DSR Installation: High Level Sequence

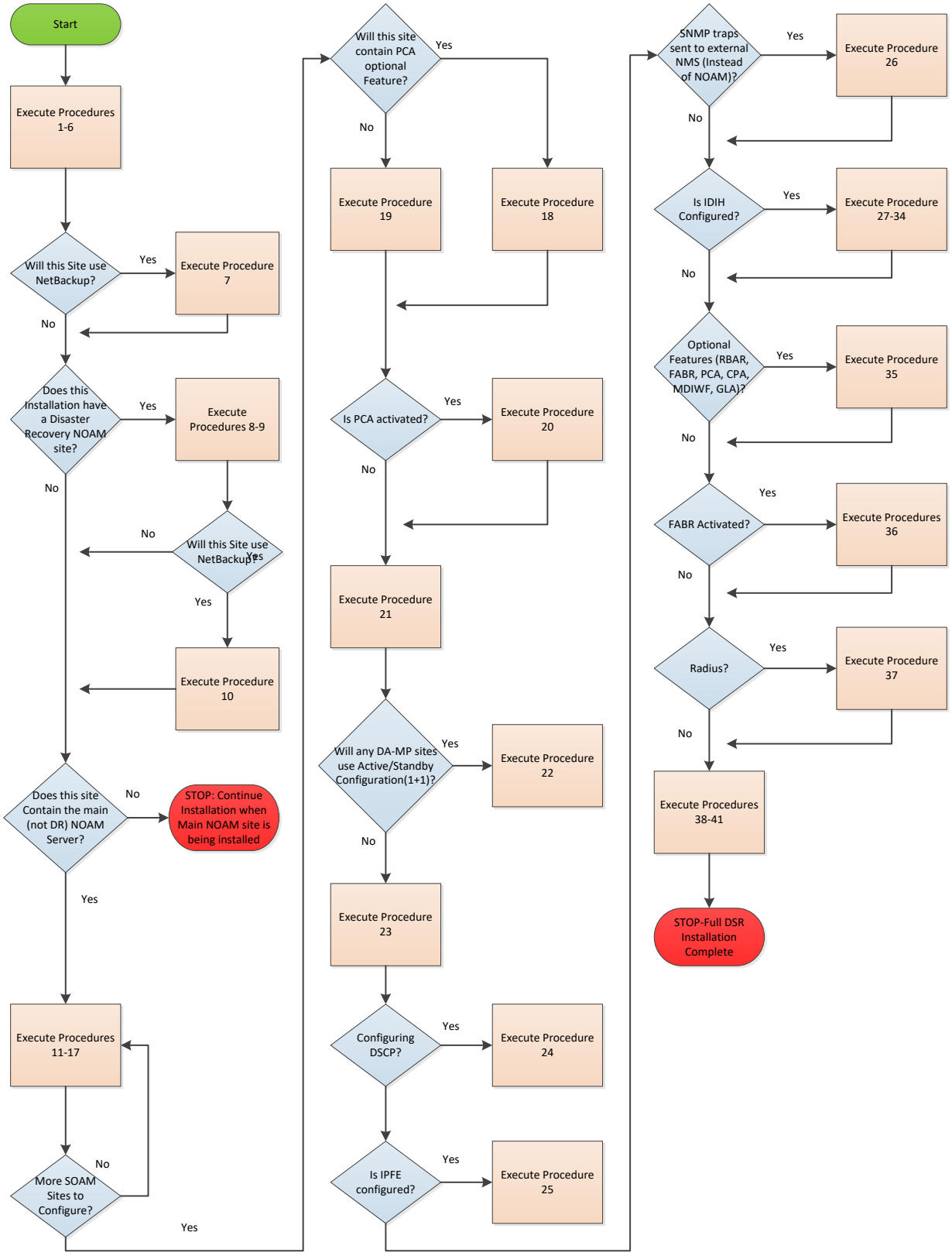


Figure 4 DSR Single Site Installation Procedure Map

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 (NOAM, SOAM, MPs of all types)
- DSR Auxiliary Components (OA, Switches, TVOE hosts, PMAC)

DSR application servers can be configured to:

1. Send all their SNMP traps to the NOAM via merging from their local SOAM. All traps will terminate at the NOAM and be viewable from the NOAM 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 NOAM GUI, near the end of DSR installation. See the procedure list for details.

DSR auxiliary components must have their SNMP trap destinations set explicitly. Trap destinations can be the NOAM VIP, the SOAMP VIP, or an external (customer) NMS. The recommended configuration is as follows:

The following components:

- PMAC (TVOE)
- PMAC (App)
- OAs
- All Switch types (4948, 3020, 6120.6125G)
- TVOE for DSR Servers

Should have their SNMP trap destinations set to:

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

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.

TABLE 2 OPTIONAL FEATURES

Feature	Document
Diameter Mediation	DSR Meta Administration Feature Activation Procedure, E58661
Policy and Charging Application (PCA)	DSR PCA Activation Guide, E81528
Diameter Custom Applications (DCA)	DCA Framework and Application Activation and Deactivation Guide, E76934
Full Address Based Resolution (FABR)	DSR FABR Feature Activation Procedure, E78925
Range Based Address Resolution (RBAR)	DSR RBAR Feature Activation Procedure, E78926
Map-Diameter Interworking (MAP-IWF)	DSR MAP-Diameter IWF Feature Activation Procedure, E78927
Gateway Location Application (GLA)	DSR GLA Feature Activation Procedure, E78946
Host Intrusion Detection System (HIDS)	DSR Security Guide, E76974 (Section 3.2)

4.0 SOFTWARE INSTALLATION PROCEDURE

As mentioned earlier, the hardware installation and network cabling should be done before executing the procedures in this document. It is assumed that at this point, the user has access to:

- ILO consoles of all server blades at all sites
- ssh access to the PMAC servers at all sites
- GUI access to PMAC servers at all sites
- A configuration station with a web browser, ssh client, and scp client.

SUDO

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

IPv6

Standard IPv6 formats for IPv6 and prefix can be used in all IP configuration screens which enable the DSR to be run in an IPv6 only environment. When using IPv6 for XMI and management, you must place the IPv6 address in brackets (highlighted in red below), example as followed:

```
https://[<IPv6 address>]
```

If a dual-stack (IPv4 & IPv6) network is required, it is recommended that you first configure the topology, and then "Migrate" to IPv6. Reference [6] for instructions on how to accomplish this IPv6 migration.

4.1 Install and Configure NOAM Servers

4.1.1 Load Application and TPD ISO onto the PMAC Server

Procedure 1: Load Application and TPD ISO onto PMAC Server

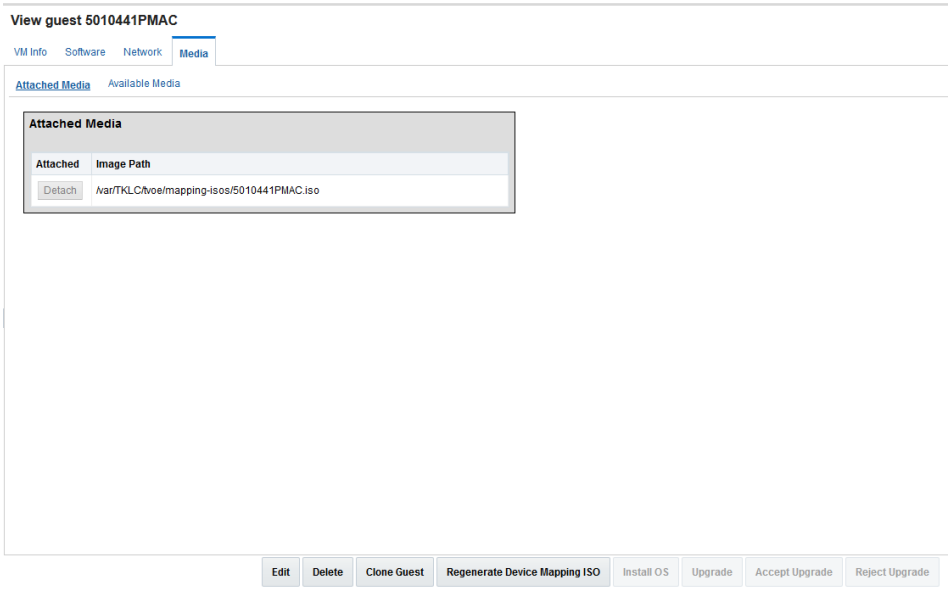
S T E P #		
	This procedure will load the DSR Application and TPD ISO into the PMAC Server **Needed material:** - Application Media Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contactAppendix P: My Oracle Support (MOS), and ask for assistance.	

1
☐
	TVOE Host: Load Application ISO	Add the Application ISO image to the PM&C, this can be done in one of three ways:
		1. Insert the Application CD required by the application into the removable media drive.
		2. Attach the USB device containing the ISO image to a USB port.
		3. Copy the Application iso file to the PM&C server into the **"/var/TKLC/smac/image/isoimages/home/smacftpusr**/" directory as pmacftpusr user:
		cd into the directory where your ISO image is located on the **TVOE Host** (*not on the PM&C server*)
		Using sftp, connect to the PM&C server
		`$ sftp pmacftpusr@<pmac_management_network_ip>`
		`$ put <image>.iso`
		After the image transfer is 100% complete, close the connection:
		`$ quit`

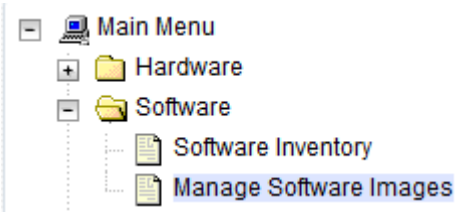
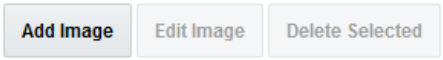
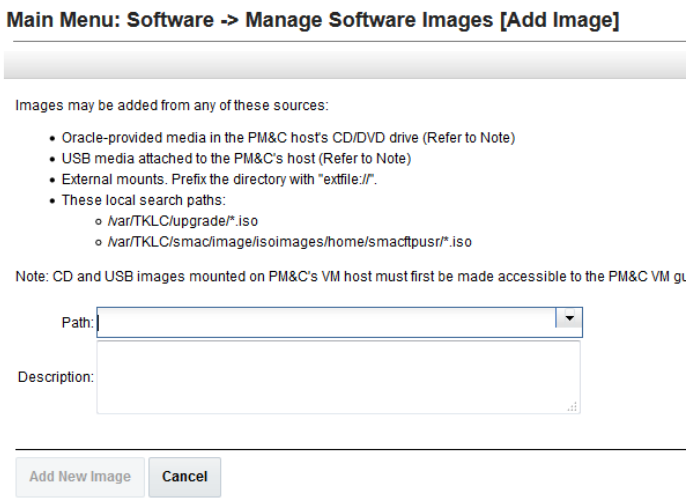
Procedure 1: Load Application and TPD ISO onto PMAC Server

2 ☐	**PMAC GUI:** Login	Open web browser and enter: `http://<PMAC_Mgmt_Network_IP>` Login as ***guiadmin*** user: 

Procedure 1: Load Application and TPD ISO onto PMAC Server

3 ☐	**PMAC GUI:** Attach the software Image to the PMAC Guest	If in Step 1 the ISO image was transferred directly to the PM&C guest via sftp, skip the rest of this step and continue with step 4. If the image is on a CD or USB device, continue with this step. In the PM&C GUI, navigate to **Main Menu -> VM Management.** Select the PMAC guest. On the resulting *"**View VM Guest**"* page, select the **Media** tab. Under the **Media** tab, find the ISO image in the *"**Available Media**"* list, and click its **Attach** button. After a pause, the image will appear in the *"**Attached Media**"* list. 

Procedure 1: Load Application and TPD ISO onto PMAC Server

4 ☐	**PMAC GUI:** Add Application Image	Navigate to **Main Menu -> Software -> Manage Software Images**  Press **Add Image** button. Use the drop down to select the image.  If the image was supplied on a CD or a USB drive, it will appear as a virtual device ***("device://...").*** These devices are assigned in numerical order as CD and USB images become available on the Management Server. The first virtual device is reserved for internal use by TVOE and PMAC; therefore, the iso image of interest is normally present on the second device, ***"device://dev/sr1".*** If one or more CD or USB-based images were already present on the Management Server before you started this procedure, choose a correspondingly higher device number. If in Step 1 the image was transferred to PMAC via sftp it will appear in the list as a local file ***"/var/TKLC/...".***  Select the appropriate path and Press **Add New Image** button. You may check the progress using the **Task Monitoring** link. Observe the green bar indicating success. Once the green bar is displayed, remove the DSR application Media from the optical drive of the management server.

Procedure 1: Load Application and TPD ISO onto PMAC Server

5 ☐	**PMAC GUI:** Load TPD ISO	If the TPD ISO hasn't been loaded onto the PMAC already, repeat **steps 1 through 4** to load it using the TPD media or ISO.

4.1.2 Execute DSR Fast Deployment for NOAMs

Procedure 2: Configure NOAM Servers

S T E P #		
	This procedure will extend the TVOE networking configuration on the First RMS server (if necessary), configure the networking on additional rack mount servers, create the NOAM VMs, and deploy the DSR and TPD images. **Prerequisite:** TVOE and PMAC (virtualized) have been installed on the First RMS Server as described in [7] Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P:** My Oracle Support **(MOS)**, and ask for assistance.	

1
☐
	TVOE Host (Not PMAC): Configure Control Network Bond for Back-Back Configurations	Establish an SSH session to the second RMS server via the control IP address accessed from the site PMAC. Login as ***admusr***.
		
		If the control network for the RMS servers consists of direct connections between the servers with no intervening switches (known as a "back-to-back" configuration), execute this step to set the primary interface of bond0 to <ethernet_interface_1>, otherwise **skip to the next step**
		
		Note: Section "*TVOE Network Configuration"* step 2 should have already been executed on the TVOE host which hosts the PMAC server.
		
		Note: The output below is for illustrative purposes only. The site information for this system will determine the network interfaces (network devices, bonds, and bond enslaved devices) to configure.
		
		`$ sudo /usr/TKLC/plat/bin/netAdm set --device=bond0 --primary=eth01`
		`Interface bond0 updated`

2 ☐	**PMAC Server:** Login	Establish an SSH session to the PMAC server, login as ***admusr***.

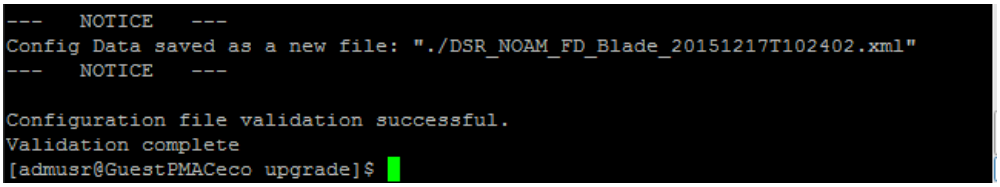
Procedure 2: Configure NOAM Servers

3 ☐	**PMAC Server:** Update the DSR Fast Deployment template (Part 1)	Perform the following command to navigate to the directory containing the DSR fast deployment template:
		
		`$ cd /usr/TKLC/smac/etc`
		
		DSR Fast Deployment Template Names:
		
		NOAM on Rack Mount Servers: DSR_NOAM_FD_RMS.xml
		NOAM on Blade Servers: DSR_NOAM_FD_Blade.xml
		
		Note: If the fast deployment template is not present, then please re-execute section "Setup PM&C" step 10, sub step C from [7].
		
		Update the following items within the Fast deployment xml:
		
		TPD and DSR ISO:
		
		<software>
		<!--Target TPD release Image here -->
		<image id="tpd">
		<name>TPD.install-7.0.2.0.0_86.34.0-OracleLinux6.6-x86_64</name>
		</image>
		<!--Target DSR release Image here -->
		<image id="dsr">
		<name>DSR-8.0.0.0_80.8.0-x86_64</name>
		</image>
		</software>
		
		Note: These are the images uploaded from Section 4.1.1 Load Application and TPD ISO onto the PMAC Server. Do **NOT** append '.iso' to the image name. To copy and paste the image name from the command line, issue the following command:
		
		`$ ls /var/TKLC/smac/image/repository`

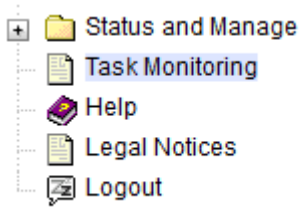
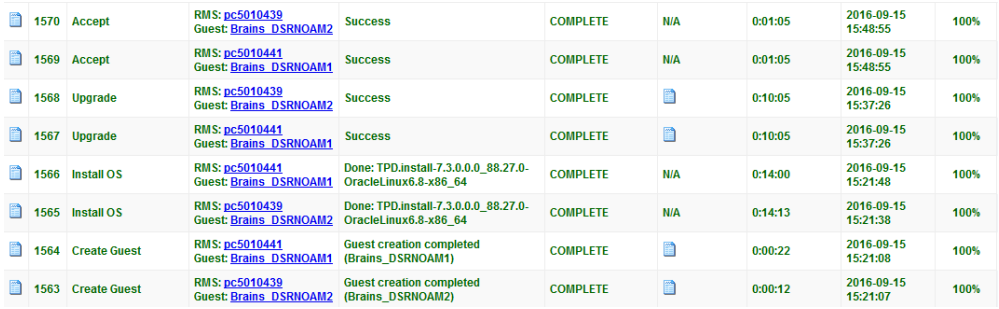
Procedure 2: Configure NOAM Servers

4 ☐	**PMAC Server:** Update the DSR Fast Deployment template for Bond 1 – Optional (Part 2)	**Bond 1 Creation:** **Skip this step if Bond1 will not be created** Uncommment the following items from **BOTH** tvoe host id=”NOAM1” and tvoe host id=”NOAM2” by removing the encapsulated ‘<!—‘ ‘-->’ brackets as highlighted below: Update the Ethernet interfaces that are to be enslaved by bond1. <!-- <tpdinterface id="bond1"> <device>bond1</device> <type>Bonding</type> <bonddata> <bondinterfaces><bond1_eth_interface1>,<bond1_eth_interface2></bondinterfaces> <bondopts>mode=active-backup,miimon=100</bondopts> </bonddata> <onboot>yes</onboot> <bootproto>none</bootproto> </tpdinterface> -->
5 ☐	**PMAC Server:** Update the DSR Fast Deployment template management/ xmi combination (Part 3)	**Only execute this step if your management network and xmi networks are combined, otherwise skip this step.** Modify the template to reflect the following on **BOTH** tvoe host id=”NOAM1” and tvoe host id=”NOAM2”: **Remove** the following stanzas: <mgmtbondinterface> <mgmtvlan> <mgmtsubnet> <mgmtdefaultgateway> <tpdinterface id=”management”> (and all sub elements) <tpdbridge id=”management”> (and all sub elements) **Replace** the following under <tpdroute id=”management_default”>: management with xmi for <device>management</device> $$mgmtdefaultgateway$$ with $$xmidefaultgateway$$ for <gateway>$$mgmtdefaultgateway$$</gateway> **Add** the following under <tpdbridge id=”xmi”>: <address><TVOE_Host_Server_XMI_IP></address> <netmask> $$xmisubnet$$</netmask>

Procedure 2: Configure NOAM Servers

6 ☐	**PMAC Server:** Validate and Run the Fast Deployment File	Validate/Create the fast deployment file by executing the following command:
		
		For NOAMs deployed on rack mount servers:
		
		`$ sudo fdconfig validate --file=DSR_NOAM_FD_RMS.xml`
		
		For NOAMs deployed on blade servers:
		
		`$ sudo fdconfig validate --file=DSR_NOAM_FD_Blade.xml`
		
		Note: Refer to **Appendix K**: DSR Fast Deployment Configuration for information of the variables that must be input during execution of NOAM fast deployment.
		
		If there were errors during validation, correct the errors within the xml file and re-run the validation.
		
		After successful validation, a new Fast deployment xml file is created:
		
		 
		`---  NOTICE  ---`
		`Config Data saved as a new file: "./DSR_NOAM_FD_Blade_20151217T102402.xml"`
		`---  NOTICE  ---`
		
		`Configuration file validation successful.`
		`Validation complete`
		`[admusr@GuestPMACeco upgrade]$`
		
		Execute the following commands to run the fast deployment file:
		
		`$ screen`
		
		`$ sudo fdconfig config --file=<Created_FD_File>.xml`
		
		Note: This is a long duration command. If the screen command was run prior to executing the fdconfig, perform a “screen -dr” to resume the screen session in the event of a terminal timeout etc.

Procedure 2: Configure NOAM Servers

7 ☐	**PMAC GUI:** Monitor the Configuration	If not already done so, establish a GUI session on the PMAC server. Navigate to **Main Menu -> Task Monitoring**  Monitor the DSR NOAM TVOE configuration to completion: 
8 ☐	**PMAC Server:** Backup FDC file	Create the fdc directory so that the NOAM fdc file is backed up by PMAC: Issue the following commands: Create the fdc backup directory: **$ sudo /bin/mkdir -p /usr/TKLC/smac/etc/fdc** Copy the fdc file to the fdc backup directory: **$ sudo cp /usr/TKLC/smac/etc/<fdc_file> /usr/TKLC/smac/etc/fdc/**

1570	Accept	RMS: pc5010439 Guest: Brains_DSRNOAM2	Success	COMPLETE	N/A	0:01:05	2016-09-15 15:48:55	100%
1569	Accept	RMS: pc5010441 Guest: Brains_DSRNOAM1	Success	COMPLETE	N/A	0:01:05	2016-09-15 15:48:55	100%
1568	Upgrade	RMS: pc5010439 Guest: Brains_DSRNOAM2	Success	COMPLETE		0:10:05	2016-09-15 15:37:26	100%
1567	Upgrade	RMS: pc5010441 Guest: Brains_DSRNOAM1	Success	COMPLETE		0:10:05	2016-09-15 15:37:26	100%
1566	Install OS	RMS: pc5010441 Guest: Brains_DSRNOAM1	Done: TPD.install-7.3.0.0.0_88.27.0-OracleLinux6.8-x86_64	COMPLETE	N/A	0:14:00	2016-09-15 15:21:48	100%
1565	Install OS	RMS: pc5010439 Guest: Brains_DSRNOAM2	Done: TPD.install-7.3.0.0.0_88.27.0-OracleLinux6.8-x86_64	COMPLETE	N/A	0:14:13	2016-09-15 15:21:38	100%
1564	Create Guest	RMS: pc5010441 Guest: Brains_DSRNOAM1	Guest creation completed (Brains_DSRNOAM1)	COMPLETE		0:00:22	2016-09-15 15:21:08	100%
1563	Create Guest	RMS: pc5010439 Guest: Brains_DSRNOAM2	Guest creation completed (Brains_DSRNOAM2)	COMPLETE		0:00:12	2016-09-15 15:21:07	100%

4.1.3 Configure NOAMs

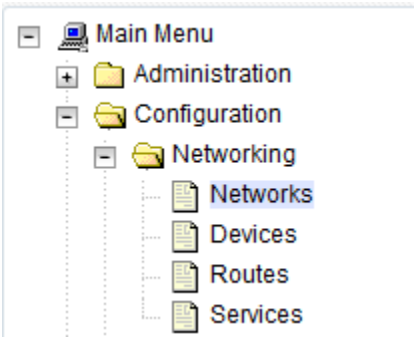
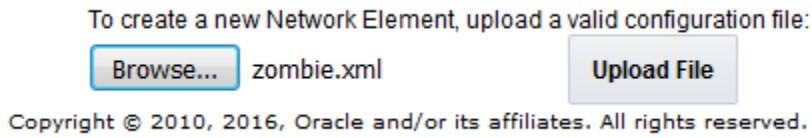
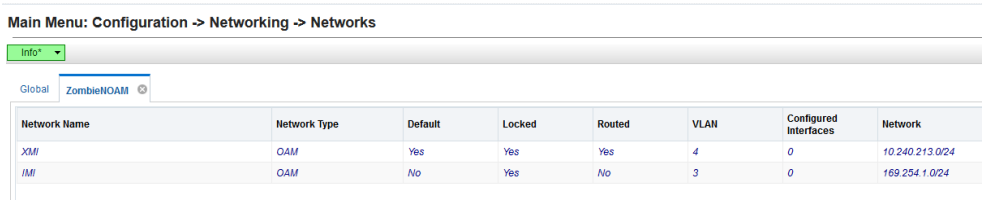
Procedure 3: Configure the First NOAM NE and Server

S T E P #	This procedure will provide the steps to configure the First NOAM server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P:** My Oracle Support **(MOS)**, and ask for assistance.	
1 ☐	**Save the NOAM Network Data to an XML file**	Using a text editor, create a NOAM Network Element file that describes the networking of the target install environment of your first NOAM server. Select an appropriate file name and save the file to a known location on your computer. A suggested filename format is ***"Appname_NEname_NetworkElement.XML"***, so for example a DSR2 NOAM network element XML file would have a filename ***"DSR2_NOAM_NetworkElement.xml"***. Alternatively, you can update the sample DSR Network Element file. It can be found on the management server at: `/usr/TKLC/smac/etc/SAMPLE-NetworkElement.xml` A sample XML file can also be found in **Appendix A**: Sample Network Element and Hardware Profiles. **Note:** The following limitations apply when specifying a Network Element name: A 1-32-character string. Valid characters are alphanumeric and underscore. Must contain at least one alpha and must not start with a digit.

Procedure 3: Configure the First NOAM NE and Server

2 ☐	**NOAM GUI:** Login	Using the xmi IP address configured in **procedure 2** ($NOAM1_xmi_IP_address) Login to the NOAM GUI as the ***guiadmin*** user: 

Procedure 3: Configure the First NOAM NE and Server

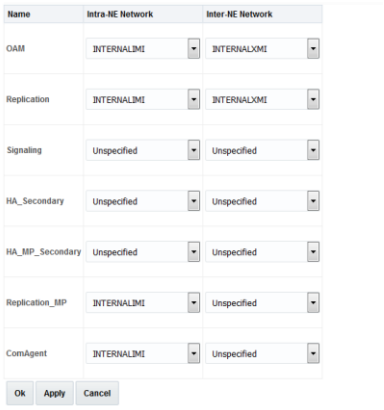
3 ☐	**Create the NOAM Network Element using the XML File**	Navigate to **Main Menu->Networking -> Networks**  Select the **Browse** button, and enter the pathname of the NOAM network XML file:  Select the **Upload File** button to upload the XML file and configure the NOAM Network Element. Once the data has been uploaded, you should see a tab appear with the name of your network element. Click on this tab and you will get a window which describes the individual networks that are now configured: 

Procedure 3: Configure the First NOAM NE and Server

4 ☐	**Map Services to Networks**	Navigate to **Main Menu ->Configuration-> Services.** Select the **Edit** button and set the Services as shown in the table below:

Name	Intra-NE Network	Inter-NE Network
OAM	**<IMI Network>**	**<XMI Network>**
Replication	**<IMI Network>**	**<XMI Network>**
Signaling	Unspecified	Unspecified
HA_Secondary	Unspecified	Unspecified
HA_MP_Secondary	Unspecified	Unspecified
Replication_MP	**<IMI Network>**	Unspecified
ComAgent	**<IMI Network>**	Unspecified

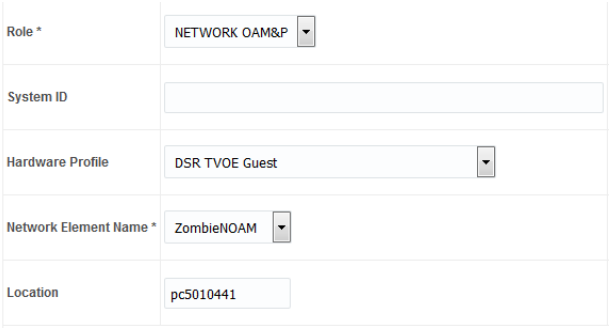
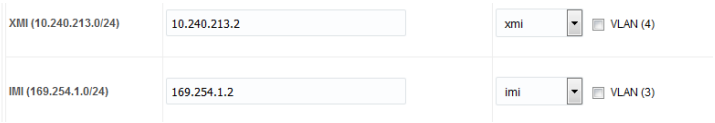
For example, if your IMI network is named **IMI** and your XMI network is named ***XMI,*** then your services should config should look like the following:



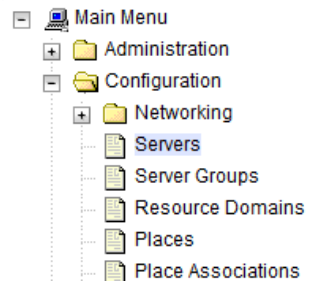
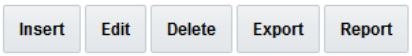
Select the **Ok** button to apply the Service-to-Network selections.

Press **Ok** for the following prompt to restart all servers.

Procedure 3: Configure the First NOAM NE and Server

5 ☐	**Insert the 1st NOAM server**	Navigate to **Main Menu -> Configuration -> Servers.** Select the **Insert** button to insert the new NOAM server into servers table (the first or server).  Fill in the fields as follows: **Hostname: <Hostname>** **Role: NETWORK OAM&P** **System ID: <Site System ID>** **Hardware Profile: DSR TVOE Guest** **Network Element Name: [Choose NE from Drop Down Box]** The network interface fields will now become available with selection choices based on the chosen hardware profile and network element  Fill in the server IP addresses for the XMI network. Select **xmi** for the interface. **Leave the "VLAN" checkbox unchecked**. **Note:** The xmi server IP must match '$NOAM1_xmi_IP_address' configured in Procedure 2 Fill in the server IP addresses for the IMI network. Select **imi** for the interface. **Leave the "VLAN" checkbox unchecked**. **Note:** The imi server IP must match '$NOAM1_imi_IP_address' configured in Procedure 2 Next, add the following NTP servers: **NTP Server** / **Preferred?** ***<TVOE_XMI_IP_Address(NO1)/ TVOE_Mgmt_IP_Address(NO1)>*** / Yes Select the **Ok** button when you have completed entering all the server data.

Procedure 3: Configure the First NOAM NE and Server

6 ☐	**Export the Initial Configuration**	Navigate to **Main Menu -> Configuration -> Servers.**  From the GUI screen, select the NOAM server and then select **Export** to generate the initial configuration data for that server. 
7 ☐	**NOAM:** Copy Configuration File to 1st NOAM Server	Establish an SSH session to the 1st NOAM server, logging in as the **admusr** user. Copy the configuration file created in the previous step from the /var/TKLC/db/filemgmt directory on the 1st NOAM to the /var/tmp directory. The configuration file will have a filename like TKLCConfigData.<***hostname***>.sh. The following is an example: `$ sudo cp /var/TKLC/db/filemgmt/TKLCConfigData.blade01.sh /var/tmp/TKLCConfigData.sh`
8 ☐	**NOAM:** 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. Wait to be prompted to reboot the server, but **DO NOT** reboot the server, it will be rebooted later on in this procedure. **Note**: Ignore the warning about removing the USB key, since no USB key is present. .

9 ☐	**NOAM:** Set the Time zone 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 time zones, see **Appendix G**: List of Frequently used Time Zones.
		`$ sudo /usr/TKLC/appworks/bin/set_ini_tz.pl "America/New_York"`
		`$ sudo init 6`

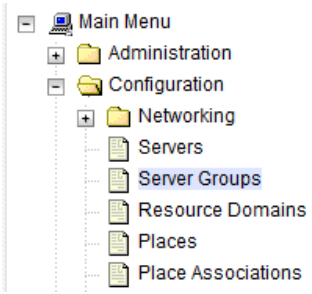
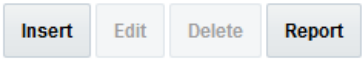
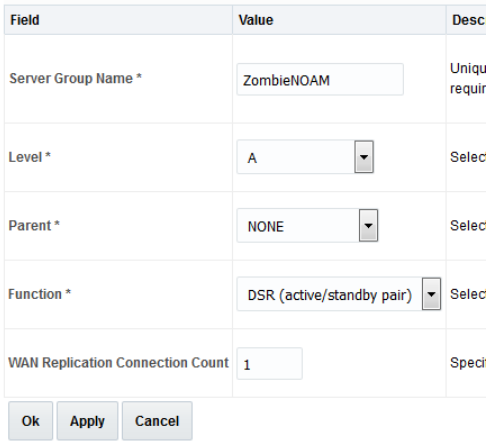
Procedure 3: Configure the First NOAM NE and Server

10 ☐	**1st NOAM:** Configure Networking for Dedicated NetBackup Interface (Optional)	**Note:** You will only execute this step if your NOAM is using a dedicated Ethernet interface for NetBackup. Obtain a terminal window to the 1st NOAM server, logging in as the ***admusr*** user. **$ sudo /usr/TKLC/plat/bin/netAdm set --device=NetBackup** **--type=Ethernet --onboot=yes** **--address=<NO1_NetBackup_IP_Adress>** **--netmask=<NO1_NetBackup_NetMask>** **$ sudo /usr/TKLC/plat/bin/netAdm add --route=net** **--device=netbackup --address=<NetBackup_Svr_Network_ID>** **--netmask=<NO1_NetBackup_NetMask>** **--gateway=<NO1_NetBackup_Gateway_IP_Address>**
11 ☐	**1st NOAM Server:** Verify Server Health	Execute the following command on the 1st NOAM server and make sure that no errors are returned: **$ sudo syscheck** Running modules in class hardware...OK Running modules in class disk...OK Running modules in class net...OK Running modules in class system...OK Running modules in class proc...OK LOG LOCATION: /var/TKLC/log/syscheck/fail_log

Procedure 4: Configure the NOAM Server Group

S T E P #	This procedure will provide the steps to configure the NOAM server group. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P:** My Oracle Support **(MOS)**, and ask for assistance.	
1 ☐	**NOAM GUI:** Login	Establish a GUI session on the first NOAM server by using the XMI IP address of the first NOAM server. Open the web browser and enter a URL of: `http://<NO1_XMI_IP_Address>` Login as the ***guiadmin*** user: 

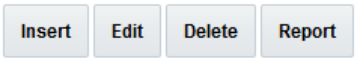
Procedure 4: Configure the NOAM Server Group

2 ☐	**NOAM GUI:** Enter NOAM Server Group Data	Navigate to **Main Menu** -> **Configuration** -> **Server Groups**  Select **Insert** and fill the following fields:  • **Server Group Name: <Enter Server Group Name>** • **Level: A** • **Parent : None** • **Function: DSR (Active/Standby Pair)** • **WAN Replication Connection Count: Use Default Value** **Adding new server group**  Select **OK** when all fields are filled in.

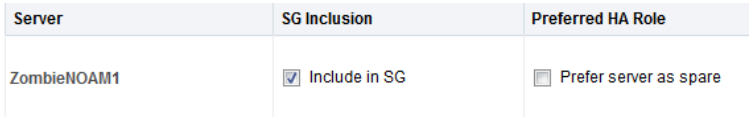
Procedure 4: Configure the NOAM Server Group

<table>
<tr>
<td>3
☐</td>
<td>NOAM GUI: Edit the NOAM Server Group</td>
<td>From the GUI Main Menu -> Configuration -> Server Groups.

Select the new server group, and then select Edit

Select the Network Element that represents the NOAM.

In the portion of the screen that lists the servers for the server group, find the NOAM server being configured.

Click the Include in SG checkbox.

Leave other boxes blank.

Press OK</td>
</tr>
<tr>
<td>4
☐</td>
<td>NOAM: Verify NOAM blade server role</td>
<td>From terminal window to the iLO of the first NOAM server, execute the following command:
$ha.mystate

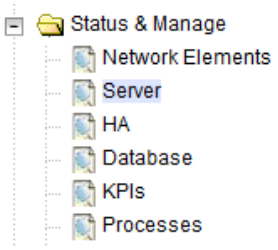
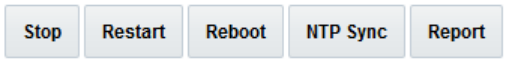
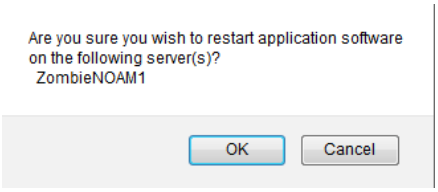
Verify that the DbReplication and VIP item under the resourceId column has a value of Active under the role column.

You might have to wait a few minutes for it to become in that state.

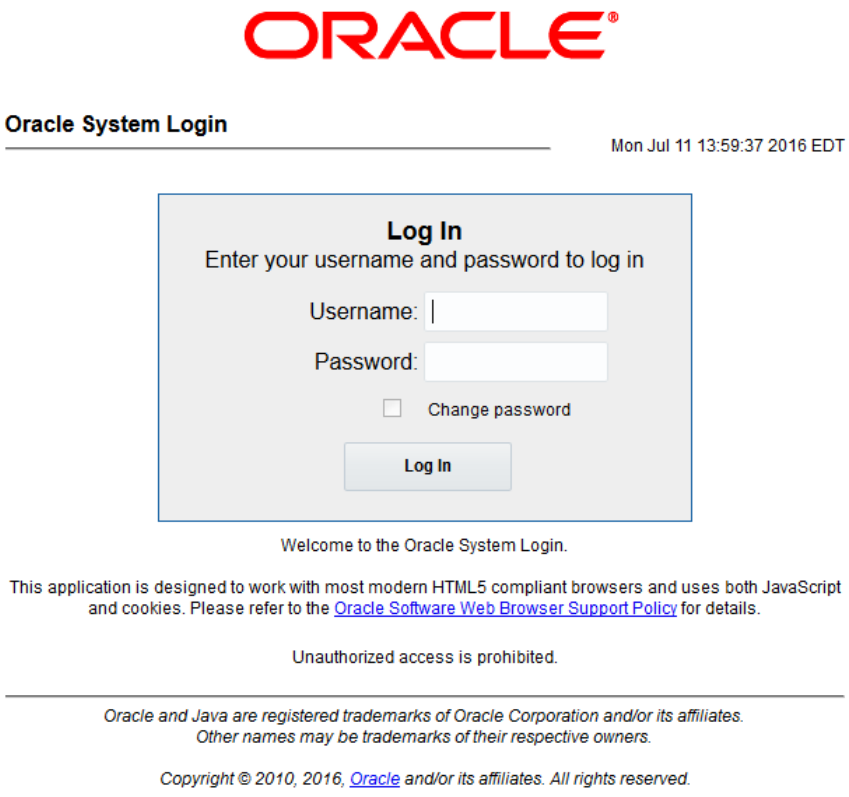
Example:

<pre>
[admusr@Jetta-NO-1 ~]$ ha.mystate
            resourceId   role   node   subResources   lastUpdate
         DbReplication Active   A1027.209   0 0316:161158.499
                   VIP Active   A1027.209   0 0316:161158.501
          pSbrBBaseRepl   OOS   A1027.209   0 0316:155546.074
        pSbrBindingRes   OOS   A1027.209   0 0316:155546.074
         pSbrSBaseRepl   OOS   A1027.209   0 0316:155546.075
        pSbrSessionRes   OOS   A1027.209   0 0316:155546.075
           PSBR_B_Proc   OOS   A1027.209   0 0316:155546.074
           PSBR_S_Proc   OOS   A1027.209   0 0316:155546.075
        CacdProcessRes Active   A1027.209   0 0316:161158.501
          DA_MP_Leader   OOS   A1027.209   0 0316:155546.071
               DSR_SLDB   OOS   A1027.209   0-63 0316:155546.071
             VIP_DA_MP   OOS   A1027.209   0-63 0316:155546.072
      EXGSTACK_Process   OOS   A1027.209   0-63 0316:155546.072
           DSR_Process   OOS   A1027.209   0-63 0316:155546.072
         CAPM_HELP_Proc   OOS   A1027.209   0 0316:155546.070
           DSROAM_Proc Active   A1027.209   0 0316:161158.497
         CAPM_PSFS_Proc   OOS   A1027.209   0 0316:155546.070
SS7_MP_Process_HA_Proc   OOS   A1027.209   0-63 0316:155546.073
        SS7_MP_Process   OOS   A1027.209   0-63 0316:155546.074
</pre>
</td>
</tr>
</table>

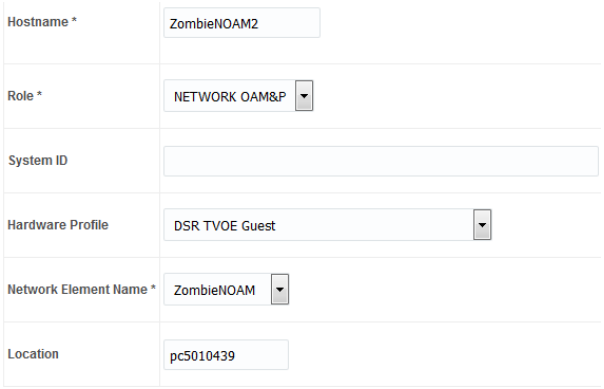
Procedure 4: Configure the NOAM Server Group

5 ☐	**NOAM GUI:** Restart NOAM Server	From the NOAM GUI, select the **Main menu** -> **Status & Manage** -> **Server** menu.  Select the NOAM server. Select the **Restart** button.  Answer **OK** to the confirmation popup.  Wait for restart to complete.

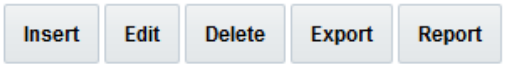
Procedure 5: Configure the Second NOAM Server

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

Procedure 5: Configure the Second NOAM Server

2 ☐	**NOAM GUI:** Insert the 2nd NOAM server	Navigate to **Main Menu -> Configuration -> Servers.** Select the **Insert** button to insert the 2nd NOAM server into servers table (the first or server).  Fill in the fields as follows: **Hostname: <Hostname>** **Role: NETWORK OAM&P** **System ID: <Site System ID>** **Hardware Profile: DSR TVOE Guest** **Network Element Name: [Choose NE from Drop Down Box]** The network interface fields will now become available with selection choices based on the chosen hardware profile and network element  Fill in the server IP addresses for the XMI network. Select **xmi** for the interface. **Leave the "VLAN" checkbox unchecked**. **Note:** The xmi server IP must match '$NOAM2_xmi_IP_address' configured in Procedure 2 Fill in the server IP addresses for the IMI network. Select **imi** for the interface. **Leave the "VLAN" checkbox unchecked**. **Note:** The imi server IP must match '$NOAM2_imi_IP_address' configured in Procedure 2 Next, add the following NTP servers: **NTP Server** | **Preferred?** ***<TVOE_XMI_IP_Address(NO2)/ TVOE_Mgmt_IP_Address(NO2)>*** | Yes Select the **Ok** button when you have completed entering all the server data.

Procedure 5: Configure the Second NOAM Server

3 ☐	**NOAM GUI:** Export the Initial Configuration	Navigate to **Main Menu -> Configuration -> Servers.** From the GUI screen, select the NOAM server and then select **Export** to generate the initial configuration data for that server. 
4 ☐	**1st NOAM Server:** Copy Configuration File to 2nd NOAM Server	Obtain a terminal session to the 1st NOAM as the ***admusr*** user. Execute the following command to configure the 2nd NOAM server: **$ sudo scp -r /var/TKLC/db/filemgmt/TKLCConfigData.<NOAM2_Hostname>.sh admusr@<NOAM2_xmi_IP_address>:/var/tmp/TKLCConfigData.sh**
5 ☐	**2nd NOAM Server:** Verify configuration was called and Reboot the Server	Establish an SSH session to the 2nd NOAM server (NOAM2_xmi_IP_address) Login as the ***admusr*** user. 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. Verify configuration was called by checking the following file **$ sudo cat /var/TKLC/appw/logs/Process/install.log** Verify the following message is displayed: `[SUCCESS] script completed successfully!` Now Reboot the Server: **$ sudo init 6** Wait for the server to reboot

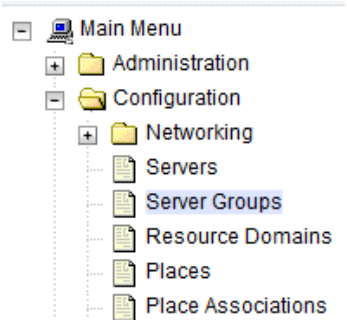
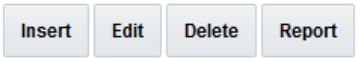
Procedure 5: Configure the Second NOAM Server

6 ☐	**2nd NOAM Server:** Configure Networking for Dedicated NetBackup Interface (Optional)	**Note:** You will only execute this step if your NOAM is using a dedicated Ethernet interface for NetBackup. Obtain a terminal window to the 2nd NOAM server, logging in as the ***admusr*** user. **$ sudo /usr/TKLC/plat/bin/netAdm set --device=netbackup** **--type=Ethernet --onboot=yes** **--address=<NO2_NetBackup_IP_Adress>** **--netmask=<NO2_NetBackup_NetMask>** **$ sudo /usr/TKLC/plat/bin/netAdm add --route=net** **--device=netbackup --address=<NetBackup_Svr_Network_ID>** **--netmask=<NO2_NetBackup_NetMask>** **--gateway=<NO2_NetBackup_Gateway_IP_Address>**
7 ☐	**2nd NOAM Server:** Verify Server Health	Execute the following command on the 2nd NOAM server and make sure that no errors are returned: **$ sudo syscheck** Running modules in class hardware...OK Running modules in class disk...OK Running modules in class net...OK Running modules in class system...OK Running modules in class proc...OK LOG LOCATION: /var/TKLC/log/syscheck/fail_log

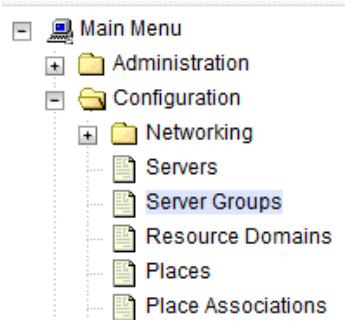
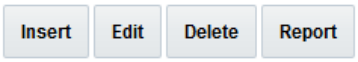
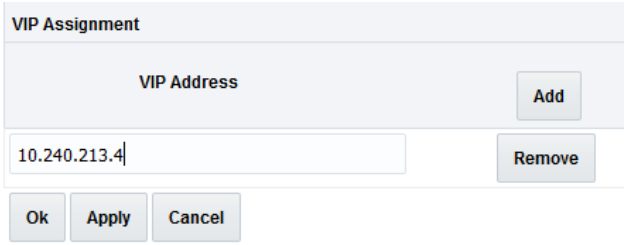
Procedure 6: Complete NOAM Server Group Configuration

S T E P #		
	This procedure will provide the steps to finish configuring the NOAM server group. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P:** My Oracle Support **(MOS)**, and ask for assistance.	
1 ☐	**NOAM GUI:** Login	Establish a GUI session on the first NOAM server by using the XMI IP address of the first NOAM server. Open the web browser and enter a URL of: `http://<NO1_XMI_IP_Address>` Login as the ***guiadmin*** user: 

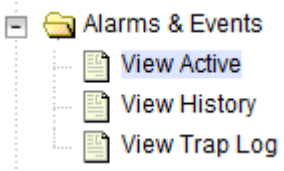
Procedure 6: Complete NOAM Server Group Configuration

2 ☐	**NOAM GUI:** Edit the NOAM Server Group Data	Navigate to **Main Menu->Configuration->Server Groups.**  Select the NOAM Server group and click on **Edit**  Add the 2nd NOAM server to the Server Group by clicking the ***Include in SG*** checkbox for the 2nd NOAM server.  Click **Apply.**

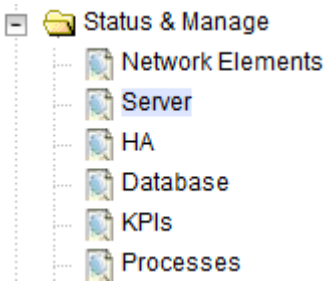
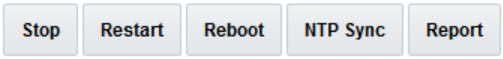
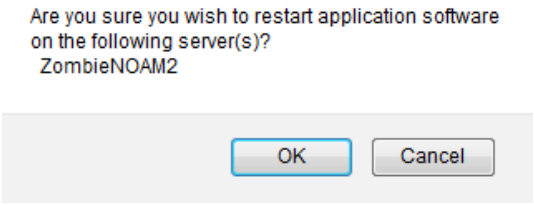
Procedure 6: Complete NOAM Server Group Configuration

3 ☐	**NOAM VIP:** Add VIP	Navigate to **Main Menu->Configuration->Server Groups.**  Select the NOAM Server group and click on **Edit**  Add a NOAM VIP by click on **Add.** Fill in the VIP Address and press **Ok** as shown below 

Procedure 6: Complete NOAM Server Group Configuration

4 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM by using the XMI VIP address: `http://<NOAM_VIP_IP_Address>` Login as user ***guiadmin*.** 
5 ☐	**NOAM VIP:** Wait for Remote Database Alarm to Clear	Wait for the alarm **Remote Database re-initialization in progress** to be cleared before proceeding. Navigate to **Main menu->Alarms & Events->View Active**  Wait for the alarm **Remote Database re-initialization in progress** to be cleared before proceeding.

Procedure 6: Complete NOAM Server Group Configuration

6 ☐	**NOAM GUI:** Restart 2nd NOAM Server	From the NOAM GUI, select the **Main menu** -> **Status & Manage** -> **Server** menu.  Select the 2nd NOAM server. Select the **Restart** button.  Answer **OK** to the confirmation popup.  Wait for restart to complete. Wait approximately 3-5 minutes before proceeding.

4.1.4 Install NetBackup Client (Optional)

Procedure 7: Install NetBackup Client

S T E P #	This procedure will download and install NetBackup Client software on the server. Location of the bpstart_notify and bpend_notify scripts is required for the execution of this procedure. For Appworks based applications the scripts are located as follows: - /usr/TKLC/appworks/sbin/bpstart_notify - /usr/TKLC/appworks/sbin/bpend_notify Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P:** My Oracle Support **(MOS)**, and ask for assistance.	
1 ☐	**Install NetBackup Client Software**	If a customer has a way of transferring and installing the net Backup client without the aid of TPD tools (push configuration) then use **Appendix H 2:** Note: This is not common. If the answer to the previous question is not known then use **Appendix H**
2 ☐	**Install NetBackup Client Software**	Choose the same method used in step 1 to install NetBackup on the 2nd NOAM.

4.2 Install and Configure DR-NOAM Servers (Optional)

4.2.1 Execute DSR Fast Deployment for DR-NOAMs

Procedure 8: NOAM Configuration for DR Site

S T E P #	This procedure will extend the TVOE networking configuration on the First DR-NOAM RMS server (if necessary), configure the networking on additional rack mount servers, create the DR-NOAM VMs, and deploy the DSR and TPD images. **Prerequisite:** TVOE and PMAC (virtualized) have been installed on the First DR-NOAM RMS Server as described in [7] Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P:** My Oracle Support **(MOS)**, and ask for assistance.	
1 ☐	**PMAC Server:** Login	Establish an SSH session to the PMAC server, login as ***admusr***.

Procedure 8: NOAM Configuration for DR Site

2 ☐	**PMAC Server:** Update the DSR Fast Deployment template	Perform the following command to navigate to the directory containing the DSR fast deployment template:
		
		`$ cd /usr/TKLC/smac/etc`
		
		DSR Fast Deployment Template Names:
		
		NOAM on Rack Mount Servers: DSR_NOAM_FD_RMS.xml
		NOAM on Blade Servers: DSR_NOAM_FD_Blade.xml
		
		Note: If the fast deployment template is not present, then please re-execute section "Setup PM&C" step 10, sub step C from [7].
		
		Update the following items within the Fast deployment xml:
		
		TPD and DSR ISO:
		
		<software>
		<!--Target TPD release Image here -->
		<image id="tpd">
		<name>TPD.install-7.0.2.0.0_86.34.0-OracleLinux6.6-x86_64</name>
		</image>
		<!--Target DSR release Image here -->
		<image id="dsr">
		<name>DSR-8.0.0.0_72.8.0-x86_64</name>
		</image>
		</software>
		
		Note: These are the images uploaded from Section 4.1.1 Load Application and TPD ISO onto the PMAC Server. Do **NOT** append '.iso' to the image name. To copy and paste the image name from the command line, issue the following command:
		
		`$ ls /var/TKLC/smac/image/repository`
		
		Bond 1 Creation:
		Skip this step if Bond1 will not be created
		
		Uncomment the following items from **BOTH** tvoe host id="NOAM1" and tvoe host id="NOAM2" by removing the encapsulated '<!—' '-->' brackets as highlighted below:
		
		Update the Ethernet interfaces that are to be enslaved by bond1.
		
		<!--
		<tpdinterface id="bond1">
		<device>bond1</device>
		<type>Bonding</type>
		<bonddata>
		<bondinterfaces><bond1_eth_interface1>,<bond1_eth_interface2></bondinterfaces>
		<bondopts>mode=active-backup,miimon=100</bondopts>
		</bonddata>
		<onboot>yes</onboot>
		<bootproto>none</bootproto>
		</tpdinterface>
		-->

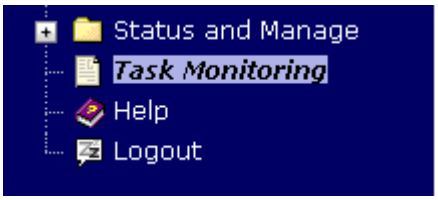
Procedure 8: NOAM Configuration for DR Site

3 ☐	**PMAC Server:** Update the DSR Fast Deployment template management/ xmi combination (Part 3)	**Only execute this step if your management network and xmi networks are combined, otherwise skip this step.** Modify the template to reflect the following on **BOTH** tvoe host id=”NOAM1” and tvoe host id=”NOAM2”: **Remove** the following stanzas: <mgmtbondinterface> <mgmtvlan> <mgmtsubnet> <mgmtdefaultgateway> <tpdinterface id=”management”> (and all sub elements) <tpdbridge id=”management”> (and all sub elements) **Replace** the following under <tpdroute id=”management_default”>: management with xmi for <device>management</device> $$mgmtdefaultgateway$$ with $$xmidefaultgateway$$ for <gateway>$$mgmtdefaultgateway$$</gateway> **Add** the following under <tpdbridge id=”xmi”>: <address><TVOE_Host_Server_XMI_IP></address> <netmask> $$xmisubnet$$</netmask>

Procedure 8: NOAM Configuration for DR Site

4 ☐	**PMAC Server:** Validate and Run the Fast Deployment File	Validate/Create the fast deployment file by executing the following command:
		
		For NOAMs deployed on rack mount servers:
		
		`$ sudo fdconfig validate --file=DSR_NOAM_FD_RMS.xml`
		
		For NOAMs deployed on blade servers:
		
		`$ sudo fdconfig validate --file=DSR_NOAM_FD_Blade.xml`
		
		Note: Refer to **Appendix K**: DSR Fast Deployment Configuration for information of the variables that must be input during execution of the NOAM fast deployment.
		
		If there were errors during validation, correct the errors within the xml file and re-run the validation.
		
		After successful validation, a new Fast deployment xml file is created:
		
		`---  NOTICE  ---`
		`Config Data saved as a new file: "./DSR_NOAM_FD_Blade_20151217T102402.xml"`
		`---  NOTICE  ---`
		
		`Configuration file validation successful.`
		`Validation complete`
		`[admusr@GuestPMACeco upgrade]$`
		
		Execute the following commands to run the fast deployment file:
		
		`$ screen`
		
		`$ sudo fdconfig config --file=<Created_FD_File>.xml`
		
		Note: This is a long duration command. If the screen command was run prior to executing the fdconfig, perform a “screen -dr” to resume the screen session in the event of a terminal timeout etc.

Procedure 8: NOAM Configuration for DR Site

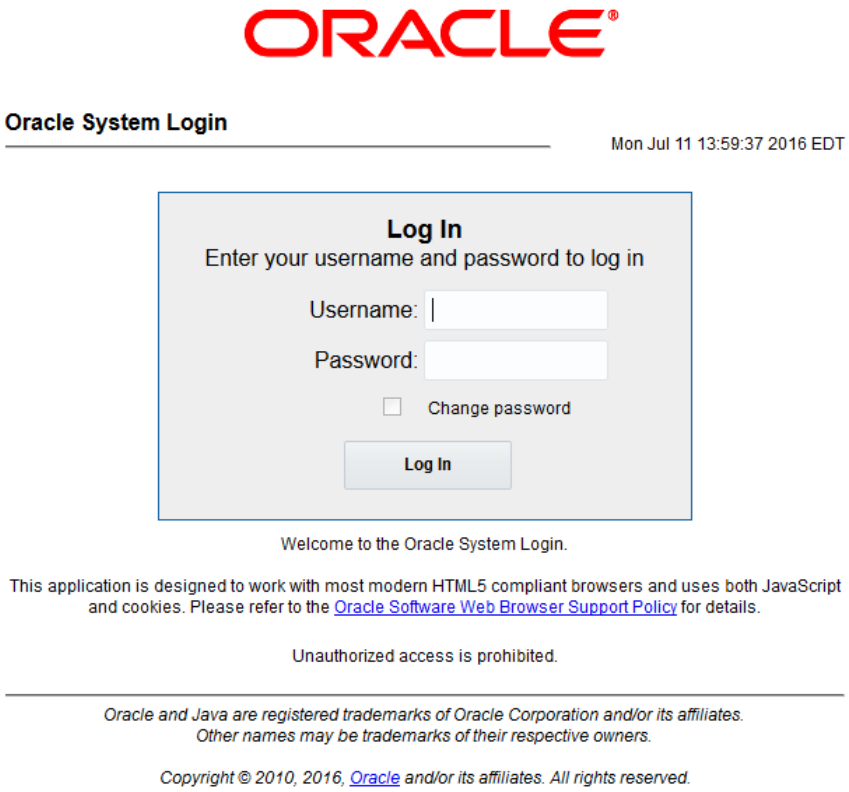
<table>
<tr>
<td>5
☐</td>
<td>PMAC GUI:
Monitor the Configuration</td>
<td>If not already done so, establish a GUI session on the PMAC server.
Navigate to Main Menu -> Task Monitoring
 

Monitor the DSR NOAM TVOE configuration to completion:
<table>
<tr><td>1570</td><td>Accept</td><td>RMS: pc5010439
Guest: Brains_DSRNOAM2</td><td>Success</td><td>COMPLETE</td><td>N/A</td><td>0:01:05</td><td>2016-09-15 15:48:55</td><td>100%</td></tr>
<tr><td>1569</td><td>Accept</td><td>RMS: pc5010441
Guest: Brains_DSRNOAM1</td><td>Success</td><td>COMPLETE</td><td>N/A</td><td>0:01:05</td><td>2016-09-15 15:48:55</td><td>100%</td></tr>
<tr><td>1568</td><td>Upgrade</td><td>RMS: pc5010439
Guest: Brains_DSRNOAM2</td><td>Success</td><td>COMPLETE</td><td></td><td>0:10:05</td><td>2016-09-15 15:37:26</td><td>100%</td></tr>
<tr><td>1567</td><td>Upgrade</td><td>RMS: pc5010441
Guest: Brains_DSRNOAM1</td><td>Success</td><td>COMPLETE</td><td></td><td>0:10:05</td><td>2016-09-15 15:37:26</td><td>100%</td></tr>
<tr><td>1566</td><td>Install OS</td><td>RMS: pc5010441
Guest: Brains_DSRNOAM1</td><td>Done: TPD.install-7.3.0.0.0_88.27.0-OracleLinux6.8-x86_64</td><td>COMPLETE</td><td>N/A</td><td>0:14:00</td><td>2016-09-15 15:21:48</td><td>100%</td></tr>
<tr><td>1565</td><td>Install OS</td><td>RMS: pc5010439
Guest: Brains_DSRNOAM2</td><td>Done: TPD.install-7.3.0.0.0_88.27.0-OracleLinux6.8-x86_64</td><td>COMPLETE</td><td>N/A</td><td>0:14:13</td><td>2016-09-15 15:21:38</td><td>100%</td></tr>
<tr><td>1564</td><td>Create Guest</td><td>RMS: pc5010441
Guest: Brains_DSRNOAM1</td><td>Guest creation completed (Brains_DSRNOAM1)</td><td>COMPLETE</td><td></td><td>0:00:22</td><td>2016-09-15 15:21:08</td><td>100%</td></tr>
<tr><td>1563</td><td>Create Guest</td><td>RMS: pc5010439
Guest: Brains_DSRNOAM2</td><td>Guest creation completed (Brains_DSRNOAM2)</td><td>COMPLETE</td><td></td><td>0:00:12</td><td>2016-09-15 15:21:07</td><td>100%</td></tr>
</table>
</td>
</tr>
<tr>
<td>6
☐</td>
<td>PMAC Server:
Backup FDC file</td>
<td>Create the fdc directory so that the NOAM fdc file is backed up by PMAC:
Issue the following commands:
Create the fdc backup directory:
<code>$ sudo /bin/mkdir -p /usr/TKLC/smac/etc/fdc</code>
Copy the fdc file to the fdc backup directory:
<code>$ sudo cp /usr/TKLC/smac/etc/<fdc_file> /usr/TKLC/smac/etc/fdc/</code></td>
</tr>
</table>

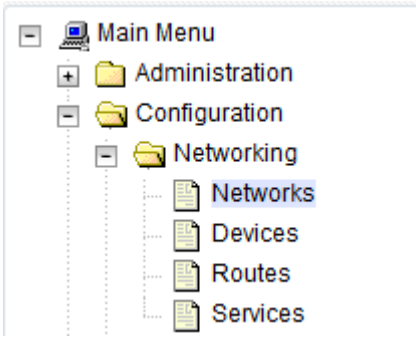
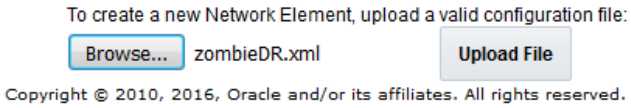
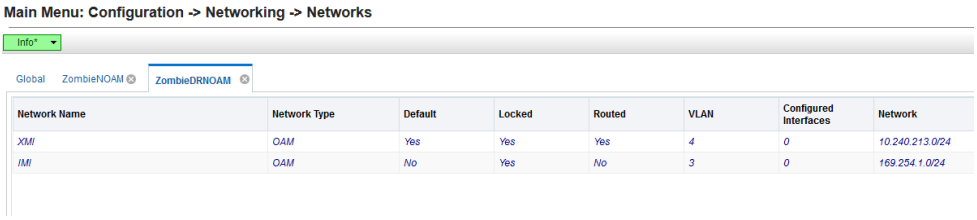
Procedure 8: NOAM Configuration for DR Site

7 ☐	**Save the DR-NOAM Network Data to an XML file**	Using a text editor, create a DR-NOAM Network Element file that describes the networking of the target install environment of your first DR-NOAM server. Select an appropriate file name and save the file to a known location on your computer. A suggested filename format is ***"Appname_NEname_NetworkElement.XML"***, so for example a DSR2 NOAM network element XML file would have a filename ***"DSR2_NOAM_NetworkElement.xml"***. Alternatively, you can update the sample DSR Network Element file. It can be found on the management server at: `/usr/TKLC/smac/etc/SAMPLE-NetworkElement.xml` A sample XML file can also be found in **Appendix A**: Sample Network Element and Hardware Profiles. **Note:** The following limitations apply when specifying a Network Element name: A 1-32-character string. Valid characters are alphanumeric and underscore. Must contain at least one alpha and must not start with a digit.

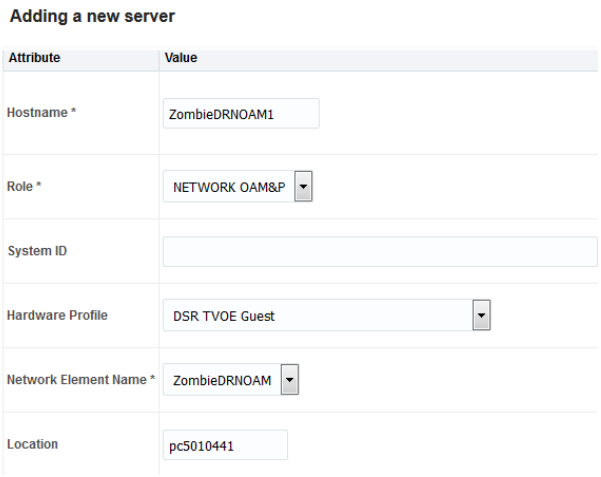
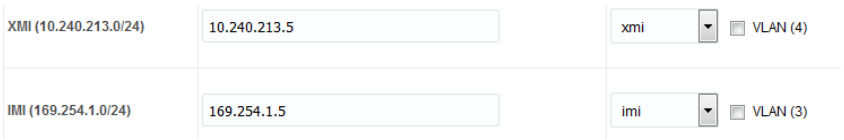
Procedure 8: NOAM Configuration for DR Site

8 ☐	**PRIMARY NOAM VIP GUI:** Login	Establish a GUI session on the NOAM server by using the XMI VIP IP address. Open the web browser and enter a URL of: `http://<NOAM_XMI_VIP_IP_Address>` Login as the ***guiadmin*** user: 

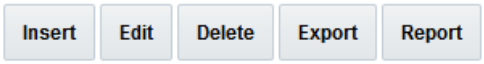
Procedure 8: NOAM Configuration for DR Site

9 ☐	**PRIMARY NOAM VIP GUI:** Insert the DR NOAM Network Element	Navigate to **Main Menu->Configuration->Network Elements**  Select the **Browse** button, and enter the pathname of the DR-NOAM network XML file:  Select the **Upload File** button to upload the XML file and configure the DR-NOAM Network Element. Once the data has been uploaded, you should see a tab appear with the name of your network element. Click on this tab and you will get a window which describes the individual networks that are now configured: 

Procedure 8: NOAM Configuration for DR Site

10 ☐	**PRIMARY NOAM VIP GUI:** Insert the 1st DR-NOAM server	Navigate to **Main Menu -> Configuration -> Servers.** Select the **Insert** button to insert the new DR-NOAM server into servers table.  Fill in the fields as follows: **Hostname: <Hostname>** **Role: NETWORK OAM&P** **System ID: <Site System ID>** **Hardware Profile: DSR TVOE Guest** **Network Element Name: [Choose NE from Drop Down Box]** The network interface fields will now become available with selection choices based on the chosen hardware profile and network element  Fill in the server IP addresses for the XMI network. Select **xmi** for the interface. **Leave the "VLAN" checkbox unchecked**. **Note:** The xmi server IP must match '$DR-NOAM_xmi_IP_address' configured in step 2 Fill in the server IP addresses for the IMI network. Select **imi** for the interface. **Leave the "VLAN" checkbox unchecked**. **Note:** The imi server IP must match '$DR-NOAM_xmi_IP_address' configured in Step 2 Next, add the following NTP servers: **NTP Server** | **Preferred?** **<TVOE_XMI_IP_Address(DR-NO1)/ TVOE_Mgmt_IP_Address(DR-NO1)>** | Yes Select the **Ok** button when you have completed entering all the server data.

Procedure 8: NOAM Configuration for DR Site

11 ☐	**PRIMARY NOAM VIP GUI:** Export the Initial Configuration	Navigate to **Main Menu -> Configuration -> Servers.** From the GUI screen, select the DR-NOAM server and then select **Export** to generate the initial configuration data for that server. 
12 ☐	**1st NOAM Server:** Copy Configuration File to DR-NOAM NOAM Server	Obtain a terminal session to the primary NOAM as the ***admusr*** user. Execute the following command to configure the DR-NOAM server: **$ sudo scp -r /var/TKLC/db/filemgmt/TKLCConfigData.<DR-NOAM_Hostname>.sh admusr@<DR-NOAM_xmi_IP_address>:/var/tmp/TKLCConfigData.sh**
13 ☐	**1st DR-NOAM Server:** Verify configuration was called and Reboot the Server	Establish an SSH session to the DR-NOAM server (DR-NOAM_xmi_IP_address) Login as the ***admusr*** user. 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. Verify configuration was called by checking the following file **$ sudo cat /var/TKLC/appw/logs/Process/install.log** Verify the following message is displayed: `[SUCCESS] script completed successfully!` Now Reboot the Server: **$ sudo init 6** Wait for the server to reboot

Procedure 8: NOAM Configuration for DR Site

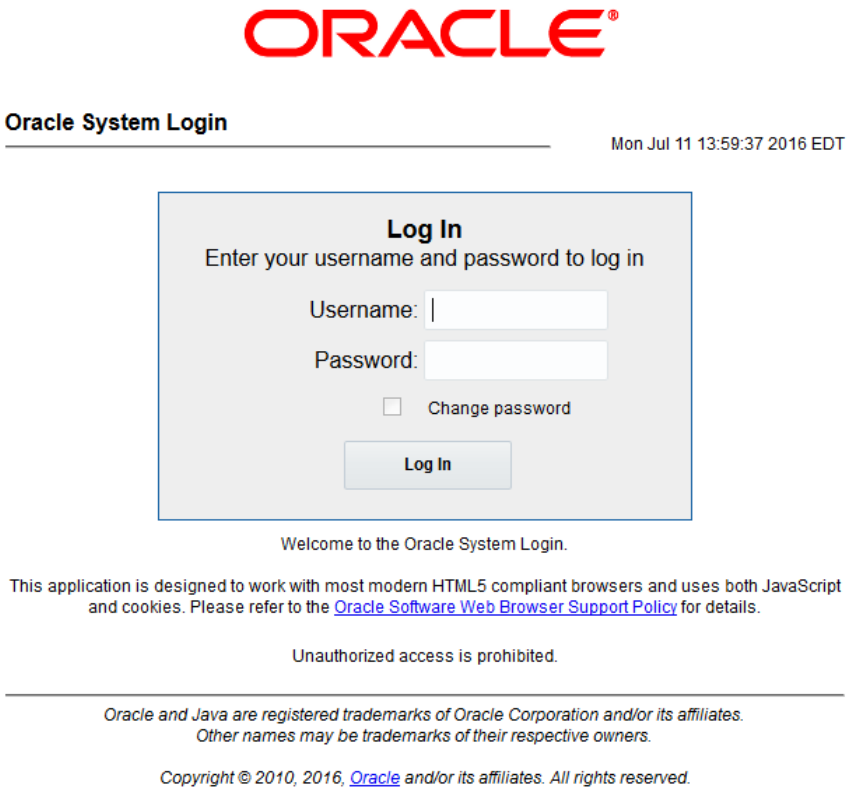
14 ☐	**1st DR-NOAM:** Configure Networking for Dedicated NetBackup Interface (Optional)	**Note:** You will only execute this step if your DR-NOAM is using a dedicated Ethernet interface for NetBackup.
		
		Obtain a terminal window to the 1st DR-NOAM server, logging in as the ***admusr*** user.
		
		`$ sudo /usr/TKLC/plat/bin/netAdm set --device=netbackup --type=Ethernet --onboot=yes --address=<NO1_NetBackup_IP_Adress> --netmask=<NO1_NetBackup_NetMask>`
		
		`$ sudo /usr/TKLC/plat/bin/netAdm add --route=net --device=netbackup --address=<NetBackup_Svr_Network_ID> --netmask=<NO1_NetBackup_NetMask> --gateway=<NO1_NetBackup_Gateway_IP_Address>`

15 ☐	**1st DR-NOAM Server:** Verify Server Health	Execute the following command on the 1st DR-NOAM server and make sure that no errors are returned:
		
		`$ sudo syscheck`
		`Running modules in class hardware...OK`
		`Running modules in class disk...OK`
		`Running modules in class net...OK`
		`Running modules in class system...OK`
		`Running modules in class proc...OK`
		`LOG LOCATION: /var/TKLC/log/syscheck/fail_log`

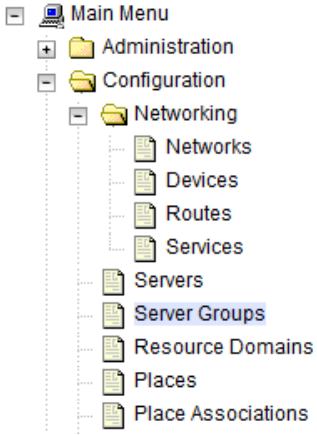
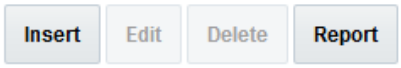
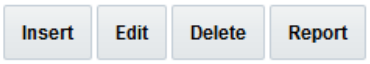
16 ☐	**Repeat for 2nd DR NOAM Server**	Repeat **Steps 7 through 12** to configure 2nd DR-NOAM Server. When inserting the 2nd DR-NOAM server, change the NTP server address to the following: **NTP Server**: ***<TVOE_XMI_IP_Address(DR-NO2)/ TVOE_Mgmt_IP_Address(DR-NO2)>*** **Preferred?**: Yes

4.2.2 Pairing DR-NOAMs

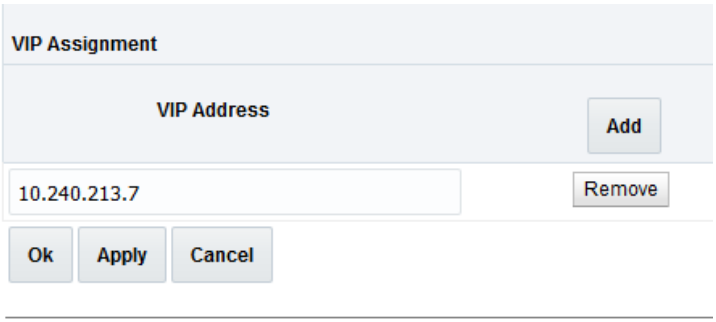
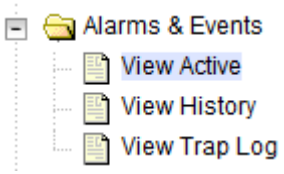
Procedure 9: Pairing for DR-NOAM site (Optional)

S T E P #	This procedure will provide the steps to pair the DR-NOAM site. **Prerequisite**: Installation for DR-NOAM Site complete Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P:** My Oracle Support **(MOS)**, and ask for assistance.	
1 ☐	**Primary NOAM VIP GUI:** Login	Establish a GUI session on the primary NOAM server by using the VIP IP address of the primary NOAM server. Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login as the ***guiadmin*** user: 

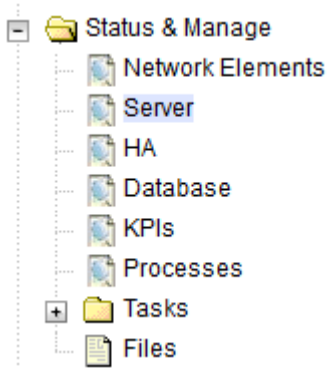
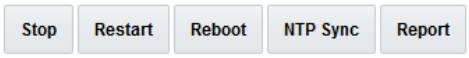
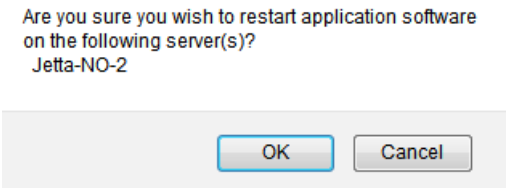
Procedure 9: Pairing for DR-NOAM site (Optional)

2 ☐	**Primary NOAM VIP GUI**: Enter DR-NOAM Server Group Data	Navigate to **Main Menu** -> **Configuration** -> **Server Groups**  Select **Insert** and fill the following fields:  • **Server Group Name: <Enter Server Group Name>** • **Level: A** • **Parent : None** • **Function: DSR (Active/Standby Pair)** • **WAN Replication Connection Count: Use Default Value** Select **OK** when all fields are filled in.
3 ☐	**Primary NOAM VIP GUI**: Update Server Group	Select the **Server Group** that was created in the previous step, and click on **Edit**.  The user will be presented with the **Server Groups [Edit]** screen Check the checkbox labeled **Include in SG** for **both** DR-NOAM Servers as shown below and click on **Apply** 

Procedure 9: Pairing for DR-NOAM site (Optional)

4 ☐	**Primary NOAM VIP GUI**: Add DR-NOAM VIP	Click the **Add** dialogue button for the VIP Address and enter an IP Address for the VIP as shown below  Then click the **Apply** dialogue button. Verify that the banner information message states **Data committed**.
5 ☐	**Primary NOAM VIP GUI**: Wait for Remote Database Alarm to Clear	Wait for the alarm **Remote Database re-initialization in progress** to be cleared before proceeding. Navigate to **Main menu->Alarms & Events->View Active**  Wait for the alarm **Remote Database re-initialization in progress** to be cleared before proceeding.

Procedure 9: Pairing for DR-NOAM site (Optional)

6 ☐	**Primary NOAM VIP GUI**: Restart 1st DR-NOAM Server	From the NOAM GUI, select the **Main menu** -> **Status & Manage** -> **Server** menu.  Select the 1st DR-NOAM server. Select the **Restart** button.  Answer **OK** to the confirmation popup.  Wait for restart to complete. Wait approximately 3-5 minutes before proceeding.
7 ☐	**Primary NOAM VIP GUI** :Restart the application on the 2nd DR-NOAM Server	Repeat Step 6, but this time selecting 2nd DR-NOAM Server.

8 ☐	**Primary NOAM:** Modify DSR OAM process	Establish an SSH session to the primary NOAM, login as ***admusr***.
		Execute the following commands:
		Retrieve the cluster ID of the DR-NOAM:
		$ sudo iqt -fClusterID TopologyMapping where "NodeID='<DR_NOAM_Host_Name>'"
		`Server_ID NodeID ClusterID`
		`1 Oahu-DSR-DR-NOAM-2 A1055`
		Execute the following command to start the DSR OAM process on the DR-NOAM:
		$ echo "<clusterID>|DSROAM_Proc|Yes" | iload -ha -xun -fcluster -fresource -foptional HaClusterResourceCfg

4.2.3 Install NetBackup Client (Optional)

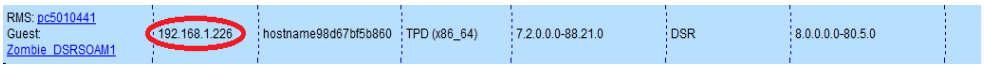
Procedure 10: Install NetBackup Client

S T E P #	This procedure will download and install NetBackup Client software on the server. Location of the bpstart_notify and bpend_notify scripts is required for the execution of this procedure. For Appworks based applications the scripts are located as follows: - /usr/TKLC/appworks/sbin/bpstart_notify - /usr/TKLC/appworks/sbin/bpend_notify Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P:** My Oracle Support **(MOS)**, and ask for assistance.	
1 ☐	**Install NetBackup Client Software**	If a customer has a way of transferring and installing the net Backup client without the aid of TPD tools (push configuration) then use **Appendix H 2**: Note: This is not common. If the answer to the previous question is not known then use **Appendix H.1**: NETBACKUP CLIENT INSTALL USING PLATCFG
2 ☐	**Install NetBackup Client Software**	Choose the same method used in step 1 to install NetBackup on the 2nd NOAM.

4.3 Install and Configure SOAM Servers

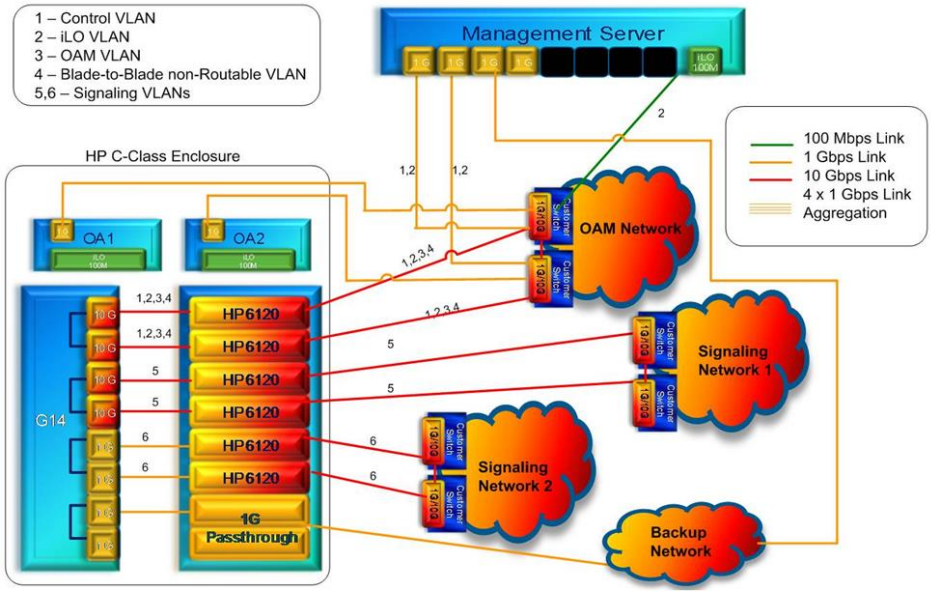
4.3.1 Configure SOAM TVOE Server Blades

Procedure 11: Configure SOAM TVOE Server Blades

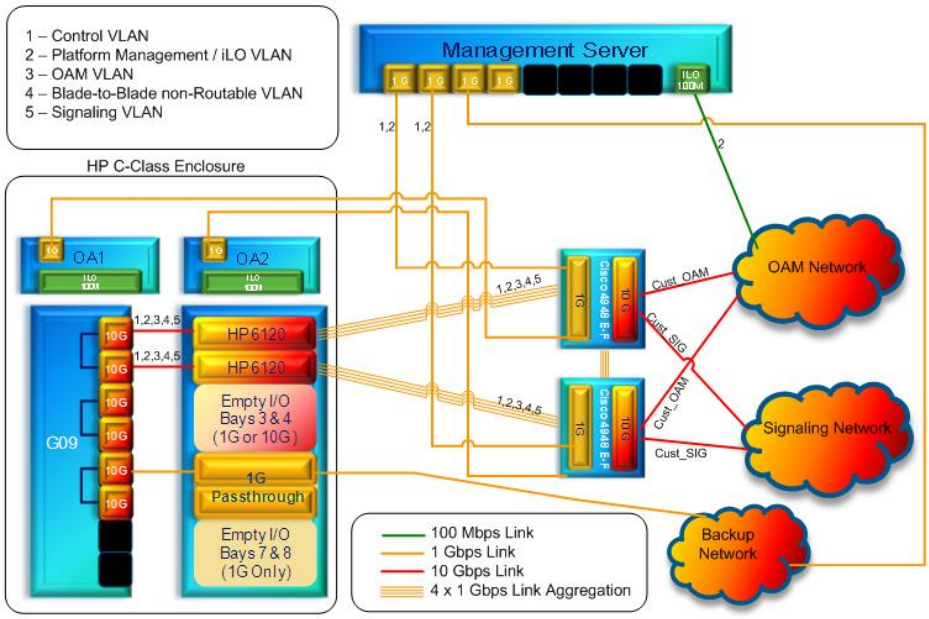
S T E P #		
	This procedure will configure TVOE on the server blades that will host DSR SOAM VMs. It details the configuration for a single server blade and should be repeated for every TVOE blade that was IPM-ed for this install. **NOTE:** TVOE should only be installed on Blade servers that will run as DSR SOAMs. They should NOT be installed on Blade servers intended to run as DSR MPs. **Prerequisite**: TVOE OS has been installed on the target server blades as per instructions in [7] Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P:** My Oracle Support **(MOS)**, and ask for assistance.	
1 ☐	**PMAC Server:** Exchange SSH keys between PMAC and TVOE server	Use the PMAC GUI to determine the Control Network IP address of TVOE server. From the PMAC GUI, navigate to **Main Menu -> Software -> Software Inventory**.  Note the IP address TVOE server. From a terminal window connection on the PMAC, login as the ***admusr*** user. Exchange SSH keys between the PMAC and the TVOE server using the keyexchange utility, using the Control network IP address for the TVOE blade server. When prompted for the password, enter the password for the TVOE server. `$ keyexchange admusr@<TVOE_Control_Blade_IP_address>`

2
☐
	TVOE Server: Login and Copy Configuration Scripts from PMAC	Login as **admusr** on the TVOE server using control IP address above.
		
		Execute the following commands:
		`$ sudo scp admusr@<Mgmt_Server_Control_IP_address>:/usr/TKLC/smac/etc/TVOE* /usr/TKLC/`
		
		`$ sudo chmod 777 /usr/TKLC/TVOE*`
		
		Note: If no TVOE configuration scripts are found here, then please re-execute section 4.2.2, Step #13 of [7]

Procedure 11: Configure SOAM TVOE Server Blades

3 ☐	**TVOE Server:** Mezzanine card/ segregated OAM/XMI network configuration	If your TVOE server blade DOES have mezzanine cards AND you will be running OAM/XMI traffic on a separate physical network (*example below*). If you do not have mezzanine cards, **skip this step.**  Execute the following command: `$ sudo /usr/TKLC/TVOEcfg.sh --xmivlan=<XMI_VLAN_ID> --imivlan=<IMI_VLAN_ID> mezz`

Procedure 11: Configure SOAM TVOE Server Blades

4 ☐	**TVOE Server:** No Mezzanine card/ No segregated OAM/XMI network configuration	If your TVOE server blade **DOES NOT** have mezzanine cards AND/OR you will NOT be running OAM/XMI traffic over a separate physical network (example below).  Execute the following command: `$ sudo /usr/TKLC/TVOEcfg.sh --xmivlan=<XMI_VLAN_ID> --imivlan=<IMI_VLAN_ID>`

Procedure 11: Configure SOAM TVOE Server Blades

5 ☐	**TVOE Server:** Verify TVOE configuration	XMI_VLAN_ID is the VLAN ID for the XMI network in this installation, and IMI_VLAN_ID is the VLAN ID for the IMI network in this installation. For deployments with aggregation switches, the IMI and XMI VLAN IDs will be the values of the "INTERNAL-IMI" and "INTERNAL-XMI" VLAN ids, respectively. For layer-2 only deployments, the IMI and XMI VLAN ids will be obtained from the customer.
		
		Upon executing the proper version of the TVOEcfg.sh script, you should see an output similar to the following (example shows output without the "mezz" parameter):
		
		`Using onboard NICs ...`
		`Interface bond0.3 added`
		`Interface bond0.4 added`
		`Setting up the bridge and unsetting network info`
		`Interface bond0.3 was updated.`
		`Bridge xmi added!`
		`Setting up the bridge and unsetting network info`
		`Interface bond0.4 was updated.`
		`Bridge imi added!`
		
		The prompt will return.
		
		Note: If for any reason, you ran the wrong version of the TVOEcfg.sh command, you can execute the following command to reset the networking configuration so you can repeat either steps 3 or 4:
		
		`Sudo ./usr/TKLC/TVOEclean.sh`

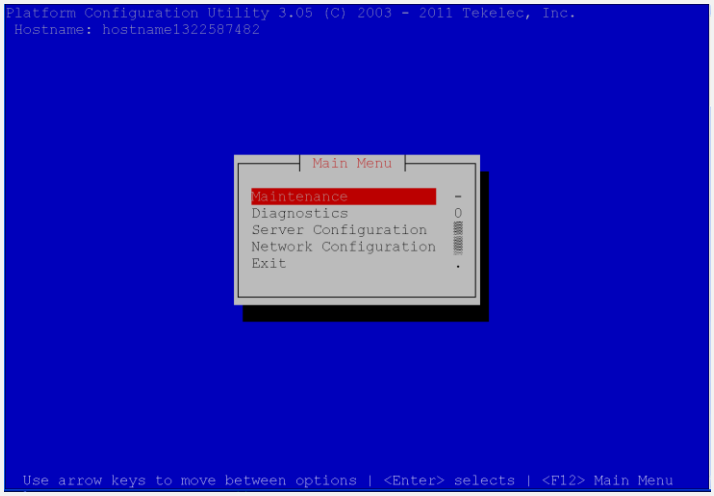
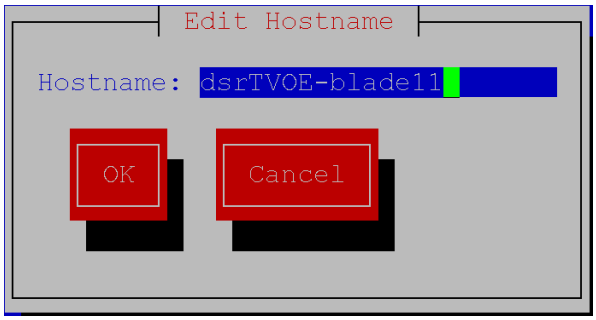
Procedure 11: Configure SOAM TVOE Server Blades

6 ☐	**TVOE Server:** Configure XMI IP and Default Route	Configure IP address on the XMI network: **$ sudo /usr/TKLC/plat/bin/netAdm set --type=Bridge --name=xmi --address=<TVOE_XMI_IP_ADDRESS> --netmask=<TVOE_XMI_Netmask/Prefix>** /sys/class/net/bond1/bonding/primary has 0 lines, nothing to do. Interface xmi was updated. Restart network services: **$ sudo service network restart** [wait for the prompt to return] Set the default route: **$ sudo /usr/TKLC/plat/bin/netAdm add --route=default --device=xmi --gateway=<TVOE_XMI_Gateway_IP_Address>** Route to xmi added.
7 ☐	**TVOE Server:** Configure NetBackup Dedicated Interface and Bridge (Optional)	In these examples, <interface> should be replaced with the actual Ethernet interface that will be used as the dedicated NetBackup port. For instance, ***"eth01"*** or ***"eth22"***. Un-bonded Ethernet Interface: **$ sudo /usr/TKLC/plat/bin/netAdm set --device=<Ethernet interface> --slave=no --onboot=yes** **[OPTIONAL]** If this installation is using jumbo frames, set the Ethernet interface MTU to the desired jumbo frame size: **$ sudo /usr/TKLC/plat/bin/netAdm set --device=<Ethernet interface> --MTU=<NetBackup_MTU_size>** Create NetBackup VM Bridge Interface: **$ sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=netbackup --bridgeInterfaces=<Ethernet interface> --onboot=yes**

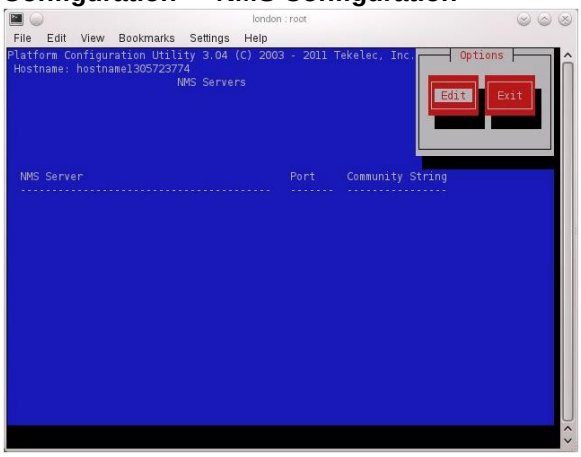
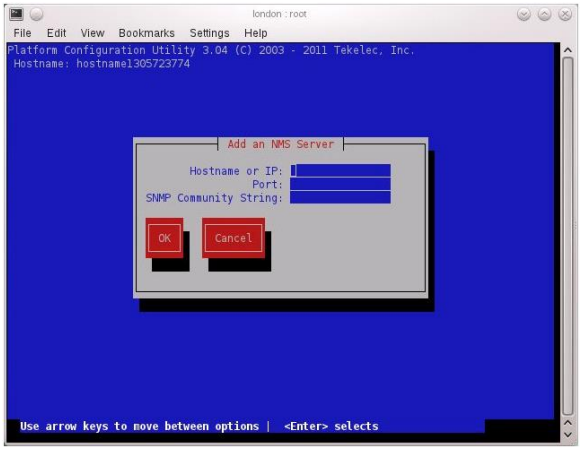
Procedure 11: Configure SOAM TVOE Server Blades

8 ☐	**TVOE Server:** Configure Networking for Dedicated NetBackup Interface (Optional)	**Note:** You will only execute this step if using a dedicated Ethernet interface for NetBackup.
		`$ sudo /usr/TKLC/plat/bin/netAdm set --device=NetBackup --type=Ethernet --onboot=yes --address=<NO1_NetBackup_IP_Adress> --netmask=<NO1_NetBackup_NetMask>`
		`$ sudo /usr/TKLC/plat/bin/netAdm add --route=net --device=netbackup --address=<NetBackup_Svr_Network_ID> --netmask=<NO1_NetBackup_NetMask> --gateway=<NO1_NetBackup_Gateway_IP_Address>`

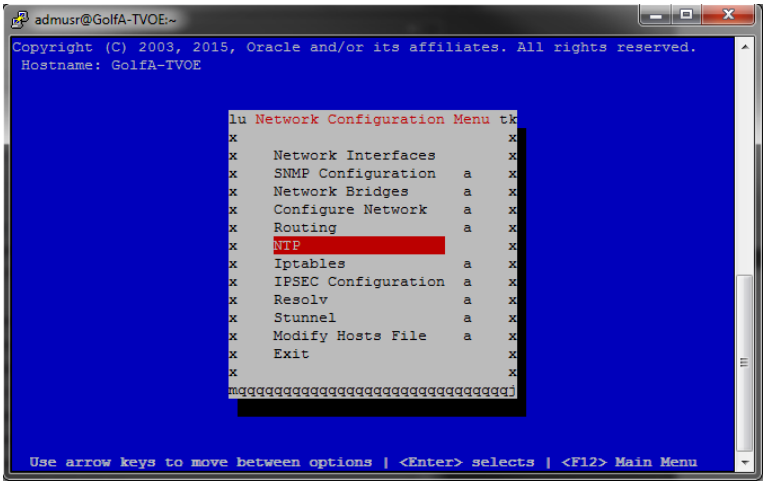
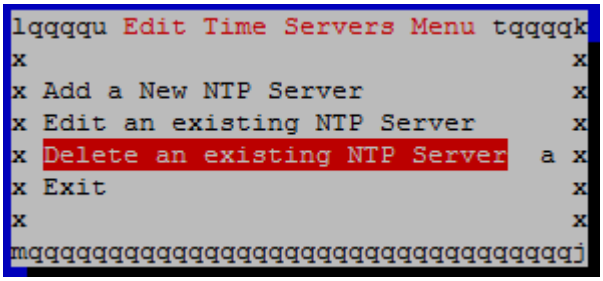
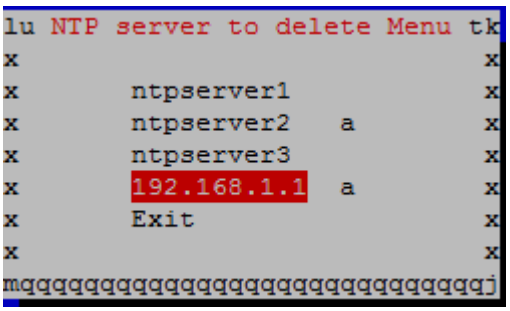
Procedure 11: Configure SOAM TVOE Server Blades

9 ☐	**TVOE Server:** Set Hostname	`$ sudo su - platcfg`  Navigate to **Server Configuration->Hostname-> Edit** and enter a new hostname for your server:  Press **OK** and select and continue to press Exit until you are at the platcfg main menu again. **Note:** Although the new hostname has been properly configured and committed at this point, it will not appear on your command prompt unless you log out and log back in again.

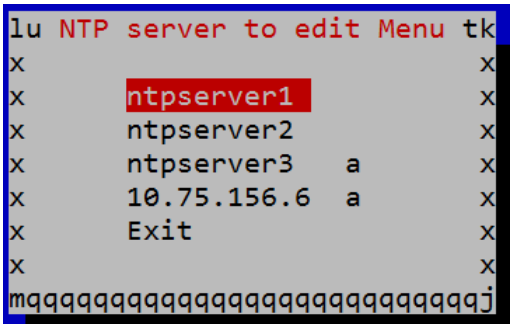
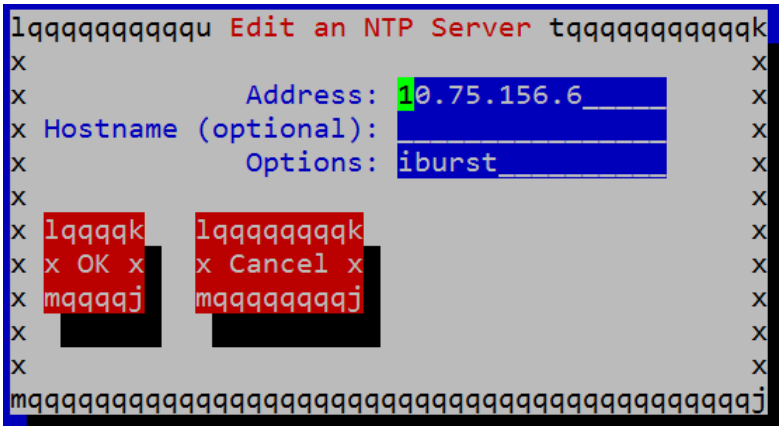
Procedure 11: Configure SOAM TVOE Server Blades

10 ☐	**TVOE Server:** Configure SNMP	From the platcfg main menu, navigate to **Network Configuration -> SNMP Configuration -> NMS Configuration**  Press **Edit**. Choose **Add a New NMS Server**  Enter the following NMS servers, pressing **OK** after each one and then selecting the **Add NMS** option again: 1. Enter the Hostname/IP of the Customer NMS Server, for port, enter 162, and for Community String enter the community string provided in the customer NAPD Document. 2. Enter the IP of the SOAM VIP, for port enter 162, and for Community String enter the community string provided in the customer NAPD Document Press **Exit**. Select **Yes** when prompted to restart the Alarm Routing Service. Once Done, press **Exit** to quit to the platcfg main menu.

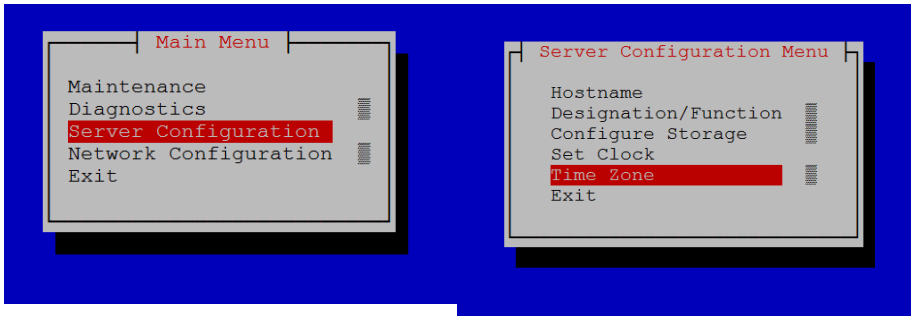
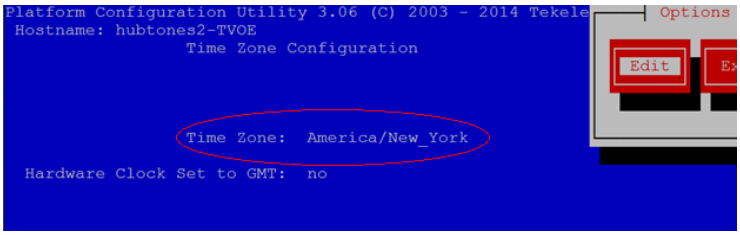
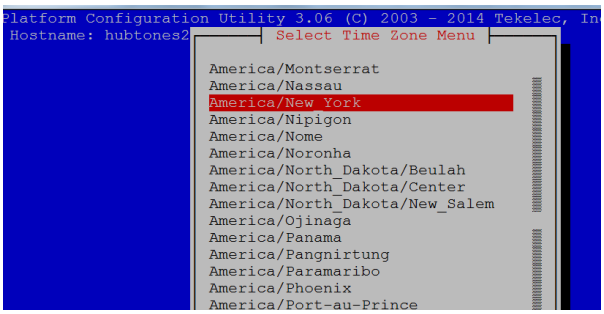
Procedure 11: Configure SOAM TVOE Server Blades

11 ☐	**RMS iLO/iLOM:** Delete PMAC VM as NTP Source on RMS	Navigate to **Network Configuration ->NTP**.  Select **Delete an existing NTP Server**  Select the PMAC VM Control IP, Click **[Enter]**  You will be returned to the **NTP Menu**

Procedure 11: Configure SOAM TVOE Server Blades

12 ☐	**TVOE Server:** Configure NTP - Edit an existing NTP Server.	1. Edit an existing NTP Server. The **NTP Server to edit Menu** window is displayed.  2. Select appropriate NTP server & edit the details  3. Enter Appropriate data, and select **OK** Press **Exit** to return to the platcfg menu.

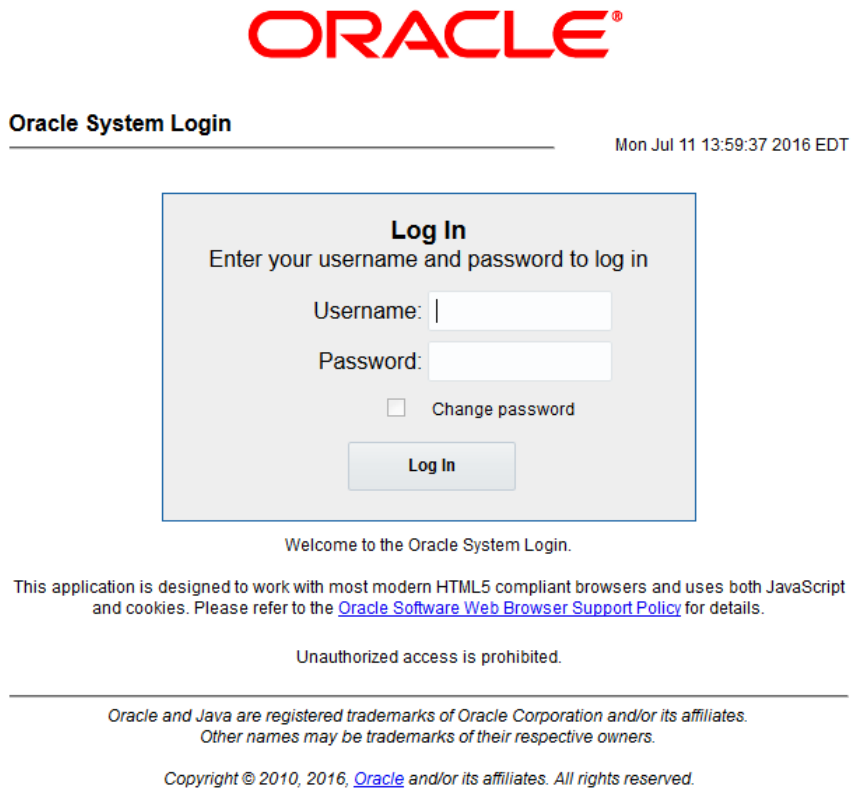
Procedure 11: Configure SOAM TVOE Server Blades

13 ☐	**TVOE Server:** Configure Time Zone	`$ sudo su - platcfg` Navigate to **Server Configuration->Time Zone**   If the time zone displayed matches the time zone you desire, then you can continue to hit Exit until you are out of the platcfg program. If you want a different time zone, then proceed with this instruction. Click **Edit**  Select the desired time zone from the list and press **Enter** Continue pressing **Exit** until you are out of the platcfg program.
14 ☐	**TVOE Server:** Reboot	Reboot the server by executing the following command: `$ sudo init 6`

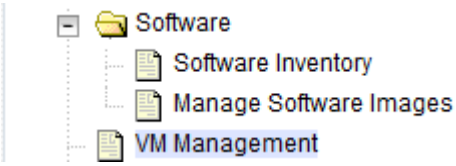
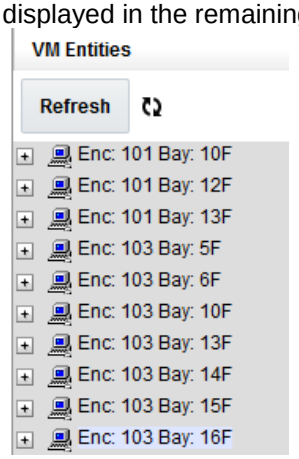
Procedure 11: Configure SOAM TVOE Server Blades

15 ☐	**TVOE server:** Repeat Procedure for other TVOE blades.	Configuration of this TVOE server blade is complete. Repeat this procedure from the beginning for other TVOE hosts that need to be configured.
16 ☐	**Install SDS (Optional)**	If this deployment contains SDS, SDS can now be installed. Refer to document referenced in [4].

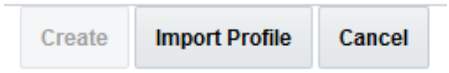
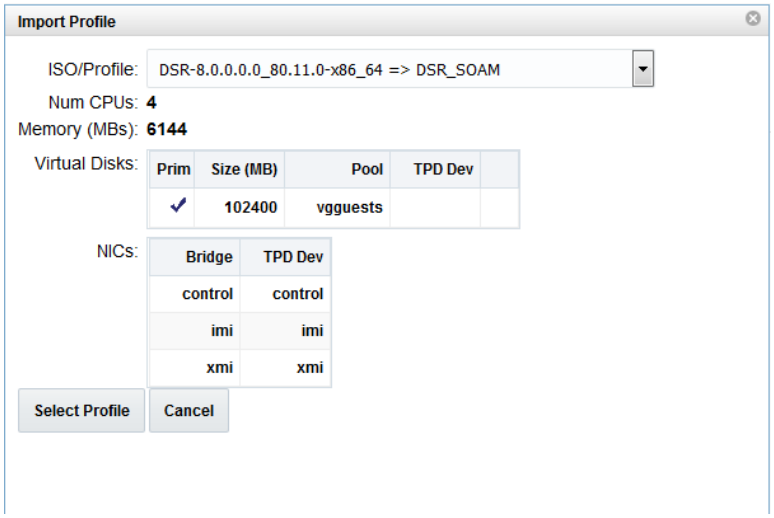
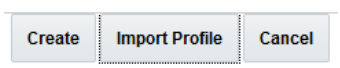
Procedure 12: Create SOAM Guest VMs

S T E P #	This procedure will provide the steps needed to create a DSR SOAM virtual machine (referred to as a "guest") on a TVOE server blade. It must be repeated for every SOAM server you wish to install. **Prerequisite**: TVOE has been installed and configured on the target blade server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P:** My Oracle Support **(MOS)**, and ask for assistance.	
1 ☐	**PMAC GUI:** Login	Open web browser and enter: `http://<PMAC_Mgmt_Network_IP>` Login as ***guiadmin*** user: 

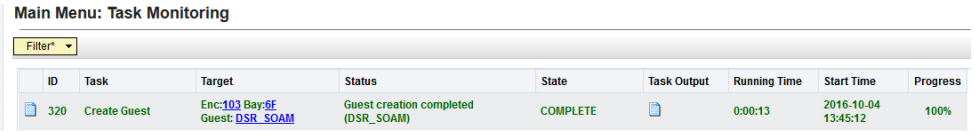
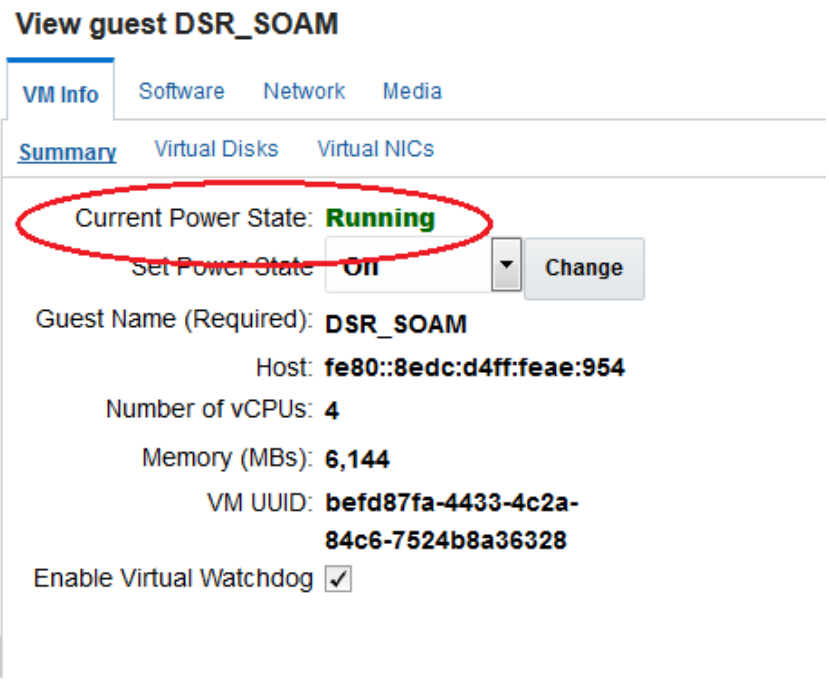
Procedure 12: Create SOAM Guest VMs

2 ☐	**PMAC GUI:** Navigate to VM Management of the Target Server Blade	Navigate to **Main Menu -> VM Management**  Select the TVOE server blade server from the ***VM Entities*** listing on the left side of the screen. The selected server's guest machine configuration will then be displayed in the remaining area of the window.  Click **Create Guest** 

Procedure 12: Create SOAM Guest VMs

3 ☐	**PMAC GUI:** Configure VM Guest Parameters	Select **Import Profile**   From the ***"ISO/Profile"*** drop-down box, select the entry that matches depending on the hardware that your SOAM VM TVOE server is running on and your preference for NetBackup interfaces: **SOAM VM TVOE Hardware Type(s)** / **Dedicated Netbackup Interface?** / **Choose Profile (<Application ISO NAME>)➔** HP BL460 Gen 8 Blade, HP BL460 Gen 9 Blade / No / **DSR_SOAM** HP BL460 Gen 8 Blade, HP BL460 Gen 9 Blade / Yes / **DSR_SOAM_NBD** **Note**: Application_ISO_NAME is the name of the DSR Application ISO to be installed on this SOAM Press **Select Profile**. You can edit the name, if you wish. For instance: ***"DSR_SOAM_A,"*** or ***DSR_SOAM_B".*** *(This will not become the ultimate hostname. It is just an internal tag for the VM host manager.)* Press **Create** 

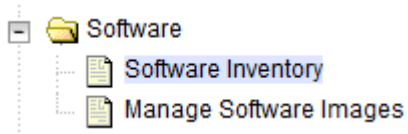
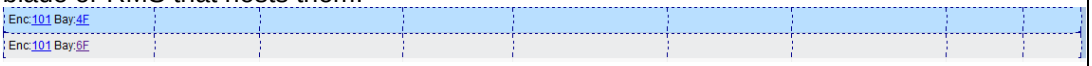
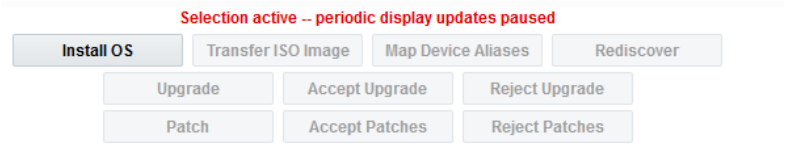
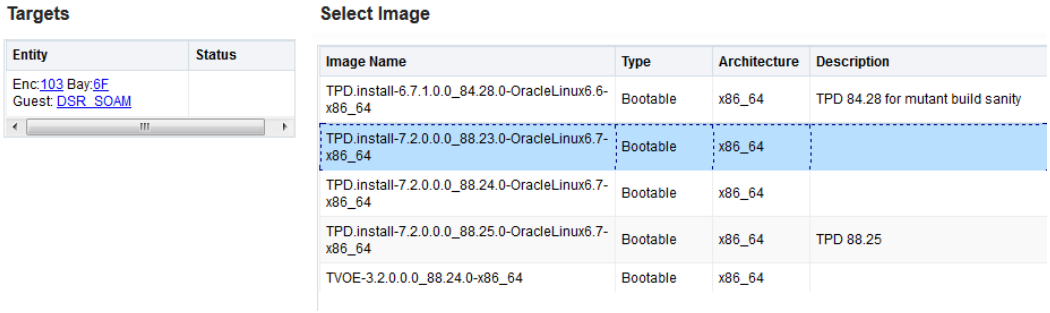
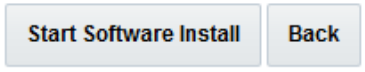
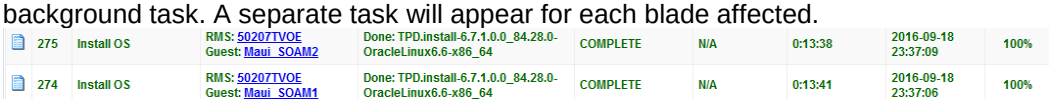
Procedure 12: Create SOAM Guest VMs

4 ☐	**PMAC GUI:** Wait for Guest Creation to Complete	Navigate to **Main Menu -> Task Monitoring** to monitor the progress of the guest creation task. A separate task will appear for each guest creation that you have launched. Wait or refresh the screen until you see that the guest creation task has completed successfully. 
5 ☐	**PMAC GUI:** Verify Guest Machine is Running	Navigate to **Main Menu -> VM Management** Select the TVOE server blade on which the guest machine was just created. Look at the list of guests present on the blade and verify that you see a guest that matches the name you configured and that its status is ***"Running".***  VM Creation for this guest is complete. Repeat from **Step 2** for any remaining SOAM VMs (*for instance, the standby SOAM*) that must be created.

Procedure 13: IPM Blades and VMs

S T E P #		
	This procedure will provide the steps to install TPD on Blade servers and Blade server guest VMs **Prerequisite**: Enclosures containing the blade servers targeted for IPM that have been configured. **Prerequisite**: TVOE has been installed and configured on Blade servers that will host DSR NOAM VMs. **Prerequisite**: DSR NOAM and SOAM Guest VMs have been created successfully. **Needed material:** - TPD Media (64-bits) Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**PMAC GUI:** Login	Open web browser and enter: `http://<PMAC_Mgmt_Network_IP>` Login as ***guiadmin*** user: 

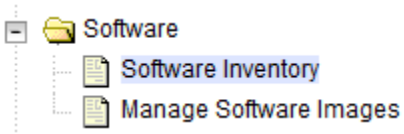
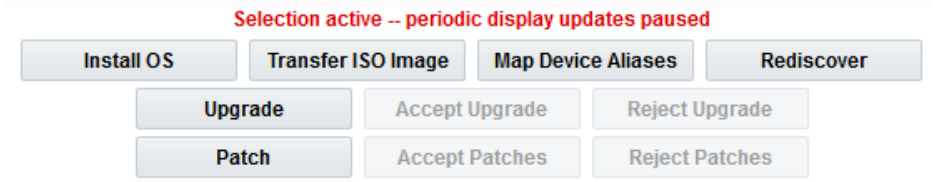
Procedure 13: IPM Blades and VMs

2 ☐	**PMAC GUI:** Select Servers for OS install	Navigate to **Software -> Software Inventory.**  Select the servers *(VMs, IPFEs, MPs, Etc.)* you want to IPM. If you want to install the same OS image to more than one server, you may select multiple servers by clicking multiple rows individually. Selected rows will be highlighted in green. **Note:** VM's will have the text ***"Guest: <VM_GUEST_NAME>"*** underneath the physical blade or RMS that hosts them.  Click on **Install OS** 
3 ☐	**PMAC GUI:** Initiate OS Install	The left side of this screen shows the servers to be affected by this OS installation. From the list of available bootable images on the right side of the screen, select one OS image to install to all of the selected servers.  Click on **Start Install**, a confirmation window will pop up, click on **Ok** to proceed with the install. 
4 ☐	**PMAC GUI:** Monitor OS Install	Navigate to **Main Menu -> Task Monitoring** to monitor the progress of the OS Installation background task. A separate task will appear for each blade affected.  When the installation is complete, the task will change to green and the Progress bar will indicate "100%".

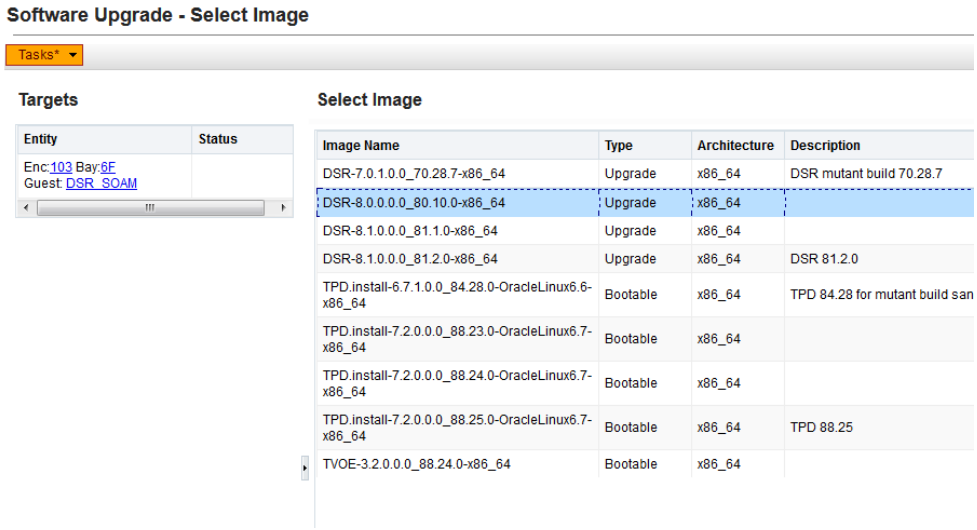
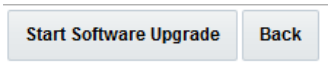
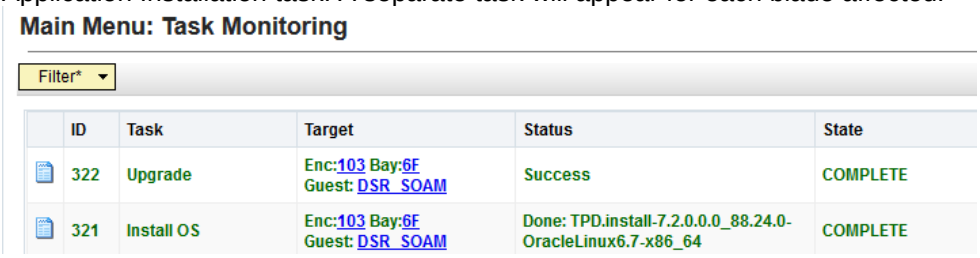
Procedure 14: Install the Application Software

S T E P #	This procedure will provide the steps to install Diameter Signaling Router on the Blade servers. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**PMAC GUI:** Login	Open web browser and enter: `http://<PMAC_Mgmt_Network_IP>` Login as ***guiadmin*** user: 

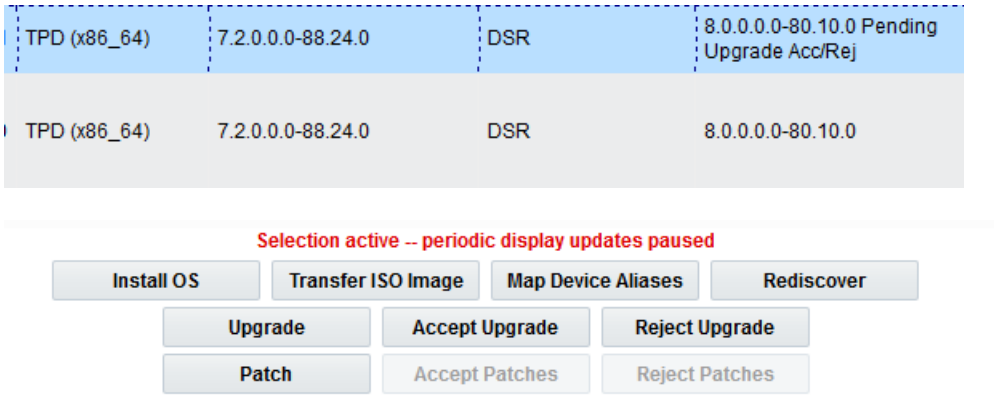
Procedure 14: Install the Application Software

2 ☐	**PMAC GUI:** Select Servers for Application install	Navigate to **Software -> Software Inventory.**  Select the servers on which the application is to be installed. If you want to install the same application image to more than one server, you may select multiple servers by clicking multiple rows individually. Selected rows will be highlighted in green. **Note:** VM's will have the text ***"Guest: <VM_GUEST_NAME>"*** underneath the physical blade that hosts them.  Click on **Upgrade** 

Procedure 14: Install the Application Software

3 ☐	**PMAC GUI:** Initiate Application Install	The left side of this screen shows the servers to be affected by this application installation. From the list of available bootable images on the right side of the screen, select one application image to install to all of the selected servers.  Click on **Start Upgrade**, a confirmation window will pop up, click on **Ok** to proceed with the install. 
4 ☐	**PMAC GUI:** Monitor the installation status	Navigate to **Main Menu -> Task Monitoring** to monitor the progress of the Application Installation task. A separate task will appear for each blade affected.  When the installation is complete, the task will change to green and the Progress bar will indicate "100%".

Procedure 14: Install the Application Software

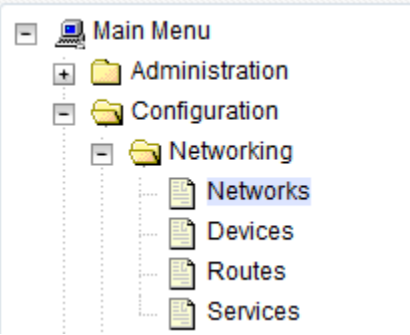
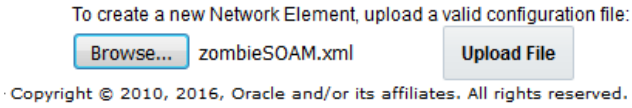
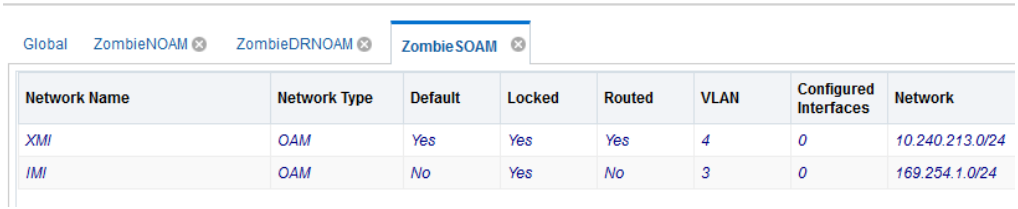
5 ☐	**PMAC GUI:** Accept/Reject Upgrade	Navigate to **Software -> Software Inventory** to accept the software installation. Select all the servers on which the application has been installed in the previous steps and click on **Accept Upgrade** as shown below.  **Note:** Once the upgrade has been accepted, the App version will change from ***"Pending Acc/Rej"*** to the version number of the application.

4.3.2 Configure SOAMs

Procedure 15: Configure SOAM NE

S T E P #	This procedure will provide the steps to configure the SOAM Network Element Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**NOAM VIP GUI:** Login	Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login as the ***guiadmin*** user: 

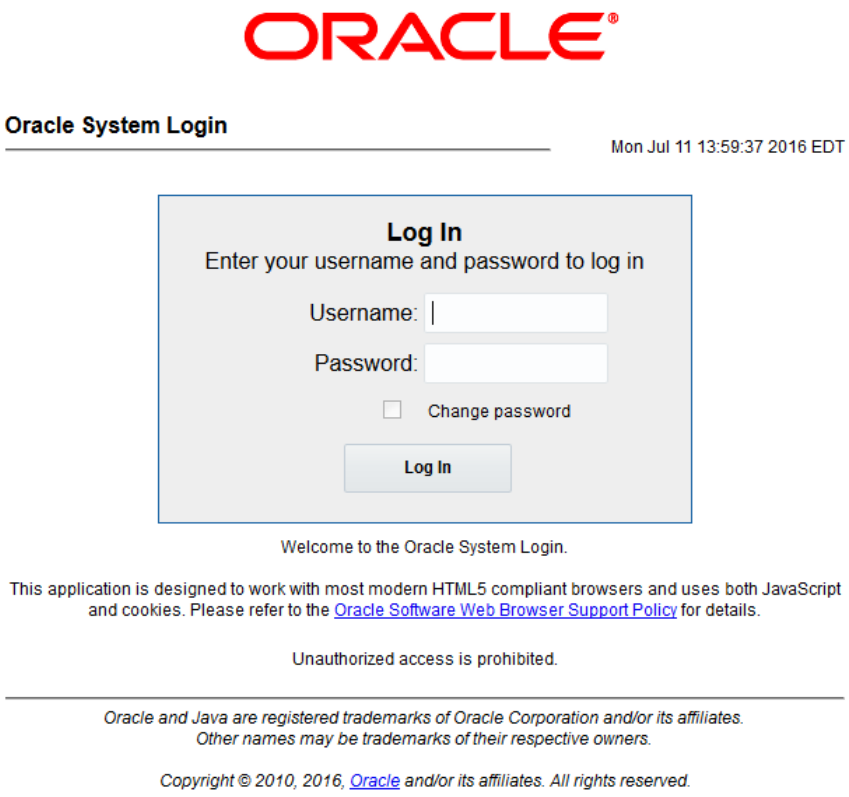
Procedure 15: Configure SOAM NE

2 ☐	**NOAM VIP GUI:** Create the SOAM Network Element using an XML File	Navigate to **Main Menu->Networking -> Networks**  Refer to **Appendix A**: Sample Network Element and Hardware Profiles for a sample Network Element xml file Select the **Browse** button, and enter the pathname of the SOAM network XML file:  Select the **Upload File** button to upload the XML file and configure the SOAM Network Element. 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: 

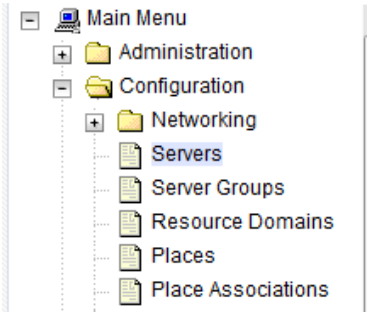
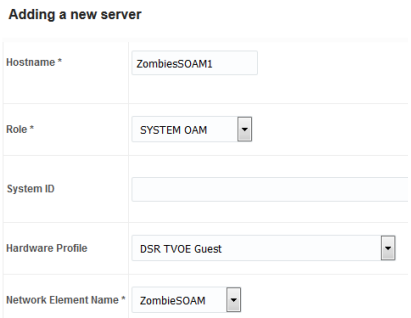
Procedure 16: Configure the SOAM Servers

S T E P #	This procedure will provide the steps to configure the SOAM servers. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**Exchange SSH keys between SOAM site's local PMAC and the SOAM Server**	Use the PMAC GUI to determine the Control Network IP address of the server that is to be the SOAM server. From the PMAC GUI, navigate to **Main Menu -> Software -> Software Inventory.**  Note the IP address for the SOAM server. Login to the PMAC terminal as the ***admusr*.** From a terminal window connection on the PMAC as the ***admusr*** user, exchange SSH keys for ***admusr*** between the PMAC and the SOAM server using the keyexchange utility, using the Control network IP address for the SOAM server. When prompted for the password, enter the password for the ***admusr***. `$ keyexchange admusr@<SO1_Control_IP Address>`
2 ☐	**Exchange SSH keys between NOAM and PMAC at the SOAM site (If necessary)**	**Note**: If this SOAM shares the same PMAC as the NOAM, then you can skip this step. From a terminal window connection on the NOAM VIP, as the ***admusr,*** exchange SSH keys for admusr between the NOAM and the PMAC for this SOAM site using the keyexchange utility. When prompted for the password, enter the admusr password for the PMAC server. `$ keyexchange admusr@<SO1_Site_PMAC_Mgmt_IP_Address>`

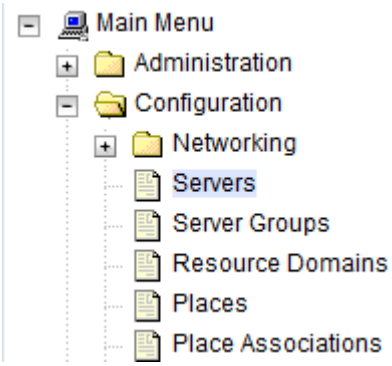
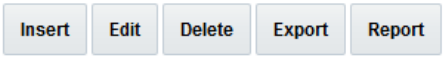
Procedure 16: Configure the SOAM Servers

3 ☐	**NOAM VIP GUI:** Login	If not already done, establish a GUI session on the NOAM server by using the XMI IP address of the first NOAM server. Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login to the NOAM GUI as the ***guiadmin*** user: 

Procedure 16: Configure the SOAM Servers

4 ☐	**NOAM VIP GUI:** Insert the 1st SOAM server	Navigate to **Main Menu -> Configuration -> Servers.**  Select the **Insert** button to insert the 1st SOAM server into servers table (the first or server).  Fill in the fields as follows: **Hostname: <Hostname>** **Role: SYSTEM OAM** **System ID: <Site System ID>** **Hardware Profile: DSR TVOE Guest** **Network Element Name: [Choose NE from Drop Down Box]** The network interface fields will now become available with selection choices based on the chosen hardware profile and network element  Fill in the server IP addresses for the XMI network. Select **xmi** for the interface. **Leave the "VLAN" checkbox unchecked**. Fill in the server IP addresses for the IMI network. Select **imi** for the interface. **Leave the "VLAN" checkbox unchecked**. Next, add the following NTP servers: **NTP Server** | **Preferred?** **<TVOE_XMI_IP_Address(SO1)>** | Yes Select the **Ok** button when you have completed entering all the server data.

Procedure 16: Configure the SOAM Servers

5 ☐	**NOAM VIP GUI:** Export the Initial Configuration	Navigate to **Main Menu -> Configuration -> Servers.**  From the GUI screen, select the SOAM server and then select **Export** to generate the initial configuration data for that server. 
6 ☐	**NOAM VIP:** Copy Configuration File to 1st SOAM Server	Obtain a terminal session to the NOAM VIP as the ***admusr*** user. Use the **awpushcfg** utility to copy the configuration file created in the previous step from the /var/TKLC/db/filemgmt directory on the NOAM to the 1st SOAM server, using the Control network IP address for the 1st SOAM server. The configuration file will have a filename like "TKLCConfigData.<***hostname***>.sh". `$ sudo awpushcfg` The awpushcfg utility is interactive, so the user will be prompted for the following: • IP address of the local PMAC server: Use the management network address from the PMAC. • Username: Use **admusr** • Control network IP address for the target server: In this case, enter the control IP for the 1st SOAM server). • Hostname of the target server: Enter the server name configured in **step 4**

Procedure 16: Configure the SOAM Servers

7 ☐	**1st SOAM Server:** Verify awpushcfg was called and Reboot the Server	Obtain a terminal window connection on the 1st SOAM server console by establishing an ssh session from the NOAM VIP terminal console.
		`$ ssh admusr@<SO1_Control_IP>`
		Login as the ***admusr*** user.
		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.
		Verify awpushcfg was called by checking the following file
		`$ sudo cat /var/TKLC/appw/logs/Process/install.log`
		Verify the following message is displayed:
		`[SUCCESS] script completed successfully!`
		Now Reboot the Server:
		`$ sudo init 6`
		Wait for the server to reboot

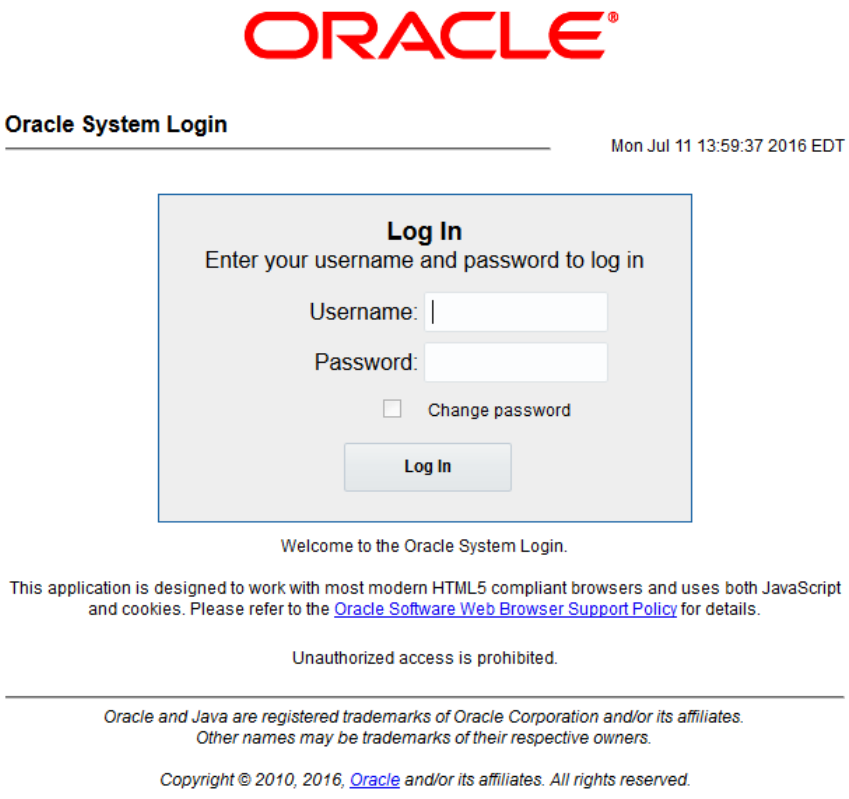
8 ☐	**1st SOAM Server:** Verify Server Health	Execute the following command on the 1st SOAM server and make sure that no errors are returned:
		`$ sudo syscheck`
		`Running modules in class hardware...OK`
		`Running modules in class disk...OK`
		`Running modules in class net...OK`
		`Running modules in class system...OK`
		`Running modules in class proc...OK`
		`LOG LOCATION: /var/TKLC/log/syscheck/fail_log`

9 ☐	**Insert and Configure the 2nd SOAM server**	Repeat this procedure to insert and configure the 2nd SOAM server, should be configured as so: **NTP Server**: **<TVOE_XMI_IP_Address(SO2)>** — **Preferred?**: Yes Instead of data for the 1st SOAM Server, 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.

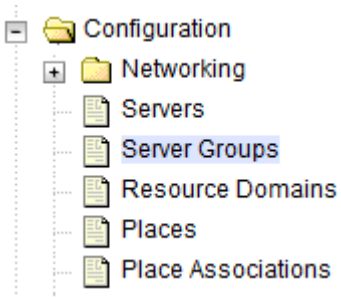
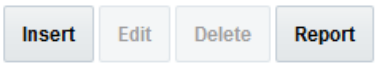
Procedure 16: Configure the SOAM Servers

10 ☐	**Install Netbackup Client Software on SOAMs (Optional)**	If you are using NetBackup at this site, then execute **Procedure 10** again to install the NetBackup Client on all SOAM servers.

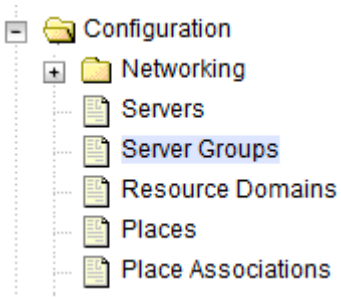
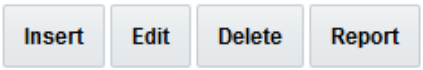
Procedure 17: Configure the SOAM Server Group

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

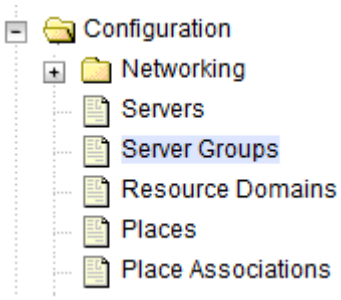
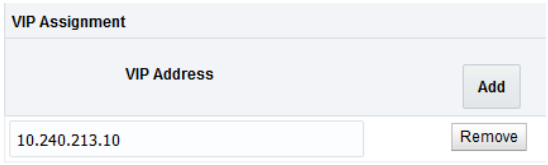
Procedure 17: Configure the SOAM Server Group

2 ☐	**NOAM VIP GUI:** Enter SOAM Server Group Data	After approximately ***5 minutes*** for the 2nd SOAM server to reboot, Navigate to the GUI **Main Menu->Configuration->Server Groups**  Select **Insert**  Add the SOAM Server Group name along with the values for the following fields: • **Name: <Hostname>** • **Level: B** • **Parent [Select the NOAM Server Group]** • **Function: DSR (Active/Standby Pair)** • **WAN Replication Connection Count: Use Default Value** Select **OK** when all fields are filled. **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.

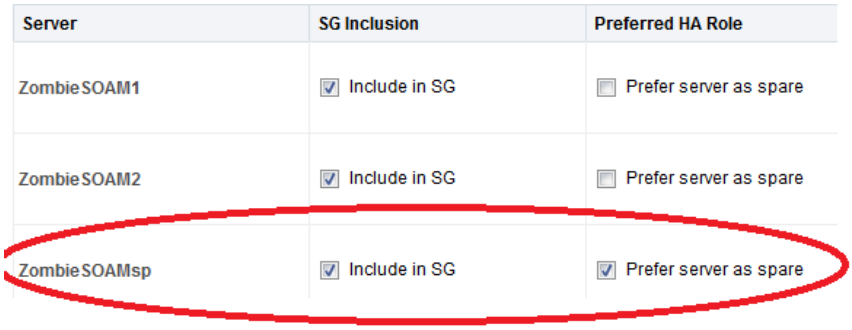
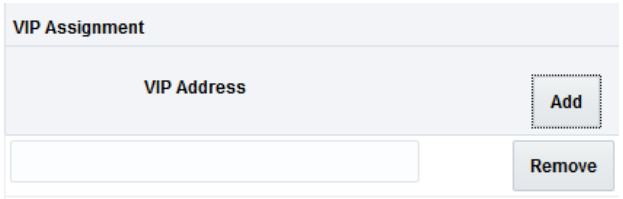
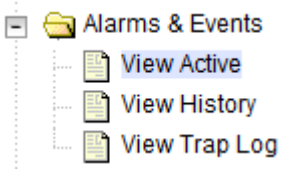
Procedure 17: Configure the SOAM Server Group

3 ☐	**NOAM VIP GUI:** 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.**  Add both SOAM servers to the Server Group Primary Site by clicking the **Include in SG** checkbox. Do not check any of the **Preferred Spare** checkboxes.  Click **Apply.**

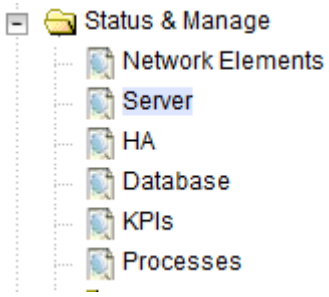
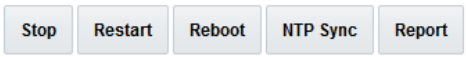
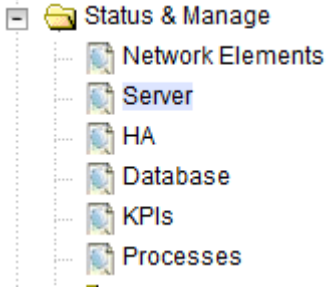
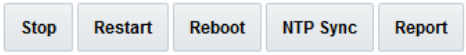
Procedure 17: Configure the SOAM Server Group

4 ☐	**NOAM GUI:** Add VIP	From the GUI **Main Menu->Configuration->Server Groups**  Select the new SOAM server group, and then select **Edit.**  Add a SOAM VIP by click on **Add**. Fill in the ***VIP Address*** and press **Ok** as shown below: 

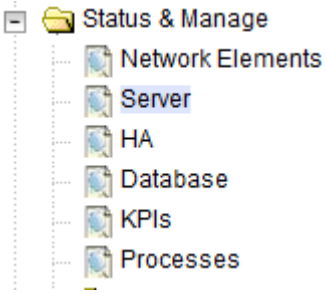
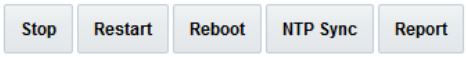
Procedure 17: Configure the SOAM Server Group

5 ☐	**NOAM VIP GUI:** Edit the SOAM Server Group and add Preferred Spares for Site Redundancy (Optional)	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.  If the Three Site Redundancy feature is wanted for the SOAM Server Group, add an additional SOAM server that is located in its Server Group Tertiary Site by clicking the **Include in SG** checkbox. Also check the **Preferred Spare** checkbox. **Note**: The **Preferred Spare** servers must be Server *Group Secondary & Tertiary Sites*. There should be servers from three separate sites (locations). For more information about Server Group Secondary Site, Tertiary Site or Site Redundancy, see the 1.4 Terminology section.
6 ☐	**NOAM VIP GUI:** Edit the SOAM Server Group and add additional SOAM VIPs (Optional)	Add additional SOAM VIPs by click on **Add**. Fill in the ***"VIP Address"*** and press **Ok** as shown below. **Note:** Additional SOAM VIPs only apply to SOAM Server Groups with Preferred Spare SOAMs. 
7 ☐	**NOAM VIP GUI:** Wait for Remote Database Alarm to Clear	Wait for the alarm **Remote Database re-initialization in progress** to be cleared before proceeding. Navigate to **Main menu->Alarms & Events->View Active** 

Procedure 17: Configure the SOAM Server Group

8 ☐	**NOAM VIP GUI**: Restart 1st SOAM server	From the NOAMP GUI, select **Main menu->Status & Manage->Server**.  Select the ***1st*** SOAM server. Select the **Restart** button. Answer **OK** to the confirmation popup. Wait for restart to complete. 
9 ☐	**NOAM VIP GUI**: Restart 2nd SOAM server	From the NOAMP GUI, select **Main menu->Status & Manage->Server**.  Select the ***2nd*** SOAM server. Select the **Restart** button. Answer **OK** to the confirmation popup. Wait for restart to complete. 

Procedure 17: Configure the SOAM Server Group

10 ☐	**NOAM VIP GUI**: Restart all Preferred Spare SOAM Servers	If additional Preferred Spare servers are not configured for *Secondary or Tertiary Sites*, this step can be skipped. If additional Preferred Spare servers are configured for *Secondary and/or Tertiary Sites*, continuing in the **Main menu->Status & Manage->Server**  Select the all **Preferred Spare** SOAM servers. Select the **Restart** button. Answer **OK** to the confirmation popup. 

Procedure 18: Activate PCA (PCA Only)

S T E P #	This procedure will provide the steps to activate PCA Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**(PCA Only) Activate PCA Feature**	If you are installing PCA, execute applicable procedures (Added SOAM site activation or complete system activation) from PCA activation guide [9] to activate PCA. **Note:** If not all SOAM sites are ready at this point, then you should repeat activation for each *new* SOAM site that comes online. **Note:** Ignore steps to restart DA-MPs and SBRs that have yet to be configured.

Procedure 19: Activate DCA (DCA Only)

S T E P #	This procedure will provide the steps to activate DCA Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**(DCA Only) Activate PCA Feature**	If you are installing DCA, execute procedures [14] to activate DCA Framework and Feature. **Note:** If not all SOAM sites are ready at this point, then you should repeat activation for each *new* SOAM site that comes online. **Note:** Ignore steps to restart DA-MPs and SBRs that have yet to be configured.

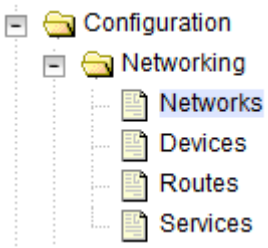
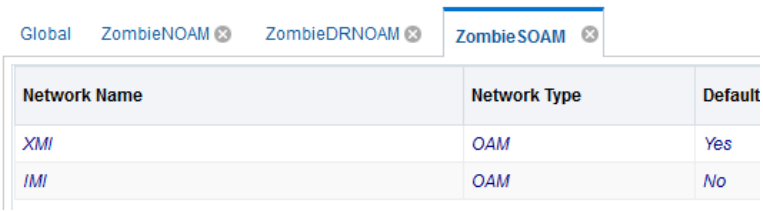
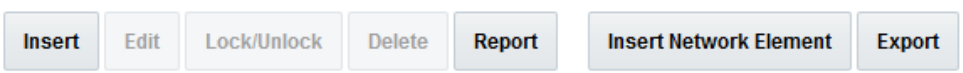
4.4 Configure MP Servers

4.4.1 Configure MP Blade Servers

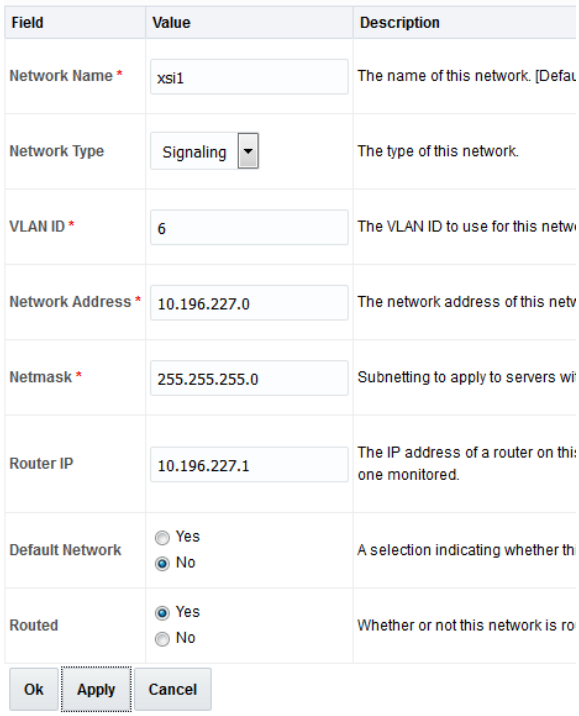
Procedure 20: Configure MP Blade Servers

S T E P #	***Note*: If you are adding MPs to expand an existing DSR which was upgraded from 7.x to 8.x, refer Appendix L.1.6.1 Growth: MP (For 7.x to 8.x upgraded system)** This procedure will provide the steps to configure an MP Blade Servers (IPFE, SBR, SS7-MP, DA-MP) Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**NOAM VIP GUI:** Login	If not already done, establish a GUI session on the NOAM server the VIP IP address of the NOAM server. Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login to the NOAM GUI as the ***guiadmin*** user:

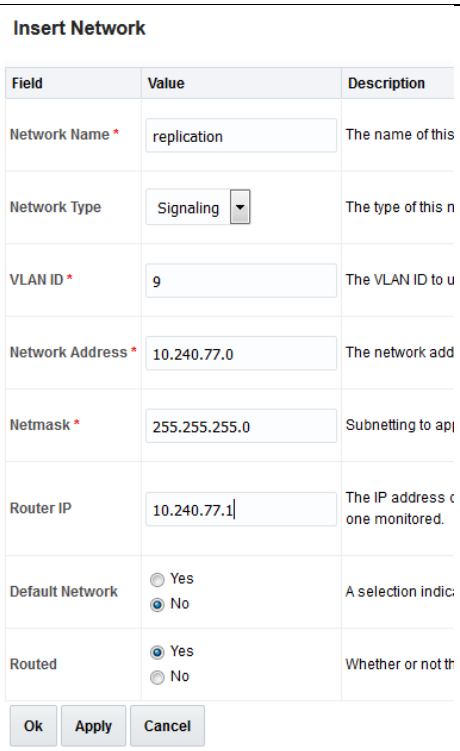
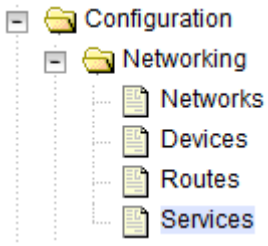
Procedure 20: Configure MP Blade Servers

		
2 ☐	**NOAM VIP GUI:** Navigate to Signaling Network Configuration Screen	Navigate to **Main Menu -> Configuration -> Networking -> Networks**  Select the associated SOAM tab for the MP Server  Click on **Insert** in the lower left corner. 

Procedure 20: Configure MP Blade Servers

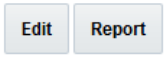
3 ☐	**NOAMP VIP:** Add Signaling Networks	You will see the following screen: **Insert Network**  Enter the **Network Name**, **VLAN ID**, **Network Address**, **Netmask**, and **Router IP** that matches the Signaling network **Note:** Even if the network does not use VLAN Tagging, you should enter the correct VLAN ID here as indicated by the NAPD • Select **Signaling** for Network Type • Select **No** for Default Network • Select **Yes** for Routable. Press **OK.** if you are finished adding signaling networks ***-OR-*** Press **Apply** to save this signaling network and repeat this step to enter additional signaling networks.
4 ☐	**NOAM VIP GUI:** [PCA/DCA Only]: Define SBR DB Replication Network	**Note:** Execute this step only if you are defining a separate, dedicated network for SBR Replication.

Procedure 20: Configure MP Blade Servers

		 Enter the **Network Name**, **VLAN ID, Network Address**, **Netmask**, and **Router IP** that matches the SBR DB Replication network **Note:** Even if the network does not use VLAN Tagging, you should enter the correct VLAN ID here as indicated by the NAPD • Select **Signaling** for Network Type • Select **No** for Default Network • Select **Yes** for Routable. Press **Ok.** If you are finished adding signaling networks ***–OR-*** Press **Apply** to save this signaling network and repeat this step to enter additional signaling networks.
5 ☐	**NOAM VIP GUI:** [PCA/DCA Only]: Perform Additional Service to Networks Mapping	**Note:** Execute this step only if you are defining a separate, dedicated network for SBR Replication. Navigate to **Main Menu -> Configuration -> Services** 

Procedure 20: Configure MP Blade Servers

Select the **Edit** button

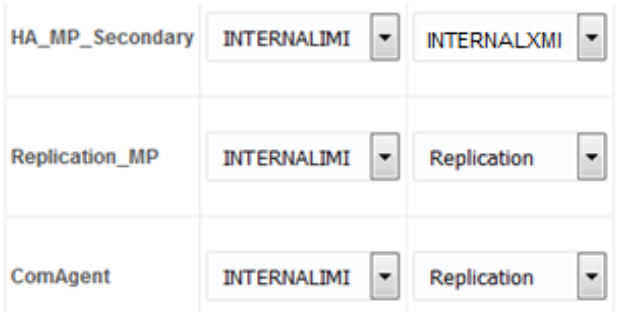


Set the Services according to the below two scenarios:

1) **If the Dual-Path HA Configuration is required** :

Oracle recommends that inter-NE network be set to the XMI network and the intra-NE network set to the IMI network for HA_MP_Secondary. This configuration uses the XMI network as a secondary path to preserve the HA status of SBRs grouped between multiple sites. If the Primary HA path "SBR DB Replication Network" becomes lost or impaired, the XMI network is used to preserve the HA state preventing the servers from entering into a scenario known as "HA Split-Brain". Preventing "HA Split-Brain" will keep existing database in sync, but the DSR mate site will be isolated from the active SBR and will result in traffic loss until SBR DB Replication Network is restored.

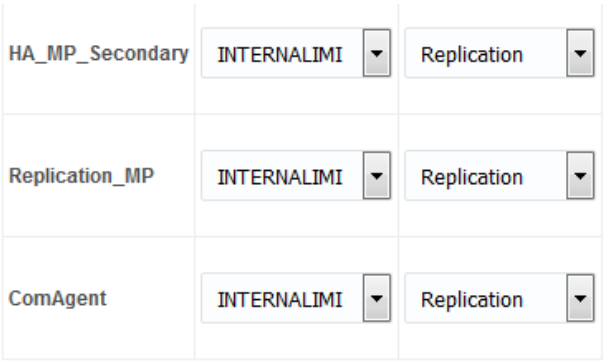
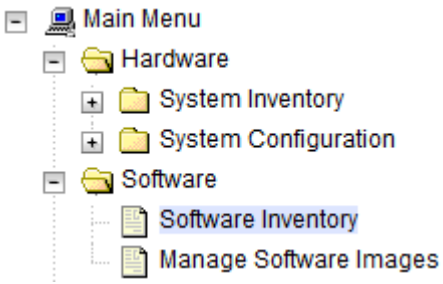
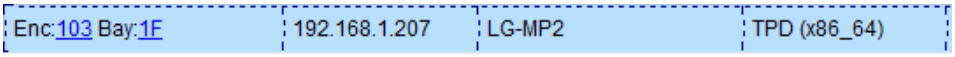
Name	Intra-NE Network	Inter-NE Network
HA_MP_Secondary	<IMI Network>	<XMI Network>*
Replication_MP	<IMI Network>	<SBR DB Replication Network>*
ComAgent	<IMI Network>	<SBR DB Replication Network>*



2) **If the Dual-Path HA Configuration is NOT required** :

Oracle recommends that inter-NE network be set to the SBR DB Replication (configured in step 5) and the intra-NE network set to the IMI network for HA_MP_Secondary. This configuration may allow an "HA Split-Brain" condition between the SBRs should the SBR DB Replication Network become lost or impaired. During a "HA Split-Brain" condition, an active SBR server would exist at each site but the database would not be in sync between the SBRs.

Procedure 20: Configure MP Blade Servers

		<table><tr><th>Name</th><th>Intra-NE Network</th><th>Inter-NE Network</th></tr><tr><td>HA_MP_Secondary</td><td><IMI Network></td><td><SBR DB Replication Network>*</td></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>  Select the **Ok** button to apply the Service-to-Network selections.
6 ☐	**PMAC:** Exchange SSH keys between MP site's local PMAC and the MP server	Use the MP site's PMAC GUI to determine the Control Network IP address of the blade server that is to be an MP server. From the MP site's PMAC GUI, navigate to **Main Menu** -> **Software** -> **Software Inventory**.   Note the IP address for an MP server. Login to the MP site's PMAC terminal as the ***admusr.*** From a terminal window connection on the MP site's PMAC as the **admusr**. Exchange SSH keys for ***admusr*** *between* the PMAC and the MP blade server using the keyexchange utility, using the Control network IP address for the MP blade server. `$ keyexchange admusr@<MP_Control_Blade_IP Address>` When prompted for the password, enter the password for the ***admusr*** user of the

Procedure 20: Configure MP Blade Servers

<table>
<tr><td></td><td></td><td>MP server.</td></tr>
<tr><td>7
☐</td><td>NOAM VIP GUI: Insert the MP server (Part 1)</td><td>Before creating the MP blade server, first identify the hardware profile

Hardware Profile: In the following step, you will select the profile that matches your MP physical hardware and enclosure networking environment.

Note: You must go through the process of identifying the enclosure switches, mezzanine cards and Ethernet interfaces of the network prior and blade(s) used before selecting the profile.

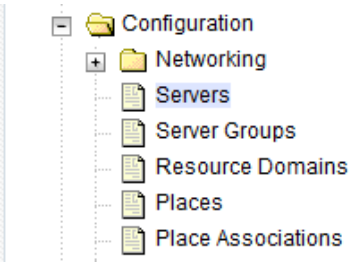
<table>
<tr><th>Profile Name</th><th>Number of Enclosure Switches (Pairs)?</th><th>Bonded Signaling Interfaces?</th></tr>
<tr><td>1-Pair</td><td>1</td><td>Yes</td></tr>
<tr><td>2-Pair</td><td>2</td><td>Yes</td></tr>
<tr><td>3-Pair-bonded</td><td>3</td><td>Yes</td></tr>
<tr><td>3-Pair-un-bonded</td><td>3</td><td>No</td></tr>
</table>

Note: If none of the above profiles properly describe your MP server blade, then you will have to create your own in a text editor (See Figure 7 of Appendix A: Sample Network Element and Hardware Profiles) and copy it into the /var/TKLC/appworks/profiles/ directory of the active NOAM server, the standby NOAM server, and both the DR NOAM servers (if applicable).

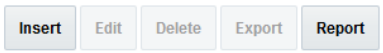
Note: After transferring the above file, set the proper file permission by executing the following command:

$ sudo chmod 777 /var/TKLC/appworks/profiles/<profile name>

Make note of the profile used here, as it will be used in server creation in the following step.</td></tr>
<tr><td>8
☐</td><td>NOAM VIP GUI: Insert the MP server (Part 2)</td><td>Navigate to Main Menu->Configuration->Servers

Select the Insert button to insert the new MP server into servers table.

Fill out the following values:

Hostname:<Hostname></td></tr>
</table>

Procedure 20: Configure MP Blade Servers

<table>
<tr><td></td><td></td><td>Role: MP
Network Element: [Choose Network Element]
Hardware Profile: Select the profile that matches your MP physical hardware and enclosure networking environment from step 8.
Location: <enter an optional location description>

The interface configuration form will now appear.

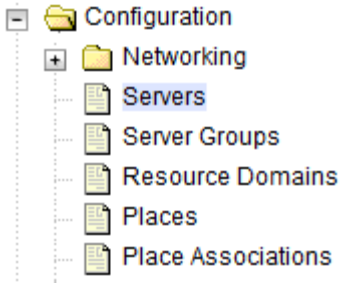
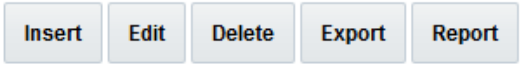
Note: If networks have been configured previously but are not required on the server, simply remove the populated network IP from the IP Address field and this device will not be created on the server.

Enter the IP addresses for all networks. Select the correct bond or interface. Ensure the correct bond and VLAN tagging (if required) is selected.

Optional: If dedicated network for SBR replication has been defined, enter the SBR replication IP address. Select the proper bond or interface, and select the VLAN checkbox if VLAN tagging is required.</td></tr>
<tr><td>9
☐</td><td>NOAM VIP GUI: Insert the MP server (Part 3)</td><td>Next, add the following NTP servers:
<table><tr><th>NTP Server</th><th>Preferred?</th></tr><tr><td><TVOE_XMI_IP_Address(SO1)></td><td>Yes</td></tr><tr><td><TVOE_XMI_IP_Address(SO2)></td><td>No</td></tr><tr><td><MP_Site_PMAC_TVOE_IP_Address></td><td>No</td></tr></table>
Note: For multiple enclosure deployments, prefer the SOAM TVOE Host that is located in the same enclosure as the MP Server.

Select OK when all fields are filled in to finish MP server insertion.</td></tr>
<tr><td>10
☐</td><td>NOAM VIP GUI: Export the Configuration</td><td>Navigate to Main Menu -> Configuration -> Servers.</td></tr>
</table>

Procedure 20: Configure MP Blade Servers

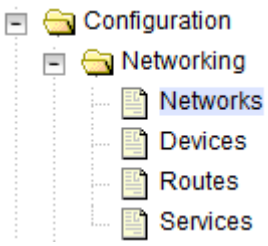
		 From the GUI screen, select the MP server and then select **Export** to generate the initial configuration data for that server. 
11 ☐	**NOAM VIP:** Copy Configuration File to MP Server	Obtain a terminal session to the NOAM VIP as the ***admusr*** user. Use the **awpushcfg** utility to copy the configuration file created in the previous step from the /var/TKLC/db/filemgmt directory on the NOAM to the MP server, using the Control network IP address for the MP server. The configuration file will have a filename like "TKLCConfigData.<***hostname***>.sh". `$ sudo awpushcfg` The awpushcfg utility is interactive, so the user will be prompted for the following: • IP address of the local PMAC server: Use the management network address from the PMAC. • Username: Use **admusr** • Control network IP address for the target server: In this case, enter the control IP for the MP server). • Hostname of the target server: Enter the server name configured in **step 9**

12 ☐	**MP Server:** Verify awpushcfg was called and Reboot the Configured Server	Obtain a terminal window connection on the MP server console by establishing an ssh session from the NOAM VIP terminal console.
		`$ ssh admusr@<MP_Control_IP>`
		Login as the ***admusr*** user.
		Verify awpushcfg was called by checking the following file:
		`$ sudo cat /var/TKLC/appw/logs/Process/install.log`
		Verify the following message is displayed:
		`[SUCCESS] script completed successfully!`
		Reboot the server:
		`$ sudo init 6`

Procedure 20: Configure MP Blade Servers

		Proceed to the next step once the Server finished rebooting, The server is done rebooting once the login prompt is displayed.

13 ☐	**MP Server:** Verify Server Health	After the reboot, login as ***admusr.***
		
		Execute the following command as super-user on the server and make sure that no errors are returned:
		
		`$ sudo syscheck`
		`Running modules in class hardware…OK`
		`Running modules in class disk…OK`
		`Running modules in class net…OK`
		`Running modules in class system…OK`
		`Running modules in class proc…OK`
		`LOG LOCATION: /var/TKLC/log/syscheck/fail_log`

14 ☐	**MP Server:** Delete Auto-Configured Default Route on MP and Replace it with a Network Route via the XMI Network-Part1 (Optional)	**Note:** THIS STEP IS **OPTIONAL** AND SHOULD ONLY BE EXECUTED 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.) Using the iLO facility, log into the MP as the *admusr* user. (*Alternatively, you can log into the site's PMAC then SSH to the MP's control address.)* Determine <XMI_Gateway_IP> from your SO site network element info. Gather the following items: • <NO_XMI_Network_Address> • <NO_XMI_Network_Netmask> • <DR_NO_XMI_Network_Addres> • <DR_NO_XMI_Network_Netmask> • <TVOE_Mgmt_XMI_Network_Address> • <TVOE_Mgmt_XMI_Network_Netmask> **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.  Proceed to the next step to modify the default routes on the MP servers.

Procedure 20: Configure MP Blade Servers

15 ☐	**MP Server:** Delete Auto-Configured Default Route on MP and Replace it with a Network Route via the XMI Network-Part2 (Optional)	After gathering the network information from step 15, proceed with modifying the default routes on the MP server.
		
		Establish a connection to the MP server, login as ***admusr.***
		
		Create network routes to the NO's XMI(OAM) network:
		
		Note: If your NOAM XMI network is exactly the same as your MP XMI network, then you should skip this command and only configure the DR NO route.
		
		`$ sudo /usr/TKLC/plat/bin/netAdm add -route=net`
		`--address=<NO_Site_Network_ID> --netmask=<NO_Site_Network_Netmask>`
		`--gateway=<MP_XMI_Gateway_IP_Address> --device=<MP_XMI_Interface>`
		
		Create network routes to the DR NO's XMI(OAM) network:
		
		`$ sudo /usr/TKLC/plat/bin/netAdm add -route=net`
		`--address=<DR-NO_Site_Network_ID> --netmask=<<DR-NO_Site_Network_Netmask>`
		`--gateway=<MP_XMI_Gateway_IP_Address> --device=<MP_XMI_Interface>`
		
		Create network routes to the Management Server TVOE XMI(OAM) network for NTP:
		
		`$ sudo /usr/TKLC/plat/bin/netAdm add -route=net`
		`--address=<TVOE_Mgmt_Network_Address>`
		`--netmask=<TVOE_Mgmt_Network_Netmask>`
		`--gateway=<MP_XMI_Gateway_IP_Address> --device=<MP_XMI_Interface>`
		
		(Optional) If Sending SNMP traps from individual servers, create host routes to customer SNMP trap destinations on the XMI network:
		
		`$ sudo /usr/TKLC/plat/bin/netAdm add -route=host`
		`--address=<Customer_NMS_IP> --gateway=<MP_XMI_Gateway_IP_Address>`
		`--device=<MP_XMI_Interface>`
		
		(Repeat for any existing customer NMS stations)
		
		Delete the existing default route:
		
		1. Login to the PRIMARY NOAM VIP GUI
		2. Navigate to **Configuration**->**Networking**->**Networks**
		3. Select the specific SO tab.
		4. Select the XMI network and click 'Unlock'. Click OK to confirm
		5. Go to **Configuration**->**Networking**->**Routes**
		6. Select the Specific MP XMI route and click 'Delete'.
		7. Click OK to confirm.
		8. Repeat the above steps for all required MPs to delete the XMI routes
		9. Select **Configuration**->**Networking**->**Networks**
		10. Select the respective SOAM tab.
		11. Select the XMI network and click 'Lock'.

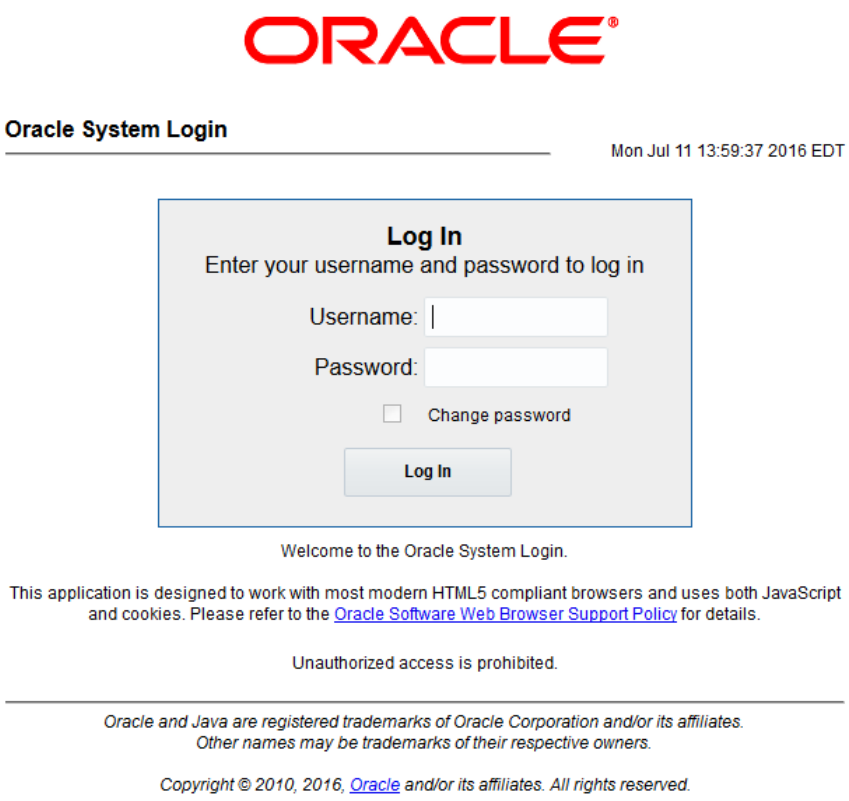
Procedure 20: Configure MP Blade Servers

		12. Click OK to confirm
16 ☐	**MP Server:** Verify connectivity	After steps 14 and 15 have been executed, verify network connectivity. Establish a connection to the MP server, login as ***admusr.*** Ping active NO XMI IP address to verify connectivity: **$ ping <ACTIVE_NO_XMI_IP_Address>** PING 10.240.108.6 (10.240.108.6) 56(84) bytes of data. 64 bytes from 10.240.108.6: icmp_seq=1 ttl=64 time=0.342 ms 64 bytes from 10.240.108.6: icmp_seq=2 ttl=64 time=0.247 ms **(Optional)** Ping Customer NMS Station(s): **$ ping <Customer_NMS_IP>** PING 172.4.116.8 (172.4.118.8) 56(84) bytes of data. 64 bytes from 172.4.116.8: icmp_seq=1 ttl=64 time=0.342 ms 64 bytes from 172.4.116.8: icmp_seq=2 ttl=64 time=0.247 ms 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.
17 ☐	**Repeat for remaining MP at all sites**	**Repeat** this entire procedure for all remaining MP blades (SS7-MP, DA-MP, and IPFE).

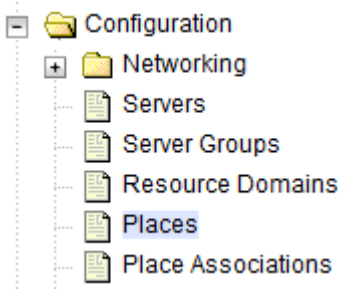
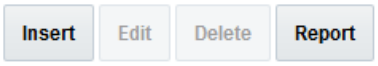
Procedure 21: Configure Places and Assign MP Servers to Places (PCA/DCA ONLY)

S T E P #	This procedure will provide the steps/reference to add “Places” in the POLICY AND CHARGING DRA Network. Check off (√***)*** each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.

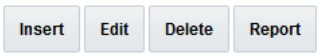
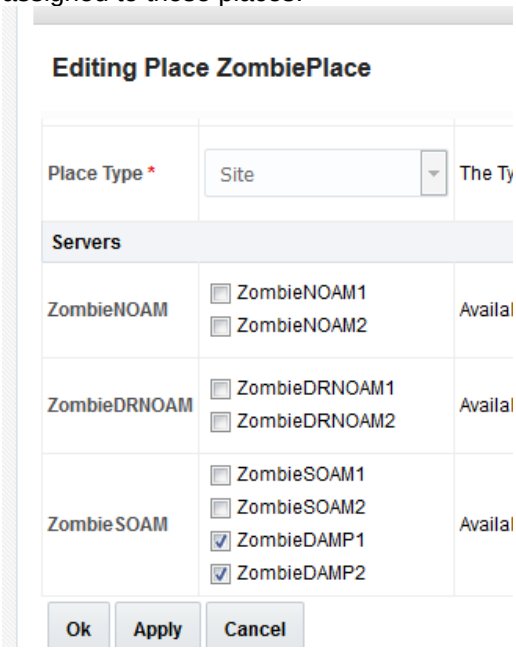
Procedure 21: Configure Places and Assign MP Servers to Places (PCA/DCA ONLY)

1 ☐	**NOAM VIP GUI:** Login	If not already done, establish a GUI session on the NOAM server by using the XMI IP address of the first NOAM server. Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login to the NOAM GUI as the ***guiadmin*** user: 

Procedure 21: Configure Places and Assign MP Servers to Places (PCA/DCA ONLY)

2 ☐	**NOAM VIP GUI:** Configure Places	Establish a GUI session on the NOAMP by using the XMI VIP address. Login as user ***guiadmin***. Navigate to **Main Menu -> Configuration -> Places**  Select the **Insert** button  **Inserting a new Place** **Place** **Field** / **Value** / **Description** Place Name * — ZombiePlace — Unique identifier used to label a Place. [Defa and space.] [A value is required.] Parent * — NONE — The Parent of this Place [A value is required. Place Type * — Site — The Type of this Place [A value is required.] **Place Name:** **<Site Name>** **Parent:** **NONE** **Place Type:** **Site** Repeat this step for each of the *PCA Places (Sites)* in the network. See the 1.4 Terminology section for more information on Sites & Places.

Procedure 21: Configure Places and Assign MP Servers to Places (PCA/DCA ONLY)

3 ☐	**NOAM VIP GUI:** Assign MP Servers To Places	Select the place configured in step 2, press the edit button.  For each place you have defined, choose the set of MP servers that will be assigned to those places.  Check all the check boxes for **PCA DA-MP** and **SBR** servers that will be assigned to this place. Repeat this step for all other DA-MP or SBR servers you wish to assign to places. **Note**: All **PCA DA-MPs, SS7MPs** and **SBR MPs** must be added to the *Site Place* that corresponds to the physical location of the server. See the **1.4** Terminology section for more information on *Sites*.

Procedure 22: Configure the MP Server Group(s) and Profile(s)

S T E P #	This procedure will provide the steps to configure MP Server Groups Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**NOAM VIP GUI:** Login	If not already done, establish a GUI session on the NOAM server the VIP IP address of the NOAM server. Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login to the NOAM GUI as the ***guiadmin*** user: 

Procedure 22: Configure the MP Server Group(s) and Profile(s)

2 ☐	**NOAM VIP GUI:** Determine Server Group Function	Determine what server group function will be configured, make note the following configuration decisions.

Server Group Function	MPs Will Run	Redundancy Model
DSR (multi-active cluster)	Diameter Relay and Application Services	Multiple MPs active Per SG
DSR (active-standby pair)	Diameter Relay and Application Services	1 Active MP and 1 Standby MP / Per SG
IP Load Balancer	IPFE application	1 Active MP Per SG
SBR	Policy and Charging Session/or Policy Binding Function	1 Active MP, 1 Standby MP, 2 Optional Spare Per SG
SS7-IWF	MAP IWF Application	1 Active MP Per SG

For PCA application:

- **Online Charging function (only)**
  - At least one MP Server Group with the "SBR" function must be configured
  - At least one MP Server Group with the "DSR (multi-active cluster)" function must be configured
  - MP Server Groups with the "IP Load Balancer" function (IPFE) are optional.
- **Policy DRA function**
  - At least two MP Server Groups with the "SBR" function must be configured. One will store Session data and one will store Binding data.
  - At least one MP Server Group with the "DSR (multi-active cluster)" function must be configured
  - MP Server Groups with the "IP Load Balancer" function (IPFE) are optional.

For DCA application:

- At least one MP Server Group with the "DSR (multi-active cluster)" function must be configured.
- At least one MP Server Group with the "Session Binding Repository" function may be configured in case of Session based DCA Application.
- **Note:** If PCA application is already functional, then an existing Policy and Charging SBR for Session SBR may be re-used instead of configuring a new "Session Binding Repository".

WAN Replication Connection Count:

- For non-Policy and Charging SBR Server Groups and "Session Binding Repository" : **Default Value**
- For Policy and Charging Server Groups and "Session Binding Repository" SGs: **8**

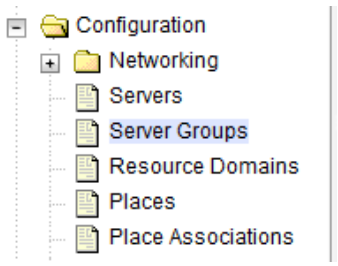
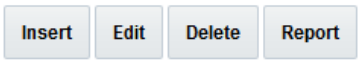
For the PCA application, the following types of MP Server Groups must be configured:

- **DA-MP (Function: DSR (multi-active cluster))**
- **SBR (Function: SBR**
- **IPFE (Function: IP Load Balancer) – Optional)**
-

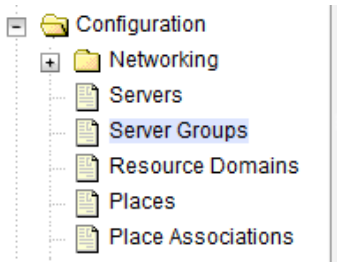
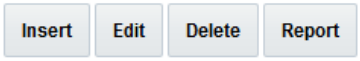
For the DCA application, the following types of MP Server Groups must be configured:

- **DA-MP (Function: DSR (multi-active cluster))**
- SBR (Function: **Session Binding Repository**) = Optional for Session less Apps "OR" SBR (Function: **SBR** assigned to Session Resource Domain.
- IPFE (Function: **IP Load Balancer**) – Optional)

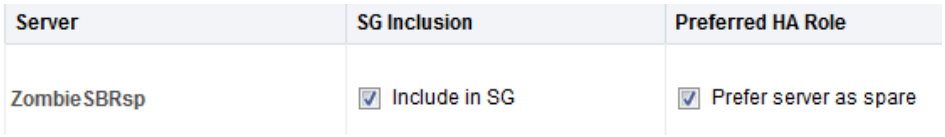
Procedure 22: Configure the MP Server Group(s) and Profile(s)

3 ☐	**NOAM VIP GUI:** Enter MP Server Group Data	From the data collected from step 2, create the server group with the following: Navigate to **Main Menu** ->**Configuration** ->**Server Groups**  Select **Insert**  Fill out the following fields: **Server Group Name: <Server Group Name>** **Level: C** **Parent: [SOAMP Server Group That is Parent To this MP]** **Function: Select the Proper Function for this MP Server Group (Gathered in Step 2)** Select **OK** when all fields are filled in.
4 ☐	**NOAM VIP GUI:** Repeat For Additional Server Groups	Repeat Steps 2-3 for any remaining MP server groups you wish to create. For instance, if you are installing IPFE, you will need to create an IP Load Balancer server group.

Procedure 22: Configure the MP Server Group(s) and Profile(s)

5 ☐	**NOAM VIP GUI:** Edit the MP Server Groups to include MP blades.	From the GUI, navigate to **Main Menu**->**Configuration**->**Server Groups**  Select a server group that you just created and then select **Edit.**  Select the Network Element that represents the MP server group you wish to edit. Click the **Include in SG** box for every MP server that you wish to include in *this* server group. Leave other checkboxes blank.  **Note:** Each IPFE and SS7MP server should be in its own server group. Select **OK.**

Procedure 22: Configure the MP Server Group(s) and Profile(s)

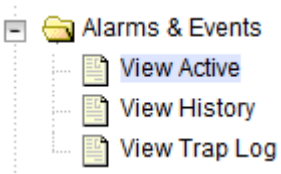
<table>
<tr><td>6
☐</td><td>NOAM VIP GUI: [PCA/DCA ONLY]
Edit the MP Server Group and add Preferred Spares for Site Redundancy (Optional)</td><td>If Two Site Redundancy for the Policy and Charging SBR Server Group/ Session Binding Repository SBR Server Group is wanted, add a MP server that is physically located in a separate site (location) to the Server Group by clicking the Include in SG checkbox and also check the Preferred Spare checkbox.
 

If Three Site Redundancy for the SBR MP Server Group is wanted, add two SBR MP servers that are both physically located in separate sites (location) to the Server Group by clicking the Include in SG checkbox and also check the Preferred Spare checkbox for both servers.

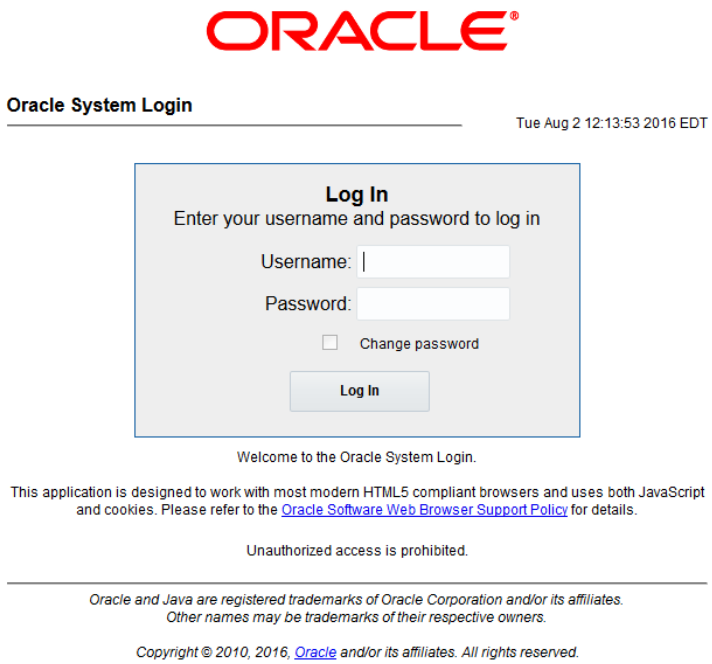
Note: The Preferred Spare servers should be different sites from the original server and should not be in the same site. There should be servers from three separate sites (locations).

For more information about Site Redundancy for Policy and Charging SBR/ Session Binding Repository Server Groups, see the 1.4 Terminology section.

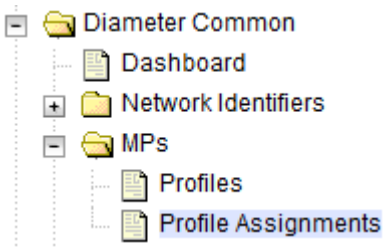
Select OK to save</td></tr>
<tr><td>7
☐</td><td>NOAM VIP GUI: Repeat For Additional Server Groups</td><td>Repeat Steps 5- 6 for any remaining MP server groups you need to edit.</td></tr>
<tr><td>8
☐</td><td>NOAM VIP GUI: Wait for Remote Database Alarm to Clear</td><td>Wait for the alarm Remote Database re-initialization in progress to be cleared before proceeding.

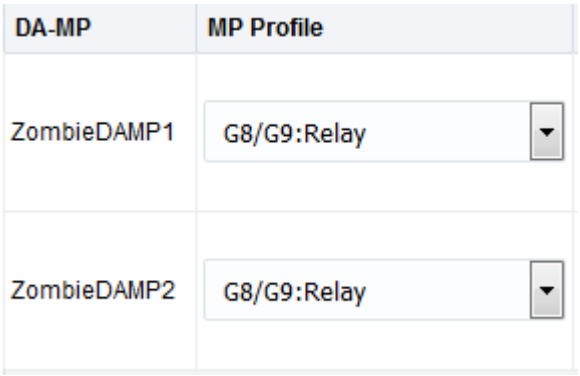
Navigate to Main menu->Alarms & Events->View Active
 
</td></tr>
</table>

Procedure 22: Configure the MP Server Group(s) and Profile(s)

9 ☐	**SOAM VIP GUI:** Login	If not already done, establish a GUI session on the SOAM server by using the VIP IP address of the SOAM server. Open the web browser and enter a URL of: `http://<Primary_SOAM_VIP_IP_Address>` Login to the SOAM GUI as the ***guiadmin*** user: 

Procedure 22: Configure the MP Server Group(s) and Profile(s)

<table>
<tr>
<td>10 ☐</td>
<td>SOAM VIP GUI: Assign Profiles to DA-MPs from SOAM GUI.</td>
<td>
Navigate to Main Menu -> Diameter Common ->MPs -> Profile Assignments


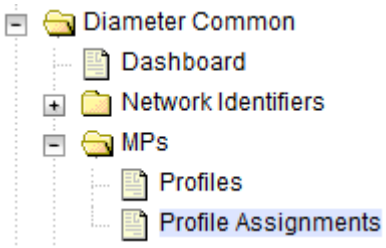
Refer to the DA-MP section. (If the site has both DSR and MAP-IWF server groups, you will see both a DA-MP section and an SS7-MP section)


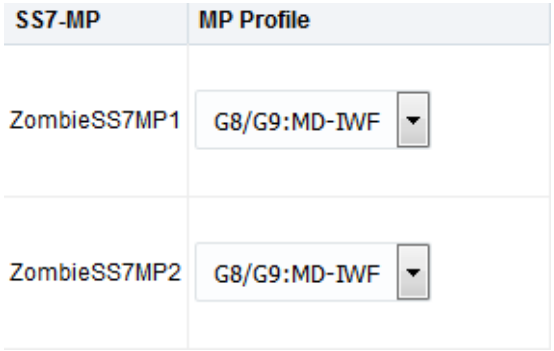
For each MP, select the proper profile assignment based on the MP's hardware type and the function it will serve:
<table>
<tr><th>Profile Name</th><th>Description</th></tr>
<tr><td>G8/G9:Relay</td><td>G8/G9 DA-MP half height blade running the relay application</td></tr>
<tr><td>G8/G9:Database</td><td>G8/G9 DA-MP half height blade running a database application (e.g. FABR, RBAR)</td></tr>
<tr><td>G8/G9:Session</td><td>G8/G9 DA-MP half height blade running a session application (e.g. CPA, PCA)</td></tr>
<tr><td>Gen9V2:Relay</td><td>Gen9V2 DA-MP half height blade running the relay application</td></tr>
<tr><td>Gen9V2:Database</td><td>Gen9V2 DA-MP half height blade running a database application (e.g. FABR, RBAR)</td></tr>
<tr><td>Gen9V2:Session</td><td>Gen9V2 DA-MP half height blade running a session application (e.g. CPA, PCA)</td></tr>
</table>

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.

When finished, press the Assign button
</td>
</tr>
</table>

Procedure 22: Configure the MP Server Group(s) and Profile(s)

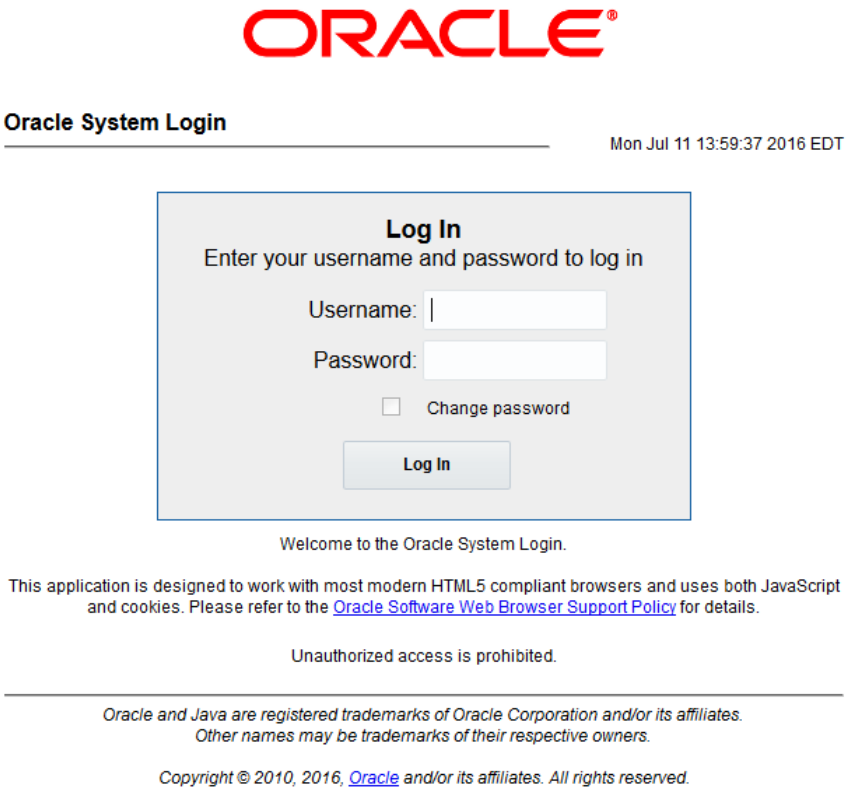
<table>
<tr>
<td>11 ☐</td>
<td>SOAM VIP GUI: Assign Profiles to SS7-MPs.</td>
<td>Navigate to Main Menu->Diameter->Configuration->MPs->Profiles Assignments
 

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)
 

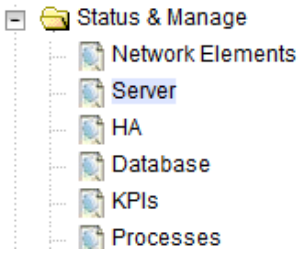
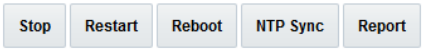
For each SS7 MP, select the proper profile assignment based on the SS7 MP's hardware type and the function it will serve:
<table>
<tr><th>Profile Name</th><th>Description</th></tr>
<tr><td>G8/G9:MD-IWF</td><td>HP BL460 Gen8/9 Running MAP-IWF fucntions</td></tr>
</table>

When finished, press the Assign button</td>
</tr>
</table>

Procedure 22: Configure the MP Server Group(s) and Profile(s)

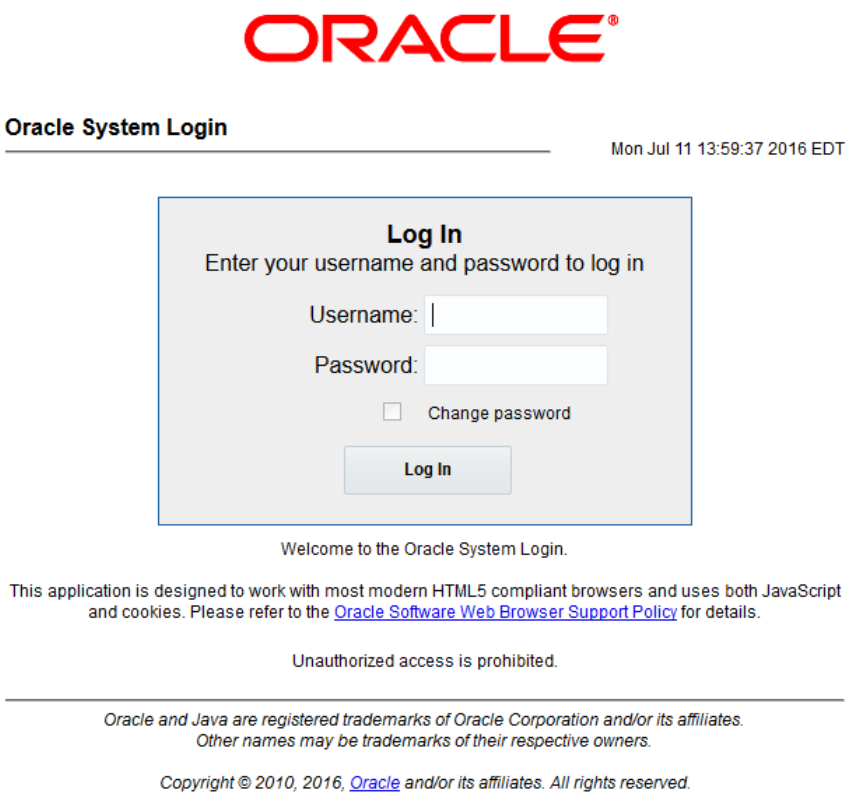
12 ☐	**NOAM VIP GUI:** Login	If not already done, establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login to the NOAM GUI as the ***guiadmin*** user: 

Procedure 22: Configure the MP Server Group(s) and Profile(s)

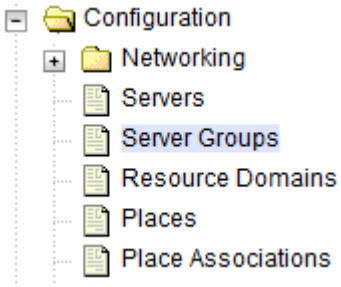
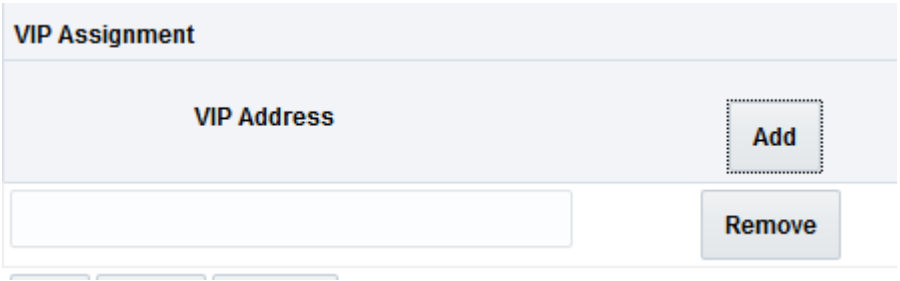
13 ☐	**NOAM VIP GUI:** Restart MP blade servers	Navigate to **Main menu**->**Status & Manage**->**Server**  For each MP server: • Select the MP server. • Select the **Restart** button. • Answer **OK** to the confirmation popup. Wait for the message which tells you that the restart was successful.  **Note**: POLICY AND CHARGING DRA INSTALLATIONS/DCA INSTALLATIONS: You may continue to see alarms related to ComAgent until you complete PCA/DCA installation

14 ☐	**NOAM VIP:** Clear DA_MP_Leader Alarm	**Active/Standby DA-MP Configurations Only**
		If DSR (Active/Standby pair) server group function was configured for the DA-MPs, execute this step.
		`$ sudo iqt -fClusterID TopologyMapping where "NodeID='<DA-MP Server Hostname>'"`
		`Server_ID NodeID ClusterID`
		`7 ZombieDAMP2 C2479`
		Using the ClusterID above, enter the following:
		`$ echo "<Cluster_ID>|DA_MP_Leader|Yes" | iload -ha -xun -fcluster -fresource -foptional HaClusterResourceCfg`

Procedure 23: Add VIP for Signaling networks (Active/Standby Configurations Only)

S T E P #	This procedure will provide the steps to configure the VIPs for the signaling networks on the MPs. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**NOAM VIP GUI:** Login	If not already done, establish a GUI session on the NOAM server the VIP IP address of the NOAM server. Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login to the NOAM GUI as the ***guiadmin*** user: 

Procedure 23: Add VIP for Signaling networks (Active/Standby Configurations Only)

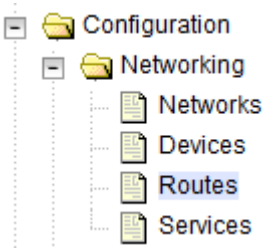
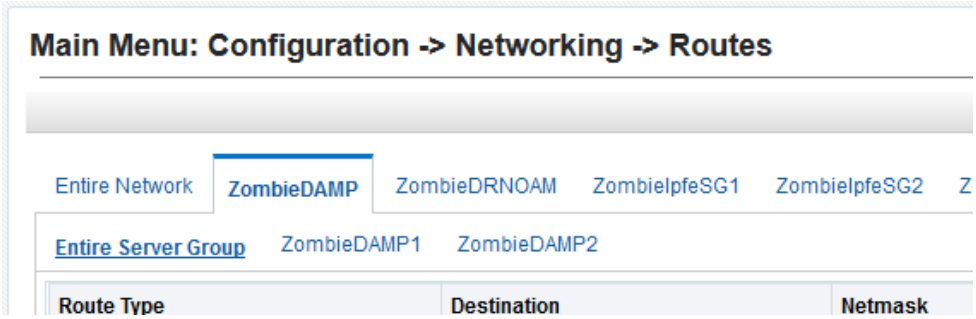
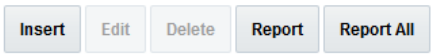
2 ☐	**NOAM VIP GUI:** Edit the MP Server Group and add VIPs (ONLY FOR 1+1)	**IF YOUR MPs ARE IN A DSR MULTI-ACTIVE CLUSTER SERVER GROUP CONFIGURATION (N+0), THEN SKIP THIS STEP** From **Main Menu->Configuration->Server Groups**  Select the MP server group, and then select **Edit**  Click on **Add** to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

4.4.2 Configure Signaling Devices

Procedure 24: 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,SS7-MP, etc.) Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**NOAM VIP GUI:** Login	If not already done, establish a GUI session on the NOAM server the VIP IP address of the NOAM server. Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login to the NOAM GUI as the ***guiadmin*** user: 

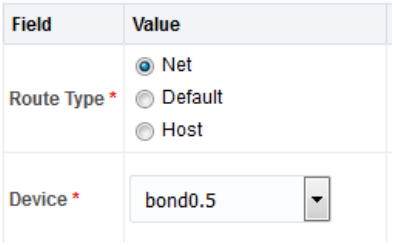
Procedure 24: Configure the Signaling Network Routes

2 ☐	**NOAM VIP GUI:** Navigate to Routes Configuration Screen	Navigate to **Main Menu -> Configuration -> Network -> Routes**  Select the MP Server group tab on the top row, then verify the **Entire Server Group** link is selected, if not, select the link. 
3 ☐	**NOAM VIP GUI:** Add Route	Click on **Insert** at the bottom of the screen to add additional routes. 

Procedure 24: Configure the Signaling Network Routes

4 ☐	**NOAM VIP GUI:** Add Default Route for MPs Going Through Signaling Network Gateway (Optional)	**OPTIONAL -** Only execute this step if you performed **Procedure 20: Step 15**: which removed the XMI gateway default route on MPs 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. **Insert Route on DAMP_SG** Field / Value / Descript Route Type * — Net / Default / Host — Select a Device * — bond0.5 — Select th Destination — The dest Netmask — A valid ne Gateway IP * — The IP ac Ok Apply Cancel **Route Type:** **Default** **Device:** **Select the signaling device that is directly attached to the network where the XSI default gateway resides.** **Gateway IP:** **The XSI gateway you wish to use for default signaling network access**. Select **OK**

Procedure 24: Configure the Signaling Network Routes

5 ☐	**NOAM VIP GUI:** 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.
		 
		
		Route Type: Net, Default, Host
		
		Device: Select the appropriate signaling interface that will be used to connect to that network
		
		Destination: Enter the Network ID of Network to which the peer node is connected to.
		
		Netmask: Enter the corresponding Netmask (if configuring Net routes)
		
		Gateway IP: Enter the Int-XSI switch VIP of the chosen Network for L3 deployments (either of int-XSI-1 or of int-XSI2). Or the IP of the customer gateway for L2 deployments.
		
		If you have more routes to enter, Press **Apply** to save the current route entry and repeat this step to enter more routes
		
		If you are finished entering routes, Press **OK** to save the latest route and leave this screen.
		
		Layer 3 Configurations Aggregation Switch Configurations Only: Routes should be configured on the aggregation switches so that the destination networks configured in this step are reachable. This can be done by running the following **netconfig** commands from the site's local PMAC (examples shown -- actual values will vary) :
		
		Add routes (IPv4 & IPv6):
		
		`$ sudo netConfig --device=switch1A addRoute network=10.10.10.0/24 nexthop=10.50.76.81`
		`$ sudo netConfig --device=switch1A addRoute network6=2001::/64 nexthop=fd0f::1`
		
		Delete routes (IPv4 & IPv6):
		
		`$ sudo netConfig --device=switch1A deleteRoute network=10.10.10.0/24 nexthop=10.50.76.81`
		`$ sudo netConfig -device=switch1A deleteRoute network6=2001::/64 nexthop=fd0f::1`

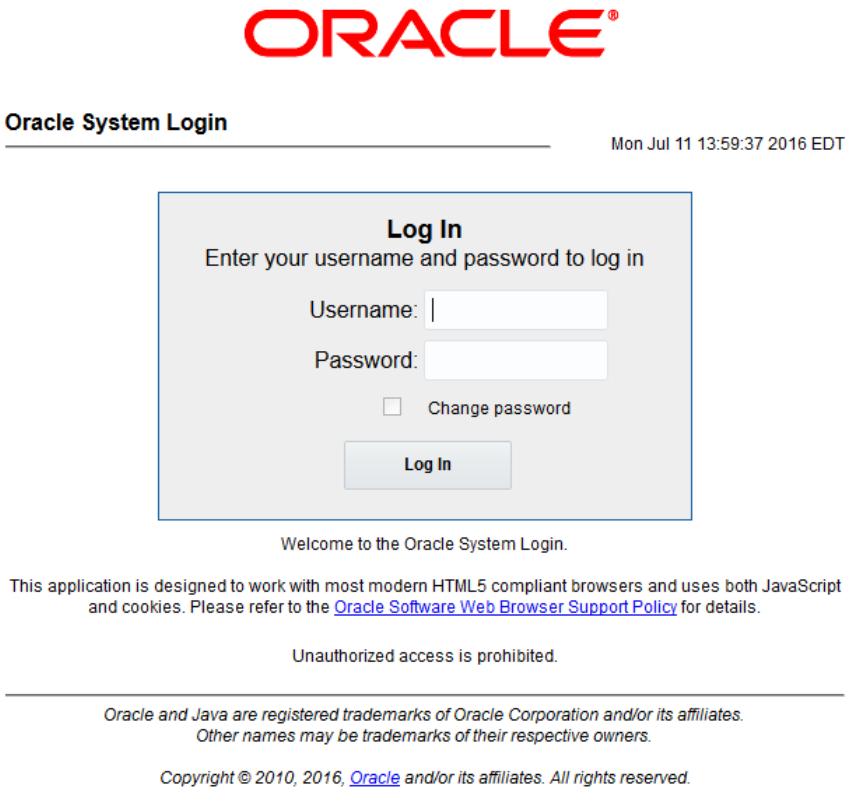
Procedure 24: Configure the Signaling Network Routes

6 ☐	**Local PMAC:** Perform a netConfig Backup	After the routes are added to the aggregation switches via netconfig, a **netconfig backup** should be taken so that the new routes are retained in the backup.
		
		Execute the following command:
		
		`$ netConfig backupConfiguration --device=<Switch Hostname service=<ssh_Service> filename=<Backup Filename>`
		
		Copy the files to the backup directory:
		
		`$ sudo /bin/mv -i ~<switch_backup_user>/<switch_name>-backup* /usr/TKLC/smac/etc/switch/backup`

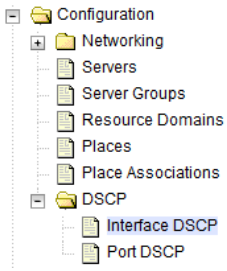
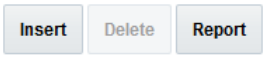
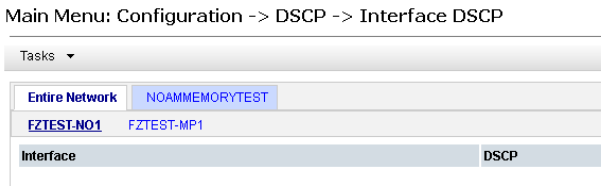
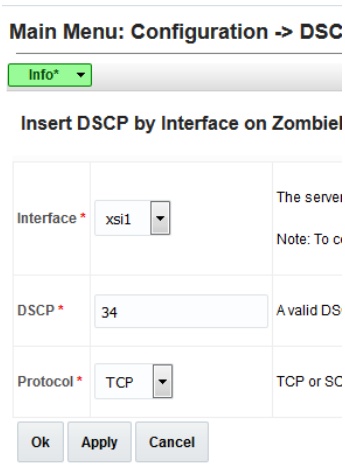
7 ☐	**NOAM VIP GUI:** Repeat for all other MP server groups.	The routes entered in this procedure should now be configured on all MPs in the server group for the first MP you selected. If you have additional MP server groups, repeat from **step 2**, but this time, select an MP from the next MP server group. Continue until you have covered all MP server groups. This includes DAMP, IPFE, and SS7MP servers. **Note:** IPFE and DAMP servers must have the same routes configured.

4.4.3 Configure DSCP (Optional)

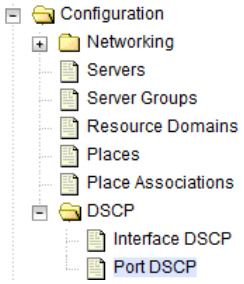
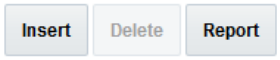
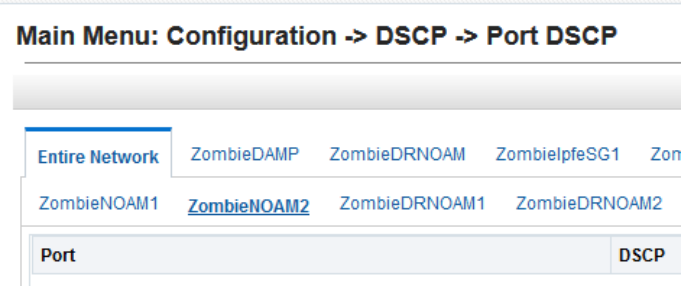
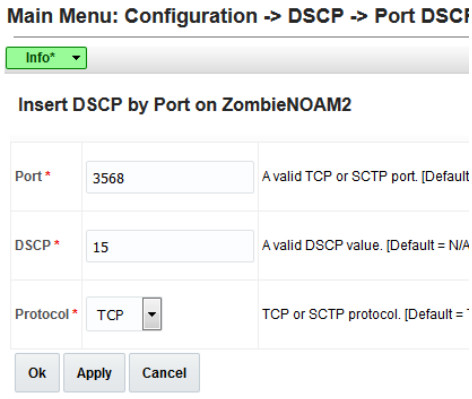
Procedure 25: Configure DSCP Values for Outgoing Traffic

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 utilize packet DSCP markings for Quality-of-Service purposes. **Note:** If your enclosure switches already have DSCP configuration for the signaling VLANs, then the switch configuration will override the settings in this procedure. It is strongly recommended, however, that you configure DSCP here at the application level where you have the most knowledge about outgoing traffic patterns and qualities. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**NOAM VIP GUI:** Login	If not already done, establish a GUI session on the NOAM server the VIP IP address of the NOAM server. Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login to the NOAM GUI as the ***guiadmin*** user: 

Procedure 25: Configure DSCP Values for Outgoing Traffic

2 ☐	**NOAM VIP GUI:** 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. Navigate to **Main Menu -> Configuration -> DSCP -> Interface DSCP**  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). Click **Insert**   Select the network interface from the drop down box. Enter the *DSCP value* you wish to have applied to packets leaving this interface and select the transport protocol.  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 25: Configure DSCP Values for Outgoing Traffic

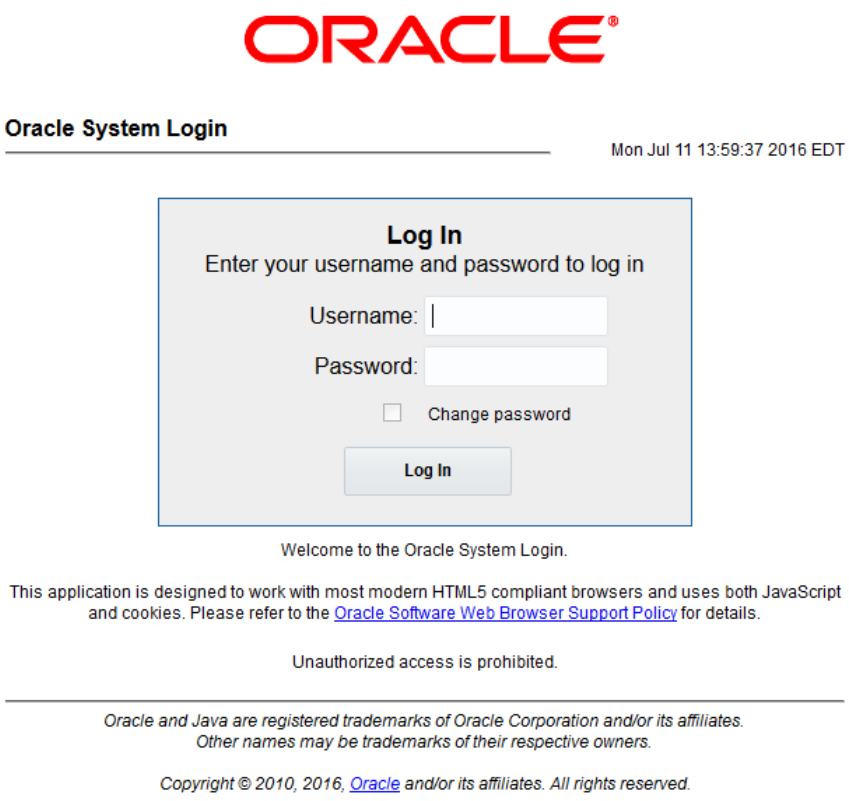
3 ☐	**NOAM VIP GUI:** Option 2: Configure Port DSCP	**Note:** The values displayed in the screenshots are for demonstration purposes only. The exact DSCP values for your site will vary. Navigate to **Main Menu -> Configuration -> DSCP -> Port DSCP**  Select the server you wish to configure from the list 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). Click **Insert**   Enter the source port, DSCP value, and select the transport protocol.  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*.

Procedure 25: Configure DSCP Values for Outgoing Traffic

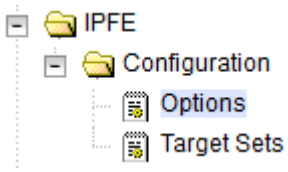
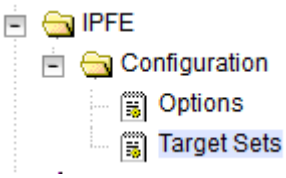
4 ☐	**NOAM VIP GUI:** Repeat for additional servers.	Repeat **Steps 2-3** for all remaining servers.

4.4.4 Configure IP Front End Servers (Optional)

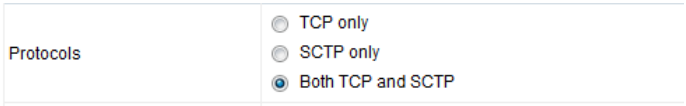
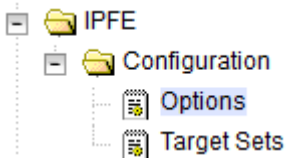
Procedure 26: IP Front End (IPFE) Configuration

S T E P #		
	This procedure will provide the steps to configure IP Front End (IPFE), and optimize performance. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**SOAM VIP GUI:** Login	Establish a GUI session on the SOAM server the VIP IP address of the SOAM server. Open the web browser and enter a URL of: `http://<Primary_SOAM_VIP_IP_Address>` Login to the SOAM GUI as the ***guiadmin*** user: 

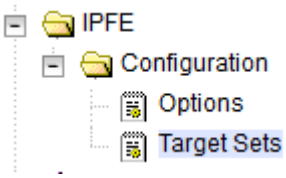
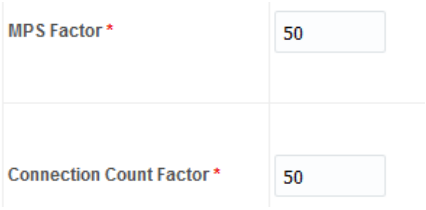
Procedure 26: IP Front End (IPFE) Configuration

2 ☐	**SOAM VIP GUI:** Configuration of replication IPFE association data.	Select **Main Menu -> IPFE -> Configuration -> Options**  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 If applicable, enter the address of the 3rd and 4th IPFE servers in IPFE-B1 IP Address and IPFE-B2 IP Address fields. **Configuration Options** Variable / Value / Descrip Inter-IPFE Synchronization IPFE-A1 IP Address: 169.254.1.11 - ZombieIPFE1 (IPv4 or I This sel) IPFE-A2 IP Address: 169.254.1.12 - ZombieIPFE2 (IPv4 or I This sel) **Note:** It is recommended that the address reside on the IMI (Internal Management Interface) network. **Note:** IPFE-A1 and IPFE-A2 must have connectivity between each other via these addresses. The same applies with IPFE-B1 and IPFE-B2. Click **Ok**
3 ☐	**SOAM VIP GUI:** Configuration of IPFE Target sets-Part 1 (Insert Target Set)	Select **Main Menu -> IPFE -> Configuration -> Target Sets**  Select either **Insert IPv4** or **Insert IPv6** button, depending on the IP version of the target set you plan to use. 

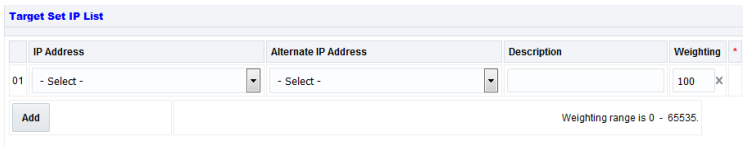
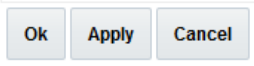
Procedure 26: IP Front End (IPFE) Configuration

4 ☐	**SOAM VIP GUI:** Configuration of IPFE Target sets-Part 2 (Target Set Configuration)	Continued from the previous step, the following are configurable:
		Protocols: protocols the target set will support.
		 
		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.
		 
		Load Balance Algorithm: *Hash* or ***Least Load*** options
		 
		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.
		 
		 
		Note: The Least Load option is the default setting, and is the recommended option with exception of unique backward compatibility scenarios.
		Execute the following command if Hash Load Balance Algorithm was selected above. (advise cut and paste to prevent errors):
		Establish an SSH session to the SOAM VIP, login as ***admusr***.
		`$ sudo iset -fvalue="50" DpiOption where "name='MpEngIngressMpsPercentile'"`
		`=== changed 1 records ===`

Procedure 26: IP Front End (IPFE) Configuration

5 ☐	**SOAM VIP GUI:** Configuration of IPFE Target sets-Part 3 (Target Set Configuration)	**(**From **Main Menu -> IPFE -> Configuration -> Target Sets**  **(Optional):** If you have selected the **Least Load algorithm**, you may configure the following fields to adjust the algorithm's behavior: **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 Sets**. If you choose not to use **Reserved Ingress MPS**, set **MPS Factor** to 0 and **Connection Count Factor**, described below, to 100. **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. **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. 

Procedure 26: IP Front End (IPFE) Configuration

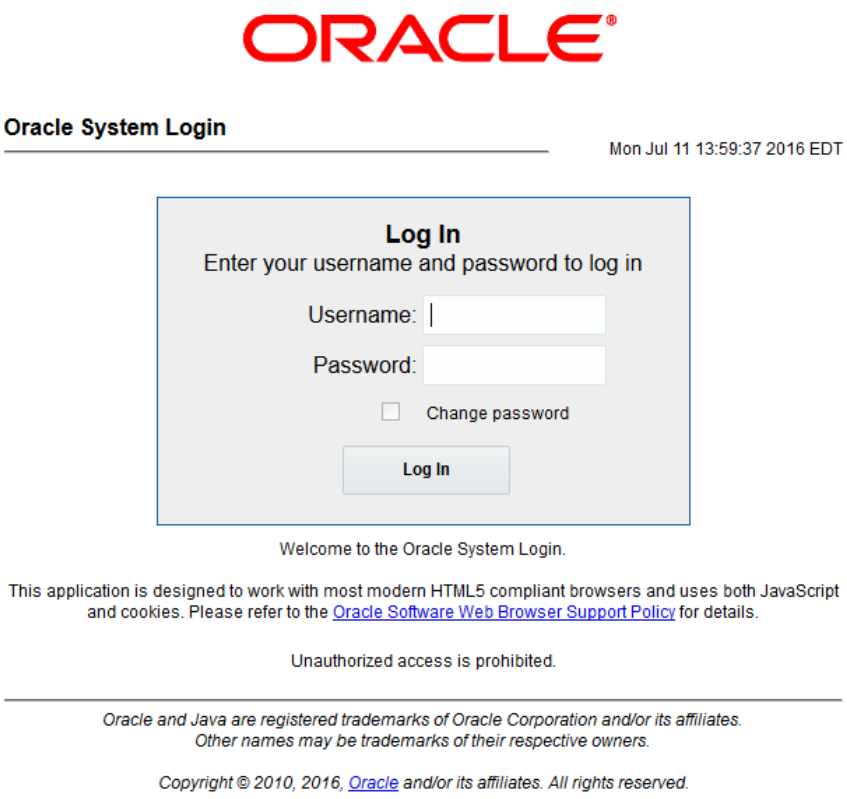
6 ☐	**SOAM VIP GUI:** Configuration of IPFE Target sets-Part 4 (Target Set Configuration)	**Primary Public IP Address:** IP address for the target set  **Note:** This address must reside on the XSI (External Signaling Interface) network because it will be used by the application clients to reach the application servers. This address MUST NOT be a real interface address (that is, must not be associated with a network interface card). Active IPFE: IPFE to handle the traffic for the target set address. **Secondary Public IP Address:** If this target set supports either multi-homed SCTP or Both TCP and SCTP, provide a Secondary IP Address.  **Note:** A secondary address is required to support SCTP multi-homing. A secondary address can support TCP, but the TCP connections will not be multi-homed. **Note:** If SCTP multi-homing 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. **Target Set IP List:** Select an IP address, a secondary IP address if supporting SCTP multi-homing, a description, and a weight for the application server.  **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 Address is configured, it must reside on the same application server as the first IP address. **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. Click the **Add** button to add more application servers (Up to 16) Click the **Apply** button. 

Procedure 26: IP Front End (IPFE) Configuration

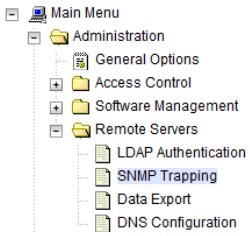
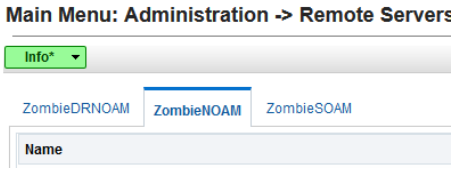
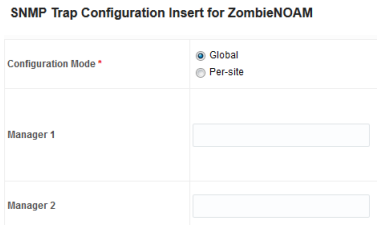
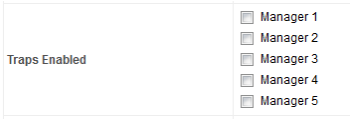
7 ☐	**SOAM VIP GUI:** Repeat for additional Configuration of IPFE Target sets.	Repeat for **steps 3-6** for each target set (Up to 16). At least one target set must be configured.

4.5 SNMP Configuration

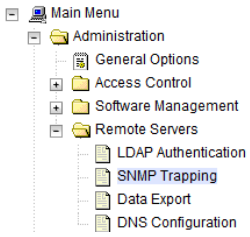
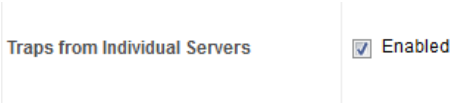
Procedure 27: Configure SNMP Trap Receiver(s)

S T E P #		
	This procedure will provide the steps to configure forwarding of SNMP Traps from each individual server. **NOTE: If SNMP configuration is not required, skip to step 6.** Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**NOAM VIP GUI:** Login	If not already done, establish a GUI session on the NOAM server the VIP IP address of the NOAM server. Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login to the NOAM GUI as the ***guiadmin*** user: 

Procedure 27: Configure SNMP Trap Receiver(s)

2 ☐	**NOAM VIP GUI:** Configure System-Wide SNMP Trap Receiver(s)	Navigate to **Main Menu -> Administration -> Remote Servers -> SNMP Trapping**  Select the Server Group tab for SNMP trap configuration:  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 NOAMP's "XMI" network. Continue to fill in additional secondary, tertiary, etc. Manager IPs in the corresponding slots if desired.  Check Traps Enabled boxes for the Manager servers being configured:  Enter the **SNMP Community Name**:  Leave all other fields at their default values. Press **OK**

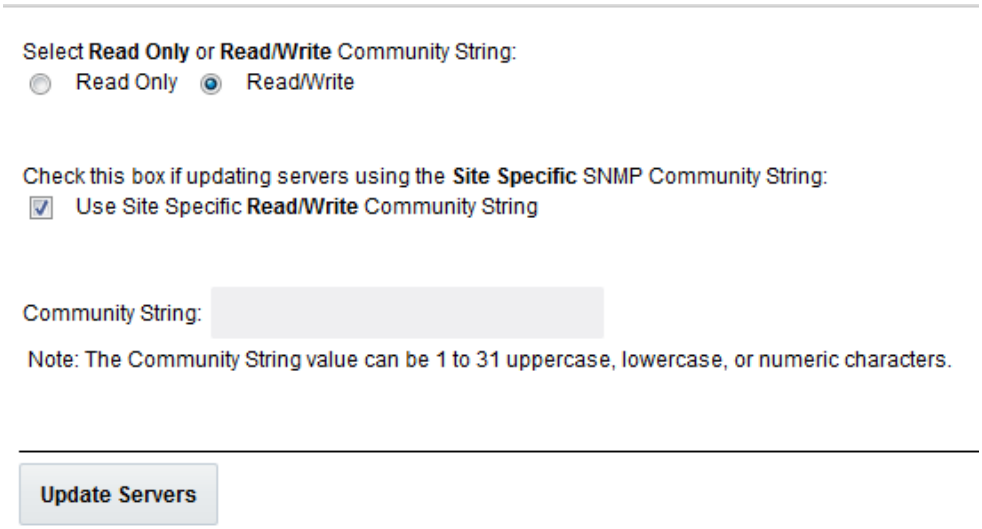
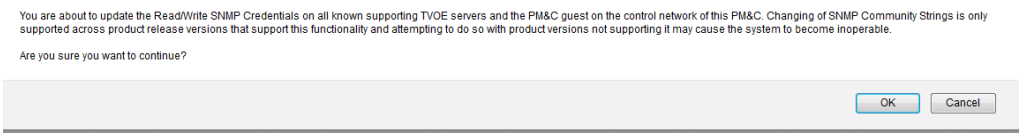
Procedure 27: Configure SNMP Trap Receiver(s)

3 ☐	**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. This procedure requires that all servers, including MPs, have an XMI interface on which the customer SNMP Target server (NMS) is reachable. Navigate to **Main Menu -> Administration -> Remote Servers -> SNMP Trapping**  Make sure the checkbox next to **Enabled** is checked, if not, check it as shown below  Then click on **Apply** and verify that the data is committed.

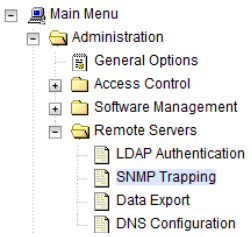
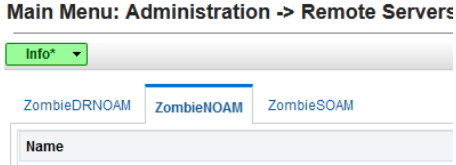
Procedure 27: Configure SNMP Trap Receiver(s)

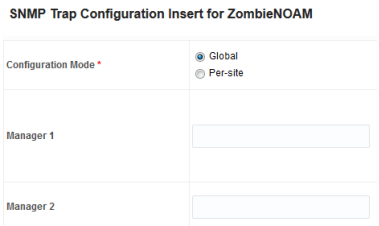
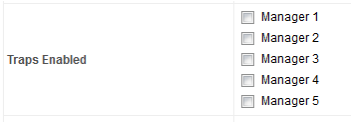
4 ☐	**PMAC GUI:** Login	Open web browser and enter: `http://<PMAC_Mgmt_Network_IP>` Login as ***guiadmin*** user: 

Procedure 27: Configure SNMP Trap Receiver(s)

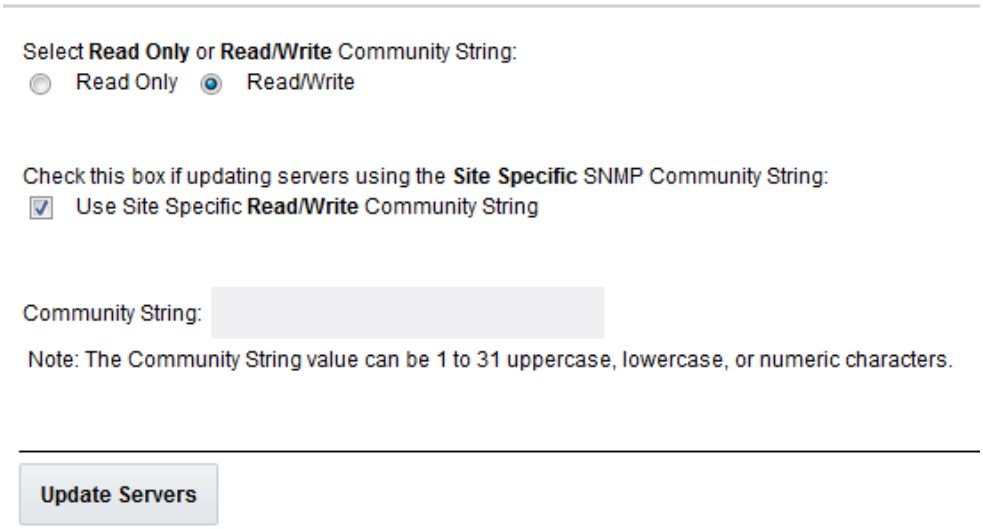
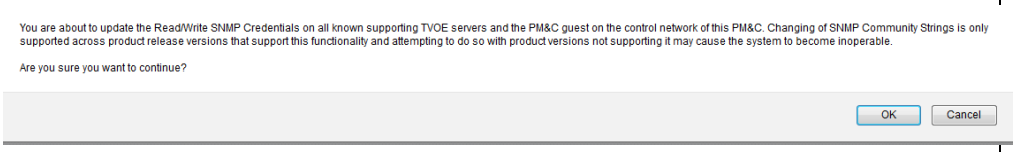
5 ☐	**PMAC GUI:** Update the TVOE Host SNMP Community String	Navigate to **Main Menu -> Administration -> Credentials -> SNMP Community String Update** Check the box Use Site Specific Read/Write Community String  Click **Update Servers** Select **Ok** to the following prompt: 

6 ☐	**(Workaround)** **NOAM VIP GUI:** Login	**NOTE:** This workaround step should be performed only in the following cases: 1) If SNMP is not configured (i.e, if above steps 1-6 are skipped) 2) If SNMP is already configured and **SNMPv3** is selected as enabled version **Note: This is a workaround step to configure SNMP with 'SNMPv2c and SNMPv3' as the enabled versions for SNMP Traps configuration, as PMAC does not support SNMPv3.** If not already done, establish a GUI session on the NOAM server the VIP IP address of the NOAM server.

		Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login to the NOAM GUI as the ***guiadmin*** user: 
7 ☐	**NOAM VIP GUI:** Configure System-Wide SNMP Trap Receiver(s)	Navigate to **Main Menu -> Administration -> Remote Servers -> SNMP Trapping**  Select the Server Group tab for SNMP trap configuration: 

		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 NOAMP's "XMI" network. (If already configured SNMP with **SNMPv3** as enabled version, another server needs to be configured here) Continue to fill in additional secondary, tertiary, etc. Manager IPs in the corresponding slots if desired.  Set the Enabled Versions as **SNMPv2c and SNMPv3**:  Check Traps Enabled boxes for the Manager servers being configured:  Enter the **SNMP Community Name**:  Leave all other fields at their default values. Press **OK**

8 ☐	**PMAC GUI:** Login	Open web browser and enter: `http://<PMAC_Mgmt_Network_IP>` Login as ***guiadmin*** user: 

9 ☐	**PMAC GUI:** Update the TVOE Host SNMP Community String	Navigate to **Main Menu -> Administration -> Credentials -> SNMP Community String Update** Check the box Use Site Specific Read/Write Community String  Click **Update Servers** Select **Ok** to the following prompt: 
10 ☐	**SNMPv3 (Optional)**	Refer to Appendix O: Restoring SNMP configuration to SNMPv3 (Optional) to restore SNMPv3 after installation, if required

4.6 IDIH Installation and Configuration (Optional)

The following procedures outline the steps needed to install and configure IDIH.

Note: If their already exists an IDIH, and this is an IDIH re-installation; execute **Appendix J**: IDIH External Drive Removal before proceeding.

4.6.1 IDIH Installation

The installation procedure uses the “fast deployment” utility (fdconfig) bundled with the PMAC server to install and configure IDIH.

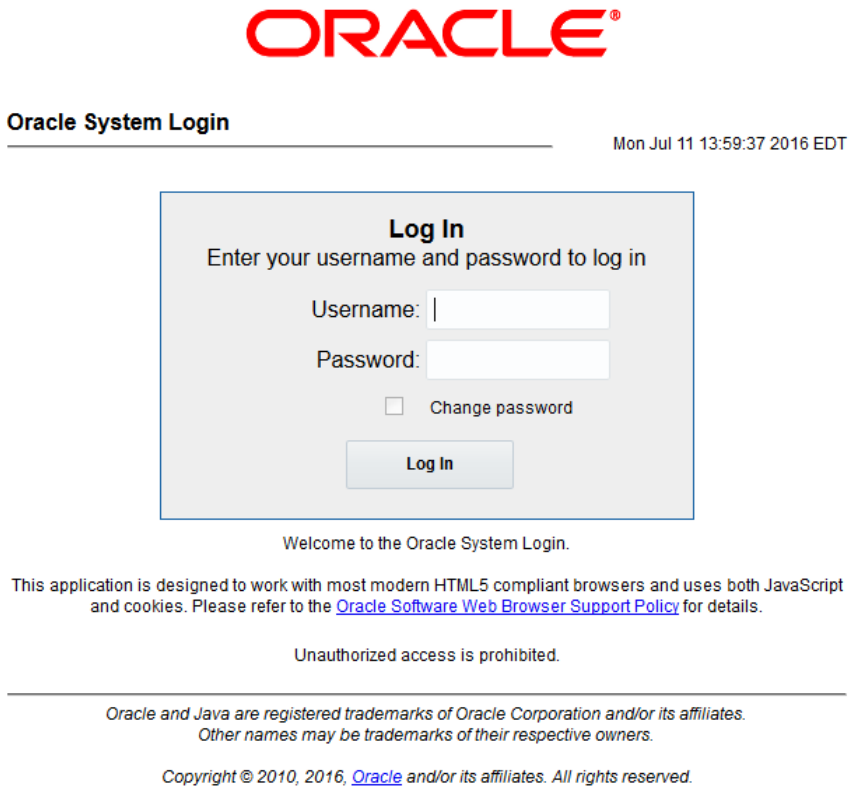
Note: For installation, oracle

Procedure 28: IDIH Configuration

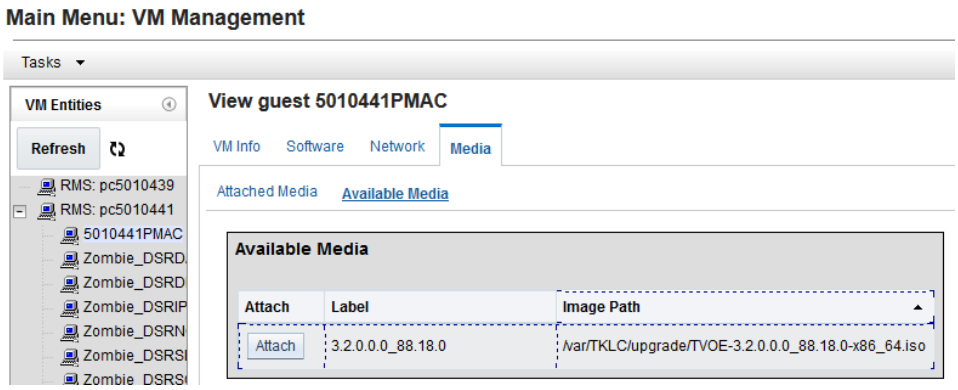
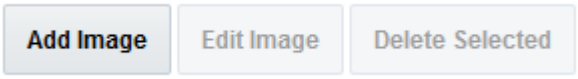
S T E P #	This procedure will provide the steps to install and configure IDIH. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	

1
☐
	TVOE Host:
	Load Application ISO
		Add the Application ISO images (**mediation, application, and oracleGuest**) to the PM&C, this can be done in one of three ways:
		1. Insert the Application CD required by the application into the removable media drive.
		2. Attach the USB device containing the ISO image to a USB port.
		3. Copy the Application iso file to the PM&C server into the **/var/TKLC/smac/image/isoimages/home/smacftpusr/** directory as pmacftpusr user:
		cd into the directory where your ISO image is located on the **TVOE Host** (*not on the PM&C server*)
		Using sftp, connect to the PM&C server
		`$ sftp pmacftpusr@<pmac_management_network_ip>`
		`$ put <image>.iso`
		After the image transfer is 100% complete, close the connection:
		`$ quit`
		
		Note: If there is insufficient disk space with the PMAC repository as pmacftpuser, please follow section “Configure PM&C Application Guest isoimages Virtual Disk” of [12] to increase it.

Procedure 28: IDIH Configuration

2 ☐	**PMAC GUI:** Login	Open web browser and enter: `http://<PMAC_Mgmt_Network_IP>` Login as ***guiadmin*** user: 

Procedure 28: IDIH Configuration

3 ☐	**PMAC GUI:** Attach the software Image to the PMAC Guest	If in Step 1 the ISO image was transferred directly to the PM&C guest via sftp, skip the rest of this step and continue with step 4. If the image is on a CD or USB device, continue with this step. In the PM&C GUI, navigate to **Main Menu -> VM Management.** In the *"**VM Entities**"* list, select the PM&C guest. On the resulting *"**View VM Guest**"* page, select the **Media** tab. Under the **Media** tab, find the ISO image in the *"**Available Media**"* list, and click its **Attach** button. After a pause, the image will appear in the *"**Attached Media**"* list. 
4 ☐	**PMAC GUI:** Add Application Image	Navigate to **Main Menu -> Software -> Manage Software Images** Press **Add Image** button. Use the drop down to select the image.  If the image was supplied on a CD or a USB drive, it will appear as a virtual device ***("device://...").*** These devices are assigned in numerical order as CD and USB images become available on the Management Server. The first virtual device is reserved for internal use by TVOE and PMAC; therefore, the iso image of interest is normally present on the second device, ***"device://dev/sr1".*** If one or more CD or USB-based images were already present on the Management Server before you started this procedure, choose a correspondingly higher device number. If in Step 1 the image was transferred to PMAC via sftp it will appear in the list as a local file ***"/var/TKLC/...".*** Select the appropriate path and Press **Add New Image** button. You may check the progress using the **Task Monitoring** link. Observe the green bar indicating success. Once the green bar is displayed, remove the DSR application Media from the optical drive of the management server.
5 ☐	**PMAC:** Establish Terminal Session	Establish an SSH session to the PMAC. Login as ***admusr***.

Procedure 28: IDIH Configuration

6 ☐	**PMAC:** Reset Create Guest Default Timeout and other timeout parameters	Reset the create guest default timeout.
		
		Execute the following commands:
		
		`$ sudo sqlite3 /usr/TKLC/plat/etc/TKLCfd-config/db/fdcRepo.fdcdb 'update params set value=3000 where name="DEFAULT_CREATE_GUEST_TIMEOUT"';`
		
		`$ sudo pmacadm setParam --paramName=defaultTpdProvdTimeout --paramValue=120`
		
		`$ sudo pmacadm setParam --paramName=guestDiskDeployTimeout --paramValue=50`
		
		To verify whether the above values are set correctly, run the below commands.
		
		`$ sudo sqlite3 /usr/TKLC/plat/etc/TKLCfd-config/db/fdcRepo.fdcdb 'select name, value from params where name like "%TIMEOUT%"';`
		
		`$ sudo pmacadm getParam --paramName=defaultTpdProvdTimeout`
		
		`$ sudo pmacadm getParam --paramName=guestDiskDeployTimeout`

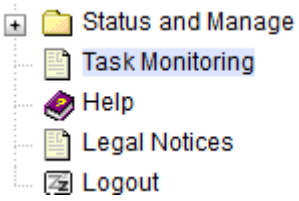
7 ☐	**PMAC:** Copy the fdc.cfg file to the guest-dropin Directory	Copy the fdc.cfg file to the pmac guest-dropin directory. Execute the following command: `$ sudo cp /usr/TKLC/smac/html/TPD/mediation-*/fdc.cfg /var/TKLC/smac/guest-dropin`
8 ☐	**PMAC:** Configure the fdc.cfg file	Configure the fdc.cfg file. See **Appendix I**: IDIH Fast Deployment Configuration for a breakdown of the parameters. Update the software versions, hostnames, bond interfaces, network addresses, and network VLAN information for the TVOE host and IDIH guests that you are installing.

Procedure 28: IDIH Configuration

9 ☐	**PMAC:** Run the FDC creation script idihFdc.sh	Rename the fdc.cfg file to your preference; also note that two files are generated by the fdc shell script. One is for the Installation procedure and the other file is used for the upgrade procedure. The upgrade FDC is named upgrade. Example: hostname.cfg Note: The following hostname for guests has been reserved for internal use. Please try to avoid them: • oracle • mediation • appserver Here are the suggested hostname for guests: • <server hostname>-ora example, thunderbolt-ora • <server hostname>-med example, thunderbolt-med • <server hostname>-app example, thunderbolt-app Run the FDC creation script **fdc.sh**. Execute the following commands: **$cd /var/TKLC/smac/guest-dropin/** **$sudo /usr/TKLC/smac/html/TPD/mediation-8.0.0.0.0_80.x.x-x86_64/fdc.sh fdc.cfg** **Note:** Verify the values in the xml generated from the fdc.sh script match those of the values entered in fdc.cfg.

Procedure 28: IDIH Configuration

10 ☐	**TVOE Host:** Verify/Remove External Devices	Establish an SSH session to the TVOE Host which will host the IDIH, login as ***admusr***.
		
		On the TVOE host which will host the IDIH, before IDIH has ever been installed, or, after the external disk removal procedure has been successfully completed:
		
		Execute the following command:
		
		$ ls /dev/sd*
		
		Verify you only have sda* devices (e.g. sda1, sda2, etc…)
		Expected output:
		
		`$ ls /dev/sd*`
		`/dev/sda /dev/sda1 /dev/sda2 /dev/sda3`
		
		Note: If any other devices are listed (e.g. sdb*, sdc*, sdd*, etc…) Stop. You must first remove the extra device(s) in your system (e.g. sdb*, sdc*, sdd*, etc…). Refer to **Appendix J: IDIH External Drive Removal**. Reboot the tvoe and verify the extra device(s) are still removed (> ls /dev/sd*)

11 ☐	**PMAC:** Run the fdconfig.	Run the fdconfig configuration. Execute the following commands: **$ screen** **$sudo fdconfig config --file=hostname_xx-xx-xx.xml** Example: `$sudo fdconfig config --file=tvoe-ferbrms4_01-22-15.xml` **Note:** This is a long duration command. If the screen command was run prior to executing the fdconfig, perform a *"screen -dr"* to resume the screen session in the event of a terminal timeout etc.
12 ☐	**PMAC GUI:** Monitor the Configuration	If not already done so, establish a GUI session on the PMAC server. Navigate to **Main Menu -> Task Monitoring**  Monitor the IDIH configuration to completion.

4.6.2 Post IDIH Installation Configuration

The following sections should be executed after IDIH installation is complete.

After an IDIH fresh installation, reference data synchronization is initially disabled. Reference data synchronization requires some initial configuration before it is enabled.

The Trace Ref Data Adapter application must retrieve data from web services hosted by the DSR SOAM web server, and this requires the DSR SOAM virtual IP address (VIP) to be configured.

The DSR SOAM VIP will be unique at each customer site because it is defined based on the customer's network configuration. Therefore, there is no standard default value for the DSR SOAM VIP.

Procedure 29: Configure DSR Reference Data Synchronization for IDIH

S T E P #		
	This procedure will provide the steps to configure DSR reference data syncornization for IDIH Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**IDIH Application Server:** Login	Establish an SSH session to the IDIH Application Server. Login as user ***admusr.*** Issue the following commands to login as ***tekelec*** user. `$ sudo su – tekelec`

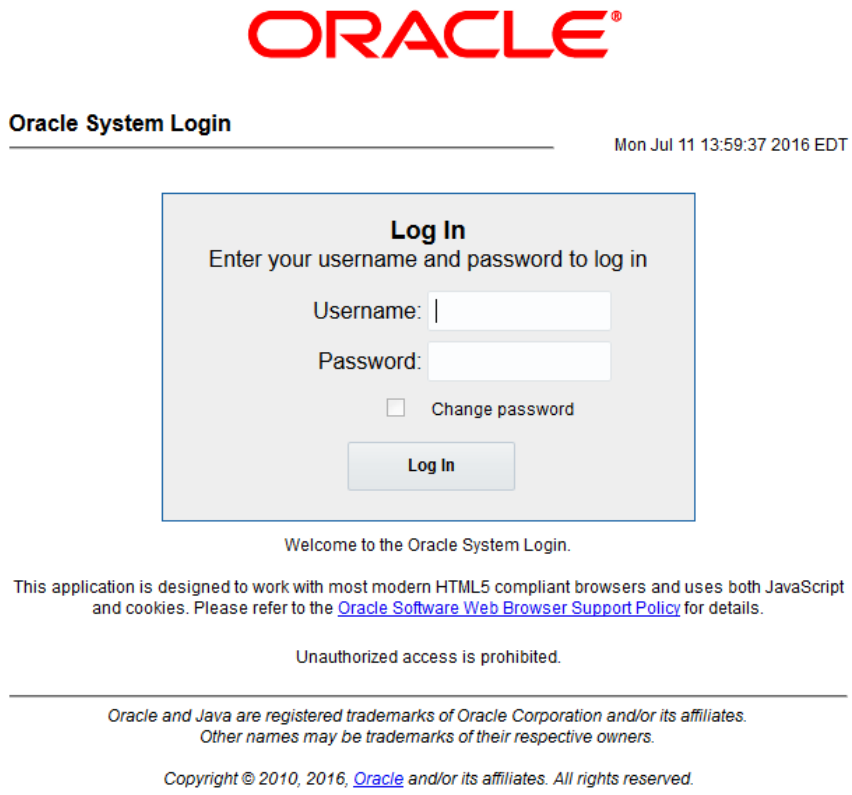
Procedure 29: Configure DSR Reference Data Synchronization for IDIH

2 ☐	**IDIH Application Server:** Execute Configuration Script.	Execute the following script: **`$ apps/trda-config.sh`** Example output: corsair-app:/usr/TKLC/xIH apps/trda-config.sh dos2unix: converting file /usr/TKLC/xIH/bea/user_projects/domains/tekelec/nsp/trace-refdata-ad Please enter DSR oam server IP address: 10.240.39.175 SQL*Plus: Release 12.1.0.2.0 Production on Thu Oct 1 15:04:40 2015 Copyright (c) 1982, 2014, Oracle. All rights reserved. Last Successful login time: Thu Oct 01 2015 13:27:57 -04:00 Connected to: Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production With the Partitioning, Automatic Storage Management, OLAP, Advanced Analytics and Real Application Testing options SQL> SQL> 2 3 4 5 1 row merged. SQL> Commit complete. SQL> Disconnected from Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Produ With the Partitioning, Automatic Storage Management, OLAP, Advanced Analytics and Real Application Testing options Buildfile: /usr/TKLC/xIH/apps/trace-refdata-adapter/build.xml app.disable: common.weblogic.stop: [echo] [echo] [echo] == [echo] application: xihtra [echo] date: 2015-10-01 15:04:41 [echo] == [echo] === stop application EAR [echo] date: 2015-10-01 15:04:41 [java] weblogic.Deployer invoked with options: -adminurl t3://appserver:7001 -userconfigprojects/domains/tekelec/keyfile.secure -name xIH Trace Reference Data Adapter -stop [java] <Oct 1, 2015 3:05:08 PM EDT> <Info> <J2EE Deployment SPI> <BEA-260121> <Initiating [java] Task 24 initiated: [Deployer:149026]stop application xIH Trace Reference Data Adap [java] Task 24 completed: [Deployer:149026]stop application xIH Trace Reference Data Adap [java] Target state: stop completed on Server nsp [java] BUILD SUCCESSFUL Total time: 29 seconds Buildfile: /usr/TKLC/xIH/apps/trace-refdata-adapter/build.xml app.enable: common.weblogic.start: [echo] [echo] [echo] == [echo] application: xihtra [echo] date: 2015-10-01 15:05:10 [echo] == [echo] === start application EAR [echo] date: 2015-10-01 15:05:10 [java] weblogic.Deployer invoked with options: -adminurl t3://appserver:7001 -userconfigprojects/domains/tekelec/keyfile.secure -name xIH Trace Reference Data Adapter -start [java] <Oct 1, 2015 3:05:56 PM EDT> <Info> <J2EE Deployment SPI> <BEA-260121> <Initiating [java] Task 25 initiated: [Deployer:149026]start application xIH Trace Reference Data Ada [java] Task 25 completed: [Deployer:149026]start application xIH Trace Reference Data Ada [java] Target state: start completed on Server nsp [java] BUILD SUCCESSFUL Total time: 1 minute 17 seconds For prompt “Please enter DSR SOAM server IP address”, enter the VIP of the DSR SOAM and press **Enter.** **Note:** If the address entered is unreachable the script will exit with error “Unable to connect to <ip-address>!”

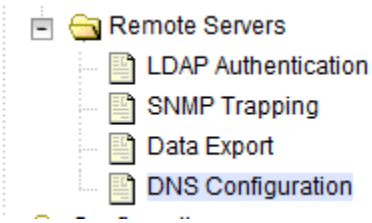
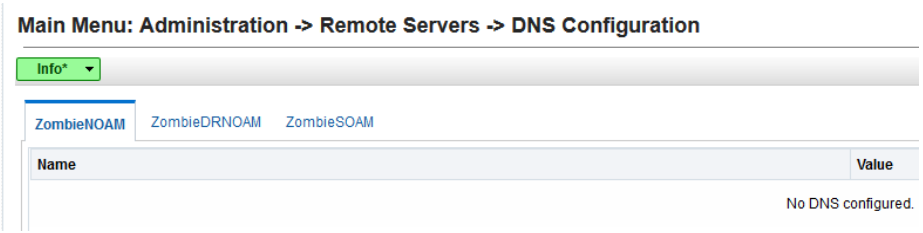
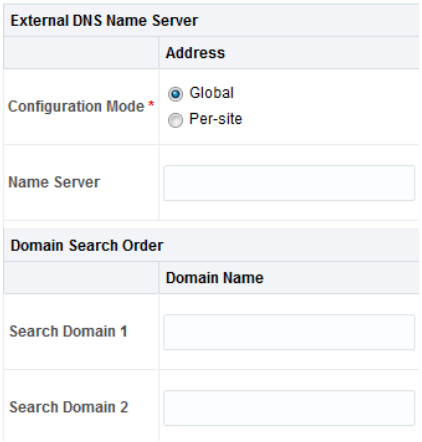
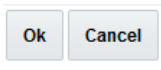
Procedure 29: Configure DSR Reference Data Synchronization for IDIH

3 ☐	**IDIH App Server:** Monitor Completion	Monitor the log file located at: `/var/TKLC/xIH/log/apps/weblogic/apps/application.log` Examine the log file for entries containing text **"Trace Reference Data Adapter"**
4 ☐	**iDIH App Server (Optional):** Switch iDIH from one DSR to another DSR in a different network	***Note***: This is an optional step which is needed to switch an IDIH from one DSR to another DSR in a different network **1.** Establish an SSH session to the iDIH Application Server. **2.** Login as the **tekelec** user **Execute the below commands** **3.** cd /usr/TKLC/xIH/apps/trace-refdata-adapter **4.** ant clean.data **5.** cd /usr/TKLC/xIH/apps/xihoam **6.** ant imp.init (flush comagent connection data) **7.** cd /usr/TKLC/xIH/apps/trace-refdata-adapter **8.** ant app.enable (Sync MOs from SOAM) **9.** cd /usr/TKLC/xIH/apps **10.** ./trda-config.sh *<DSR SOAM VIP in different network>*

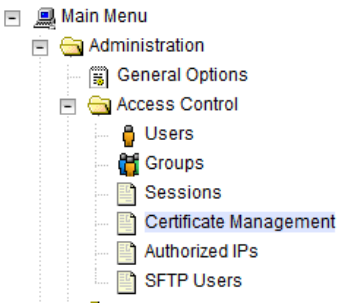
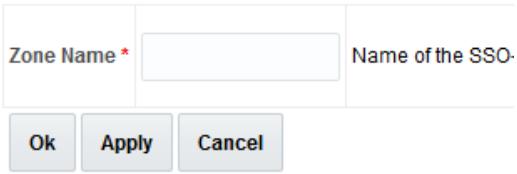
Procedure 30: IDIH Configuration: Configuring the SSO Domain (Optional)

S T E P #	This procedure will provide the steps to configure SSO Domain for IDIH Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**NOAM VIP GUI:** Login	Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of: `https://<Primary_NOAM_VIP_IP_Address>` Login as the ***guiadmin*** user: 

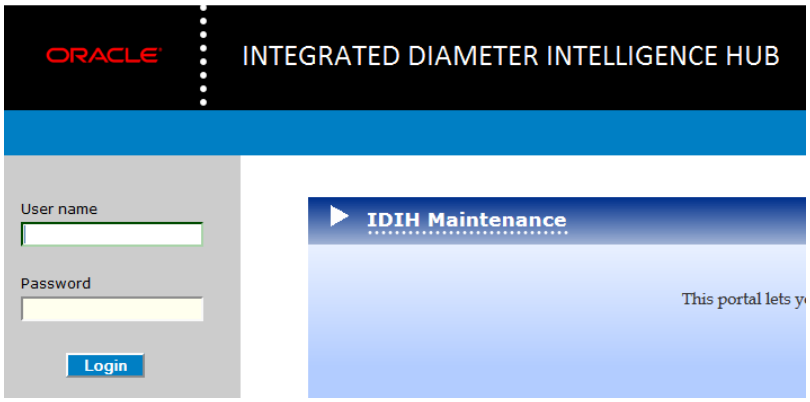
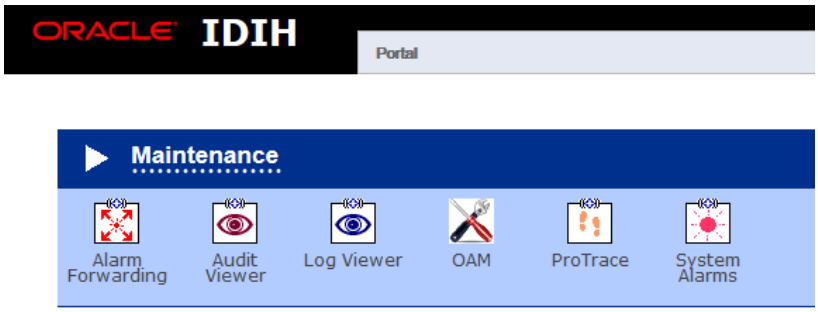
Procedure 30: IDIH Configuration: Configuring the SSO Domain (Optional)

2 ☐	**NOAM VIP GUI:** Configure DNS	Navigate to **Main Menu -> Administration -> Remote Servers -> DNS Configuration**  Select the NOAM tab:  Configure values for the following fields: • Domain Name • Name Server • Search Domain 1  If values have already been configured, select the **Cancel** button; otherwise configure the above values and select the **Ok** button. 

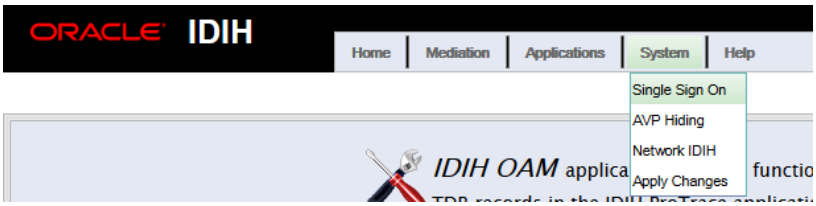
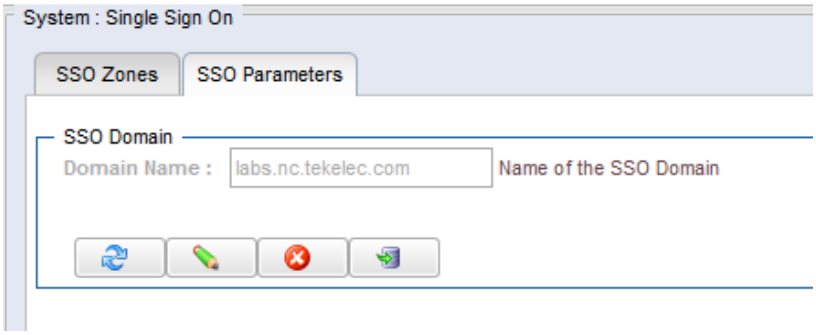
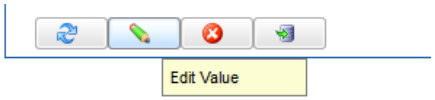
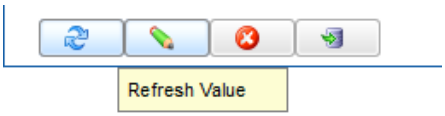
Procedure 30: IDIH Configuration: Configuring the SSO Domain (Optional)

3 ☐	**NOAM VIP GUI:** Establish SSO Local Zone	Navigate to **Main Menu -> Access Control -> Certification Management**
		 
		Select the **Establish SSO Zone** button
		 
		Enter a value for Zone Name:
		 
		Select the **Ok** button.
		Information for the new Certificate type of SSO Local is now displayed.
		Select the **Report** button.
		 
		The Certificate Report is displayed. Select and copy the encoded certificate text to the clipboard for future access.
		Example of Certiciate report:
		`-----BEGIN CERTIFICATE-----`
		`MIICKzCCAdWgAwIBAgIJAOVfSLNc3CeJMA0GCSqGSIb3DQEBCwUAMHExCzAJBgNV`
		`BAYTAlVTMQswCQYDVQQIDAJOQzEQMA4GA1UEBwwHUmFsZWlnaDEPMA0GA1UECgwG`
		`T3JhY2xlMQswCQYDVQQLDAJQVjEQMA4GA1UEAwwHTGliZXJ0eTETMBEGCSqGSIb3`
		`DQEJARYEdGVzdDAeFw0xNTA1MDQxNDIzNTRaFw0xNjA1MDMxNDIzNTRaMHExCzAJ`
		`BgNVBAYTAlVTMQswCQYDVQQIDAJOQzEQMA4GA1UEBwwHUmFsZWlnaDEPMA0GA1UE`
		`CgwGT3JhY2xlMQswCQYDVQQLDAJQVjEQMA4GA1UEAwwHTGliZXJ0eTETMBEGCSqG`
		`SIb3DQEJARYEdGVzdDBcMA0GCSqGSIb3DQEBAQUAA0sAMEgCQQCZ/MpkhlvMP/iJ`
		`s5xDO2MwxJm3jYim43H8gR9pfBTMNP6L9kluJYi+2T0hngJFQLpIn6SK6pXnuAGY`
		`f/vDWfqPAgMBAAGjUDBOMB0GA1UdDgQWBBS6IzIOLP1gizQ6+BERr8Fo2XyDVDAf`
		`BgNVHSMEGDAWgBS6IzIOLP1gizQ6+BERr8Fo2XyDVDAMBgNVHRMEBTADAQH/MA0G`
		`CSqGSIb3DQEBCwUAA0EAOwIqBMEQyvfvt38r/yfgIx3w5dN8SBwHjHC5TpJrHV6U`
		`zFlg5dfzoLz7ditjGOhWJ9l9VRw39LQ8lKFp7SMXwA==`
		`-----END CERTIFICATE-----`

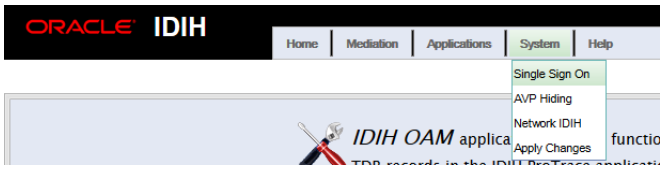
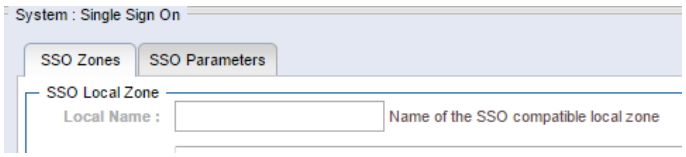
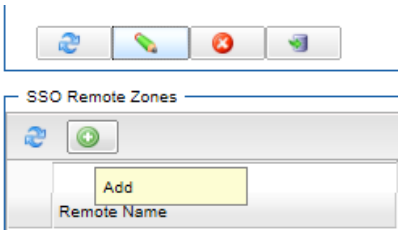
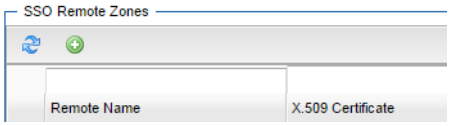
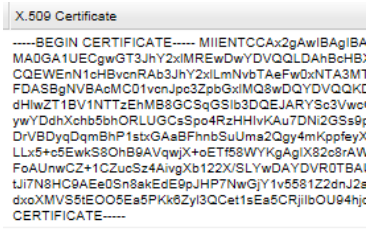
Procedure 30: IDIH Configuration: Configuring the SSO Domain (Optional)

4 ☐	**IDIH Application Server GUI:** Login	Establish a GUI session on the IDIH app server: Login as the ***idihadmin*** user: 
5 ☐	**IDIH Application Server GUI:** Launch the OAM portal	Navigate to the OAM portal Icon to Launch the OAM web application: 

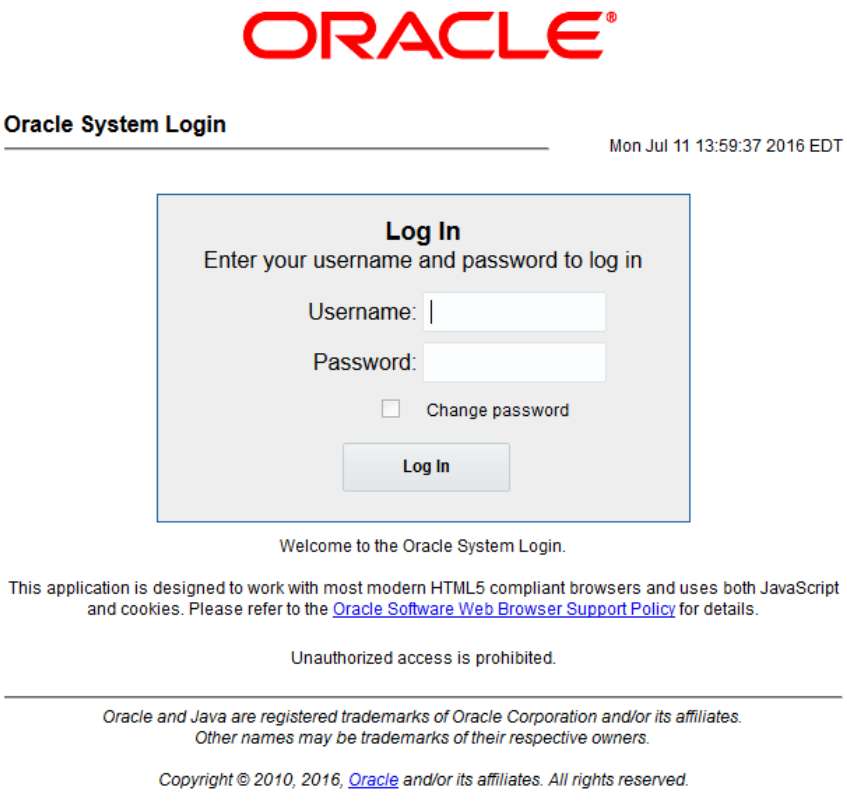
Procedure 30: IDIH Configuration: Configuring the SSO Domain (Optional)

6 ☐	**IDIH Application Server GUI:** Configure the SSO Domain	Navigate to **System -> Single Sign on**  Select the **SSO Parameters** Tab  Select the **Edit Value** Icon Button  Enter a value for the Domain Name. **Note:** This should be the same domain name assigned in the DSR NOAM DNS Configuration (**Step 2**) Select the **Save** icon button.  Select the **Refresh** icon button to display data saved for the Remote Zone. 

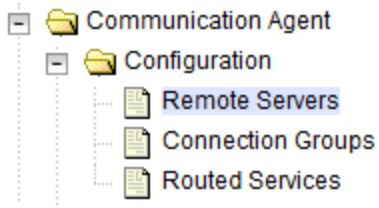
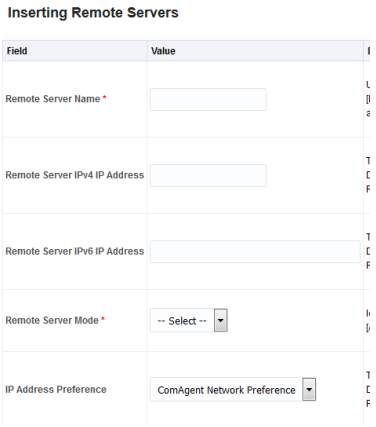
Procedure 30: IDIH Configuration: Configuring the SSO Domain (Optional)

7 ☐	**DIH Application Server GUI:** Configure the SSO Remote Zone	Navigate to **System -> Single Sign on**  Select the **SSO Zones** Tab  Select the **Add** icon button  Enter a value for field **Remote Name**  For field **X.509 Certificate**, paste the encoded certificate text from the clipboard that was previously copied from the DSR NOAM.  Select the **save** icon  Select the **Refresh** icon to display the data saved for remote zone. 

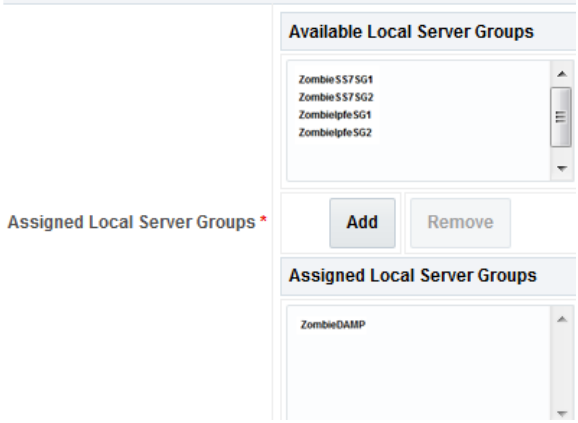
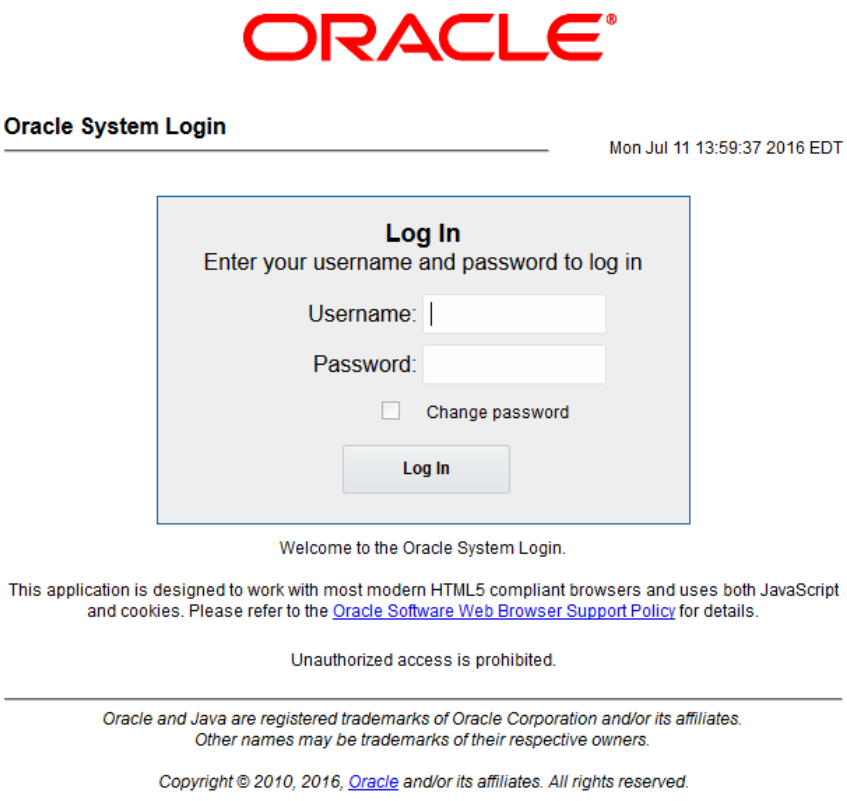
Procedure 31: IDIH Configuration: Configure IDIH in the DSR

S T E P #		
	This procedure will provide the steps to complete the IDIH integration on the DSR. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**NOAM VIP GUI:** Login	Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of: **https://<Primary_NOAM_VIP_IP_Address>** Login as the ***guiadmin*** user: 
2 ☐	**NOAM VIP GUI:** Configure CommAgent Connection	Navigate to **Main Menu -> Communcation Agent -> Configuration -> Remote Servers**

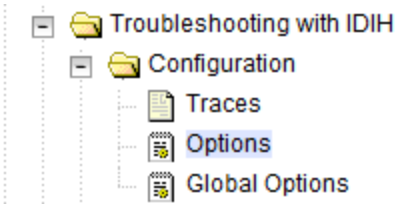
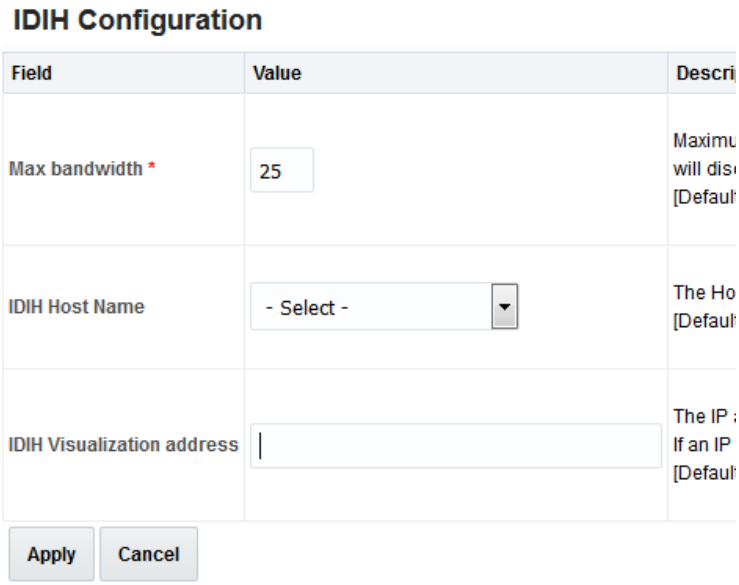
Procedure 31: IDIH Configuration: Configure IDIH in the DSR

		 Select the **Insert** button  Add the IDIH Mediation Server For the Remote Server IP address field, enter the IMI IP address of the IDIH Mediation Server. For the IP address Preference field, enter the IP protocol preference (if IPv6 and IPv4 are configured)  Set the Remote Server Mode to **Server** Select the DA-MP server group from the **Available Local Server Groups** column Click the **Add** button to move the DA-MP server group to the **Assigned Local Server Groups** column

Procedure 31: IDIH Configuration: Configure IDIH in the DSR

		 Click **OK**
3 ☐	**SOAM VIP GUI:** Login	Establish a GUI session on the SOAM server by using the VIP IP address of the SOAM server. Open the web browser and enter a URL of: **https://<Primary_SOAM_VIP_IP_Address>** Login as the ***guiadmin*** user: 

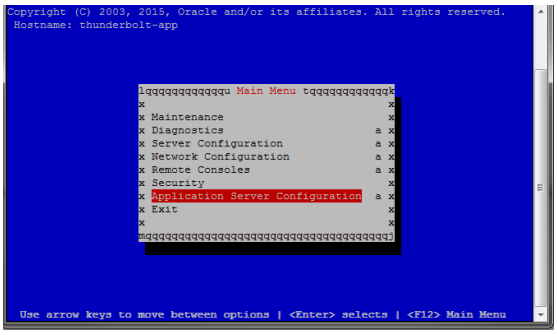
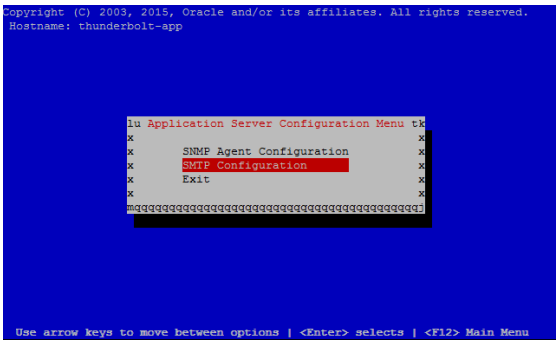
Procedure 31: IDIH Configuration: Configure IDIH in the DSR

4 ☐	**SOAM VIP GUI:** Configure IDIH Hostname	Navigate to **Main Menu -> Diameter -> Troubleshooting with IDIH -> Configuration -> Options**  From the drop down box, Select the mediation server configured in Step to in the **IDIH Host Name** field Enter the fully qualified domain name (or IP address) of the App server in the I**DIH Visualization Address** field:  Click the **Apply** button

Procedure 32: IDIH Configuration: Configure Mail Server (Optional)

S T E P #	This procedure will provide the steps to configure the SMTP mail server. **Note:** This procedure is optional; however, this option is required for Security (password initialization set to AUTOMATIC) and Forwarding (forwarding by mail filter defined) and is available only on the Application server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**IDIH Application Server:** Login	Establish an SSH session to the IDIH Application Server, login as **admusr**.

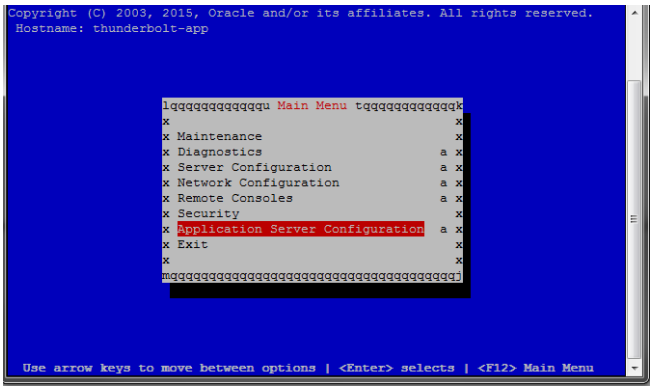
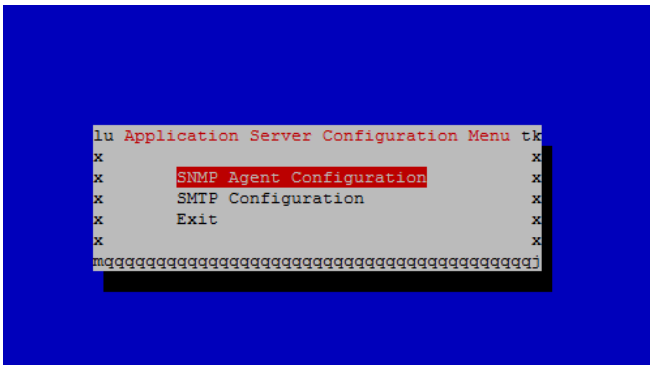
Procedure 32: IDIH Configuration: Configure Mail Server (Optional)

2 ☐	**IDIH Application Server:** Configure the Authenticated Mail Server	Enter the platcfg menu, execute the following command: **$ sudo su - platcfg** Select **Application Server Configuration**  Select **SMTP Configuration**  Select **Edit** Enter the following parameters: 1. Mail Server IP Address 2. User 3. Password 4. Email Address (From) 5. Mail smtp timeout 6. Mail smtp connectiontimeout 7. SNMP over SSL used? Select **OK** Select **Exit** to exit the platcfg menu

Procedure 33: IDIH Configuration: Configure SNMP Management Server (Optional)

S T E P #	This procedure will provide the steps to configure the SNMP management server. **Note:** This procedure is optional; however, this option is required for Forwarding (forwarding by SNMP filter defined) and is available only on the application server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**IDIH Application Server:** Login	Establish an SSH session to the IDIH Application Server, login as **admusr**.

Procedure 33: IDIH Configuration: Configure SNMP Management Server (Optional)

2 ☐	**IDIH Application Server:** Configure SNMP Management Server	Enter the platcfg menu, execute the following command: **$ sudo su - platcfg** Select **Application Server Configuration**  Select **SNMP Agent Configuration**  Select **Edit** Enter the IP address of the SNMP Management Server **Note:** The SNMP agent configuration is updated and the SNMP Management server is automatically restarted. Select **OK** Select **Exit** to exit the platcfg menu.

Procedure 34: IDIH Configuration: Change Network Interface (Optional)

S T E P #		
	This procedure will provide the steps to change the default network interface **Note:** Initially the default network interface used to transport TTRs from DSR to DIH uses the internal imi network; however, this can be changed if required. It should be noted that changing this interface could degrade performance of TTR transmission. **Note:** A script is provided to manage the settings so that the operator doesn't need to know the details required to apply the settings. There are two settings 'interface.name 'and 'interface.enabled'. When interface.enabled=True then communications over the 'interface.name =value', where value is the name of the network interface as defined on the platform, is the only specified interface that is used for communications. When 'interface.enabled=False' then communications over the named interface is not inforced, that is, all interfaces configured on the platform are allowed to be used for communications. For example, if it is required to use the xmi interface for communication instead of the default internal imi interface, then the operator would supply 'xmi' when prompted for the interface name and 'True' when prompted if interface filtering should be applied. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**IDIH Mediation Server:** Login	Establish an SSH session to the IDIH Mediation Server. Login as user ***admusr.*** Issue the following commands to login as ***tekelec*** user. **`$ sudo su - tekelec`**

2
☐
	IDIH Mediation Server: Execute the Change Interface Script	Execute the change interface script with the following command:
		
		`$ chgIntf.sh`
		
		Answer the following questions during execution of the script:
		
		`This script is used to change the interface name (default = imi) used for mediation communications and whether to enable network interface filtering or not. Please answer the following questions or enter CTLR-C to exit out of the script.`
		
		`Current setting are: interface.name=imi interface.enabled=True`
		
		`Enter new network interface name, return to keep current [imi]: xmi`
		
		`Do you want to enable network interface filtering [True|False], return to keep current [True]:`
		
		`Updating configuration properties file with 'interface.name=xmi' and 'interface.enable=True', and restarting mediation configuration bundle...`

Procedure 35: IDIH Configuration: Backup the upgrade and Disaster Recovery FDC File (Optional)

S T E P #	This procedure will provide the steps to generate a disaster recovery fdc file. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**Identify Backup Server**	Identify an external server to be used as a backup server for the following steps. The server should not be co-located with any of the following items: • TVOE • PMAC • DSR NOAM • DSR SOAM
2 ☐	**PMAC:** Establish Terminal Session	Establish an SSH session to the PMAC. Login as ***admusr***.
3 ☐	**PMAC:** Verify Upgrade fdc file exists	Execute the following commands to verify the upgrade FDC file for IDIH exists: **$ cd /var/TKLC/smac/guest-dropin** **$ ls –l *.xml** The following output is expected: -rw-r----- 1 root smac 9542 May 11 09:43 <idih_install>.xml -rw-r----- 1 root smac 5107 May 11 09:43 <idih_upgrade>.xml **Note:** The <idih_upgrade>.xml file is the same file used for upgrade and disaster recovery procedures.
4 ☐	**PMAC:** Transfer the FDC file to a remote server.	Login to the backup server identified in **step 1** and copy backup image to the customer server where it can be safely stored. If the customer system is a Linux system, please execute the following command to copy the backup image to the customer system. **$ sudo scp admusr@<PMAC_IP_Address>:/var/TKLC/smac/guest-dropin/<idih_upgrade.xml> /path/to/destination/** When prompted, enter the admusr user password and press **Enter.** If the Customer System is a Windows system please refer to reference [7] Using WinSCP to copy the backup image to the customer system.

Procedure 35: IDIH Configuration: Backup the upgrade and Disaster Recovery FDC File (Optional)

5 ☐	**PMAC Server:** Backup FDC file	Transfer the fdc file to the fdc directory so that the file can be backed up with PMAC backups. Issue the following command to ensure that the directory where the backups will be stored exists: **$ sudo /bin/ls -i -l /usr/TKLC/smac/etc/fdc** If you receive an error such as the following: `-bash: ls: /usr/TKLC/smac/etc/fdc: No such file or directory` Create the directory by issuing the following command: **$ sudo /bin/mkdir -p /usr/TKLC/smac/etc/fdc** Issue the following command to copy the fdc files to the fdc backup directory: **$ sudo cp /var/TKLC/smac/etc/<idih_upgrade.xml> /usr/TKLC/smac/etc/fdc/**

Procedure 36: IDIH Configuration: Change Alarm Ignore List (Optional)

S T E P #		
	This procedure will provide the steps to change the alarm severity and/or identifiers to ignore on the mediation server. **Note:** Initially the default is to ignore alarms with severity 4 (informational) **Note:** A script is provided to manage the settings so that the operator does not need to know the details required to apply the settings. There are two settings 'ignore.event' and 'ignore.severity' Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**IDIH Mediation Server:** Login	Establish an SSH session to the IDIH Mediation Server. Login as user ***admusr.*** Issue the following commands to login as tekelec user. `$ sudo su – tekelec`

Procedure 36: IDIH Configuration: Change Alarm Ignore List (Optional)

2 ☐	**IDIH Mediation Server:** Execute the Change Interface Script	Execute the change alarms script with the following command:
		$ chgAlms.sh
		Answer the following questions during execution of the script:
		`This script is used to change ignore list for mediation alarms.`
		`There are two lists, one for Severity where the list contains the severity values (no spaces, comma separated).`
		`Severity default list = '4'`
		`Possible severity values are:`
		`1 Critical error`
		`2 Major error`
		`3 Minor error`
		`4 Information only; no error`
		`5 Cleared`
		`The other is the event list which contains the (comcol) event numbers (no spaces, comma separated).`
		`Please answer the following questions or enter CTLR-C to exit out of the script.`
		`Current setting are: ignore.event= ignore.severity=4`
		`Enter new ignore list for alarm severity (comma separated list) or '0' to keep current [4]: 0`
		`Enter new ignore list for alarm events (comma separated list) or '0' to keep current []: 0`
		`Updating configuration properties file with 'ignore.severity=4' and 'ignore.event='`
		`Backing-up configuration properties with 'ignore.severity=4' and 'ignore.event='`
		`Restarting ImpAlarms process ...`
		`Done!`

4.7 Post-Install Activities

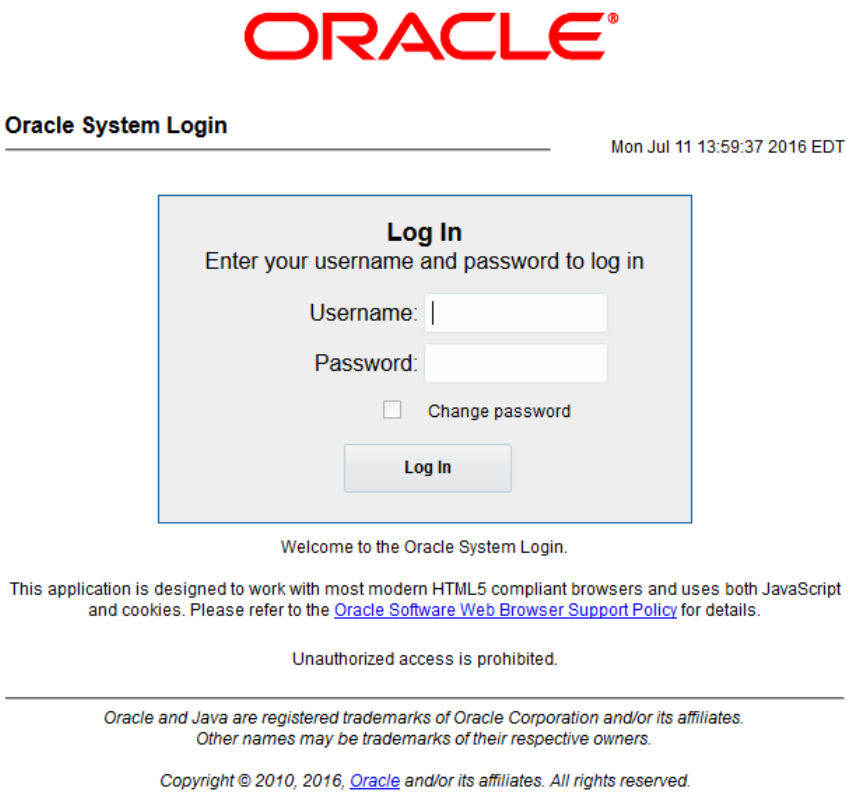
4.7.1 Activate Optional Features

Procedure 37: Activate Optional Features

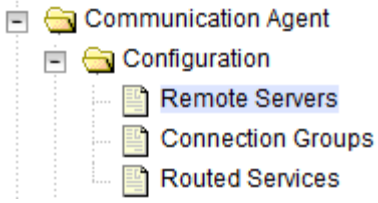
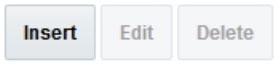
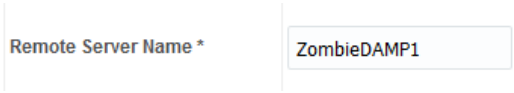
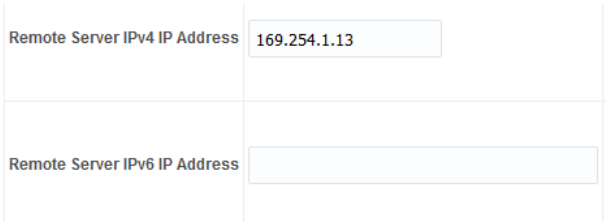
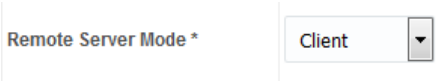
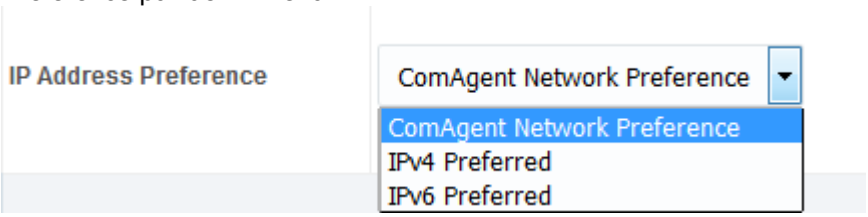
S T E P #	This procedure will provide instruction on how to install DSR optional components once regular installation is complete. **Prerequisite:** All previous DSR installation steps have been completed. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**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.

4.7.2 Configure ComAgent Connections (DSR + SDS)

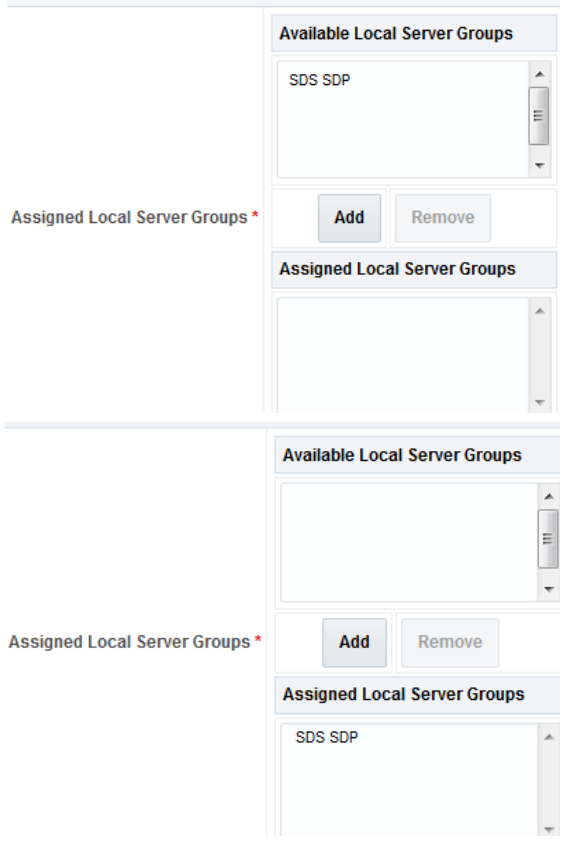
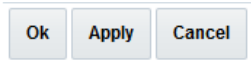
Procedure 38: Configure ComAgent Connections (DSR + SDS)

S T E P #		
	This procedure will provide instruction on how to configure ComAgent connections on DSR/SDS for use in the FABR application. **Prerequisite:** FABR application is activated. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**SDS NOAM VIP GUI:** Login	Establish a GUI session on the SDS NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of: `https://<Primary_SDS_NOAM_VIP_IP_Address>` Login as the ***guiadmin*** user: 
2 ☐	**SDS NOAM VIP GUI:** Configure Remote	Navigate to **Main Menu -> Communication Agent -> Configuration -> Remote Servers**

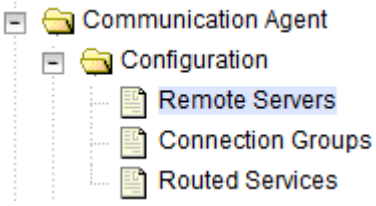
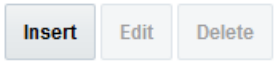
Procedure 38: Configure ComAgent Connections (DSR + SDS)

	Server IP Address	 Click **Insert** 
3 ☐	**SDS NOAM VIP GUI:** Configure Remote Server IP Address	Enter the Remote Server Name for the DSR MP Server:  Enter the Remote Server IMI IP address:  **Note:** This should be the IMI IP address of the DAMP server. Select **Client** for the Remote Server Mode from the pull down menu:  Select Preference (ComAgent Network Preference, IPv4, or IPv6) for IP Address Preference pull down menu:  Select the **Local Server Group** from the available SDS DP server groups and click **'Add'** to assign.

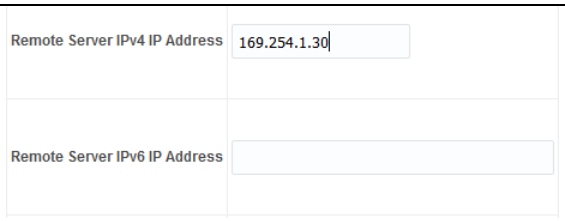
Procedure 38: Configure ComAgent Connections (DSR + SDS)

		 Click **Apply** 
4 ☐	**SDS NOAM VIP GUI:** Repeat	Repeat **steps 2-3** for each remote MP in the same SOAM NE.
5 ☐	**DSR NOAM VIP GUI:** Login	Establish a GUI session on the DSR NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of: `https://<Primary_DSR_NOAM_VIP_IP_Address>` Login as the ***guiadmin*** user:

Procedure 38: Configure ComAgent Connections (DSR + SDS)

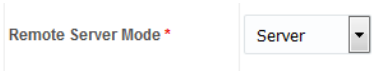
		
6 ☐	**DSR NOAM VIP GUI:** Configure Remote Server IP Address	Navigate to **Main Menu -> Communication Agent -> Configuration -> Remote Servers**  Click **Insert** 
7 ☐	**DSR NOAM VIP GUI:** Configure Remote Server IP Address	Enter the Remote Server Name for the SDS DP Server:  Enter the Remote Server IMI IP address:

Procedure 38: Configure ComAgent Connections (DSR + SDS)

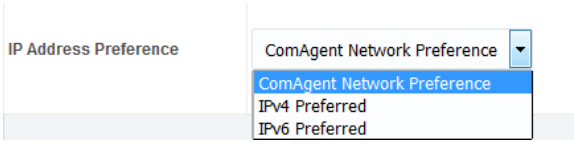


Note: This should be the IMI IP address of the DP Server.

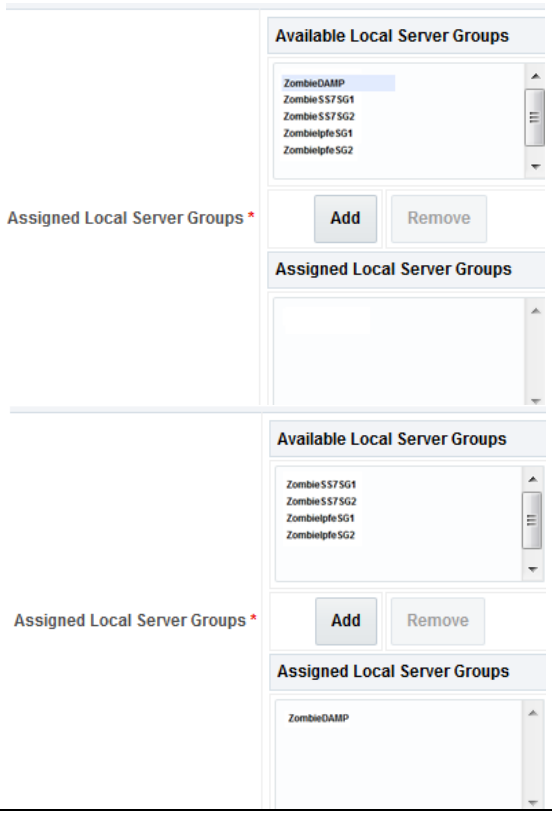
Select **Server** for the Remote Server Mode from the pull down menu:



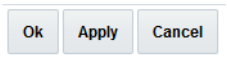
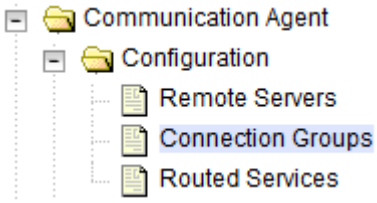
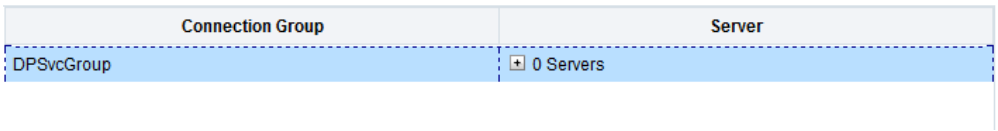
Select Preference (ComAgent Network Preference, IPv4, or IPv6) for IP Address Preference pull down menu:



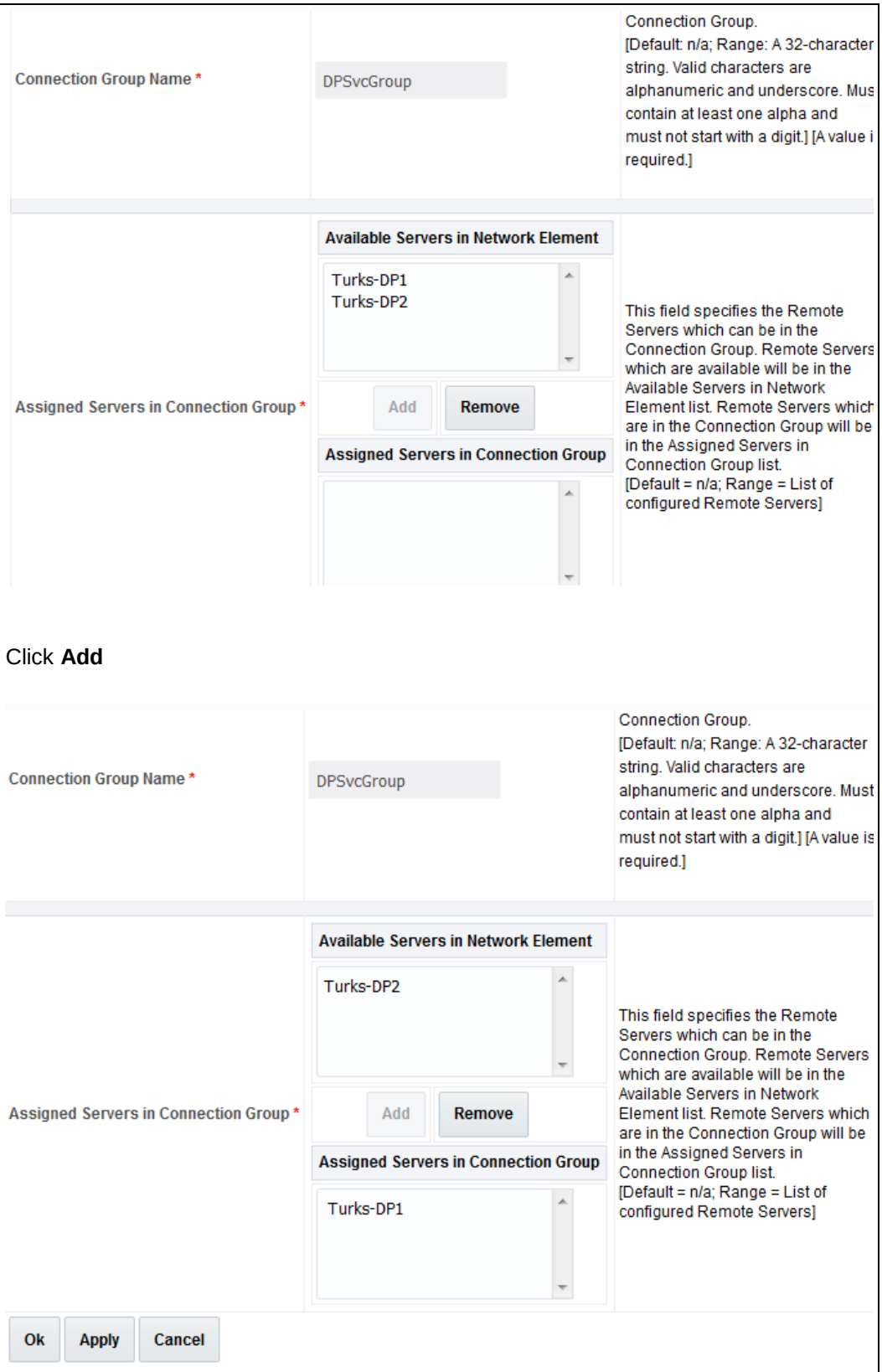
Select the **Local Server Group** from the available SDS DP server groups and click **'Add'** to assign:



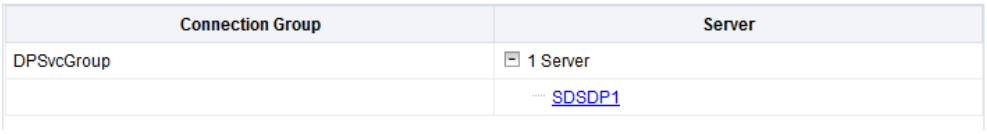
Procedure 38: Configure ComAgent Connections (DSR + SDS)

		Click **Apply** 
8 ☐	**DSR NOAM VIP GUI:** Repeat	Repeat **steps 6-7** for each remote DP in the same SOAM NE.
9 ☐	**DSR NOAM VIP GUI:** Configure Connection Groups	Navigate to **Main Menu -> Communication Agent -> Configuration -> Connection Groups** 
10 ☐	**DSR NOAM VIP GUI:** Edit Connection Groups	Select the DPSvcGroup Connection Group  Click **Edit** Select the desired DP servers from the Available Servers in Network Element:

Procedure 38: Configure ComAgent Connections (DSR + SDS)



Procedure 38: Configure ComAgent Connections (DSR + SDS)

		Click **Ok**
11 ☐	**DSR NOAM VIP GUI:** Verify correct number of servers in group	Verify Correct number of servers are in the connection group. 

4.7.3 Shared Secret Encryption Key Revocation (RADIUS ONLY)

Procedure 39: Shared secret encryption key revocation (RADIUS Only)

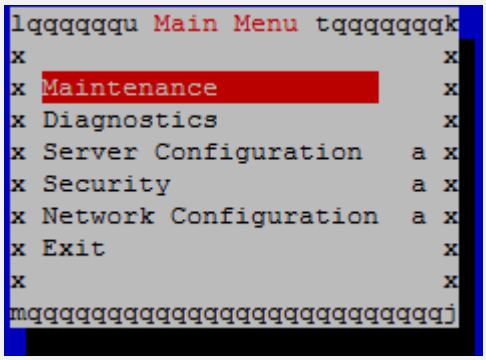
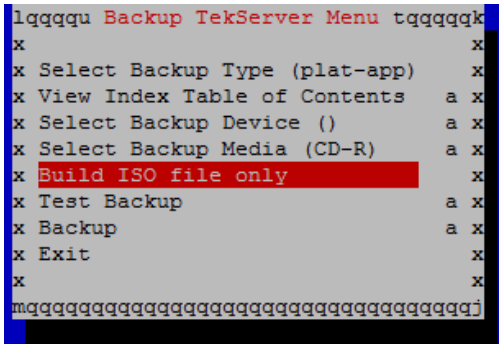
S T E P #	This procedure will provide instruction on how to change shared secret encryption key on DSR RADIUS setup. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**Revoke RADIUS shared secret encryption key**	Refer to RADIUS Shared Secret Key revocation MOP to change the encryption key on the DSR installed setup. Refer [11] **Note:** This is highly recommended to change the key after installation due to security reasons.

4.7.4 Backup TVOE Configuration

Procedure 40: Backup TVOE Configuration

S T E P #	This procedure will provide instruction on how to back up each TVOE rack mount server or Blade server after a successful installation. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**Identify Backup Server**	Identify an external server to be used as a backup server for the following steps. The server should not be co-located with any of the following items: • TVOE • PMAC • DSR NOAM • DSR SOAM

Procedure 40: Backup TVOE Configuration

2 ☐	**TVOE Server:** Login	Establish an SSH session to the TVOE host server, login as ***admusr***.
3 ☐	**TVOE Server:** Build ISO backup file	Execute the following command from the TVOE server: `$ sudo su - platcfg`  Select the following menu options sequentially: **Maintenance -> Backup and Restore ->Backup Platform (CD/DVD)**. The ***"Backup TekServer Menu"*** page will now be shown. Build the backup ISO image by selecting: Build ISO file only  **Note:** Creating the ISO image may happen so quickly that this screen may only appear for an instant. After the ISO is created, platcfg will return to the Backup TekServer Menu. The ISO has now been created and is located in the /var/TKLC/bkp/ directory. An example filename of a backup file that was created is: "hostname1307466752-plat-app-201104171705.iso" Exit out of platcfg by selecting **Exit**.

Procedure 40: Backup TVOE Configuration

4 ☐	**Backup Server:** Transfer TVOE Files to Backup Server	Login to the backup server identified in **step 1** and copy backup image to the customer server where it can be safely stored. If the customer system is a Linux system, please execute the following command to copy the backup image to the customer system. `$ sudo scp tvoexfer@<TVOE IP Address>:backup/* /path/to/destination/` When prompted, enter the tvoexfer user password and press **Enter.** If the Customer System is a Windows system please refer to reference [7] Using WinSCP to copy the backup image to the customer system. The TVOE backup file has now been successfully placed on the backup server.
5 ☐	**Repeat for Additional TVOE Servers**	Repeat steps **3-4** for additional TVOE servers

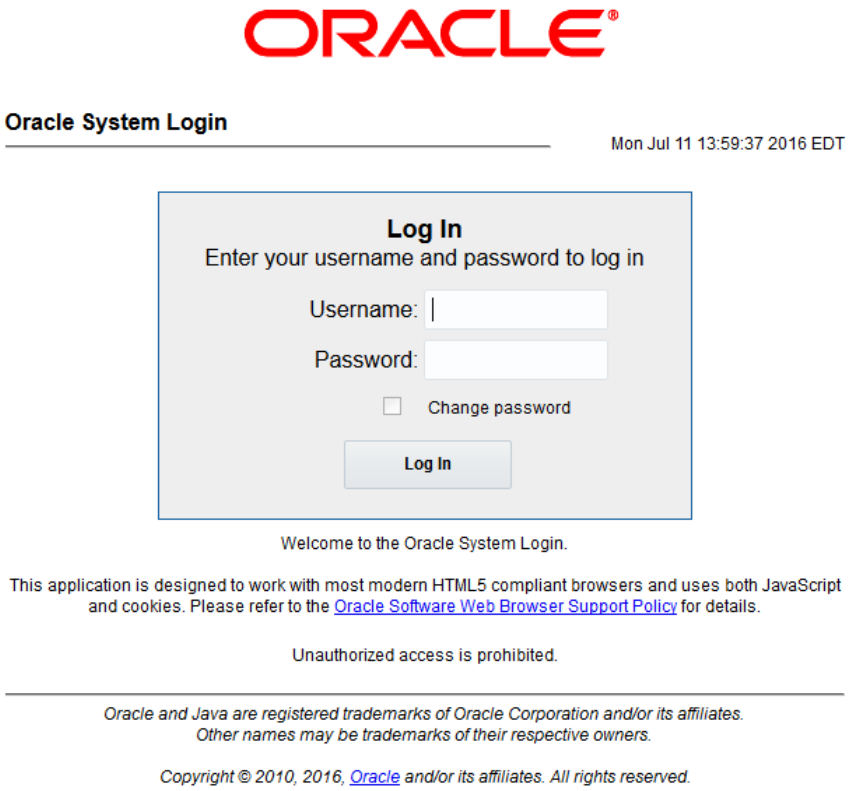
4.7.5 Backup PMAC Application

Procedure 41: Backup PMAC Application

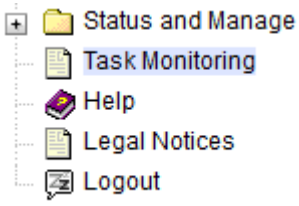
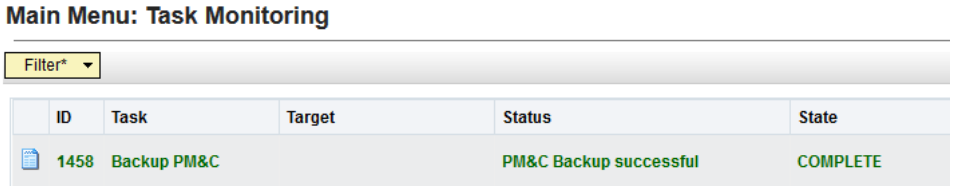
S T E P #	This procedure will provide instruction on how to back up each PMAC application installed in this procedure. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**Identify Backup Server**	Identify an external server to be used as a backup server for the following steps. The server should not be co-located with any of the following items: • TVOE • PMAC • DSR NOAM • DSR SOAM
2 ☐	**PMAC Server:** Login	Establish an SSH session to the PMAC server, login as ***admusr***.

3
☐
	PMAC Server: Build backup File	Execute the following command from the PMAC server:
		
		`$ sudo /usr/TKLC/smac/bin/pmacadm backup`
		
		`PM&C backup been successfully initiated as task ID 7`
		
		Note: The backup runs as a background task. To check the status of the background task use the PMAC GUI Task Monitor page:
		
		or issue the command "**pmaccli getBgTasks** ". The result should eventually be "PMAC Backup successful" and the background task should indicate "COMPLETE".

Procedure 41: Backup PMAC Application

4 ☐	**PMAC GUI:** Login	Open web browser and enter: `http://<PMAC_Mgmt_Network_IP>` Login as ***guiadmin*** user: 

Procedure 41: Backup PMAC Application

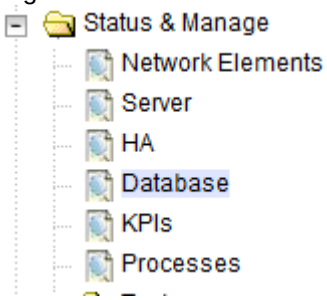
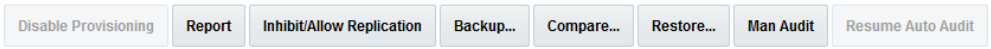
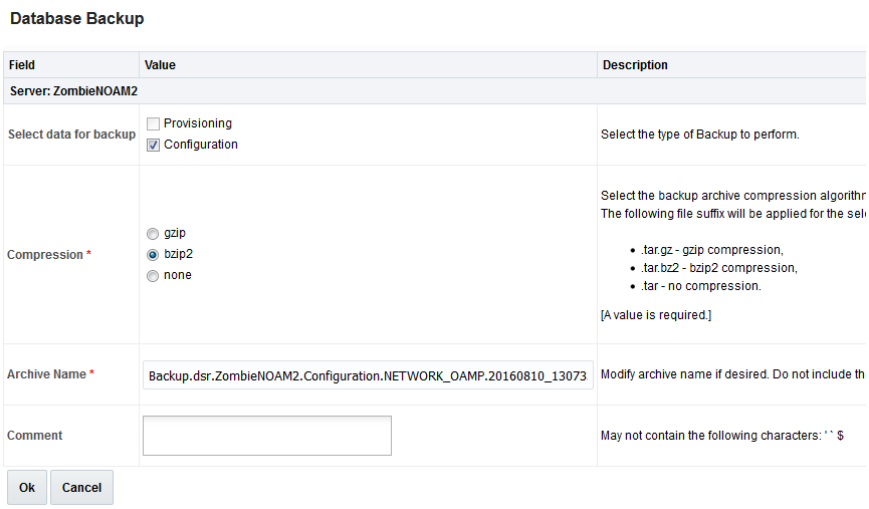
5 ☐	**PMAC Server GUI:** Monitor/Verify Backup Task Completion	Navigate to **Main Menu -> Task Monitoring**  Monitor the Backup PMAC Task:  **Note:** Alternatively, you can monitor the Backup task by executing the following command: `$ sudo pmaccli getBgTasks`
6 ☐	**Backup Server:** Transfer PMAC File to Backup Server	Login to the backup server identified in **step 1** and copy backup image to the customer server where it can be safely stored. If the customer system is a Linux system, please execute the following command to copy the backup image to the customer system. `$ sudo scp admusr@<PMAC_IP_Address>:/var/TKLC/smac/backup/* /path/to/destination/` When prompted, enter the admusr user password and press **Enter.** If the Customer System is a Windows system please refer to reference [7] Using WinSCP to copy the backup image to the customer system.

4.7.6 Backup NOAM Database

Procedure 42: NOAM Database Backup

S T E P #		
	This procedure will provide instruction on how to back up the NOAM Database. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**Identify Backup Server**	Identify an external server to be used as a backup server for the following steps. The server should not be co-located with any of the following items: • TVOE • PMAC • DSR NOAM • DSR SOAM
2 ☐	**NOAM VIP GUI:** Login	Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login as the ***guiadmin*** user: 

Procedure 42: NOAM Database Backup

4 ☐	**NOAM VIP GUI:** Perform Database Backup	Navigate to **Main Menu -> Status & Manage -> Database**  Select the Active NOAM Select the **Backup** Button:  Select the desired file compression method  Set the archive file name if needed. Select **OK**

Procedure 42: NOAM Database Backup

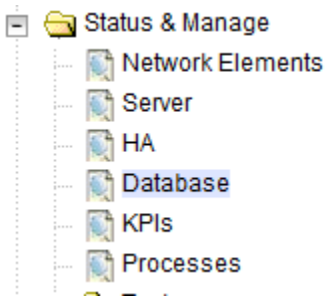
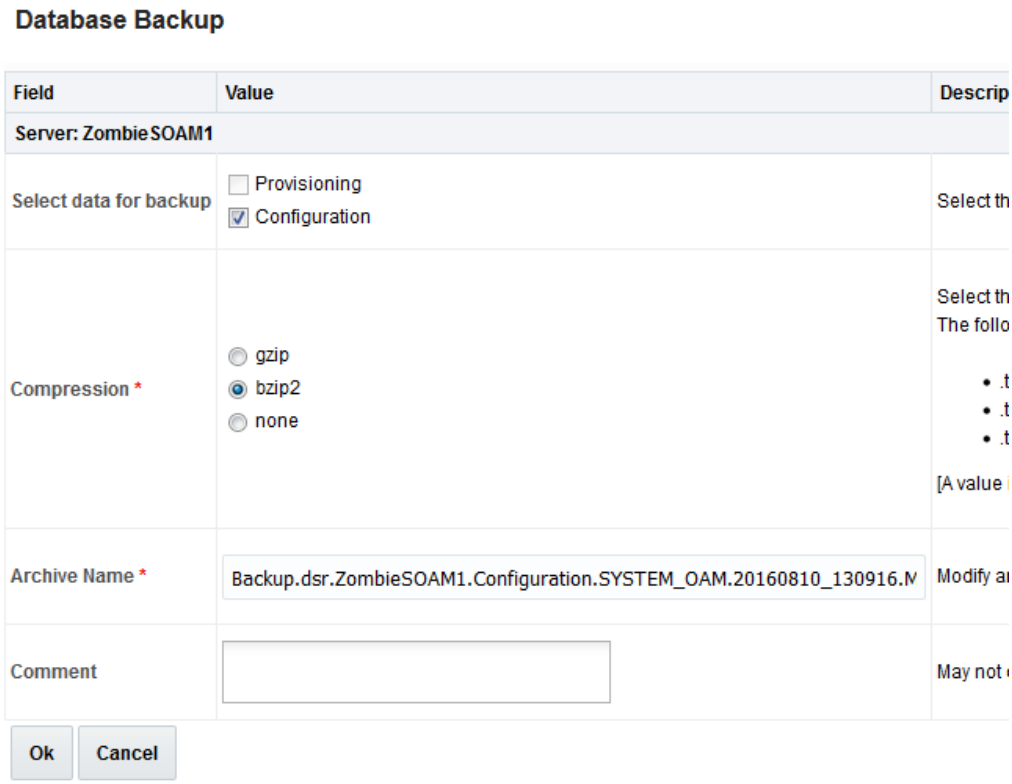
6 ☐	**Backup Server:** Transfer File to Backup Server	Login to the backup server identified in **step 1** and copy backup image and key file (RADIUS Only) to the customer server where it can be safely stored. If the customer system is a Linux system, please execute the following command to copy the backup image to the customer system. **$ sudo scp admusr@<NOAM VIP>:/var/TKLC/db/filemgmt/backup/* /path/to/destination/** Execute following command to encrypt the key file before sending to filemgmt area : **$ ./sharedKrevo –encr** Copy key file to customer server : **$ sudo scp admusr@<NOAM VIP>:/var/TKLC/db/filemgmt/DpiKf.bin.encr /path/to/destination/** When prompted, enter the admusr user password and press **Enter.** If the Customer System is a Windows system please refer to reference [7] Using WinSCP to copy the backup image to the customer system.

4.7.7 Backup SOAM Database

Procedure 43: SOAM Database Backup

S T E P #		
	This procedure will provide instruction on how to back up the SOAM Database. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**Identify Backup Server**	Identify an external server to be used as a backup server for the following steps. The server should not be co-located with any of the following items: • TVOE • PMAC • DSR NOAM • DSR SOAM
2 ☐	**SOAM VIP GUI:** Login	Establish a GUI session on the SOAM server by using the VIP IP address of the SOAM server. Open the web browser and enter a URL of: `http://<Primary_SOAM_VIP_IP_Address>` Login as the ***guiadmin*** user: 

Procedure 43: SOAM Database Backup

4 ☐	**SOAM VIP GUI:** Perform Database Backup	Navigate to **Main Menu -> Status & Manage -> Database**  Select the Active SOAM Select the **Backup** Button:  Select the desired file compression method  Set the archive file name if needed.

Procedure 43: SOAM Database Backup

6 ☐	**Backup Server:** Transfer PMAC File to Backup Server	Login to the backup server identified in **step 1** and copy backup image to the customer server where it can be safely stored. If the customer system is a Linux system, please execute the following command to copy the backup image to the customer system. `$ sudo scp admusr@<SOAM VIP>:/var/TKLC/db/filemgmt/backup/* /path/to/destination/` When prompted, enter the admusr user password and press **Enter.** If the Customer System is a Windows system please refer to reference [7] Using WinSCP to copy the backup image to the customer system.
6 ☐	**Repeat for Additional TVOE Servers**	Repeat **steps 2-6** for additional SOAM Sites

4.7.8 Enable/Disable DTLS (SCTP Diameter Connections Only)

Procedure 44: Enable/Disable DTLS (SCTP Diameter Connections Only)

S T E P #		
	This procedure will provide instructions on how to prepare clients before configuring SCTP diameter connections. **Important** Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐		Oracle's SCTP Datagram Transport Layer Security (DTLS) has SCTP AUTH extensions by default. SCTP AUTH extensions are required for SCTP DTLS. However, there are known impacts with SCTP AUTH extensions as covered by the CVEs referenced below. It is highly recommended that customers installing DSR should prepare clients before the DSR connections are established after installation. This will ensure the DSR to Client SCTP connection will establish with SCTP AUTH extensions enabled. See RFC 6083. If customers DO NOT prepare clients to accommodate the DTLS changes, then the SCTP connections to client devices WILL NOT establish after the DSR is installed. https://access.redhat.com/security/cve/CVE-2015-1421 https://access.redhat.com/security/cve/CVE-2014-5077 Execute procedures in [10] to disable/enable the DTLS feature.

Appendix A: Sample Network Element and Hardware Profiles

In order to enter all the network information for a network element, a specially formatted XML file needs to be filled out with the required network information. The network information is needed to configure both the NOAM 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. This network element XML file is used for DSR deployments using Cisco 4948 switches and HP c-Class blade servers. 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.

Figure 5 Example Network Element XML File

```
<?xml version="1.0"?>
<networkelement>
<name>NE</name>
<networks>
<network>
<name>INTERNALXMI</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>INTERNALIMI</name>
<vlanId>4</vlanId>
<ip>10.3.0.0</ip>
<mask>255.255.255.0</mask>
<nonRoutable>true</nonRoutable>
</network>
</networks>
</networkelement>
```

‘**nonRoutable’ Field:** By defining a network as ‘nonRoutable’ as seen above for INTERNALIMI, this means that the network shall not be routable outside the layer 3 boundary. This allows the user to define the same IP range in each SOAM site, and no duplicate IP check will be performed during server creation.

The server hardware information is needed to configure the Ethernet interfaces on the servers. This server hardware profile data XML file is used for DSR deployments using HP c-Class blade servers and HP c-Class rack-mount servers. It is supplied to the NOAM server so that the information can be pulled in and presented to the user in the GUI during server configuration. The following is an example of a Server Hardware Profile XML file.

Figure 6 Example Server Hardware Profile XML-HP c-Class Blade

```
<profile>
<serverType>HP c-Class Blade</serverType>
<available>
<device>bond0</device>
</available>
<devices>
<device>
<name>bond0</name>
<type>BONDING</type>
<createBond>true</createBond>
<slaves>
<slave>eth01</slave>
<slave>eth02</slave>
</slaves>
<option>
<monitoring>mii</monitoring>
<interval>100</interval>
<upstream_delay>200</upstream_delay>
<downstream_delay>200</downstream_delay>
</option>
</device>
</devices>
</profile>
```

Figure 7 Example Server Hardware Profile XML- Virtual Guest on TVOE

```
<profile>
<serverType>TVOE Guest</serverType>
<available>
<device>Management</device>
<device>Control</device>
<device>xmi</device>
<device>imi</device>
<device>xsi</device>
</available>
<devices>
<device>
<name>management</name>
<type>ETHERNET</type>
</device>
<device>
<name>control</name>
<type>ETHERNET</type>
</device>
<device>
<name>xmi</name>
<type>ETHERNET</type>
</device>
<device>
<name>imi</name>
<type>ETHERNET</type>
</device>
<device>
<name>xsi</name>
<type>ETHERNET</type>
</device>
</devices>
</profile>
```

Appendix B: Configuring for TVOE iLO Access

Appendix B 1: Connecting to the TVOE iLO

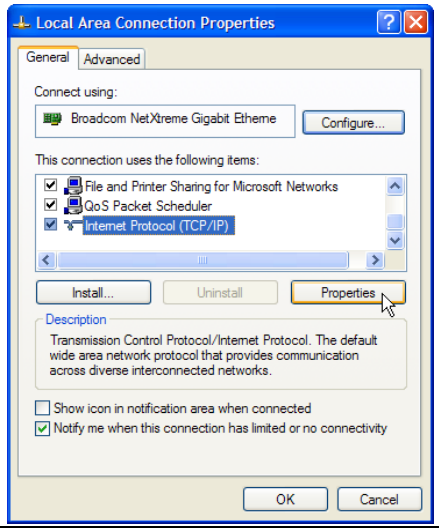
This procedure contains the steps to connect a laptop to the TVOE iLO via a directly cabled Ethernet connection.

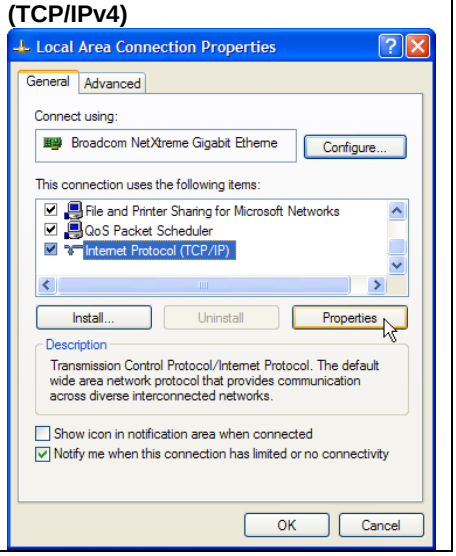
Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.

If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.

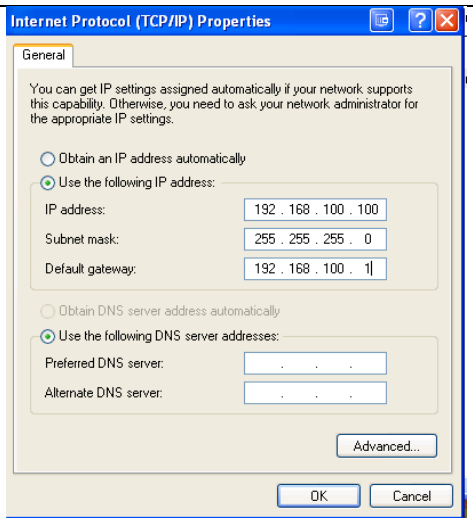
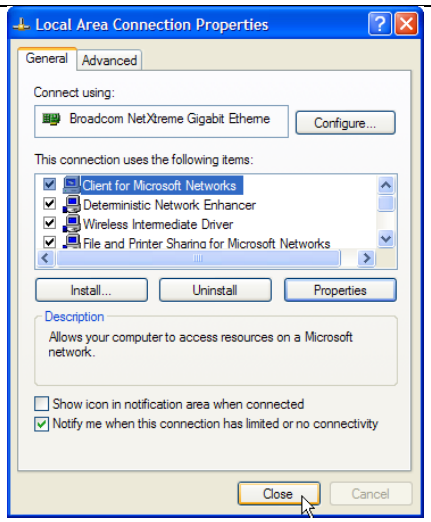
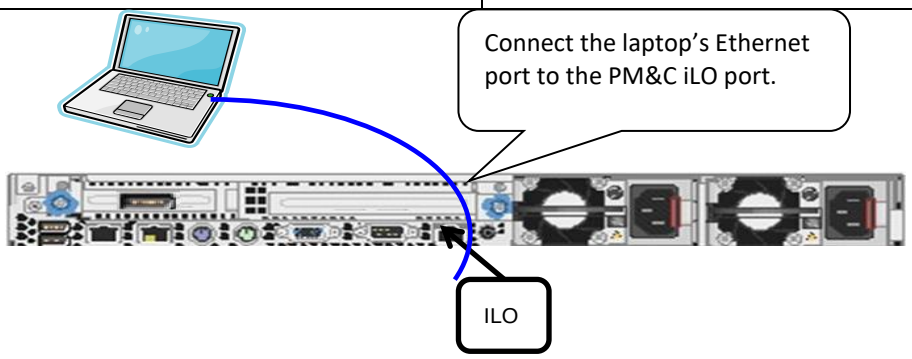
<table>
<tr><th>STEP #</th><th>Procedure</th><th colspan="2">Result</th></tr>
<tr><td>1
☐</td><td>Access the laptop network interface cards TCP/IP Properties screen.

NOTE: For this step follow the instruction specific to the laptop's OS (XP or 7).</td><td>Windows XP
• Go to Control Panel
• Double-click on Network Connections
• Right-click the wired Ethernet Interface icon and select Properties
• Select Internet Protocol (TCP/IP)

Select Properties
 
</td><td>Windows 7
• Go to Control Panel.
• Double-click on Network and Sharing Center
• Select Change Adapter Settings (left menu)
• Right-click the Local Area Connection icon and select Properties

Select Internet Protocol Version 4 (TCP/IPv4)
 
</td></tr>
</table>

Appendix B 1: Connecting to the TVOE iLO

2 ☐	Click **Use the following IP address** Set the **IP address** to 192.168.100.100 Set the **Subnet mask** to 255.255.255.0 Set the **Default gateway** to 192.168.100.1 Select **OK**. Select **Close** from the network interface card's main **Properties** screen.		
3 ☐	Connect the laptop's Ethernet port directly to the TVOE iLO port using a standard Cat-5 cross-over cable.		

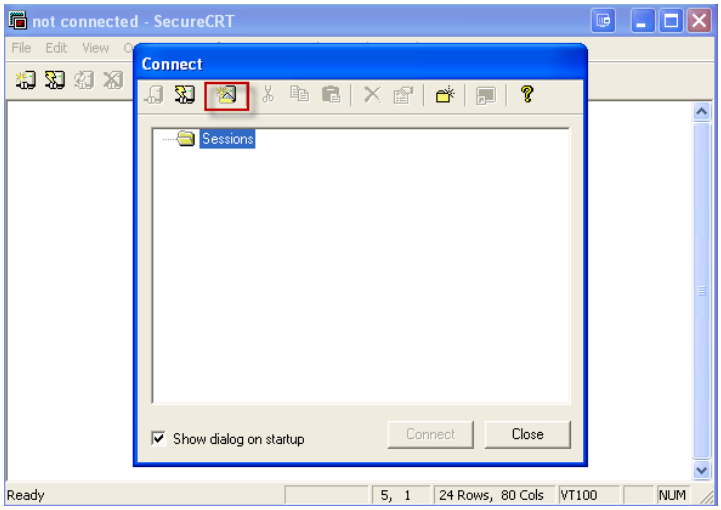
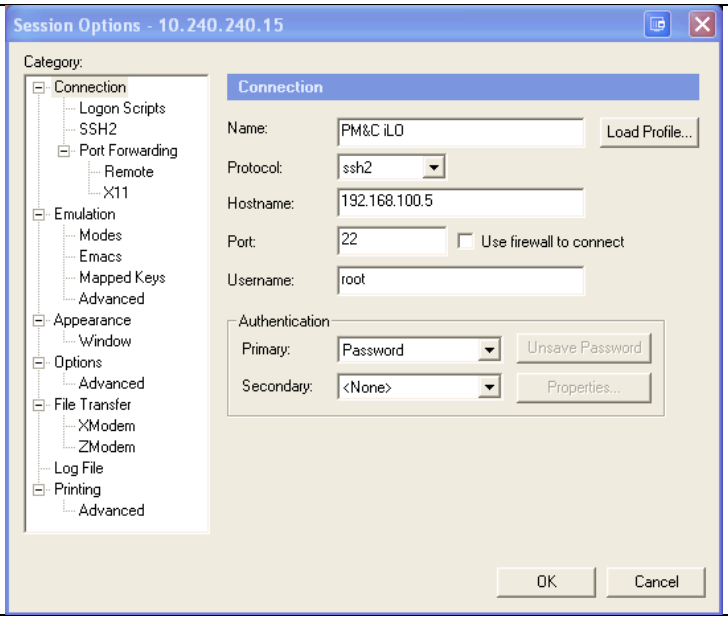
Appendix C: TVOE iLO Access

Appendix C 1: Accessing the TVOE iLO

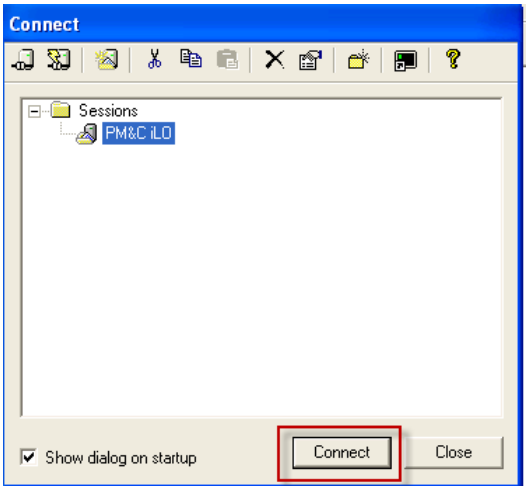
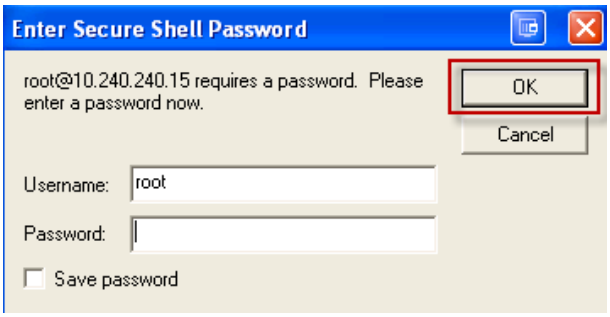
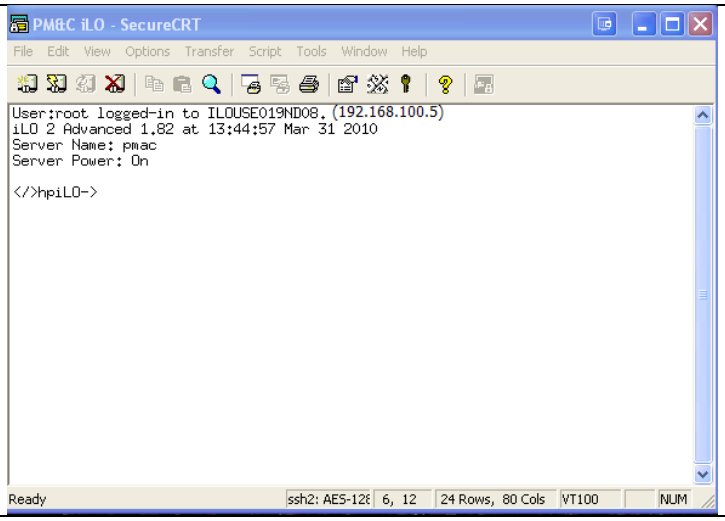
This procedure contains the steps to access the TVOE iLO.

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

If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.

STEP #	Procedure	Result
1 ☐	Launch a terminal emulator, e.g. Putty, Secure CRT. Navigate to **File -> Connect** Click on the **New Session** icon. **Note:** This example demonstrates Secure CRT.	
2 ☐	Enter TVOE iLO for **Name** 192.168.100.5(Manufacturing default) or customer IP set during installation for **Hostname.** Enter admusr for **Username.** Click **OK** **Note:** See **Appendix B**: Configuring for TVOE iLO Access to configure your system network to access the TVOE iLO.	

Appendix C 1: Accessing the TVOE iLO

3 ☐	Navigate **File -> Connect** to open the Connect window. Highlight the session you created and click **Connect.**	
4 ☐	**Login** to the TVOE iLO using the appropriate password.	
5 ☐	The TVOE iLO is displayed.	

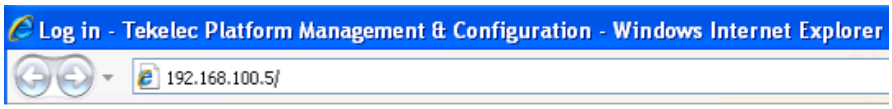
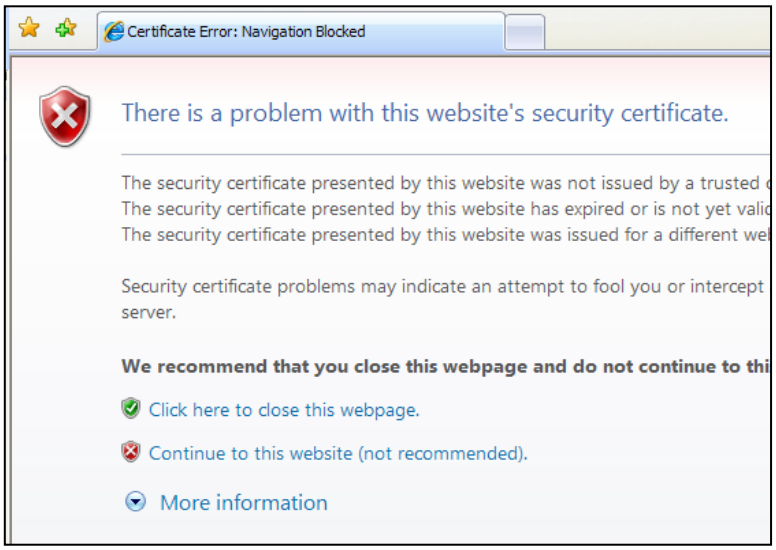
Appendix D: TVOE iLO4 GUI Access

Appendix D 1: TVOE iLO4 GUI Access

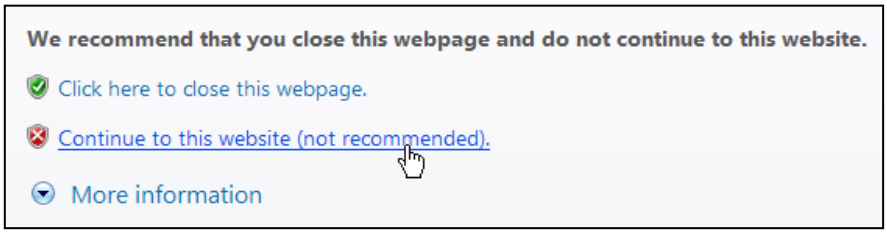
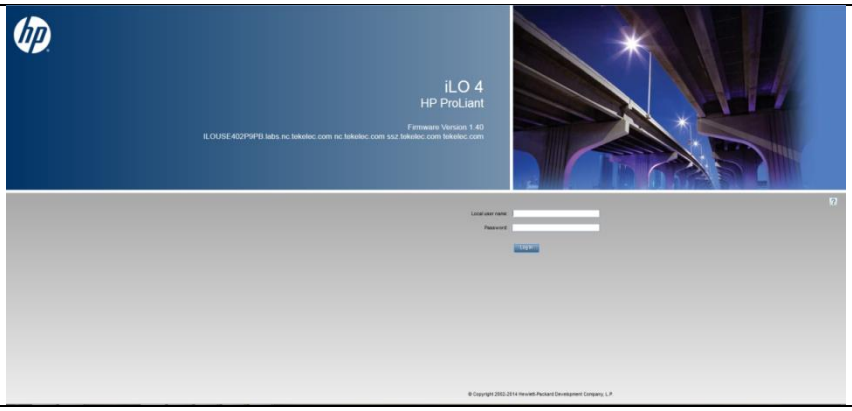
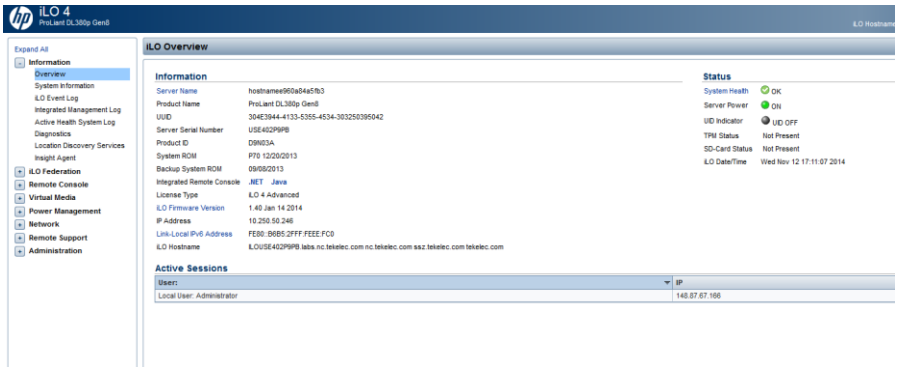
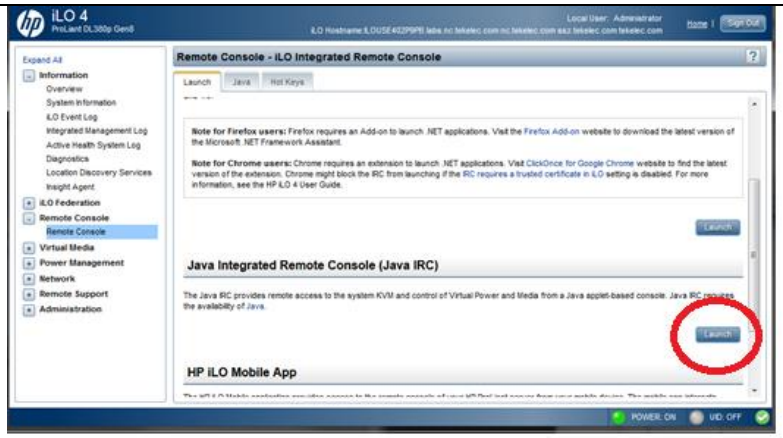
This procedure contains the steps to access the TVOE iLO4 GUI.

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

If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.

STEP #	Procedure	Result
1 ☐	Launch **Internet Explorer** Navigate to 192.168.100.5 (manufacturing default) or customer IP set during installation.	
2 ☐	Internet Explorer may display a warning message regarding the Security Certificate.	

Appendix D 1: TVOE iLO4 GUI Access

3 ☐	Select the option to **Continue to the website (not recommended)**	
4 ☐	Log in to the iLO4	
5 ☐	The iLO4 Home page is displayed.	
6 ☐	Click on **Launch** to start the PMAC iLO4 CLI	

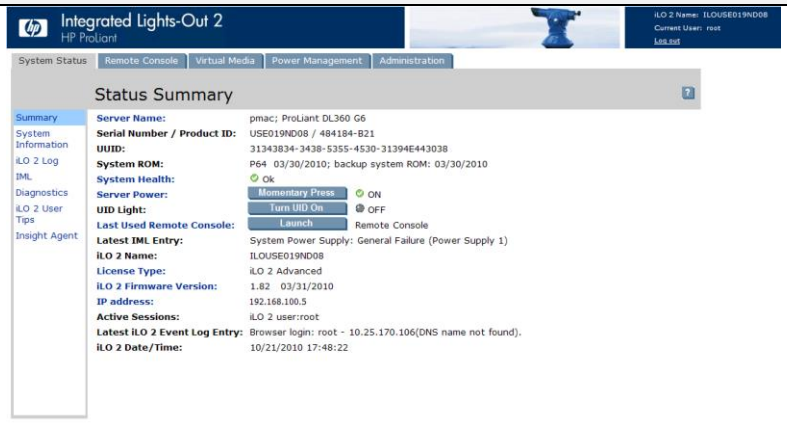
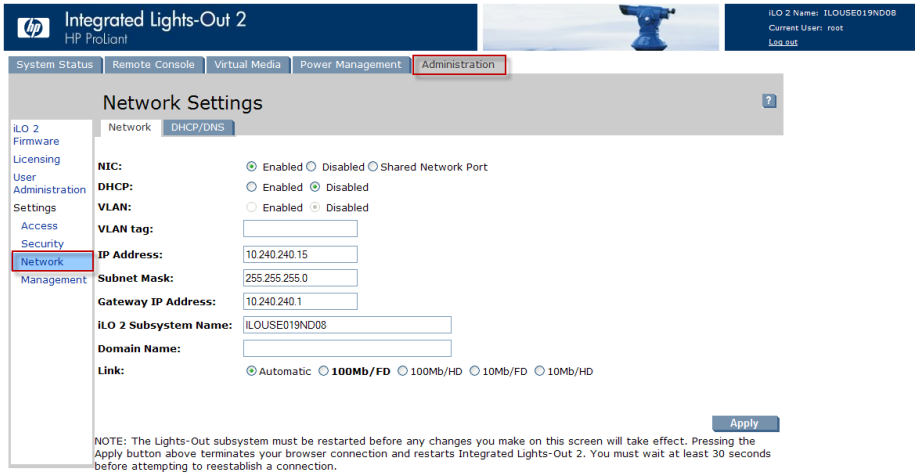
Appendix E: Changing the TVOE iLO Address

Appendix E 1: Changing the TVOE iLO Address

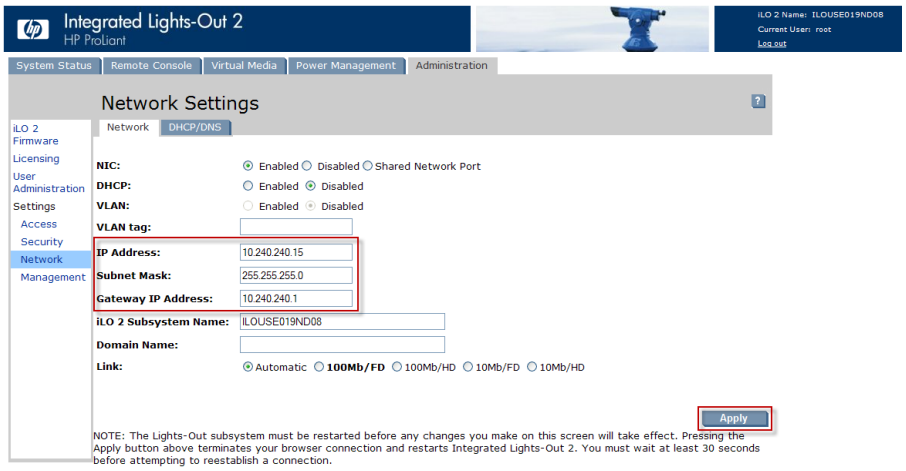
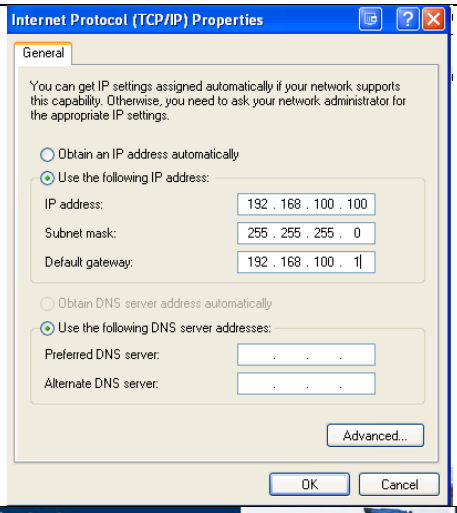
This procedure will set the IP address of the TVOE iLO to the customer's network so that it can be accessed by Oracle support.

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

If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.

STEP #	Procedure	Result
1 ☐	Connect to the TVOE iLO GUI using the instructions in **Appendix D**: TVOE iLO4 GUI Access	
2 ☐	Click the **Administration** tab. Under **Settings** in the left column click on **Network**.	

Appendix E 1: Changing the TVOE iLO Address

3 ☐	Change the **IP Address, Subnet Mask** and **Gateway IP Address** to the values supplied in the IP Site Survey for the TVOE iLO. Select **Apply**. **Note:** You will lose access after you hit the **Apply** button.	
4 ☐	Reset the PC's network connection replacing the ***Subnet Mask*** and ***Gateway*** with those just used for the TVOE iLO. Use an appropriate **IP address** for this subnet.	
5 ☐	Connect to the TVOE iLO GUI using the instructions in **Appendix D**: TVOE iLO4 GUI Access **Note**: Use the IP address entered in **Step 3**	

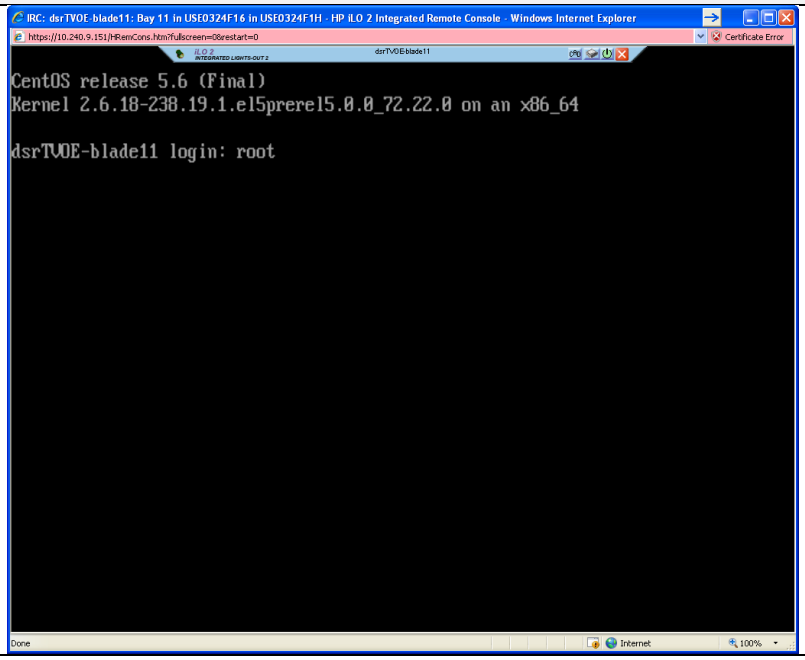
Appendix F: PMAC/NOAM/SOAM Console iLO Access

Appendix F 1: PMAC/NOAM/SOAM Console iLO Access

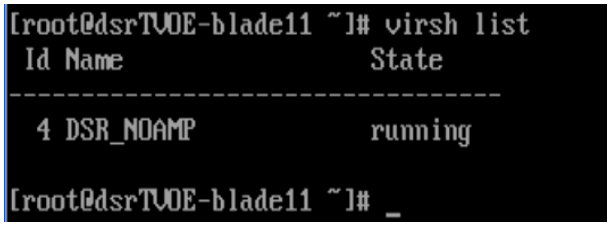
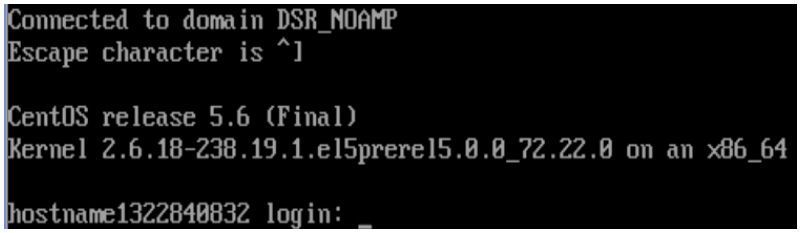
This procedure describes how to log into the PMAC/NOAM/SOAM console from ILO.

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

If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.

STEP #	Procedure	Result
1 ☐	Log in as ***admusr*** on the TVOE server hosting the NOAM using either ILO or SSH to the TVOE server's XMI or Mgmt. address	

Appendix F 1: PMAC/NOAM/SOAM Console iLO Access

2 ☐		On the TVOE host, execute the following command: `$sudo virsh list` This will produce a listing of currently running virtual machines.  Find the VM name for your DSR NOAM and note its ID number in the first column. **Note**: If the VM state is not listed as "running" or you do not find a VM you configured for your NOAM at all, then halt this procedure and contact Oracle Customer Support.
3 ☐	Connect to console of the VM using the VM number obtained in Step 2.	On the TVOE host, execute:. `$sudo virsh console <DSRNOAM-VMID>` Where **DSRNOAM-VMID** is the VM ID you obtained in **Step 2**:  You are now connected to the DSR NOAMs console. If you wish to return to the TVOE host, you can exit the session by pressing **CTRL +]**

Appendix G: List of Frequently used Time Zones

Table 4 Time Zones

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

Appendix H: Application NetBackup Client Installation Procedures

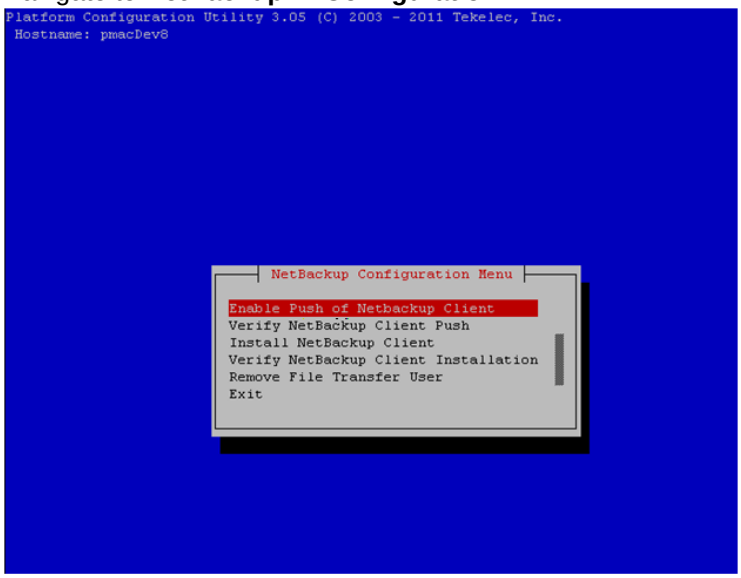
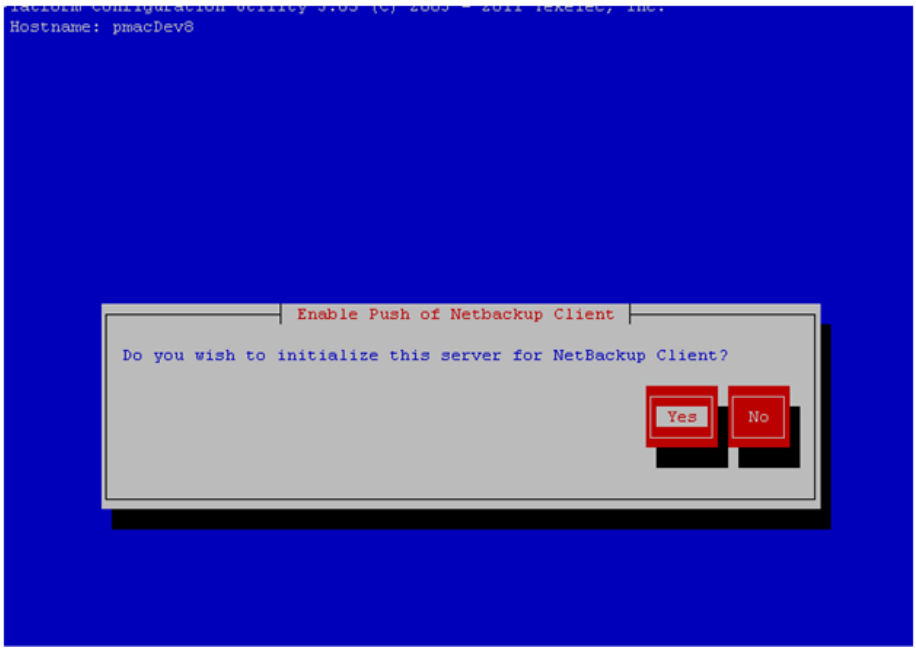
NetBackup is a utility that allows for management of backups and recovery of remote systems. The NetBackup suite is for the purpose of supporting Disaster Recovery at the customer site. The following procedures provides instructions for installing and configuring the NetBackup client software on an application server in two different ways, first using platcfg and second using nbAutoInstall (push Configuration)

Appendix H.1: NETBACKUP CLIENT INSTALL USING PLATCFG

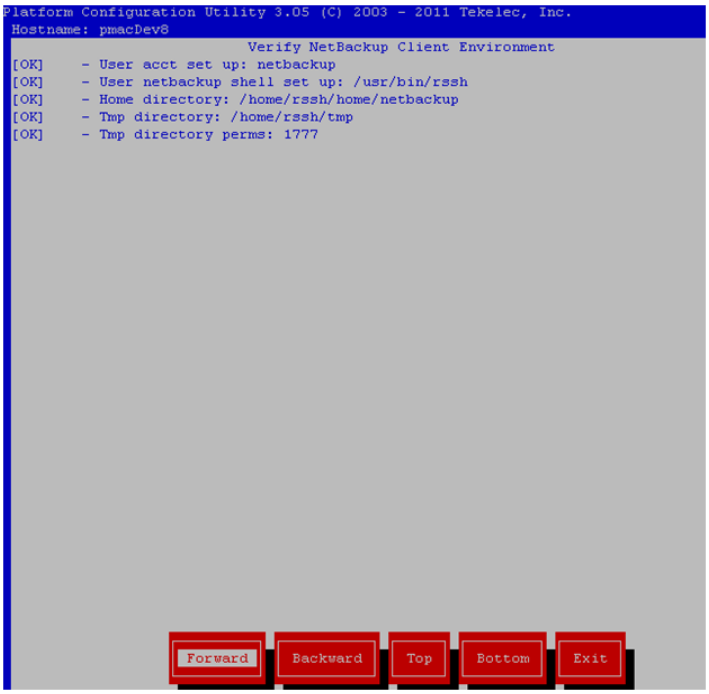
Appendix H 1: Application NetBackup Client Installation (Using Platcfg)

S T E P #	This procedure explains the Netbackup installation using platcfg **Prerequisites:** • Application server platform installation has been completed. • Site survey has been performed to determine the network requirements for the application server, and interfaces have been configured. • NetBackup server is available to copy, sftp, the appropriate NetBackup Client software to the application server. • Execute Appendix A.3 of [7] **Note:** Execute the following procedure to switch/migrate to having netBackup installed via platcfg instead of using NBAutoInstall *(Push Configuration)* Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**Application server iLO:** Login	Login and launch the integrated remote console SSH to the application Server (PMAC or NOAM) as ***admusr*** using the management network for the PMAC or XMI network for the NOAM.

Appendix H 1: Application NetBackup Client Installation (Using Platcfg)

2 ☐	**Application server iLO:** Navigate to NetBackup Configuration	Configure NetBackup Client on application server `$ sudo su - platcfg` Navigate to **NetBackup -> Configuration** 
3 ☐	**Application server iLO:** Enable Push of NetBackup Client	Navigate to **NetBackup Configuration -> Enable Push of NetBackup Client** 

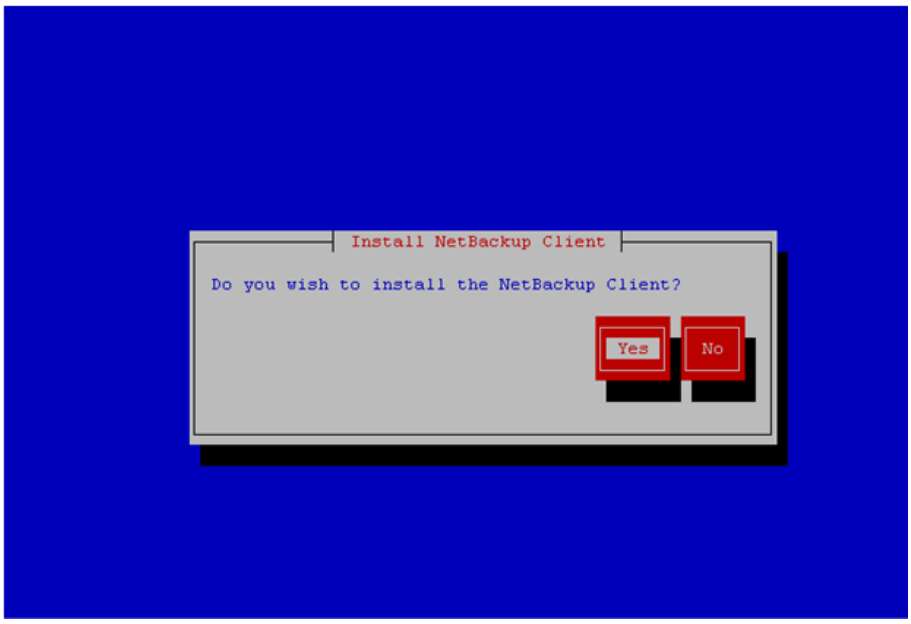
Appendix H 1: Application NetBackup Client Installation (Using Platcfg)

4 ☐	**Application server iLO:** Verify NetBackup Client software push is enabled.	Navigate to **NetBackup Configuration -> Verify NetBackup Client Push**  Verify list entries indicate **OK** for NetBackup client software environment. Select **Exit** to return to NetBackup Configuration menu.

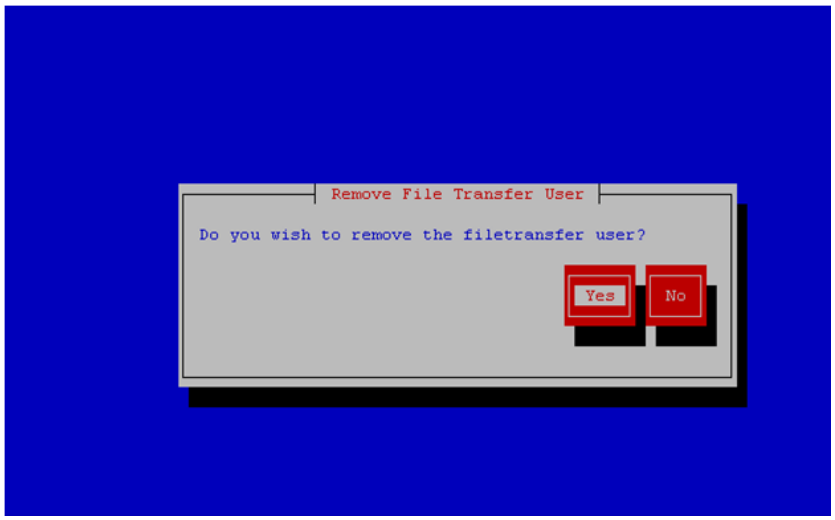
Appendix H 1: Application NetBackup Client Installation (Using Platcfg)

5 ☐	**NetBackup server:** Push appropriate NetBackup Client software to application server	**Note:** The NetBackup server is not an application asset. Access to the NetBackup server and location path of the NetBackup Client software is under the control of the customer. Below are the steps that are required on the NetBackup server to push the NetBackup Client software to the application server. These example steps assume the NetBackup server is executing in a Linux environment.
		
		Note: The backup server is supported by the customer, and the backup utility software provider. If this procedural STEP, executed at the backup utility server, fails to execute successfully, STOP and contact the Customer Care Center of the backup and restore utility software provider that is being used at this site.
		
		Login to the NetBackup server using password provided by customer:
		
		Navigate to the appropriate NetBackup Client software path:
		
		Note: The input below is only used as an example. (7.5 in the path below refer to the NetBackup version. If installed a different version (e.g. 7.1 or 7.6), replace 7.5 with 7.1 or 7.6)
		`$ cd /usr/openv/netbackup/client/Linux/7.5`
		
		Execute the sftp_to client NetBackup utility using the application IP address and application netbackup user:
		`$ ./sftp_to_client <application IP> netbackup`
		`Connecting to 192.168.176.31`
		`netbackup@192.168.176.31's password:`
		
		Enter application server netbackup user password; the following NetBackup software output is expected, observe the sftp completed successfully:
		
		File "/usr/openv/netbackup/client/Linux/6.5/.sizes" not found.
		Couldn't rename file "/tmp/bp.6211/sizes" to "/tmp/bp.6211/.sizes": No such file or directory
		File "/usr/openv/NB-Java.tar.Z" not found.
		./sftp_to_client: line 793: [: : integer expression expected
		./sftp_to_client: line 793: [: : integer expression expected
		./sftp_to_client: line 793: [: : integer expression expected
		./sftp_to_client: line 793: [: : integer expression expected
		./sftp_to_client: line 793: [: : integer expression expected
		./sftp_to_client: line 793: [: : integer expression expected
		./sftp_to_client: line 793: [: : integer expression expected
		./sftp_to_client: line 793: [: : integer expression expected
		./sftp_to_client: line 793: [: : integer expression expected
		./sftp_to_client: line 793: [: : integer expression expected
		./sftp_to_client: line 793: [: : integer expression expected
		sftp completed successfully.
		
		The user on 192.168.176.31 must now execute the following command:
		$ sh /tmp/bp.6211/client_config [-L].
		
		Note: Although the command executed above instructs you to execute the client_config command, **DO NOT** execute that command, as it shall be executed by platcfg in the next step.
		
		Note: The optional argument, **"-L",** is used to avoid modification of the client's current bp.conf file

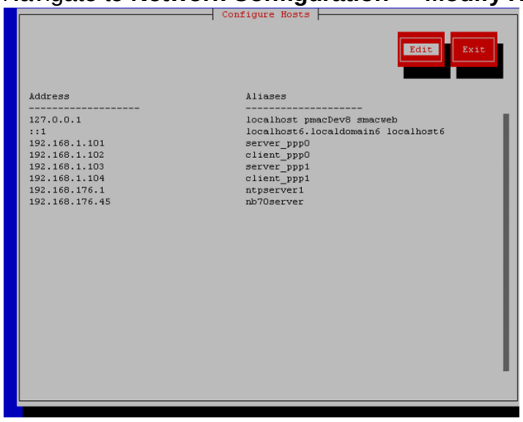
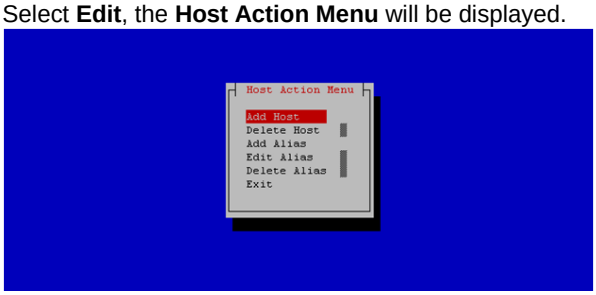
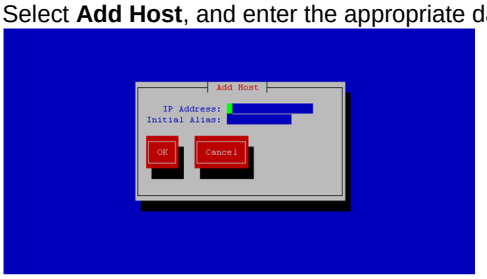
Appendix H 1: Application NetBackup Client Installation (Using Platcfg)

6 ☐	**Application server iLO:** Install NetBackup Client software on application server.	Execute the command: `$ sudo chmod 555 /var/TKLC/home/rssh/tmp/client_config` Where **NETBACKUP_BIN** is the temporary directory where the netbackup client install programs were copied in **step 5**. The directory should look similar to the following: "/tmp/bp.XXXX/" Navigate to **NetBackup Configuration -> Install NetBackup Client**  Verify list entries indicate **OK** for NetBackup client software installation Select **Exit** to return to NetBackup Configuration menu

Appendix H 1: Application NetBackup Client Installation (Using Platcfg)

7 ☐	**Application server iLO:** Verify NetBackup CLient software installation on the application server.	Navigate to **NetBackup Configuration -> Verify NetBackup Client Installation**.  Verify list entries indicate **OK** for NetBackup Client software installation. Select **Exit** to return to NetBackup Configuration menu.
8 ☐	**Application server iLO:** Disable NetBackup Client software transfer to the application server.	Navigate to **NetBackup Configuration -> Remove File Transfer User**  Select **Yes** to remove the NetBackup file transfer user from the application server
9 ☐	**Application server iLO:** Exit platform configuration utility (platcfg)	**Exit** platform configuration utility (platcfg)

Appendix H 1: Application NetBackup Client Installation (Using Platcfg)

10 ☐	**Application server iLO:** Use platform configuration utility (platcfg) to modify hosts file with NetBackup server alias.	**Note:** After the successful transfer and installation of the NetBackup client software the NetBackup servers hostname can be found in the NetBackup **"/usr/openv/netbackup/bp.conf"** file, identified by the **SERVER** configuration parameter.
		
		The NetBackup server hostname and IP address must be added to the application server's host's file. List NetBackup servers hostname:
		`$ sudo cat /usr/openv/netbackup/bp.conf`
		`SERVER = nb70server`
		`CLIENT_NAME = pmacDev8`
		
		Use platform configuration utility (platcfg) to update application hosts file with NetBackup Server alias.
		`$ sudo su - platcfg`
		
		Navigate to **Network Configuration -> Modify Hosts File**
		 
		
		Select **Edit**, the **Host Action Menu** will be displayed.
		 
		
		Select **Add Host**, and enter the appropriate data
		 
		
		Select **OK**, confirm the host alias add, and exit Platform Configuration Utility

Appendix H 1: Application NetBackup Client Installation (Using Platcfg)

11 ☐	**Application server iLO:** Create links to NetBackup client notify scripts on application server where NetBackup expects to find them.	Copy the notify scripts from appropriate path on application server for given application: **$ sudo ln -s <path>/bpstart_notify /usr/openv/netbackup/bin/bpstart_notify** **$ sudo ln -s <path>/bpend_notify /usr/openv/netbackup/bin/bpend_notify** An example of <path> is "/usr/TKLC/appworks/sbin"

Appendix H.2: NETBACKUP CLIENT INSTALL/UPGRADE WITH NBAUTOINSTALL

Note: Execute the following procedure to switch/migrate to having netBackup installed via NBAutoInstall *(Push Configuration)* instead of manual installation using platcfg

Note: Executing this procedure will enable TPD to automatically detect when a Netbackup Client is installed and then complete TPD related tasks that are needed for effective Netbackup Client operation. With this procedure, the Netbackup Client install (pushing the client and performing the install) is the responsibility of the customer and is not covered in this procedure.

Appendix H 2: Application NetBackup Client Installation (NBAUTOINSTALL)

STEP #	This procedure explains the Netbackup installation with NBAUTOINSTALL **Prerequisites:** • Application server platform installation has been completed. • Site survey has been performed to determine the network requirements for the application server, and interfaces have been configured. • NetBackup server is available to copy, sftp, the appropriate NetBackup Client software to the application server. **Note:** If the customer does not have a way to push and install Netbackup Client, then use Netbackup Client Install/Upgrade with platcfg. **Note:** It is required that this procedure is executed before the customer does the Netbackup Client install. Check off (√**)** each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**Application server iLO:** Login	Login and launch the integrated remote console. SSH to the application Server (PMAC or NOAM) as ***admusr*** using the management network for the PMAC or XMI network for the NOAM.

Appendix H 2: Application NetBackup Client Installation (NBAUTOINSTALL)

2 ☐	**Application server iLO:** Enable nbAutoInstall	Execute the following command: **$ sudo /usr/TKLC/plat/bin/nbAutoInstall --enable**
3 ☐	**Application server iLO:** Create links to NetBackup client notify scripts on application server where NetBackup expects to find them.	Execute the following commands **$ sudo mkdir -p /usr/openv/netbackup/bin/** **$ sudo ln -s <path>/bpstart_notify /usr/openv/netbackup/bin/bpstart_notify** **$ sudo ln -s <path>/bpend_notify /usr/openv/netbackup/bin/bpend_notify** Note: An example of <path> is "/usr/TKLC/plat/sbin"
4 ☐	**Application server iLO:** Verify NetBackup configuration file	Open **/usr/openv/netbackup/bp.conf** and make sure it points to the NetBackup Server using the following command: **$ sudo vi /usr/openv/netbackup/bp.conf** SERVER = nb75server CLIENT_NAME = 10.240.10.185 CONNECT_OPTIONS = localhost 1 0 2 **Note:** Verify that the above server name matches the NetBackup Server, and verify that the CLIENT_NAME matches the hostname or IP of the local client machine, if they do not, update them as necessary. Edit **/etc/hosts** using the following command and add the NetBackup server: **$ sudo vi /etc/hosts** e.g.: 192.168.176.45 nb75server **Note:** The server will now periodically check to see if a new version of Netbackup Client has been installed and will perform necessary TPD configuration accordingly. At any time, the customer may now push and install a new version of Netbackup Client.

Appendix H.3: CREATE NETBACKUP CLIENT CONFIG FILE

This procedure will copy a NetBackup Client config file into the appropriate location on the TPD based application server. This config file will allow a customer to install previously unsupported versions of NetBackup Client by providing necessary information to TPD.

Appendix H 3: Create NetBackup Client Config File

S T E P #	This procedure will copy a NetBackup Client config file into the appropriate location on the TPD based application server. This config file will allow a customer to install previously unsupported versions of NetBackup Client by providing necessary information to TPD. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**Application server iLO:** Create NetBackup Config File	Create the NetBackup Client config file on the server using the contents that were previously determined. The config file should be placed in the */usr/TKLC/plat/etc/netbackup/profiles* directory and should follow the following naming conventions: NB$ver.conf Where $ver is the client version number with the periods removed. For the 7.5 client the value of $ver would be 75 and the full path to the file would be: */usr/TKLC/plat/etc/netbackup/profiles/NB75.conf* **Note:** The config files must start with "NB" and must have a suffix of *".conf".* The server is now capable of installing the corresponding NetBackup Client. The server is now capable of installing the corresponding NetBackup Client.

Appendix H 3: Create NetBackup Client Config File

2 ☐	**Application server iLO:** Create NetBackup Config script	Create the NetBackup Client config script file on the server using the contents that were previously determined. The config script file should be placed in the */usr/TKLC/plat/etc/netbackup/scripts* directory. The name of the NetBackup Client config script file should be determined from the contents of the NetBackup Client config file.
		
		As an example for the NetBackup 7.5 client the following is applicable:
		
		NetBackup Client config:
		/usr/TKLC/plat/etc/netbackup/profiles/NB75.conf
		
		NetBackup Client config script:
		/usr/TKLC/plat/etc/netbackup/scripts/NB75
		
		Note: Change the client config and script permission by executing the following command:
		
		Illustrative purposes only:
		
		`$ sudo chmod 555 /usr/TKLC/plat/etc/netbackup/profiles/NB75.conf`
		
		`$ sudo chmod 55 /usr/TKLC/plat/etc/netbackup/scripts/NB75`

Appendix H.4: OPEN PORTS FOR NETBACKUP CLIENT SOFTWARE

This procedure will use iptables and ip6tables (if applicable) to open the applicable ports for the NetBackup client to communicate to the NetBackup Server.

Appendix H 4: Open ports for NetBackup Client Software

STEP #	This procedure will use iptables and ip6tables (if applicable) to open the applicable ports for the NetBackup client to communicate to the NetBackup Server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**Active NOAM Server:** Login	Establish an SSH session to the active NOAM server. Login as ***admusr.***

2
☐
	Active NOAM Server: Open Ports for NetBackup Client Software	Change directories to */usr/TKLC/plat/etc/iptables*
		
		`$ cd /usr/TKLC/plat/etc/iptables`
		
		Using "vi", create a file named *60netbackup.ipt*
		
		`$ sudo vi 60netbackup.ipt`
		
		Insert the following contents into the file:
		
		`# NetBackup ports.`
		`#`
		`*filter`
		`-A INPUT -m state --state NEW -m tcp -p tcp --dport 1556 -j ACCEPT`
		`-A INPUT -m state --state NEW -m tcp -p tcp --dport 13724 -j ACCEPT`
		`-A INPUT -m state --state NEW -m tcp -p tcp --dport 13782 -j ACCEPT`
		
		Now save and close the file using '**:wq**'
		
		Note: If system servers are to use IPv6 networks for NetBackup client-to-server communication, then repeat this procedure to create a file named 60netbackup.ip6t, with the same contents as shown above, in the directory /usr/TKLC/plat/etc/ip6tables.

3 ☐	**Standby NOAM:** Open Ports for NetBackup Client Software	Repeat **Steps 1-2** for the standby NOAM to open ports for NetBackup client software.

Appendix H 4: Open ports for NetBackup Client Software

4 ☐	**Active SOAM:** Open Ports for NetBackup Client Software	Repeat **Steps 1-2** for the active SOAM to open ports for NetBackup client software.
☐	**Standby SOAM:** Open Ports for NetBackup Client Software	Repeat **Steps 1-2** for the standby SOAM to open ports for NetBackup client software.

Appendix I: IDIH Fast Deployment Configuration

The fdc.cfg file contains 8 sections. The following is a list of those sections with a short description:

Section	Description
Software Images	A list of the TVOE, TPD, and iDIH application versions.
TVOE Blade	Contains the Enclosure ID, OA addresses, location, name and Hardware type of an HP Blade.
TVOE RMS	Includes Hardware Type and ILO address of the Rack Mount Server.
Type	Management or Standalone
TVOE Configuration	Contains all ip addresses, hostname and network devices for the TVOE host.
Guest Configurations (3)	The guest sections contain network and hostname configuration for the Oracle, Mediation and Application guests.

Software Images

Be sure to update the software images section based on software versions you intend to install. The following table outlines typical installation failures caused by incorrect software versions. Use the "fdconfig dumpsteps –file=" command to produce output of a Fast Deployment Session.

Software Image	Element	Command Text
TVOE ISO	mgmtsrvrtvoe	IPM Server
TPD ISO	Oracle,tpd Mediation,tpd Application,tpd	IPM Server
iDIH Mediation ISO	Mgmtsrvrtvoe,configExt	Transfer File
iDIH Oracle ISO iDIH Mediation ISO iDIH Application ISO	Oracle,ora Mediation,med Application,app	Upgrade Server

Note: For installation, oracleGuest-8.0.0.0.0_80.x.x-x86_64.iso is to be used

TVOE Blade

The TVOE Blade section should be commented out if you intend to install a Rack Mount Server. Be sure to fill out the sections properly. Enclosure ID, OA IP addresses and the Bay must be correct or the PMAC will not be able to discover the blade. Hardware profiles are different for Gen8 and Gen6. Gen6 blades profiles have fewer CPU's and Ram allocated to the Guest.

TVOE RMS

The TVOE RMS section should be commented out if you intend to install a TVOE Blade. It contains the ILO ip address and Hardware profile. If the ILO IP address is incorrect the PMAC will not be able to discover the Rack Mount Server, server discovery must occur before the installation can begin.

TYPE

If your IDIH system is to be collocated with a PMAC on the same TVOE host make sure "Type=Management" is not commented out. It will setup a management network instead of an xmi network and it will remove the software stanza inside of the TVOE server stanza. If you are setting up a standalone IDIH then comment out "Type=Management" which will setup an xmi bridge.

TVOE CONFIGURATION

This section defines the hostname, network ip addresses for the TVOE bridges and it defines the network devices. You can define the devices you intend to use for bonded interfaces and the tagged bonded interfaces you intend to associate with a bridge.

Execute "cat hw_id" or hardwareInfo" command on TVOE host to get the hardware ID for the "Hw=" parameter. **Note:** For Gen9 (Hardware ID "ProLiantDL380Gen9"), please use Gen8's Hardware ID ("ProLiantDL380pGen8").

GUEST CONFIGURATION

These sections contain the hostname, IPv4 addresses, IPv4 netmask, IPv4 gateway, and IPv6 addresses. If you do not intend to configure IPv6 addresses then leave those IP addresses commented out. The IPv6 netmask is included in the IPv6 address.

Below is FDC configuration template included on the mediation ISO:

```
# Software Images
TvoeIso="TVOE-3.0.1.0.0_86.20.0-x86_64"
TpdIso="TPD.install-7.0.1.0.0_86.20.0-OracleLinux6.6-x86_64"
OraIso="oracleGuest-8.0.0.0.0_80.25.0-x86_64"
MedIso="mediation-8.0.0.0.0_80.25.0-x86_64"
AppIso="apps-8.0.0.0.0_80.25.0-x86_64"

# Tvoe Blade OA IP and Bay uncomment if this server is blade #EncId="1401"
#Oa1="10.250.51.197"
#Oa2="10.250.51.198"
#Bay="15F"
#Hw="ProLiantBL460cGen8"
#Hw="ProLiantBL460cGen6"

# Tvoe RMS Out of Band Management IP and Hw # Comment these lines if server is blade OobIp="10.250.34.24"
Hw="ProLiantDL380pGen8"
#Hw="SUNNETRAX4270M3"

# Comment this line out if server is standalone Type="Management"

# Tvoe Config
#
TvoeName="thunderbolt"
TvoeIp="10.250.51.8"
Mask="255.255.255.0"
Gateway="10.250.51.1"
TvoeNtp="10.250.32.10"
TvoeIp6="2607:f0d0:1002:51::4/64"
TvoeIp6Gw="fe80::0"
# xmibond
XmiDev="bond0"
XmiEth="eth01,eth02"
# imibond
ImiDev="bond1"
ImiEth="eth03,eth04"
# xmi/management
MgmtInt="bond0.3"
MgmtIntType="Vlan"
MgmtIntVlanid="3"
# imi
ImiInt="bond1.5"
ImiIntType="Vlan"
ImiIntVlanid="5"

# Oracle Guest Config
OraName="thunderbolt-ora"
OraIp="10.250.51.6"
OraMask=$Mask
OraGw=$Gateway
OraIp6="2607:f0d0:1002:51::5/64"
OraIp6Gw="$TvoeIp6Gw"

# Mediation Guest Config
MedName="thunderbolt-med"
MedIp="10.250.51.10"
MedMask=$Mask
MedGw=$Gateway
ImiIp="192.168.32.11"
ImiMask="255.255.255.224"
MedIp6="2607:f0d0:1002:51::6/64"
MedIp6Gw="$TvoeIp6Gw"
ImiIp6="2608:f0d0:1002:51::6/64"

# Application Guest Config
AppName="thunderbolt-app"
AppIp="10.250.51.11"
AppMask=$Mask
AppGw=$Gateway
AppIp6="2607:f0d0:1002:51::7/64"
AppIp6Gw="$TvoeIp6Gw"
```

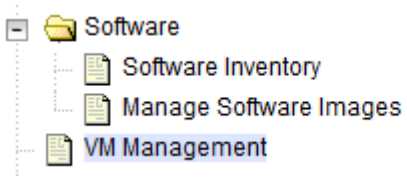
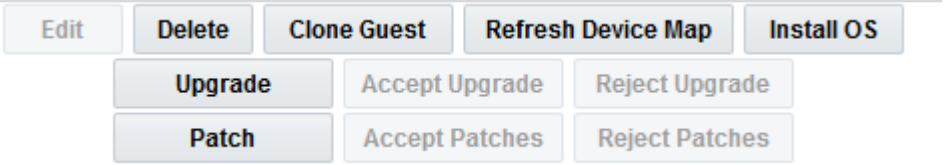
Appendix J: IDIH External Drive Removal

This procedure should only be run if the user intends to do a fresh installation on an existing IDIH.

Appendix J 1: IDIH External Drive Removal

S T E P #		
	This procedure will destroy all of the data in the Oracle Database. Warning: Do ot perform this procedure on an IDIH system unless you intent to do a fresh TVOE installation. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**PMAC GUI:** Login	Open web browser and enter: `https://<PMAC_Mgmt_Network_IP>` Login as ***guiadmin*** user: 

Appendix J 1: IDIH External Drive Removal

2 ☐	**PMAC GUI:** Delete VMs if Needed	Before a re-installation can be performed, the IDIH VMs must be removed first. Navigate to **Main Menu -> VM Management**  Select each of the IDIH VMs and select the **Delete** button. 
3 ☐	**IDIH TVOE HOST:** Login	Establish an SSH session to the TVOE host, login as ***admusr***

4 ☐	**IDIH TVOE HOST:** Verify External Drive Exists for **HP BL460 Blade**	Execute the following command to verify the external drive exists for **HP BL460 Blade:**
		
		`$ sudo hpssacli ctrl slot=3 ld all show`
		
		The following information should be displayed:
		
		`Smart Array P410i in Slot 3`
		`array A`
		`logicaldrive 1 (3.3 TB, RAID 1+0, OK)`

5 ☐	**IDIH TVOE HOST:** Verify External Drive Exists for **HP DL380 Gen8 RMS**	Execute the following command to verify the external drive exists for **HP DL380 Gen8 RMS:**
		
		`$ sudo hpssacli ctrl slot=2 ld all show`
		
		The following information should be displayed:
		
		`Smart Array P420 in Slot 2`
		`array A`
		`logicaldrive 1 (1.1 TB, RAID 1+0, OK)`

Appendix J 1: IDIH External Drive Removal

6 ☐	**IDIH TVOE HOST:** Verify External Drive Exists for **Netra X3**	Execute the following command to verify the external drive exists for **Netra X3:**
		`$ sudo storcli -ldinfo -l1 -a0 | head`
		The following information should be displayed:
		`Adapter 0 -- Virtual Drive Information:`
		`Virtual Drive: 1 (Target Id: 1)`
		`Name : `
		`RAID Level : Primary-1, Secondary-0, RAID Level Qualifier-0`
		`Size : 1.633 TB`
		`Mirror Data : 1.633 TB`
		`State : Optimal`
		`Strip Size : 64 KB`

7 ☐	**IDIH TVOE HOST:** Verify External Drive Exists for **HP DL380 Gen9 RMS**	Execute the following command to verify the external drive exists for **HP DL380 Gen9 RMS:**
		`$ sudo hpssacli ctrl slot=0 ld all show`
		The following information should be displayed:
		`Smart Array P440ar in Slot 0 (Embedded)`
		`array A`
		`logicaldrive 1 (838.3 GB, RAID 1, OK)`
		`array B`
		`logicaldrive 2 (838.3 GB, RAID 1, OK)`
		`array C`
		`logicaldrive 3 (838.3 GB, RAID 1, OK)`

8 ☐	**IDIH TVOE HOST:** Remove the External Drive and Volume Group for **HP BL460 Blade**	Execute the following command to remote the external drive and volume group for **HP BL460 Blade:**
		`$ sudo /usr/TKLC/plat/sbin/storageClean hpdisk --slot=3`
		The following information should be displayed:
		`Called with options: hpdisk --slot=3`
		`WARNING: This will destroy all application data on the server!`
		`Continue? [Y/N]`

Appendix J 1: IDIH External Drive Removal

9 ☐	**IDIH TVOE HOST:** Remove the External Drive and Volume Group for **HP DL380 Gen8 RMS**	Execute the following command to remote the external drive and volume group for **HP DL380 Gen8 RMS:**
		`$ sudo /usr/TKLC/plat/sbin/storageClean hpdisk --slot=2`
		The following information should be displayed:
		`Called with options: hpdisk --slot=2`
		`WARNING: This will destroy all application data on the server!`
		`Continue? [Y/N]`

10 ☐	**IDIH TVOE HOST:** Remove the External Drive and Volume Group for **Netra X3 with one external disk**	Execute the following command to remote the external drive and volume group for **Netra X3 with one external disk:**
		`$ sudo vgs`
		`VG #PV #LV #SN Attr VSize VFree`
		`external 1 1 0 wz--n- 1.63t 73.58g`
		`vgguests 1 6 0 wz--n- 538.56g 138.56g`
		`vgroot 1 6 0 wz--n- 19.00g 4.25g`
		`$ sudo /usr/TKLC/plat/sbin/storageClean pool \`
		`--poolName=external --level=pv`
		`$ sudo /usr/TKLC/plat/sbin/storageClean lvm \`
		`--vgName=external --level=scrub`
		`$ sudo megacli -cfglddel -l1 -a0`

Appendix J 1: IDIH External Drive Removal

<table>
<tr>
<td>11
☐</td>
<td>IDIH TVOE HOST:
Remove the External Drive and Volume Group for Netra X3 with three external disks</td>
<td>Execute the following command to remote the external drive and volume group for Netra X3 with three external disks:
<pre>$ sudo vgs
  VG   #PV #LV #SN Attr   VSize   VFree
  external1   1   1   0 wz--n- 557.86g 24.86g
  external2   1   1   0 wz--n- 557.86g 24.86g
  external3   1   1   0 wz--n- 557.86g 24.86g
  vgguests   1   6   0 wz--n- 538.56g 138.56g
  vgroot   1   6   0 wz--n- 19.00g   4.25g</pre>
<pre>$ sudo /usr/TKLC/plat/sbin/storageClean pool \
--poolName=external3 --level=pv
$ sudo /usr/TKLC/plat/sbin/storageClean pool \
--poolName=external2 --level=pv
$ sudo /usr/TKLC/plat/sbin/storageClean pool \
--poolName=external1 --level=pv
$ sudo /usr/TKLC/plat/sbin/storageClean lvm \
--vgName=external3 --level=scrub
$ sudo /usr/TKLC/plat/sbin/storageClean lvm \
--vgName=external2 --level=scrub
$ sudo /usr/TKLC/plat/sbin/storageClean lvm \
--vgName=external1 --level=scrub

[root@hellcat ~]# sudo storcli -cfglddel -l3 -a0
[root@hellcat ~]# sudo storcli -cfglddel -l2 -a0
[root@hellcat ~]# sudo storcli -cfglddel -l1 -a0</pre>
</td>
</tr>
<tr>
<td>12
☐</td>
<td>IDIH TVOE HOST:
Remove the External Drive and Volume Group for HP DL380 Gen9 RMS</td>
<td>Execute the following command to remote the external drive and volume group for HP DL380 Gen9 RMS:
<pre>$ sudo /usr/TKLC/plat/sbin/storageClean pool -- \
poolName=external2 --level=pv

$ sudo /usr/TKLC/plat/sbin/storageClean pool -- \
poolName=external1 --level=pv

$ sudo /usr/TKLC/plat/sbin/storageClean lvm -- \
vgName=external2 --level=scrub

$ sudo /usr/TKLC/plat/sbin/storageClean lvm -- \
vgName=external1 --level=scrub

$ sudo hpssacli ctrl slot=0 ld 3 delete
$ sudo hpssacli ctrl slot=0 ld 2 delete</pre>
</td>
</tr>
</table>

Appendix K: DSR Fast Deployment Configuration

The following table contains the variables that the NOAM DSR fast deployment will prompt for during NOAM deployment.

Fast Deployment Variable	Description	Value
Cabinet ID of this Enclosure? (NOAM Blade Deployment Only)	This value should match the value entered from Section "Enclosure and Blades Setup" from reference [7]	
Enclosure ID? (NOAM Blade Deployment Only)	This value should match the value entered from Section "Enclosure and Blades Setup" from reference [7]	
Bay number of the First NOAM TVOE Host (NOAM Blade Deployment Only)	This value will be the blade number of the first NOAM server. **Note:** 'F' MUST append the bay number (example: 8F)	
Bay number of the Second NOAM TVOE Host (NOAM Blade Deployment Only)	This value will be the blade number of the second NOAM server. **Note:** 'F' MUST append the bay number (example: 16F)	
iLO/iLOM IP address of the First Rack Mount Server (NOAM Rack Mount Server Deployments Only)	This value will be the iLO/iLOM IP address of the First rack mount server. **Note:** If the NOAM is located on the same TVOE host as the PMAC, this value will be the one entered in procedure "Add Rack Mount Server to the PM&C System Inventory" from reference [7]	
iLO/iLOM IP address of the Second Rack Mount Server (NOAM Rack Mount Server Deployments Only)	This value will be the iLO/iLOM IP address of the First rack mount server.	
iLO/iLOM username of the First Rack Mount Server (NOAM Rack Mount Server Deployments Only)	This value will be the iLO/iLOM username of the first rack mount server. **Note:** If the NOAM is located on the same TVOE host as the PMAC, this value will be the one entered in procedure "Add Rack Mount Server to the PM&C System Inventory" from reference [7]	
iLO/iLOM username of the Second Rack Mount Server (NOAM Rack Mount Server Deployments Only)	This value will be the iLO/iLOM username of the second rack mount server.	
iLO/iLOM password of the First Rack Mount Server (NOAM Rack Mount Server Deployments Only)	This value will be the iLO/iLOM password of the first rack mount server. **Note:** If the NOAM is located on the same TVOE host as the PMAC, this value will be the one entered in procedure "Add Rack Mount Server to the PM&C System Inventory" from reference [7]	

iLO/iLOM password of the Second Rack Mount Server (NOAM Rack Mount Server Deployments Only)	This value will be the iLO/iLOM password of the second rack mount server.	
Hostname for the First TVOE Host	This value will be the hostname of the first TVOE host	
Hostname for the Second TVOE Host	This value will be the hostname of the second TVOE host	
XMI IP address of the First TVOE Host (NOAM Blade Deployment Only)	This value will be the XMI IP address of the first TVOE Host.	
XMI IP address of the Second TVOE Host (NOAM Blade Deployment Only)	This value will be the XMI IP address of the second TVOE Host.	
PMAC VM Name of the First NOAM	This value will be the VM name (visible from **Main Menu -> VM Management** on the PMAC.)	
PMAC VM Name of the Second NOAM	This value will be the VM name (visible from **Main Menu -> VM Management** on the PMAC.)	
First NOAM Hostname	This value will be the first NOAM hostname.	
Second NOAM Hostname	This value will be the second NOAM hostname.	
XMI IP address of the First NOAM	This value will be the XMI IP address of the first NOAM. **Note:** this value will be used to access the NOAM GUI for configuration	
Customer Provided NTP Server #1 Customer Provided NTP Server #2 Customer Provided NTP Server #3	Customer provided NTP source. Refer to Figure 2 of [7].	NTP Server #1: NTP Server #2: NTP Server #3:
XMI bond interface	This value will be the XMI bond interface. Example: bond0.3	
XMI VLAN ID	This value will be the XMI VLAN ID. Example: 3	
IMI bond interface	This value will be the IMI bond interface. Example: bond0.4	
IMI VLAN ID	This value will be the IMI VLAN ID. Example: 4	

Management bond interface (NOAM Rack Mount Server Deployments Only)	This value will be the Management bond interface. Example: bond0.2 **Note:** If NOAMs are located on the same TVOE host as the PMAC, this value MUST match what was configured in Section "TVOE Network Configuration" of reference [7].	
Management VLAN ID (NOAM Rack Mount Server Deployments Only)	This value will be the Management VLAN ID. Example: 2 **Note:** If NOAMs are located on the same TVOE host as the PMAC, this value MUST match what was configured in Section "TVOE Network Configuration" of reference [7].	
xmi Network IP Subnet Mask	This value will be the xmi IP network subnet mask.	
Management Network IP subnet mask	This value will be the management IP network subnet mask.	
xmi Network IP default gateway	This value will be the default gateway of the xmi network.	
Management Network IP default gateway	This value will be the default gateway of the management network.	

Appendix L: Growth/De-Growth

For scenarios where growth or de-growth is required, it may be necessary to delete or re-shuffle VM guests, SDS, and DSR servers. Appendix L.1 will explain how to add individual VMs and add various DSR/SDS servers. Appendix L.2 will explain how to delete individual VMs and move or remove various DSR/SDS servers.

Appendix L.1: Growth

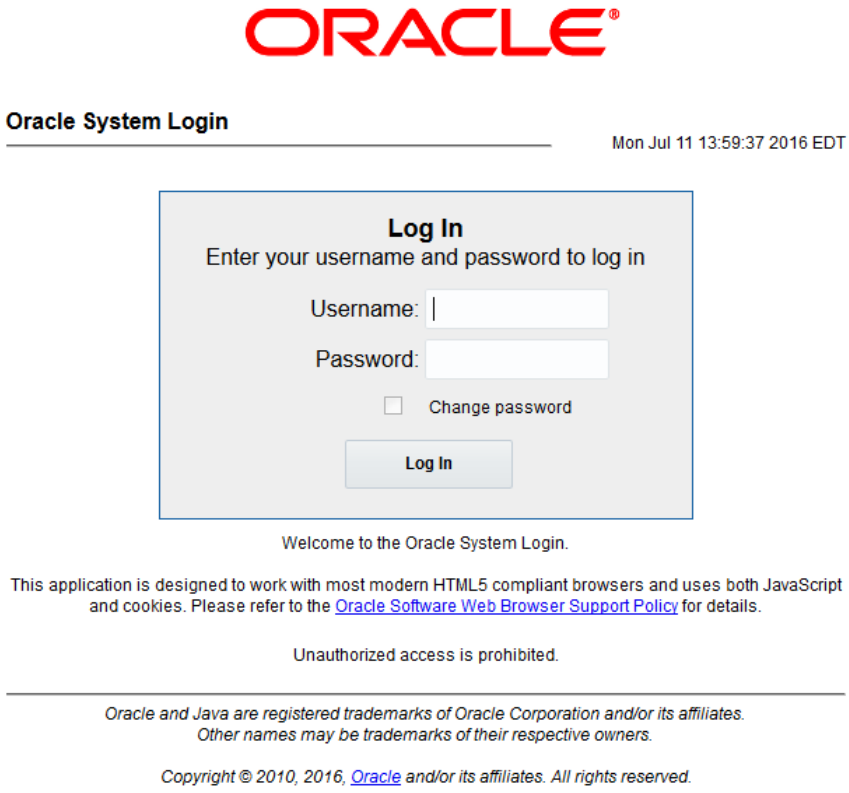
For growth scenarios where it is necessary to add DSR servers, the following sequence of steps should be followed:

Step	Procedure(s)
Perform Backups	Appendix L.1.1
Perform system health check	Appendix L.1.2
Identify Servers which will be affected by the Growth: • DR-NOAM • SOAM Spares • MP (SBR, SS7MP, IPFE)	
Add new servers Create and Configure the VMs on new servers (SOAM spare and DR-NOAMs Only)	Appendix L.1.3
Configure Servers in new VM locations	NOAM/DR-NOAM: Appendix L.1.4 SOAM: Appendix L.1.5 MP: Appendix L.1.6
Post Growth Health Check	Appendix L.1.7
Post Growth Backups	Appendix L.1.8

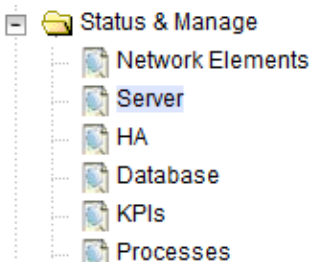
Appendix L.1.1 Perform Backups

S T E P #	This procedure will reference steps to backup all necessary items before a growth scenario. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**Backup TVOE**	Backup all TVOE host configurations by executing **Procedure 40**
2 ☐	**Backup PMAC**	Backup the PMAC application by executing **Procedure 41**
3 ☐	**Backup NOAM/SOAM databases**	Backup the NOAM and SOAM Databases by executing **Procedure 42** and **Procedure 43**

Appendix L.1.2 Perform Health Check

S T E P #	This procedure will provide steps verify system status and log all alarms. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**NOAM VIP GUI:** Login	Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login as the ***guiadmin*** user: 

Appendix L.1.2 Perform Health Check

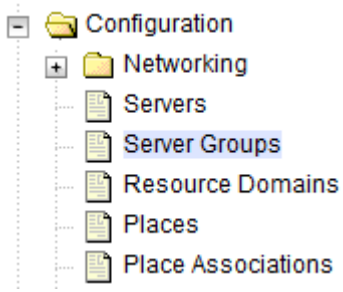
<table>
<tr>
<td>2
☐</td>
<td>NOAM VIP GUI:
Verify Server Status</td>
<td>Navigate to Main Menu -> Status & Manage -> Server
 

Verify all Server Status is Normal (Norm) for:

Alarm (Alm), Database (DB), Replication Status, and Processes (Proc).

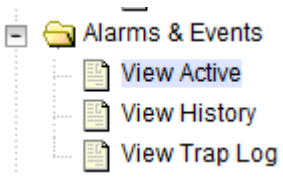
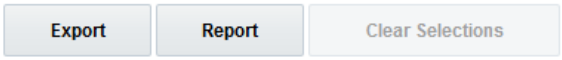
<table>
<tr><th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr>
<tr><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr>
<tr><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr>
<tr><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr>
<tr><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr>
</table>

Do not proceed to with Growth/De-Growth if any of the above states are not Norm. If any of these are not Norm, corrective action should be taken to restore the non-Norm status to Norm before proceeding with the feature activation.

If the Alarm (Alm) status is not Norm but only Minor alarms are present, it is acceptable to proceed. If there are Major or Critical alarms present, these alarms should be analyzed prior to proceeding with the feature activation. The activation may be able to proceed in the presence of certain Major or Critical alarms</td>
</tr>
<tr>
<td>3
☐</td>
<td>NOAM VIP GUI:
Verify Server Configuration</td>
<td>Navigate to Main Menu -> Configuration -> Server Groups
 

Verify the configuration data is correct for your network.</td>
</tr>
</table>

Appendix L.1.2 Perform Health Check

4 ☐	**NOAM VIP GUI:** Log Current Alarms	Navigate to **Main Menu -> Alarms & Events -> View Active**  Click on the **Report** button  **Save** or **Print** this report, keep copies for future reference. 
5 ☐	**SOAM VIP GUI:** Repeat For SOAM	Repeat **Steps 1-4** for the SOAM

Appendix L.1.3 Adding a new Server/VMs

STEP #	This procedure will provide steps to add a new rack mount server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance..	
1 ☐	**Add/Configure Additional Servers**	Follow the sections below to install and configure additional servers: DR-NOAMs: **Section 4.2.1** Execute DSR Fast Deployment for DR-NOAMs Spare SOAMs: **Procedure 11** MPs: Insert blade in desired location
2 ☐	**Add/Configure New VMs**	1. Create new virtual Machines for the Spare SOAMs by following **Procedure 12** 2. Install TPD and DSR Software by following **Procedure 13**

Appendix L.1.4 Growth: DR-NOAM

S T E P #	This procedure will reference steps to configure a DR-NOAM on the new virtual machine for VM Growth scenarios. **Prerequisites:** • NEW Virtual Machine Created • TPD/DSR software installed Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance..	
1 ☐	**NOAM VIP GUI:** Configure the DR-NOAM	Configure the DR-NOAM by executing the steps referenced in the following procedures: DSR DR-NOAM: **Section 4.2.2** Pairing DR-NOAMs**(Section 4.2.3** Install NetBackup Client (Optional)
2 ☐	**DR-NOAM:** Activate Optional Features (DSR Only)	If there are any optional features currently activated, the feature activation procedures will need to be run again. Refer to **Section 3.3** Optional Features

3
☐
	NOAM VIP:
	Execute the key revocation Script on the Active NOAM (RADIUS Only)
		If the RADIUS key has never been revoked, skip this step (If RADIUS was never configured on any site in the network, the RADIUS key would have most likely never been revoked. Check with your system administrator)
		
		Execute the following commands to execute the key revocation script on active NOAM server to copy key file to new NOAM server created:
		
		`$ cd /usr/TKLC/dsr/bin/`
		`$ ./sharedKrevo -synchronize –server <new_NOAM_hostname>`
		
		Note: Key transfer successful output should be given.

Appendix L.1.5 Growth: SOAM spare (PCA Only)

S T E P #	This procedure will reference steps to configure an SOAM spare on the new virtual machine for VM growth scenarios. **Prerequisites:** • NEW Virtual Machine Created • TPD/DSR software installed Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**NOAM VIP GUI:** Configure the SOAM spare	Configure the SOAM spare by executing the steps referenced in the following procedures: DSR SOAM spare: • Procedure 15 • Procedure 16 • Procedure 17 (Steps 1,4,6, and 9)
2 ☐	**NOAM GUI:** Activate Optional Features	If there are any optional features currently activated, the feature activation procedures will need to be run again. Refer to **Section 3.3** Optional Features.

3
☐
	NOAM VIP:
	Execute the key revocation Script on the Active NOAM (RADIUS)
		If the RADIUS key has never been revoked, skip this step (If RADIUS was never configured on any site in the network, the RADIUS key would have most likely never been revoked. Check with your system administrator)
		
		Execute the following commands to execute the key revocation script on active NOAM server to copy key file to new SOAM server created:
		
		`$ cd /usr/TKLC/dsr/bin/`
		`$ ./sharedKrevo -synchronize –server <new_SOAM_hostname>`
		
		Note: Key transfer successful output should be given.

Appendix L.1.6 Growth: MP

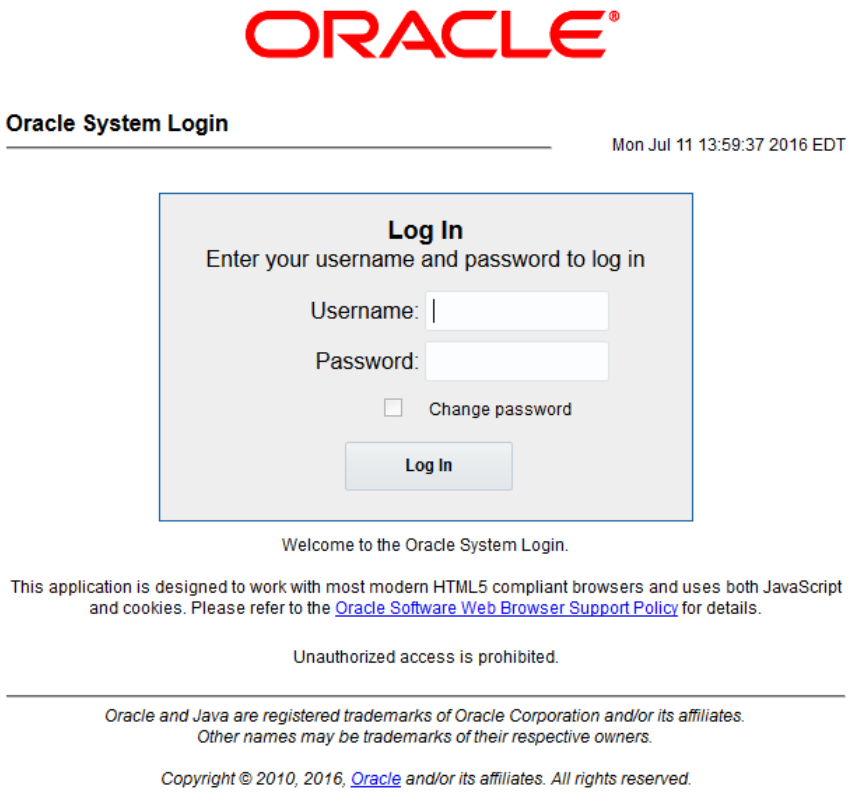
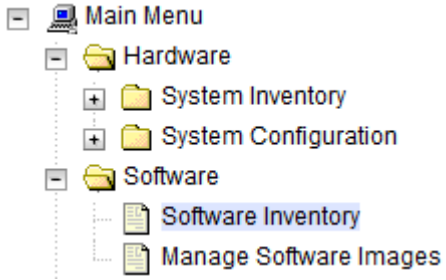
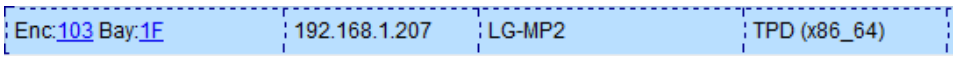
S T E P #	This procedure will reference steps to configure an MP on the new virtual machine for growth scenarios. **Prerequisites:** • TPD/DSR software installed Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**NOAM VIP GUI:** Configure the MP	Configure the MP/DP by executing the steps referenced in the following procedures: DSR MP: **Procedure 20** *(Steps 1-2, 7-14, 15-17(Optional))*

2 ☐	**NOAM VIP:** Execute the key revocation Script on the Active NOAM (RADIUS)	**If the RADIUS key has never been revoked, skip this step (If RADIUS was never configured on any site in the network, the RADIUS key would have most likely never been revoked. Check with your system administrator)**
		
		Execute the following commands to execute the key revocation script on active NOAM server to copy key file to new MP server created:
		
		`$ cd /usr/TKLC/dsr/bin/`
		`$ ./sharedKrevo -synchronize -server <new_MP_hostname>`
		
		Note: Key transfer successful output should be given.

Appendix L.1.6.1 Growth: MP (For 7.x to 8.x upgraded system)

S T E P #	This procedure should be executed **ONLY** to configure an MP on the new virtual machine for growth scenarios for 7.x to 8.x upgraded system **Prerequisites:** • TPD/DSR software installed Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**NOAM VIP GUI:** Login	If not already done, establish a GUI session on the NOAM server the VIP IP address of the NOAM server.

Appendix L.1.6.1 Growth: MP (For 7.x to 8.x upgraded system)

		Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login to the NOAM GUI as the ***guiadmin*** user: 
2 ☐	**PMAC:** Exchange SSH keys between MP site's local PMAC and the MP server	Use the MP site's PMAC GUI to determine the Control Network IP address of the blade server that is to be an MP server. From the MP site's PMAC GUI, navigate to **Main Menu** -> **Software** -> **Software Inventory**.   Note the IP address for an MP server. Login to the MP site's PMAC terminal as the ***admusr.***

Appendix L.1.6.1 Growth: MP (For 7.x to 8.x upgraded system)

<table>
<tr><td></td><td></td><td>From a terminal window connection on the MP site's PMAC as the admusr.

Exchange SSH keys for admusr between the PMAC and the MP blade server using the keyexchange utility, using the Control network IP address for the MP blade server.

$ keyexchange admusr@<MP_Control_Blade_IP Address>

When prompted for the password, enter the password for the admusr user of the MP server.</td></tr>
<tr><td>3
☐</td><td>NOAM VIP GUI: Insert the MP server (Part 1)</td><td>Before creating the MP blade server, first identify the hardware profile

Hardware Profile: In the following step, you will select the profile that matches your MP physical hardware and enclosure networking environment.

Note: You must go through the process of identifying the enclosure switches, mezzanine cards and Ethernet interfaces of the network prior and blade(s) used before selecting the profile.

<table>
<tr><th>Profile Name</th><th>Number of Enclosure Switches (Pairs)?</th><th>Bonded Signaling Interfaces?</th></tr>
<tr><td>1-Pair</td><td>1</td><td>Yes</td></tr>
<tr><td>2-Pair</td><td>2</td><td>Yes</td></tr>
<tr><td>3-Pair-bonded</td><td>3</td><td>Yes</td></tr>
<tr><td>3-Pair-un-bonded</td><td>3</td><td>No</td></tr>
</table>

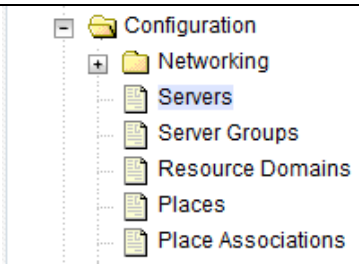
Note: If none of the above profiles properly describe your MP server blade, then you will have to create your own in a text editor (See Figure 7 of Appendix A: Sample Network Element and Hardware Profiles) and copy it into the /var/TKLC/appworks/profiles/ directory of the active NOAM server, the standby NOAM server, and both the DR NOAM servers (if applicable).

Note: After transferring the above file, set the proper file permission by executing the following command:

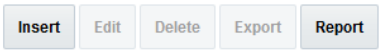
$ sudo chmod 777 /var/TKLC/appworks/profiles/<profile name>

Make note of the profile used here, as it will be used in server creation in the following step.</td></tr>
<tr><td>4
☐</td><td>NOAM VIP GUI: Insert the MP</td><td>Navigate to Main Menu->Configuration->Servers</td></tr>
</table>

Appendix L.1.6.1 Growth: MP (For 7.x to 8.x upgraded system)

<table>
<tr>
<td></td>
<td>server (Part 2)</td>
<td>


Select the Insert button to insert the new MP server into servers table.

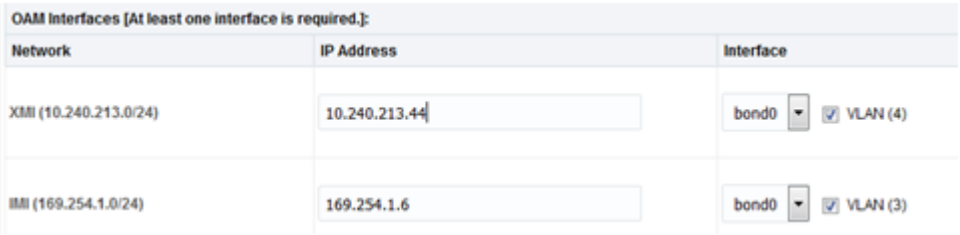


Fill out the following values:

Hostname:<Hostname>
Role: MP
Network Element: [Choose Network Element]
Hardware Profile: Select the profile that matches your MP physical hardware and enclosure networking environment from step 8.

Location: <enter an optional location description>

The interface configuration form will now appear.



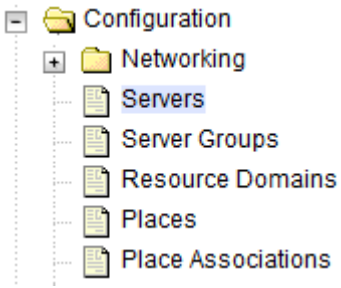
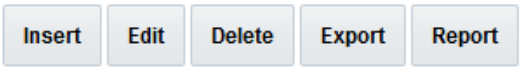
Note: If networks have been configured previously but are not required on the server, simply remove the populated network IP from the IP Address field and this device will not be created on the server.

Enter the IP addresses for all networks. Select the correct bond or interface. Ensure the correct bond and VLAN tagging (if required) is selected.

Optional: If dedicated network for SBR replication has been defined, enter the SBR replication IP address. Select the proper bond or interface, and select the VLAN checkbox if VLAN tagging is required.
</td>
</tr>
<tr>
<td>5
□</td>
<td>NOAM VIP GUI: Insert the MP server (Part 3)</td>
<td>
Next, add the following NTP servers:

<table>
<tr><th>NTP Server</th><th>Preferred?</th></tr>
<tr><td><TVOE_XMI_IP_Address(SO1)></td><td>Yes</td></tr>
<tr><td><TVOE_XMI_IP_Address(SO2)></td><td>No</td></tr>
<tr><td><MP_Site_PMAC_TVOE_IP_Address></td><td>No</td></tr>
</table>
</td>
</tr>
</table>

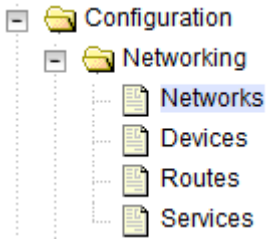
Appendix L.1.6.1 Growth: MP (For 7.x to 8.x upgraded system)

		Note: For multiple enclosure deployments, prefer the SOAM TVOE Host that is located in the same enclosure as the MP Server. Select **OK** when all fields are filled in to finish MP server insertion.
6 ☐	**NOAM VIP GUI:** Export the Configuration	Navigate to **Main Menu -> Configuration -> Servers.**  From the GUI screen, select the MP server and then select **Export** to generate the initial configuration data for that server. 
7 ☐	**NOAM VIP:** Copy Configuration File to MP Server	Obtain a terminal session to the NOAM VIP as the ***admusr*** user. Use the **awpushcfg** utility to copy the configuration file created in the previous step from the /var/TKLC/db/filemgmt directory on the NOAM to the MP server, using the Control network IP address for the MP server. The configuration file will have a filename like "TKLCConfigData.<***hostname***>.sh". `$ sudo awpushcfg` The awpushcfg utility is interactive, so the user will be prompted for the following: • IP address of the local PMAC server: Use the management network address from the PMAC. • Username: Use **admusr** • Control network IP address for the target server: In this case, enter the control IP for the MP server). • Hostname of the target server: Enter the server name configured in **step 9**
8 ☐	**MP Server:** Verify awpushcfg was called and Reboot the Configured	Obtain a terminal window connection on the MP server console by establishing an ssh session from the NOAM VIP terminal console. `$ ssh admusr@<MP_Control_IP>` Login as the ***admusr*** user. Verify awpushcfg was called by checking the following file:

Appendix L.1.6.1 Growth: MP (For 7.x to 8.x upgraded system)

	Server	**$ sudo cat /var/TKLC/appw/logs/Process/install.log** Verify the following message is displayed: [SUCCESS] script completed successfully! Reboot the server: **$ sudo init 6** Proceed to the next step once the Server finished rebooting, The server is done rebooting once the login prompt is displayed.
9 □	**MP Server:** Verify Server Health	After the reboot, login as ***admusr.*** Execute the following command as super-user on the server and make sure that no errors are returned: **$ sudo syscheck** Running modules in class hardware…OK Running modules in class disk…OK Running modules in class net…OK Running modules in class system…OK Running modules in class proc…OK LOG LOCATION: /var/TKLC/log/syscheck/fail_log
10 □	**MP Server:** Delete Auto-Configured Default Route on MP and Replace it with a Network Route via the XMI Network-Part1 (Optional)	**Note:** THIS STEP IS **OPTIONAL** AND SHOULD ONLY BE EXECUTED 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.) Using the iLO facility, log into the MP as the *admusr* user. (*Alternatively, you can log into the site's PMAC then SSH to the MP's control address.)* Determine <XMI_Gateway_IP> from your SO site network element info. Gather the following items: • <NO_XMI_Network_Address> • <NO_XMI_Network_Netmask> • <DR_NO_XMI_Network_Addres> • <DR_NO_XMI_Network_Netmask> • <TVOE_Mgmt_XMI_Network_Address>

Appendix L.1.6.1 Growth: MP (For 7.x to 8.x upgraded system)

		• <TVOE_Mgmt_XMI_Network_Netmask> **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.  Proceed to the next step to modify the default routes on the MP servers.

11
□
	MP Server: Delete Auto-Configured Default Route on MP and Replace it with a Network Route via the XMI Network-Part2 (Optional)	After gathering the network information from step 15, proceed with modifying the default routes on the MP server.
		
		Establish a connection to the MP server, login as ***admusr.***
		
		Create network routes to the NO's XMI(OAM) network:
		
		Note: If your NOAM XMI network is exactly the same as your MP XMI network, then you should skip this command and only configure the DR NO route.
		
		`$ sudo /usr/TKLC/plat/bin/netAdm add -route=net`
		`--address=<NO_Site_Network_ID> --netmask=<NO_Site_Network_Netmask>`
		`--gateway=<MP_XMI_Gateway_IP_Address> --device=<MP_XMI_Interface>`
		
		Create network routes to the DR NO's XMI(OAM) network:
		
		`$ sudo /usr/TKLC/plat/bin/netAdm add -route=net`
		`--address=<DR-NO_Site_Network_ID> --netmask=<<DR-NO_Site_Network_Netmask>`
		`--gateway=<MP_XMI_Gateway_IP_Address> --device=<MP_XMI_Interface>`
		
		Create network routes to the Management Server TVOE XMI(OAM) network for NTP:
		
		`$ sudo /usr/TKLC/plat/bin/netAdm add -route=net`
		`--address=<TVOE_Mgmt_Network_Address>`
		`--netmask=<TVOE_Mgmt_Network_Netmask>`
		`--gateway=<MP_XMI_Gateway_IP_Address> --device=<MP_XMI_Interface>`
		
		(Optional) If Sending SNMP traps from individual servers, create host routes to customer SNMP trap destinations on the XMI network:
		
		`$ sudo /usr/TKLC/plat/bin/netAdm add -route=host`
		`--address=<Customer_NMS_IP> --gateway=<MP_XMI_Gateway_IP_Address>`

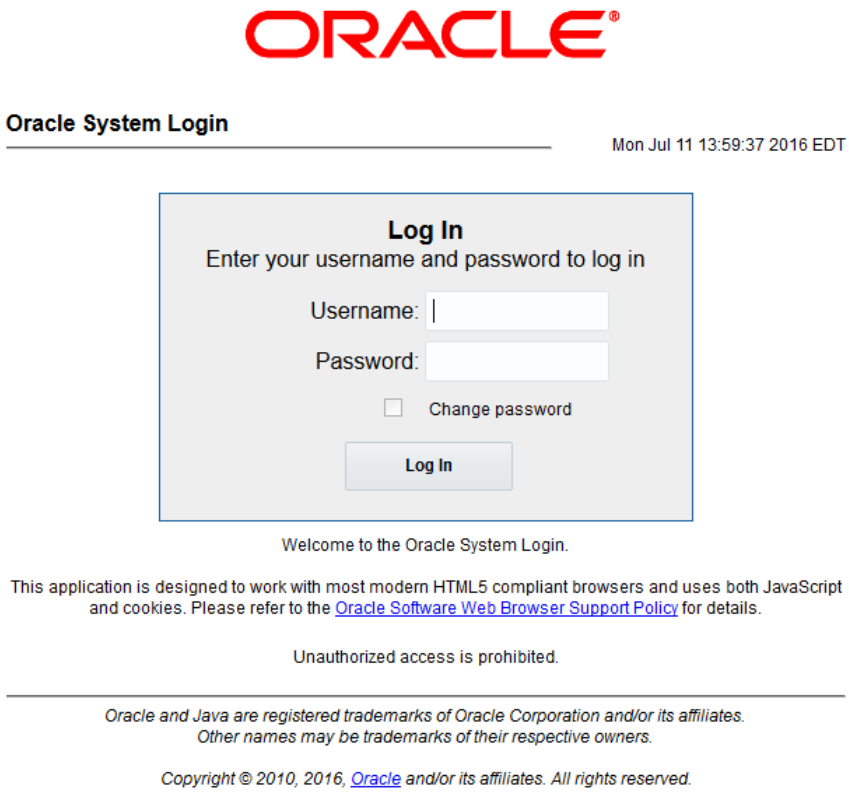
Appendix L.1.6.1 Growth: MP (For 7.x to 8.x upgraded system)

		`--device=<MP_XMI_Interface>` (Repeat for any existing customer NMS stations) **Delete the existing default route:** 1. Login to the PRIMARY NOAM VIP GUI 2. Navigate to **Configuration**->**Networking**->**Networks** 3. Select the specific SO tab. 4. Select the XMI network and click 'Unlock'. Click OK to confirm 5. Go to **Configuration**->**Networking**->**Routes** 6. Select the Specific MP XMI route and click 'Delete'. 7. Click OK to confirm. 8. Repeat the above steps for all required MPs to delete the XMI routes 9. Select **Configuration**->**Networking**->**Networks** 10. Select the respective SOAM tab. 11. Select the XMI network and click 'Lock'. Click OK to confirm

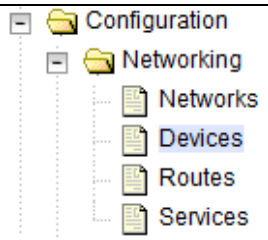
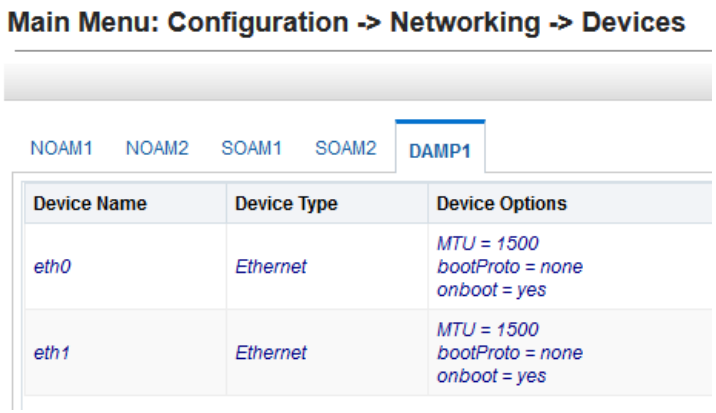
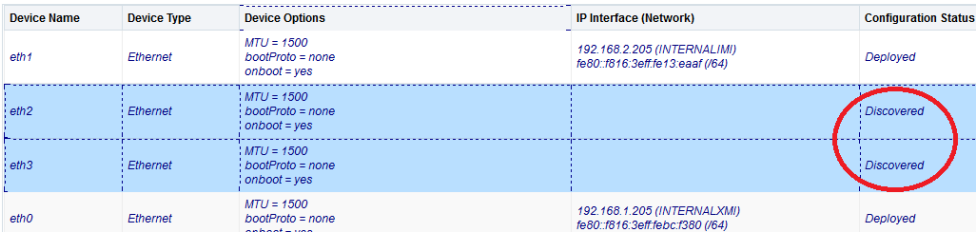
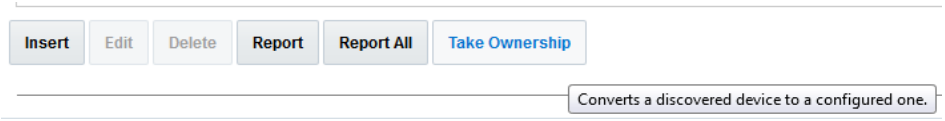
12
☐
	MP Server: Verify connectivity	After steps 10 and 11 have been executed, verify network connectivity.
		
		Establish a connection to the MP server, login as ***admusr.***
		
		Ping active NO XMI IP address to verify connectivity:
		
		`$ ping <ACTIVE_NO_XMI_IP_Address>`
		`PING 10.240.108.6 (10.240.108.6) 56(84) bytes of data.`
		`64 bytes from 10.240.108.6: icmp_seq=1 ttl=64 time=0.342 ms`
		`64 bytes from 10.240.108.6: icmp_seq=2 ttl=64 time=0.247 ms`
		
		(Optional) Ping Customer NMS Station(s):
		
		`$ ping <Customer_NMS_IP>`
		`PING 172.4.116.8 (172.4.118.8) 56(84) bytes of data.`
		`64 bytes from 172.4.116.8: icmp_seq=1 ttl=64 time=0.342 ms`
		`64 bytes from 172.4.116.8: icmp_seq=2 ttl=64 time=0.247 ms`
		
		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.

13 ☐	**Repeat for remaining MP at all sites**	**Repeat** the above steps from 1 through 12 for all remaining MP blades (SS7-MP, DA-MP, and IPFE).
14	**Configure**	Execute the following procedures:

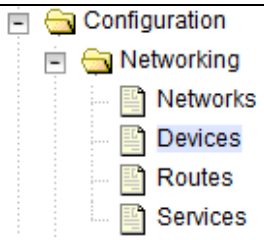
Appendix L.1.6.1 Growth: MP (For 7.x to 8.x upgraded system)

☐	**MP**	• **Procedure 21** Configure Places and Assign MP Servers to Places (PCA/DCA ONLY) • **Procedure 22** Configure the MP Server Group(s) and Profile(s) • **Procedure 23** Add VIP for Signaling networks (Active/Standby Configurations Only)
The following steps (15-23) are to configure the Signaling Interfaces for the newly added MPs		
15 ☐	**NOAM VIP GUI:** Login	If not already done, establish a GUI session on the NOAM server the VIP IP address of the NOAM server. Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login to the NOAM GUI as the ***guiadmin*** user: 
16 ☐	**NOAM VIP GUI:** Make Signaling Devices Configurable (Un-bonded, non-VLAN signaling	**Note**: You will only execute this step if you are using un-bonded, non-VLAN tagged Ethernet interfaces for signaling traffic. Navigate to **Main Menu -> Configuration -> Network -> Devices**

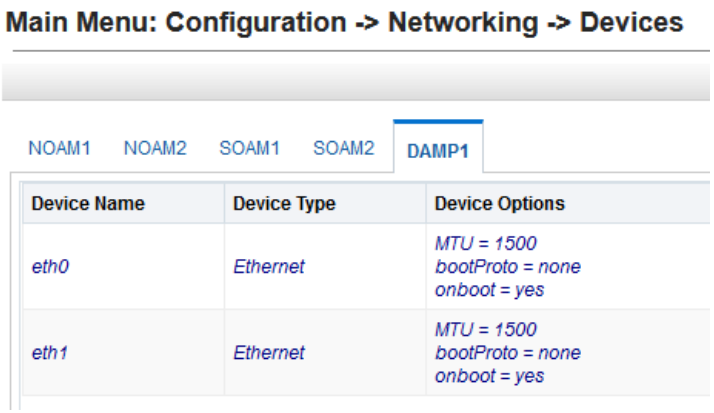
Appendix L.1.6.1 Growth: MP (For 7.x to 8.x upgraded system)

	interfaces only)	 You should see several tabs each representing a blade in the system. Click on the tab representing the newly added MP Blade.  You should see a list of network devices installed on the MP. Select all Ethernet devices that will be used as un-bonded signaling interfaces and have “Discovered” as their Configuration Status.  Next, press the Take Ownership button.  After a brief moment, the selected devices should now show a Configuration Status of “Configured”.
17 □	**NOAM VIP GUI:** Configure the Signaling	Navigate to **Main Menu -> Configuration -> Network -> Devices**

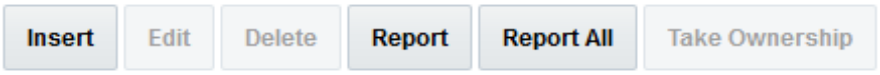
Appendix L.1.6.1 Growth: MP (For 7.x to 8.x upgraded system)

<table>
<tr>
<td></td>
<td>Interfaces of the newly added MP</td>
<td>


You should see several tabs each representing a blade in the system. Click on the tab representing the newly added MP Blade.

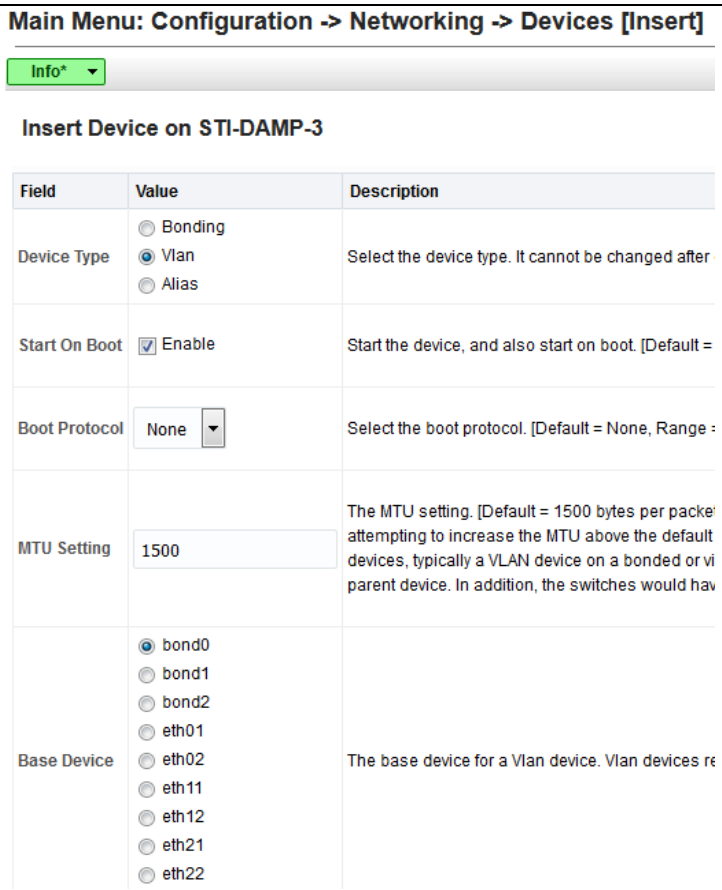
 

Refer to the following table to determine which steps to execute next based on the number of enclosure switch pairs and whether Bonded Interfaces are used
<table>
<tr><th>Number of Enclosure Switch Pairs</th><th>Bonded Interface</th><th>Steps to Execute</th></tr>
<tr><td>1</td><td>N/A</td><td>17 & 18</td></tr>
<tr><td>2 or 3</td><td>Yes</td><td>19 & 20</td></tr>
<tr><td>2 or 3</td><td>No</td><td>21 & 22</td></tr>
</table>
</td>
</tr>
<tr>
<td>18
</td>
<td>NOAM VIP GUI:
Configure the Signaling Interfaces of the MP (1 pair of enclosure switches)</td>
<td>Click on Insert

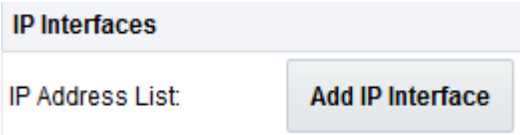
The following screen should be displayed. Verify that the server name on the top corresponds to the MP.</td>
</tr>
</table>

Appendix L.1.6.1 Growth: MP (For 7.x to 8.x upgraded system)



Device Type: VLAN
Start on Boot: verify checkbox is selected.
Boot Protocol: verify that it is set to None
Base Device: bond0

Click on the **IP Interfaces** tab as shown below.



Select the first Signaling Network from the drop down menu.

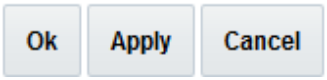
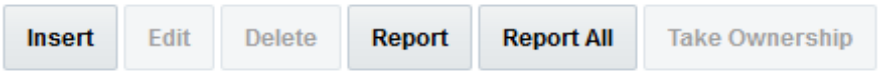
If configuring an **IPv4**, then enter the **IPv4** address.

If configuring an **IPv6** address and **IPv6 auto-configuration** is enabled on your signaling network, and the MPs are in active/standby configuration, then there's no need to enter an IP address, it will be assigned automatically.

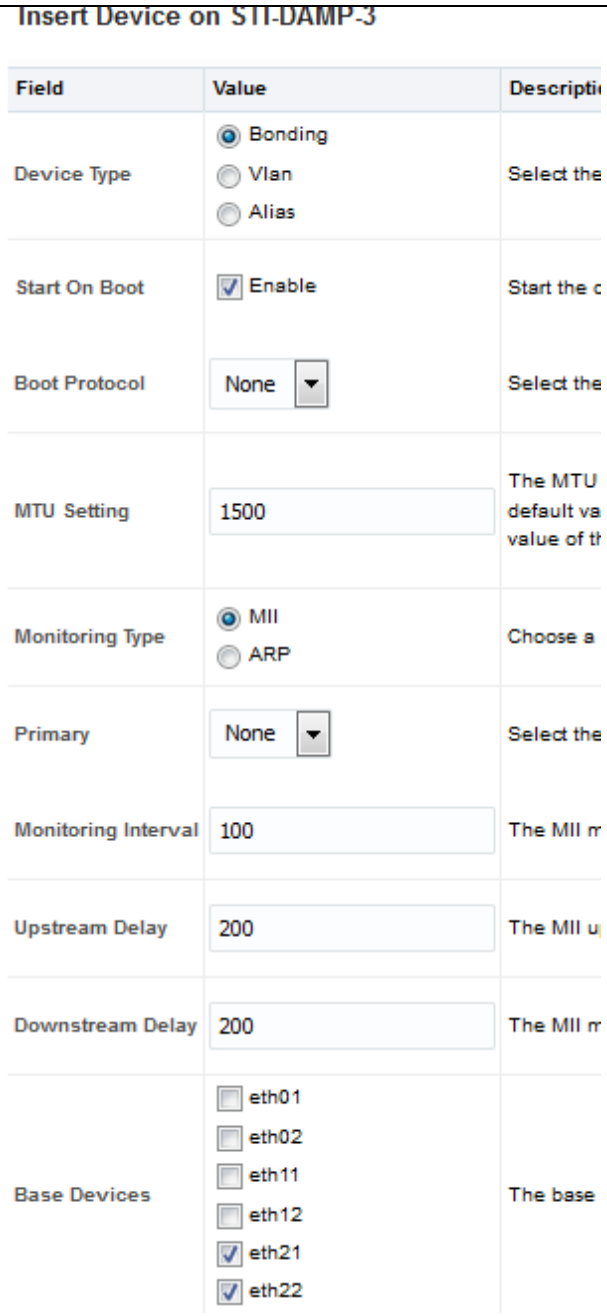
If configuring an **IPv6** address and **IPv6 auto-configuration** is disabled, or the MPs are in multi-active mode:

If an **IPv4** already exists, click on **Add IP Interface** and enter the **IPv6** address.

Appendix L.1.6.1 Growth: MP (For 7.x to 8.x upgraded system)

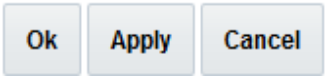
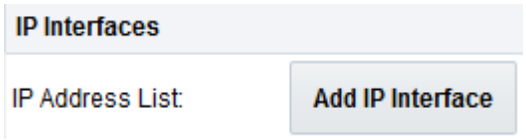
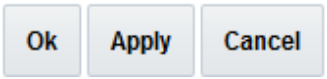
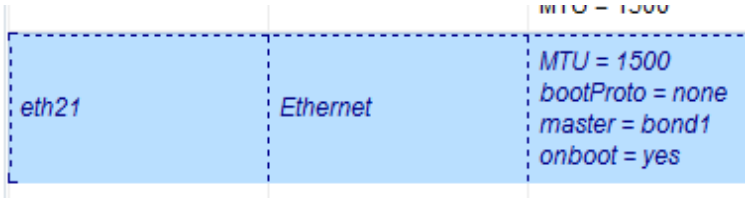
		If an **IPv4** doesn't exist, simply enter the **IPv6** address. Click on OK at the bottom of the screen.  To add additional Signaling Interfaces, click on Insert again and repeat this step, otherwise continue with the next step. Skip the next 2 steps and continue to step 21
19 □	**NOAM VIP GUI:** Configure the Signaling Interfaces of the MP-Part 1 (multiple pairs of enclosure switches with bonded interfaces)	***If bonding is already present, skip this step*** Click on **Insert**  The following screen should be displayed. Verify that the server name on the top corresponds to the MP. The following screen should be displayed. Verify that the blade name on the top corresponds to the MP.

Appendix L.1.6.1 Growth: MP (For 7.x to 8.x upgraded system)

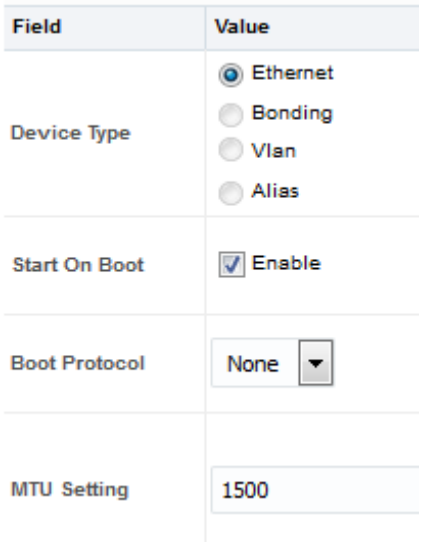


Device Type: Bonding
Device Monitoring: MII
Start on Boot: Verify that the checkbox is selected.
Boot Protocol: Verify that it is set to None
Base Device: Select the ports that correspond to the signaling enclosure switches. (e.g. if the signaling switches are in Slots 3 and 4, you would select eth11 and eth12)

Appendix L.1.6.1 Growth: MP (For 7.x to 8.x upgraded system)

		Click on OK at the bottom of the screen.  **Note:** ARP Device Monitoring while using IPv6 ONLY is not supported
20 ☐	**NOAM VIP GUI:** Configure the Signaling Interfaces of the MP-Part 2 (multiple pairs of enclosure switches with bonded interfaces)	***If bonding is already present, skip this step*** Continued from the previous step Next click Insert again. The same screen as above with appear, select the following: **Device Type**: VLAN **Start on Boot**: verify that the checkbox is selected. **Boot Protocol**: verify that it is set to None **Base Device**: bond1. Now Click on the **Add IP Interface** tab as shown below.  Select the first **Signaling Network** from the drop down menu. Enter the IP address that corresponds to the IPv4 or IPv6 interface. Click on **OK** at the bottom of the screen.  To add additional **Signaling Interfaces**, Select **Insert** again and repeat this step, otherwise continue with the next step.
21 ☐	**NOAM VIP GUI:** Configure the Signaling Interfaces of the MP-Part 1 (multiple pairs of enclosure switches without	Select the appropriate Ethernet interface and click **Edit**. 

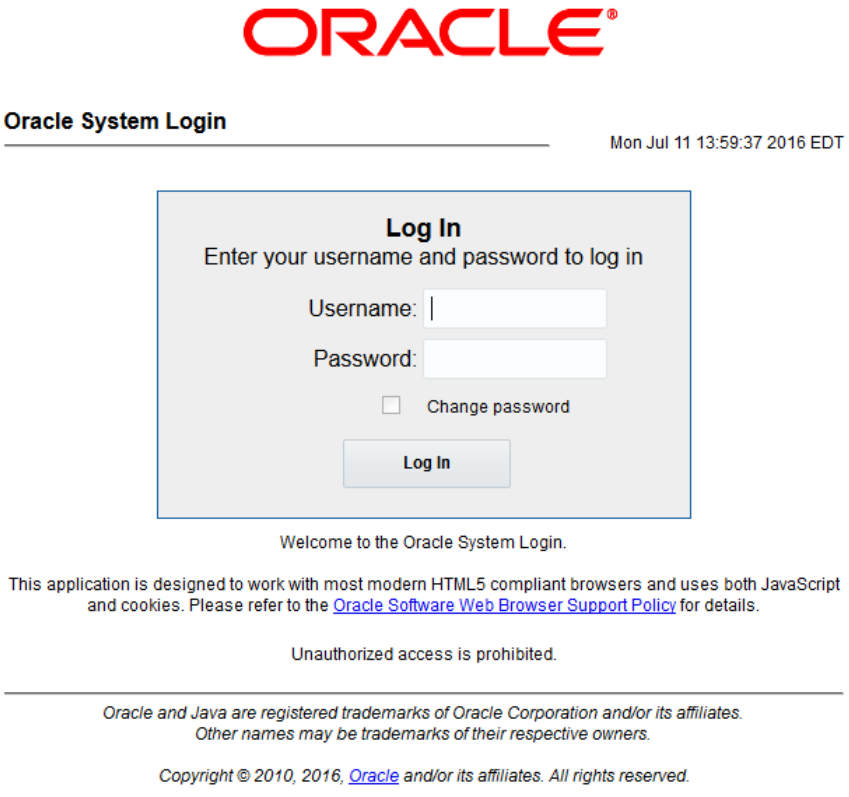
Appendix L.1.6.1 Growth: MP (For 7.x to 8.x upgraded system)

	bonded interfaces)	 Continue to next step
22 ☐	**NOAM VIP GUI:** Configure the Signaling Interfaces of the MP-Part 2 (multiple pairs of enclosure switches without bonded interfaces) .	**Start on Boot:** Verify that the checkbox is selected. **Boot Protocol:** verify that it is set to None Now Click on the **Add IP Interface** button as shown below.  Select the first **Signaling Network** from the drop down menu. Enter the IP address that corresponds to the IPv4 or IPv6 interface. Click on **OK** at the bottom of the screen. Now repeat this step to configure the second signaling interface (eth22).
23 ☐	**NOAM VIP GUI:** Configure the Interfaces of the other MPs	Repeat this procedure to configure the signaling devices of all other MPs

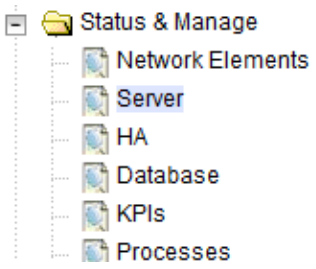
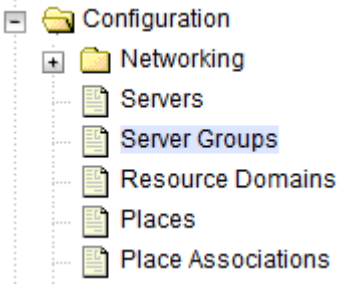
Appendix L.1.6.1 Growth: MP (For 7.x to 8.x upgraded system)

	added, if any.	

Appendix L.1.7 Post Growth Health Check

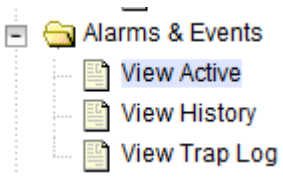
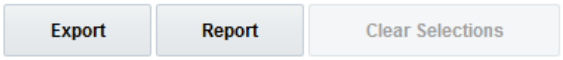
S T E P #	This procedure will provide steps verify system status and log all alarms after Growth. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**NOAM VIP GUI:** Login	Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login as the ***guiadmin*** user: 

Appendix L.1.7 Post Growth Health Check

2 ☐	**NOAM VIP GUI:** Verify Server Status	Navigate to **Main Menu -> Status & Manage -> Server**  Verify all Server Status is Normal (Norm) for: Alarm (Alm), Database (DB), Replication Status, and Processes (Proc). 
3 ☐	**NOAM VIP GUI:** Verify Server Configuration	Navigate to **Main Menu -> Configuration -> Server Groups**  Verify the configuration data is correct for your network.

Appl State	Alm	DB	Reporting Status	Proc
Enabled	Norm	Norm	Norm	Norm
Enabled	Norm	Norm	Norm	Norm
Enabled	Norm	Norm	Norm	Norm
Enabled	Norm	Norm	Norm	Norm

Appendix L.1.7 Post Growth Health Check

4 ☐	**NOAM VIP GUI:** Log Current Alarms	Navigate to **Main Menu -> Alarms & Events -> View Active**  Click on the **Report** button  **Save** or **Print** this report, keep copies for future reference.  Compare this alarm report with those gathered in procedure **Appendix L.1.2**
5 ☐	**SOAM VIP GUI:** Repeat	Repeat **Steps 1-3** for the SOAM

Appendix L.1.8 Post Growth Backups

STEP #	This procedure will reference steps to backup all necessary items after a growth scenario. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**Backup TVOE**	Backup all TVOE host configurations by executing **Procedure**
2 ☐	**Backup PMAC**	Backup the PMAC application by executing **Procedure 4**
3 ☐	**Backup NOAM/SOAM databases**	Backup the NOAM and SOAM Databases by executing **Procedure 4** and **Procedure 4**

Appendix L.2: De-Growth

For De-growth scenarios where it is necessary to remove/delete DSR/SDS MP(SBR, SS7, IPFE) servers, the following sequence of steps should be followed:

Step	Procedure(s)
Perform Backups	Appendix L.2.1
Perform system health check	Appendix L.2.2
Identify Servers which will be affected by the De-growth: • DSR MP (SBR, SS7MP, IPFE)	
Remove identified servers from Server Group	Appendix L.2.3
Shutdown and remove the identified server's VM.	Appendix L.2.4
Post De-Growth Health Check	Appendix L.2.5
Post De-Growth Backups	Appendix L.2.6

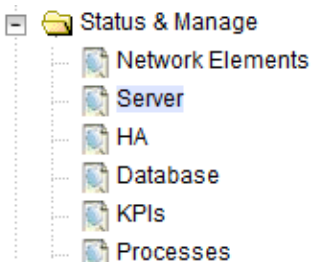
Appendix L.2.1 Perform Backups

STEP #	This procedure will reference steps to backup all necessary items before a growth scenario. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**Backup TVOE**	Backup all TVOE host configurations by executing **Procedure 40**
2 ☐	**Backup PMAC**	Backup the PMAC application by executing **Procedure 41**
3 ☐	**Backup NOAM/SOAM databases**	Backup the NOAM and SOAM Databases by executing **Procedure 42** and **Procedure 43**

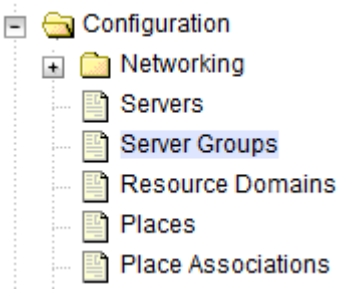
Appendix L.2.2 Perform Health Check

S T E P #	This procedure will provide steps verify system status and log all alarms. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**NOAM VIP GUI:** Login	Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login as the ***guiadmin*** user: 

Appendix L.2.2 Perform Health Check

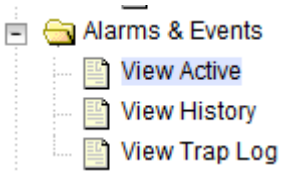
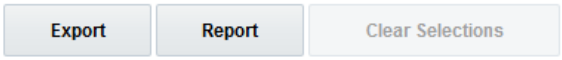
<table>
<tr>
<td>2
☐</td>
<td>NOAM VIP GUI:
Verify Server Status</td>
<td>Navigate to Main Menu -> Status & Manage -> Server
 

Verify all Server Status is Normal (Norm) for:
Alarm (Alm), Database (DB), Replication Status, and Processes (Proc).
<table>
<tr><th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr>
<tr><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr>
<tr><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr>
<tr><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr>
<tr><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr>
</table>

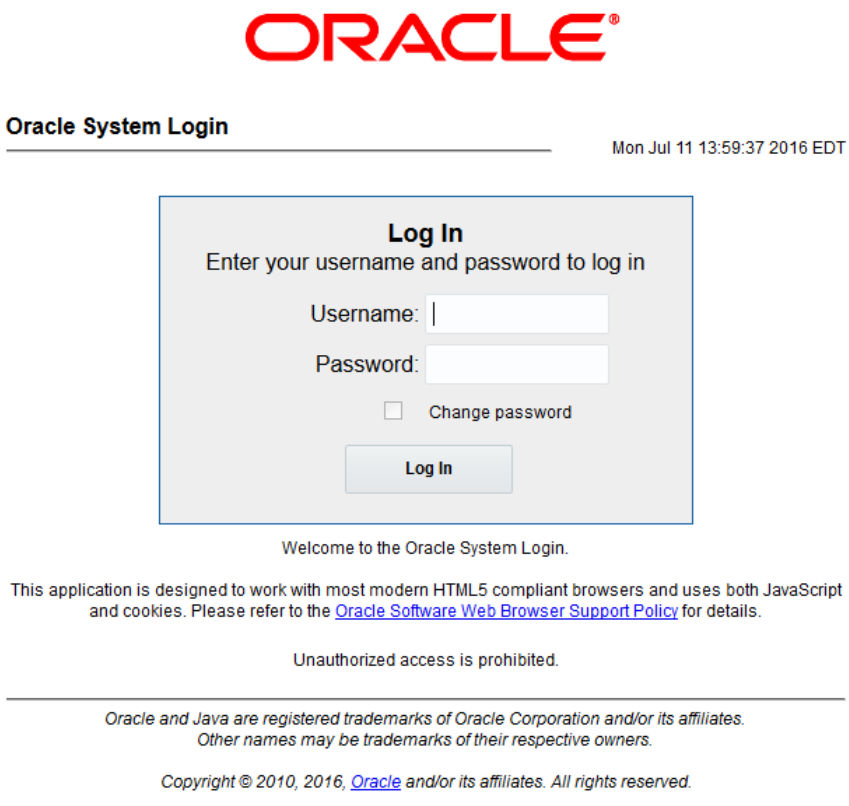
Do not proceed to with Growth/De-Growth if any of the above states are not Norm. If any of these are not Norm, corrective action should be taken to restore the non-Norm status to Norm before proceeding with the feature activation.
If the Alarm (Alm) status is not Norm but only Minor alarms are present, it is acceptable to proceed. If there are Major or Critical alarms present, these alarms should be analyzed prior to proceeding with the feature activation. The activation may be able to proceed in the presence of certain Major or Critical alarms</td>
</tr>
<tr>
<td>3
☐</td>
<td>NOAM VIP GUI:
Verify Server Configuration</td>
<td>Navigate to Main Menu -> Configuration -> Server Groups
 

Verify the configuration data is correct for your network.</td>
</tr>
</table>

Appendix L.2.2 Perform Health Check

4 ☐	**NOAM VIP GUI:** Log Current Alarms	Navigate to **Main Menu -> Alarms & Events -> View Active**  Click on the **Report** button  **Save** or **Print** this report, keep copies for future reference. 
5 ☐	**SOAM VIP GUI:** Repeat For SOAM	Repeat **Steps 1-4** for the SOAM

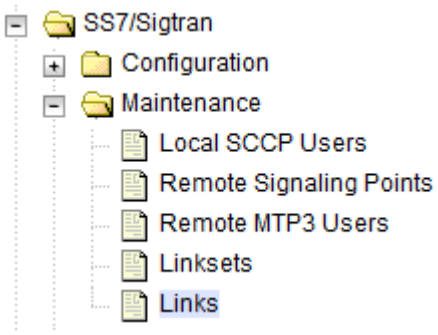
Appendix L.2.3 Removing Server from Server Group

S T E P #		
	Once the server's that will be deleted have been identified, the server will first need to be removed from its server group. The following procedure will provide steps to remove a server from a server group. **Warning:** It is recommended that no more than one server from each server group be removed from a server group at a time. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**SOAM VIP GUI:** Login	**Execute this step if Removing SS7MP, otherwise skip to step 11** Establish a GUI session on the SOAM server by using the VIP IP address of the SOAM server. Open the web browser and enter a URL of: `http://<Primary_SOAM_VIP_IP_Address>` Login as the ***guiadmin*** user: 

Appendix L.2.3 Removing Server from Server Group

<table>
<tr>
<td>2
☐</td>
<td>SOAM VIP GUI:
Disable SS7-MP Links</td>
<td>
Execute this step if Removing SS7MP, otherwise skip to step 11

Navigate to Main Menu -> SS7/Sigtran -> Maintenance -> Links

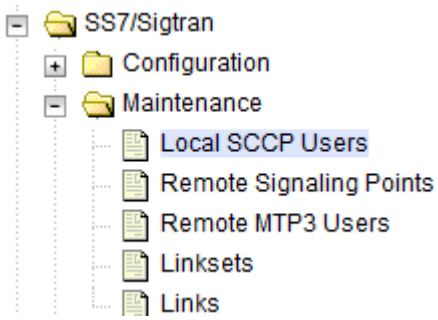


Disable the associated links of the identified SS7-MP:
<table>
<tr><th rowspan="2">Signaling Network Element Name</th><th rowspan="2">Link Name</th><th rowspan="2">Link Set</th><th rowspan="2">MP Server Hostname</th><th rowspan="2">Admin State</th><th colspan="2">Operational</th><th rowspan="2">MP Server HA Status</th></tr>
<tr><th>Status</th><th>Reason</th></tr>
<tr><td>ZombieSOAM</td><td>L1</td><td>LS1</td><td>ZombieSS7MP 1</td><td>Disabled</td><td>Down</td><td>Disabled</td><td>Active</td></tr>
<tr><td>ZombieSOAM</td><td>L10</td><td>LS10</td><td>ZombieSS7MP 2</td><td>Disabled</td><td>Down</td><td>Disabled</td><td>Active</td></tr>
<tr><td>ZombieSOAM</td><td>L11</td><td>LS11</td><td>ZombieSS7MP 1</td><td>Disabled</td><td>Down</td><td>Disabled</td><td>Active</td></tr>
<tr><td>ZombieSOAM</td><td>L12</td><td>LS12</td><td>ZombieSS7MP 2</td><td>Disabled</td><td>Down</td><td>Disabled</td><td>Active</td></tr>
<tr><td>ZombieSOAM</td><td>L13</td><td>LS13</td><td>ZombieSS7MP 1</td><td>Disabled</td><td>Down</td><td>Disabled</td><td>Active</td></tr>
</table>
</td>
</tr>
</table>

Appendix L.2.3 Removing Server from Server Group

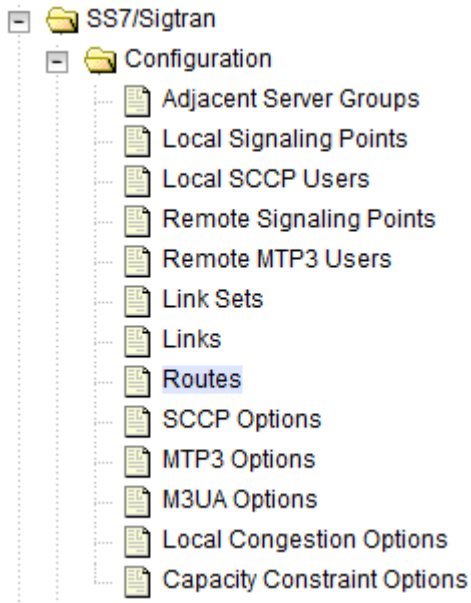
<table>
<tr>
<td>3
☐</td>
<td>SOAM VIP GUI:
Disable SS7-MP SCCP Users</td>
<td>
Execute this step if Removing SS7MP, otherwise skip to step 11

Navigate to Main Menu -> SS7/Sigtran -> Maintenance -> Local SCCP Users

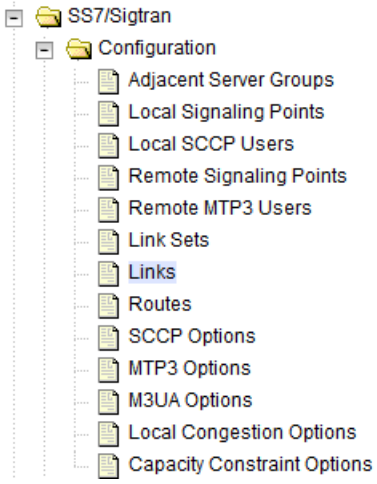


Disable the associated local SCCP users of the identified SS7-MP:
<table>
<tr><th rowspan="2">Signaling Network Element Name</th><th rowspan="2">SSN</th><th colspan="2">Local Signaling Point</th><th rowspan="2">Application Name</th><th rowspan="2">SSN Status</th><th rowspan="2">Up/Down Since</th></tr>
<tr><th>Point Code</th><th>SS7 Domain</th></tr>
<tr><td>ZombieSOAM</td><td>248</td><td>100-100-100</td><td>ANSI</td><td>MAPIWF</td><td>Disabled</td><td>2016-08-10 13:06:31 EDT</td></tr>
<tr><td>ZombieSOAM</td><td>249</td><td>111-111-111</td><td>ANSI</td><td>MAPIWF</td><td>Disabled</td><td>2016-08-10 13:06:54 EDT</td></tr>
<tr><td>ZombieSOAM</td><td>250</td><td>1-100-1</td><td>ITUI</td><td>MAPIWF</td><td>Disabled</td><td>2016-08-10 13:07:09 EDT</td></tr>
<tr><td>ZombieSOAM</td><td>251</td><td>1-101-1</td><td>ITUI</td><td>MAPIWF</td><td>Disabled</td><td>2016-08-10 13:07:17 EDT</td></tr>
</table>
</td>
</tr>
</table>

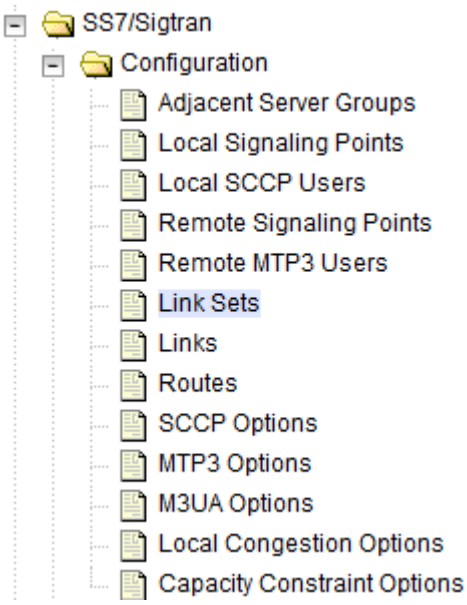
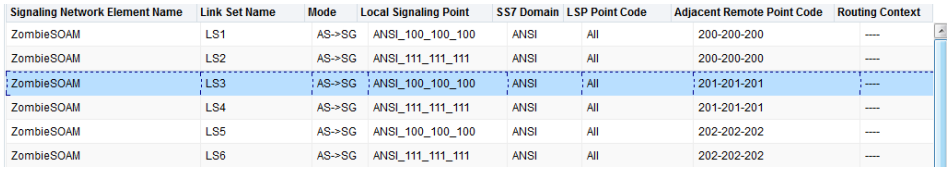
Appendix L.2.3 Removing Server from Server Group

4 ☐	**SOAM VIP GUI:** Delete SS7-MP Routes	**Execute this step if Removing SS7MP, otherwise skip to step 11** Navigate to **Main Menu -> SS7/Sigtran -> Configuration -> Routes**  **Delete** the associated routes of the identified SS7-MP: Signaling Network Element Name | SS7 Domain | Remote Point Code | Link Set | Adjacent Point Code | Relative Cost | Route Name ZombieSOAM | ANSI | 200-200-200 | LS1 | 200-200-200 | 20 | R1 ZombieSOAM | ANSI | 200-200-200 | LS2 | 200-200-200 | 20 | R2 ZombieSOAM | ANSI | 201-201-201 | LS3 | 201-201-201 | 20 | R3 ZombieSOAM | ANSI | 201-201-201 | LS4 | 201-201-201 | 20 | R4 ZombieSOAM | ANSI | 202-202-202 | LS5 | 202-202-202 | 20 | R5 ZombieSOAM | ANSI | 202-202-202 | LS6 | 202-202-202 | 20 | R6 ZombieSOAM | ANSI | 203-203-203 | LS7 | 203-203-203 | 20 | R7

Appendix L.2.3 Removing Server from Server Group

5 ☐	**SOAM VIP GUI:** Delete SS7-MP Links	**Execute this step if Removing SS7MP, otherwise skip to step 11** Navigate to **Main Menu -> SS7/Sigtran -> Configuration -> Links**  **Delete** the associated links of the identified SS7-MP: Signaling Network Element Name / Link Name / Link Set / Association ZombieSOAM / L1 / LS1 / pc9111729_046 ZombieSOAM / L2 / LS2 / pc9111729_0461 ZombieSOAM / L3 / LS3 / pc9111729_0462 ZombieSOAM / L4 / LS4 / pc9111729_0463 ZombieSOAM / L5 / LS5 / pc9111729_1 ZombieSOAM / L6 / LS6 / pc9111729_11

Appendix L.2.3 Removing Server from Server Group

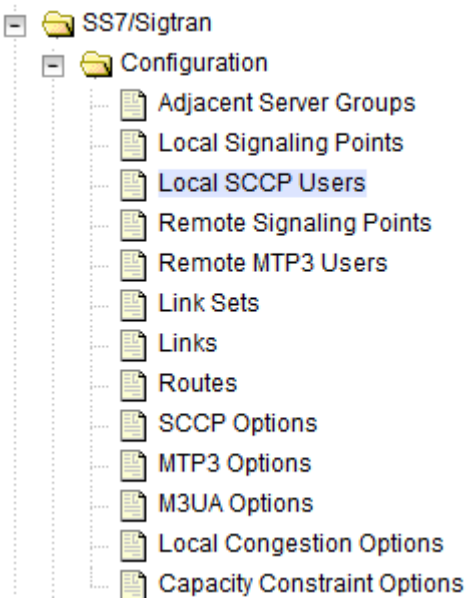
6 ☐	**SOAM VIP GUI:** Delete SS7-MP Link Sets	**Execute this step if Removing SS7MP, otherwise skip to step 11** Navigate to **Main Menu -> SS7/Sigtran -> Configuration -> Link Sets**  **Delete** the associated link sets of the identified SS7-MP: 

Signaling Network Element Name	Link Set Name	Mode	Local Signaling Point	SS7 Domain	LSP Point Code	Adjacent Remote Point Code	Routing Context
ZombieSOAM	LS1	AS->SG	ANSI_100_100_100	ANSI	All	200-200-200	----
ZombieSOAM	LS2	AS->SG	ANSI_111_111_111	ANSI	All	200-200-200	----
ZombieSOAM	LS3	AS->SG	ANSI_100_100_100	ANSI	All	201-201-201	----
ZombieSOAM	LS4	AS->SG	ANSI_111_111_111	ANSI	All	201-201-201	----
ZombieSOAM	LS5	AS->SG	ANSI_100_100_100	ANSI	All	202-202-202	----
ZombieSOAM	LS6	AS->SG	ANSI_111_111_111	ANSI	All	202-202-202	----

Appendix L.2.3 Removing Server from Server Group

<table>
<tr>
<td>7
☐</td>
<td>SOAM VIP GUI:
Delete SS7-MP Local SCCP Users</td>
<td>
Execute this step if Removing SS7MP, otherwise skip to step 11

Navigate to Main Menu -> SS7/Sigtran -> Configuration -> Local SCCP Users

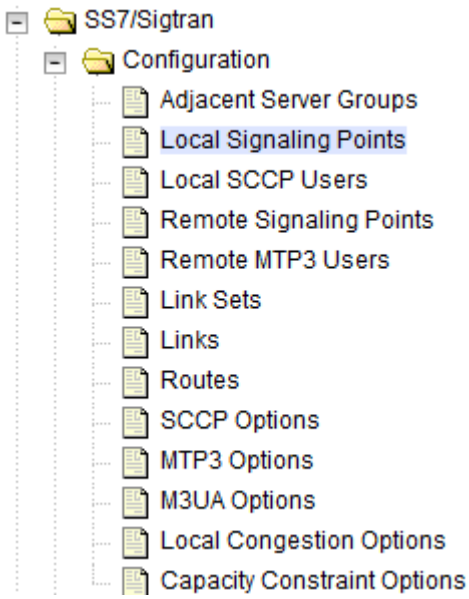


Delete the associated Local SCCP Users from the identified SS7-MP:
<table>
<tr><th rowspan="2">Signaling Network Element Name</th><th rowspan="2">SSN</th><th colspan="2">Local Signaling Point</th><th rowspan="2">Application Name</th></tr>
<tr><th>SS7 Domain</th><th>Point Code</th></tr>
<tr><td>ZombieSOAM</td><td>248</td><td>ANSI</td><td>100-100-100</td><td>MAPIWF</td></tr>
<tr><td>ZombieSOAM</td><td>249</td><td>ANSI</td><td>111-111-111</td><td>MAPIWF</td></tr>
<tr><td>ZombieSOAM</td><td>250</td><td>ITUI</td><td>1-100-1</td><td>MAPIWF</td></tr>
<tr><td>ZombieSOAM</td><td>251</td><td>ITUI</td><td>1-101-1</td><td>MAPIWF</td></tr>
</table>
</td>
</tr>
</table>

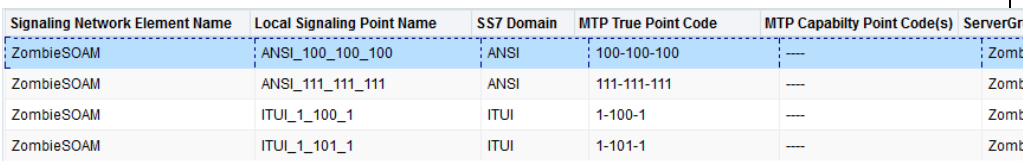
Appendix L.2.3 Removing Server from Server Group

<table>
<tr>
<td>8
☐</td>
<td>SOAM VIP GUI:
Delete SS7-MP Local Signaling Points</td>
<td>
Execute this step if Removing SS7MP, otherwise skip to step 11

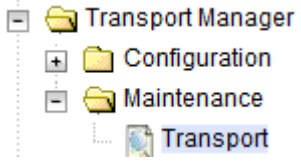
Navigate to Main Menu -> SS7/Sigtran -> Configuration -> Local Signaling Points



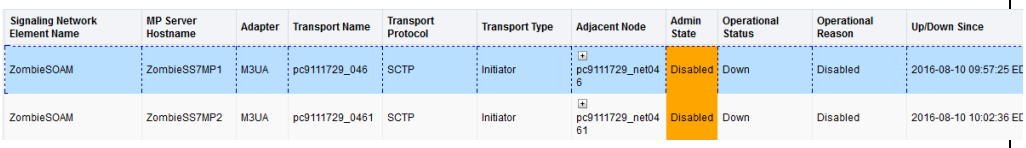
Delete the associated Local signaling points from the identified SS7-MP:


<table>
<tr><th>Signaling Network Element Name</th><th>Local Signaling Point Name</th><th>SS7 Domain</th><th>MTP True Point Code</th><th>MTP Capabilty Point Code(s)</th><th>ServerGr</th></tr>
<tr><td>ZombieSOAM</td><td>ANSI_100_100_100</td><td>ANSI</td><td>100-100-100</td><td>----</td><td>Zomb</td></tr>
<tr><td>ZombieSOAM</td><td>ANSI_111_111_111</td><td>ANSI</td><td>111-111-111</td><td>----</td><td>Zomb</td></tr>
<tr><td>ZombieSOAM</td><td>ITUI_1_100_1</td><td>ITUI</td><td>1-100-1</td><td>----</td><td>Zomb</td></tr>
<tr><td>ZombieSOAM</td><td>ITUI_1_101_1</td><td>ITUI</td><td>1-101-1</td><td>----</td><td>Zomb</td></tr>
</table>
</td>
</tr>
<tr>
<td>9
☐</td>
<td>SOAM VIP GUI:
Disable SS7-MP transports</td>
<td>
Execute this step if Removing SS7MP, otherwise skip to step 11

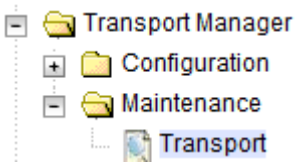
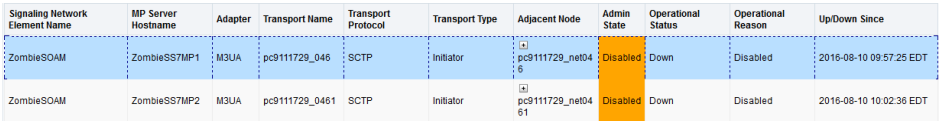
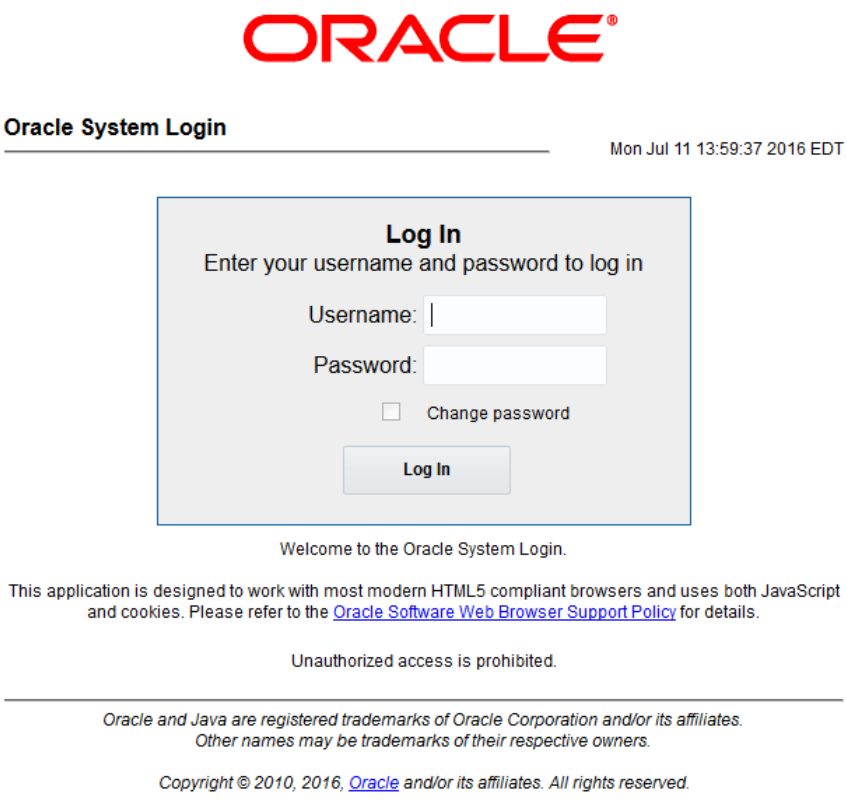
Navigate to Main Menu -> Transport Manager -> Maintenance -> Transport



Disable the associated transports from the identified SS7-MP:

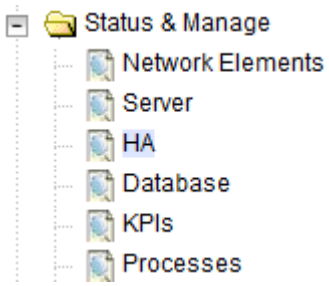
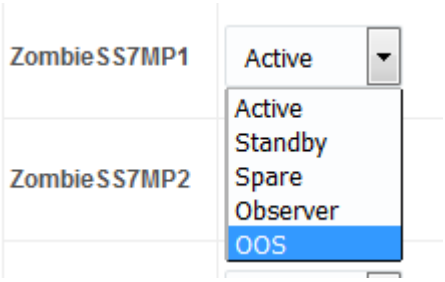

<table>
<tr><th>Signaling Network Element Name</th><th>MP Server Hostname</th><th>Adapter</th><th>Transport Name</th><th>Transport Protocol</th><th>Transport Type</th><th>Adjacent Node</th><th>Admin State</th><th>Operational Status</th><th>Operational Reason</th><th>Up/Down Since</th></tr>
<tr><td>ZombieSOAM</td><td>ZombieSS7MP1</td><td>M3UA</td><td>pc9111729_046</td><td>SCTP</td><td>Initiator</td><td>pc9111729_net046</td><td>Disabled</td><td>Down</td><td>Disabled</td><td>2016-08-10 09:57:25 ED</td></tr>
<tr><td>ZombieSOAM</td><td>ZombieSS7MP2</td><td>M3UA</td><td>pc9111729_0461</td><td>SCTP</td><td>Initiator</td><td>pc9111729_net0461</td><td>Disabled</td><td>Down</td><td>Disabled</td><td>2016-08-10 10:02:36 ED</td></tr>
</table>
</td>
</tr>
</table>

Appendix L.2.3 Removing Server from Server Group

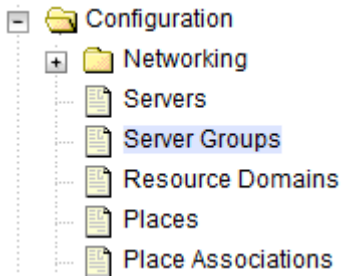
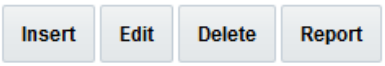
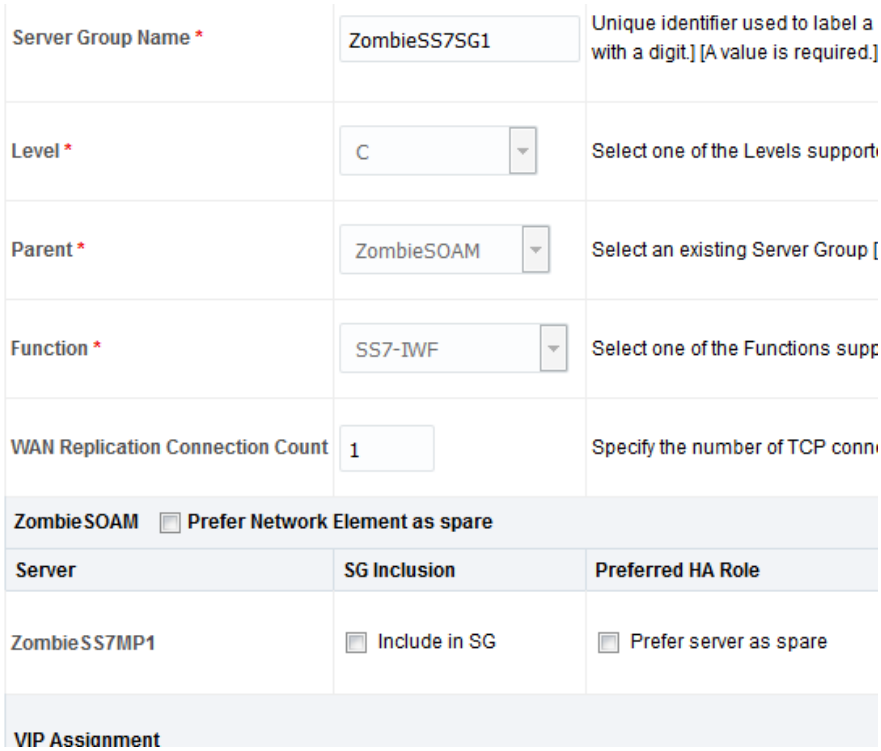
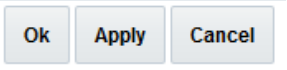
10 ☐	**SOAM VIP GUI:** Delete SS7-MP transports	**Execute this step if Removing SS7MP, otherwise skip to step 11** Navigate to **Main Menu -> Transport Manager -> Configuration -> Transport**  **Delete** the associated transports from the identified SS7-MP: 
11 ☐	**NOAM VIP GUI:** Login	Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login as the ***guiadmin*** user: 

Signaling Network Element Name	MP Server Hostname	Adapter	Transport Name	Transport Protocol	Transport Type	Adjacent Node	Admin State	Operational Status	Operational Reason	Up/Down Since
ZombieSOAM	ZombieSS7MP1	M3UA	pc9111729_046	SCTP	Initiator	pc9111729_net046	Disabled	Down	Disabled	2016-08-10 09:57:25 EDT
ZombieSOAM	ZombieSS7MP2	M3UA	pc9111729_0461	SCTP	Initiator	pc9111729_net0461	Disabled	Down	Disabled	2016-08-10 10:02:36 EDT

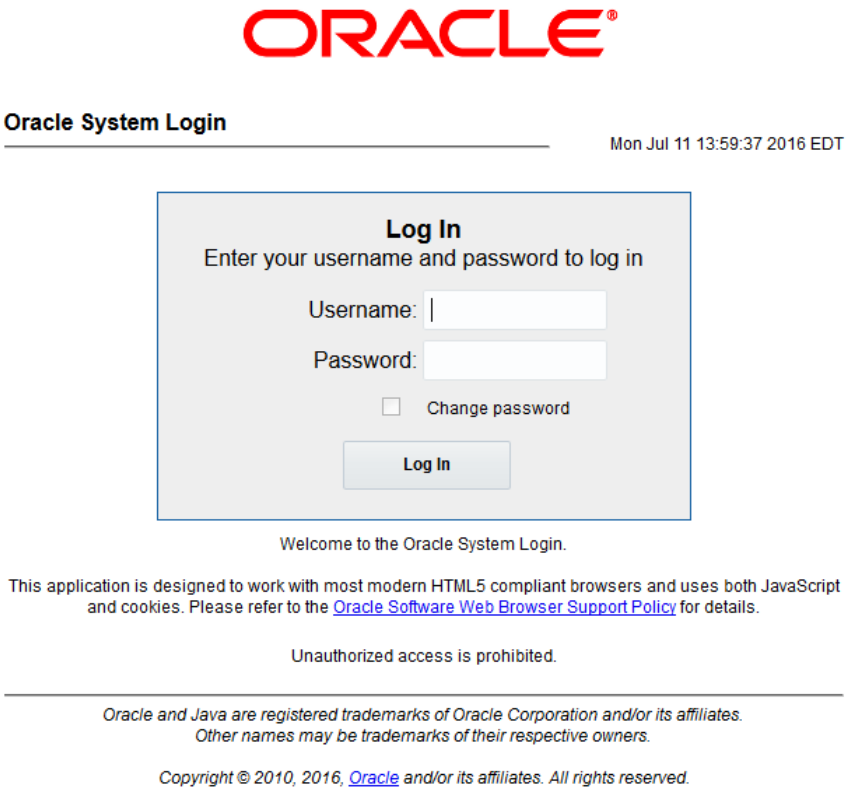
Appendix L.2.3 Removing Server from Server Group

12 ☐	**NOAM VIP GUI:** Set Server to OOS	Navigate to **Main Menu -> Status & Manage -> HA**  Click **Edit** Set the server's *Max Allowed HA Role* to **OOS**  Click **Ok**

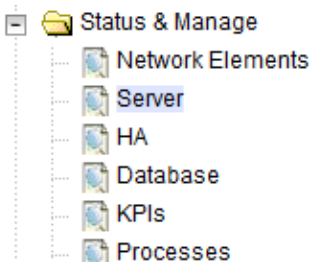
Appendix L.2.3 Removing Server from Server Group

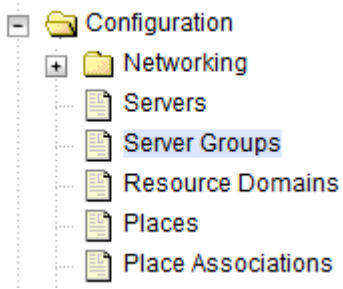
13 ☐	**NOAM VIP GUI:** Remove Server From Server Group	Navigate to **Main Menu -> Configuration -> Server Groups**  Select the server group for which the server from **step 2** that was placed OOS. Click **Edit**  Uncheck the server from **step 2** from the *SG Inclusion* column:  Click **Ok** 

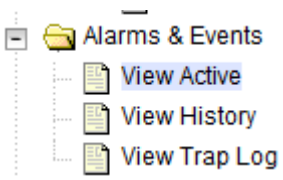
Appendix L.2.7 Post Growth Health Check

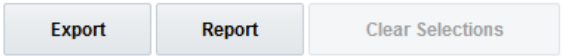
S T E P #	This procedure will provide steps verify system status and log all alarms after Growth. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 ☐	**NOAM VIP GUI:** Login	Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of: `http://<Primary_NOAM_VIP_IP_Address>` Login as the ***guiadmin*** user: 

Appendix L.2.7 Post Growth Health Check

<table>
<tr><td>2
☐</td><td>NOAM VIP GUI:
Verify Server Status</td><td>Navigate to Main Menu -> Status & Manage -> Server
 

Verify all Server Status is Normal (Norm) for:
Alarm (Alm), Database (DB), Replication Status, and Processes (Proc).
<table>
<tr><th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr>
<tr><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr>
<tr><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr>
<tr><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr>
<tr><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr>
</table></td></tr>
<tr><td>3
☐</td><td>NOAM VIP GUI:
Verify Server Configuration</td><td>Navigate to Main Menu -> Configuration -> Server Groups
 

Verify the configuration data is correct for your network.</td></tr>
<tr><td>4
☐</td><td>NOAM VIP GUI:
Log Current Alarms</td><td>Navigate to Main Menu -> Alarms & Events -> View Active
 

Click on the Report button
 

Save or Print this report, keep copies for future reference.
 

Compare this alarm report with those gathered in procedure Appendix L.1.2</td></tr>
</table>

Appendix L.2.7 Post Growth Health Check

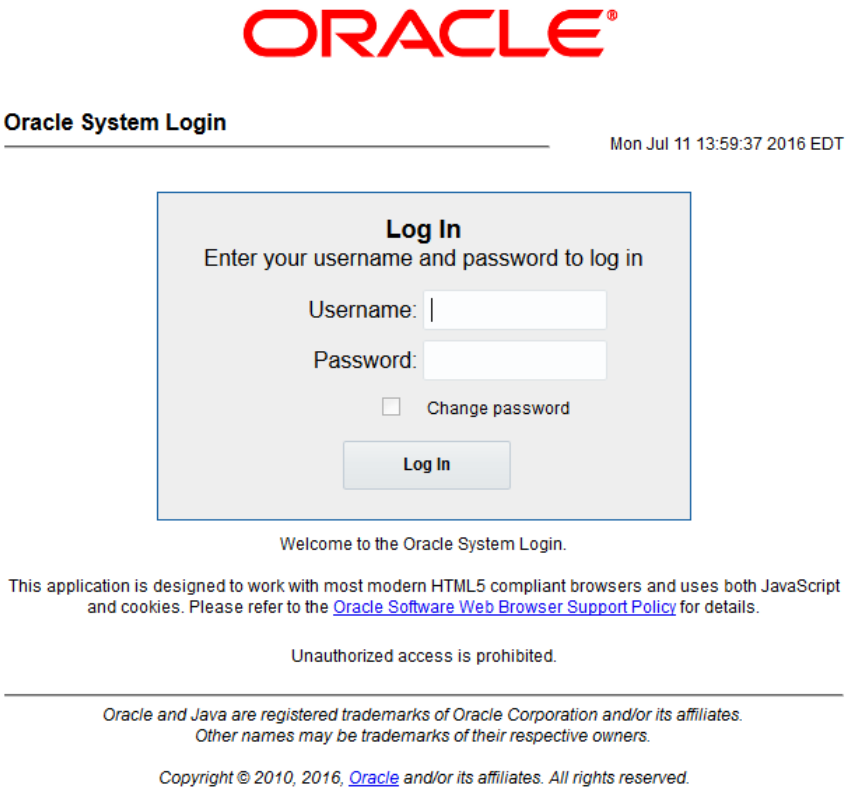
5 □	**SOAM VIP GUI:** Repeat	Repeat **Steps 1-3** for the SOAM

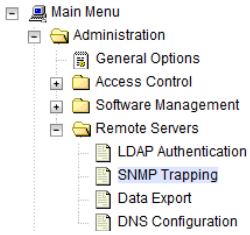
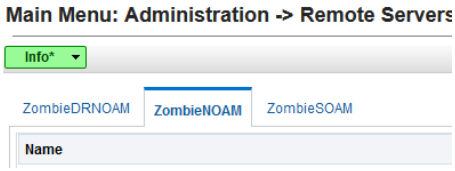
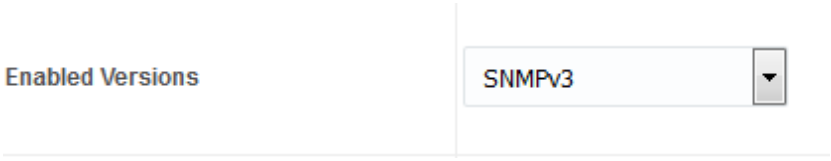
Appendix L.1.8 Post Growth Backups

S T E P #	This procedure will reference steps to backup all necessary items after a growth scenario. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact **Appendix P: My Oracle Support (MOS)**, and ask for assistance.	
1 □	**Backup TVOE**	Backup all TVOE host configurations by executing **Procedure**
2 □	**Backup PMAC**	Backup the PMAC application by executing **Procedure 4**
3 □	**Backup NOAM/SOAM databases**	Backup the NOAM and SOAM Databases by executing **Procedure 4** and **Procedure 4**

Appendix O: Restoring SNMP configuration to SNMPv3 (Optional)

S T E P #	This procedure will provide the steps to restore SNMP configuration to SNMPv3 for forwarding of SNMP Traps from each individual server. **NOTE:** If SNMP is configured with SNMPv2c and SNMPv3 as enabled versions as a work around step (section 4.5, steps 6-9) and the SNMPv3 is required to be configured Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact Appendix P: My Oracle Support (MOS) and ask for assistance.

1 ☐	**(Workaround)** **PRIMARY NOAM VIP GUI:** Login	**NOTE:** This workaround step should be performed only in the following case: 1) If SNMP is configured with SNMPv2c and SNMPv3 as enabled versions as a work around step (section 4.5, steps 6-9) and the SNMPv3 is required to be configured Establish a GUI session on the NOAM server by using the XMI VIP IP address. Open the web browser and enter a URL of **<NOAM_XMI_VIP_IP_Address>** Login as the ***guiadmin*** user: 

2 ☐	**NOAM VIP GUI:** Configure System-Wide SNMP Trap Receiver(s)	Navigate to **Main Menu -> Administration -> Remote Servers -> SNMP Trapping**  Select the Server Group tab for SNMP trap configuration (The Server Group that is configured for SNMPv2c & SNMPv3 as a workaround):  Edit  Update the Enabled Versions as **SNMPv3**:  Press **OK**

Appendix P: 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.

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.