Oracle® Communications Diameter Signaling Router

DSR RMS Productization Installation Guide

Release 6.0

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Oracle ® Communication Diameter Signaling Router DSR RMS Productization Installation Guide, Release 6.0

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See more information on MOS in the Appendix section.

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1.0 INTRODUCTION

1.1 Purpose and Scope

This document describes methods utilized and procedures executed to configure HP DL-380 Gen8 or Sun Netra X3-2 Rack Mount Servers (RMS) to be used with Oracle Communication Diameter Signaling Router 6.0 (DSR 6.0) and to install DSR 6.0. It is assumed that the hardware installation and network cabling were executed before hand.
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.
Throughout the remainder of this document, the term RMS refers to either HP DL-380 Gen8 or Sun Netra X3-2.

1.2 References

1.2.1 External

[1] *HP Solutions Firmware Upgrade Pack Release Notes*, 910-6611-001 Rev A, July 2012

[2] *DSR 6.0RMS Productization Networking Interconnect TR*, TR007187, v. 1.0 or greater, P. Mouallem, 2012

[3] *TPD Initial Product Manufacture*, 909-2130-001 v. 1.0 or greater, D. Knierim, 2011

[4] *Platform 6.x Configuration Procedure Reference*, 909-2209-001, v. 1.0 or greater, L. Antosova et al., 2012
[5] HP Solutions Firmware Upgrade Pack Upgrade Procedures 2.2, 909-2234-001, Latest Revision, Oracle, 2012
[6] *DSR 4.0 Communication Agent*, 910-6575-001, Latest Revision, Tekelec, 2012
[7] *DSR 4.0 Full Address Based Resolution (FABR)*, 910-6578-001, Latest Revision, Tekelec, 2012
[8] *DSR 4.1 Full Address Based Resolution (FABR)*, 910-6634-001, Latest Revision, Tekelec, 2012
[9] DSR 6.0 Network Interconnect: RMS Productization, TR007187, Latest Revision

[10]Oracle Firmware upgrade Guide, E54963, Oracle, 2014
[11]Oracle Firmware upgrade Pack, E54964, Oracle, 2014
[12]DSR MAP-Diameter IWF Feature Activation, WI006965

1.2.2 Internal (Oracle)

The following are references internal to Oracle. They are provided here to capture the source material used to create this document. Internal references are only available to Oracle personnel.

[1] *Formal Peer Review Process*, PD001866, v6.21, Nov 2008

1.3 Variables

For a list of the variables used throughtout this document and their description, see 4.12Appendix K

1.4 Acronyms

An alphabetized list of acronyms used in the document:

Table 1. Acronyms

Acronym	Definition
BIOS	Basic Input Output System
CD	Compact Disk
DSR	Diameter Signalling Router
DVD	Digital Versatile Disc
EBIPA	Enclosure Bay IP Addressing
FRU	Field Replaceable Unit
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
PM&C	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

1.5 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:

Each step has a checkbox for every command within the step that the technician should check to keep track of the progress of the procedure.

The title box describes the operations to be performed during that step.

Each command that the technician is to enter is in **`10 point bold Courier`** *font.*

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

2.0 GENERAL DESCRIPTION

This document defines the steps to execute the initial installation of the Diameter Signaling Router 6.0 (DSR 6.0) application.

DSR 6.0 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.

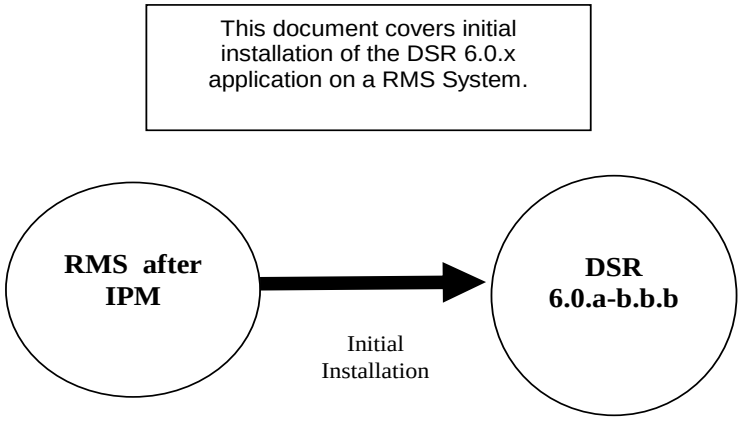


Figure 2. Initial Application Installation Path – Example shown

2.1 ACQUIRING FIRMWARE

Several procedures in this document pertain to the upgrading of firmware on various servers and hardware devices.

2.1.1 HP

The required firmware media and binaries are managed and distributed as part of the *HP Solutions Firmware Upgrade Pack 2.2.x*, released under Tekelec Part Number 795-0000-2*yy*[1]. The minimum firmware release required for this product is *HP Solutions Firmware Upgrade Pack 2.1.3* (PN: 795-0000-201) although the latest 2.1.x release is recommended.

The *HP Solutions Firmware Upgrade Pack* contains multiple BOM items including media and documentation. This document only requires access to the media (CD/DVD or ISOs) as well as the *Release Notes [1]* document.

The two pieces of required firmware media provided in the *HP Solutions Firmware Upgrade Kit 2.1.x* releases are:

- HP Smart Update Firmware DVD/ISO
- HP Misc Firmware CD/ISO

Refer to the Release Notes of the target release of the *HP Solutions Firmware Upgrade Pack* used to determine specific media part numbers to use and the specific firmware versions provided.

[1] Where *yy* is a 2-digit number which increases with every new release.

Diameter Signaling Router 6.0 Servers and devices requiring possible firmware updates are:

- HP DL380 Rack Mount Servers

Cisco 4948E/4948E-F Rack Mount Network Switch (Optional)

2.1.2 Sun Netra

The Oracle Firmware Upgrade Pack 3.1.1 contains documentation for the steps in the procedures to refer to the upgrading of Netra X3-2 servers. This pack consists of an *Upgrade Procedures* document and a *Release Notice*. Firmware components for Oracle Netra X3-2 servers can be downloaded from the My Oracle Support Site at *https://support.oracle.com*. This document only requires access to the upgrade media and the Release Notice. The Upgrade Procedures are not used as the firmware upgrade procedures specific to this document are provided here. Refer to the *Release Notice* for the currently approved Software Release Number for Netra X3-2 servers as well as procedures on how to obtain the upgrade ISO image from My Oracle Support.

3.0 INSTALL OVERVIEW

This section provides a brief overview of the recommended method for installing the Target Release software. The basic install process and approximate time required is outlined in Table 2.

3.1 Required Materials

1. One (1) target release Application CD-ROM, or a target-release ISO
2. One (1) CD-ROM or ISO of TPD release 6.7.0.0.0-84.8.064 bits, or later shipping baseline as per Oracle ECO
3. One (1) CD-ROM or ISO of PM&C release 5.7.0_57.3.0, or later shipping baseline as per Oracle ECO
4. One (1) CD-ROM or ISO of TVOE release 2.7.0_84.4.0, or later shipping baseline as per Oracle ECO
5. Passwords for users on the local system
6. Access to the iLO Terminal or direct access to the server vga port.
7. HP Solution firmware upgrade pack as described in [1].
8. Oracle Firmware Upgrade pack

The material for the list above can also be downloaded from Oracle's secure website, locate at https://edelivery.oracle.com/

3.2 Installation Overview

This section lists the procedures required for installation with estimated times. Section 3.2.1 contains a matrix of deployment features and the required procedures needed to install them**.** Section 3.2.2 lists the steps required to install a DSR 6.x system. These latter sections expand on the information from the matrix and provide a general timeline for the installation.

3.2.1 Installation Matrix

The table below matches up the list of major installation variables and their corresponding procedures. The first row labeled "ALL SITES" has the list of all **mandatory** procedures checked off. These steps will be executed in all deployments regardless of other variables. The remaining rows list install features that may or may not be present in every deployment. The reader of this document should be aware of what is necessary for a particular installation (such as the type and number of enclosure switches) and then check off the proper features under the ***Site Type*** column. He should then note which columns have check marks for that feature and add the appropriate procedure to his "master" list. In the end, a customized installation sequence should result.

Procedure # / Site-Type		1-4	5-6	7-30	31, 33, 36	32-36
☐	ALL SITES – Must Perform	✓		✓		✓
☐	+ 4948E Agg. Switches		✓			
☐	+Net-backup Client				✓	

3.2.2 Installation Procedures

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

Table 2. Installation Overview

Procedure	Phase	Elapsed Time (Minutes)	
		This Step	Cum.
Procedure 1	Configure the HP RMS Server BIOS Settings and Update Firmware	30	30
Procedure 2	Configure the Sun Netra Server BIOS Settings and Update Firmware Note: Either of Procedure 1or 2 will be executed	30	30
Procedure 3	Install TVOE on First RMS Server	30	60
Procedure 4	First RMS Configuration	30	90
Procedure 5	PM&C Deployment Procedure	20	110
Procedure 6	Initialize the PM&C Application	10	120
Procedure 7*	Configure Cisco 4948E/4948E-F Switch using NetConfig*	40*	120-160
Procedure 8	Configure the PM&C Server	10	130-170
Procedure 9	Add Cabinet and Enclosure to the PM&C system inventory	20	150-190
Procedure 10	Install TVOE on Second RMS	20	170-210
Procedure 11	Configure TVOE on Second RMS	20	190-230
Procedure 12	Load ISOs onto PM&C Server	10	200-240
Procedure 13	Create NOAMP Guest VMs	5	205-245

Table 2. Installation Overview

Procedure	Phase	Elapsed Time (Minutes)	
		This Step	Cum.
Procedure 14	Create SOAM Guest VMs	5	210-250
Procedure 15	Create MP Guest VMs	5	215-255
Procedure 16	Create IPFE Guest VMs*	5	215-260
Procedure 17	Install the Software on the VMs	20	235-280
Procedure 18	Configure the First NO Server	25	260-305
Procedure 19	Configure the NO Server Group	15	275-320
Procedure 20	Configure the Second NO Server	15	290-335
Procedure 21	Complete Configuring the NOAMP Server Group	10	300-345
Procedure 22	Install NetBackup Client on NOAMP Servers*	10	300-355
Procedure 23	NO Configuration for DR Site*	10	300-365
Procedure 24	NO Pairing for DSR NO DR Site*	10	300-385
Procedure 25	Configure the SOAM NE	15	31-390
Procedure 26	Configure the SOAM Servers	10	325-400
Procedure 27	Configure the SOAM Server Group	10	335-410
Procedure 28	Configure RMS-specific B-level Resources	5	340-415
Procedure 29	Configure the MP Servers	10	355-435
Procedure 30	Configure the MP Server Group(s) and Profiles	10	365-440
Procedure 31	Configure the Signaling Network	30	395-470
Procedure 32	Configure the Signaling Devices	10	405-480
Procedure 33	Configure the Signaling Network Routes	15	420-495
Procedure 34	Add VIP for Signaling Networks	5	425-500
Procedure 35	Configure SNMP for Traps Receivers*	5	425-505
Procedure 36	Install Optional Features*	Varies	505-*

* denotes Optional Features.

3.3 Optional Features

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

Feature	Document
IP Front End (IPFE)	*IPFE Installation and Configuration*, WI006931

Diameter Mediation	*DSR Meta Administration Feature Activation*, WI006761
Range Based Address Resolution (RBAR**)**	*DSR RBAR Feature Activation*, WI006763
Per connection ingress message control	*DSR 4.0 – Per connection ingress message control*
MAP-Diameter IWF Feature	MAP-Diameter IWF Feature Activation, WI006965

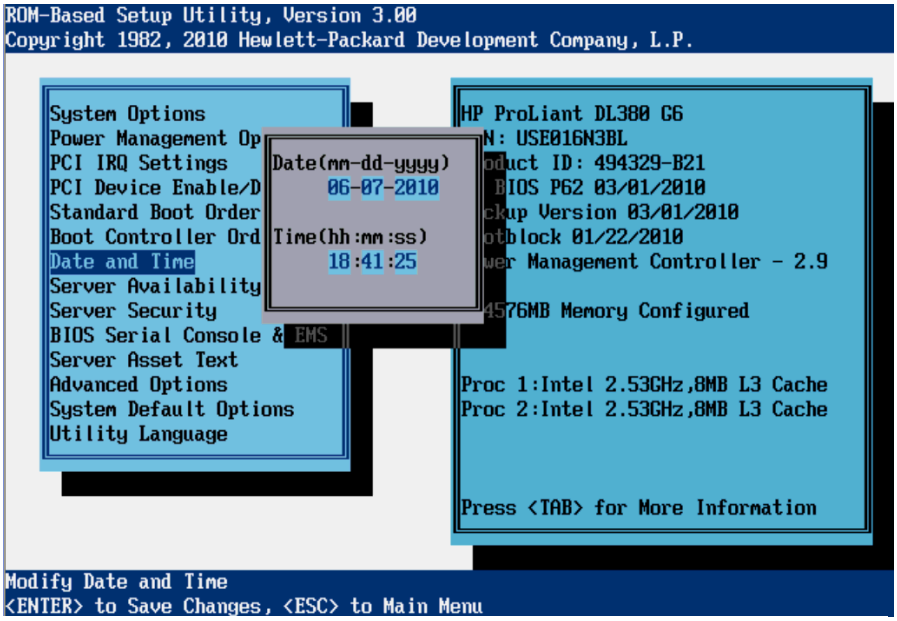
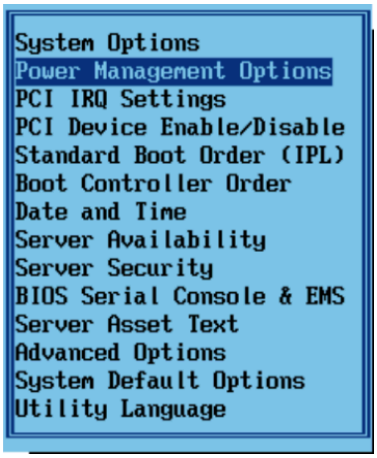
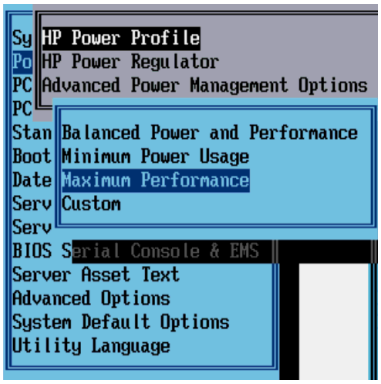
4.0 SOFTWARE INSTALLATION PROCEDURE

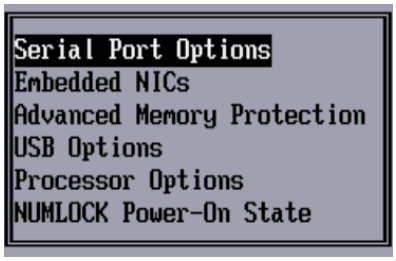
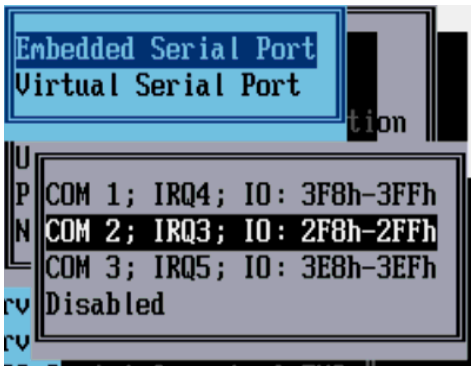
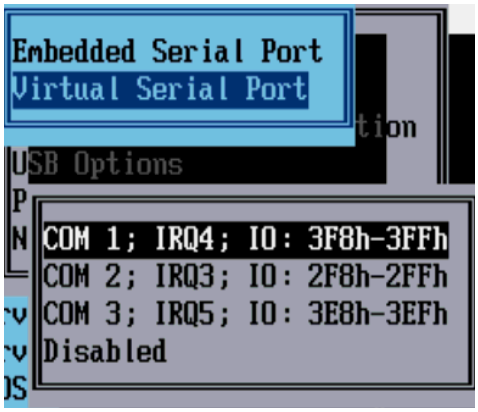
As mentioned earlier, the hardware installation and network cabling should be done before executing the procedures in this document.

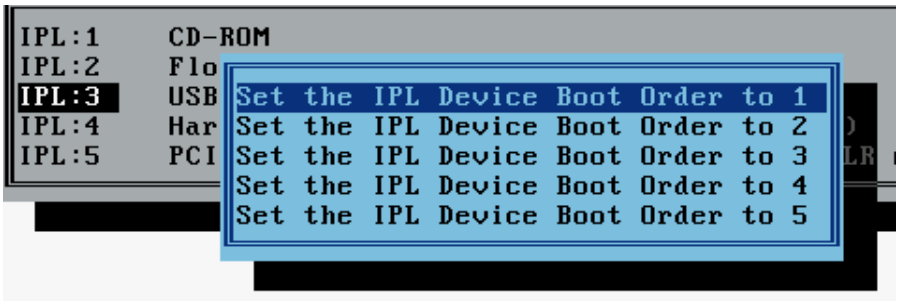
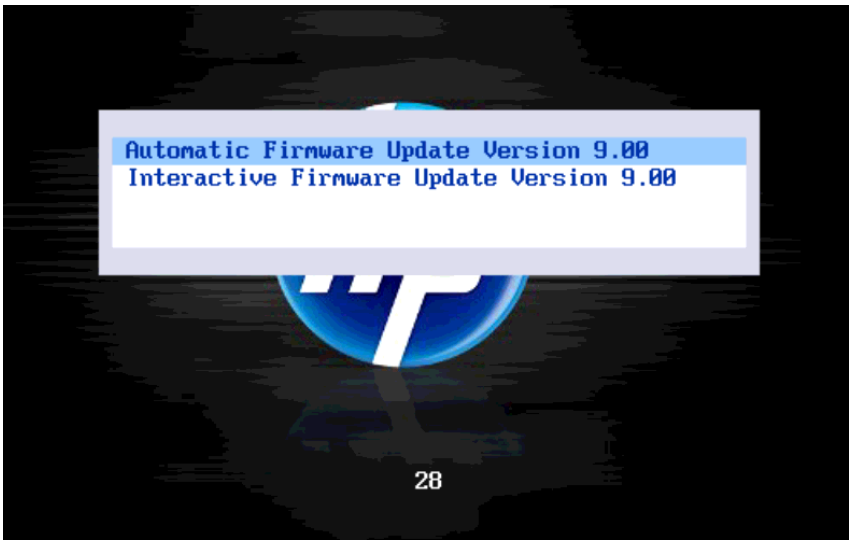
NOTE: Prior to executing the procedures below, please review the DSR release notes, and be aware of any workaround that should be executed.

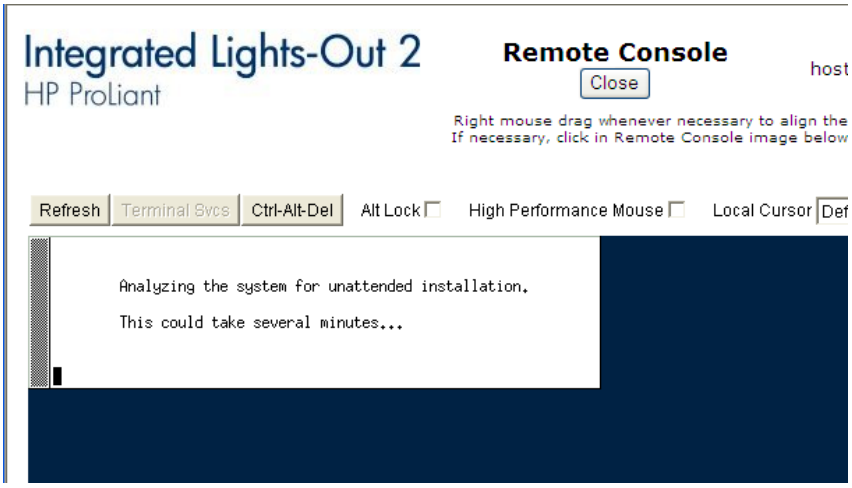
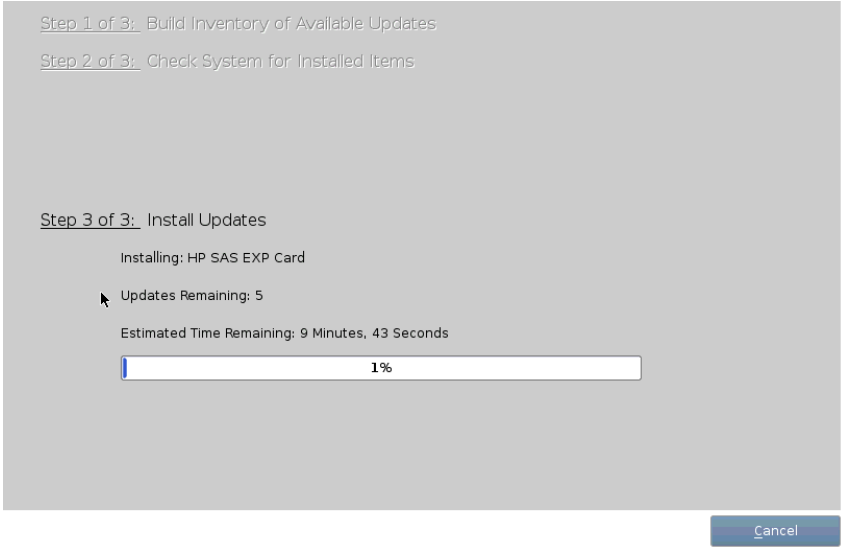
Prepare Servers for IPMProcedure 1. Configure the HP RMS Server BIOS Settings and Update Firmware

STEP #	This procedure will configure the BIOS of the HP DL380/Sun Netra server and update its firmware if needed **Needed material:** - HP/Netra Firmware Maintenance Media - HP/Netra Solutions Firmware Upgrade Pack Release Notes [1] - Netra Firmware Maintenance Media - Netra Solutions Firmware Upgrade Pack Release Notes Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**RMS server:** Connect to the Server	Connect to the Server using a VGA Display and USB Keyboard, or via the iLO interface using IE. Appendix C though E explains how to access the iLO and change the address if necessary.
2 ☐	**RMS server:** Prepare to upgrade RMS server firmware	Insert Update Firmware USB into a USB port of the RMS server. Refer to [1] for instructions on how to update the firmware. Refer Appendix M to create bootable USB drive
3 ☐	**RMS server:** Access the Server BIOS	Reboot the server once the firmware update is complete, and after the server is powered on, as soon as you see <F9=Setup> in the lower left corner of the screen, press **F9** to access the BIOS setup screen.

4 ☐	**RMS server:** Set CMOS Clock	Scroll to *Date and Time* and press **Enter** Set the date and time and press **Enter**. 
5 ☐	**RMS server:** Set Power Setting	Go back to the main menu by pressing **<Esc>** and scroll down to *Server Availability* Change “Automatic Power-On” to “Enabled” Change “Power-On Delay” to “No Delay” Go back to the main menu by pressing **<Esc>** and scroll down to *Power Management Options* and press **Enter** Select *HP Power Profile* and press **Enter** Scroll down to *Maximum Performance* and press **Enter**   Press **<Esc>** to return to the main menu

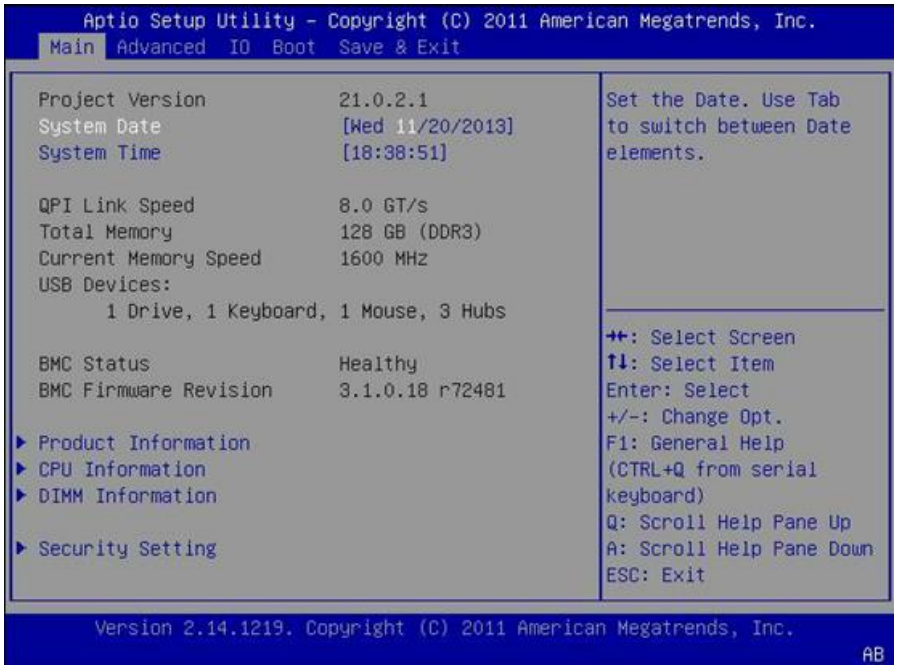
6 ☐	**RMS server:** Configure iLO Serial Port	Scroll to *System Options* and press **Enter** **Change power profile (same as blades)** Select *Serial Port Options* and press **Enter**  Press **Enter** to select *Embeded Serial Port* and change it to *COM2* and press **Enter**  Press **Enter** to select *Virtual Serial Port* and change it to *COM1* and press **Enter**  Press **<ESC>** 2 times to return to the main menu

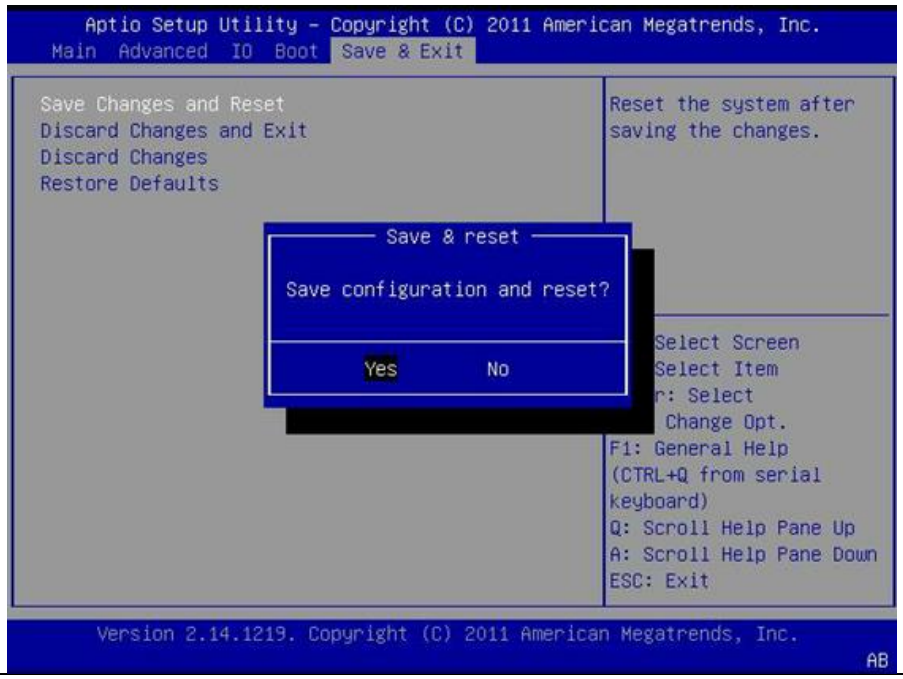
7 ☐	**RMS server:** Double Check boot Order	Scroll to *Standard Boot Order (IPL)* and press **Enter** Select *USB DriveKey*, and set its boot order to 1 as shown below  Press **Enter** Press **<ESC>** to return to the main menu.
8 ☐	**RMS server:** Configure Server Availability	Select "Server Availability" Change "Automatic Power-On" to "Always Power On" Verify that Power-On Delay" is set to "No Delay", if it is not, then set it.
9 ☐	**RMS server:** Save Configuration and Exit	Press **<ESC>** twice then press **F10** to save the configuration and exit. The server will reboot
10 ☐	**RMS server:** Perform an unattended firmware upgrade	The server will reboot into the *HP Smart Update Firmware* ISO and present the following boot prompt. Press **[Enter]** to select the **Automatic Firmware Update** procedure.  **If no key is pressed in 30 seconds the system will automatically perform an Automatic Firmware Update.**

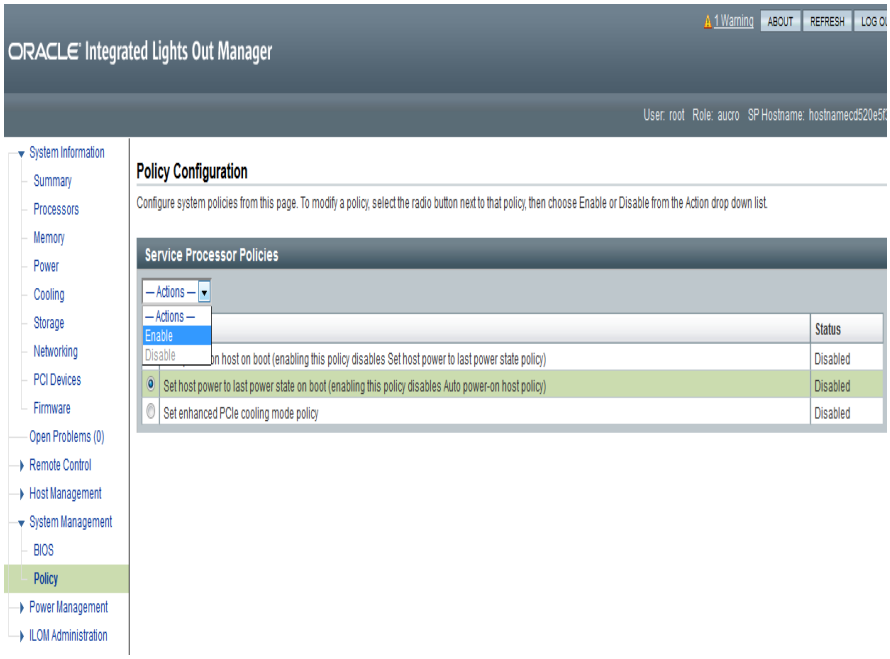
11 ☐	**RMS server:** System analysis	The firmware install will perform a system scan of the server in which it will identify all of the firmware components that are eligible for upgrade. This process may take up to 10 minutes and during that time the following screen is displayed on the console.  **Note**: No progress indication is displayed during the system scan and analysis stage. In about 10 minutes the installation will automatically proceed to the next step.
12 ☐	**RMS server:** Monitor installation	Once analysis is complete the installer will begin to upgrade the eligible firmware components. A progress indicator is displayed at this time as shown below.  **Note**: If the iLO2 firmware is to be upgraded it will be upgraded last. At this point the iLO2 session will be terminated and you will lose the remote console, virtual media and Web GUI connections to the server. This is expected and will not impact the firmware upgrade process.
13 ☐	**Local Workstation:** Clean up	Once the firmware updates have been completed the server will automatically be rebooted. At this time you may close the remote console and the iLO2 Web GUI browser session.

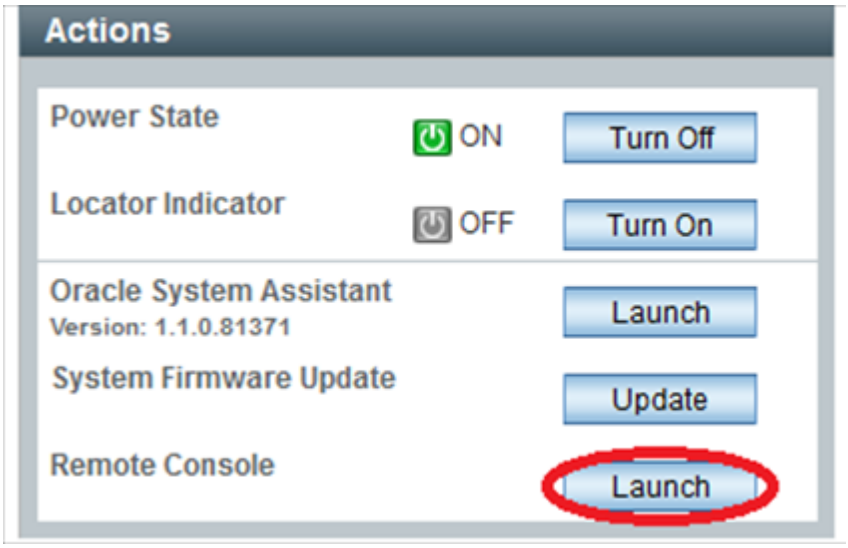
14 ☐	**Local Workstation:** Verify server availability	Wait 3 to 5 minutes and verify the server has rebooted and is available by gaining access to the login prompt.
15 ☐	**RMS server:** Remove the firmware USB **Local Workstation:** Verify server availability	Remove the HP Smart Update Firmware USB media from the server. Exit from the `Integrated Remote Console`. Wait 3 to 5 minutes and verify the server has rebooted and is available by gaining access to the login prompt.
16 ☐	**Repeat for additional HP RMS servers**	Repeat this procedure for the additional HP RMS Server.

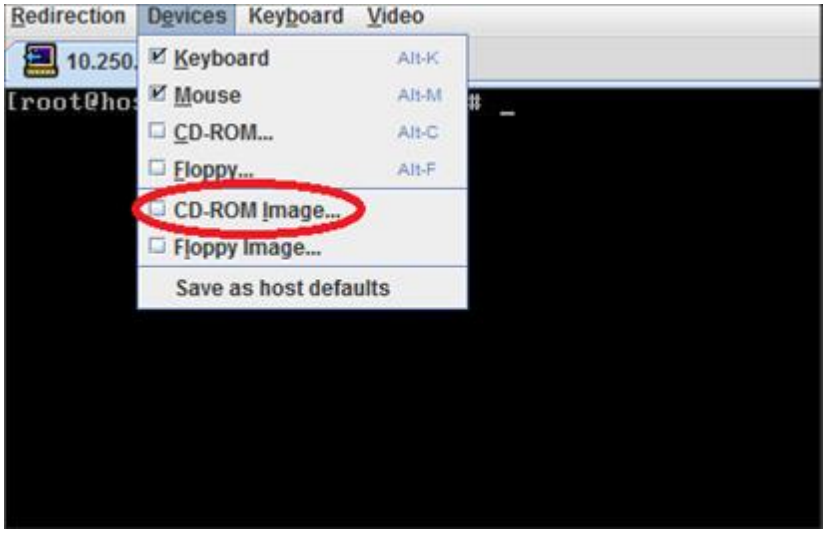
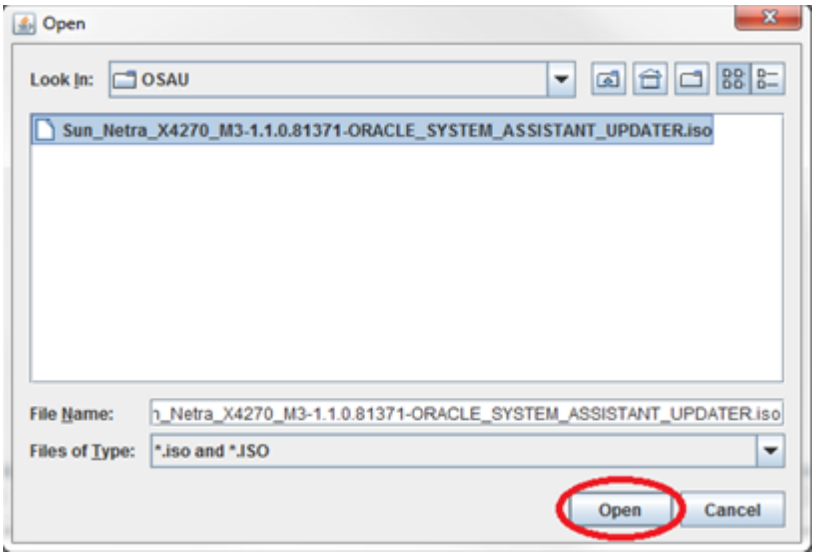
Procedure 2. Configure the Sun Netra Server BIOS Settings and Update Firmware

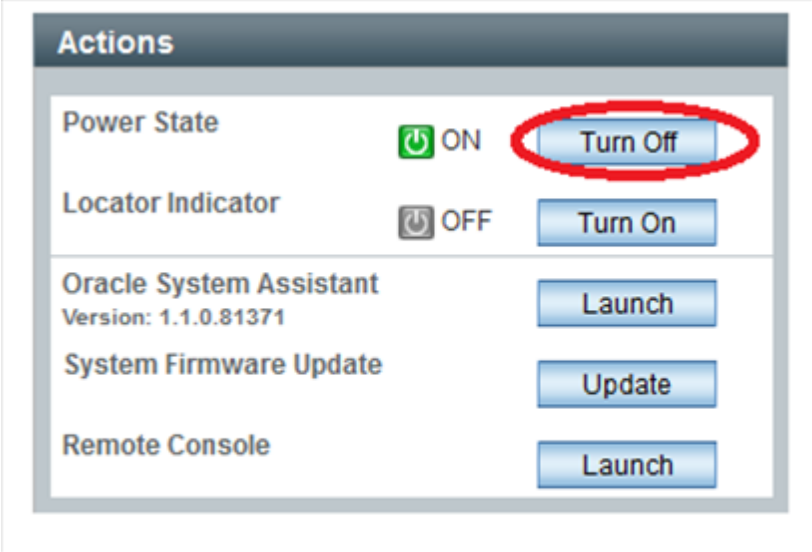
	This procedure will configure the BIOS of the Sun Netra server and update its firmware if needed. **Needed material:** - Netra Firmware Maintenance Media - Netra Solutions Firmware Upgrade Pack Release Notes Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**Sun Netra server:** Connect to the Server	Connect to the Server using a VGA Display and USB Keyboard, or via the iLOM interface using IE. Appendix C though E explains how to access the iLOM and change the address if necessary.
2 ☐	**Sun Netra server:** Access the Server BIOS	Reboot the server once the firmware update is complete, and after the server is powered on, as soon as you see < Press F2 to run Setup > in the middle of the screen, press **F2** to access the BIOS setup screen.
3 ☐	**Sun Netra erver:** Set CMOS Clock	• Scroll **to System Date and** press **Enter** • **Set the System Date** • **Scroll to System Time and press Enter** • **Set the System Time and press Enter** 

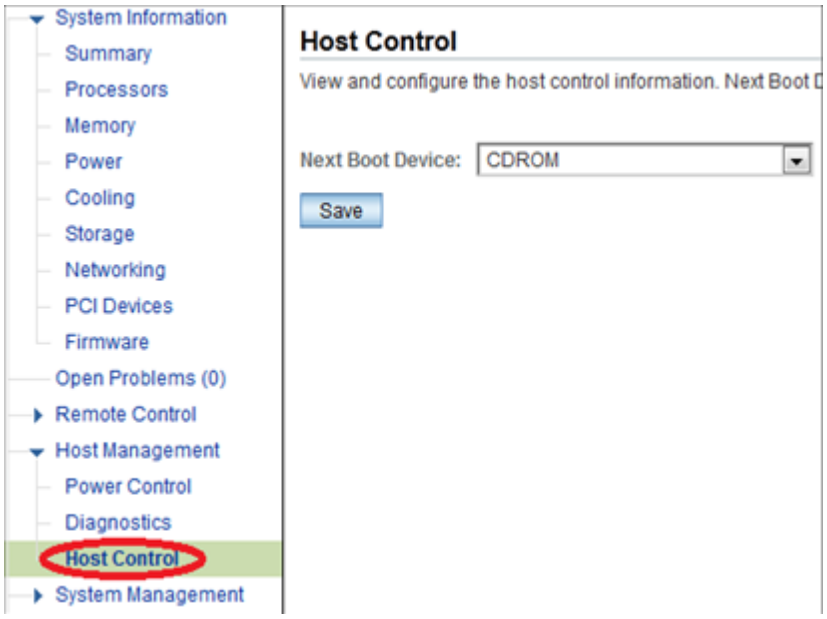
4 ☐	**Sun Netra server:** Exit the Server BIOS	Exit the BIOS by navigating to the "Save & Exit" tab and selecting the "Save Changes and Reset" option. 
5 ☐	**Sun Netra server:** Prepare to upgrade server firmware	Insert Update Firmware USB into a USB port of the Sun Netra server. Refer to [1] for instructions on how to update the firmware.
6 ☐	**Sun Netra server:** Local Work Station	Using one of the supported browsers listed in the Required Materials section, navigate to the ILOM Web GUI by typing its address into the address bar: **(https://<ILOM_IP>).**
7 ☐	**Sun Netra Server: ILOM Web GUI**	Log in to the ILOM as an "administrator" user.. 

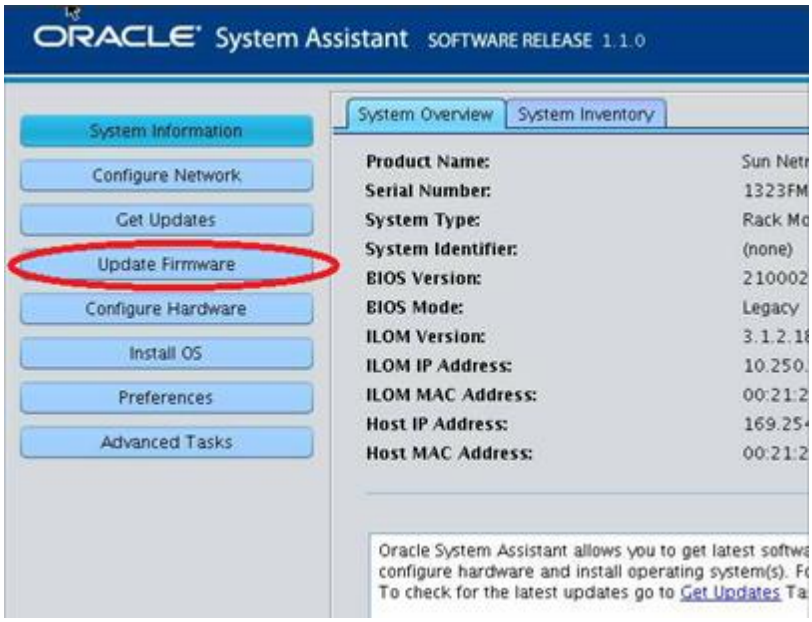
8 ☐	**Sun Netra Server: ILOM Web GUI**	Change the Power Policy 1. Select System Management->Policy 2. On the page, select the “Set host power to last power state on boot” option 3. To apply the power policy, click on the Actions drop down menu and then “Enable”. Confirm the selection by clicking “OK” in the popup  	

9 ☐	**Sun Netra Server:** **ILOM Web GUI**	On the System Information->Summary page click on the Remote Console Launch button in the Action Panes. 

10 ☐	**Sun Netra server:** ILOM Remote Console	**Note:** 32-bit version of Java is required for ILOM's storage redirection.In the ILOM Remote Console window click on the **Devices** drop-down menu and select the **CD-ROM image...** option.  Navigate to the Oracle System Assistant Updater ISO file **<local_OSAU_image_path>**. Select the Oracle System Assistant Updater and click **Open**. 

11 ☐	**Sun Netra Server:** ILOM Web GUI	On the System Summary page click on the Power State **Turn Off** button in the Actions Pane. Click **OK** at the confirmation prompt. This will perform a graceful shutdown of the operating system prior to powering off the host server. Wait for the indicator to signify that the server is powered down before proceeding to the next step  **Note:** If at any point the internet connection on the local workstation is lost or the browser being used is closed and the OSA has not yet been updated, the Oracle System Assistant Updater ISO must be remounted using the previous steps.

12 ☐	**Sun Netra Server:** ILOM Web GUI	Under the **Host Management** tab select the **Host Control** option. From the drop-down menu for Next Boot Device select CDROM and click the Save button. 
13 ☐	**Sun Netra Server:** ILOM Web GUI	On the System Summary page click on the Power State **Turn On** button in the Actions Pane to boot into the Oracle System Assistant Updater ISO. Click OK at the confirmation prompt.
14 ☐	**Sun Netra Server:** ILOM Remote Console	Go back to the window that contains the Remote Console. If the window was closed, re-launch the console in the Actions Pane. Wait for the Oracle System Assistant Updater ISO to boot up and reply **'yes'** to the prompt. `Would you like to proceed? [yes or no] yes` Wait for the Oracle System Assistant to finish updating. Reply 'yes' to the verification prompt. `Would you like to proceed? [yes or no] yes` When verification is complete, the system will reboot and launch the Oracle System Assistant. After the Oracle System Assistant has launched, press the **Accept** button in the License Agreement Window and then close the Oracle System Assistant Help window.

15 ☐	**Sun Netra Server:** OSA GUI	Click the **Update Firmware** button on the left-hand side of the OSA GUI and then click **Check for Firmware Updates.** 
16 ☐	**Sun Netra Server:** OSA GUI	After the OSA has finished determining what needs to be updated click the **Install All Updates** button to proceed with the upgrade.

17 ☐	**Sun Netra Server:** OSA GUI	Depending on the current version of the Oracle System Assistant, a prompt may be displayed to enter credentials for activation of the internal LAN over USB interconnect between the host server and the ILOM service processor. Supplying a valid ILOM user with Administrator privileges will result in the interconnect being activated for faster upgrade of the ILOM. If there is no prompt ignore this step and move on to the next one.  **Note:** If the server requires a reboot as part of the upgrade process it will reboot automatically. **Note:** If ILOM is being upgraded there will be a temporary loss of connection with it while it resets. Wait a few minutes and then log back into the ILOM Web GUI and re-launch the Remote Console.
18 ☐	**Sun Netra Server:** OSA GUI	Wait for the firmware upgrade process to complete. One or more reboots may be part of this process and, as noted, will take place automatically. When the upgrade is complete the following output will be shown in the OSA GUI. 

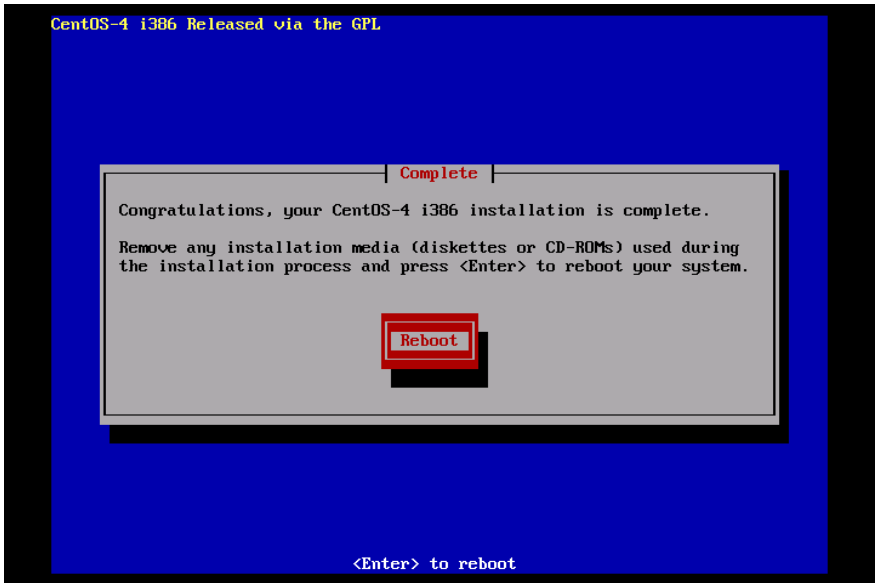
19 ☐	**Sun Netra Server:** OSA GUI	Click on the **OK** button. The OSA will then run another Firmware Update Check. Review the output to ensure that the installed versions are correct as per the *Release Notes* and then click on the **Cancel** button. Click on the **Exit** button in the bottom right corner of the OSA GUI and then press the reboot option to reboot the server. Before the server reboots it is necessary to unmount the Oracle System Assistant Updater ISO or the server will boot back into it. Click in the **Devices** tab in the Remote Console Window and then select the **CDROM Image...** option. Click on the **yes** button in the pop-up window that asks if CD-ROM redirection should be stopped.
20 ☐	**Repeat for additional Sun Netra Servers**	Repeat this procedure for the additional Sun Netra Servers.

4.1 Install and Configure TVOE on First RMS (PM&C Host)

Throughout this section, the first RMS server refers to the server that shall host the PM&C VM.

Procedure 3. Install TVOE on First RMS Server

S T E P #	This procedure will install TVOE on the First RMS Server **Needed material:** - TVOE Media on bootable USB Drive Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**Connect to the First RMS Server**	Connect to the Server using a VGA Display and USB Keyboard, or via the iLO interface using IE. Appendix C though E explains how to access the PM&C iLO and change the address if necessary.
2 ☐	**RMS Server 1:** Insert TVOE Media into Server	Insert the Bootable USB Drive containg the TVOE media in a USB Port. Refer to Appendix M on how to create a bootable USB Drive. Alternatively ISO can be mounted using Virtual media as well. Refer to Appendix L..
3 ☐	**RMS Server 1:** Begin IPM Process	Once the Server reboots, it will reboot from the TVOE media and a boot prompt shall be displayed. IPM the server using the following command: If using HP DL380 Gen8 servers: `TPDnoraid diskconfig=HWRAID,force console=tty0` If using SunNetras: `TPDnoraid diskconfig=HWRAID,force console=tty0`

4 ☐	**RMS Server 1:** IPM Complete	The IPM process takes about 30 minutes, you will see several messages and screens in the process. Once the IPM is complete, you will be prompted to press Enter as shown below. Remove the disk from the drive or unmount the TPD image from the iLO and press **Enter** to reboot the server. Note that the CD may eject automatically. 
5 ☐	**RMS Server 1:** Server Reboot	Once the Server Reboots, you should see a login prompt. Note that during the first system boot, swap files may be initialized and activated. Each swap file will take about 2 minutes. If no login prompt is displayed after waiting 15 minutes, contact Oracle Customer Support for Assistance.

Procedure 4. First RMS Configuration

S T E P #	This procedure will configure the First TVOE/Management Server **Prerequisite:** Procedure 2. Install TVOE on First RMS Server has 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 ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	Determine Bridge names and interfaces	Determine the bridge interfaces to be used on the TVOE server and fill in the appropriate values in the table below. If netbackup is to be used, determine the bridge interface to be used for the netbackup network and fill in the <TVOE_NetBackup_Bridge_Interface> value.

Guest Interface Alias	TVOE Bridge Name	TVOE Bridge Interface
control	control	Fill in the appropriate value (default is bond0): _____ <TVOE_Control_Bridge_Interface>
management	management	Fill in the appropriate value: _____ <TVOE_Management_Bridge_Interface>
Xmi	xmi	Fill in the appropriate value: _____ <TVOE_XMI_Bridge_Interface>
Imi	imi	Fill in the appropriate value, (default is bond0.4): _____ <TVOE_IMI_Bridge_Interface>
xsi1	xsi1	Fill in the appropriate value: _____ <TVOE_XSI1_Bridge_Interface>
xsi2	xsi2	Fill in the appropriate value: _____ <TVOE_XSI2_Bridge_Interface>
netbackup (if applicable)	netbackup	Fill in the appropriate value: _____ <TVOE_NetBackup_Bridge_Interface>

2 ☐	**1st RMS iLO/iLOM:** Login and launch the integrated remote console	Log in to iLO or iLOM (if Sun Netra) in IE as admusr using password provided by application: **http://<management_server_iLO_ip>** If running on HP DL380 Gen8 then: Click in the **Remote Console** tab and launch the **Integrated Remote Console** on the server. If running on SunNetras: Click on the "Remote Control -> Redirection" and launch the "Launch Remote Console" on the server. Click **Yes** if the Security Alert pops up.
3 ☐	**1st RMS iLO/iLOM:** Verify the Control Network	Verify the control network by running the following command **Note:** The output below is for illustrative purposes only. The example output below shows the control bridge configured. **$ sudo /usr/TKLC/plat/bin/netAdm query --type=Bridge --name=control** Bridge Name: control On Boot: yes Protocol: dhcp Persistent: yes Promiscuous: no ... If the output matches the one above, then the Control Bridge already exists and does not need to be added, therefore skip to step 4. Otherwise execute the following command to create the Control Bridge **$ sudo /usr/TKLC/plat/bin/netAdm add --device=bond0 --onboot=yes --type=Bonding --mode=active-backup --miimon=100** Interface bond0 added Execute the following to set the slave interfaces: **$ sudo /usr/TKLC/plat/bin/netAdm set --device=eth01 --type=Ethernet --master=<TVOE_Control_Bridge_Interface> --slave=yes --onboot=yes** Interface <ethernet_interface_1> updated **$ sudo /usr/TKLC/plat/bin/netAdm set --device=eth02 --type=Ethernet --master-<TVOE_Control_Bridge_Interface> --slave=yes --onboot=yes** Interface <ethernet_interface_2> updated **$ sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=control --bootproto=dhcp --onboot=yes --bridgeInterfaces=bond0**

4 ☐	**1st RMS iLO/iLOM:** Create tagged control interface and bridge (optional)	If you are using a tagged control network interface on this TVOE Server, then complete this step. Otherwise, skip on to the next step. **$ sudo /usr/TKLC/plat/bin/netAdm set --type=Bridge --name=control --delBridgeInt=bond0** Interface bond0 updated Bridge control updated **$ sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_Control_Bridge_Interface> --onboot=yes** Interface <TVOE_Control_Bridge_Interface> created **$ sudo /usr/TKLC**/plat/bin/**netAdm set --type=Bridge --name=control --bridgeInterfaces=<TVOE_Control_Bridge_Interface>**

5 ☐	**1st RMS iLO/iLOM:** Verify/Create the Managment Network	Verify the management network by running the following command **Note:** The output below is for illustrative purposes only. The example output below shows the control bridge configured. **$sudo /usr/TKLC/plat/bin/netAdm query --type=Bridge --name=management** Bridge Name: management On Boot: yes Protocol: none IP Address: 10.240.4.86 Netmask: 255.255.255.0 Promiscuous: no Hwaddr: 00:24:81:fb:29:52 MTU: Bridge Interface: bond0.2 If the bridge has been configured, skip to the next step. **Note:** The output below is for illustrative purposes only. The site information for this system will determine the network interfaces, (network devices, bonds, and bond enslaved devices), to configure. **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_Management_Bridge_Interface> --onboot=yes** Interface bond0.2 added **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=management --bootproto=none --onboot=yes --address=<Management_Server_TVOE_IP> --netmask=<Management_Server_TVOE_Netmask> --bridgeInterfaces=<TVOE_Management_Bridge_Interface>**
6 ☐	**1st RMS iLO/iLOM:** Create the XMI Network	Configure the XMI Network using. **Note:** The output below is for illustrative purposes only. The site information for this system will determine the network interfaces, (network devices, bonds, and bond enslaved devices), to configure. **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_XMI_Bridge_Interface> --onboot=yes** Interface bond0.3 added **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=xmi --onboot=yes --bridgeInterfaces=<TVOE_XMI_Bridge_Interface>** Interface bond0.3 was updated. Bridge xmi added!

7 ☐	**1st RMS iLO/iLOM:** Create the IMI Network	Configure the IMI Network using the following commands **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. **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_IMI_Bridge_Interface> --onboot=yes** Interface bond0.4 added **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=imi --onboot=yes --bridgeInterfaces=<TVOE_IMI_Bridge_Interface>** Interface bond0.4 was updated. Bridge imi added!

8 ☐	**1st RMS iLO/iLOM:** Create the XSI-1 Network	Execute option 1 **OR** option 2 below to configure the first XSI network **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. Option 1: Deployment with Aggregation switches: **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_XSI1_Bridge_Interface> --onboot=yes** Interface bond0.5 added **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=xsi1 --onboot=yes --bridgeInterfaces=<TVOE_XSI1_Bridge_Interface>** Interface bond0.5 was updated. Bridge xsi1 added! Option 2: Deployment without Aggregation switches: **$sudo /usr/TKLC/plat/bin/netAdm add --device=bond1 --onboot=yes --type=Bonding --mode=active-backup --miimon=100** Interface bond1 added **$sudo /usr/TKLC/plat/bin/netAdm set --device=eth03 --type=Ethernet --master=bond1 --slave=yes --onboot=yes** Interface eth03 updated **$sudo /usr/TKLC/plat/bin/netAdm set --device=eth13 --type=Ethernet --master-bond1 --slave=yes --onboot=yes** Interface eth13 updated **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_XSI1_Bridge_Interface> --onboot=yes** Interface bond1.<XSI1_VLAN_ID> added **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=xsi1 --onboot=yes --bridgeInterfaces=<TVOE_XSI1_Bridge_Interface>** Interface bond1.<XSI1_VLAN_ID> was updated. Bridge xsi1 added!

9 ☐	**1st RMS iLO/iLOM:** Create the XSI-2 Network	Configure the XSI2 Network using option 1 **OR** option 2 below **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. Option 1: Deployment with Aggregation switches: **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_XSI2_Bridge_Interface> --onboot=yes** Interface bond0.6 added **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=xsi2 --onboot=yes --bridgeInterfaces=<TVOE_XSI2_Bridge_Interface>** Interface bond0.6 was updated. Bridge xsi2 added! Option 2: Deployment without Aggregation switches: **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_XSI2_Bridge_Interface> --onboot=yes** Interface bond1.<XSI2_VLAN_ID> added **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=xsi2 --onboot=yes --bridgeInterfaces=<TVOE_XSI2_Bridge_Interface>** Interface bond1.<XSI2_VLAN_ID> was updated. Bridge xsi2 added!
10 ☐	**1st RMS iLO/iLOM:** Add/Verify the NetBackup Network (Optional)	If NetBackup is to be used, execute this step, otherwise skip to the next step. NetBackup is a tool that allows the customer to take remote backups of the system. **Note:** The output below is for illustrative purposes only. The example output below shows the control bridge configured. **$sudo /usr/TKLC/plat/bin/netAdm query --type=Bridge --name=netbackup** Bridge Name: netbackup On Boot: yes Protocol: none IP Address: 10.240.6.2 Netmask: 255.255.255.0 Promiscuous: no Hwaddr: 00:24:81:fb:29:58 MTU: Bridge Interface: bond2 If the bridge has been configured, skip to the next step. **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. **Note:** The example below illustrates a TVOE Management Server configuration with the NetBackup feature enabled. The NetBackup network is configured with a

		non-default MTU size. **Note:** The MTU size must be consistent between a network bridge, device, or bond, and associated VLANs. Select **only one** of the following options: Option 1: Create netbackup bridge using a bond containing an untagged interface **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_NetBackup_Bridge_Interface> --onboot=yes --type=Bonding --mode=active-backup --miimon=100 --MTU=<NetBackup_MTU_size>** Interface <TVOE_NetBackup_Bridge_Interface> added **$sudo /usr/TKLC/plat/bin/netAdm set --device=<ethernet_interface_4> --type=Ethernet --master=<TVOE_NetBackup_Bridge_Interface> --slave=yes --onboot=yes** Interface <ethernet_interface_4> updated **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=<TVOE_NetBackup_Bridge> --onboot=yes --bootproto=none --MTU=<NetBackup_MTU_size> --bridgeInterfaces=<TVOE_NetBackup_Bridge_Interface> --address=<TVOE_NetBackup_IP> --netmask=<TVOE_NetBackup_Netmask>** Option 2: Create NetBackup bridge using an untagged native interface: **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=<TVOE_NetBackup_Bridge> --onboot=yes --bootproto=none --MTU=<NetBackup_MTU_size> --bridgeInterfaces=<Ethernet_Interface_4> --address=<TVOE_NetBackup_IP> --netmask=<TVOE_NetBackup_Netmask>** Option 3: Create NetBackup bridge using a tagged device: **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_NetBackup_Bridge_Interface> --onboot=yes** Interface <TVOE_NetBackup_Bridge_Interface> added **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=<TVOE_NetBackup_Bridge> --onboot=yes --MTU=<NetBackup_MTU_size> --bridgeInterfaces=<TVOE_NetBackup_Bridge_Interface> --address=<TVOE_NetBackup_IP> --netmask=<TVOE_NetBackup_Netmask>**

11 ☐	**1st RMS iLO/iLOM:** Add/Verify the Default Route	Note: The output below is for illustrative purposes only. The example output below shows the management bridge configured. **$sudo /usr/TKLC/plat/bin/netAdm query --route=default --device=management** Routes for TABLE: main and DEVICE: management * NETWORK: default GATEWAY: 10.240.4.1 If the route has been configured, skip to the next step. **Note:** The output below is for illustrative purposes only. The site information for this system will determine the network interfaces, (network devices, bonds, and bond enslaved devices), to configure. For this example add default route on management network. **$sudo /usr/TKLC/plat/bin/netAdm add --route=default --device=management** **--gateway=<mgmt_gateway_address>** Route to management added
12 ☐	**1st RMS iLO/iLOM:** Add NetBackup Route (Optional)	Add a route to the NetBackup network using one of the following commands. If the NetBackup network is routed: **$sudo /usr/TKLC/plat/bin/netAdm add --route=net** **--device=<TVOE_NetBackup_Bridge>** **--address=<NetBackup_Gateway_Network_Address>** **--netmask=<NetBackup_Gateway_netmask>** **--gateway=<NetBackup_gateway_ip_address>** Route to <TVOE_NetBackup_Bridge> added If the NetBackup network is non-routed, use a host route instead. **$sudo /usr/TKLC/plat/bin/netAdm add --route=host** **--device=<TVOE_NetBackup_Bridge>** **--address=<NetBackup_Server_IP_Address>** **--netmask=255.255.255.255** **--gateway=<NetBackup_Server_IP_Address>** Route to <TVOE_NetBackup_Bridge> added
13 ☐	**1st RMS iLO/iLOM:** Restart the network interfaces	Restart the network interfaces **$sudo service network restart**
14 ☐	**1st RMS iLO/iLOM:** Set Hostname	Set the server hostname by running the following: **$sudo su - platcfg** **1.** Navigate to **Server Configuration ➢ Hostname ➢ Edit**. **2.** Set TVOE Management Server hostname **3.** Press OK. **4.** Navigate out of Hostname
15 ☐	**1st RMS iLO/iLOM:** Set the time zone and/or hardware clock	**1.** Navigate to **Server Configuration ➢ Time Zone.** **2.** Select Edit. **3.** Set the time zone and/or hardware clock to **UTC** or appropriate time zone value. **4.** Press OK. **5.** Navigate out of Server Configuration

16 ☐	**1st RMS iLO/iLOM:** Set NTP	**1.** Navigate to **Network Configuration ➢ NTP**. The 'Time Servers' page will now be shown, which shows the configured NTP servers and peers (if there are NTP servers already configured). 2. Update NTP Information, select **Edit**. The **Edit Time Servers Menu** is displayed 3. Select the appropriate Edit Time Servers Menu option. You can add new or edit any existing NTP server entry **4.** Set NTP server IP address to point to the customer provided NTP server (Remember that 3 ditinct NTP sources are required) **5.** Press OK. 6. Exit platcfg. Ensure that the time is set correctly by executing the following commands: **$sudo service ntpd stop** **$sudo ntpdate ntpserver1** **$sudo service ntpd start**
17 ☐	**1st RMS iLO/iLOM:** Set SNMP	Set SNMP by running the following: **$sudo su - platcfg** **Note: Refer Appendix O to understand the preferred SNMP configuration** 1. Navigate to **Network Configuration ➢ SNMP Configuration ➢ NMS Configuration**. 2. Select **Edit** and then choose Add a New NMS Server. The 'Add an NMS Server' page will be displayed. 3. Complete the form by entering NMS server IP, Port (default port is 162) and community string provided by the customer about the SNMP trap destination. Select **OK** to finalize the configuration. The 'NMS Server Action Menu' will now be displayed. Select **Exit**. The following dialogue will then be presented. 4. Select **Yes** and then wait a few seconds while the Alarm Routing Service is restarted. At that time the SNMP Configuration Menu will be presented. 5. exit platcfg.
18 ☐	**1st RMS iLO/iLOM:** Configure NetBackup (Optional)	If the NetBackup feature is enabled for this system, configure the appropriate NetBackup client on the PM&C TVOE host. 1. Enable and start the TVOE-netbackup service using the following commands: **$ service_conf add TVOE-netbackup rc runlevels=345** **$ service_conf reconfig** **$ service TVOE-netbackup start** 2. Enable platcfg to show the Netbackup Menu Items by executing the following commands: **$sudo platcfgadm --show NBConfig;** **$sudo platcfgadm --show NBInit;** **$sudo platcfgadm --show NBDeInit;** **$sudo platcfgadm --show NBInstall;** **$sudo platcfgadm --show NBVerifyEnv;** **$sudo platcfgadm --show NBVerify;** 3. Create LV and filesystem for Netbackup client software on the vgguests volume group:

		$sudo echo "lv --mountpoint=/usr/openv --size=2G --name=netbackup_lv --vg=vgguests" > /tmp/nb.lvm
		
		$sudo /usr/TKLC/plat/sbin/storageMgr /tmp/nb.lvm
		
		This will create the LV, format it with a filesystem, and mount it under /usr/openv/. Example output is shown below:
		`Called with options: /tmp/nb.lvm`
		`VG vgguests already exists.`
		`Creating lv netbackup_lv.`
		`Volume netbackup_lv will be created.`
		`Success: Volume netbackup_lv was created.`
		`Creating filesystem, this may take a while.`
		`Updating fstab for lv netbackup_lv.`
		`Configuring existing lv netbackup_lv.`
		`The LV for netbackup has been created!`
		
		4. Install the netbackup client software:
		
		Refer to Appendix J on instructions how to install the netbackup client.
		
		Note: Skip any steps relating to copying netbackup "notify" scripts to /usr/openv/netbackup/bin. The TVOE netbackup notify scripts are taken care of in the next step.
		
		5. Create softlinks for TVOE specific netbackup notify scripts.
		
		$sudo ln -s /usr/TKLC/plat/sbin/bpstart_notify /usr/openv/netbackup/bin/bpstart_notify
		
		$sudo ln -s /usr/TKLC/plat/sbin/bpend_notify /usr/openv/netbackup/bin/bpend_notify
		
		Note: Once the Netbackup Client is installed on TVOE, the NetBackup Master should be configured to backup the following files form the TVOE host:
		• `/var/TKLC/bkp/*.iso`

19 ☐	**1st RMS iLO/iLOM:** Setup syscheck	syscheck must be configured to monitor bonded interfaces. Replace "bondedInterfaces" with "bond0" or "bond0,bond1" if segregated networks are used: **$ sudo /usr/TKLC/plat/bin/syscheckAdm net ipbond --set --var=DEVICES --val=<bondedInterfaces>** **$ sudo /usr/TKLC/plat/bin/syscheckAdm net ipbond --enable** **$ sudo /usr/TKLC/plat/bin/syscheck net ipbond –v**
20 ☐	**1st RMS iLO/iLOM:** Verify Server Health	Execute the following: $ **alarmMgr –alarmStatus** This command should return no output on a healthy system. If any alarms are reported, contact Customer Care Center.

21 ☐	**1st RMS iLO/iLOM:** Perform a TVOE backup using TPD platcfg utility	Execute the following: `$ sudo su - platcfg` Navigate to **Maintenance ➢ Backup and Restore** Select "**Backup Platform (CD/DVD)**" **Note:** If no cdrom device is found by TPD, you will receive an error dialog with the message: "No disk device available. This is normal on systems without a cdrom device." Press enter to continue. Select an applicable backup option, and press enter to continue. Exit from TPD platcfg utility. The TVOE backup can be found in the "/var/TKLC/bkp/" directory, and is prefixed by the server hostanem. An example of a TVOE backup ISO follows: /var/TKLC/bkp/RMS503u14-plat-app-201210301505.iso Move the TVOE backup to a customer provided backup server for safe keeping.

4.2 Install PM&C

Procedure 5. PM&C Deployment Procedure

S T E P #	This procedure will deploy PM&C on the TVOE Host **Prerequisite:** First RMS Network Configuration (PM&C Host) has been completed. **Needed material:** - PM&C Media on USB Drive or ISO Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**TVOE iLO/iLOM:** Login and launch the integrated remote console	Using IE, log in to iLO or iLOM (for Sun Netra) of the RMS hosting the PM&C as admusr using password provided by application: **http://<management_server_iLO_ip>** If running on HP DL380 Gen8 then: Click in the **Remote Console** tab and launch the **Integrated Remote Console** on the server. If running on SunNetras: Click on the "Remote Control -> Redirection" and launch the "Launch Remote Console" on the server. Click **Yes** if the Security Alert pops up.

2 ☐	**TVOE iLO/iLOM:** Mount the PM&C media to the TVOE server	Use one of the following 2 options to mount the PM&C Media: 1. If using a USB media, insert the PM&C USB into a USB port and execute the following to mount the iso: **$ ls /media/*/*.iso** /media/sdd1/872-2586-101-5.7.0_57.3.0-PM&C-x86_64.iso Use the output of the previous command to populate the next command **$sudo mount -o loop /media/sdb1/872-2586-101-5.7.0_57.3.0-PM&C-x86_64.iso /mnt/upgrade** 2. If using an ISO image, run the following to mount it: **$sudo mount -o loop ISO_FILENAME.iso /mnt/upgrade** Next Validate the PM&C media by executing the following commands: **$ cd /mnt/upgrade/upgrade** **$ .validate/validate_cd** Validating cdrom... UMVT Validate Utility v2.2.2, (c)Tekelec, June 2012 Validating <device or ISO> Date&Time: 2012-10-25 10:07:01 Volume ID: tklc_872-2441-106_Rev_A_50.11.0 Part Number: 872-2441-106_Rev_A Version: 50.11.0 Disc Label: PM&C Disc description: PM&C The media validation is complete, the result is: PASS CDROM is Valid If the media validation failes, the media is not valid and should not be used.

3 ☐	**TVOE iLO/iLOM:** deploy PM&C	Using the PM&C-deploy script, deploy the PM&C instance using the configuration captured during the site survey. **$ cd /mnt/upgrade/upgrade** If deploying PM&C without netbackup feature, run the following command: **$ sudo ./pmac-deploy --guest=<PMAC_Name> --hostname=<PMAC_Name> --controlBridge=<TVOE_Control_Bridge> --controlIP=<PMAC_Control_ip_address> --controlNM=<PMAC_Control_netmask> --managementBridge=<PMAC_Management_Bridge> --managementIP=<PMAC_Management_ip_address> --managementNM=<PMAC_Management_netmask> --routeGW=<PMAC_Management_gateway_address> --ntpserver=<TVOE_Management_server_ip_address> --isoimagesVolSizeGB=20** If deploying PM&C with netbackup feature, run the following command: **$ sudo ./pmac-deploy --guest=<PMAC_Name> --hostname=<PMAC_Name> --controlBridge=<TVOE_Control_Bridge> --controlIP=<PMAC_Control_ip_address>-- controlNM=<PMAC_Control_netmask> --managementBridge=<PMAC_Management_Bridge> --managementIP=<PMAC_Management_ip_address> --managementNM=<PMAC_Management_netmask> --routeGW=<PMAC_Management_gateway_address> --ntpserver=<TVOE_Management_server_ip_address> --netbackupVol --bridge=<TVOE_NetBackup_Bridge> --nic=netbackup --isoimagesVolSizeGB=20** The PM&C will deploy and boot. The management and control network will come up based on the settings that were provided to the PM&C-deploy script. Note that this step takes between 5 and 10 minutes.
4 ☐	**TVOE iLO/iLOM:** Unmount the media	The media should auto-unmount, if it does not, unmout the media using the following command: **$ cd /** **$sudo /bin/umount /mnt/upgrade** Remove the media from the drive.

5 ☐	**TVOE iLO/iLOM:** SSH into the Management Server	Using an SSH client such as putty, ssh to the TVOE host using admusr credentials.
		
		Login using **virsh**, and wait until you see the login prompt :
		
		$ sudo /usr/bin/virsh list
		`Id Name State`
		`----------`
		`1 myTPD running`
		`2 PM&C running`
		
		$ sudo /usr/bin/virsh console PM&C
		
		`[Output Removed]`
		
		`Starting ntdMgr: [ OK ]`
		`Starting atd: [ OK ]`
		`'TPD Up' notification(s) already sent: [ OK ]`
		`upstart: Starting tpdProvd...`
		`upstart: tpdProvd started.`
		`CentOS release 6.2 (Final)`
		`Kernel 2.6.32-220.17.1.el6prerel6.0.0_80.14.0.x86_64 on an x86_64`
		`PM&Cdev7 login:`

6 ☐	**Virtual PM&C:** Verify the PM&C is configured correctly on first boot	Run the following command (there should be no output): **$ sudo /bin/ls /usr/TKLC/plat/etc/deployment.d/**
7 ☐	**Virtual PM&C:** Error doing verification, if error is outputted	If an error was made use the following command to delete the PM&C Guest and then re-deploy the guest again: **$ sudo guestMgr –remove <PM&C_Name>**
8 ☐	**Virtual PM&C:** Set the PM&C timezone	Determine the TimeZone to be used for the PM&C **Note:** Valid time zones can be found in Appendix I Run **$ sudo set_pmac_tz.pl <timezone>** For example **$ sudo set_pmac_tz.pl Etc/UTC** Verify that the timezone has been updated: **$ sudo date**

9 ☐	**Virtual PM&C:** Set SNMP	Set SNMP by running the following: `$sudo su - platcfg` 1. Navigate to **Network Configuration ➢ SNMP Configuration ➢ NMS Configuration**. 2. Select **Edit** and then choose Add a New NMS Server. The 'Add an NMS Server' page will be displayed. 3. Complete the form by entering in all information about the SNMP trap destination. Select **OK** to finalize the configuration. The 'NMS Server Action Menu' will now be displayed. Select **Exit**. The following dialogue will then be presented. 4. Select **Yes** and then wait a few seconds while the Alarm Routing Service is restarted. At that time the SNMP Configuration Menu will be presented. 5. exit platcfg.
10 ☐	**Virtual PM&C:** Reboot the server	Reboot the server by running: `$sudo init 6`

4.3 Initialize the PM&C Application

Procedure 6. Initialize the PM&C Application

S T E P #	Use this procedure to gather and prepare configuration files that are required to proceed with the DSR 6.0 installation. **Needed material:** - HP Misc. Firmware USB - HP Solutions Firmware Upgrade Pack Release Notes [1] - Application USB or ISO Note: The following procedures use NetConfig to configure the switches, if switchconfig is to be used, Execute the equivalent procedure in Appendix M. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	

1 ☐	**TVOE Host:** Get the DSR ISO	Once the PM&C is done rebooting, SSH to the TVOE Host server as admusr using the vsp/Host Console on the TVOE Management Server iLO/iLOM. Make the upgrade media available to the server.
		
		Mount the media on the TVOE Host using one of the following commands:
		
		1. If using a USB Drive, run the following to mount it:
		
		`$ sudo /bin/ls /media/*/*.iso`
		`/media/sdb1/DSR-6.0.0_60.7.0-x86_64.iso`
		
		Use the output of the previous command to populate the next command
		
		`$sudo /bin/mount -o loop /media/sdb1/ DSR-6.0.0_60.7.0-x86_64.iso /mnt/upgrade`
		
		2. If the DSR in on an ISO, mount it using the following commands
		`$sudo /bin/mount –o loop <path to DSR ISO> /mnt/upgrade`

2 ☐	**Virtual PM&C:** Get Netconfig , csv, and other support files from the application ISO	Log In to PM&C using Step 5 of Procedure 5 above
		Execute the following commands to copy the required files
		
		`sudo /usr/bin/scp -r admusr@<TVOE_management_ip_address>:/mnt/upgrade/upgrade/overlay/* /usr/TKLC/smac/etc/`
		
		`Logout of PM&C and Re-login to TVOE Host and unmount the ISO`
		`Hold ctrl ] to logout of the PM&C`
		`$sudo umount /mnt/upgrade`
		
		Remove the DSR 6.0 application media from the TVOE Management Server.

3 ☐	**Virtual PM&C:** Copy IOS images into place (this will copy both the 4948E IOS images into place).	Insert the *Misc. Firmware USB* media into the USB drive. For this step, be sure to use the correct IOS version specified by the *Firmware Upgrade Pack Release Notes[1]*. Copy each IOS image called out by the release notes [1]. SSH to the TVOE Host server as admusr using the vsp/Host Console on the TVOE Management Server iLO/iLOM. Make the upgrade media available to the server. Execute the following commands to copy the required files. Note that the **<PM&C Management_IP Address>** is the one used to deploy PM&C in procedure 4, step 3. Mount the media on the TVOE Host using one of the following commands: 1. If using a USB Drive, run the following to mount it **$** sudo /bin/ls /media/*/*.ios Use the output of the previous command to populate the next command $ sudo /bin/mount -o loop /media/sdb1/ <MISC file name> /mnt/upgrade 2. If the DSR in on an ISO, mount it using the following commands **$sudo /bin/mount –o loop <path to DSR ISO> /mnt/upgrade** Log In to PM&C using Step 5 of Procedure 5 above **$ sudo /usr/bin/scp -r admusr@<TVOE_management_ip_address:/mnt/upgrade/<4948E_IOS_image_filename> /usr/TKLC/smac/etc/** **Logout of PM&C and Re-login to TVOE Host and unmount the ISO** **Hold ctrl] to logout of the PM&C** **sudo umount /mnt/upgrade** Remove the *Misc. Firmware* media from the drive.

4 ☐	**Virtual PM&C:** Initialize the PM&C Application	Initialize the PM&C Application; run the following commands: **$ sudo /usr/TKLC/smac/bin/pmacadm applyProfile --fileName=TVOE** Profile successfully applied. **$ sudo /usr/TKLC/smac/bin/pmacadm getPMACFeatureState** **PMAC Feature State = InProgress** **$ sudo /usr/TKLC/smac/bin/pmacadm addRoute --gateway=<mgmt_gateway_address> --ip=0.0.0.0 --mask=0.0.0.0 --device=management** Successful add of Admin Route **$ sudo /usr/TKLC/smac/bin/pmacadm finishProfileConfig** Initialization has been started as a background task
5 ☐	**Virtual PM&C:** Initialize the PM&C Application	Wait for the background task to successfully complete. The command will show "IN_PROGRESS" for a short time. Run the following command until a "COMPETE" or "FAILED" response is seen similar to the following: **$ sudo /usr/TKLC/smac/bin/pmaccli getBgTasks** 1: Initialize PMAC COMPLETE - PMAC initialized Step 2: of 2 Started: 2012-07-13 08:23:55 running: 29 sinceUpdate: 47 taskRecordNum: 2 Server Identity: Physical Blade Location: Blade Enclosure: Blade Enclosure Bay: Guest VM Location: Host IP: Guest Name: TPD IP: Rack Mount Server: IP: Name: Note: Some expected networking alarms may be present

6 ☐	**Virtual PM&C:** Initialize the PM&C Application	Perform a system healthcheck on PM&C **$ sudo /usr/TKLC/plat/bin/alarmMgr –alarmStatus** This command should return no output on a healthy system. Note: An NTP alarm will be detected if the system switches are not configured **$ sudo /usr/TKLC/smac/bin/sentry status** All Processes should be running, displaying output similar to the following: PM&C Sentry Status ---------- sentryd started: Mon Jul 23 17:50:49 2012 Current activity mode: ACTIVE Process PID Status StartTS NumR ---------- ------ ---------- ---------- ---- smacTalk 9039 running Tue Jul 24 12:50:29 2012 2 smacMon 9094 running Tue Jul 24 12:50:29 2012 2 hpiPortAudit 9137 running Tue Jul 24 12:50:29 2012 2 snmpEventHandler 9176 running Tue Jul 24 12:50:29 2012 2 eclipseHelp 9196 running Tue Jul 24 12:50:30 2012 2 Fri Aug 3 13:16:35 2012 Command Complete.
7 ☐	**Virtual PM&C:** Initialize the PM&C Application	Verify the PM&C application release Verify that the PM&C application Product Release is as expected. Note: If the PM&C application Product Release is not as expected, STOP and contact Oracle's Tekelec Customer Care Center **$ sudo /usr/TKLC/plat/bin/appRev** Install Time: Fri Sep 28 15:54:04 2012 Product Name: PM&C Product Release: 5.0.0_50.10.0 Part Number ISO: 872-2441-905 Part Number USB: 872-2441-105 Base Distro Product: TPD Base Distro Release: 6.0.0_80.22.0 Base Distro ISO: TPD.install-
8 ☐	**Virtual PM&C:** Initialize the PM&C Application	Logout of the virsh console **Hold ctrl] to logout of the PM&C**
9 ☐	**TVOE Host**	Exit the TVOE console Run: **$ logout** You may now close the iLO/iLOM browser window.
10 ☐	**Note**	If configuring a system with Aggregation switches, continue to procedure 6. If configuring a system without aggregation switches, skip to procedure 7.

4.4 Configure Cisco 4948E Aggregation Switch

The procedures in this section uses NetConfig to configure the switches.

Procedure 7. Configure Cisco 4948E/4948E-F Switch using NetConfig

S T E P #	This procedure will configure 4948E-4948E-F switches with an appropriate IOS and configuration specified by Platform Engineering and Application requirements. **Prerequisite:** This procedure assumes a recently IPM'ed TVOE server with a VM hosting the PM&C application. **Note:** Uplinks must be disconnected from the customer network prior to executing this procedure. One of the steps in this procedure will instruct when to reconnect these uplink cables. Refer to [2] *DSR 6.0RMS Productization Networking Interconnect TR*, for more details. **Note:** A generic xml configuration file is provided in Appendix B. It needs to be updated to match the customer's network. **Needed material:** - HP Misc. Firmware DVD - HP Solutions Firmware Upgrade Pack Release Notes [1] - Application CD/DVD Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**TVOE Management Server iLO:** Log into TVOE Management Server	Log in to iLO in IE using password provided by application: `http://<management_server_iLO_ip>` Click in the `Remote Console` tab and launch the `Integrated Remote Console` on the server. Click `Yes` if the `Security Alert` pops up. If not already done so, login as admusr.

2 ☐	**Virtual PM&C:** setup conserver serial access to the switches	Log In to PM&C using Step 5 of Procedure 5 above Configure the conserver service to enable serial access to the switches if you haven't already done so in the previous procedure: <serial console type> Sun Server use for with usb console u=USB c=PCIe Ex: Sun Netra would have a USB serial connection for the <serial console type> use "-u" Ex: sudo /usr/TKLC/plat/bin/conserverSetup -u -s < Management_Server_TVOE_IP> **$ sudo /usr/TKLC/plat/bin/conserverSetup - <serial console type> -s <Management_Server_TVOE_IP >** You will be prompted for the platcfg credentials. An example: Enter your platcfg username, followed by [ENTER]:platcfg Enter your platcfg password, followed by [ENTER]:<platcfg_password> Checking Platform Revision for remote TPD installation... The remote machine is running: Product Name: TPD Base Distro Release: 6.5.0_82.7.0 Checking Platform Revision for local TPD installation... The local machine is running: Product Name: PM&C Base Distro Release: 6.0.0_80.17.0 Configuring switch 'switch1A_console' console server...Configured. Configuring switch 'switch1B_console' console server...Configured. Configuring iptables for port(s) 782...Configured. Configuring iptables for port(s) 1024:65535...Configured. Configuring console repository service...Configured. bond0 interface: eth01 bond0 interface: eth02 Once the console is added, you should be returned to the command line prompt. If so, continue to the next step; if not, contact Customer Care Center for assistance.

3 ☐	**TVOE Management Server:** Login to the console of the virtual PM&C	Verify virtual PM&C installation by issuing the following commands as admusr on the TVOE Management Server: **$ sudo /usr/bin/virsh list --all** Id Name State ---------- 6 **vm-PM&C1A** running Connect to the PM&C VM name listed above using the following command, and login as admusr. **$ sudo /usr/bin/virsh console vm-PM&C1A** Connected to domain vm-PM&C1A Escape character is ^] **<Press ENTER key>** CentOS release 6.2 (Final) Kernel 2.6.32-220.7.1.el6prerel6.0.0_80.13.0.x86_64 on an x86_64 vm-PM&C1A login: **admusr** Password: Last login: Fri May 25 16:39:04 on ttyS4
4 ☐	**Virtual PM&C:** Get IOS image	Verify the IOS image is on the system. If the appropriate image does not exist, copy the image to the PM&C. Determine if the IOS image for the 4948/4948E/4948E-F is on the PM&C. **$ /bin/ls -i /var/TKLC/smac/image/<IOS_image_file>** If the file exists, skip the remainder of this step and continue with the next step. If the file does not exist, copy the file from the firmware media and ensure the file is specified by the Firmware Upgrade Pack Release Notes

5 ☐	**Virtual PM&C:** Get IOS image and PROM information on the switches	Connect to switch1A, check the IOS and PROM version. Connect serially to switch1A by issuing the following command. `# sudo /usr/bin/console -M <TVOE_server_mgmtVLAN_ip_address> -l platcfg switch1A_console` `Enter platcfg@PM&C5000101's password: <platcfg_password>` `[Enter `^Ec?' for help]` `Press Enter` `Switch> show version | include image` `System image file is "bootflash:cat4500-ipbasek9-mz.122-53.SG2.bin"` `Switch>` `show version | include ROM` `ROM: 12.2(31r)SGA1` Note the IOS image and ROM version for comparison in a following step. To exit from the console, enter **<ctrl-e><c><.>** and you will be returned to the server prompt. Connect to switch1B, check the IOS and PROM version. Connect serially to switch1B by issuing the following command: `# sudo /usr/bin/console -M <TVOE_server_mgmtVLAN_ip_address> -l platcfg switch1B_console` `Enter platcfg@PM&C5000101's password: <platcfg_password>` `[Enter `^Ec?' for help]` `Press Enter` `Switch> show version | include image` `System image file is "bootflash:cat4500-ipbasek9-mz.122-53.SG2.bin"` `Switch>` `show version | include ROM` `ROM: 12.2(31r)SGA1` `System returned to ROM by reload` Note the IOS image and ROM version for comparison in a following step. To exit from the console, enter **<ctrl-e><c><.>** and you will be returned to the server prompt.
6 ☐	**Virtual PM&C:** Determine if switch IOS and /or PROM upgrade is required	For each switch, compare the IOS and PROM version from previous step with the version specified in the Firmware Upgrade Pack Release Notes *[1]* for the switch model being used. If the version from previous step is equal the version from the release notes and it has "k9" in the name, denoting it has crypto support, then skip to step 15, there is no upgrade necessary for this switch. If only switch1B requires upgrade, skip to step 14. Otherwise, (upgrading only switch1A or upgrading both switch1A & switch1B), continue to step 6.

7 ☐	**Virtual PM&C:** Prepare the Virtual PM&C for tftp transfer of IOS file	Ensure that the tftp service is not running. A zero is expected.
		`# tpdProvd --client --noxml --ns=Xinetd getXinetdService service tftp`
		`Login on Remote: platcfg`
		`Password of platcfg:`
		`1`
		`#`
		
		If it returns a 1, need to stop it first by executing this command.
		`# tpdProvd --client --noxml --ns=Xinetd stopXinetdService service tftp force yes`
		`Login on Remote: platcfg`

```
Password of platcfg:
1
#
```

This should return a 1.

Edit the `/etc/xinetd.d/tftp` file for the values in bold so that tftp will work appropriately:

```
# vim /etc/xinetd.d/tftp
service tftp
{
socket_type = dgram
protocol = udp
wait = yes
user = root
server = /usr/sbin/in.tftpd
server_args = -s /var/TKLC/smac/image
disable = no
per_source = 11
cps = 100 2
flags = IPv4
}
#
```

Ensure that the tftp service is now running. A "1" is expected.

```
# tpdProvd --client --noxml --ns=Xinetd getXinetdService
service tftp
Login on Remote: platcfg
Password of platcfg:
1
#
```

If the output is "0" then, execute the commands that enable tftp transfer.

```
# tpdProvd --client --noxml --ns=Xinetd startXinetdService
service tftp
Login on Remote: platcfg
Password of platcfg: <platcfg_password>
```

8 ☐	**Virtual PM&C -> TVOE Server:** Manipulate host server physical interfaces.	Exit from the virtual PM&C console, by entering < **ctrl-]** > and you will be returned to the server prompt.
		
		If upgrading the IOS or PROM on switch1A:
		
		Ensure that the interface of the server connected to switch1A is the only interface up and obtain the IP address of the TVOE Management Server management interface by performing the following commands:
		
		`# sudo /sbin/ifdown eth02`
		
		`# sudo /sbin/ifup eth01`
		
		`# sudo /sbin/ip addr show <management_server_mgmtInterface> | grep inet`
		
		The command output should contain the IP address of the variable **`<management_server_mgmt_ip_address>`**, note it down.
		
		If upgrading the IOS or PROM on switch1B:
		
		Ensure that the interface of the server connected to switch1B is the only interface up and obtain the IP address of the TVOE Management Server management interface by performing the following commands:
		
		`# sudo /sbin/ifdown <ethernet_interface_1>`
		
		`# sudo /sbin/ifup <ethernet_interface_2>`
		
		`# sudo /sbin/ip addr show <management_server_mgmtInterface> | grep inet`
		
		The command output should contain the IP address of the variable **`<management_server_mgmt_ip_address>`**, note it down.
		
		Connect to the Virtual PM&C by logging into the console of the virtual PM&C instance found in step 4.
		
		`# sudo /usr/bin/virsh console vm-PM&C1A`

9 ☐	**Virtual PM&C:** Attach to switch console	If upgrading the firmware on switch1A, connect serially to switch1A by issuing the following command as admusr on PM&C server:
		
		`# sudo /usr/bin/console -M <management_server_mgmt_ip_address> -l platcfg switch1A_console`
		
		`Enter platcfg@PM&C5000101's password: <platcfg_password>`
		
		`Press RETURN to get started.`
		Press **Enter**
		
		If the switch is not already in enable mode ("switch#" prompt) then issue the "**enable**" command, otherwise continue with the next step.
		
		`Switch> enable`
		`Switch#`
		
		If upgrading the firmware on switch1B, connect serially to switch1B by issuing the following command as root onPM&C Management Server1B:
		
		`# sudo /usr/bin/console -M <TVOEmanagement_server_ip_address> -l platcfg switch1B_console`
		
		`Enter platcfg@PM&C5000101's password: <platcfg_password>`
		
		`Press RETURN to get started.`

		Press **Enter**
		
		If the switch is not already in enable mode ("switch#" prompt) then issue the "**enable**" command, otherwise continue with the next step.
		
		`Switch> enable`
		`Switch#`

10 ☐	**Virtual PM&C:** Configure port on the switch to be upgraded.
	
	To ensure connectivity, ping the PM&C Management Server's management vlan ip address from the switch.
		Platform version specific to be on the management vlan:
		
		`Switch# conf t`
		
		`Switch(config)# vlan <switch_mgmtVLAN_id>`
		
		`Switch(config)# int vlan <switch_mgmtVLAN_id>`
		
		If configuring switch1A, use this command:
		
		`Switch(config-if)# ip address <switch1A_mgmtVLAN_ip_address> <netmask>`
		
		If configuring switch1B, use this command:
		
		`Switch(config-if)# ip address <switch1B_mgmtVLAN_ip_address> <netmask>`
		
		If configuring either switch1A or switch1B, execute these commands:
		
		`Switch(config-if)# no shut`
		
		`Switch(config-if)# int gi1/40`
		
		If the model is 4948E or 4948E-F, execute these commands:
		
		`Switch(config-if)# switchport mode trunk`
		
		`Switch(config-if)# spanning-tree portfast trunk`
		
		`Switch(config-if)# end`
		
		`write memory`**Now issue ping command:**
		
		`Switch# ping <PM&C_mgmtVLAN_ip_address>`
		
		`Type escape sequence to abort.`
		
		`Sending 5, 100-byte ICMP Echos to <management_server_mgmtVLAN_ip_address>, timeout is 2 seconds:`
		
		`!!!!!`
		
		`Success rate is 100 percent (5/5), round trip min/avg/max = 1/1/4 ms`
		
		If ping is not successful , doublecheck that the procedure was completed correctly by repeating all steps up to this point. If after repeating those steps, ping is still unsuccessful, contact Tekelec Customer Service.

11 ☐	**Virtual PM&C (switch console session):** Upload the IOS to the switch and set it to be the active IOS and delete the previous IOS verison..	On the switch, copy the IOS file over to the switch by issuing the following command sequence:
		
		`Switch> en`
		
		`Switch# copy tftp: bootflash:`
		
		`Address or name of remote host []? <PM&C_mgmt_ip_address>`
		
		`Source filename []?<IOS_Image_File>`

		`Destination filename [<IOS_Image_File>]? Enter`
		Press Enter here, you do NOT want to change the filename
		`Accessing tftp://<PM&C_mgmtVLAN_ip_address>/<IOS_Image_File>..`
		`Loading <IOS_Image_File> from < PM&C_mgmtVLAN_ip_address> (via Vlan2): !!!!!! [OK - 45606 bytes]`
		
		`45606 bytes copied in 3.240 secs (140759 bytes/sec)`
		`Switch# dir bootflash:`
		`Directory of bootflash:/`
		`1 -rwx 17779888 May 11 2011 02:25:23 -05:00`
		`cat4500-entservicesk9-mz.122-53.SG.bin`
		`2 -rwx 17779888 May 11 2011 02:25:23 -05:00`
		`cat4500-ipbasek9-mz.122-53.SG2.bin`
		`60817408 bytes total (43037392 bytes free)`

12 ☐	**Virtual PM&C (switch console session):** Set the active IOS image and config-register from the switch console session that was established.	Set the active IOS image:
		`Switch# conf t`
		`Switch(config)# boot system flash bootflash:<ios_image_file>`
		`Switch(config)#`
		`no boot system flash bootflash:< OLD_IOS_image_file>`
		`Switch(config)# config-register 0x2102`
		`Switch(config)# end`
		`Switch# write memory`
		`Switch#`
		Verify the changes:
		`Switch# show run | include boot`
		`boot-start-marker`
		`boot system flash bootflash: <ios_image_file>`
		`boot-end-marker`
		`Switch# show version | include register`
		`Configuration register is 0xXXXX (will be 0x2102 at next reload)`
		`Switch# reload`
		`Proceed with reload? [confirm]`
		Wait until the switch reloads, then issue the following command to ensure the switch is at the appropriate IOS version:
		`Switch> show version | include image`
		`System image file is "bootflash:cat4500-ipbasek9-mz.122-53.SG2.bin"`
		Note: You might see an additional prompt:
		`System Config has been modified. Save? [yes|no] no`
		If the switch is not at the appropriate version, stop here and contact Customer Care Center. If it is, move on to the next step.

13 ☐	**Virtual PM&C (switch console session):** Delete any other IOS images if there are multiple IOS images on the switch, delete the unused images.	Switch> **en** Switch# **show bootflash:** -#- --length-- -----date/time------ path 1 25771102 Jan 20 2012 08:20:08 <ios_image_file> 2 16332568 Jan 24 2012 18:54:44 <OLD_IOS_image> Switch# **delete /force /recursive bootflash:<OLD_IOS_image>** Repeat this step until the only image on the switch is <ios_image_file>
14 ☐	**Virtual PM&C (switch console session):** Reset the switch to factory defaults	Execute the following to remove remaining vlan data and reset the config register Switch# **conf t** Switch(config)# **config-register 0x2101** Switch(config)# **exit** Switch# **wr erase** Switch# **reload** **Note**: You might see an additional prompt: System Config has been modified. Save? [yes|no] no Wait until the switch reloads, thenTo exit from console, enter **<ctrl-e><c><.>** and you will be returned to the server prompt.
15 ☐	**Virtual PM&C (switch console session):** Repeat for switch1B	Repeat steps 7-14 for switch1B, the continue to the next step.
16 ☐	**Virtual PM&C:** Turn off the tftp service of the virtual PM&C.	Issue the following command to stop the tftp service: # **tpdProvd --client --noxml --ns=Xinetd stopXinetdService service tftp** Login on Remote: **platcfg** Password of platcfg: **<platcfg_password>**

17 ☐	**Virtual PM&C:** Set up netConfig repository with necessary **"ssh_service" configuration**	Set up netConfig repository with necessary ssh information. Use netConfig to create a repository entry that will use the ssh service. This command will provide the user with several prompts. The prompts shown with <variables> as the answers are site specificthat the user MUST modify. Other prompts that don't have a <variable> shown as the answer must be entered EXACTLY as they are shown here. $ **sudo /usr/TKLC/plat/bin/netConfig --repo addService name=ssh_service** Service type? (tftp, ssh, conserver, oa) **ssh** Service host? **<netConfig_server_mgmt_ip_address>** Enter an option name <q to cancel>: **user** Enter the value for user: **<switch_backup_user>** Enter an option name <q to cancel>: **password** Enter the value for password: **<switch_backup_user_password>** Verify Password: **<switch_backup_user_password>** Enter an option name <q to cancel>: **q** Add service for ssh_service successful To ensure that you entered the information correctly, use the following command and inspect the output, which will be similar to the one shown below. $ **sudo /usr/TKLC/plat/bin/netConfig --repo showService name=ssh_service** Service Name: ssh_service Type: ssh Host: 10.250.8.4 Options: password: C20F7D639AE7E7 user: admusr

18 ☐	**Virtual PM&C:** Set up netConfig repository with necessary tftp information.	Set up netConfig repository with necessary tftp information. **Note:** If there are no new Cisco (4948, 4948E or 4948E-F) switches to be configured, go to the next step. Use netConfig to create a repository entry that will use the tftp service. This command will give the user several prompts. The prompts with <variables> as the answers are site specific that the user MUST modify. Other prompts that don't have a <variable> as an answer must be entered EXACTLY as they are shown here. $ **sudo /usr/TKLC/plat/bin/netConfig --repo addService name=tftp_service** Service type? (tftp, ssh, conserver, oa) **tftp** Service host? **<netConfig_server_mgmt_ip_address>** Enter an option name (q to cancel): **dir** Enter a value for user: **/var/TKLC/smac/image/** Enter an option name(q to cancel): **q** Add service for tftp_service successful To ensure that you entered the information correctly, use the following command and inspect the output, which will be similar to the one shown below. [admusr@PM&C-colossal-1 ~]$ sudo /usr/TKLC/plat/bin/netConfig --repo showService name=tftp_service Service Name: tftp_service Type: tftp Host: 10.250.8.4 Options: dir: /var/TKLC/smac/image

19 ☐	Set up netConfig repository with aggregation switch information	Set up netConfig repository with aggregation switch information. **Note:** If there are no new aggregation switches to be configured, skip to the next step. Use netConfig to create a repository entry for each switch. The initial command will prompt the user multiple times. The prompts with <variables> as the answers are site specific that the user **MUST modify**. Other prompts that don't have a <variable> as an answer must be entered EXACTLY as they are shown here. The **<device_model>** can be **4948E or 4948E-F** depending on the model of the device. If you do not know, stop now and contact *Customer Care Center*. **Note: Please use "0" when prompted below for "Firmware file to be used in the upgrade"** **Firmware file to be used in the upgrade: 0** The device name must be 20 characters or less. **$ sudo /usr/TKLC/plat/bin/netConfig --repo addDevice name=<switch_hostname> --reuseCredentials** Device Vendor? **Cisco** Device Model? **<device_model>** IP version for management interface (4 or 6)? [4]: **<ip_version>** What is the IPv4 address for management? [0.0.0.0]: **<switch_mgmt_ip_address>** What is the subnet mask for the management address? [255.255.255.0]:**<switch_mgmt_netmask>** Is the management interface a port or a vlan? [vlan]: **[Enter]** What is the VLAN ID of the management VLAN? [2]: **<mgmt_vlanID>** What is the name of the management VLAN? [management]: **[Enter]** What switchport connects to the management server? [GE40]: **[Enter]** What is the switchport mode (access|trunk) for the management server port? [trunk]:**[Enter]** What are the allowed vlans for the management server port? [1,2]: **<control_vlanID>, <mgmt_vlanID>** Enter the name of the firmware file [cat4500e-entservicesk9-mz.122-54.XO.bin]: **Firmware file to be used in the upgrade: 0** Enter the name of the upgrade file transfer service: **tftp_service** File transfer service to be used in upgrade: tftp_service Should the init oob adapter be added (y/n)? **y** Adding consoleInit protocol for switch1A using oob... What is the name of the service used for OOB access? **console_service** What is the name of the console for OOB access? **<console name>** What is the device console password? **<switch_console_password>** Verify Password: **<switch_console_password>** What is the platform access username? **<switch_platform_username>**

		What is the platform user password? **<switch_platform_password>** Verify Password: **<switch_platform_password>** What is the device privileged mode password? **<switch_enable_password>** Verify Password: **<switch_enable_password>** Should the live network adapter be added (y/n)? **y** Adding cli protocol for <hostname> using network... What is the address used for network device access? **<switch_mgmt_ip_address>** Should the live oob adapter be added (y/n)? **y** Adding cli protocol for <hostname> using oob... OOB device access already set: **console_service** Device named <switch_hostname> successfully added. **Note:** If you receive the WARNING below, it means the <FW_image> is not found in the directory named in the FW Service. For the ssh_service, it is the user's home directory. For tftp_service, it is normally /var/TKLC/smac/image: WARNING: Could not find firmware file on local host. If using a local service, please update the device entry using the editDevice command or copy the file to the correct location. Access: OOB: Service: console_service Console: <console_name> Init Protocol Configured Live Protocol Configured $ Repeat this step for each 4948E / 4948 E-F, using appropriate values for those switches.

20 ☐	**Virtual PM&C:** Modify PM&C Feature to allow TFTP	To check that you entered the information correctly, use the following command: $ **sudo /usr/TKLC/plat/bin/netConfig --repo showDevice name=<switch_hostname>** Check the output, which will be similar to the one shown: $ **sudo /usr/TKLC/plat/bin/netConfig --repo showDevice name=<switch_hostname>** Device: <switch_hostname> Vendor: Cisco Model: <device_model> FW Ver: 0 FW Filename: <IOS_image> FW Service: tftp_service Initialization Management Options: mgmtIP: <switch_mgmt_ip_address> mgmtMask: <switch_mgmt_netmask> mgmtInt: vlan mgmtVlan: <mgmt_vlanID> mgmtVlanName: management interface: GE40 mode: trunk allowedVlans: <control_vlanID>, <mgmt_vlanID> Access: Network: <switch_mgmt_ip_address> Repeat step to configure switch B
21 ☐	**Virtual PM&C:** Modify PM&C Feature to allow TFTP	Enable the DEVICE.NETWORK.NETBOOT feature with the management role to allow tftp traffic: **$ sudo /usr/TKLC/smac/bin/PM&Cadm editFeature --featureName=DEVICE.NETWORK.NETBOOT --enable=1** **$ sudo /usr/TKLC/smac/bin/PM&Cadm resetFeatures** **Note: This may take up to 60 seconds to complete.**
22 ☐	**Virtual PM&C -> TVOE Server:** Manipulate host server physical interfaces.	Exit from the virtual PM&C console, by entering < **ctrl-]** > and you will be returned to the server prompt. Ensure that the interface of the server connected to switch1A is the only interface up and obtain the IP address of the TVOE Management Server management interface by performing the following commands: $ ifconfig Find the Ethernet interface for the Ethernet interface 1 and Ethernet interface 2 **$ sudo /sbin/ifdown <ethernet_interface_2>** **$ sudo /sbin/ifup <ethernet_interface_1>** **$ sudo /sbin/ip addr show <management_server_mgmtInterface> | grep inet** The command output should contain the IP address of the variable **<management_server_mgmt_ip_address>**, note it down. Connect to the Virtual PM&C by logging into the console of the virtual PM&C instance found in step 4. **$ sudo /usr/bin/virsh console "vm-PM&C1A"**

23 ☐	**Virtual PM&C:** Modify configure xml file with information needed to initialize the switch.	**Extract the configuration files from the zip file copied in procedure 5** **Note**: As an option switch xml files prepared ahead of time such as those created with the NAPD may be used instead. **$ cd /usr/TKLC/smac/etc** **$ sudo unzip DSR_NetConfig_Templates.zip** This will create a directory called **DSR_NetConfig_Templates** which contains all the necessary configuration files. Copy the following files using the following commands **$ sudo cp DSR_NetConfig_Templates/init/Aggregation/*.xml .** **$ sudo cp DSR_NetConfig_Templates /config/DSR_RMS_Productization/4948E-F_L3_configure.xml .** Update the 4948E init and configure xml files to match your network parameters. Values to be modified by the user will be notated in this step by a preceding dollar sign. So a value that has **$<some_variable_name>** will need to be modified, removing the dollar sign and the less than, greater than sign. **$ sudo vi /usr/TKLC/smac/etc/switch1A_4948_E_E-F_cClass_template_init.xml** **$ sudo vi /usr/TKLC/smac/etc/switch1B_4948_E_E-F_cClass_template_init.xml** **$ sudo vi /usr/TKLC/smac/etc/4948E-F_L3_configure.xml**

24 ☐	**Virtual PM&C:** Initialize switch1A	Initialize switch1A by issuing the following command: **$ sudo /usr/TKLC/plat/bin/netConfig --file=/usr/TKLC/smac/etc/switch1A_4948_4948E_init.xml** Processing file: /usr/TKLC/smac/etc/switch1A_4948_4948E_init.xml $ Note: This step takes about 5-10 minutes to complete. Check the output of this command for any errors. If this fails for any reason, stop this procedure and contact Customer Care Center. A successful completion of netConfig will return the user to the prompt. Use netConfig to get the hostname of the switch, to verify that the switch was initialized properly, and to verify that netConfig can connect to the switch. **$ sudo /usr/TKLC/plat/bin/netConfig --device=switch1A getHostname** Hostname: switch1A $ Note: If this command fails, stop this procedure and contact Oracle's Tekelec Customer Care Center Exit the PM&C with the escape character is **< ctrl-] >**
25 ☐	**TVOE Management Server:** Manipulate host server physical interfaces.	Bring interface eth02 up and eth01 down **$ sudo /sbin/ifdown eth01** **$ sudo /sbin/ifup eth02** Connect to the Virtual PM&C by logging into the console of the virtual PM&C instance found in step 4. **$ sudo /usr/bin/virsh console "vm-PM&C1A"**
26 ☐	**Virtual PM&C:** Initialize switch1B	Initialize switch1B by issuing the following command: **$ sudo /usr/TKLC/plat/bin/netConfig --file=/usr/TKLC/smac/etc/switch1B_4948_4948E_init.xml** Processing file: /usr/TKLC/smac/etc/switch1B_4948_4948E_init.xml $ Note: This step takes about 5-10 minutes to complete. Check the output of this command for any errors. If this fails for any reason, stop this procedure and contact Customer Care Center. A successful completion of netConfig will return the user to the prompt. Use netConfig to get the hostname of the switch, to verify that the switch was initialized properly, and to verify that netConfig can connect to the switch. **$ sudo /usr/TKLC/plat/bin/netConfig --device=switch1B getHostname** Hostname: switch1B $ Note: If this command fails, stop this procedure and contact Oracle's Tekelec Customer Care Center

27 ☐	**Virtual PM&C:** Modify PM&C Feature to disable TFTP	Disable the DEVICE.NETWORK.NETBOOT feature. **$ sudo /usr/TKLC/smac/bin/PM&Cadm editFeature --featureName=DEVICE.NETWORK.NETBOOT --enable=0** **$ sudo /usr/TKLC/smac/bin/PM&Cadm resetFeatures** Note: This may take up to 60 seconds to complete.
28 ☐	**Virtual PM&C:** Configure the switches	Configure both switches by issuing the following command: **$ sudo /usr/TKLC/plat/bin/netConfig --file=/usr/TKLC/smac/etc/4948_4948E_configure.xml** `Processing file: /usr/TKLC/smac/etc/4948_4948E_configure.xml` **Note:** This step takes about 2-3 minutes to complete. Check the output of this command for any errors. If this fails for any reason, stop this procedure and contact Customer Care Center.
29 ☐	**Virtual PM&C:** Verify switch configuration	Ping each of the interfaces to verify switch configuration **$ /bin/ping <switch1A_mgmtVLANIP>** **$ /bin/ping <switch1B_mgmtVLANIP>**
30 ☐	**TVOE Management Server:** Ensure both interfaces are enabled on the TVOE host	Exit from the virtual PM&C console, by entering < **ctrl-]** > and you will be returned to the server prompt. Ensure that the interfaces of the server connected to switch1A and switch1B are up by performing the following commands: **$ sudo /sbin/ifup <ethernet_interface_1>** **$ sudo /sbin/ifup <ethernet_interface_2>**
31 ☐	**Cabinet:** Connect Uplinks of Switch1A	Attach switch1A customer uplink cables. Refer to application documentation for which ports are uplink ports. **Note:** If the customer is using standard 802.1D spanning-tree, the links may take up to 50 seconds to become active.
32 ☐	**Virtual PM&C:** Verify access to customer network	Verify connectivity to the customer network by issuing the following command **$ /bin/ping <customer_supplied_ntp_server_address>**
33 ☐	**Cabinet:** Connect Uplinks of Switch1B	Attach switch1B customer uplink cables and detach switch1A customer uplink cables. Refer to application documentation for which ports are uplink ports. **Note:** If the customer is using standard 802.1D spanning-tree, the links may take up to 50 seconds to become active.
34 ☐	**Virtual PM&C:** Verify access to customer network	Verify connectivity to the customer network by issuing the following command **$ /bin/ping <customer_supplied_ntp_server_address>**

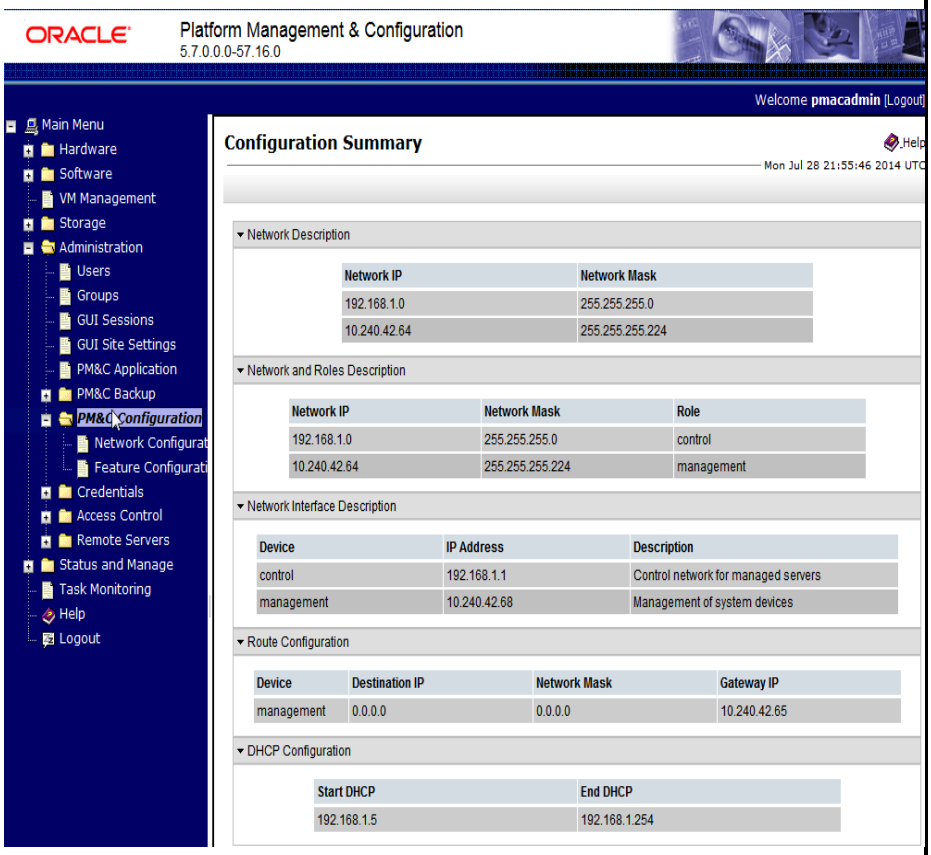
35 ☐	**Virtual PM&C:** Re-attach uplinks of switch1A	Re-attach switch1A customer uplink cables. Refer to application documentation for which ports are uplink ports. Note: If the customer is using standard 802.1D spanning-tree, the links may take up to 50 seconds to become active
36 ☐	**TVOE Management Server:** Restore the TVOE host back to its original state	Exit from the virtual PM&C console, by entering < **ctrl-]** > and you will be returned to the server prompt. Restore the server networking back to original state: **`$ sudo /sbin/service network restart`**
37 ☐	**Virtual PM&C:** Backup Switch Configuration	Ensure the directory where the backups will be stored exists using the following command: **`$ sudo /bin/ls /usr/TKLC/smac/etc/switch/backup`** If an error is returned saying "No such file or directory", then create the directory using the following command **`$ sudo /bin/mkdir -p /usr/TKLC/smac/etc/switch/backup`** Change the directory permissions: **`$ sudo /bin/chmod go+x /usr/TKLC/smac/etc/switch/backup`** Change the current path to the newly created directory using the following command **`$ cd /usr/TKLC/smac/etc/switch/backup`** Execute the backup command to backup switch 1A **`$ sudo /usr/TKLC/plat/bin/netConfig --device=switch1A backupConfiguration service=ssh_service filename=switch1A-backup`** Execute the backup command to backup switch 1B **`$ sudo /usr/TKLC/plat/bin/netConfig --device=switch1B backupConfiguration service=ssh_service filename=switch1B-backup`** Verify switch configuration was backed up by cat <switch_name>-backup and inspect its contents to ensure it reflects the latest known good switch configurations.

4.5 Configure PM&C Server

Procedure 8. Configure the PM&C Server

S T E P #	This procedure will provide PM&C configuration using the web interface. **Prerequisite:** *Procedure 4. PM&C Deployment Procedure* has been completed. **Note:** The installer must be knowledgeable of the network. If you make a mistake, click Cancel and try again. The finish step may take longer time because it reconfigures the network and attempts to connect may fail. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**PM&C GUI:** Load GUI initialization wizard	Open web browser and enter: `http://<pmac_network_ip>/gui` Login as PM&Cadmin user.  Navigate to **Main Menu** > **Administration** > **PM&C Configuration**

2 ☐	**PM&C GUI:** Feature Configuration	Click on "**Feature Configuration**" in the navigation pane. The screen will be similar to the image below. If NetBackup is to be used, enable the NetBackup feature. Otherwise use the selected features as is. The following image is for reference only: Features Feature | Description | Role | Enabled DEVICE.NETWORK.NETBOOT | Network device PXE initialization | management | ☑ DEVICE.NTP | PM&C as a time server | management | ☑ PMAC.MANAGED | Remote management of PM&C server | management | ☐ PMAC.REMOTE.BACKUP | Remote server for backup | management | ☑ PMAC.NETBACKUP | NetBackup client | management | ☐ Add Role Make sure that the roles for all the features is set to **management**. Also make sure that the enabled checkbox is checked for the following: DEVICE.NETWORK.NETBOOT DEVICE.NTP PM&C.REMOTE.BACKUP PM&C.NETBACK (only if NetBackup is used) And click on Apply. This foreground task will take a few moments, and then refresh the view with an Info or Error notice to verify the action. To discard changes, just navigate away from the view

3 ☐	**PM&C GUI:** Settings summary	. Goto In the Main Menu -> Administration -> PM&C Configuration The following summary screen will be displayed. This will provide a summary of PM&C configuration 

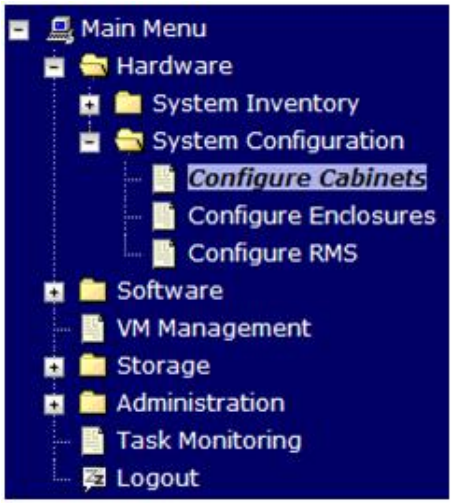
4 ☐	**PM&C Command Line:** Perform a system healthcheck	Execute the following commands:
		
		$ alarmMgr –alarmStatus
		
		This command should return no output on a healthy system.
		
		$ sudo sentry status
		
		All Processes should be running, displaying output similar to the following:
		
		`PM&C Sentry Status`
		`----------`
		`sentryd started: Mon Jul 23 17:50:49 2012`
		`Current activity mode: ACTIVE`
		`Process PID Status StartTS NumR`
		`----------`
		`smacTalk 9039 running Tue Jul 24 12:50:29 2012 2`
		`smacMon 9094 running Tue Jul 24 12:50:29 2012 2`
		`hpiPortAudit 9137 running Tue Jul 24 12:50:29 2012 2`
		`snmpEventHandler 9176 running Tue Jul 24 12:50:29 2012 2`
		`eclipseHelp 9196 running Tue Jul 24 12:50:30 2012 2`
		
		`Fri Aug 3 13:16:35 2012`
		`Command Complete.`

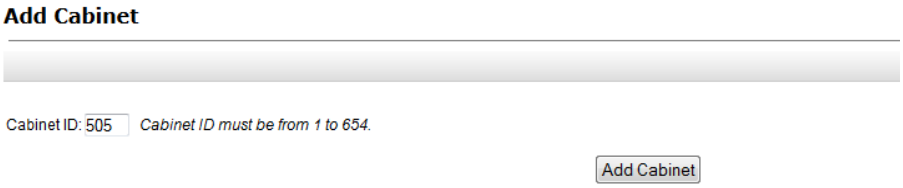
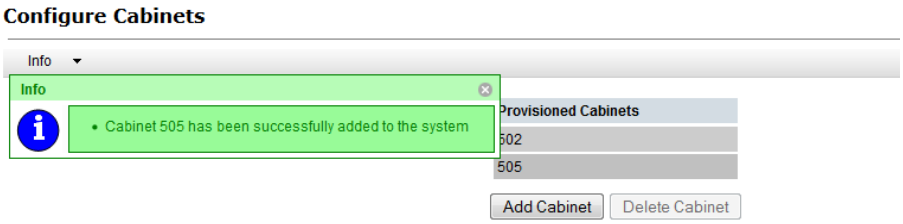
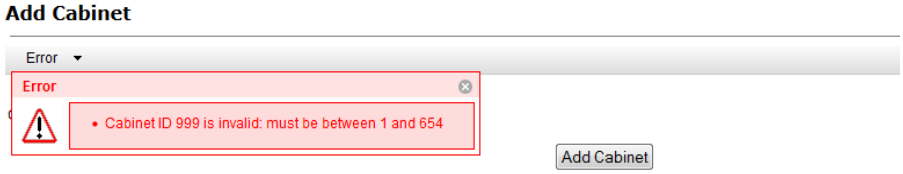
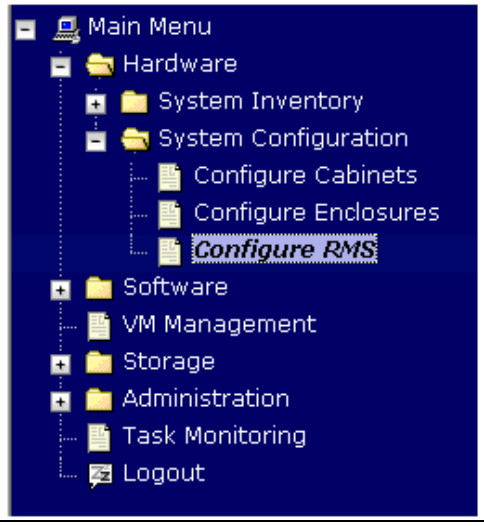
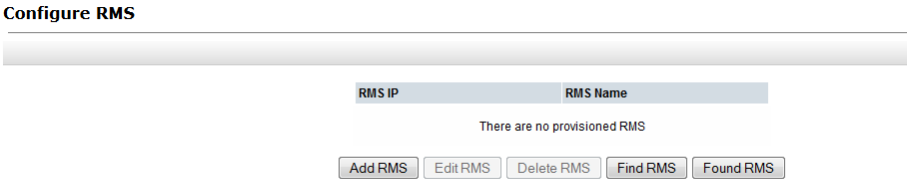
5 ☐	**PM&C Command Line:** Install NetBackup (Optional)	1. If the NetBackup client installation will rely on the TPD "nbAutoInstall" process to configure the PM&C NetBackup client perform the following at the PM&C Command Line, otherwise continue to sub bullet 2 below. **$ sudo mkdir –p /usr/openv/netbackup/bin/** **$ sudo ln –s /usr/TKLC/smac/sbin/bpstart_notify /usr/openv/netbackup/bin/** **$ sudo ln –s /usr/TKLC/smac/sbin/bpend_notify /usr/openv/netbackup/bin/** Use TPD platcfg utility to add the NetBackup Server's alias and IP to the "/etc/hosts" file. 2. Refer to [4] Platform 6.x Configuration Procedure Reference, procedure 3.8.14 for instructions on installing the NetBackup client on the TVOE Management Server.

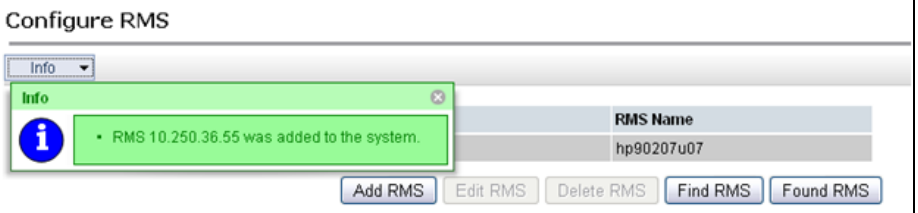
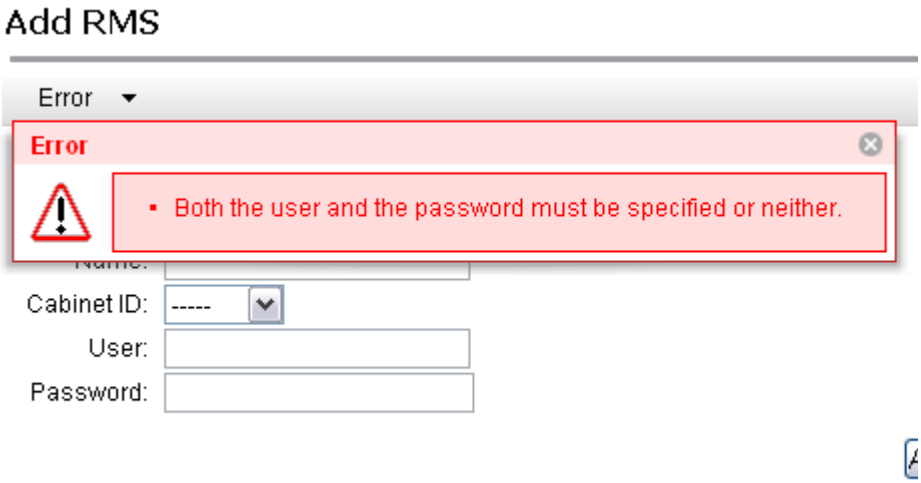
6 ☐	**PM&C Command Line:** Perform a backup	Perform PM&C application backup using the following command:
		
		$ sudo pmacadm backup
		`PM&C backup been successfully initiated as task ID 7`
		`[usradm@pmacDev3 ~]$`
		
		Note: The "pmacadm backup" command uses a naming convention which includes a date/time stamp in the file name (Example file name: backupPM&C_20111025_100251.pef). In the example provided, the backup file name indicates that it was created on 10/25/2011 at 10:02:51 am server time.
		
		Next Verify that the backup was successful using the following command:
		$ sudo pmaccli getBgTasks
		`2: Backup PMAC COMPLETE - PMAC Backup successful`
		`Step 2: of 2 Started: 2012-07-05 16:53:10 running: 4`
		`sinceUpdate: 2 taskRecordNum:`
		`...`
		
		Once the backup has been verified that it was successful, copy the backup file to a remote location. The backup file is located under `/var/TKLC/smac/backup`.

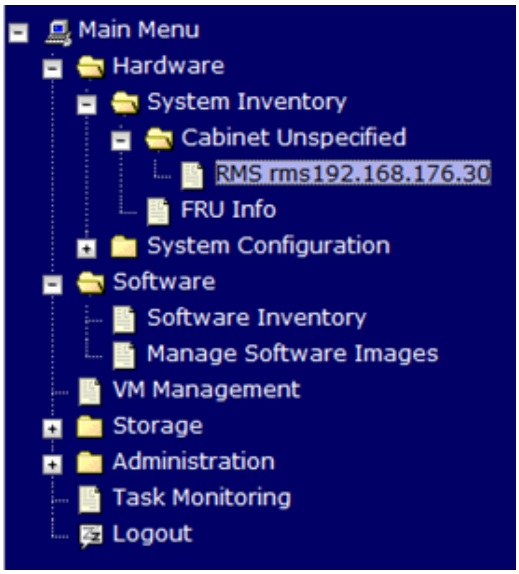
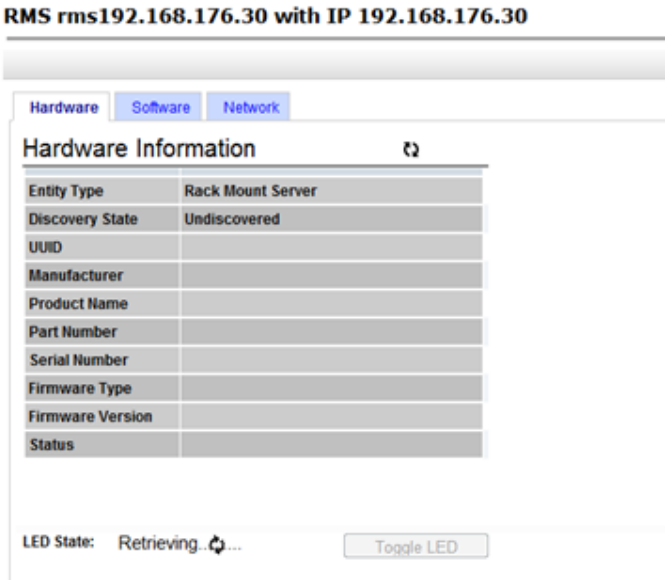
4.6 Add Cabinet to PM&C

Procedure 9. Add Cabinet and Enclosure to the PM&C system inventory

S T E P #	This procedure will provide PM&C configuration using the web interface. **Prerequisite:** *Procedure 4. PM&C Deployment Procedure* has been completed. **Note:** The installer must be knowledgeable of the network. If you make a mistake, click Cancel and try again. The finish step may take longer time because it reconfigures the network and attempts to connect may fail. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**PM&C GUI:** Load GUI initialization wizard	Open web browser and enter: **http://<pmac_network_ip>/gui** Login as PM&Cadmin user. 
2 ☐	**PM&C GUI:** Navigate to Configure Cabinets	Navigate to **Main Menu** > **Hardware** > **System Configuration** > **Configure Cabinets**. 

3 ☐	**PM&C GUI:** Add Cabinet	On the Configure Cabinets panel, press the **Add Cabinet** button 
4 ☐	**PM&C GUI:** Check Errors	If no error is reported to the user you will see the following:  Or you will see an error message: 
5 ☐	**PM&C GUI:** Configure RMS	Navigate to **Main Menu** > **Hardware** > **System Configuration** > **Configure RMS** 
6 ☐	**PM&C GUI:** Add RMS	On the Configure RMS panel, click the Add RMS button. 

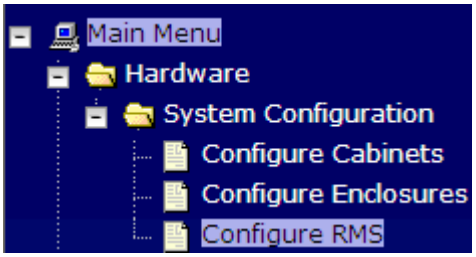
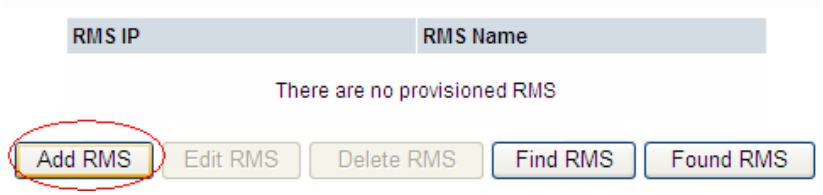
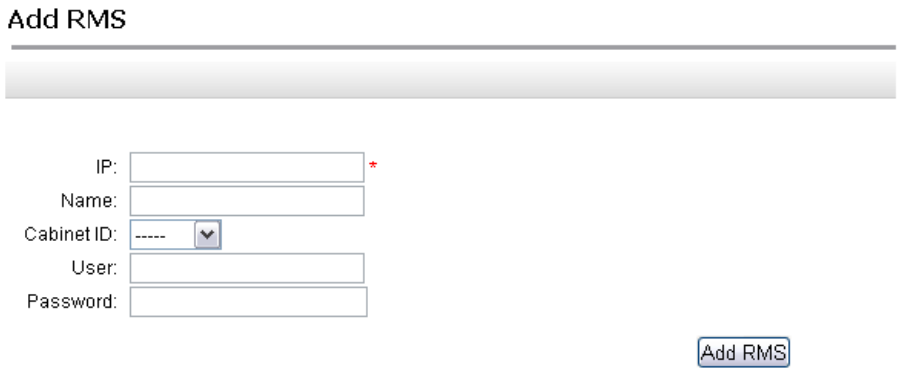
7 ☐	**PM&C GUI:** Enter information	Enter the IP Address of the rack mount server management port (iLO/iLOM). All the other fields are optional. Then click on the Add RMS button.  **Note:** The PM&C contains default credentials for the rack mount server management port (not to be confused with OS or Application credentials), however if you know the default credentials will not work then enter the valid credentials for the rack mount server management port.
8 ☐	**PM&C GUI:** Check errors	If no error is reported to the user you will see the following  Or you will see an error message: 

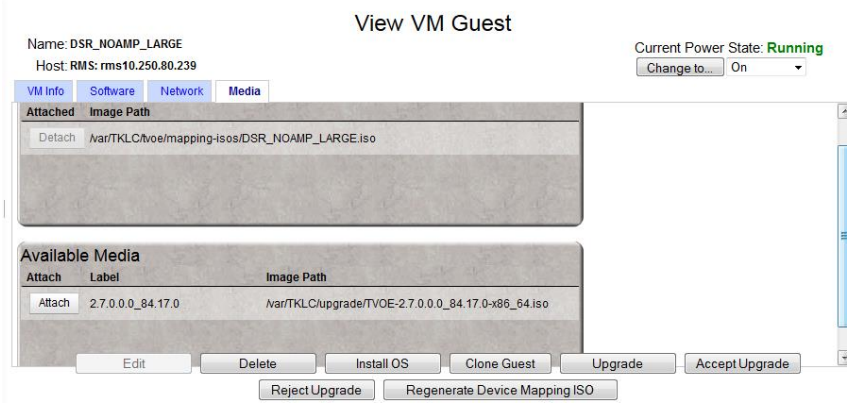
9 ☐	**PM&C GUI:**Verify RMS discovered	Navigate to **Main Menu** > **Hardware** > **System Inventory** > **Cabinet xxx** > **RMS yyy** Where **xxx** is the cabinet id selected when adding RMS (or "unspecified") and **yyy** is the name of the RMS.  The RMS inventory page is displayed.  Periodically refresh the hardware information using the double arrow to the right of the title "Hardware Information" until the "Discovery state" changes from "Undiscovered" to "Discovered". If "Status" displays an error, contact Oracle's Tekelec Customer Care Center

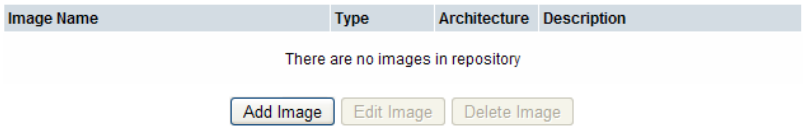
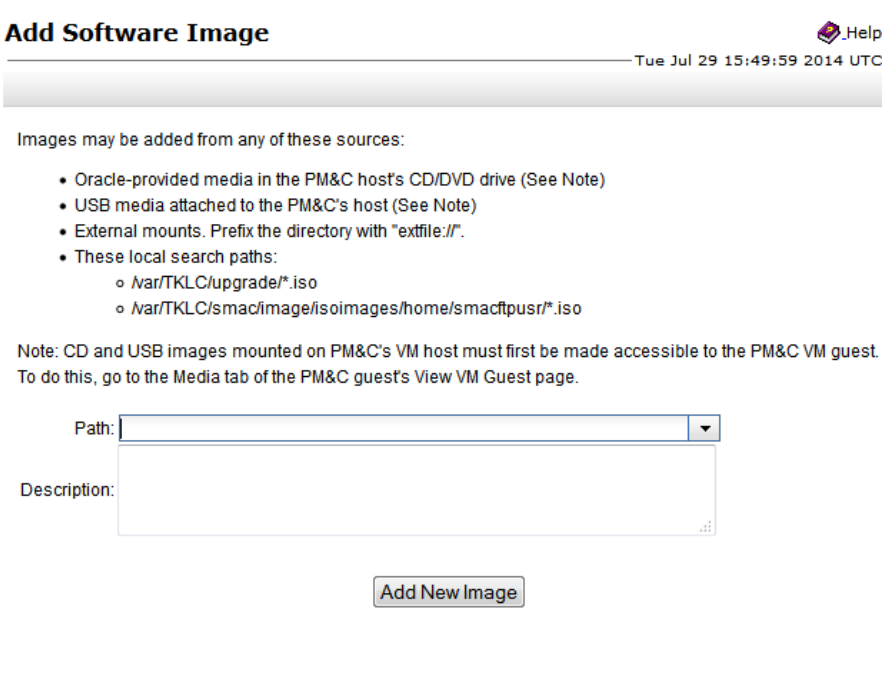
4.7 Install TVOE on second RMS

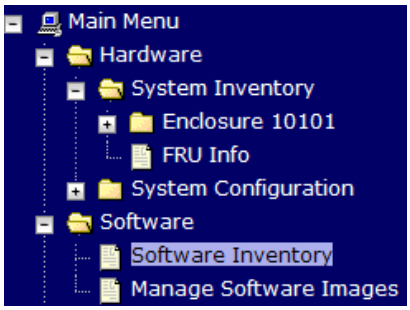
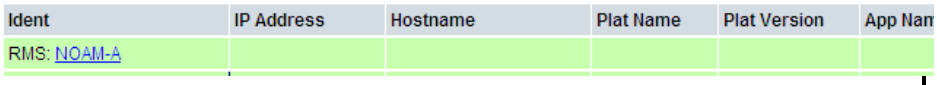
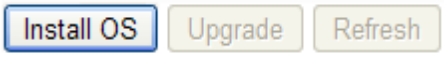
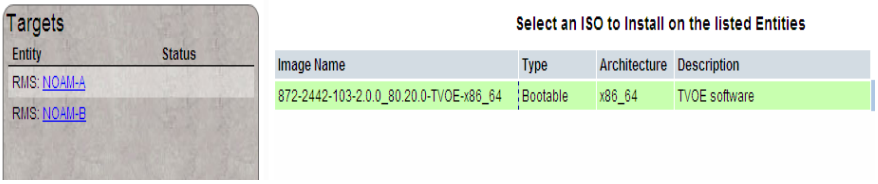
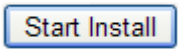
Procedure 10. Install TVOE on Second RMS

S T E P #	This procedure will install the TVOE operating system on the second Rack Mounted Servers. **Prerequisite**: PM&C (virtualized) has been installed on the First RMS 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 ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**PM&C GUI:** Login	Open web browser and Login to PM&C GUI as PM&Cadmin user.

2 ☐	**PM&C GUI:** Configure RMS on PM&C Server	Navigate to **Main Menu** -> **Hardware** -> **System Configuration** -> **Configure RMS**.  Click **Add RMS**  Enter the IP Address of the rack mount server management port (iLO). All the other fields are optional. Then click on the **Add RMS** button. Click **Add RMS**  The iLO IP address and name of the new RMS should now be displayed. **REPEAT THIS STEP FOR ANY ADDITIONAL RMSes YOU WISH THE PM&C TO CONFIGURE.**

3 ☐	**TVOE Host:** Load TVOE ISO	Add the TVOE ISO image to the PM&C, this can be done in one of two ways: 1. Attach the USB device containing the ISO image to a USB port. Open a web browser and enter: **http://<management_server_ip>**. Login as PM&Cadmin user and 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.  2. Using a TVOE **64 bit** iso file Use sftp to transfer the iso image to the PM&C server in the /var/TKLC/smac/image/isoimages/home/smacftpusr/ directory as PM&Cftpusr 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 management server > sftp pmacftpusr@<PM&C_management_network_ip> > put <image>.iso # After the image transfer is 100% complete, close the connection `> quit`

4 ☐	**PM&C GUI:** Add TVOE 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 TVOE Management Server. The first virtual device is reserved for internal use by TVOE and PM&C; 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 TVOE Management Server before you started this procedure, choose a correspondingly higher device number. If in Step 4 the image was transferred to PM&C 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 TVOE 2.0 Media from the optical drive of the TVOE Management Server.

5 ☐	**PM&C GUI:** Select RMS Servers for TVOE OS install	Navigate to **Software** -> **Software Inventory**.  Select the RMS servers 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.  Ident | IP Address | Hostname | Plat Name | Plat Version | App Nam RMS: NOAM-A Click on **Install OS** 
6 ☐	**PM&C GUI:** Initiate OS Install on RMS Server(s)	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. 

7 ☐	**PM&C GUI:** Monitor OS Install	Navigate to **Main Menu** > **Task Monitoring** to monitor the progress of the TVOE Installation background task. A separate task will appear for each server affected.

	ID	Task	Target	Status	Running Time	Start Time	Progress
	14	Install OS	Enc:10101 Bay:15F	Boot install image	0:00:01	2011-09-20 11:12:02	50%
	13	Install OS	Enc:10101 Bay:8F	Boot install image	0:00:01	2011-09-20 11:12:02	50%
	12	Install OS	Enc:10101 Bay:7F	Boot install image	0:00:01	2011-09-20 11:12:02	50%
	11	Install OS	Enc:10101 Bay:2F	Boot install image	0:00:01	2011-09-20 11:12:02	50%
	10	Install OS	Enc:10101 Bay:1F	Boot install image	0:00:02	2011-09-20 11:12:01	50%
	9	Add Image		Done: TPD.install-5.0.0_72.20.0-CentOS5.6-x86_64	0:00:09	2011-09-20 11:01:50	100%

When the installation is complete, the task will change to green and the Progress bar will indicate "100%".

	4	Install OS	RMS: NOAM-B	Done: 872-2442-103-2.0.0_80.20.0-TVOE-x86_64	0:25:59	2012-08-29 11:48:29	100%

Procedure 11. Configure TVOE on remaining RMS Servers

S T E P #	This procedure will configure TVOE on all remaining RMS Servers. **Prerequisite**: RMS Server has been IPM'ed with TVOE OS Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	Determine Bridge names and interfaces	Determine the bridge interfaces to be used on the TVOE server and fill in the appropriate values in the table below. If netbackup is to be used, determine the bridge interface to be used for the netbackup network. Refer [9] for determining the Diameter Signaling Router 6.0 networking for RMS productization **The entries in this table should match the table that was filled out for the first RMS in procedure 3, step 1**.

Guest Interface Alias	TVOE Bridge Name	TVOE Bridge Interface
control	control	Fill in the appropriate value (default is bond0): _____ <TVOE_Control_Bridge_Interface>

manageme nt	management	Fill in the appropriate value: _____ <TVOE_Management_Bridge_Interface>
xmi	xmi	Fill in the appropriate value: _____ <TVOE_XMI_Bridge_Interface>
imi	imi	Fill in the appropriate value, (default is bond0.4): _____ <TVOE_IMI_Bridge_Interface>
xsi1	xsi1	Fill in the appropriate value: _____ <TVOE_XSI1_Bridge_Interface>
xsi2	xsi2	Fill in the appropriate value: _____ <TVOE_XSI2_Bridge_Interface>
netbackup (if applicable)	netbackup	Fill in the appropriate value: _____ <TVOE_NetBackup_Bridge_Interface>

2 ☐	**RMS iLO:** Login and launch the integrated remote console	Log in to iLO in IE using password provided by application: **http://<second_rms_server_iLO_ip>** Click in the **Remote Console** tab and launch the **Integrated Remote Console** on the server. For Oracle ILO, click on the "Remote Control -> Redirection" and launch the "Launch Remote Console" on the server. Click **Yes** if the Security Alert pops up.
3 ☐	**RMS iLO:** Verify the Control Network	Verify the control network by running the following command **Note:** The output below is for illustrative purposes only. The example output below shows the control bridge configured. **$sudo /usr/TKLC/plat/bin/netAdm query --type=Bridge --name=control** Bridge Name: control On Boot: yes Protocol: dhcp Persistent: yes Promiscuous: no ...

		If the output matches the one above, then the Control Bridge already exists and does not need to be deleted, therefore skip to step 4. Otherwise,execute the following command to create the Control Bridge: **$sudo /usr/TKLC/plat/bin/netAdm add --device=bond0 --onboot=yes --type=Bonding --mode=active-backup --miimon=100** Interface bond0 updated Execute following to set the slave interfaces: **$sudo /usr/TKLC/plat/bin/netAdm set --device=eth01 --type=Ethernet --master=<TVOE_Control_Bridge_Interface> --slave=yes --onboot=yes** Interface <ethernet_interface_1> updated **$sudo /usr/TKLC/plat/bin/netAdm set --device=eth02 --type=Ethernet --master-<TVOE_Control_Bridge_Interface> --slave=yes --onboot=yes** Interface <ethernet_interface_2> updated **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=control --bootproto=dhcp --onboot=yes --bridgeInterfaces=bond0**
4 ☐	**RMS iLO:** Create tagged control interface and bridge (optional)	If you are using a tagged control network interface on this TVOE Server, then complete this step. Otherwise, skip on to the next step. **$sudo /usr/TKLC/plat/bin/netAdm set --type=Bridge --name=control --delBridgeInt=bond0** Interface bond0 updated Bridge control updated **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_Control_Bridge_Interface>** Interface <TVOE_Control_Bridge_Interface> created **$sudo /usr/TKLC/plat/bin/netAdm set --type=Bridge --name=control --bridgeInterfaces=<TVOE_Control_Bridge_Interface>**
5 ☐	**RMS iLO:** Verify/Create the Management Network	Verify the management network by running the following command **Note:** The output below is for illustrative purposes only. The example output below shows the control bridge configured. **$sudo /usr/TKLC/plat/bin/netAdm query --type=Bridge --name=management** Bridge Name: management On Boot: yes Protocol: none IP Address: 10.240.4.86 Netmask: 255.255.255.0 Promiscuous: no Hwaddr: 00:24:81:fb:29:52 MTU: Bridge Interface: bond0.2

		If the bridge has been configured, skip to the next step. **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_Management_Bridge_Interface> --onboot=yes** Interface bond0.2 added **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=management --bootproto=none --onboot=yes --address=<Management_Server_TVOE_IP> --netmask=<Management_Server_TVOE_Netmask> --bridgeInterfaces=<TVOE_Management_Bridge_Interface>**
6 ☐	**RMS iLO:** Create the XMI Network	Configure the XMI Network. **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. **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_XMI_Bridge_Interface> --onboot=yes** Interface bond0.3 added **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=xmi --onboot=yes --bridgeInterfaces=<TVOE_XMI_Bridge_Interface>** Interface bond0.3 was updated. Bridge xmi added!
7 ☐	**RMS iLO:** Create the IMI Network	Configure the IMI Network using the following commands **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. **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_IMI_Bridge_Interface> --onboot=yes** Interface bond0.4 added **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=imi --onboot=yes --bridgeInterfaces=<TVOE_IMI_Bridge_Interface>** Interface bond0.4 was updated. Bridge imi added!
8 ☐	**RMS iLO:** Create the XSI-1 Network	Execute option 1 **OR** option 2 below to configure the first XSI network **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.

		Option 1: Deployment with Aggregation switches: **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_XSI1_Bridge_Interface> --onboot=yes** Interface bond0.5 added **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=xsi1 --onboot=yes --bridgeInterfaces=<TVOE_XSI1_Bridge_Interface>** Interface bond0.5 was updated. Bridge xsi1 added! Option 2: Deployment without Aggregation switches: **$sudo /usr/TKLC/plat/bin/netAdm add --device=bond1 --onboot=yes --type=Bonding --mode=active-backup --miimon=100** Interface bond2 added **$sudo /usr/TKLC/plat/bin/netAdm set --device=eth03 --type=Ethernet --master=bond1 --slave=yes --onboot=yes** Interface eth03 updated **$sudo /usr/TKLC/plat/bin/netAdm set --device=eth13 --type=Ethernet --master-bond1 --slave=yes --onboot=yes** Interface eth13 updated **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_XSI1_Bridge_Interface> --onboot=yes** Interface bond1.<XSI1_VLAN_ID> added **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=xsi1 --onboot=yes --bridgeInterfaces=<TVOE_XSI1_Bridge_Interface>** Interface bond1.<XSI1_VLAN_ID> was updated. Bridge xsi1 added!
9 ☐	**RMS iLO:** Create the XSI-2 Network	Configure the XSI2 Network using option 1 **OR** option 2 below **Note:** The output below is for illustrative purposes only. The site information for this system will determine the network interfaces, (network devices, bonds, and bond enslaved devices), to configure. Option 1: Deployment with Aggregation switches: **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_XSI2_Bridge_Interface> --onboot=yes** Interface bond0.6 added **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=xsi2 --onboot=yes --bridgeInterfaces=<TVOE_XSI2_Bridge_Interface>** Interface bond0.6 was updated. Bridge xsi2 added!

		Option 2: Deployment without Aggregation switches: **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_XSI2_Bridge_Interface> --onboot=yes** Interface bond1.<XSI2_VLAN_ID> added **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=xsi2 --onboot=yes --bridgeInterfaces=<TVOE_XSI2_Bridge_Interface>** Interface bond1.<XSI2_VLAN_ID> was updated. Bridge xsi2 added!
10 ☐	**RMS iLO:** Add/Verify the NetBackup Network (Optional)	If NetBackup is to be used, execute this step, otherwise skip to the next step. NetBackup is a tool that allows the customer to take remote backups of the system. **Note:** The example below illustrates a TVOE Management Server configuration with the NetBackup feature enabled. The NetBackup network is configured with a non-default MTU size. **Note:** The MTU size must be consistent between a network bridge, device, or bond, and associated VLANs. Select **only one** of the following configurations: Option 1: Create netbackup bridge using a bond containing an untagged interface **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_NetBackup_Bridge_Interface> --onboot=yes --type=Bonding --mode=active-backup --miimon=100 --MTU=<NetBackup_MTU_size>** Interface <TVOE_NetBackup_Bridge_Interface> added **$sudo /usr/TKLC/plat/bin/netAdm set --device=<ethernet_interface_4> --type=Ethernet --master=<TVOE_NetBackup_Bridge_Interface> --slave=yes --onboot=yes** Interface <ethernet_interface_4> updated **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=<TVOE_NetBackup_Bridge> --onboot=yes --bootproto=none --MTU=<NetBackup_MTU_size> --bridgeInterfaces=<TVOE_NetBackup_Bridge_Interface> --address=<TVOE_NetBackup_IP> --netmask=<TVOE_NetBackup_Netmask>** Option 2: Create NetBackup bridge using an untagged native interface: **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=<TVOE_NetBackup_Bridge> --onboot=yes --bootproto=none --MTU=<NetBackup_MTU_size> --bridgeInterfaces=<Ethernet_Interface_4> --address=<TVOE_NetBackup_IP> --netmask=<TVOE_NetBackup_Netmask>** Option 3: Create NetBackup bridge using a tagged device: **$sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_NetBackup_Bridge_Interface>**

		--onboot=yes Interface <TVOE_NetBackup_Bridge_Interface> added **$sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=<TVOE_NetBackup_Bridge>** **--onboot=yes --MTU=<NetBackup_MTU_size>** **--bridgeInterfaces=<TVOE_NetBackup_Bridge_Interface>** **--address=<TVOE_NetBackup_IP>** **--netmask=<TVOE_NetBackup_Netmask>**
11 ☐	**RMS iLO:** Add/Verify the Default Route	Note: The output below is for illustrative purposes only. The example output below shows the control bridge configured. **$sudo /usr/TKLC/plat/bin/netAdm query --route=default --device=management** Routes for TABLE: main and DEVICE: management * NETWORK: default GATEWAY: 10.240.4.1 If the route has been configured, skip to the next step. **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. For this example add default route on management network. **$sudo /usr/TKLC/plat/bin/netAdm add --route=default --device=management** **--gateway=<mgmt_gateway_address>** Route to management added
12 ☐	**RMS iLO:** Add NetBackup Route (Optional)	Add a route to the NetBackup network using one of the following commands. If the NetBackup network is routed: **$sudo /usr/TKLC/plat/bin/netAdm add --route=net** **--device=<TVOE_NetBackup_Bridge>** **--address=<NetBackup_Gateway_Network_Address>** **--netmask=<NetBackup_Gateway_netmask>** **--gateway=<NetBackup_gateway_ip_address>** Route to <TVOE_NetBackup_Bridge> added If the NetBackup network is non-routed, use a host route instead. **$sudo /usr/TKLC/plat/bin/netAdm add --route=host** **--device=<TVOE_NetBackup_Bridge>** **--address=<NetBackup_Server_IP_Address>** **--netmask=255.255.255.255** **--gateway=<NetBackup_Server_IP_Address>** Route to <TVOE_NetBackup_Bridge> added
13 ☐	**RMS iLO:** Set Hostname	Set the server hostname by running the following: **$sudo su - platcfg** **1.** Navigate to **Server Configuration ➤ Hostname ➤ Edit**. **2.** Set TVOE Management Server hostname **3.** Press OK. **4.** Navigate out of Hostname

14 ☐	**RMS iLO:** Set the time zone and/or hardware clock	**1.** Navigate to **Server Configuration ➢ Time Zone.** **2.** Select Edit. **3.** Set the time zone and/or hardware clock to **UTC** or appropriate time zone value. **4.** Press OK. **5.** Navigate out of Server Configuration
15 ☐	**RMS iLO:** Set NTP	**1.** Navigate to **Network Configuration ➢ NTP**. **2.** Set NTP server IP address to point to the customer provided NTP server (Remember that 3 NTP sources are required) **3.** Press OK. 4. Exit platcfg. Ensure that the time is set correctly by executing the following commands: **$sudo service ntpd stop** **$sudo ntpdate ntpserver1** **$sudo service ntpd start**
16 ☐	**RMS iLO:** Set SNMP	Set SNMP by running the following: **$sudo su - platcfg** 1. Navigate to **Network Configuration ➢ SNMP Configuration ➢ NMS Configuration**. 2. Select **Edit** and then choose Add a New NMS Server. The 'Add an NMS Server' page will be displayed. 3. Complete the form by entering in all information about the SNMP trap destination. Select **OK** to finalize the configuration. The 'NMS Server Action Menu' will now be displayed. Select **Exit**. The following dialogue will then be presented. 4. Select **Yes** and then wait a few seconds while the Alarm Routing Service is restarted. At that time the SNMP Configuration Menu will be presented. 5. exit platcfg.
17 ☐	**RMS iLO:** Configure NetBackup (Optional)	If the NetBackup feature is enabled for this system, configure the appropriate NetBackup client on the PM&C TVOE host. 1. Enable and start the TVOE-netbackup service using the following commands: **$ service_conf add TVOE-netbackup rc runlevels=345** **$ service_conf reconfig** **$ service TVOE-netbackup start** 2. Enable platcfg to show the Netbackup Menu Items by executing the following commands: **$ sudo platcfgadm --show NBConfig;** **$ sudo platcfgadm --show NBInit;** **$ sudo platcfgadm --show NBDeInit;** **$ sudo platcfgadm --show NBInstall;** **$ sudo platcfgadm --show NBVerifyEnv;** **$ sudo platcfgadm --show NBVerify;** 3. Create LV and filesystem for Netbackup client software on the vgguests volume group: **$ sudo echo "lv --mountpoint=/usr/openv --size=2G --name=netbackup_lv --vg=vgguests" > /tmp/nb.lvm**

		$ sudo /usr/TKLC/plat/sbin/storageMgr /tmp/nb.lvm
		
		This will create the LV, format it with a filesystem, and mount it under /usr/openv/. Example output is shown below:
		`Called with options: /tmp/nb.lvm`
		`VG vgguests already exists.`
		`Creating lv netbackup_lv.`
		`Volume netbackup_lv will be created.`
		`Success: Volume netbackup_lv was created.`
		`Creating filesystem, this may take a while.`
		`Updating fstab for lv netbackup_lv.`
		`Configuring existing lv netbackup_lv.`
		`The LV for netbackup has been created!`
		
		4. Install the netbackup client software:
		Refer to Appendix J on instructions how to install the netbackup client.
		
		Note: Skip any steps relating to copying netbackup "notify" scripts to /usr/openv/netbackup/bin. The TVOE netbackup notify scripts are taken care of in the next step.
		
		5. Create softlinks for TVOE specific netbackup notify scripts.
		$ sudo ln -s /usr/TKLC/plat/sbin/bpstart_notify /usr/openv/netbackup/bin/bpstart_notify
		
		$ sudo ln -s /usr/TKLC/plat/sbin/bpend_notify /usr/openv/netbackup/bin/bpend_notify
		
		Note: Once the Netbackup Client is installed on TVOE, the NetBackup Master should be configured to backup the following files form the TVOE host:
		• `/var/TKLC/bkp/*.iso`

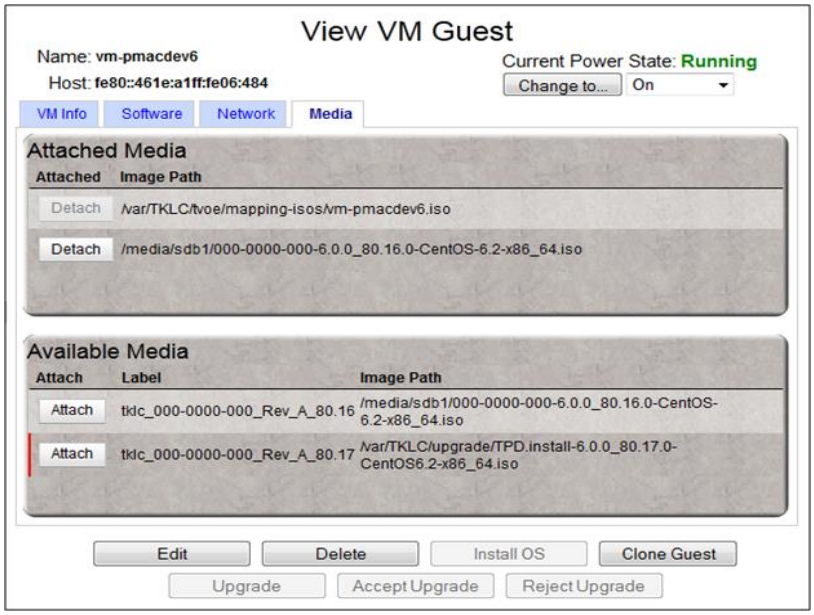
18 ☐	**RMS iLO:** Setup syscheck	syscheck must be configured to monitor bonded interfaces. Replace "bondedInterfaces" with "bond0" or "bond0,bond1" if segregated networks are used: **$sudo /usr/TKLC/plat/bin/syscheckAdm net ipbond --set --var=DEVICES --val=<bondedInterfaces>** **$sudo /usr/TKLC/plat/bin/syscheckAdm net ipbond --enable** **$sudo /usr/TKLC/plat/bin/syscheck net ipbond -v**
19 ☐	**RMS iLO:** Verify Server Health	Execute the following: **$ alarmMgr –alarmStatus** This command should return no output on a healthy system. If any alarms are reported, contact Customer Care Center.
20 ☐	**RMS iLO:** Perform a TVOE backup using TPD platcfg utility	Execute the following: **$sudo su - platcfg** Navigate to **Maintenance ➢ Backup and Restore**

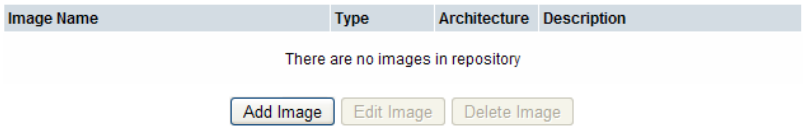
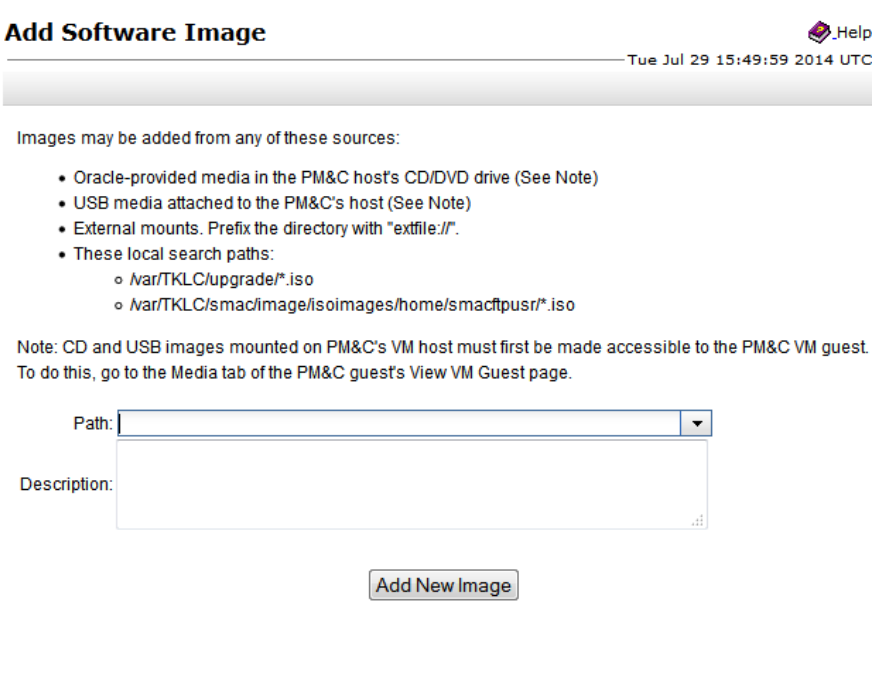
		Select "**Backup Platform (CD/DVD)**" **Note:** If no cdrom device is found by TPD, you will receive an error dialog with the message: "No disk device available. This is normal on systems without a cdrom device." Press enter to continue. Select an applicable backup option, and press enter to continue. Exit from TPD platcfg utility. The TVOE backup can be found in the "/var/TKLC/bkp/" directory, and is prefixed by the server hostname. An example of a TVOE backup ISO follows: /var/TKLC/bkp/RMS503u14-plat-app-201210301505.iso Move the TVOE backup to a customer provided backup server for safe keeping.

4.8 Create Virtual Machines for Applications

Procedure 12. Load ISOs onto PM&C Server

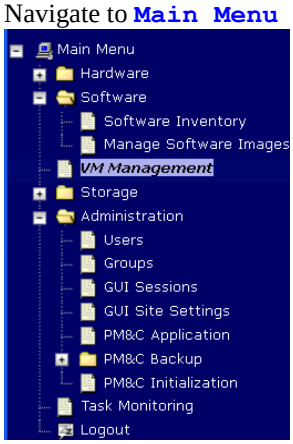
S T E P #	This procedure will load TPD and the DSR Application ISO into the PM&C Server **Needed material:** - TPD and Application Media Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.

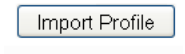
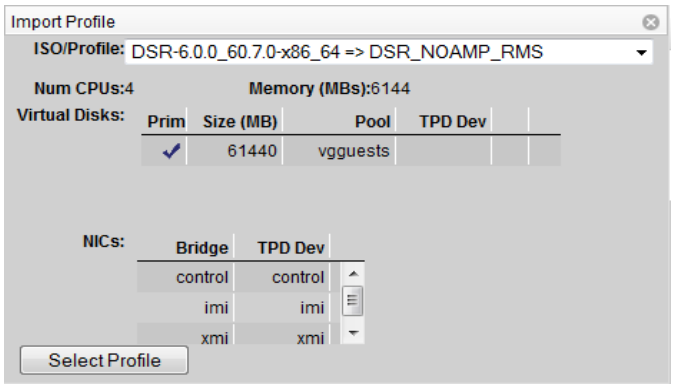
1 ☐	**1st RMS TVOE Host:** Load TPD Image	Add the TPD ISO image to the PM&C, this can be done in one of two ways: 1. Attach the USB device containing the ISO image to a USB port. Open a web browser and enter: **http://<management_server_ip>**. Login as PM&Cadmin user and navigate to **Main Menu ➢ VM Managmenet.**. 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.  2. Using a TPD **64 bit** iso file Use sftp to transfer the iso image to the PM&C server in 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 Management Server > sftp pmacftpusr@<PM&C_management_network_ip> > put <image>.iso # After the image transfer is 100% complete, close the connection > quit

2 ☐	**PM&C GUI:** Add TPD image	Open web browser and enter: **`http://<management_server_ip>`**. Login as PM&Cadmin user and 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 TVOE Management Server. The first virtual device is reserved for internal use by TVOE and PM&C; 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 TVOE Management Server before you started this procedure, choose a correspondingly higher device number. If in Step 4 the image was transferred to PM&C 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 TPD Media from the optical drive of the server.

3 ☐	**PM&C GUI:** Add Application image	Repeat this procedure to load the DSR application onto the PM&C, using either a DSR media or ISO.

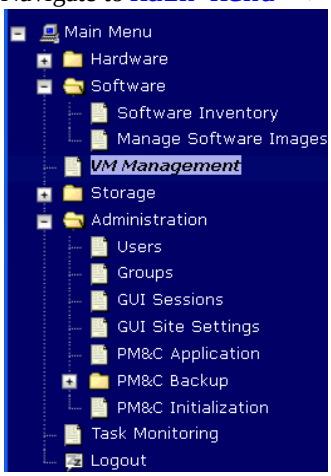
Procedure 13. Create NOAMP Guest VMs

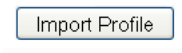
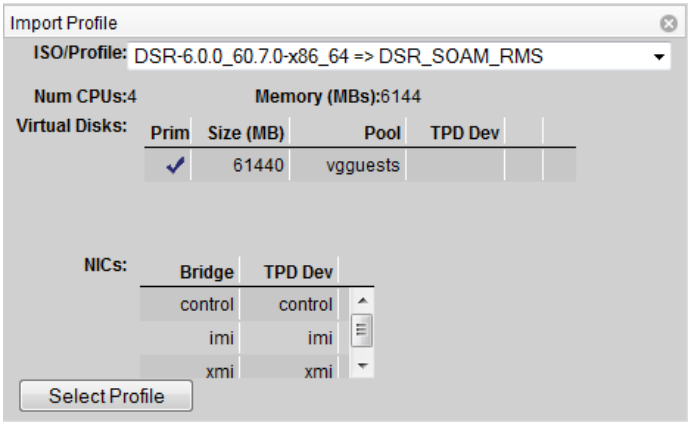
S T E P #	This procedure will provide the steps needed to create a DSR NOAMP virtual machine (refered to as a "guest") on a TVOE server or TVOE RMS. It must be repeated for every NOAMP server you wish to install. **Prerequisite**: TVOE has been installed and configured on the target server DSR ISO must be in the repository Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**PM&C GUI:** Login	Open web browser and enter: **`http://<management_server_ip>`** Login as PM&Cadmin user.
2 ☐	**PM&C GUI:** Navigate to VM Management of the Target Server	Navigate to **`Main Menu`** -> **`VM Management`**  Select the RMS 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 on **`Create Guest`**.

3 ☐	**PM&C GUI:** Configure VM Guest Parameters	Press **Import Profile**   From the "ISO/Profile" drop-down box, select the entry that matches: • <Application ISO NAME>➔DSR_NOAMP_NETBACK_RMS - If your NOAMP **DOES** require a dedicated ethernet port for NetBackup • <Application ISO NAME>➔DSR_NOAMP_RMS - If your NOAMP **DOES NOT** require a dedicated ethernet port for NetBackup Where Application_ISO_NAME is the name of the DSR Appilcation ISO to be installed on this NOAMP. Press **Select Profile**. Values from the profile should now populate the VM configuration screen Disk Size, Number of CPUs, Memory, and NICs: should all change from their default values to the profile values You can edit the name, if you wish. For instance: "DSR_NOAMP-A," or DSRNOAMP-B". (**This will not become the ultimate hostname. It is just an internal tag for the VM host manager.)** Press **Create** 

4 ☐	**PM&C 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 referesh the screen until you see that the guest creation task has completed successfully. ID: 1739 | Task: VirtAction: Create | Target: Enc:9001 Bay:11F Guest: DSR_NOAMP | Status: Guest creation completed (DSR_NOAMP) | Running Time: 0:00:04 | Start Time: 2011-11-29 20:36:11 | Progress: 100%
5 ☐	**PM&C GUI:** Verify Guest Machine is Running	Navigate to **Main Menu** -> **VM Management** Select the RMS on which the guest machine was just created. Look at the list of guests present on the server and verify that you see a guest that matches the name you configured and that its status is “Running”.
6 ☐	**Repeat for Second RMS**	VM Creation for this guest is complete. Repeat from Step 2 to step 5 for the second RMS Server that shall host the second NOAMP (and the DR NOAMP if present).

Procedure 14. Create SOAM Guest VMs

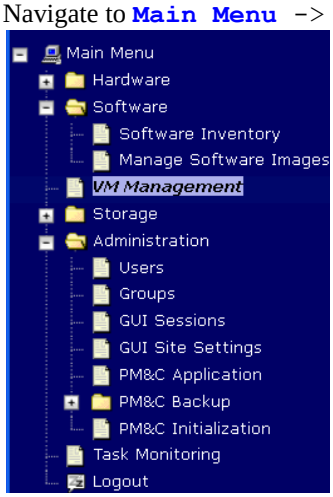
S T E P #	This procedure will provide the steps needed to create a DSR SOAM virtual machine (refered to as a "guest") on a TVOE server. It must be repeated for every SOAM server you wish to install. **Prerequisite**: TVOE has been installed and configured on the target server Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**PM&C GUI:** Login	Open web browser and enter: **`http://<management_server_ip>`** Login as PM&Cadmin user.
2 ☐	**PM&C GUI:** Navigate to VM Management of the Target Server	Navigate to **`Main Menu`** -> **`VM Management`**  Select the RMS from the "VM Entities" listing on the left side of the screen. This RMS guest machine configuration will then be displayed in the remaining area of the window. Click on **`Create Guest`**.

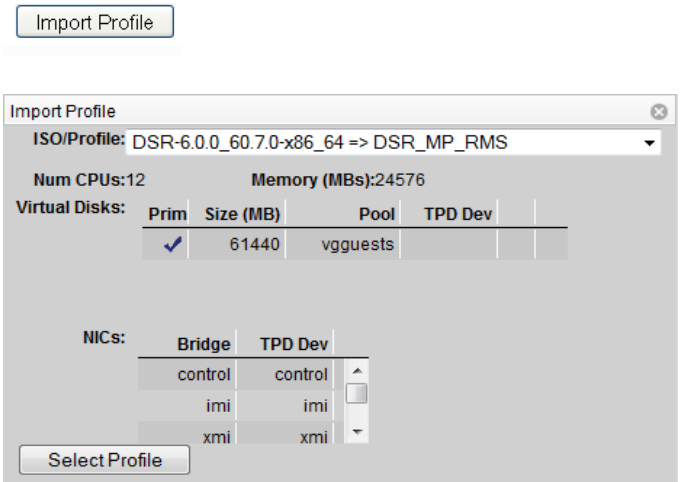
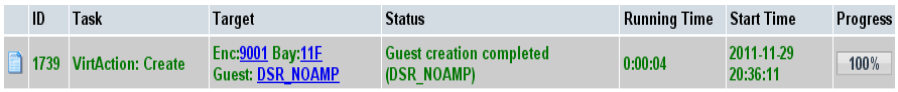
3 ☐	**PM&C GUI:** Configure VM Guest Parameters	Press **`Import Profile`**   From the "ISO/Profile" drop-down box, select the entry that matches <Application ISO NAME>➔DSR_SOAM_RMS Where Application_ISO_NAME is the name of the DSR Appilcation ISO to be installed on this SOAMP. Press **`Select Profile`**. Values from the profile should now populate the VM configuration screen Disk Size, Number of CPUs, Memory, and NICs: should all change from their default values to the profile values 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`** 

4 ☐	**PM&C 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 referesh the screen until you see that the guest creation task has completed successfully. ID: 1739 | Task: VirtAction: Create | Target: Enc:9001 Bay:11F Guest: DSR_NOAMP | Status: Guest creation completed (DSR_NOAMP) | Running Time: 0:00:04 | Start Time: 2011-11-29 20:36:11 | Progress: 100%
5 ☐	**PM&C GUI:** Verify Guest Machine is Running	Navigate to **`Main Menu -> VM Management`** Select the TVOE server on which the guest machine was just created. Look at the list of guests present on the server and verify that you see a guest that mataches the name you configured and that its status is "Running".
6 ☐	**Repeat for second RMS Server**	**VM Creation for this guest is complete. Repeat from Step 2 to step 5 for the second RMS Server that shall host the second SOAMP.**

Procedure 15. Create MP Guest VMs

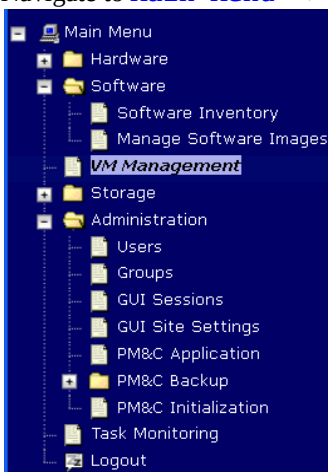
S T E P #	This procedure will provide the steps needed to create a DA-MP or SS7-MP virtual machine (refered to as a "guest") on a TVOE server. It must be repeated for every server you wish to install. **Prerequisite**: TVOE has been installed and configured on the target server Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**PM&C GUI:** Login	Open web browser and enter: **`http://<management_server_ip>`** Login as PM&Cadmin user.

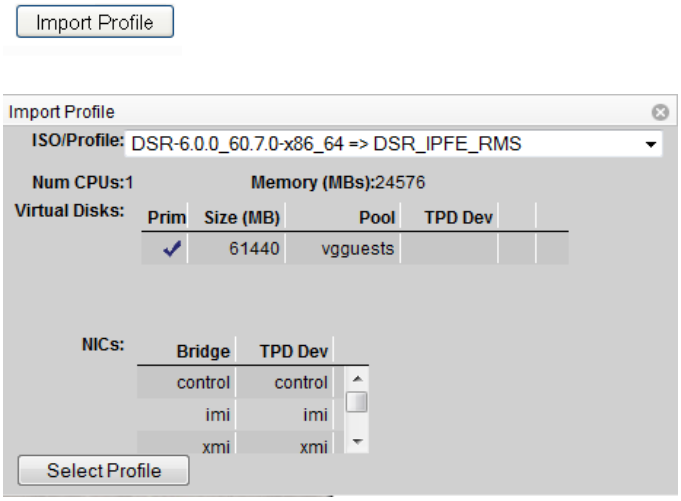
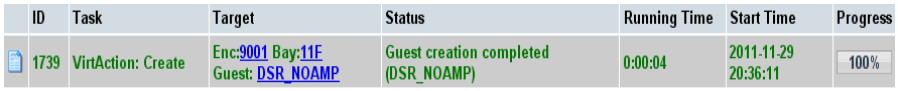
2 ☐	**PM&C GUI:** Navigate to VM Management of the Target Server	Navigate to **Main Menu** -> **VM Management**  Select the RMS server from the "VM Entities" listing on the left side of the screen. This servers's guest machine configuration will then be displayed in the remaining area of the window. Click **Create Guest.**

3 ☐	**PM&C GUI:** Configure VM Guest Parameters	Press **Import Profile**  From the "ISO/Profile" drop-down box, select the entry that matches <Application ISO NAME>➔DSR_MP_RMS Where Application_ISO_NAME is the name of the DSR Appilcation ISO to be installed on this MP. Press **Select Profile**. Values from the profile should now populate the VM configuration screen Disk Size, Number of CPUs, Memory, and NICs: should all change from their default values to the profile values You can edit the name, if you wish. For instance: "DSR_MP_A," or DSR_MP_B". **(This will not become the ultimate hostname. It is just an internal tag for the VM host manager.)** Press **Create**
4 ☐	**PM&C 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 referesh the screen until you see that the guest creation task has completed successfully. 

5 ☐	**PM&C GUI:** Verify Guest Machine is Running	Navigate to **`Main Menu`** -> **`VM Management`** Select the TVOE server on which the guest machine was just created. Look at the list of guests present on the server and verify that you see a guest that mataches the name you configured and that its status is "Running". If additional signaling networks need to be configured, refer to Appendix M.
6 ☐	**Repeat for remaining RMS Servers**	**VM Creation for this guest is complete. Repeat from Step 2 to step 5 for the remaining RMS Servers that shall host the other MPs.**

Procedure 16. Create IPFE Guest VMs (Optional)

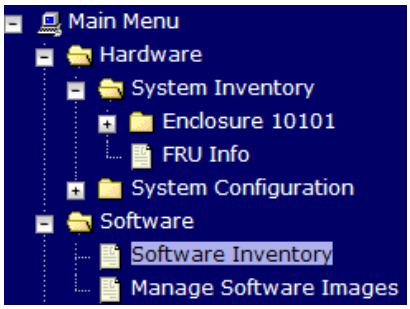
S T E P #	This procedure will provide the steps needed to create an IFPE virtual machine (refered to as a "guest") on a TVOE server. It must be repeated for every server you wish to install. **Prerequisite**: TVOE has been installed and configured on the target server Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**PM&C GUI:** Login	Open web browser and enter: **`http://<management_server_ip>`** Login as PM&Cadmin user.
2 ☐	**PM&C GUI:** Navigate to VM Management of the Target Server	Navigate to **`Main Menu`** -> **`VM Management`**  Select the TVOE server from the "VM Entities" listing on the left side of the screen. This server's guest machine configuration will then be displayed in the remaining area of the window. Click **`Create Guest.`**

3 ☐	**PM&C GUI:** Configure VM Guest Parameters	Press **`Import Profile`**  From the "ISO/Profile" drop-down box, select the entry that matches <Application ISO NAME>➔DSR_IPFE_RMS Where Application_ISO_NAME is the name of the DSR Appilcation ISO to be installed on this MP. Press **`Select Profile`**. Values from the profile should now populate the VM configuration screen Disk Size, Number of CPUs, Memory, and NICs: should all change from their default values to the profile values You can edit the name, if you wish. For instance: "DSR_IPFE_A," or DSR_IPFE_B". (**This will not become the ultimate hostname. It is just an internal tag for the VM host manager.)** Press **`Create`**
4 ☐	**PM&C 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 referesh the screen until you see that the guest creation task has completed successfully. 

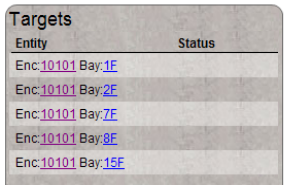
5 ☐	**PM&C GUI:** Verify Guest Machine is Running	Navigate to **`Main Menu`** -> **`VM Management`** Select the TVOE server on which the guest machine was just created. Look at the list of guests present on the server and verify that you see a guest that mataches the name you configured and that its status is "Running". If additional signaling networks need to be configured, refer to Appendix M.
6 ☐	**Repeat for remaining RMS Servers**	**VM Creation for this guest is complete. Repeat from Step 2 to step 5 for the remaining RMS Servers that shall host the other IPFEs.**

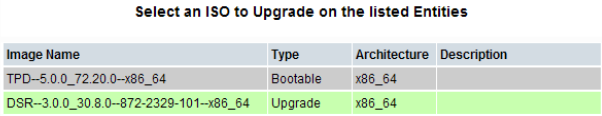
4.9 Install Software on Virtual Machiness

Procedure 17. Install the Software on the VMs

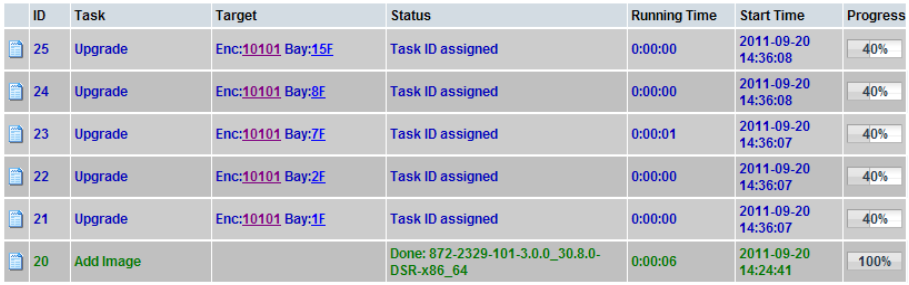
S T E P #	This procedure will provide the steps to install Diameter Signaling Router 6.x on the servers. **Prerequisite**: VM Guests Creationhas been completed. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**PM&C GUI:** Login	Open web browser and enter: **`http://<management_network_ip>`** Login as PM&Cadmin user.
2 ☐	**PM&C GUI:** Select Servers for Application install	Navigate to **`Software -> Software Inventory`**.  Select the servers on which TPD is to be installed (should be the NO, SO, MP and IPFE VMs). You may select multiple servers by pressing <Ctrl> and 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 server that hosts them. Ident / IP Address / Hostname / Plat Name / Plat Version / App Name / App Version / Desig / Function RMS: rms10.250.80.239 / 192.168.1.4 / rmsTVOE-Kauai-B / TPD (x86_64) / 6.7.0.0.1-84.17.0 / TVOE / Pending Acc/Rej RMS: rms10.250.80.239 Guest: DSR_NOAMP_LARGE / 192.168.1.8 / dsrNO-Kauai-b / TPD (x86_64) / 6.7.0.0.1-84.17.0 / DSR / Pending Acc/Rej Host: **rmsTVOE-Kauai-A** Guest: DSR_NOAMP_LARGE-A / 192.168.1.6 / dsrNO-Kauai-a / TPD (x86_64) / 6.7.0.0.1-84.17.0 / DSR / Pending Acc/Rej Host: **rmsTVOE-Kauai-A** Guest: pmac-Kauai-1 / 192.168.1.1 / pmac-Kauai-1 / TPD (x86_64) / 6.7.0.0.1-84.15.0 / PMAC / Pending Acc/Rej Click on **`Install OS`** 

<table>
<tr>
<td>3
☐</td>
<td>PM&C GUI:
Initiate TPD Install</td>
<td>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.





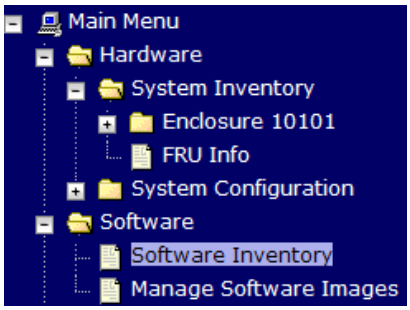
Click on Start Install, a confirmation window will pop up, click on Ok to proceed with the install.</td>
</tr>
<tr>
<td>4
☐</td>
<td>PM&C GUI:
Monitor the TPD installation status</td>
<td>Navigate to Main Menu > Task Monitoring to monitor the progress of the TPD Installation. A separate task will appear for each server affected.



When the installation is complete, the task will change to green and the Progress bar will indicate "100%". Wait until all “Install OS” tasks are complete.</td>
</tr>
</table>

5 ☐ **PM&C GUI:** Select Servers for Application install

Navigate to **Software -> Software Inventory**.



Select the servers on which the DSR application is to be installed (should be the NO, SO, MP and IPFE VMs). You may select multiple servers by pressing <Ctrl> and 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 server that hosts them.

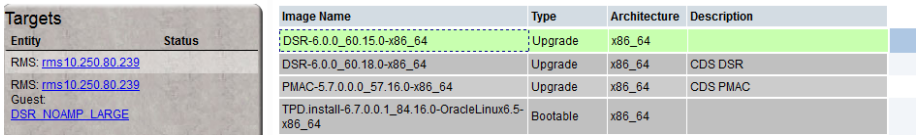
.

Ident	IP Address	Hostname	Plat Name	Plat Version	App Name	App Version	Desig	Function
RMS: rms10.250.80.239	192.168.1.4	rmsTVOE-Kauai-B	TPD (x86_64)	6.7.0.0.1-84.17.0	TVOE	Pending Acc/Rej		
RMS: rms10.250.80.239 Guest: DSR_NOAMP_LARGE	192.168.1.8	dsrNO-Kauai-b	TPD (x86_64)	6.7.0.0.1-84.17.0	DSR	Pending Acc/Rej		
Host: **rmsTVOE-Kauai-A** Guest: DSR_NOAMP_LARGE-A	192.168.1.6	dsrNO-Kauai-a	TPD (x86_64)	6.7.0.0.1-84.17.0	DSR	Pending Acc/Rej		
Host: **rmsTVOE-Kauai-A** Guest: pmac-Kauai-1	192.168.1.1	pmac-Kauai-1	TPD (x86_64)	6.7.0.0.1-84.15.0	PMAC	Pending Acc/Rej		

Click on **Upgrade**

6 ☐ **PM&C GUI:** Initiate Application 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 the DSR application to install to all of the selected servers.

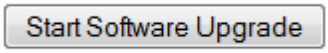


Targets

Entity	Status
RMS: rms10.250.80.239	
RMS: rms10.250.80.239 Guest: DSR_NOAMP_LARGE	

Image Name	Type	Architecture	Description
DSR-6.0.0_60.15.0-x86_64	Upgrade	x86_64	
DSR-6.0.0_60.18.0-x86_64	Upgrade	x86_64	CDS DSR
PMAC-5.7.0.0.0_57.16.0-x86_64	Upgrade	x86_64	CDS PMAC
TPD.install-6.7.0.0.1_84.16.0-OracleLinux6.5-x86_64	Bootable	x86_64	

Click on **Start Software Upgrade**, a confirmation window will pop up, click on **Ok** to proceed with the install.



<table>
<tr>
<td>7
☐</td>
<td>PM&C GUI:
Monitor the installation status</td>
<td>Navigate to Main Menu > Task Monitoring to monitor the progress of the Application Installation. A separate task will appear for each server affected.

<table>
<tr><th></th><th>ID</th><th>Task</th><th>Target</th><th>Status</th><th>Running Time</th><th>Start Time</th><th>Progress</th></tr>
<tr><td></td><td>25</td><td>Upgrade</td><td>Enc:10101 Bay:15F</td><td>Task ID assigned</td><td>0:00:00</td><td>2011-09-20 14:36:08</td><td>40%</td></tr>
<tr><td></td><td>24</td><td>Upgrade</td><td>Enc:10101 Bay:8F</td><td>Task ID assigned</td><td>0:00:00</td><td>2011-09-20 14:36:08</td><td>40%</td></tr>
<tr><td></td><td>23</td><td>Upgrade</td><td>Enc:10101 Bay:7F</td><td>Task ID assigned</td><td>0:00:01</td><td>2011-09-20 14:36:07</td><td>40%</td></tr>
<tr><td></td><td>22</td><td>Upgrade</td><td>Enc:10101 Bay:2F</td><td>Task ID assigned</td><td>0:00:00</td><td>2011-09-20 14:36:07</td><td>40%</td></tr>
<tr><td></td><td>21</td><td>Upgrade</td><td>Enc:10101 Bay:1F</td><td>Task ID assigned</td><td>0:00:00</td><td>2011-09-20 14:36:07</td><td>40%</td></tr>
<tr><td></td><td>20</td><td>Add Image</td><td></td><td>Done: 872-2329-101-3.0.0_30.8.0-DSR-x86_64</td><td>0:00:06</td><td>2011-09-20 14:24:41</td><td>100%</td></tr>
</table>

When the installation is complete, the task will change to green and the Progress bar will indicate "100%". Wait until all “Upgrade” tasks are complete.</td>
</tr>
<tr>
<td>8
☐</td>
<td>PM&C GUI:
Accept Upgrade</td>
<td>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 that in certain instances, the GUI may not provide the option to accept/reject upgrade. So first verify in task monitoring that the upgrade is not in progress, then manually accept or reject the upgrade by ssh’ing into the server and execute:
1. To accept: /var/TKLC/backout/accept
2. To reject: /var/TKLC/backout/reject

Software Inventory
Filter
<table>
<tr><th>Ident</th><th>IP Address</th><th>Hostname</th><th>Plat Name</th><th>Plat Version</th><th>App Name</th><th>App Version</th><th>Desig</th><th>Function</th></tr>
<tr><td>RMS: rms10.250.80.239</td><td>192.168.1.4</td><td>rmsTVOE-Kauai-B</td><td>TPD (x86_64)</td><td>6.7.0.0.1-84.17.0</td><td>TVOE</td><td>Pending Acc/Rej</td><td></td><td></td></tr>
<tr><td>RMS: rms10.250.80.239 Guest: DSR_NOAMP_LARGE</td><td>192.168.1.8</td><td>dsrNO-Kauai-b</td><td>TPD (x86_64)</td><td>6.7.0.0.1-84.17.0</td><td>DSR</td><td>Pending Acc/Rej</td><td></td><td></td></tr>
</table>

Update Firmware | Install OS | Upgrade | Accept Upgrade
Reject Upgrade | Regenerate Guest Device Mapping ISO | Refresh

Note that once the upgrade has been accepted, the App version will change from “Pending Acc/Rej” to the version number of the application.</td>
</tr>
</table>

4.10 Application Configuration

Procedure 18. Configure the First NOAMP NE and Server

S T E P	This procedure will provide the steps to configure the First NOAMP 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 ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**Save the NOAMP Network Data to an XML file**	Using a text editor, create a NOAMP Network Element file that describes the networking of the target install environment of your first NOAMP 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 an DSR2 NOAMP network element XML file would have a filename "DSR2_NOAMP_NetworkElement.xml". Alternatively, you can update the sample DSR 6.x Network Element file be found on the PM&C Management Server at: **`/usr/TKLC/smac/etc/SAMPLE-NetworkElement.xml`** A sample XML file can also be found in Appendix A. Note that 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".
2 ☐	**Exchange SSH keys between PM&C and first NOAMP server**	Use the GUI to determine the Control Network IP address of the server that is to be the first NOAMP server. From the PM&C GUI, navigate to **`Main Menu → Software →Software Inventory`**. Note the IP address for the first NOAMP server. From a terminal window connection on the PM&C, exchange SSH keys for admusr between the PM&C and the 1st NOAMP server using the keyexchange utility, using the Control network IP address for the NOAMP server. When prompted for the password, enter the password for the admusr user of the NOAMP server. **`# keyexchange admusr@<NOAMP server Control Net IP addr>`** Note: if keyexchange fails, edit "/root/.ssh/known_hosts" and remove blank lines, and retry the keyexchange commands.
3 ☐	**Connect a Web Browser to the NOAMP GUI**	Plug a laptop ethernet cable onto an unused, unconfigured port on the 4948 switch (if available in your installation) or use SSH Tunneling through the PM&C to connect the laptop to the NOAMP server. **If you are using tunneling, then you can skip the rest of this step and instead complete the instructions in 4.12Appendix G.** From the PM&C, enable the switch port that the laptop is plugged into. Enable that laptop Ethernet port to acquire a DHCP address and then access the NOAMP-"A" GUI via its control IP address.
4 ☐	**NOAMP GUI:** Login	Login to the NOAMP GUI as the guiadmin user.

5 ☐ **Create the NOAMP Network Element using the XML File**

Navigate to **`Main Menu->Configuration->Network Elements`**

Select the "Browse" button, and enter the pathname of the NOAMP network XML file.

Select the "Upload File" button to upload the XML file and configure the NOAMP 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:

Network Element				
NO_9006005				
Network Name	**Network Address**	**Netmask**	**VLAN ID**	**Gateway IP Address**
INTERNALXMI	10.240.10.32	255.255.255.224	3	10.240.10.35
INTERNALIMI	10.240.10.0	255.255.255.224	4	10.240.10.3

6 ☐ **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 "INTERNALIMI" and your XMI network is named „INTERNALXMI", then your services should config should look like the following:

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

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

7 ☐ **Insert the 1st NOAMP server**

Navigate to **Main Menu → Configuration → Servers**.

Select the "Insert" button to insert the new NOAMP server into servers table (the first or "A" server).

Attribute	Value	Description
Host Name	NO-Server1 *	Unique name for the server. [De characters are alphanumeric ar and end with an alphanumeric.]
Role	NETWORK OAM&P *	Select the function of the server
Hardware Profile	DSR TVOE Guest	Hardware profile of the server
Network Element Name	NO_5020801 *	Select the network element
Location		Location description [Default = ' any text string.]

Fill in the fields as follows:

Hostname: **<Hostname>**

Role: **NETWORK OAM&P**

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

Interfaces:

Network	IP Address	Interface
INTERNALXMI (10.240.84.128/25)	10.240.84.155	xmi ☐ VLAN (3)
INTERNALIMI (10.240.85.0/26)	10.240.85.10	imi ☐ VLAN (4)

Ok Apply Cancel

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 (DSR 5.X and up):

NTP Server	Preferred?
<RMS1-TVOE-IP-Address>	Yes

Select the "Ok" button when you have completed entering the server data.

8 ☐ **Export the Initial Configuration**

Navigate to **Main Menu → Configuration → Servers.**

From the GUI screen, select the NOAMP server and then select "Export" action button to generate the initial configuration data for that server.

9 ☐	**Copy Configuration File to 1st NOAMP Server**	From a terminal window connection on the 1st NOAMP VM (see 4.12Appendix F for instructions on how to access the NOAMP from iLO) , copy the configuration file created in the previous step from the `/var/TKLC/db/filemgmt` directory on the 1st NOAMP to the /var/tmp directory. The configuration file will have a filename like `TKLCConfigData.<hostname>.sh`. The following is an example: **`$ sudo cp /var/TKLC/db/filemgmt/TKLCConfigData.<hostname>.sh /var/tmp/TKLCConfigData.sh`**
10 ☐	**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. .
11 ☐	**Configure Time Zone**	From the command line prompt, execute *set_ini_tz.pl*.. Replace as appropriate with the time zone you have selected for this installation. For UTC, use "Etc/UTC", for a full list of valid timezones, see 4.12Appendix I. **`$ sudo /usr/TKLC/appworks/bin/set_ini_tz.pl <timezone>`** **`Verify Success of Time Zone Script`** **`$ echo $?`** **`If this returns anything other than "0", then halt this procedure and contact Oracle Customer Support.`** **`Execute date command to verify the timezone`** **`$ date`**
12 ☐	**Reboot the Server**	Run the following command to reboot the server: **`$ sudo init 6`**
13 ☐	**(Optional)** **Configure Networking for Dedicated NetBackup Interface**	**NOTE: You will only execute this step if your NO is using a dedicated Ethernet interface for NetBackup.** From a usradm login session on the first NO, execute the following commands: `$` **`netAdm set --device=netbackup --type=Ethernet --onboot=yes --address=<NO1_NetBackup_IP> --netmask=<NetBackup_NetMask>`** `$` **`netAdm add --route=net --device=netbackup --address=<NetBackup_Network_ID> --netmask=<NetBackup_Network_NetMask> --gateway=<NetBackup_Network_Gateway_IP>`**

Procedure 19. Configure the NOAMP Server Group

S T E P	This procedure will provide the steps to configure the NOAMP 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 ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**NOAMP GUI:** Login	Establish a GUI session on the first NOAMP server by using the XMI IP address of the first NOAMP server. Open the web browser and enter a URL of: `http://<first noamp XMI IP address>` Login as the guiadmin user. If prompted by a security warming, select "Continue to this Website" to proceed.
2 ☐	**Enter NOAMP Server Group Data**	Using the GUI session on the first NOAMP server, go to the GUI **Main Menu→Configuration→Server Groups**, select Insert and fill the following fields: • Server Group Name → **[Enter Server Group Name]** • Level → **A** • Parent : **None** • Function: **DSR (Active/Standby Pair)** Select "OK" when all fields are filled in.
3 ☐	**Edit the NOAMP Server Group**	From the GUI Main Menu→Configuration→Server Groups, select the new server group, and then select "Edit". Select the Network Element that represents the NOAMP. NO_900060103 Server: HPC6NO SG Inclusion: ☑ Include in SG Preferred HA Role: ☐ Preferred Spare In the portion of the screen that lists the servers for the server group, find the NOAMP server being configured. Click the "Include in SG" checkbox. Leave other boxes blank. Press Apply Press OK
4 ☐	**Verify NOAMP server role**	From terminal window to the first NOAMP VM, execute the **`ha.states`** command to verify that the "DbReplication" 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. Press Ctrl+C to exit
5 ☐	**Restart 1st NOAMP server**	From the NOAMP GUI, select the **Main menu→Status & Manage→Server** menu. Select the first NOAMP server. Select the **`Restart`** button. Answer OK to the confirmation popup. Wait approximately 3-5 minutes before proceeding to allow the system to stabilize indicated by having the "Appl State" as "Enabled".

Procedure 20. Configure the Second NOAMP Server

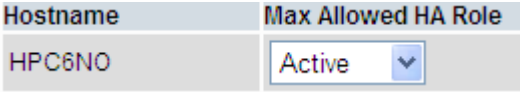
S T E P	This procedure will provide the steps to configure the Second NOAMP server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**Exchange SSH keys between PM&C and second NOAMP server**	Use the PM&C GUI to determine the Control Network IP address of the server that is to be the second NOAMP server. From the PM&C GUI, navigate to **Main Menu → Software-→Software Inventory**. Note the IP address for the second NOAMP server, usually the second server in the first enclosure. From a terminal window connection on the PM&C, exchange SSH keys for admusr between the PM&C and the 2nd NOAMP server using the keyexchange utility, using the Control network IP address for the NOAMP server. When prompted for the password, enter the password for the admusr user of the NOAMP server. **`$ keyexchange admusr@<NOAMP server Control Net IP addr>`**
2 ☐	**NOAMP GUI:** Login	If not already done, establish a GUI session on the first NOAMP server by using the XMI IP address of the first NOAMP server. Open the web browser and enter a URL of: `http://<first noamp XMI IP address>` Login as the guiadmin user.
3 ☐	**Insert the 2nd NOAMP server**	Navigate to **Main Menu → Configuration → Servers**. Click on **`Insert`** to insert the new second NOAMP server into servers table ("B" server). This server role should be the "NETWORK OAM&P". Select the Network Element Name (should be the same used when configuring the first NOAMP). Choose "DSR TVOE Guest" for the hardware profile. 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 (DSR 5.X and up): **NTP Server** | **Preferred?** ***<RMS2-TVOE-IP-Address>*** | Yes Select the **`Ok`** button when you have completed entering the server data.
4 ☐	**Export the initial configuration**	From the GUI screen, select the second server and then select **`Export`** action button to generate the initial configuration data for that server.

5 ☐	**Copy Configuration File to 2nd NOAMP Server**	From a terminal window connection on the 1st NOAMP iLO, use the `awpushcfg` utility to copy the configuration file created in the previous step from the `/var/TKLC/db/filemgmt` directory on the 1st NOAMP to the 2nd NOAMP server, using the Control network IP address for the 2nd NOAMP server. The configuration file will have a filename like `TKLCConfigData.<hostname>.sh`. **`$ awpushcfg`** The awpushcfg utility is interactive, so the user will be - prompted for the IP address of the PM&C server. Use the management network address from the PM&C, - the server inventory will be presented, - prompted for the Control network IP address for the target server (in this case, the second NOAMP server). - prompted for the hostname of the target server, - Note: If prompted for a username, please use admusr
6 ☐	**Wait for Configuration to Complete**	Obtain a terminal window connection on the 2nd NOAMP (Use the procedure in Appendix F). 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`** **NOTE**: Ignore the warning about removing the USB key, since no USB key is present. .
7 ☐	**Reboot the Server**	Run the following command to reboot the server: **`$ sudo init 6`**

8 ☐	**(Optional)**
	Configure Networking for Dedicated NetBackup Interface
		NOTE: You will only execute this step if your NO is using a dedicated Ethernet interface for NetBackup.
		
		From a usradm login session on the 2nd NO, execute the following commands:
		`$ sudo netAdm set --device=netbackup --type=Ethernet --onboot=yes --address=<NO2_NetBackup_IP> --netmask=<NetBackup_NetMask>`
		
		`$ netAdm add --route=net --device=netbackup --address=<NetBackup_Network_ID> --netmask=<NetBackup_Network_NetMask> --gateway=<NetBackup_Network_Gateway_IP>`

Procedure 21. Complete Configuring the NOAMP Server Group

S T E P #	This procedure will provide the steps to finish configuring th NOAMP 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 ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**Edit the NOAMP Server Group Data**	From the GUI session on the first NOAMP server, go to the GUI **`Main Menu->Configuration->Server Groups.`** Select the NOAMP Server group and click on **`Edit`** and add the second NOAMP server to the Server Group by clicking the "Include in SG" checkbox for the second NOAMP server. Click **`Apply.`** RMSNO_900060102 Server | SG Inclusion | Preferred HA Role RMSNOA | ☑ Include in SG | ☐ Preferred Spare RMSNOB | ☑ Include in SG | ☐ Preferred Spare Add a NOAMP VIP by click on **`Add`**. Fill in the `VIP Address` and press **`Ok`** as shown below VIP Address | Add Remove Ok Apply Cancel

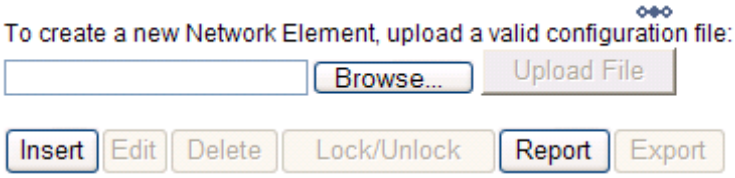
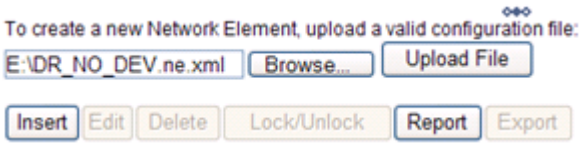
2 ☐	**Wait for Replication**	After replication, which will initially take up to 5 minutes, the HA status should be active (**`Main menu->Status & Manage->HA`**). Note: This may take up to 5 minutes while the NOAMP servers figure out master/slave relationship. Log out of GUI from the first NOAMP XMI address.
3 ☐	**Establish GUI Session on the NOAMP VIP**	Establish a GUI session on the NOAMP by using the XMI VIP address. Login as user "guiadmin".
4 ☐	**Wait for Remote Database Alarm to Clear**	Wait for the alarm "Remote Database re-initialization in progress" to be cleared before proceeding. (**Main menu->Alarms & Events->View Active**)
5 ☐	**Verify HA Role for 2nd NOAMP server**	In the **Main menu->Status & Manage->HA** menu, verify that the "Max Allowed HA Role" for the 2nd NOAMP server is "Active". If it is **not**, press the **`Edit`** button and in the resulting screen, change the 2nd NOAMPs server's "Max Allowed HA Role" to "Active" using the dropdown box.  Press **`OK`**.
6 ☐	**Restart 2nd NOAMP server**	In the **Main menu->Status & Manage->Server** menu, select the second NOAMP server. Select the "Restart" button. Answer OK to the confirmation popup. Wait approximately 3-5 minutes before proceeding to allow the system to stabilize indicated by having the "Appl State" as "Enabled".

Procedure 22. Install NetBackup Client (Optional)

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 ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**Install Netbackup Client Software**	If a customer has a way of transferring and installing the netbackup client without the aid of TPD tools (push configuration) then use Appendix J.2 Netbackup Client Install with nbAutoInstall. **This is not common. If the answer to the previous question is not known** then use Appendix J.1 Netbackup Client Install with platcfg.
2 ☐	**Install Netbackup Client Software**	Choose the same method used in step 1 to install NetBackup on the 2nd NO.

Procedure 23. NO Configuration for DR Site (Optional)

S T E P #	This procedure will provide the steps to configure the First NOAMP server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. **Prerequisite**: Application software already installed. **Needed material:** - DR Site installed with its PM&C Configured - DSR NO DR Site Network Element File IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**Exchange SSH keys between PM&C and DR NOAM servers**	Use the GUI to determine the Control Network IP address of the server that is to be the first NOAMP server. From the PM&C GUI, navigate to **Main Menu → Software →Software Inventory**. Note the IP address for the first NOAMP server. From a terminal window connection on the PM&C, exchange SSH keys for admusr between the PM&C and the 1st NOAMP server using the keyexchange utility, using the Control network IP address for the NOAMP server. When prompted for the password, enter the password for the admusr user of the NOAMP server. **# keyexchange admusr@<DR NOAMP server Control Net IP addr>** Note: if keyexchange fails, edit "/root/.ssh/known_hosts" and remove blank lines, and retry the keyexchange commands.

2 ☐	**Primary NOAMP VIP GUI :** Login	Using a web browser, navigate to the **XMI Virtual IP Address (VIP)** of the **Primary NO Site.** Login using the guiadmin user.
3 ☐	**Primary NOAMP VIP GUI:** Insert Network Element for DR Site	Using the GUI menu, Navigate to **Configuration -> Network Elements** as shown below  The "**Network** Elements" screen will display, select the **"Browse"** dialogue button (scroll to bottom left corner of screen).  A dialogue will pop up, browse to the location of the DSR DR NO Site Element XML File and click the **"Open"** button. Then click "**Upload File**" as shown below  If the values in the .xml file pass validation rules, the user will receive a banner information message showing that the data has been successfully validated and committed to the DB.

4 ☐	**Primary NOAMP VIP GUI:** Insert Servers	Using the GUI menu, Navigate to **Configuration -> Servers** Click the "**Insert**" button (bottom left corner of screen). An "**Adding a new server**" screen will be displayed up as shown below Adding a new server Attribute / Value / Description Host Name / * / Unique name for the server. [Default = n/a. Range = A 20-character string. Valid characters are alphanumeric and minus sign. Must start with an alphanumeric and end with an alphanumeric.] Role / - Select Role - * / Select the function of the server Hardware Profile / TVOE Guest / Hardware profile of the server Network Element Name / - Unassigned - * / Select the network element Location / / Location description [Default = "". Range = A 15-character string. Valid value is any text string.] Ok Apply Cancel Fill in the following Values: Host Name: Name of **DSR DR NO Server A** Role: Select the **NETWORK OAM&P** Hardware Profile: Select **DSR TVOE Guest** Network element Name: Select the network Element Name for the **DSR DR** Site (the one inserted in step 2 above). Location: Fill in the server geographical location (optional). The network interface fields will now become available with selection choices based on the chosen hardware profile and network element Interfaces: Network / IP Address / Interface INTERNALXMI (10.240.84.128/25) / 10.240.84.155 / xmi / VLAN (3) INTERNALIMI (10.240.85.0/26) / 10.240.85.10 / imi / VLAN (4) Ok Apply Cancel 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 (DSR 5.X and up): **NTP Server** / **Preferred?** ***<DR-RMS-TVOE-IP-Address>*** / Yes Select the "Ok" button when you have completed entering the server data.

5 ☐	**Primary NOAMP VIP GUI:** Export the Initial Configuration	Navigate to **`Main Menu -> Configuration -> Servers`** From the GUI screen, select the DR NO server added in the previous step and click the "**Export**" button to generate the initial configuration data for that server. The user will receive a banner information message as shown below. 
6 ☐	**Copy Configuration File to 1st DR NO Server**	SSH to the NOAMP VIP and use the `awpushcfg` utility to copy the configuration file created in the previous step from the `/var/TKLC/db/filemgmt` directory on the Primary Active to the first DR NOAMP server, using the Control network IP address for the first DR NOAMP serrver. The configuration file will have a filename like `TKLCConfigData.<`***`hostname`***`>.sh`. **`# awpushcfg`** The awpushcfg utility is interactive, so the user will be - prompted for the IP address of the PM&C server (make sure you enter the Management IP address of the PM&C on the DR Site), - the server inventory will be presented, - prompted for the Control network IP address for the target server (in this case, the first DR NOAMP server). - prompted for the hostname of the target server,

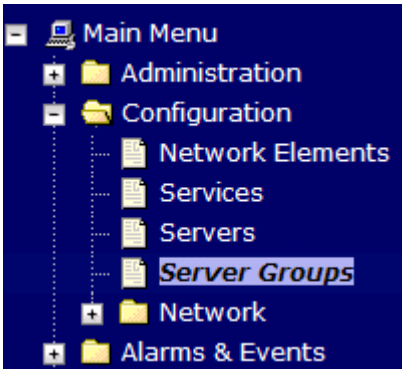
7
☐
	DR NO Server A: Verify awpushcfg was successful	1. Access the machine hosting the **DR NO Server A** using the **iLO** Connection and log in as root.
		
		2. Access the **DR NO Server A VM** console by running the following commands
		
		`$ sudo virsh list --all`
		
		`Id Name  State`
		`----------`
		`6` **`vm-PM&C`** `running`
		
		`7` **`DSR-NO`** `running`
		
		The connect to **DR NO Server A VM** using the following command, and login as root.
		
		`$ sudo virsh console DSR-NO`
		
		`Connected to domain vm-DSR-NO`
		`Escape character is ^]`
		`<Press ENTER key>`
		`CentOS release 6.2 (Final)`
		`Kernel 2.6.32-220.7.1.el6prerel6.0.0_80.13.0.x86_64 on an x86_64`
		`DSR-NO login:` **`root`**
		`Password:`
		`Last login: Fri May 25 16:39:04 on ttyS4`
		
		3. Verify awpushcfg was called by checking the following file
		
		`$ sudo cat /var/TKLC/appw/logs/Process/install.log`

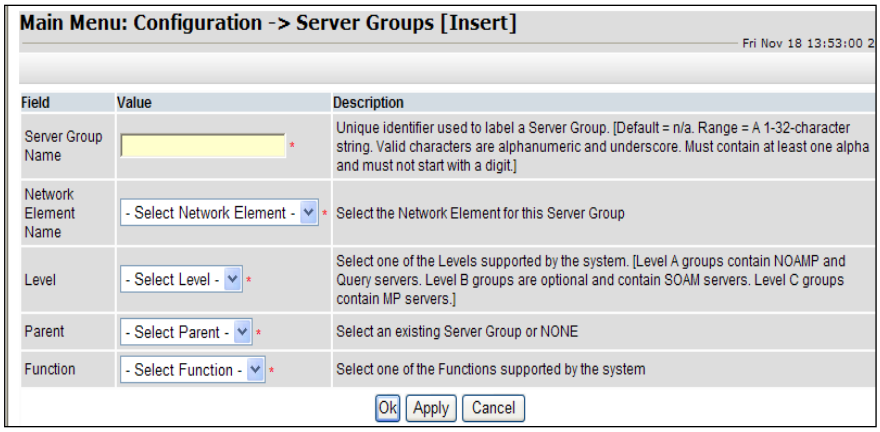
8 ☐	**DR NO Server A VM:** Wait for Configuration to Complete	The automatic configuration daemon will look for the file named "TKLCConfigData.sh" in the /var/tmp directory, implement the configuration in the file, and then prompt the user to reboot the server. Wait to be prompted to reboot the server, 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. .
10 ☐	**DR NO Server A VM:** Reboot the VM	Reboot the server using the following command: **`$ sudo init 6`** Then wait for the server to reboot (takes between 5 and 10 minutes)
11 ☐	**DR NO Server A VM:** Configure Networking for Dedicated NetBackup Interface (Optional)	**NOTE: You will only execute this step if your NO is using a dedicated Ethernet interface for NetBackup.** From a admusr login session on the first NO, execute the following commands: **`$ sudo netAdm set --device=netbackup --type=Ethernet --onboot=yes --address=<NO1_NetBackup_IP> --netmask=<NetBackup_NetMask>`** **`$ sudo netAdm add --route=net --device=netbackup --address=<NetBackup_Network_ID> --netmask=<NetBackup_Network_NetMask> --gateway=<NetBackup_Network_Gateway_IP>`**

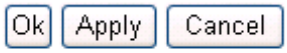
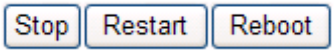
12 ☐	**DR NO Server A VM:** Verify Server Health	Execute the following command and make sure that no errors are returned:
		
		`$ sudo syscheck`
		`Running modules in class hardware...`
		`OK`
		`Running modules in class disk...`
		`OK`
		`Running modules in class net...`
		`OK`
		`Running modules in class system...`
		`OK`
		`Running modules in class proc...`
		`OK`
		`LOG LOCATION: /var/TKLC/log/syscheck/fail_log`

13 ☐	**Repeat for DR NO Server B**	Repeat Steps 4 through 12 to configure DR NO Server B.

Procedure 24. NO Pairing for DSR NO DR Site (Optional)

S T E P #	This procedure will provide the steps to configure the First NOAMP server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. **Prerequisite**: Procedure 36. NO Installation for DR Site complete IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**Primary NOAMP VIP GUI:** Login	Using a web browser, navigate to the **XMI Virtual IP Address (VIP)** of the **Primary NO Site.** Login using the guiadmin user.
2 ☐	**Primary NOAMP GUI:** Navigate to Server Group	Using the GUI menu, Navigate to **Configuration -> Server Groups** as shown below 

3 ☐	**Primary NOAMP GUI:** Insert Server Group	The **Server Groups** screen will display, click on **Insert** to add a new Server Group  The following will be displayed  Fill in the following values: <u>Server Group Name:</u> Name of **DSR DR NO** Site <u>Network Element Name:</u> Select the **DSR DR Site** <u>Level:</u> Select **A** <u>Parent:</u> Select **None** <u>Function:</u> Select **DSR** Then press "**Apply**", make sure the validation is successful
4 ☐	**Primary NOAMP 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 the "**A**" and "**B**" DR Servers as shown below and click on "**Apply**" 

5 ☐	**Primary NOAMP GUI:** Add 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"**. 
6 ☐	**Primary NOAMP GUI:** Wait for 5 minutes	Now that the server(s) have been paired within a Server Group they must establish a master/slave relationship for High Availability (HA). It may take several minutes for this process to be completed. Allow a minimum of **5 minutes** before continuing to the next Step.
7 ☐	**Primary NOAMP GUI:** Verify/Change HA Status	Using the GUI main menu, Navigate to **Status & Manage -> HA** Verify that the "**Max Allowed HA Role"** for **DR NO Servers A** and **B** shows **"Active"**. If the "**Max Allowed HA Role**" is set to standby for **Server A** or **Server B**, then click on "**Edit**" and set the "**Max Allowed HA Role**" to be "**Active**" for both DR Servers then press "**OK**". You will be returned to the previous screen, verify that the "**Max Allowed HA Role"** for **DR NO Servers A** and **B** now shows **"Active"**.
8 ☐	**Primary NOAMP GUI:** Verify Server Status	Using the GUI main menu, Navigate to **Status & Manage** -> **Server** The **"A"** and **"B"** DR NO servers should now appear in the right panel. Verify that the **"DB"** status shows **"Norm"** and the **"Proc"** status shows **"Man"** for both servers before proceeding to the next Step. 
9 ☐	**Primary NOAMP GUI:** Restart Application on DR NO A	Using the mouse, select **DR NO Server A**. The line entry should now be highlighted in **GREEN**. Click the **"Restart"** button from the bottom left corner of the screen.  Click the **"OK"** button on the confirmation dialogue box. The user should be presented with a confirmation message (in the banner area) for **DR NO Server A** stating: **"Successfully restarted application"**.

10 ☐	**Primary NOAMP GUI:** Verify Application State on DR NO Server A	Using the GUI main menu, Navigate to **Status & Manage** -> **Server** Verify that the **"Appl State"** now shows **"Enabled"** and that the **"Alm, Repl, Coll, DB, HA & Proc"** status columns all show **"Norm"** for **DR NO Server A** before proceeding to the next Step. Appl State: Enabled Alm: Err Repl: Norm Coll: Norm DB: Norm HA: Norm Proc: Norm **NOTE:** *If user chooses to refresh the Server status screen in advance of the default setting (15-30 sec.). This may be done by simply reselecting the* ***"Status & Manage → Server"*** *option from the Main menu on the left.*
11 ☐	**Primary NOAMP GUI:** Restart the application on DR NO Server B	Repeat Steps 9and 10, but this time selecting DR NO Server B instead of A

Procedure 25. Configure the SOAM NE

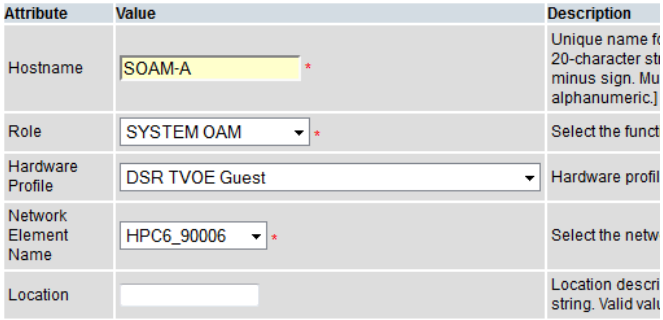
STEP #	This procedure will provide the steps to configure the SOAM Network Element Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**Establish GUI Session on the NOAMP VIP**	If needed, establish a GUI session on the NOAMP by using the OAM VIP address. Login as user "guiadmin".
2 ☐	**Create the SOAM Network Element using an XML File**	Make sure to have an SOAM Network Element XML file available on the PC that is running the web browser. The SOAM Network Element XML file is similar to what was created and used in Procedure 16, but defines the SOAM "Network Element". Navigate to **`Main Menu->Configuration->Network Elements`** Select the "Browse" button, and enter the path and name of the SOAM network XML file. Select the "Upload File" button to upload the XML file and configure the SOAM Network Element.

Procedure 26. Configure the SOAM Servers

STEP #	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 ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**Exchange SSH keys between PM&C and the SOAM server**	Use the PM&C GUI to determine the Control Network IP address of the server that is to be the SOAM server. From the PM&C GUI, navigate to **`Main Menu → Software→Software Inventory`**. Note the IP address for the SOAM server. From a terminal window connection on the SOAM site's PM&C, exchange SSH keys for admusr between the PM&C 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 user SOAM server. **`# keyexchange admusr@<SOAM server Control Net IP addr>`**
2 ☐	**Establish GUI Session on the NOAMP VIP**	If needed, establish a GUI session on the NOAMP by using the OAM VIP address. Login as user "guiadmin".

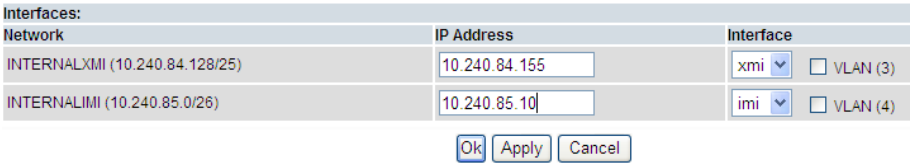
<table>
<tr>
<td>3
☐</td>
<td>Insert the SOAM “A” server</td>
<td>
Navigate to Main Menu->Configuration->Servers

Select the “Insert” button to insert the new SOAM “A” server into servers table.


<table>
<tr><th>Attribute</th><th>Value</th><th>Description</th></tr>
<tr><td>Hostname</td><td>SOAM-A *</td><td>Unique name f
20-character st
minus sign. Mu
alphanumeric.]</td></tr>
<tr><td>Role</td><td>SYSTEM OAM *</td><td>Select the funct</td></tr>
<tr><td>Hardware Profile</td><td>DSR TVOE Guest</td><td>Hardware profil</td></tr>
<tr><td>Network Element Name</td><td>HPC6_90006 *</td><td>Select the netw</td></tr>
<tr><td>Location</td><td></td><td>Location descri
string. Valid valu</td></tr>
</table>
Fill in the fields as follows:

Hostname: <Hostname>
Role: SYSTEM OAM
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


<table>
<tr><th colspan="3">Interfaces:</th></tr>
<tr><th>Network</th><th>IP Address</th><th>Interface</th></tr>
<tr><td>INTERNALXMI (10.240.84.128/25)</td><td>10.240.84.155</td><td>xmi ☐ VLAN (3)</td></tr>
<tr><td>INTERNALIMI (10.240.85.0/26)</td><td>10.240.85.10</td><td>imi ☐ VLAN (4)</td></tr>
<tr><td colspan="3">Ok Apply Cancel</td></tr>
</table>
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 (DSR 5.X and up):

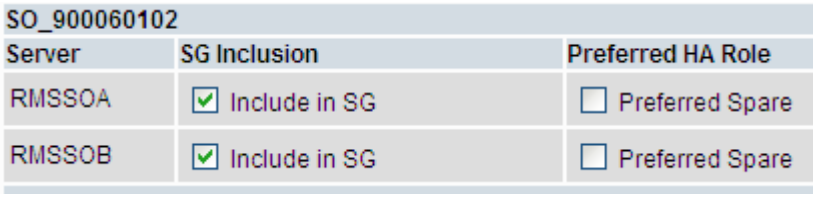
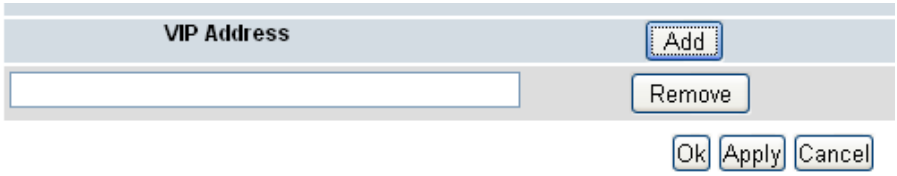
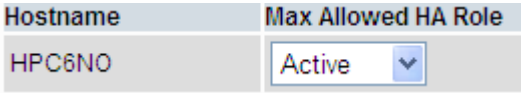
<table>
<tr><th>NTP Server</th><th>Preferred?</th></tr>
<tr><td><RMS1-TVOE-IP-Address></td><td>Yes</td></tr>
</table>
Select the “Ok” button when you have completed entering the server data.
</td>
</tr>
<tr>
<td>4
☐</td>
<td>Export the initial configuration</td>
<td>From the GUI screen, select the desired server and then select “Export” action button to generate the initial configuration data for that server.</td>
</tr>
</table>

5 ☐	**Copy Configuration File to SOAM "A" server**	From a terminal window connection on the Active NOAMP, use the `awpushcfg` utility to copy the configuration file created in the previous step from the `/var/TKLC/db/filemgmt` directory on the 1st NOAMP to the SOAM server, using the Control network IP address for the SOAM server. The configuration file will have a filename like `TKLCConfigData.<hostname>.sh`. Verify that the server is in the "ProvideSvc" role and the availability is "Available", then proceed with... `$ awpushcfg` The awpushcfg utility is interactive, so the user will be - prompted for the management IP address of the PM&C server, - the server inventory will be presented, - prompted for the hostname of the target server, - prompted for the Control network IP address for the target server (in this case, the SOAM server). - Note: If prompted for a username, please use admusr Use the SOAM IP address from step 1. The configuration success message can also be found in the /var/log/messages file.
6 ☐	**Wait for Configuration to Complete**	Obtain a terminal window connection on the 2nd NOAMP (Use the procedure in Appendix F). 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` **NOTE**: Ignore the warning about removing the USB key, since no USB key is present. .
8 ☐	**Reboot the Server**	Run the following command to reboot the server: `$ sudo init 6`

9 ☐	**Insert and Configure the SOAM "B" server**	Repeat this procedure to insert and configure the SOAM "B" server. Instead of data for the "A" Server, insert the network data for the "B" server, transfer the TKLCConfigData file to the "B" server, and reboot the "B" server when prompted at a terminal window. Add the following NTP servers (DSR 5.X and up): **NTP Server** | **Preferred?** ***<RMS2-TVOE-IP-Address>*** | Yes

Procedure 27. 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 ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**Enter SOAM Server Group Data**	After a approximately 5 minutes for the SOAM "B" server to reboot, from the GUI session on the NOAMP VIP address, go to the GUI Main Menu->Configuration->Server Groups, select Insert and add the SOAM Server Group name along with the values for the following fields: • Name → **[Enter Server Group Name]** • Level → **B** • Parent **[Select the NOAMP Server Group]** • Function: **DSR (Active/Standby Pair)** Select "OK" when all fields are filled.

2 ☐	**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".  SO_900060102 Server | SG Inclusion | Preferred HA Role RMSSOA | ☑ Include in SG | ☐ Preferred Spare RMSSOB | ☑ Include in SG | ☐ Preferred Spare Select the SOAM Server group and click on **`Edit`** Add both SOAM servers to the Server Group by clicking the "Include in SG" checkbox Click **`Apply.`** Add a SOAM VIP by click on **`Add`**. Fill in the `VIP Address` and press **`Ok`** as shown below  VIP Address | Add Remove Ok Apply Cancel
3 ☐	**Wait for Replication**	After replication, which will initially take up to 5 minutes, the server status should be active (Main menu->Status & Manage->Replication). Note: This may take up to 5 minutes while the servers figure out master/slave relationship. Look for the alarm "Remote Database re-initialization in progress" to be cleared before proceeding. (Main menu->Alarms->View Active)
4 ☐	**Verify HA Role for 2nd SOAM server**	In the **Main menu->Status & Manage->HA** menu, verify that the "Max Allowed HA Role" for the 2nd SOAM server is "Active". If it is **not**, press the **`Edit`** button and in the resulting screen, change the 2nd NOAMPs server's "Max Allowed HA Role" to "Active" using the dropdown box.  Hostname | Max Allowed HA Role HPC6NO | Active Press **`OK`**.
5 ☐	**Restart 1st SOAM server**	From the NOAMP GUI, select the Main menu->Status & Manage->Server menu. Select the "A" SOAM server. Select the "Restart" button. Answer OK to the confirmation popup. Wait for restart to complete.
6 ☐	**Restart 2nd SOAM server**	Continuing in the Main menu->Status & Manage->Server menu, now select the "B" SOAM server. Select the "Restart" button. Answer OK to the confirmation popup.

Procedure 28. Configure RMS-specific B-level Resources

S T E P #	This procedure will provide the steps to Configure RMS-specific B-level Resources Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**SSH to the active SO**	Obtain a terminal window connection on the **active SO** server console via SSH or iLO. Execute the following on the command line. Wait until the script completes and you are returned to the command line: `$ /usr/TKLC/dsr/bin/rmsResourceConfig.sh` Verify that no errors are displayed. If any errors are displayed, halt this procedure and contact Oracle Support.

Procedure 29. Configure the MP Servers

S T E P #	This procedure will provide the steps to configure an MP 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 ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**Exchange SSH keys between PM&C and the MP server**	Use the PM&C GUI to determine the Control Network IP address of the server that is to be an MP server. From the PM&C GUI, navigate to **Main Menu → Software-→Software Inventory**. Note the IP address for an MP server. From a terminal window connection on the PM&C, exchange SSH keys for *admusr* between the PM&C and the MP server using the keyexchange utility, using the Control network IP address for the MP erver. When prompted for the password, enter the password for the *admusr* user of the MP server. `$ keyexchange admusr@<MP server Control Net IP addr>`
2 ☐	**Establish GUI Session on the NOAMP VIP**	If needed, establish a GUI session on the NOAMP by using the XMI VIP address. Login as user “guiadmin”.

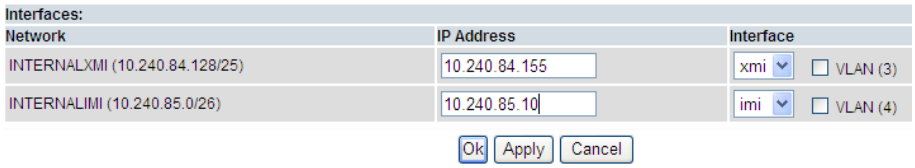
<table>
<tr><td>3
☐</td><td>Insert the MP server</td><td>
Navigate to Main Menu->Configuration->Servers

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

Fill in the fields as follows:

Hostname: <Hostname>
Role: MP
Hardware Profile: DSR TVOE Guest
Network Element Name: [Choose The SO Network Element from the 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 (DSR 5.X and up):

<table>
<tr><th>NTP Server</th><th>Preferred?</th></tr>
<tr><td><MP’s-RMS-TVOE-IP-Address></td><td>Yes</td></tr>
</table>
Select the “Ok” button when you have completed entering the server data.
</td></tr>
<tr><td>4
☐</td><td>Export the initial configuration</td><td>From the GUI screen, select the server that was just inserted and then select “Export” action button to generate the initial configuration data for that server.</td></tr>
</table>

5 ☐	**Copy Configuration File to MP server**	From a terminal window connection on the active NOAMP, use the `awpushcfg` utility to copy the configuration file created in the previous step from the `/var/TKLC/db/filemgmt` directory on the active NOAMP 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`. **$ awpushcfg** The awpushcfg utility is interactive, so the user will be - prompted for the management IP address of the PM&C server, - the server inventory will be presented, - prompted for the Control network IP address for the target server (in this case, the MP server). - prompted for the hostname of the target server, - Note: If prompted for a username, please use admusr 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.
6 ☐	**Wait for Configuration to Complete**	Obtain a terminal window connection on the MP server (Use the procedure in Appendix F). Become the super user by using the command: **$ sudo su** You should see the prompt change to the hash mark: # 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 **# cat /var/TKLC/appw/logs/Process/install.log** **NOTE**: Ignore the warning about removing the USB key, since no USB key is present. .
7 ☐	**Reboot the server**	Run the following command to reboot the server: **# init 6**

8 ☐	**(OPTIONAL) Delete Auto-Configured Default Route on MP and Replace it with a Network Route via the XMI Network**	*****NOTE: THIS STEP IS OPTIONAL AND SHOULD ONLY BE 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 PM&C then SSH to the MP's control address.) Become the super user by using the command: **$ sudo su** Log in to the **MP server** as the "admusr" user. Execute the following commands on the active MP server: **# netAdm delete --route=default --gateway=<MP_XMI_Gateway_IP> --device=<MP_XMI_Interface>** Route to <MP_XMI_Interface> removed. **Note: If your NO XMI network is exactly the same as your MP XMI network, then you can skip this command and go right to the ping test afterwards.** Determine <XMI_Gateway_IP> from your SO site network element info and <NO_XMI_Network_Address>,<NO_XMI_Network_Netmask> from your NO site network element info. 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. **[MP console] Create network route to the NO's XMI(OAM) network:** **# netAdm add --route=net --address=<NO_XMI_Network_Address> --netmask=<NO_XMI_Network_Netmask> --gateway=<XMI_Gateway_IP> --device=<MP_XMI_Interface>** Route to <MP_XMI_Interface> added. **[MP Console] 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 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.
9 ☐	**Repeat for remaining MPs**	Repeat this entire procedure for all remaining MP servers.

Procedure 30. Configure the MP Server Group(s) and Profiles

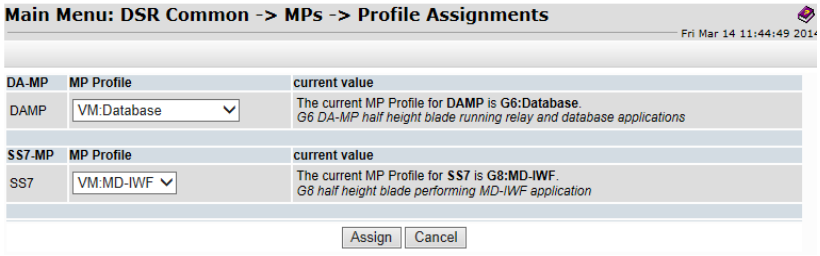
S T E P #	This procedure will provide the steps to configure MP Server Groups Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**Enter MP Server Group Data**	From the GUI session on the NOAMP VIP address, go to the GUI **Main Menu→Configuration→Server Groups**, select **Insert** and fill out the following fields: Server Group Name**: [Server Group Name]** Level: **C** Parent: **[Select the SOAMP Element Server Group]** Function**: Select the Proper Function for this MP Server Group:** Select **OK** when all fields are filled in.
2 ☐	**Repeat For Addional Server Groups**	**Repeat Step 1** 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. If you are installing the CPA, you will need a Session Binding Repository server group.

Server Group Function	MPs Will Run	Redundancy Model
DSR (multi-active cluster)	Diameter Relay and Application Services	Multiple MPs active
DSR (active-standby pair)	Diameter Relay and Application Services	1 Active MP and 1 Standby MP
Session Binding Repository	Session Binding Repository Function	1 Active MP and 1 Standby MP
IP Front End	IPFE application	1 Active MP and 1 Standby MP
SS7-IWF	MAPIWF Application	1 Active MP per server group

3 ☐	**Edit the MP Server Groups to include MP servers.**	From the GUI **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 that for SS7-MPs, only one SS7-MP can be assigned per server group. **HPC6_90006** **Server** | **SG Inclusion** | **Preferred HA Role** MP-1 | ☑ Include in SG | ☐ Preferred Spare MP-2 | ☑ Include in SG | ☐ Preferred Spare Select **Ok**. **Repeat for any remaining MP server groups untili all MPs have been assigned to a server group.**
4 ☐	**Wait for Replication to complete on all MP servers**	Browse to **Main menu**->**Status&Manage->Server.** Identify all the MP servers in the *Server Hostname* column . Now, wait for the corresponding *DB* and *Reporting Status* columns of those MPs to say "Norm". This may take up to 5 or 10 minutes. **Server Hostname** | **Appl State** | **Alm** | **DB** | **Reporting Status** HPC6-NO | Enabled | Norm | Norm | Norm HPC6-SO | Enabled | Warn | Norm | Norm HPC6-MP2 | Enabled | Warn | Norm | Norm HPC6-MP1 | Enabled | Warn | Norm | Norm
5 ☐	**Wait for Remote Database Alarm to Clear**	Wait for the alarm "10200: Remote Database re-initialization in progress" to be cleared. (**Main menu**->**Alarms & Events**->**Active Alarms**) This should happen shortly after you have verified the "Norm" DB status in the previous step.

<table>
<tr><td>6
☐</td><td>Assign Profiles to MPs from SOAM GUI.</td><td>
Log onto the GUI of the active SOAM server.

From the SO GUI, select MainMenu->Diameter Common->MPs->Profile Assignments



For each MP, select the proper profile assignment based on the function that the MP will serve:

<table>
<tr><th>Profile Name</th><th>Description</th></tr>
<tr><td>VM:Relay</td><td>Virtualized DA-MP on TVOE Guest running the relay application</td></tr>
<tr><td>VM:Database</td><td>Virtualized DA-MP on TVOE Guest running relay and database applications</td></tr>
<tr><td>VM:Session</td><td>Virtualized DA-MP on TVOE Guest running relay and session applications</td></tr>
<tr><td>VM:MD-IWF</td><td>Virtualized SS7-MP on TVOE Guest running MD-IWF applications</td></tr>
</table>

When finished, press the Assign button
</td></tr>
<tr><td>7
☐</td><td>Update DpiOption table from the active SOAM</td><td>
Log on to the active SOAM console via the XMI address or iLO.

Execute the following command (advise cut and paste to prevent errors):
<pre>$ iset -fvalue="50" DpiOption where "name='MpEngIngressMpsPercentile'"</pre>
=== changed 1 records ===
</td></tr>
<tr><td>8
☐</td><td>Restart MP servers</td><td>
From the NOAMP GUI, select the Main menu->Status & Manage->Server menu

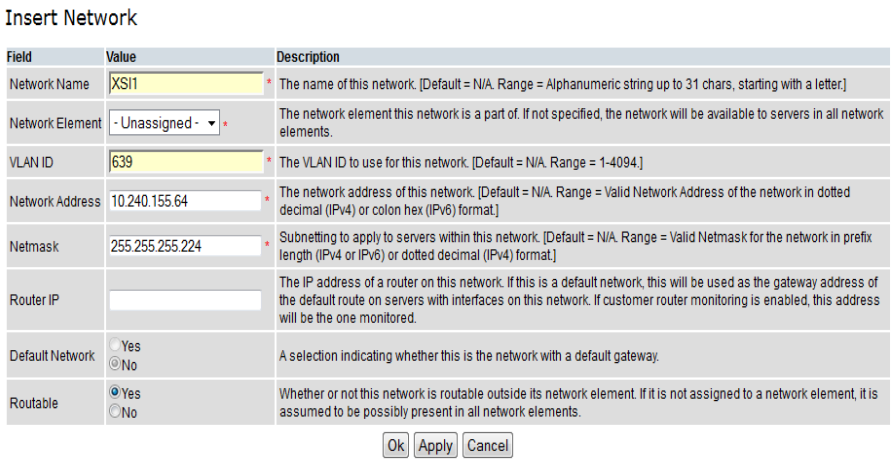
For each MP server:

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.

</td></tr>
</table>

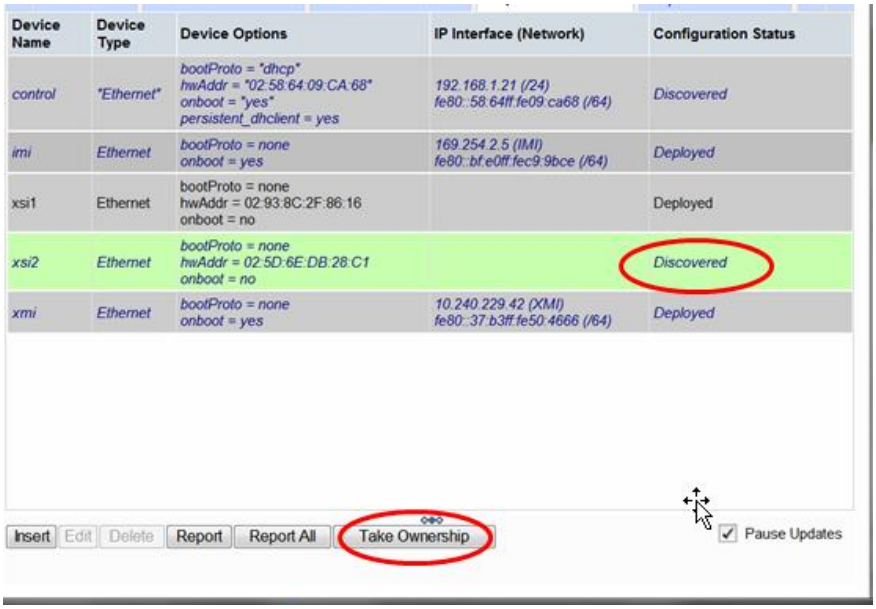
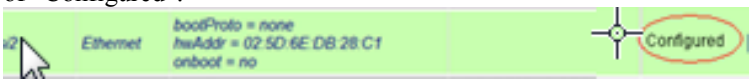
4.11 Signaling Network Configuration

Procedure 31. Configure the Signaling Networks

S T E P	This procedure will provide the steps to configure the Signaling Networks. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**Establish GUI Session on the NOAMP VIP**	Establish a GUI session on the NOAMP by using the XMI VIP address. Login as user "guiadmin".
2 ☐	**NOAMP VIP:** Navigate to Signaling Network Configuration Screen	Navigate to **`Main Menu -> Configuration -> Network`** Click on **`Insert`** in the lower left corner.
3 ☐	**NOAMP VIP:** Add First Signaling Network	You will see a screen similar to:  Insert Network Field / Value / Description Network Name: XSI1 * — The name of this network. [Default = N/A. Range = Alphanumeric string up to 31 chars, starting with a letter.] Network Element: - Unassigned - * — The network element this network is a part of. If not specified, the network will be available to servers in all network elements. VLAN ID: 639 * — The VLAN ID to use for this network. [Default = N/A. Range = 1-4094.] Network Address: 10.240.155.64 * — The network address of this network. [Default = N/A. Range = Valid Network Address of the network in dotted decimal (IPv4) or colon hex (IPv6) format.] Netmask: 255.255.255.224 * — Subnetting to apply to servers within this network. [Default = N/A. Range = Valid Netmask for the network in prefix length (IPv4 or IPv6) or dotted decimal (IPv4) format.] Router IP: — The IP address of a router on this network. If this is a default network, this will be used as the gateway address of the default route on servers with interfaces on this network. If customer router monitoring is enabled, this address will be the one monitored. Default Network: Yes / No — A selection indicating whether this is the network with a default gateway. Routable: Yes / No — Whether or not this network is routable outside its network element. If it is not assigned to a network element, it is assumed to be possibly present in all network elements. Ok Apply Cancel Enter the `Network Name, VLAN ID, Network Address and Netmask` that matches the first Internal Signaling network configuration at your site. Verify `Network Element` is set to Unassigned and Default values remain set for other fields – `Router IP, Default Network and Routable`. Press **`Ok`**.
4 ☐	**NOAMP VIP:** Add Second Signaling Network	Click on **`Insert`** in the lower left corner again and enter Enter the `Network Name, VLAN ID, Network Address and Netmask` that matches the second Internal Signaling network configuration at your site. Verify `Network Element` is set to Unassigned and Default values remain set for other fields – `Router IP, Default Network and Routable.` Press **`Ok`**. Repeat this step to configure any additional signaling networks.

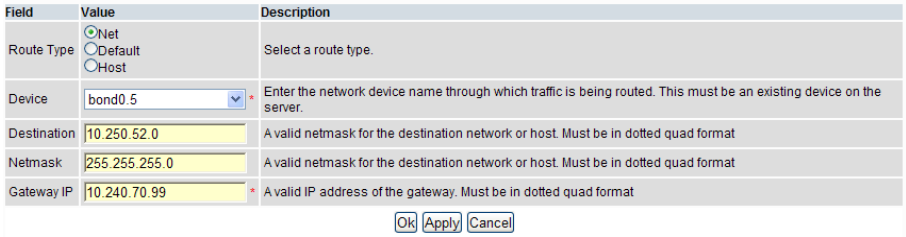
Procedure 32. Configure the Signaling Devices

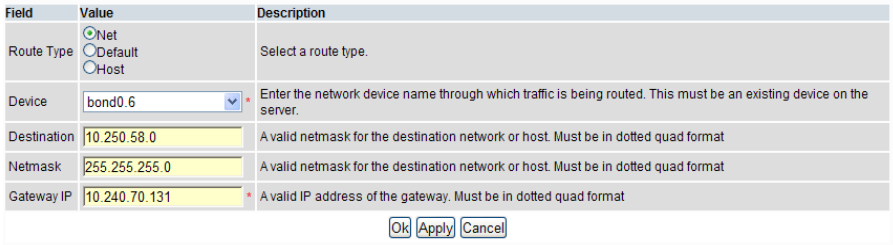
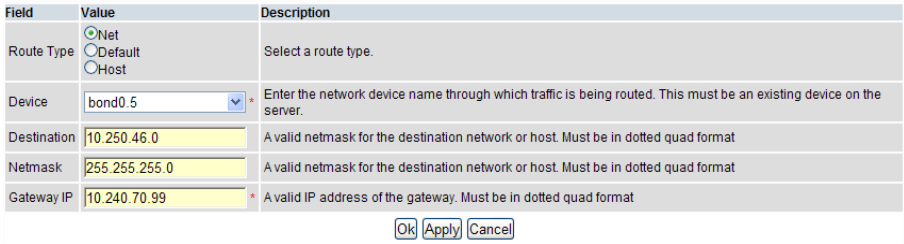
S T E P	This procedure will provide the steps to configure the Signaling Devices. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.

1 ☐	**NOAMP VIP:** Make Signaling Devices Configurable (**Unbonded, non-VLAN signaling interfaces only**)	**Select all ethernet devices that will be used as signaling interfaces and have "Discovered" as their Configuration Status. Next, press the Take Ownership button.** **NOTE: On virtual servers there are no real physical interfaces and all interfaces will be "Discovered"** Login as admusr to the NOAMP VIP console. Navigate to **Main Menu -> Configuration -> Network** -> **Devices** You should see several tabs each representing a server in the system. Click on the tab representing the first MP Server. You should see a list of network devices installed on the MP. Select all ethernet devices that will be used as unbonded signaling interfacs *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".  Select the first signaling interface (xsi1) and click on **Edit**

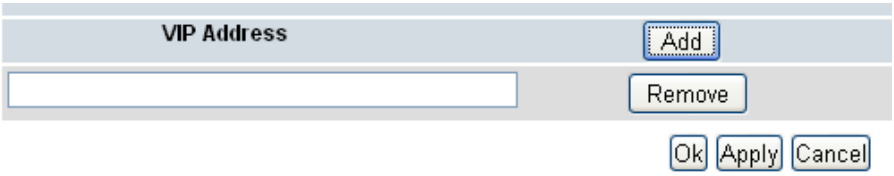
2 ☐	**NOAMP VIP:** Configure the Signaling Interfaces of the MP	The following screen should be displayed. Verify that the server name on the top corresponds to the MP. Edit Ethernet device xsi2 on mp-DRA-CHTM-1-1 General Options | MII Monitoring Options | ARP Monitoring Options | IP Interfaces Field | Value | Description Device Type | Ethernet, Bonding, Vlan, Alias | Select the device type. It cannot be changed after device is created. [Default = N/A. Range = Bonding, Vlan, Alias.] Device Monitoring | -- Monitoring Type-- | Choose a monitoring style to use with a bonding device. Disabled for non-bonding devices. [Default = MII. Options = MII, ARP.] Start On Boot | Enable | Start the device, and also start on boot. [Default = enabled] Boot Protocol | None | Select the boot protocol. [Default = None, Range = None,DHCP] Base Device(s) | control, imi, xmi, xsi1, xsi2 | The base device(s) for Bonding, Alias and Vlan device types. Alias and Vlan devices require 1 selection; Bonding devices require 2 selections. It cannot be changed after device is created. [Default = N/A. Range = available base devices per device type.] For `Device Type`, verify that it is set to `Ethernet`. For `Start on Boot`, verify that the checkbox is selected. For `Boot Protocol`, verify that it is set to None Now Click on the **`IP Interfaces`** tab as shown below. Insert Device on blade09 General Options | MII Monitoring Options | ARP Monitoring Options | IP Interfaces IP Address List: Add Row Now Click on **`Add Row`**, the following will be displayed IP Address List: Add Row XSI1 Remove Select the first Signaling Network from the drop down menu. If configuring an IPv6 only and your site has IPv6 auto-configuration, there's no need to enter an IP address, it will be assigned automatically, If configuring an IPv4 or IPv4/IPv6, enter the IP address that corresponds to the IPv4 interface. Click on **`Ok`** at the bottom of the screen. Ok Apply Cancel To configure additional Signaling Interfaces, re-select the MP and click on Edit again and repeat this step, otherwise continue with the next step.
3 ☐	**NOAMP VIP:** Configure the Interfaces of the other MPs.	Repeat this procedure to configure the signaling devices of all other MPs.

Procedure 33. Configure the Signaling Network Routes

S T E P	This procedure will provide the steps to configure the Signaling Network Routes. It is only applicable in a Layer 3 Configuration. **<u>Note:</u> If the default XMI route was deleted earlier (Procedure 27, step 9). It is recommended that a default Signaling route is added.** Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**Establish GUI Session on the NOAMP VIP**	Establish a GUI session on the NOAMP by using the XMI VIP address. Login as user "guiadmin".
2 ☐	**NOAMP VIP:** Navigate to Server Configuration Screen	Navigate to **`Main Menu -> Configuration -> Network`** -> **`Routes`** Select the first MP Server Tab as shown. Initially no routes should be present. 
3 ☐	**NOAMP VIP:** Add Route	Click on **`Insert`** at the bottom of the screen to add additional routes. 
4 ☐	**NOAMP VIP:** Add Route for XSI-1	A similar screen will be displayed:  For `Route Type` Select `Net`, for `Device` select `XSI1` For `Destination` enter the Network ID of Ext-XSI1 For `Netmask` enter the corresponding Netmask. For `Gateway IP` enter the Int-XSI1 switch VIP. Press **`Ok.`**

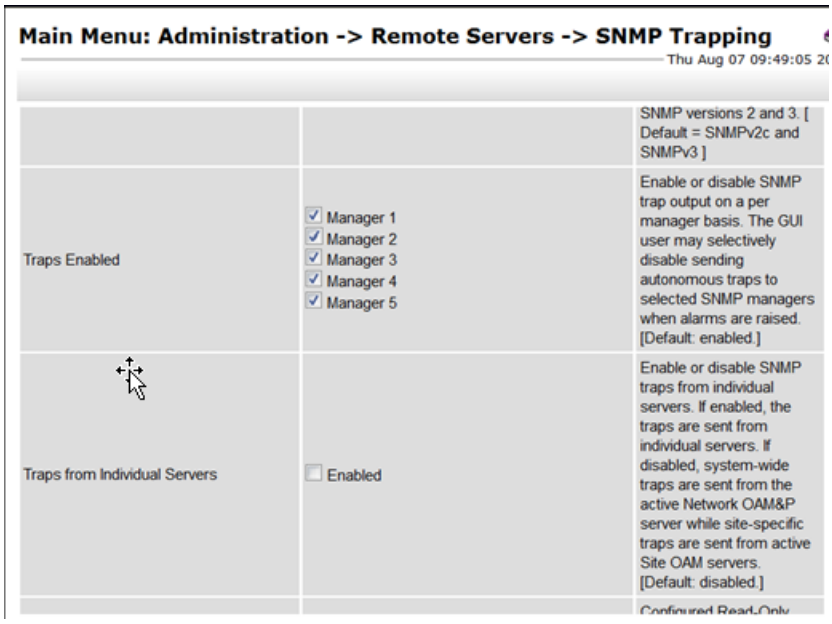
5 ☐	**NOAMP VIP:** Add Route for XSI-2	Click on **Insert** again  For `Route Type` Select `Net`, for `Device` select XSI2 For `Destination` enter the Network ID of Ext-XSI2 For `Netmask` enter the corresponding Netmask. For `Gateway IP` enter the Int-XSI2 switch VIP. Press **Ok.**
6 ☐	**NOAMP VIP:** Add Additional Routes	If the peers are on a different Network than the Signaling Networks. Additional Routes need to be added to point to those networks. Click on **Add** again  For `Route Type` Select `Net`, for `Device` select the appropriate interface that will be used to connect to that network For `Destination` enter the Network ID of Network to which the peer node is connected to. For `Netmask` enter the corresponding Netmask. For `Gateway IP` enter the Int-XSI switch VIP of the chosen Network (either of int-XSI-1 or of int-XSI2). Press **Ok.** Note that if Aggregation switches are used, it may be necessary to add the routes above to the aggregation switches as well. This can be done by editing the 4948E_configure.xml file and adding the routes to it, and re-running netconfig.
7 ☐	Repeat for additional MPs.	Repeat Steps 2 through 6 for any additional MPs.

Procedure 34. 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 ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**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 the GUI **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 exists, add their corresponding VIP addresses . Finally Click on **Ok**. 

Procedure 35. Configure SNMP Trap Receiver(s) (OPTIONAL)

S T E P #	This procedure will provide the steps to configure forwarding of SNMP Traps from each individual 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 ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**NOAMP VIP:** Configure System-Wide SNMP Trap Receiver(s)	**This procedure requires that all servers, including MPs, have an XMI interface on which the customer SNMP Target server (NMS) is reachable**. Using a web browser, log onto the NOAMP VIP and navigate to **Main Menu** -> **Administration ->Remote Servers** -> **SNMP Trapping**, as shown below 

2 ☐	**NOAMP VIP:** Enable Traps from Individual Servers (OPTIONAL)	**NOTE:** By default snmp traps from MPs are aggregated and then displayed at the active NOAMP. If instead, you wish for every server to send its own traps directly to the NMS, then execute this procedure. Make sure the checkbox next to "Enabled" is checked, if not, check it as shown below 

3 ☐	**NOAMP VIP:** Update Trap Manager and Read-Only Community	Fill in the IP address or hostname of the Network Management Station (NMS) you wish to forward traps to. This IP should be reachable from the the NOAMP's "XMI" network. Continue to fill in additional secondary, tertiary, etc.. manager IPs in the corresponding slots if desired. Variable: Manager 1 Value: 10.10.55.88 Enter the SNMPv2c Read-Only Community Name: SNMPv2c Read-Only Community Name: TEKELEC Leave all other fields at their default values. Then click on **Apply** and verify that the data is committed.

4.12 Install Optional Features

Procedure 36. Install 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 ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**Refer to Install Guides for Optional Features to Complete Installation**	Refer to 3.3 **Optional Features** for a list of feature install documents whose procedures are to be executed at this moment.

APPENDIX A. SAMPLE NETWORK ELEMENT AND HARDWARE PROFILES

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

It is expected that the maintainer/creator of this file has networking knowledge of this product and the customer site at which it is being installed. This network element XML file is used for DSR deployments using Cisco 4948 switches and HP c-Class 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.

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>
        </network>
    </networks>
</networkelement>
```

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

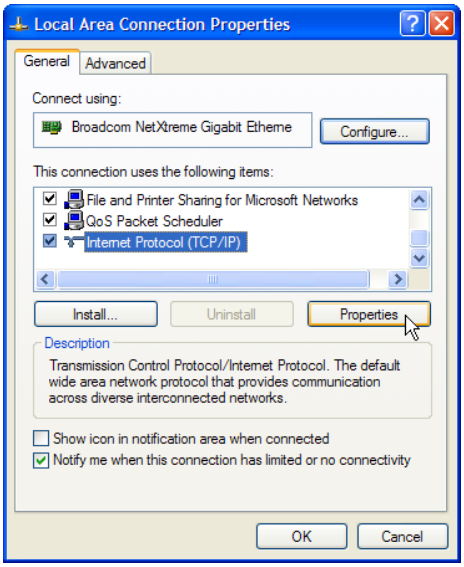
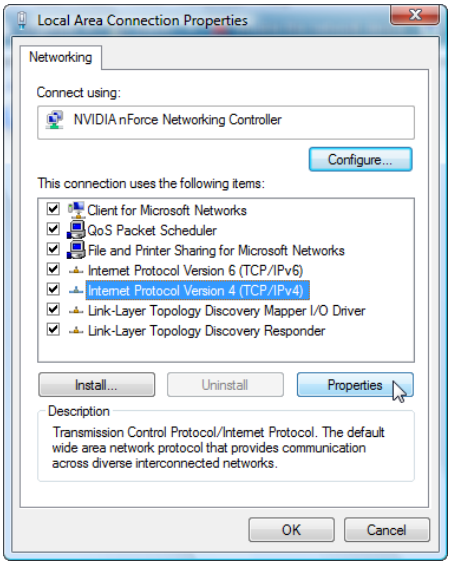
```
<profile>
    <serverType>TVOE Guest</serverType>
    <available>
        <device>eth0</device>
        <device>eth1</device>
        <device>eth2</device>
        <device>eth3</device>
        <device>eth4</device>
    </available>
    <devices>
        <device>
            <name>eth0</name>
  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

```
        </device>
        <device>
            <name>eth2</name>
            <type>ETHERNET</type>
        </device>
        <device>
            <name>eth3</name>
            <type>ETHERNET</type>
        </device>
        <device>
            <name>eth4</name>
            <type>ETHERNET</type>
        </device>
    </devices>
</profile>
```

APPENDIX B. CONFIGURING FOR EAGLE XG TVOEILO ACCESS

This procedure contains the steps to connect a laptop to the TVOEiLO 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.

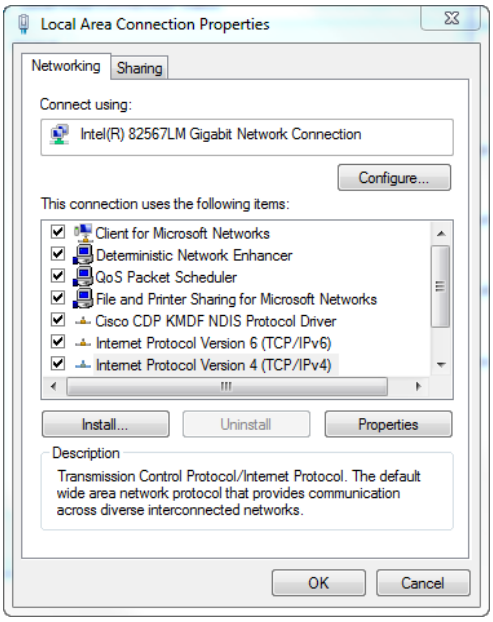
Procedure B.1 Connecting to the TVOE iLO/iLOM

Step	Procedure	Result	
		Windows XP	**Windows Vista**
1. ☐	Access the laptop network interface card's TCP/IP "Properties" screen. **NOTE:** *For this step follow the instruction specific to the laptop's OS (XP or Vista).*	• Go to Control Panel • Double-click on Network Connections • Right-click the wired Ethernet Interface icon and select "Properties" • Select "Internet Protocol (TCP/IP)" and select "Properties"  	• Go to Control Panel. • Double-click on Network and Sharing Center • Select Manage Network Connections (left menu) • Right-click the wired Ethernet Interface icon and select "Properties" • Select "Internet Protocol Version 4 (TCP/IPv4)" 

Procedure B.1 Connecting to the TVOE iLO/iLOM

For Window 7

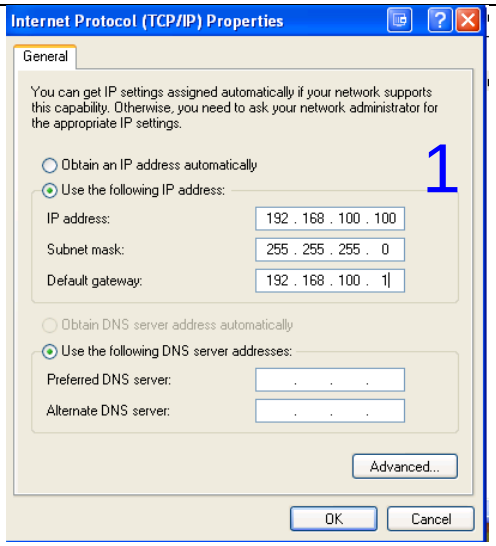
- Click start, at start menu type "**cmd**"
- Open command prompt
- Type the command " **ncpa.cpl**"
- Select 'Local Area Connection'.
- Select the 'Properties' button.
- Select "Internet Protocol Version 4 (TCP/IPv4)" and then select the 'Properties' button.

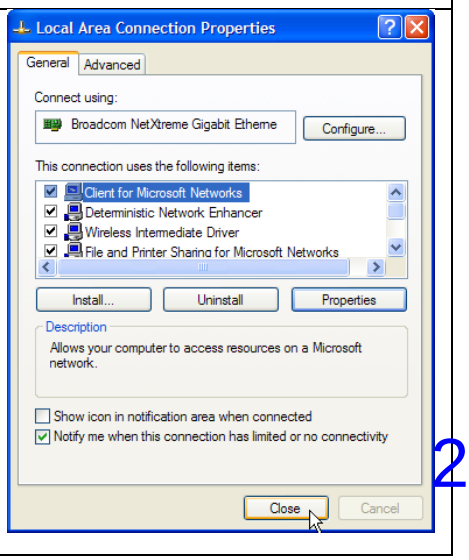


2. ☐

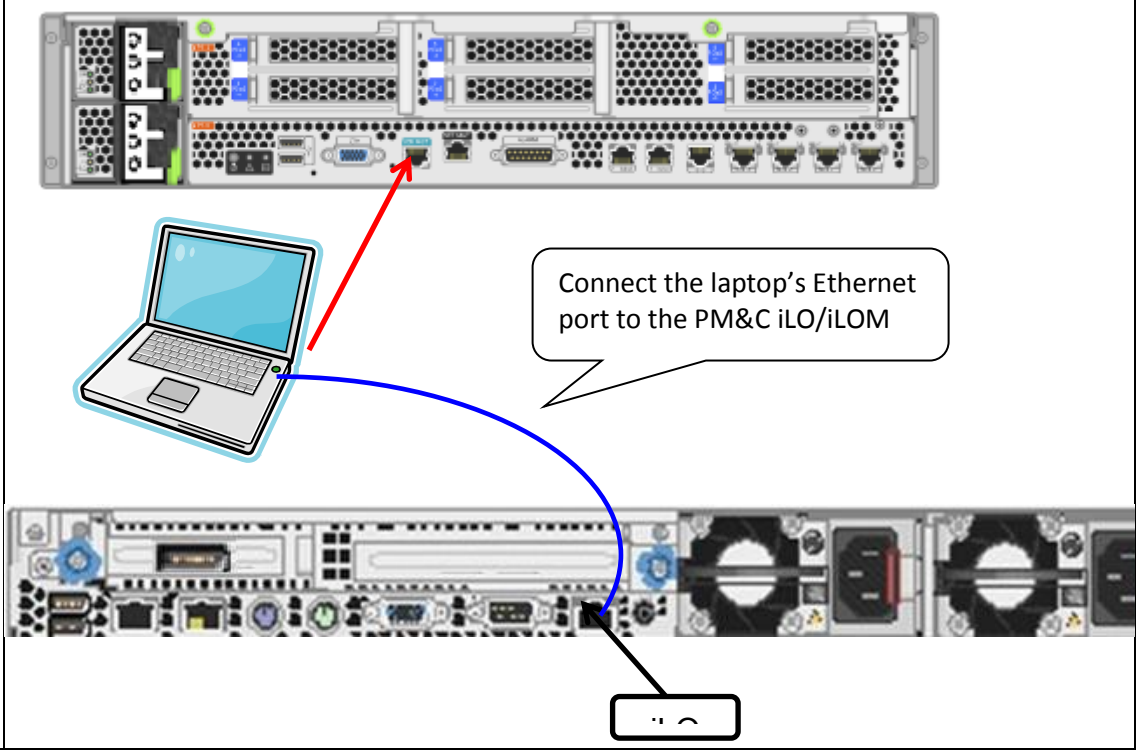
1) Clock "**use the following IP address**", set the **IP address** to "192.168.100.100", the **Subnet mask** to "255.255.255.0" and th **Default gateway** to "192.168.100.1", click **"OK"**.

2) Click **"Close"** from the network interface card's main "Properties" screen.





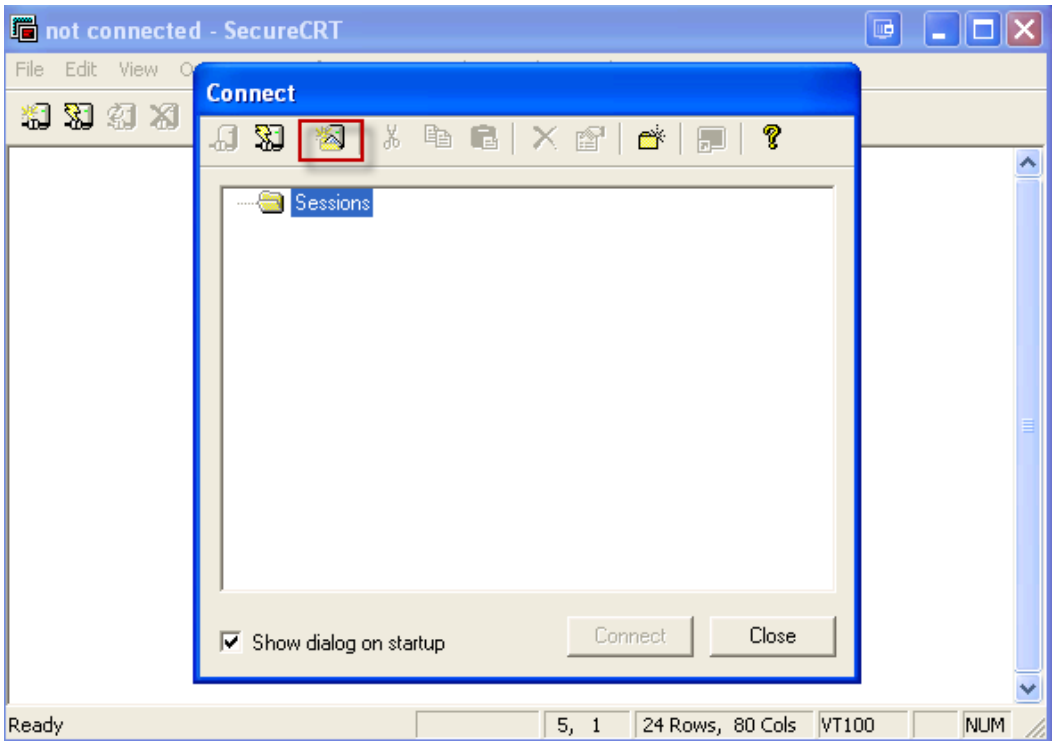
Procedure B.1 Connecting to the TVOE iLO/iLOM

3. ☐	Connect the laptop's Ethernet port directly to the TVOE iLO or iLOM port using a standard Cat-5 cross-over cable.	
THIS PROCEDURE HAS BEEN COMPLETED		

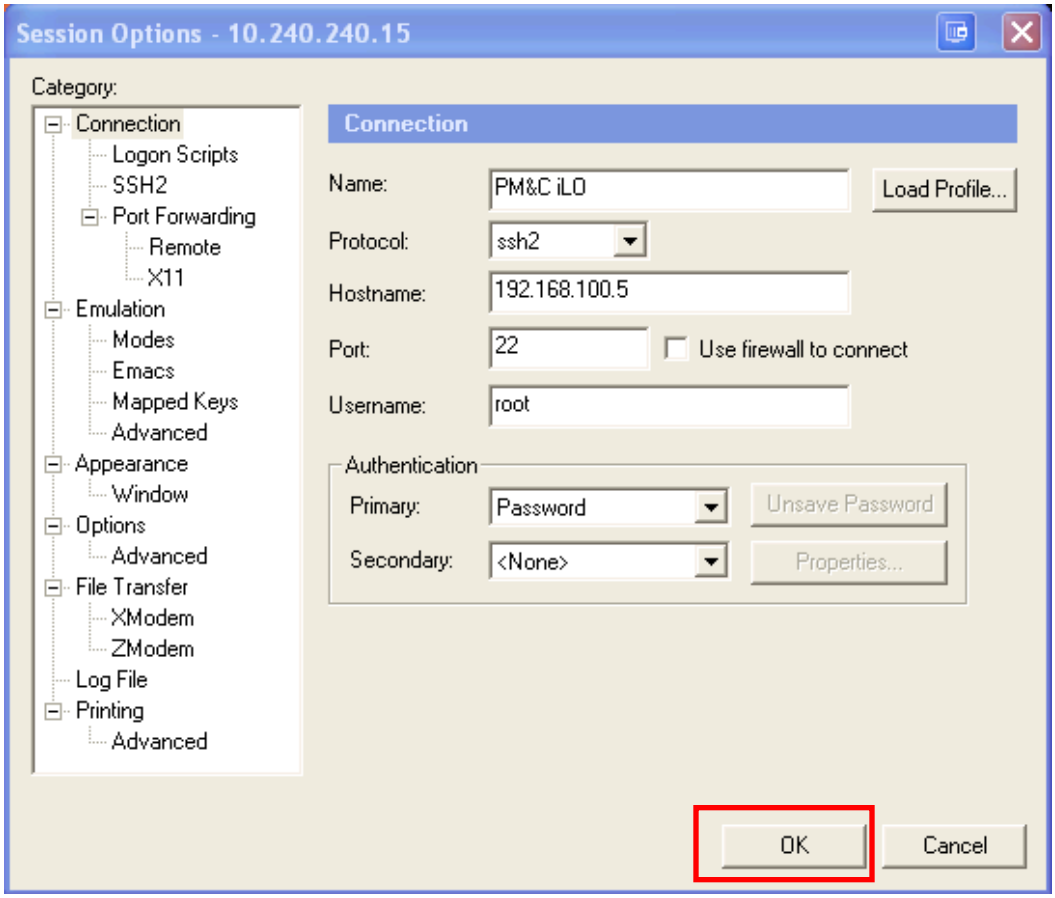
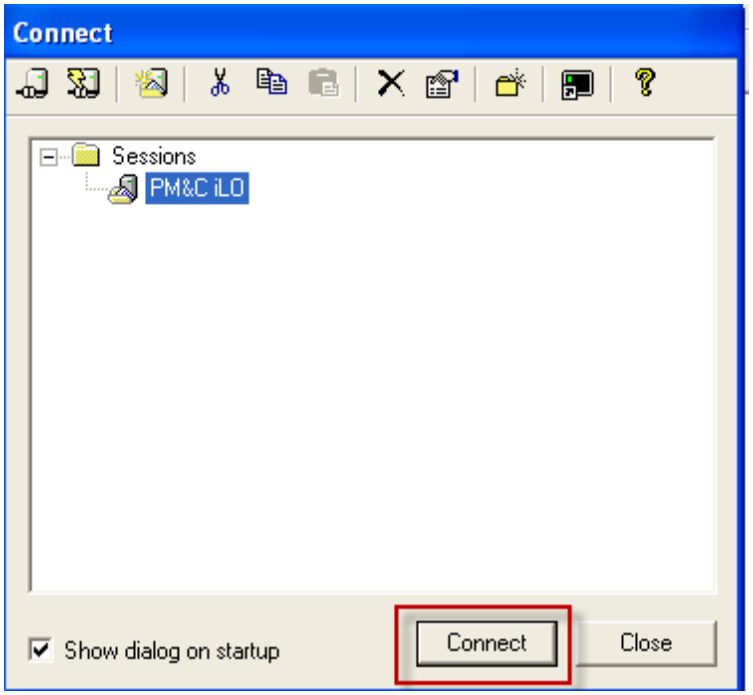
APPENDIX C. TVOE ILO CLI ACCESS

This procedure contains the steps to access the TVOE iLO CLI. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.

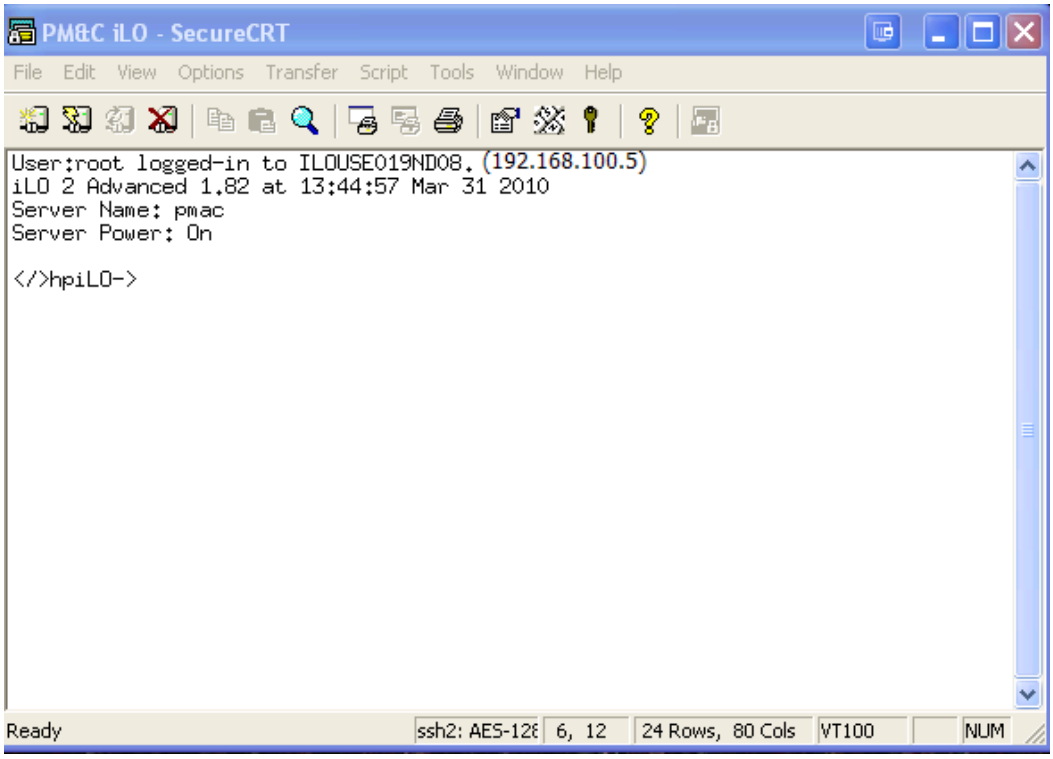
Procedure C.1 Accessing the TVOE iLO

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.	

Procedure C.1 Accessing the TVOE iLO

2. ☐	Enter **TVOE iLO** for 'Name' and **192.168.100.5**(manufacturing default) or customer IP set during installation for 'Hostname'. Enter **root** for Username. Click **OK** **NOTE 1** *See **Appendix B** to configure your system network to access the EAGLE XG.* .	
3. ☐	Navigate **FILE => Connect** to open the Connect window. Highlight the session you created and click **Connect.**	

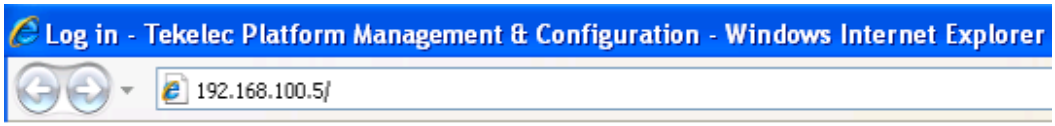
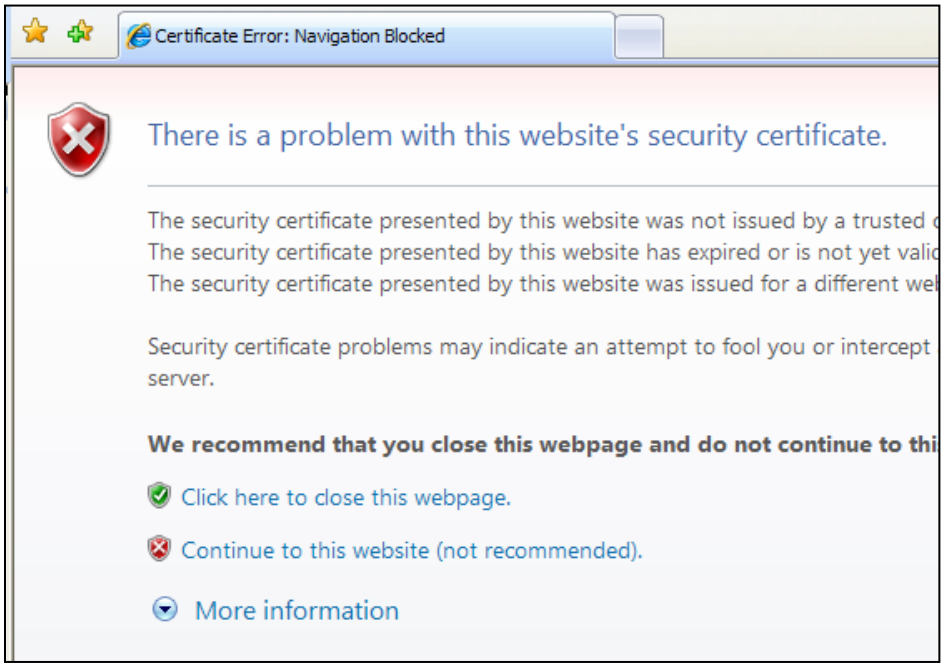
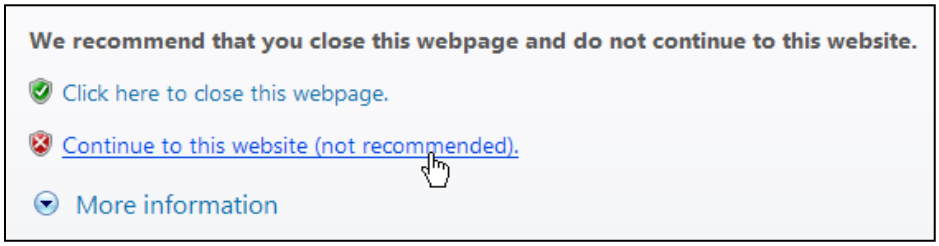
Procedure C.1 Accessing the TVOE iLO

4. ☐	Login to the TVOE iLO using the appropriate password.	
5. ☐	The TVOE iLO is displayed.	
THIS PROCEDURE HAS BEEN COMPLETED		

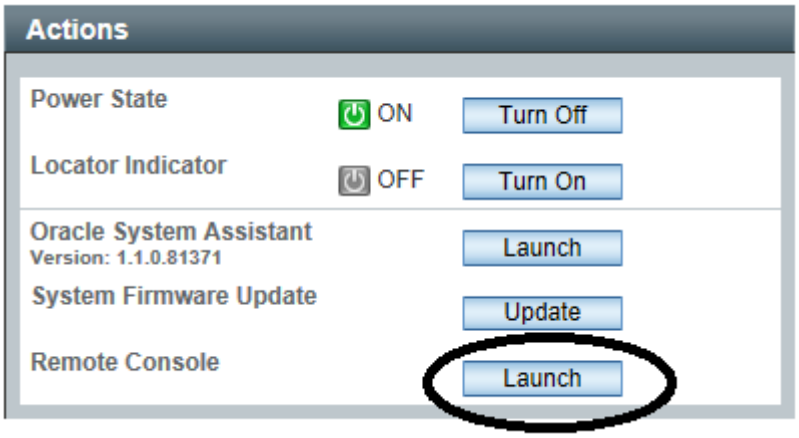
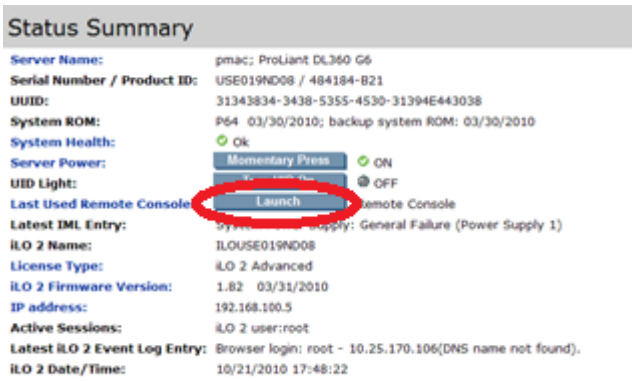
APPENDIX D. TVOE ILO GUI ACCESS

This procedure contains the steps to access the TVOE iLO GUI. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.

Procedure D.1 Accessing the TVOE iLO GUI

Step	Procedure	Result
1. ☐	Launch Internet Explorer and "Go 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.	
3. ☐	Select the option to "Continue to the website (not recommended)"	
4. ☐	Log in as user "**root**".	`Enter the login username and password and press "Log In"`

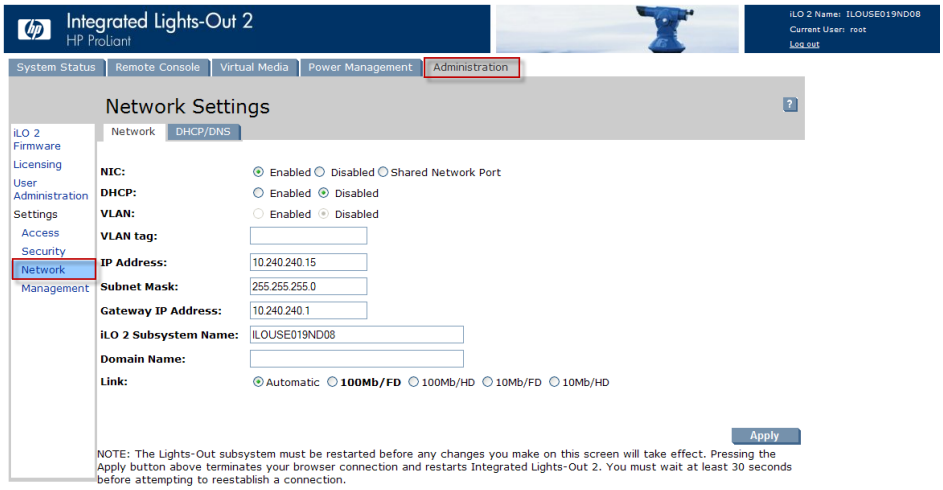
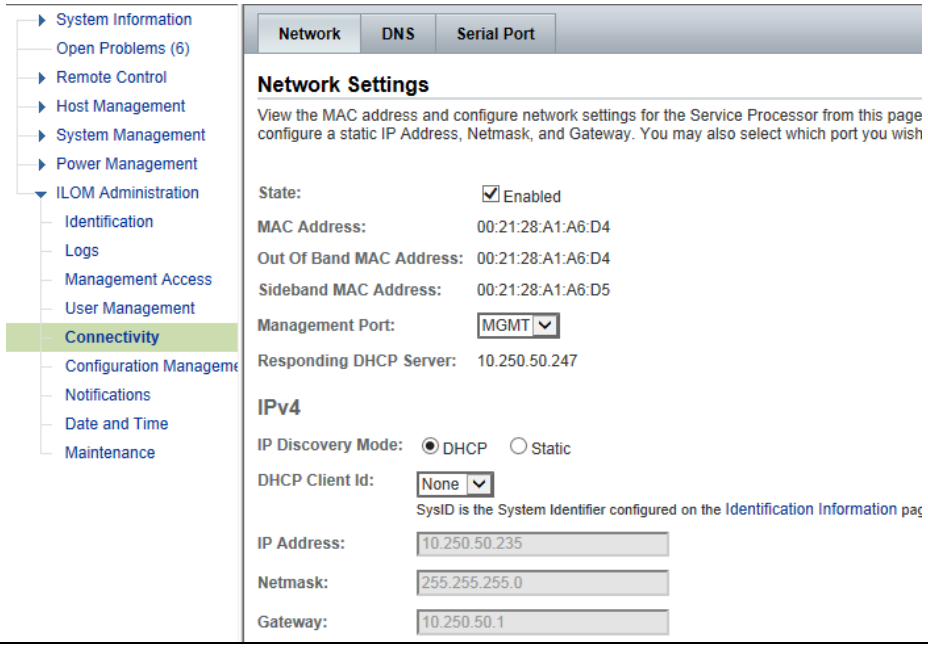
Procedure D.1 Accessing the TVOE iLO GUI

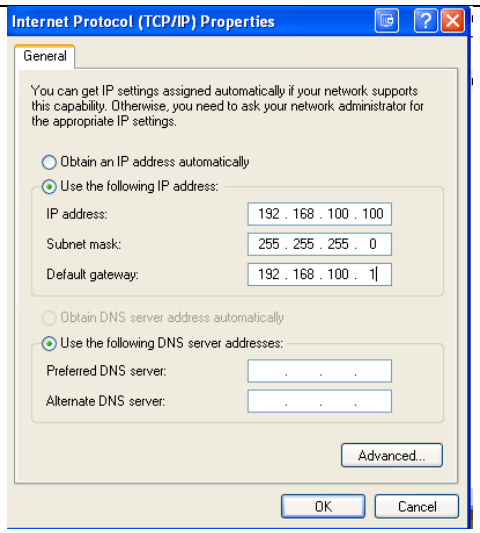
5. ☐	Click on Launch to start the RMS iLO CLI	Click on "Launch" next to Remote Console to start the RMS iLO CLI as shown below For Sun Netra:  For HP DL380: 
THIS PROCEDURE HAS BEEN COMPLETED		

APPENDIX E. CHANGING TVOE ILO ADDRESS

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

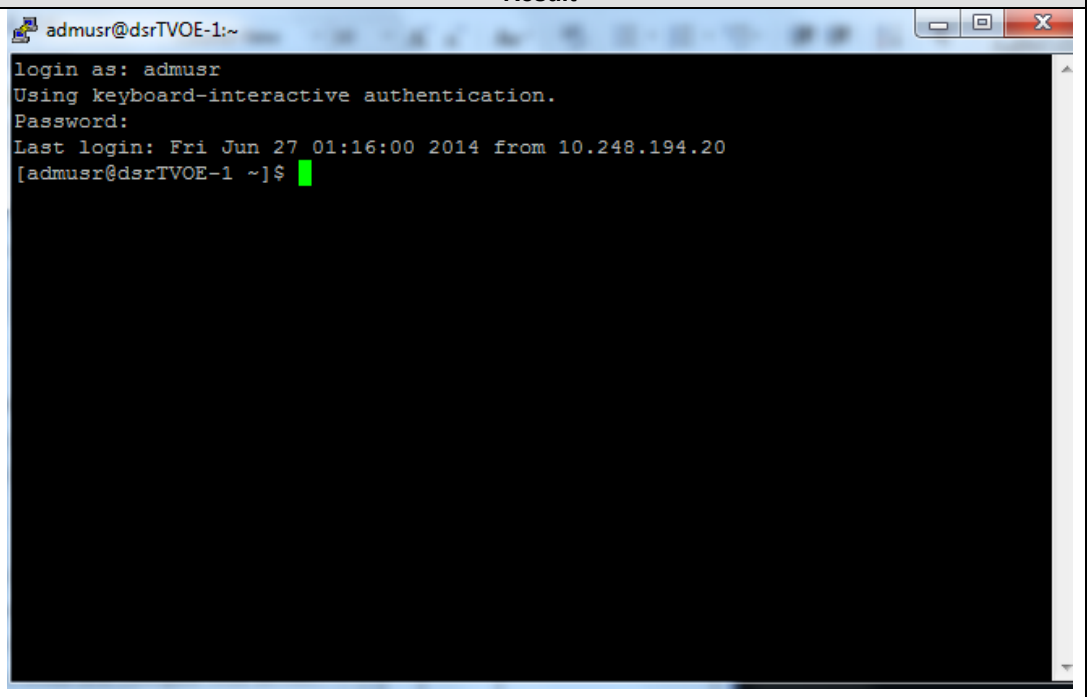
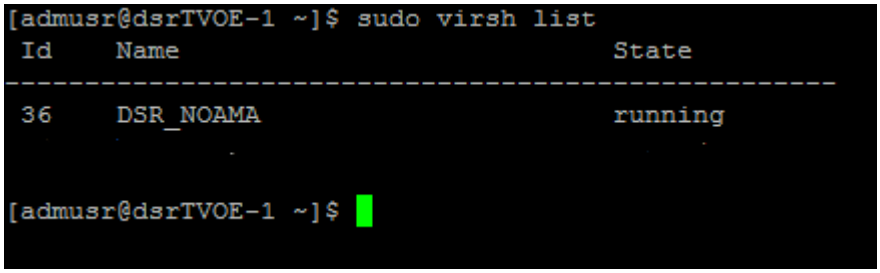
Procedure E.1 Accessing the TVOE iLO GUI

Step	Instruction	Result
1. ☐	Connect to the TVOE iLO GUI using the instructions in **Appendix D**	Connect to the TVOE iLO GUI using the instructions in **Appendix D**
2. ☐	Access the Newotk Setting Page	Access the Network Settings page as follows: If using an HP DL380, Click the "**Administration**" tab. Under "**Settings**" in the left column click on "**Network**" as show below.  If using a Sun Netra, Navigate to **iLOM Administration** -> **Connectivity** 

Step	Instruction	Result
3. ☐	Update the Network Settings	Change the **IP Address**, **Subnet Mask** and **Gateway IP Address** to the values supplied in the IP Site Survey for the TVOE iLO. (If DHCP is enabled, you will need to disable DHCP before entering the IP information) Hit **Apply/Save**. NOTE: You will lose access after you hit the Apply button.
4. ☐	Using the instructions found in **Appendix B, re**set 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. Call Customer Support if needed.	
5. ☐	Connect to the TVOE iLO GUI using the instructions in **Appendix D**	Connect to the TVOE iLO GUI using the instructions in **Appendix D** **Note**: Use the IP address entered in Step 3 and not the 192.168.100.5.
THIS PROCEDURE HAS BEEN COMPLETED		

APPENDIX F. PM&C/NOAMP/SOAM/MP/IPFE CONSOLE ACCESS

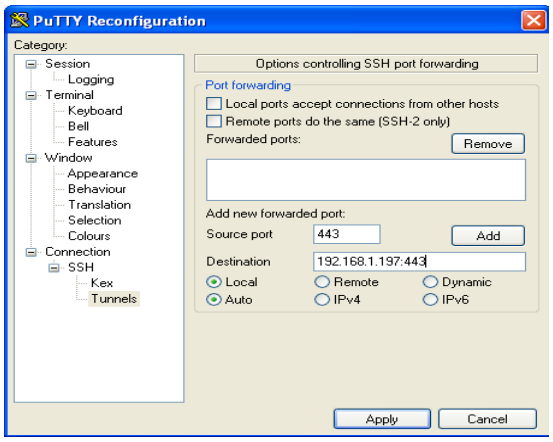
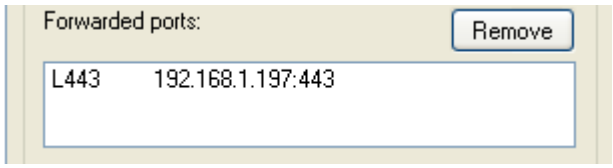
This procedure describes how to log into the PM&C/NOAMP/SOAMP/MP/IPFE console from the TVOE Host.

Step	Instruction	Result
1. ☐	Log In as **admusr** on the TVOE server hosting the NOAMP using either ILO or SSH to the TVOE server's Management address	
2. ☐	Find the NOAMP's current VM number	On the TVOE host, execute:. **$ sudo virsh list** This will produce a listing of currently running virtual machines.  Find the VM name for your DSR NOAMP and note it's 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 NOAMP at all, then halt this procedure and contact Oracle Customer Support.

Step	Instruction	Result
3. ☐	Connect to console of the VM using the VM number obtained in Step 2.	On the TVOE host, execute:. **$sudo virsh console <DSRNOAMP-VMID>** Where **DSRNOAMP-VMID** is the VM ID you obtained in Step 2: [admusr@dsrTVOE-1 ~]$ sudo virsh console 36 Connected to domain DSR_NOAMA Escape character is ^] Oracle Linux Server release 6.5 Kernel 2.6.32-431.11.2.el6prerel6.7.0.0.1_84.14.0.x86_64 on an x86_64 RDU06-NO1 login: You are now connected to the DSR NOAMPs console. If you wish to return to the TVOE host, you can exit the session by pressing **CTRL +]**

APPENDIX G. ACCESSING THE NOAMP GUI USING SSH TUNNELING WITH PUTTY

STEP		
	NOTE: This procedure assumes that the NOAMP server you wish to create a tunnel to has been IPM'ed with the DSR application ISO **NOTE**: This procedure assumes that you have exchanged SSH keys between the PM&C and the first NOAMP server. **NOTE:** This procedure assumes that you have obtained the control network IP address for the first NOAMP server. That variable will be refered to as *NOAMP-Control-IP* in thiese instructions.	
1 ☐	**Logon to PM&C Server using PuTTY**	Launch the PuTTY application from your station and open a session to the PM&C's management address, logging in as "admusr".

2 ☐	**Create SSH Tunnel through the PM&C in PuTTY**	 Click the icon in the upper left hand corner of the PuTTY window to bring down the main menu. Select ***Change Settings*** Select ***Connections -> SSH -> Tunnels***  1. Verify that the **Local** and **Auto** radio buttons are selected. Leave other fields blank **2.** In *Source Port*, enter **443** 3. In *Destination*, enter ***<NOAMP-Control-IP>*:443** 4. **Click Add**  You should now see a display similar to the following in the text box at the center of this dialog. 5. **Click Apply**

3 ☐	**Use Local Web Browser to Connect to GUI**	Using your web browser, navigate to the URL: **`https://localhost/`**  You should arrive at the login screen for the NOAMP GUI. **This procedure is now complete**

APPENDIX H. MANUAL TIMEZONE SETTING PROCEDURE

Procedure H.1 Timezone Setting

STEP	**NOTE**: This procedure assumes that the first NO-AMP server has been initially configured and rebooted. **NOTE:** This procedure assumes that one system-wide time zone has been selected.	
1 ☐	**Access Active NOAMP Console**	Login as "admusr" to the Active NO-AMP console. Do `sudo su` to change to root
2 ☐	**Active NOAMP Console:** Execute time zone configuration script and verify successful result	From the command line prompt, execute *set_ini_tz.pl*. This will set the system time zone Replace as appropriate with the time zone you have selected for this installation. See Appendix I for a list of valid time zones. `# /usr/TKLC/appworks/bin/set_ini_tz.pl <timezone> >/dev/null 2>&1`

3 ☐	**Verify Success of Time Zone Script**	`# echo $?`
		If this returns anything other than "0", then halt this procedure and contact Oracle Customer Support.
		Execute date command to verify the time zone
		`# date`

4 ☐	**Reboot the Server**	`# init 6`

APPENDIX I. LIST OF FREQUENTLY USED TIME ZONES

This table lists several valid timezone strings that can be used for the time zone setting in a CSV file, or as the time zone parameter when manually setting a DSR server timezone. For an exhaustive list of **ALL** timezones, log onto the PM&C server console and view the text file: `/usr/share/zoneinfo/zone.tab`

Table 3. List of Selected Time Zone Values

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

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

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

APPENDIX J. 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)

Please not that at the writing of this document, the supported versions of Netbackup in DSR 6.x are 7.1 and 7.5.

Appendix J.1 NETBACKUP CLIENT INSTALL USING PLATCFG

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

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 a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center.

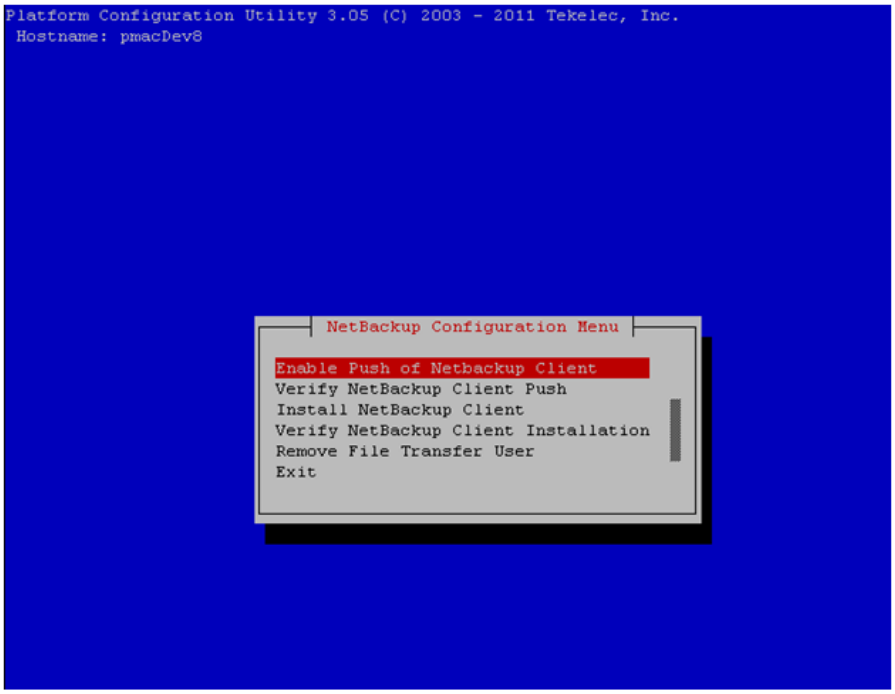
1. Application server iLO: Login and launch the integrated remote console

- SSH to the application Server (PM&C or NOAMP) as root using the management network for the PM&C or XMI network for the NOAMP.

2. Application server iLO: Configure NetBackup Client on application server

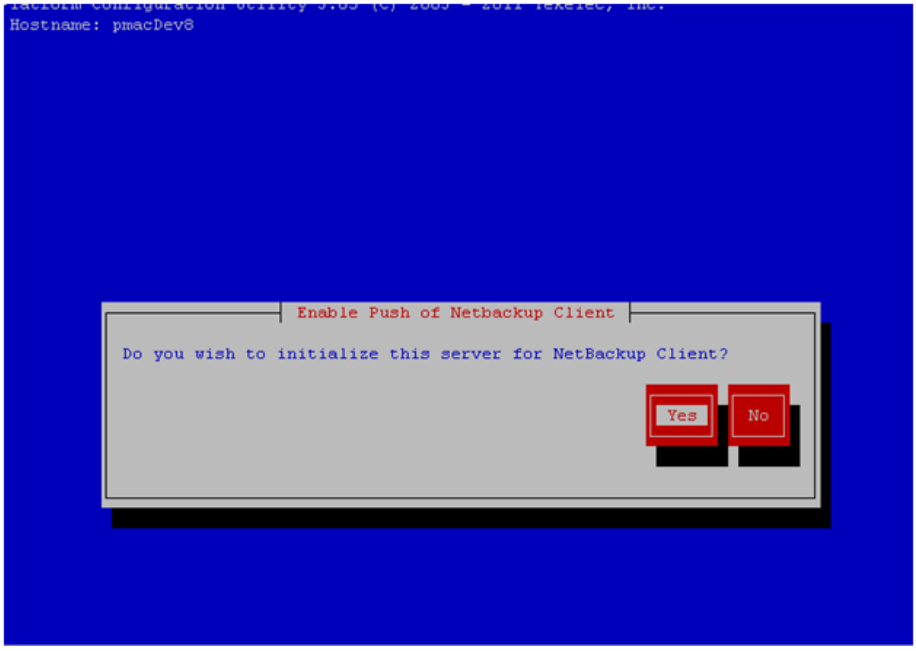
```
# su - platcfg
```

- Navigate to **NetBackup Configuration**



3. Application server iLO: Enable Push of NetBackup Client

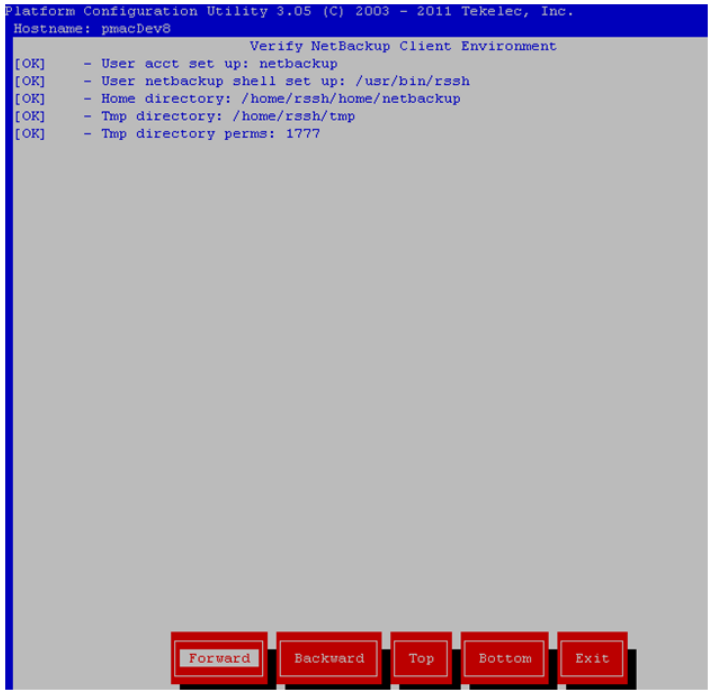
- Navigate to **NetBackup Configuration ➢ Enable Push of NetBackup Client**



- Select **Yes** to initialize the server and enable the NetBackup client software push.

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.

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.

- Log in 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 refers to the NetBackup version. If installed a different version (e.g. 7.1), replace 7.5 with 7.1)

```
# 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:

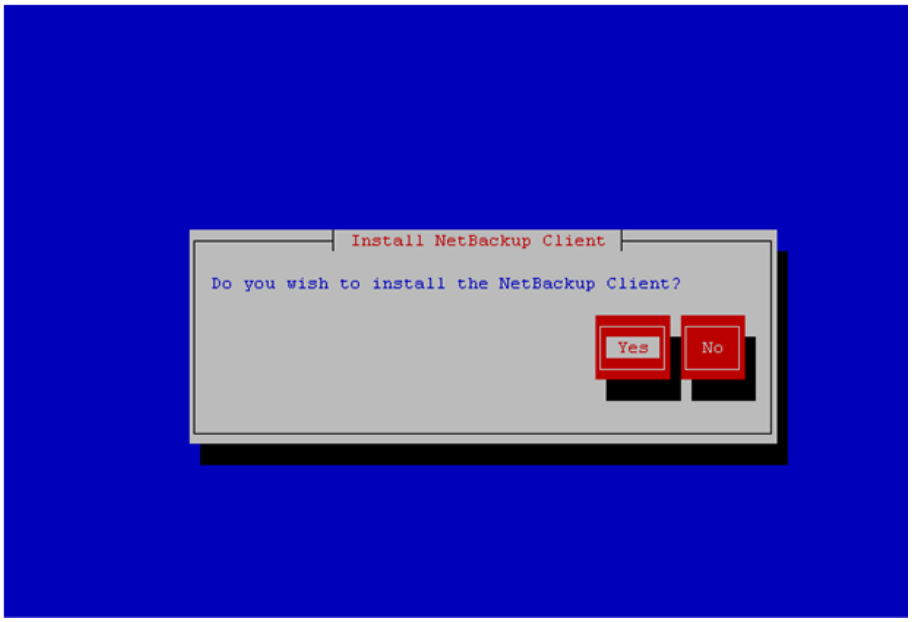
- Enter application server netbackup user password; the following NetBackup software output is expected, observe the sftp completed successfully:

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 root user on 192.168.176.31 must now execute the command "sh /tmp/bp.6211/client_config [-L]". The optional argument, "-L",
is used to avoid modification of the client's current bp.conf file.
#

Note: Although the command executed above instructs you to execute the client_config command, <u>DO NOT</u> execute that command, as it shall be executed by platcfg in the next step.

6. Application server iLO: Install NetBackup Client software on application server.

- 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

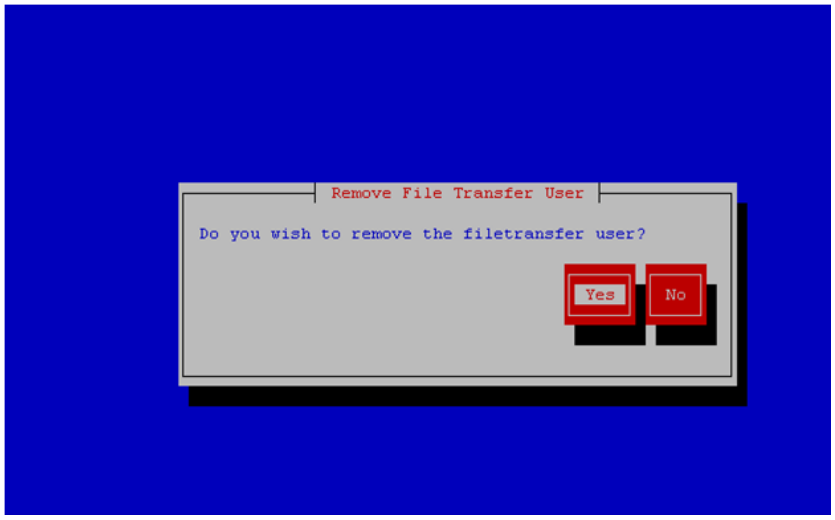
7. Application server iLO: Verify NetBackup CLient software installation on the application server.

- 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)

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 hosts file.

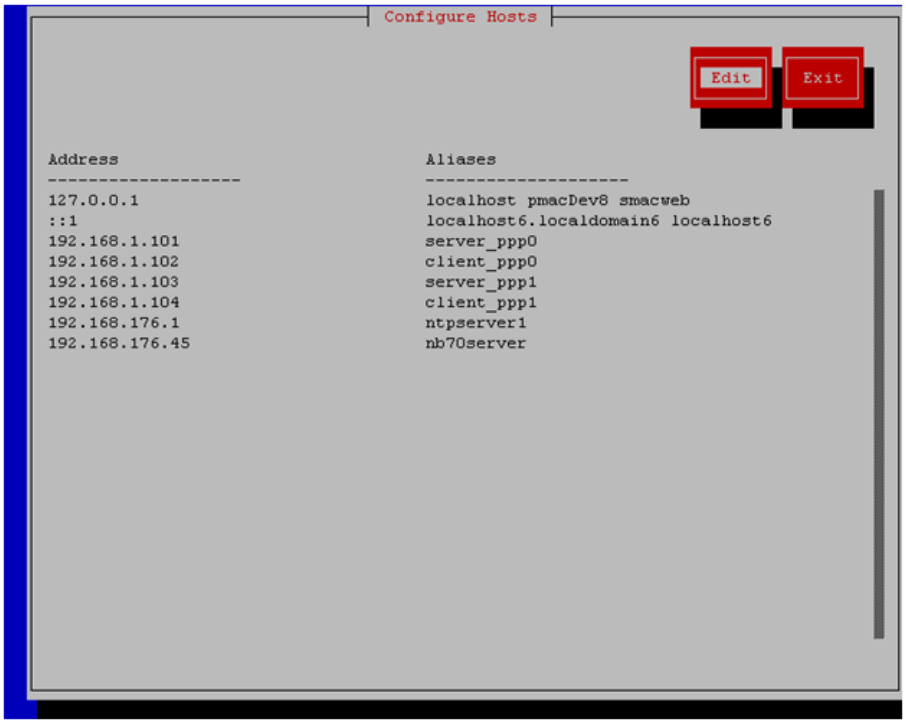
- List NetBackup servers hostname:

```
# cat /usr/openv/netbackup/bp.conf
SERVER = nb70server
CLIENT_NAME = PM&CDev8
```

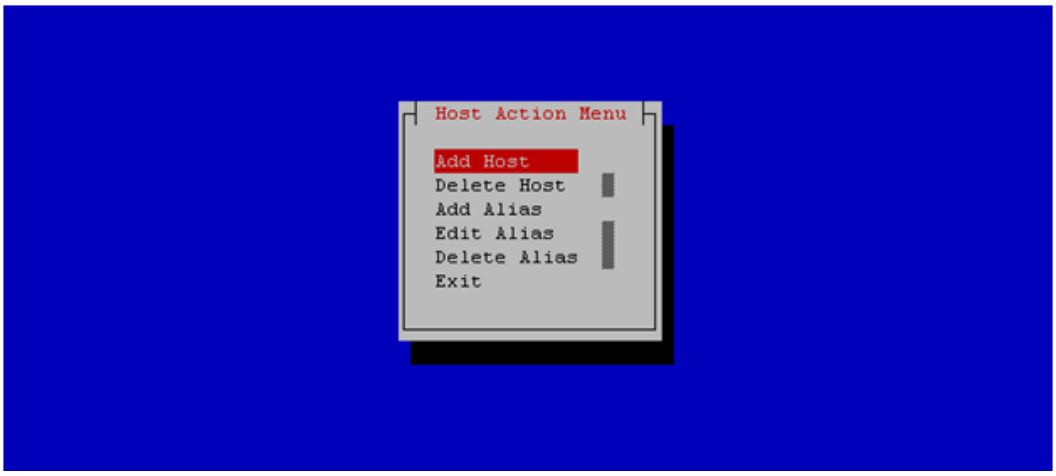
- Use platform configuration utility (platcfg) to update application hosts file with NetBackup Server alias.

```
# su - platcfg
```

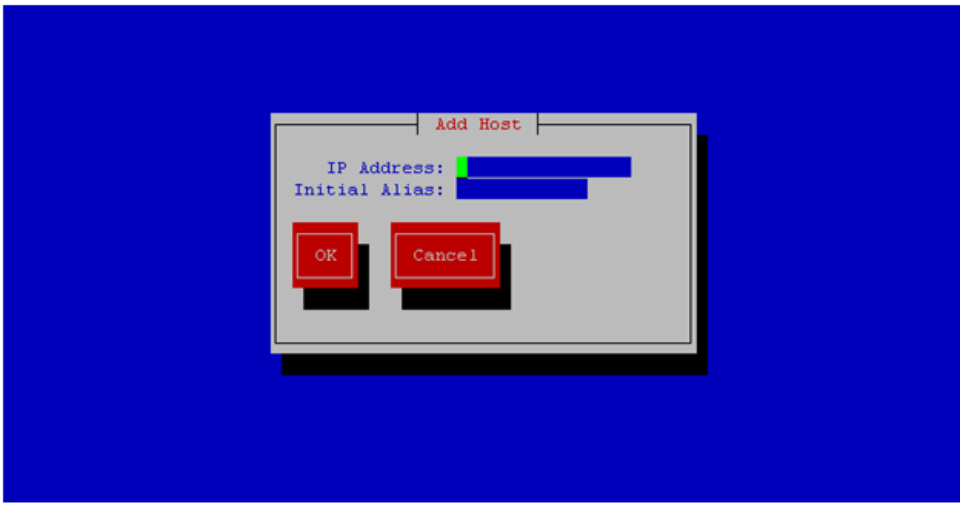
- Navigate to **Network Configuration ➢ Modify Hosts File**



- 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

11. Application server iLO: Create links to NetBackup client notify scripts on application server where NetBackup expects to find them.

Note: Copy notify scripts from appropriate path on application server for given application.

```
# ln -s <path>/bpstart_notify /usr/openv/netbackup/bin/bpstart_notify
# ln -s <path>/bpend_notify /usr/openv/netbackup/bin/bpend_notify
```

An example of <path> is **`/usr/TKLC/plat/sbin`**

12. Application server iLO: NetBackup Client software installation complete.

Appendix J.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

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.

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.

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.

1. Application server iLO: Login and launch the integrated remote console

- SSH to the application Server (PM&C or NOAMP) as root using the management network for the PM&C or XMI network for the NOAMP.

2. Application server iLO: Enable nbAutoInstall

```
# /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.

```
# mkdir -p /usr/openv/netbackup/bin/
# ln -s <path>/bpstart_notify /usr/openv/netbackup/bin/bpstart_notify
# ln -s <path>/bpend_notify /usr/openv/netbackup/bin/bpend_notify
```

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:

```
# vi /usr/openv/netbackup/bp.conf
```

Verify that the highlighted 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.

```
SERVER = nb75server
CLIENT_NAME = 10.240.10.185
CONNECT_OPTIONS = localhost 1 0 2
```

- Edit */etc/hosts* using the following command and add the NetBackup server

```
# vi /etc/hosts
```

e.g.: *192.168.176.45 nb75server*

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 K. DATA DEFINITION AND INSTALLATION VARIABLE MAP

Data Definition Table

This is a list of:

- text/variable names in the document (where the data needs to be substituted)
- Description of the data

Note: there are multiple text/variable names for some of the data

Table 4. Data Definition Table

ref#	Text/Variables where data is substituted	# Occ	Data Description
1	<switch1A_mgmtVLAN_IP>	3	The IP address in the Platform Management (iLo) subnet that is assigned to the first aggregation switch (switch1A)
	<switch1A_ mgmtVLAN_ip_address>	1	
	<switch1A_mgmtVLAN_address>	4	
	<switch1A_mgmtVLAN_IP>	3	
2	<switch1B_ mgmtVLAN_ip_address>	1	The IP address in the Platform Management (iLo) subnet that is assigned to the second aggregation switch (switch1B)
	<switch1B_mgmtVLAN_address>	4	
3	<management_network_ip>	9	The IP address in the Platform Management (iLo) subnet that is assigned to the PM&C (aka Management) Server. This IP is also known as the "bond0.2 IP", but the name can change to reflect a customer choice of VLAN ID for PlatMgmt (iLo). [2 is the TKLC default]
	<management_server_platmgmt_IP>	4	
	<management_server_mgmtVLAN_ip_address>	20	
	<management_server_bond0.2_ip_address>	4	
	<management_server_mgmtVLAN_ip address>	3	
	<PM&C_ Management _Network _IP>	1	
	<PM&C_manangement_network_ip>	3	
	PM&C's management address	1	
	IP Address, **Subnet Mask** and **Gateway IP Address** **PM&C**	1	
	<management_server_ip>	1	
4	<management_server_iLO_ip>	4	The IP address (usually) in the Ext XMI subnet that is reserved for access to the iLo of the PM&C (aka Management) Server. This is a direct connection from the PM&C iLo port to the customer

ref#	Text/Variables where data is substituted	# Occ	Data Description
			network.
5	<platcfg_password>	13	A standard Oracle password that specific TPD configuration commands prompt for.
6	<4948E_IOS_image_filename>	2	The file name of the appropriate version of IOS for the 4948E switches
	<IOS_image_file>	4	
7	<PROM_Upgrade_File>	21	The file name of the appropriate version of PROM for the 4948E switches
8	<switch1A_mgmtVLAN_ip_address> <netmask>	3	The netmask of the Platform Management (iLo) subnet
	<switch1B_mgmtVLAN_ip_address> <netmask>	3	
	<mgmtVLAN_netmask>	4	
	Subnet Masks	1	
	mask	1	
	IP Address, **Subnet Mask** and Gateway IP Address **PM&C**	1	
9	<switch_mgmtVLAN_id>	4	The VLAN number that is assigned to the Platform Management (iLo) subnet
	<Plat Mgmt vlan id>	10	
10	<mgmtVLAN_Switch_VIP_address>	4	The IP address in the Platform Management (iLo) subnet that is assigned to float (as a VIP) between the two switches. Only in Layer 3 (with the use of Internal signaling subnets) is this address on the 4948 aggregation switches. For Layer 2, this IP address is on the customer switches.
	<switch_mgmtVLAN_VIP>	4	
	IP Address, Subnet Mask and **Gateway IP Address** **PM&C**	1	
11	<switch_console_password>	4	A standard Oracle password that controls access to the 4948E aggregation switches.
12	<switch_platform_username>	4	A standard Oracle username that controls access to the platform
13	<switch_platform_password>	8	A standard Oracle password that validates the platform access.

ref#	Text/Variables where data is substituted	# Occ	Data Description
14	<switch_enable_password>	8	A standard Oracle password that controls enable privileges to the 4948E switches.
15	<manager_password>	2	Password to login to an enclosure switch
16	**<ethernet_interface_1> 4948E-A**	3	The name of the first ethernet interface on the PM&C (aka Management) Server - which defines the NIC port connected to the first aggregation switch (switch1A)
17	**<ethernet_interface_2> 4948E-B**	3	The name of the second ethernet interface on the PM&C (aka Management) Server - which defines the NIC port connected to the second aggregation switch (switch1B)
18	**<management_server_mgmtInterface>**	2	The name of the interface which, when given as an argument to ifconfig, will return the IP address for use in configuring the console .
19	**<customer_supplied_ntp_server_address>**	2	The IP address supplied by the customer for an NTP server in their network.
	Primary NTP server	1	
20	**<NOAMP server Control Net IP addr>**	4	Control IP addresses are assigned to servers by the PM&C. Use the PM&C GUI as described to learn the IP address for each NO server
	<NOAMP-Control-IP>:443	1	
21	**<first noamp XMI IP address>**	2	The IP address in the XMI (OAM) subnet that is assigned to the first NOAMP server.
22	server IP addresses for the IMI network	1	The IP addresses in the IMI subnet that are assigned to the first and second NOAMP servers.
23	server IP addresses for the XMI network	1	The IP addresses in the XMI (OAM) subnet that are assigned to the first and second NOAMP servers.
24	**vlanID provided by the customer**	2	The VLAN number that is assigned by the customer to the Platform Management (iLo)

ref#	Text/Variables where data is substituted	# Occ	Data Description
			subnet
25	**<rack name>**	1	A name supplied by the customer to be assigned to the cabinet
26	CabinetID **AKA** Cabinet ID	3	A numeric value between 1 and 654.
27	**<position>**	1	A name supplied by the customer to be assigned to the enclosure
28	ILO's Ips	1	The IP address in the Platform Management (iLo) subnet that is assigned to each server - aka EBIPA "Enclosure Bay IP Addressing"
29	IP addresses, Subnet Masks, Gateways	1	The gateway of the Platform Management (iLo) subnet
	<mgmtVLAN_gateway_address>	2	
	gateway	1	
30	**System Location**	1	A name supplied by the customer to be assigned to the enclosure
31	NO VIP IP	1	The IP address in the XMI (OAM) subnet that is assigned to float (as a VIP) between the two NOAM servers.
32	firmware version **3020**		An alphanumeric string that indicates an IOS version for 3020
33	firmware version **6120**		An alphanumeric string that indicates a firmware version for 6120
34	firmware version **OA**	9	An alphanumeric string that indicates a firmware version for OA
	<OA_firmware_version>	1	
35	<HPFW_mount_ point>	1	Directory on the Management Server (PM&C) where the HP firmware solutions CD is mounted.
36	Location ID	1	A numeric value between 1 and 4 used to uniquely identify the enclosure.

ref#	Text/Variables where data is substituted	# Occ	Data Description
37	Bay 1 OA IP	1	The IP addresses in the Platform Management (iLo) subnet that are assigned to the OA's
	<OA_IP>	1	
	OA IP address	4	
	IP addresses,	1	
	Bay 2 OA IP	1	
	OA1 IP address	1	
38	**<admusr password>**,	1	Standardized Oracle passwords for use in editing the iLo password XML file
	<iLo root password>	1	
	<iLo Administrator password>	1	
39	password provided by the application documentation.	1	
40	**<HP_blade_type>**		The type of HP server is necessary to identify the correct FW version
41	**<image_part_number>**	3	An alphanumeric string that indicates a firmware (fw) version for HP servers
42	<OA_admin_user>	1	An alphanumeric string that is the username for administrative account on the OA's
43	**<OA_admin_password>**	1	An alphanumeric string that controls access to the Administrator user on the OA's.
44	<ISO_filename>	3	The file name of the appropriate version of ISO for TVOE
45	<ISO_filename>	3	The file name of the appropriate version of ISO for the DSR application
	<Application ISO NAME>	3	
46	<ISO_filename>	3	The file name of the appropriate version of ISO for the TPD to be installed on the servers
47	**<TVOE blade Control Net IP addr>**	1	Control IP addresses are assigned to servers by the PM&C. Use the PM&C GUI to learn the IP address

ref#	Text/Variables where data is substituted	# Occ	Data Description
			for the first TVOE server.
48	**<Management_Server Control_IP_ addr>**	1	Control IP addresses are assigned to servers by the PM&C. Use the PM&C GUI to learn the IP address for the PM&C Management Server.
49	**<XMI_VLAN_ID>**	2	The VLAN number that is assigned to the XMI (OAM) subnet
50	**<IMI_VLAN_ID>**	2	The VLAN number that is assigned to the IMI subnet
51	**<interface>**	2	Quote from doc: In these examples, <*interface*> should be replaced with the actual eterhnet interface that will be used as the dedicated NetBackup port. For instance, "eth01", or "eth22".
52	hostname for your server **TVOE**	1	A name that is assigned to identify the TVOE host (server)
53	***<IMI Network>***	2	An alphanumeric string that is assigned to be the name of the IMI subnet
54	**<Hostname> NO-A**	1	An alphanumeric string that is assigned to be the host name of the first NOAM server (aka NO-A)
55	**<Hostname> NO-B**	1	An alphanumeric string that is assigned to be the host name of the second NOAM server (aka NO-B)
56	**<Hostname> SO-A**	1	An alphanumeric string that is assigned to be the host name of the first SOAM server (aka SO-A)
57	**<Hostname> SO-B**	1	An alphanumeric string that is assigned to be the host name of the second SOAM server (aka SO-B)
58	**<Hostname> MP-A**	1	An alphanumeric string that is assigned to be the host name of the first MP server (aka MP-A)
59	**<Hostname> MP-A**	1	An alphanumeric string that is assigned to be the host name of the

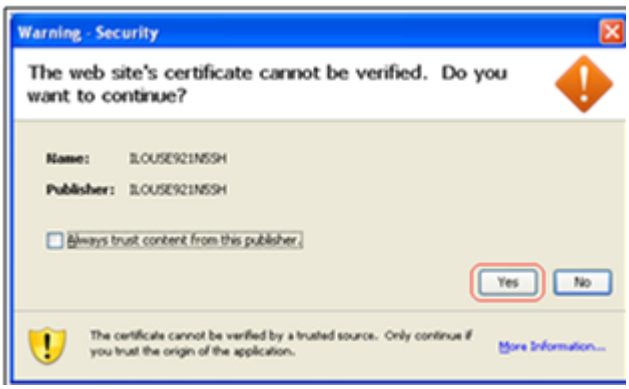
ref#	Text/Variables where data is substituted	# Occ	Data Description
			second MP server (aka MP-B)
60	Network Element **NOAM - Proc 28, step 2**	1	An alphanumeric name supplied by the customer to be assigned as the name of the NOAM Network Element. Note: limited to alphanumeric and underscore only
61	hostname, role, hardware profile, network element, and location **SOAM**	1	An alphanumeric name supplied by the customer to be assigned as the name of the SOAM Host. Note: limited to alphanumeric and hyphen only
62	hostname, role, hardware profile, network element, and location **SOAM**	1	
63	hostname, role, hardware profile, network element, and location **SOAM**	1	
64	hostname, role, hardware profile, network element, and location **SOAM**	1	
65	hostname, role, hardware profile, network element, and location **SOAM**	1	
66	IP address **SOAM**	1	
67	VLAN-Tagged **SOAM**	1	
68	**<SOAM blade Control Net IP addr>**	2	
69	NOAMP VIP address **SOAM**	2	
70	SOAM Server Group Name	1	
71	Network Name, VLAN ID, Network Address and Netmask	2	XSI-1 or XSI-2 are default names for the first or second signaling network. The customer can specify a name. Note: IP SS will need to be updated to collect the name
72	Network Name, VLAN ID, Network Address and Netmask	2	The VLAN number that is assigned to the first or second signaling subnet
73	Network Name, VLAN ID, Network Address and Netmask	2	The network address of the first or second signaling subnet
	Network ID of Ext-XSI1	2	
74	Network Name, VLAN ID, Network Address and Netmask	2	The netmask of the first or second

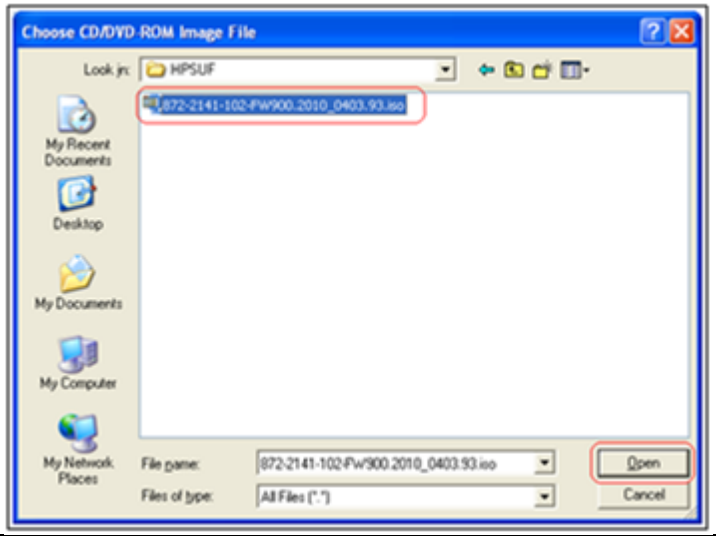
ref#	Text/Variables where data is substituted	# Occ	Data Description
	corresponding Netmask	3	signaling subnet
75	the IP address that corresponds to the IPv4 interface.	2	The IP addresses in the signaling subnets that are assigned to the MP servers
76	Int-XSI1 switch VIP	1	The IP addresses in each signaling subnet that are assigned to float (as a VIP) between the two switches. Only in Layer 3 (with the use of internal signaling subnets) When using aggregation switches, then VIP refers to the internal XSI1or internal XSI2 gateway VIP address. For installations without aggregation switches, the IP of this gateway is supplied by the customer. This may or may not be a VIP, but it will serve as the next-hop gateway regardless.
	Int-XSI2 switch VIP	1	
	gateway IP for the network	1	
	VIP for XSI1	1	
	VIP of int-XSI-1	1	
	VIP for XSI2	1	
	VIP of int-XSI-2	1	
	corresponding VIP addresses	1	
77	time zone you have selected for this installation	1	The Time Zone needs to be specified by the customer – Specific or UTC
78	**<application IP> netbackup**	1	-
79	NetBackup server alias.	2	-
80	NetBackup servers hostname	2	-
81	**<path>**	2	-
82	**<NO1_NetBackup_IP>**	1	When using a dedicated network for Netbackup, this is the IP address on the Netbackup network of the 1st NO.
83	**<NO2_NetBackup_IP>**	1	When using a dedicated network for Netbackup, this is the IP address on the Netbackup network of the 2nd NO.
84	**<NetBackup_NetMask>**	2	When using a dedicated network for Netbackup, this is the netmask of that network

ref#	Text/Variables where data is substituted	# Occ	Data Description
85	**<NetBackup_Network_ID>**	2	When using a dedicated network for Netbackup, this is the Network ID of that network.
86	**<NetBackup_Network_NetMask>**	2	When using a dedicated network for Netbackup, this is the netmask of that network
87	**<NetBackup_Network_Gateway_IP>**	2	When using a dedicated network for Netbackup, this is the gateway IP on the netbackup network.

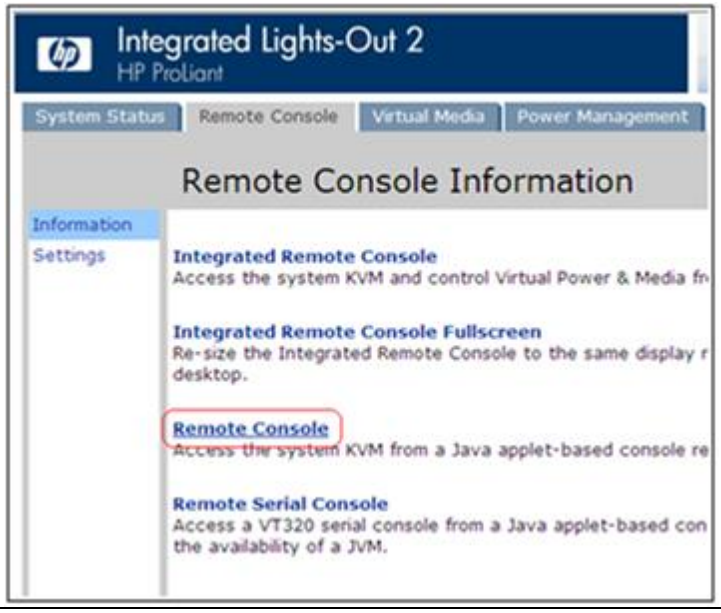
Appendix L. How to Attach an ISO Image to a Server Using the iLO or iLOM

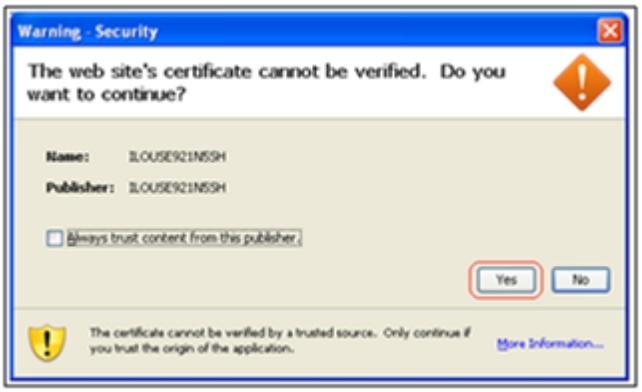
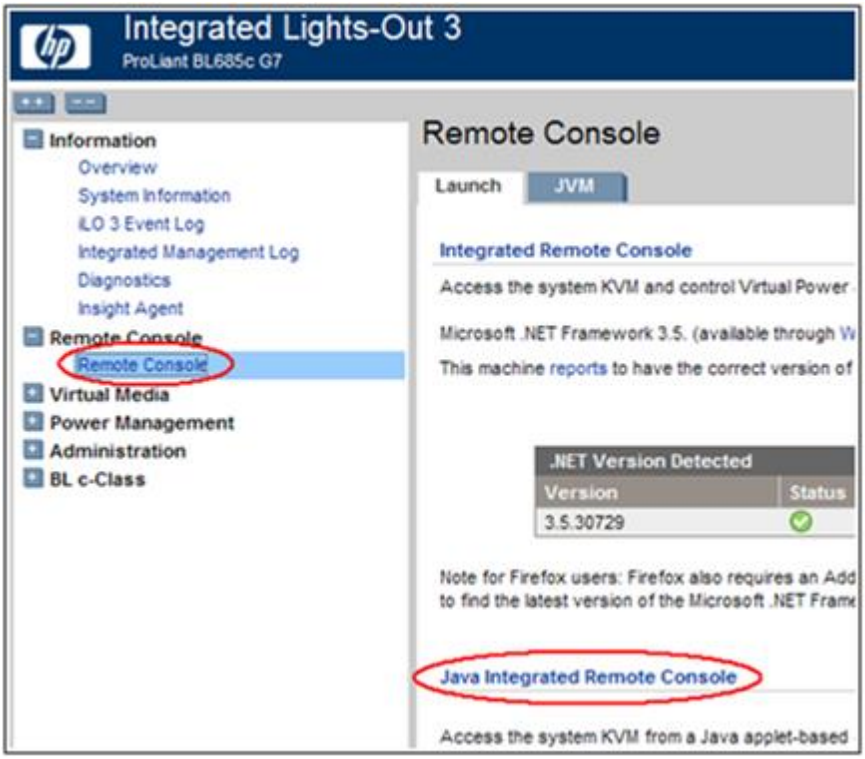
STEP	**NOTE**: This procedure will create a Bootable USB drive from a .usb file	
1 ☐	**Local Workstation**	Access the iLO Web GUI Access the ProLiant Server iLO Web Login Page from an Internet Explorer ® session using the following URL: https://<ilo_IP>/
2 ☐	**iLO Web GUI**	Log in to iLO as an "administrator" user. Username = <ilo_admin_user> Password = <ilo_admin_password> 
3 ☐	**Determine which steps to take based on the iLO version**	If the iLO GUI indicates "Integrated Lights-Out 2", continue at the next step. If the iLO GUI indicates "Integrated Lights-Out 3" or "Integrated Lights-Out 4", continue at step
4 ☐	**iLO 2 Web GUI**	a) Select the **Virtual Media** page. b) Click the **Virtual Media** tab on the System Summary page. 

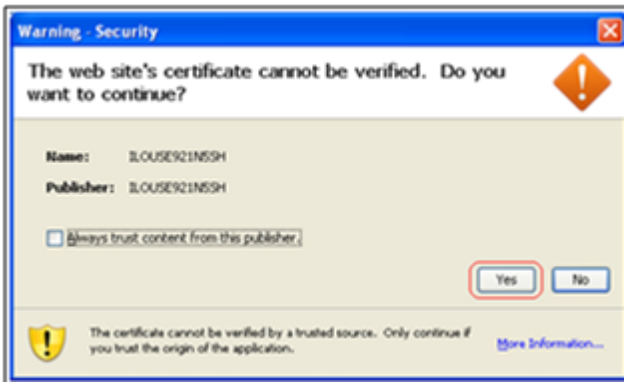
5 ☐	**iLO 2 Web GUI**	a) Click on the **Virtual Media Applet** link to launch the Virtual Media application. The iLO GUI should open to **the Virtual Media** page. 
6 ☐	**iLO 2 Web GUI**	**Java Security Prompt:** Acknowledge Security Warning If a security dialog is presented, click **Yes** to acknowledge the issue and proceed.  If other warning dialogs are presented, acknowledge them as well to proceed to the Virtual Media applet

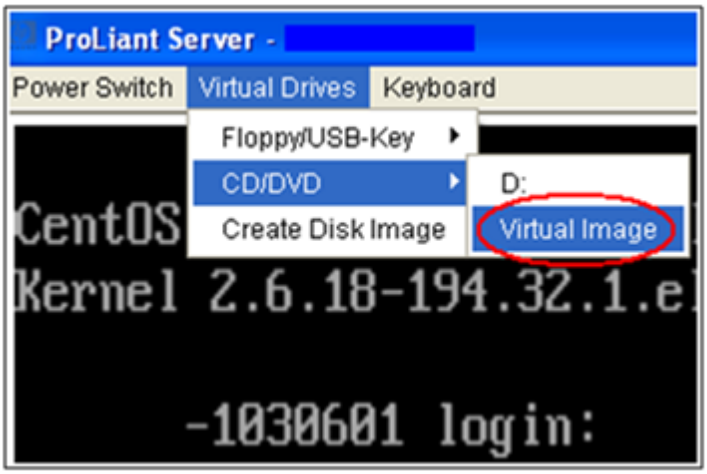
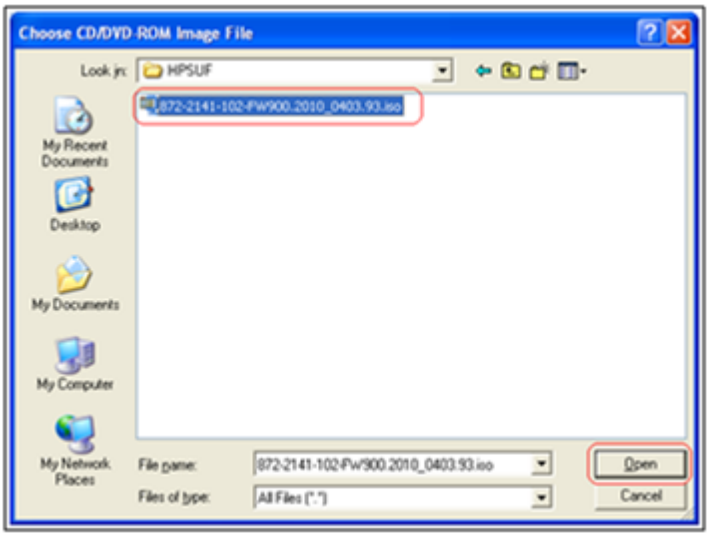
7 ☐	**iLO 2 VM Applet**	Select the specified ISO file. In the Virtual CD/DVD-ROM Panel, select the Local Image File option and click the Browse button. Navigate to the ISO image file specified by the procedure which referenced this appendix  Select the ISO image file and click **Open**. 

8 ☐	**iLO 2 VM Applet**	Create a Virtual Drive Connection Click the Connect button to create a virtual DVD-ROM connection to the ISO image file  When create the LED Light icon should be green  At this point, DO NOT close the applet but rather return to the browser window containing the iLO Web GUI.

9 ☐	**iLO 2 Web GUI**	Access the Remote Console Page. At the iLO 2 Web GUI, click on the Remote Console tab. 
10 ☐	**iLO 2 Web GUI**	Launch the Remote Console Applet. On the Remote Console page, click on the Remote Console link to launch the console applet. 

11 ☐	**iLO 2 Web GUI - Java Security Prompt**	Acknowledge Security Warning. If a dialog similar to the one below is presented, click Yes to acknowledge the issue and proceed.  If other warning dialogs are presented you may also acknowledge them as well to proceed to the Java Integrated Remote Console applet. **Skip to step 16**
12 ☐	**iLO 3 / iLO 4 Web GUI**	Launch the Java Integrated Remote Console applet. On the menu to the left navigate to the Remote Console page. Click on the Java Integrated Remote Console to open it. 

13 ☐	**iLO 3 / iLO 4 - Java Security Prompt**	Acknowledge Security Warning. If a dialog similar to the one below is presented, click **Yes** to acknowledge the issue and proceed  On the menu to the left navigate to the Remote Console page. Click on the **Java Integrated Remote Console** to open it.

14 ☐	**iLO 3 / iLO 4 - Remote Console**	Create Virtual Drive Connection Click on the Virtual Drives drop down menu. Go to CD/DVD, then click on Virtual Image  Navigate to the location of the ISO image file specified by the procedure which referenced this appendix.  Select the desired file and click Open.
15 ☐	**iLO 3 / iLO 4 - Remote Console**	Verify Virtual Image Connection. At the bottom of the remote console window, there should now be a green highlighted drive icon and "Virtual M" written next to it. 

16 ☐	**Return to the referencing procedure**	Return to the procedure which referenced this appendix

APPENDIX M. CREATING A BOOTABLE USB DRIVE

Procedure M.1 Creating a Bootable USB Drive on Windows

STEP	**NOTE**: This procedure will create a Bootable USB drive from a .usb file	
1 ☐	**Insert USB Media**	Insert the USB Media into the USB Port
2 ☐	**Install Media Builder**	Download the Tekelec media builder tool from the Oracle shared drive (m:\mbuilder) and follow the instructions on how to install it
3 ☐	**Copy the .USB file to your local machine**	Using sftp, copy the .usb image file to your local machine
4 ☐	**Use Media Builder to Create bootable USB**	Use the Media builder Tool to create a bootable USB drive from the .usb image file copied in step 3

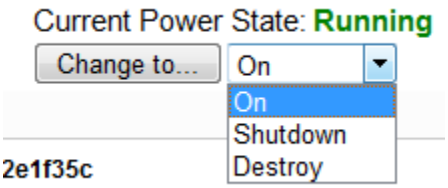
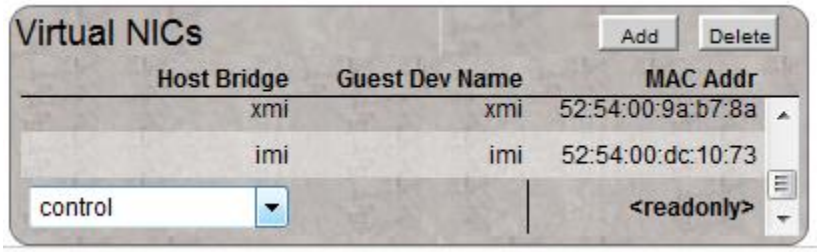
Procedure M.2 Creating a Bootable USB Drive on Linux

STEP	**NOTE**: This procedure will create a Bootable USB drive from a .usb file on a Linux Machine	
1 ☐	**Insert USB Media**	Insert the USB Media into the USB Port. It should automatically be mounted under /media Obtain the path of the USB drive by running: `# ls /media` The output should be similar to the following: sdb1 Note down the path without the partition number (in this case, it would be /dev/sdb)
2 ☐	**Linux Machine**	Obtain theTVOE 2.0 **.usb** file and copy it onto the local linux machine (e.g. under /tmp)
3 ☐	**Copy the .USB file onto the USB drive**	Use the dd command to copy the .usb file onto the USB drive Note: Make sure you **do not** use the partition number when copying the file `# dd if=<path_to_usb_image> of=/dev/sdb oflag=direct`
4 ☐	**Remove USB drom Port**	Once the dd command is done, remove the USB drive from the USB port and delete the .usb file.

APPENDIX N. CONFIGURE ADDITIONAL SIGNALING INTERFACES ON AN MP

Procedure N.1 Configure Additional Signaling Interfaces on an MP

STEP	This procedure will configure additional signaling interfaces on an MP **Prerequisite:** The DSR installation process is fully done **NOTE:** The additional signaling interfaces will be tagged onto the same device as the other signaling interfaces.	
1 ☐	**TVOE Host CLI:** Add the Signaling Interfaces	Log into the TVOE host via the iLO or ssh and configure an additional signaling (XSI) Network using option 1 **OR** option 2 below **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. Option 1: Deployment with Aggregation switches: ```# netAdm add --device=<TVOE_XSI3_Bridge_Interface> --onboot=yes Interface bond0.7 added # netAdm add --type=Bridge --name=xsi3 --onboot=yes --bridgeInterfaces=<TVOE_XSI3_Bridge_Interface> Interface bond0.7 was updated. Bridge xsi3 added!``` Option 2: Deployment without Aggregation switches: ```# netAdm add --device=<TVOE_XSI3_Bridge_Interface> --onboot=yes Interface bond1.<XSI3_VLAN_ID> added # netAdm add --type=Bridge --name=xsi3 --onboot=yes --bridgeInterfaces=<TVOE_XSI3_Bridge_Interface> Interface bond1.<XSI3_VLAN_ID> was updated. Bridge xsi3 added!``` Repeat this step to add any additional signaling interfaces (e.g. xsi4).

2 ☐	**PM&C GUI:** Edit the MP Guest	1. Log into the PM&C GUI by navigationg to **http://<pmac_management_ip>/** **2.** Navigate to **Main Menu -> VM Management** 3. Choose the TVOE host that is hosting the MP VM 4. Select the MP VM you wish to change 5. Change the power state of VM from **Running** to **Shutdown (**Note: This will actually change the power state to "Shut Down")  6. Click on **Edit** 7. Under the "Virtual NICs", add the new signaling interfaces. If adding 2 interfaces, they would be as follows: (Note that all names are lowercase) • Host Bridge: **xsi3** Guest Dev: **xsi3** • Host Bridge: **xsi4** Guest Dev: **xsi4** 8. To add a new NIC, press the **Add** button, choose the proper host bridge from the drop-down box, then click over into the **Guest Dev Name** column and type in the name of guest interface. The following screenshot is just an example of the area you should be editing:  When you've finished adding the Virtual NICs, Click **Save** 9. Change the Power State of the VM from **Shutdown** to **On** 10. Repeat for all other MP VMs you wish to edit.
3 ☐	**NO VIP GUI:** Configure newly added signaling interfaces	Execute the following procedures 1. Procedues 31 to add the new signaling network 2. Procedure 32 to configure the newly added signaling interfaces. 3. Procedure 33 to add a signaling routes. Note: While executing Procedure 33 substiture xsi2 with xsi3 or xsi4 as applicable 4. (OPTIONAL) Procedure 34 to add a VIP (only if the MPs are configured in Active/Standby Configuration).

APPENDIX O. SNMP CONFIGURATION

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

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

- DSR Application Servers (NOAMP, SOAM, MPs of all types)
- DSR Auxiliary Components (Switches, TVOE hosts, PM&C)

DSR application servers can be configured to:

1. Send all their SNMP traps to the NOAMP via merging from their local SOAM. All traps will terminate at the NOAMP and be viewable from the NOAMP GUI (entire network) and the SOAM GUI (site specific) if **only** NOAMP and SOAM are configured as Manager and **"Traps Enabled"** checkbox is selected for these managers on **Main Menu** > **Administration** > **Remote Servers** >**SNMP Trapping screen**. This is the default configuration option.

2. Send all their SNMP traps to an external Network Management Station (NMS). The traps will NOT be seen at the SOAM OR at the NOAM. They will be viewable at the configured NMS(s) only if **only** external NMS is configured as Manager and **"Traps Enabled"** checkbox is selected for this manager on **Main Menu** > **Administration** > **Remote Servers** > **SNMP Trapping screen**.

3. Send SNMP traps from individual servers like MPs of all types If **"Traps from Individual Servers"** check box is selected on **Main Menu** > **Administration** > **Remote Servers** > **SNMP Trapping screen**.

Application server SNMP configuration is done from the NOAMP 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 NOAMP VIP, the SOAMP VIP, or an external (customer) NMS. The recommended configuration is as follows:
The following components:

- PM&C (TVOE)
- PM&C (App)
- Applicable Switch types
- TVOE for DSR Servers

Should have their SNMP trap destinations set to:

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

Note: All the entities **MUST** use the same Community String during configuration of the NMS server.
Note: SNMP community strings i.e. (Read Only or Read Write SNMP community strings) should be same for all the components like OAM/MP servers, PM&Cs, TVOEs and external NMS.

APPENDIX P. SWOPS SIGN OFF.

Discrepancy List

Date	Test Case	Description of Failures and/or Issues. Any CSR's / RMA's issued during Acceptance. Discrepancy	Resolution and SWOPS Engineer Responsible	Resolution Date:

APPENDIX Q. CUSTOMER SIGN OFF
SIGN-OFF RECORD

*** **Please review this entire document**. ***
This is to certify that all steps required for the upgrade successfully completed without failure.

Sign your name, showing approval of this procedure, and fax this page and the above completed matrix to Oracle, FAX # 919-460-3669.

Customer: Company Name:_____ Date: _____

Site: Location:_____

Customer:(Print)_____ Phone:_____

Fax: _____

Start Date: _____ Completion Date: _____

This procedure has been approved by the undersigned. Any deviations from this procedure must be approved by both Oracle and the customer representative. A copy of this page should be given to the customer for their records. The SWOPS supervisor will also maintain a signed copy of this completion for future reference.

Oracle Signature: _____ Date: _____

Customer Signature: _____ Date: _____

APPENDIX R. 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*. 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.