Oracle® Communications
User Data Repository 10.2

Installation and Configuration Guide

Release 10.2

E59313-02

December 2015

ORACLE

Oracle Communications UDR Initial Installation and Configuration Guide, Release 10.2

Copyright ©2014, 2015 Oracle and/or its affiliates. All rights reserved.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

CAUTION: Use only the Installation procedure included in the Install Kit.

Before installing any system, please access My Oracle Support (MOS) (https://support.oracle.com) and review any Technical Service Bulletins (TSBs) that relate to this procedure.

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

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

See more information on MOS in the Appendix section.

TABLE OF CONTENTS

List of Tables

List of Figures

1.0 INTRODUCTION

1.1 Purpose and Scope

This document describes how to install OCUDR (on HP Proliant hardware or Oracle hardware) product within a customer network. It makes use of AppWorks 6.0 network installation and is intended to cover the network configuration steps for NOAMP, SOAM, and MP servers which includes validation of configuration.

This document only describes the OCUDR product SW installation on the HP Proliant Blade/Server or Oracle Server. It does not cover hardware installation, site survey, customer network configuration, IP assignments, customer router configurations, or the configuration of any device outside of the OCUDR cabinet.

1.2 References

[1] *TEKELEC Acronym Guide*, MS005077, latest revision
[2] *Site Survey (Domestic US)*, SS005977, latest revision
[3] *Hardware Verification Plan*, VP005629, latest revision
[4] *OC TekelecPlatform 7.0.x Configuration Installation Procedure*, UG006482.pdf, latest revision
[5] http://docs.oracle.com/cd/E57832_01/index.htm
[6] *OCUDR 10.X Network Interconnect*, E58607-01, latest revision
[7] *OCUDR 10.0 Base Hardware and Software Installation Procedure*, E48809-01, latest revision
[8] *OCUDR 10.2 Software Upgrade Procedure*, E59315-01, latest revision
[9] *OCUDR 10.2 Disaster Recovery Guide*, E59314-01, latest revision
[10] *Oracle Firmware Upgrade Pack, Release Notes 3.1.x, E60195, latest revision*
[11] *Oracle Firmware Upgrade Pack, Upgrade Guide 3.1.x, E60196, latest revision*

1.3 Acronyms

An alphabetized list of acronyms used in the document:

Acronym	Meaning
Enablement	The business practice of providing support services (hardware, software, documentation, etc) that enable a 3rd party entity to install, configuration, and maintain Oracle products for Oracle customers.
Gen9	ProLiantDL380Gen9 or ProLiantBL460Gen9
Geo-redundant Systems	This is the case where paired OCUDR sites do not share the same IMI network. It could also mean the same lab with different switches.
HA	High Availability
IMI	Internal Management Interface
IPM	Initial Product Manufacture – the process of installing TPD on hardware platform
NOAMP	Network Operations, Administration, Maintenance & Provisioning
SOAM	System Operations, Administration and Maintenance
MOS	My Oracle Support
MP	Message Processor
OCUDR	Oracle Communications User Data Repository
RMS	Rack Mount Server
Software Centric	The business practice of delivering an Oracle software product, while relying upon the customer to procure the requisite hardware components. Oracle provides the hardware specifications, but does not provide the hardware, and is not responsible for hardware installation, configuration, or maintenance.
SPR	Subscriber Profile Repository
TPD	Tekelec Platform Distribution (Linux OS)
UDR	User Data Repository
VIP	Virtual IP
VM	Virtual Machine
XMI	External Management Interface
XSI	External Signalling Interface

Table 1 – Acronyms and Terminology

1.4 Terminology

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

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

1.5 Assumptions

This procedure assumes the following:

- The user has taken assigned values from the Customer network and used them to compile XML files (see Appendix N for each NOAMP and SOAM site's NE prior to attempting to execute this procedure).
- The user conceptually understands OCUDR topology and network configuration as described in the OCUDR Network Interconnect Guide [6].
- The user has at least an intermediate skill set with command prompt activities on an Open Systems computing environment such as Linux or TPD.

1.6 **XML Files** (for installing NE)

The XML files compiled for installation of the each of the NOAMP and SOAM site's NE must be maintained and accessible for use in Disaster Recovery procedures. The Professional Services Engineer (PSE) will provide a copy of the XML files used for installation to the designated Customer Operations POC. The customer is ultimately responsible for maintaining and providing the XML files to My Oracle Support (MOS) if needed for use in Disaster Recovery operations. For more details on Disaster Recovery refer to [9].

1.7 How to use this Document

Although this document is primarily to be used as an initial installation guide, its secondary purpose is to be used as a reference for Disaster Recovery procedures [9]. When executing this document for either purpose, there are a few points which help to ensure that the user understands the author's intent. These points are as follows;

1) Before beginning a procedure, completely read the instructional text (it will appear immediately after the Section heading for each procedure) and all associated procedural WARNINGS or NOTES.
2) Before execution of a STEP within a procedure, completely read the left and right columns including any STEP specific WARNINGS or NOTES.

If a procedural STEP fails to execute successfully, STOP and contact My Oracle Support MOS Appendix Q for assistance before attempting to continue.

2.0 GENERAL DESCRIPTION

This document defines the steps to execute the installation of the Oracle Communications User Data Repository (OCUDR) 10.2 application on HP Proliant Hardware BL-460 for C-Class Configurations, DL-380 for RMS deployments or Oracle X5-2s (RMS servers).

OCUDR 10.2 installation paths are shown in the figures below. The general timeline for all processes to perform a software installation and configuration is also included below.

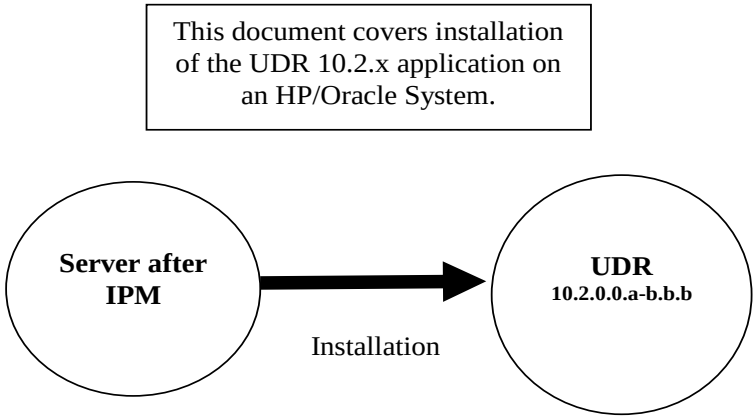


Figure 2. Initial Application Installation Path – Example shown

2.1 PRE-INSTALLATION SETUP

2.1.1 Installation Requirements

The following items/settings are required in order to perform installation for HP DL380, HP BL460 and Oracle X5-2 based OCUDR:

- A laptop or desktop computer equipped as follows:
  - 10/100 Base-TX Ethernet Interface.
  - Administrative privileges for the OS.
  - An approved web browser (currently Internet Explorer 7.x or 8.x)

- An IEEE compliant 10/100 Base-TX Ethernet Cable, RJ-45, Straight-Through.
- USB flash drive with at least 1GB of available space.
- TPD "root" and "admusr" user password.

NOTE: *When using the iLO for SSH connectivity, supported terminal Emulations are* ***VT100 or higher*** *(i.e. VT-102, VT-220, VT-320).*

2.1.2 Physical Connections (HP Servers)

A connection to the VGA/Keyboard ports on the HP DL380 rear panel or a connection to the iLO is required to initiate and monitor the progress of OCUDR installation procedures. Blade installations require no physical connections as installation is carried out through a management server.

Access Alternatives for Application Install

This procedure may also be executed using one of the access methods described below:

Figure 3. DL 380 Layout

One of the **Access Methods** shown to the right may be used to initiate and monitor installation. **NOTE:** *Methods 3 & 4 may only be used on an HP DL360 with an iLO that has been previously configured with a statically assigned IP address. It is not intended for use with a new, out-of-the-box server.*	☐ **Method 1)** VGA Monitor and PS2 Keyboard. ☐ **Method 2)** Laptop + epiphan SYSTEMS INC. KVM2USB Switch. http://www.epiphan.com/products/frame-grabbers/kvm2usb/ ☐ **Method 3)** iLO VGA Redirection Window, IE8, Ethernet cable. (See **Appendix A.1** Accessing the iLo VGA Redirection Window for HP) ☐ **Method 4)** iLO access via SSH, terminal program, Ethernet cable.

2.1.3 Network Topologies

Various Topologies will be supported for this release. C-Class (Normal or Low Capacity) utilize Topologies (1,4) and Low Capacity RMS Configurations utilize Topology 7. Please refer to [6] for Topology details.

2.1.4 Activity Logging

All activity while connected to the system should be logged using a convention which notates the **Customer Name**, **Site/Node** location, **Server hostname** and the **Date**. All logs should be provided to Oracle for archiving post installation.

NOTE: *Parts of this procedure will utilize a VGA Monitor (or equivalent) as the active terminal. It is understood that logging is not possible during these times. The user is only expected to provide logs for those parts of the procedures where direct terminal capture is possible (i.e. SSH, serial, etc.).*

3.0 INSTALLATION MATRIX

3.1 Installing OCUDR on the Customer Network

Installing the OCUDR product is a task which requires multiple installations of varying types. The matrix below provides a guide to the user as to which procedures are to be performed on which site types. The user should be aware that this document only covers the necessary configuration required to complete product install. Refer to the online help or contact the MY ORACLE SUPPORT MOS FOR ASSISTANCE Appendix Q with post installation configuration options.

NOTE: *Although the NOAMP sites are fully redundant by function, we must distinguish between them during installation due to procedural changes based on the installation sequence. The user should be aware that any reference to the "NOAMP " site refers to the 1st installation of a NOAMP pair on the customer network while references to the "DR NOAMP" site refers to the 2nd NOAMP pair to be installed.*

Normal C-Class Configuration (Topologies 1and 4 supported , refer to [6] for more details on the configurations):

Server Type		Procedure Number												
		1	2	3	10	11	12	13	14	15	16	17	18	20
☐	NOAMP-A	✓	✗	✗	✓	✗	✗	✓	✗	✗	✗	✗	✓	✓
☐	NOAMP-B	✓	✗	✗	✗	✓	✗	✓	✗	✗	✗	✗	✓	✗
☐	DR NOAMP	✓	✗	✗	✗	✓	✗	✗	✓	✗	✗	✗	✓	✗
☐	SOAM	✗	✓	✓	✗	✓	✓	✗	✓	✗	✗	✗	✗	✗
☐	MP	✗	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✗	✗

Table 2 - OCUDR Installation Matrix for Normal Capacity C-Class Configuration

Low Capacity C-Class Configuration (Topologies 1and 4 supported , refer to [6] for more details on the configurations) :

Server Type	Procedure Number											
	4	5	10	11	12	13	14	15	16	17	19	20
NOAMP-A	✓	✓	✓	✗	✗	✓	✗	✗	✗	✗	✓	✓
NOAMP-B	✓	✓	✗	✓	✗	✓	✗	✗	✗	✗	✓	✗
DR NOAMP	✓	✓	✗	✓	✗	✗	✓	✗	✗	✗	✓	✗
SOAM	✓	✓	✗	✓	✓	✗	✓	✗	✗	✗	✗	✗
MP	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✗	✗

Table 3 - OCUDR Installation Matrix for Low Capacity C-Class Configuration

Low Capacity RMS Configuration (Topology 7 supported , refer to [6] for more details on the configurations):

Server Type	Procedure Number											
	6	7	10	11	12	13	14	15	16	17	19	20
NOAMP-A	✓	✓	✓	✗	✗	✓	✗	✗	✗	✗	✓	✓
NOAMP-B	✓	✓	✗	✓	✗	✓	✗	✗	✗	✗	✓	✗
DR NOAMP	✓	✓	✗	✓	✗	✗	✓	✗	✗	✗	✓	✗
SOAM	✓	✓	✗	✓	✓	✗	✓	✗	✗	✗	✗	✗
MP	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✗	✗

Table 4 - OCUDR Installation Matrix for Low Capacity RMS Configuration

Low Capacity Oracle RMS Configuration (Topology 7 supported , refer to [6] for more details on the configurations) :

Server Type		Procedure Number											
		8	9	10	11	12	13	14	15	16	17	19	20
☐	NOAMP-A	✓	✓	✓	✗	✗	✓	✗	✗	✗	✗	✓	✓
☐	NOAMP-B	✓	✓	✗	✓	✗	✓	✗	✗	✗	✗	✓	✗
☐	DR NOAMP	✓	✓	✗	✓	✗	✗	✓	✗	✗	✗	✓	✗
☐	SOAM	✓	✓	✗	✓	✓	✗	✓	✗	✗	✗	✗	✗
☐	MP	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✗	✗

Table 5 - OCUDR Installation Matrix for Low Capacity Oracle RMS Configuration

3.2 UDR Installation List of Procedures

Normal Capacity C-Class Configuration

Table 6 - OCUDR Installation: List of Procedures for Normal Capacity C-Class Configuration

Low Capacity C-Class Configuration

Table 7 - OCUDR Installation: List of Procedures for Low Capacity C-Class Configuration

Low Capacity RMS Configuration

Table 8 - OCUDR Installation: List of Procedures for Low Capacity RMS Configuration

Low Capacity Oracle RMS Configuration

Table 9 - OCUDR Installation: List of Procedures for Low Capacity RMS Configuration

4.0 NORMAL CAPACITY C-CLASS CONFIGURATION SOFTWARE INSTALLATION PROCEDURE

The user should confirm that the server has been verified through the Hardware Verification Plan [3] before beginning this procedure. ProLiantBL460Gen8, ProLiantBL460Gen8+ or ProLiantBL460Gen9 blades are supported for this procedure.

4.1 Install NOAMP Servers (NO and DR Network Elements)

This procedure will install Tekelec Platform Distribution (TPD) on the NO network elements.

Needed material:

- TPD Media

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

Procedure 1: Install NOAMP Servers (NO and DR Network Elements)

Step	Procedure	Result
1. ☐	*Access the HP server's console.*	Connect to the server's console using one of the access methods described in ***Section 2.1.2.***
2. ☐	*Verify the type of server hardware*	# **`hardwareInfo | grep Hardware`** Hardware ID: ProLiantBL460Gen8, ProLiantBL460Gen8+ or ProLiantBL460Gen9
3. ☐	*Update firmware*	Confirm that the firmware is upgraded to latest version. For more information, please refer to Platform 7.0 docset [5].
4. ☐	*Update BIOS settings*	Follow steps defined in **Appendix D.1 BIOS Settings** to update BIOS settings.
5. ☐	*Add images to management server.*	Follow **Appendix J Adding Software Images to PM&C Server** to add TPD, TVOE and OCUDR software images.
6. ☐	*Clean the Disk Array*	**Note**: Execute only if previous install on the Blade. Follow steps defined in .. **Appendix M.2 Removing Blade Disk Array Configuration (Sidecar)** … to clean the Disk Array
7. ☐	*Install Operating System (TPD)*	Follow steps defined in … **Appendix F.2** Installing Operating Systems with PM&C *(BL460 hardware)* … to install TPD software.

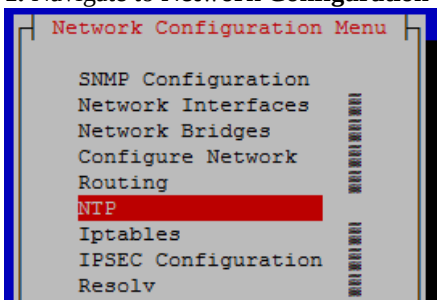
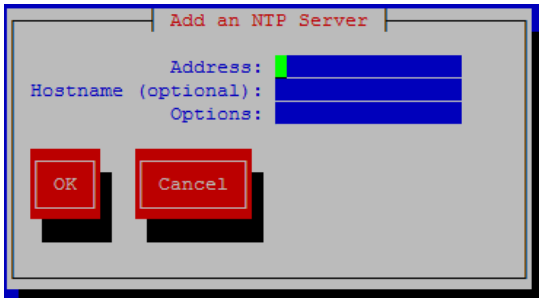
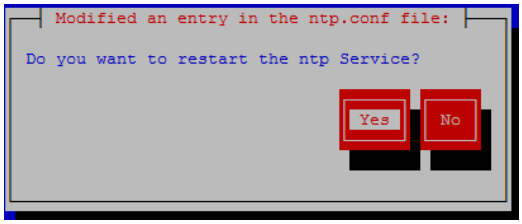
Procedure 1: Install NOAMP Servers (NO and DR Network Elements)

Step	Procedure	Result
Note: The next five steps are only for the **NOAMP-A** and **DR NOAMP-A** servers. Once these steps are completed for both servers, **Section 0** Install SOAM / MP Host **Servers (SO Network** Elements) may be run in parallel with this procedure.		
8. ☐	*Access the HP server's console.*	Connect to the server's console using one of the access methods described in ***Section 2.1.2.***

9. ☐	*Log into the server console as the "**root**" user.*	`CentOS release 5.6 (Final)`
		`Kernel 2.6.18-238.19.1.el5prerel5.0.0_72.22.0 on an x86_64`
		
		`hostname1260476221 login: root`
		`Password: <root_password>`

10. ☐	*Configure a temporary XMI IP so NTP can access the routed network.*	Follow steps defined in … **Appendix B.1** Creating Temporary External XMI IP Address … to define a temporary network. ***Note:*** The permanent IP assignment for this server will be made when its TKLCConfigData.sh script is applied later in this installation.
11. ☐	*Enter Platform configuration menu*	Enter platform configuration by running the following: `# su - platcfg`

Procedure 1: Install NOAMP Servers (NO and DR Network Elements)

Step	Procedure	Result
12. ☐	For **NOAMP-A** only: *Enter Platform configuration menu*	**1.** Navigate to **Network Configuration ➢ NTP.**  **2.** Select **Edit**, then **"Add a New NTP Server."** **3.** Enter the IP Address of the customer provided NTP server.  **4.** Select **OK**, then "**Exit**." **5.** Select **Yes** to restart ntp Service.  **6**. Exit platcfg.
Note: The remainder of this procedure is for all **NOAMP** servers.		
13. ☐	*Configure Disk Array*	Follow steps defined in … **Appendix E.2** Configuring Blade Disk Array (NO Network Element Servers with Sidecar) … to configure the disk array.

Procedure 1: Install NOAMP Servers (NO and DR Network Elements)

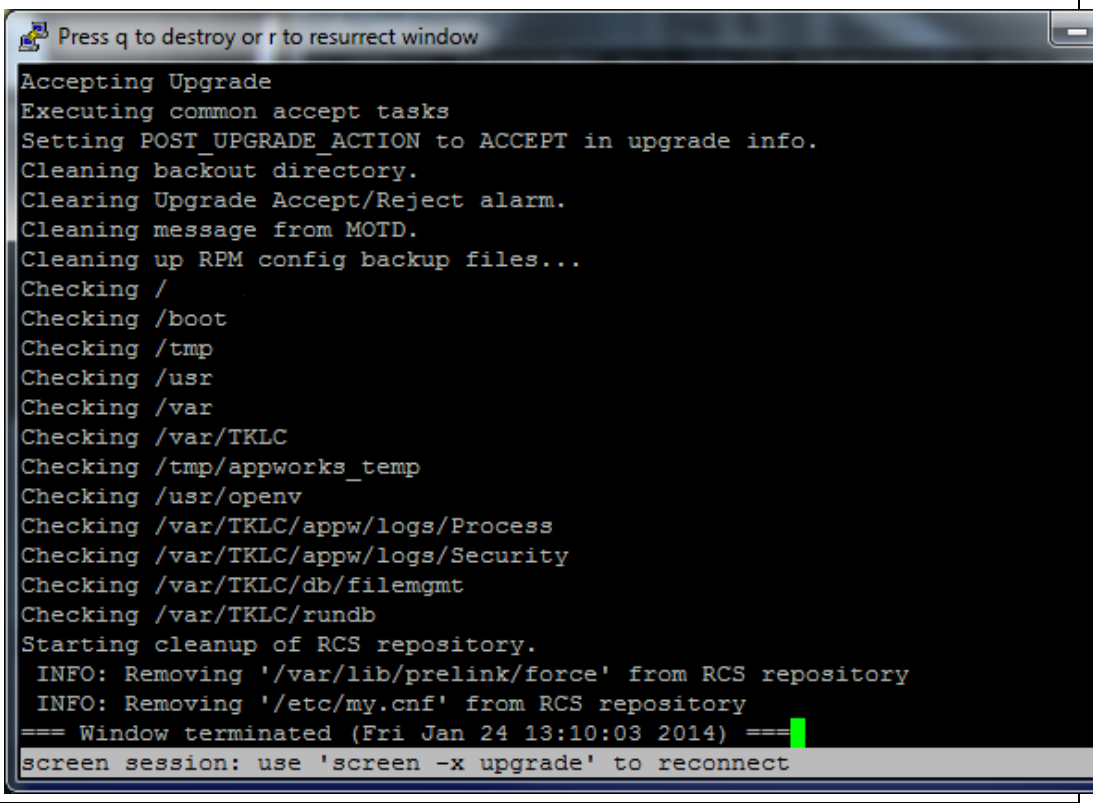
Step	Procedure	Result

14. ☐	**(Optional)**
	
	Configure NetBackup Dedicated Interface
	
	(Only deployments with Net Backup)
	
	Dual Pass-Thru Modules
		For c-Class Blade, Netbackup enabled systems equiped with ***two*** **Pass Thru Modules**:
		
		`# netAdm add --device=bond2 --type=Bonding --mode=active-backup \`
		`--onboot=yes --bootproto=none --bondInterfaces="eth21,eth22" \`
		`--address=<NetBackup_IP> --netmask=<NetBackup_NetMask>`
		
		`# netAdm add --route=net --device=bond2 \`
		`--address=<NetBackup_Network_Address> \`
		`--netmask=<NetBackup_Network_NetMask> \`
		`--gateway=<NetBackup_Network_Gateway_IP>`
		
		[OPTIONAL] If this installation is using jumbo frames, set the ethernet interface MTU to the desired jumbo frame size:
		
		`# netAdm set --device=bond2 --MTU=<NetBackup_MTU_size>`

15. ☐	**(Optional)**
	
	Configure Second NetBackup Interface
	
	(Only deployments with Net Backup)
	
	Single Pass-Thru Modules
		For c-Class Blade, Netbackup enabled systems equiped with ***a single*** **Pass Thru Module:**
		
		For **Blade** systems with a ***single*** **Pass Thru Module**, **<backup_device>** will be : **eth21**
		
		`# netAdm set --device=<backup_device> --slave=no --onboot=yes \`
		`--address=<NetBackup_IP> --netmask=<NetBackup_NetMask>`
		
		`# netAdm add --route=net --device=<backup_device> \`
		`--address=<NetBackup_Network_Address> \`
		`--netmask=<NetBackup_Network_NetMask> \`
		`--gateway=<NetBackup_Network_Gateway_IP>`
		
		[OPTIONAL] If this installation is using jumbo frames, set the ethernet interface MTU to the desired jumbo frame size:
		
		`# netAdm set --device=<backup_device> --MTU=<NetBackup_MTU_size>`

16. ☐	*Install OCUDR application software.*	Follow steps defined in … **Appendix 0** Installing OCUDR Application with PM&C *(BL460 hardware)* … to install OCUDR software.
17. ☐	*Access the HP server's console.*	Connect to the server's console using one of the access methods described in ***Section 2.1.2.***

Procedure 1: Install NOAMP Servers (NO and DR Network Elements)

Step	Procedure	Result
18. ☐	*Verify successful upgrade.* *Command will generate no output if no issues are found.*	# **verifyUpgrade** ***NOTE**: This command should return no output on a healthy system.*
19. ☐	*Change directory*	# **cd /var/TKLC/backout**
20. ☐	*Perform upgrade acceptance.*	# **./accept**
21. ☐	*Press the '**q**' key to quit screen session wrapper from upgrade acceptance.*	
THIS PROCEDURE HAS BEEN COMPLETED		

4.2 Install SOAM / MP Host Servers (SO Network Elements)

This procedure will install and configure the operating system on hardware that will host SOAM and MP VM Guests. A C-Class system can have two blades at a site that are configured the same and utilize the following procedure.

Requirements:

- **Procedure 1:** Install NOAMP Servers (NO and DR Network Elements) must be complete

Needed material:

- TVOE Media

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

Procedure 2: Install SOAM / MP Servers (SO Network Elements)

Step	Procedure	Result
1. ☐	*Access the HP server's console.*	Connect to the HP server's console using one of the access methods described in ***Section 2.1.2.***
2. ☐	*Check the type of server hardware*	# **`hardwareInfo | grep Hardware`** Hardware ID: ProLiantBL460Gen8 or ProLiantBL460Gen8+ or ProLiantBL460Gen9
3. ☐	*Update firmware*	Confirm that the firmware is upgraded to the latest version. For more information, please refer to Platform 7.0 docset [5].
4. ☐	*Update BIOS settings*	Follow steps defined in **Appendix D.1 BIOS Settings** to update BIOS settings.
5. ☐	*Add image to management server.*	Follow **Appendix J Adding Software Images to PM&C Server** to add TVOE image.
6. ☐	*Install Operating System (TVOE)*	Follow steps defined in … **Appendix F.2** Installing Operating Systems with PM&C … to install TVOE software.
7. ☐	*Configure TVOE network*	Follow steps defined in … **Appendix L.1** Configure TVOE Network … to configure TVOE network.
THIS PROCEDURE HAS BEEN COMPLETED		

4.3 Create, IPM and Install Application on all Virtual Machines (SO Network Elements)

This procedure will create Virtual Machines (VMs) for SO and MP servers, install the TPD Operating System on each VM, and install the OCUDR application on each VM. It details the create/IPM/install for a single VM and should be repeated for every VM. A C-Class system can have two blades at a site that are configured the same and utilize the following procedure.

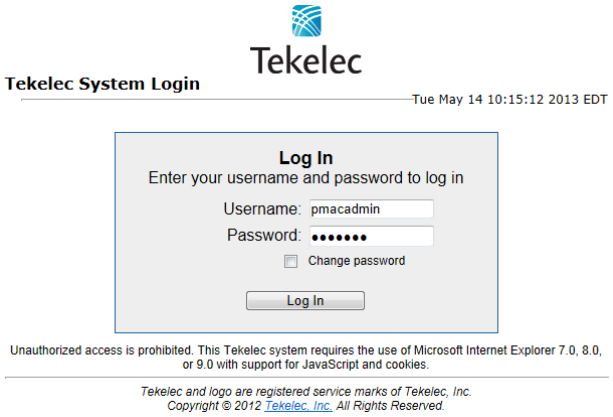
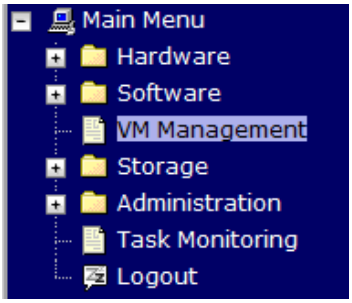
Requirements:

- **Procedure 2:**

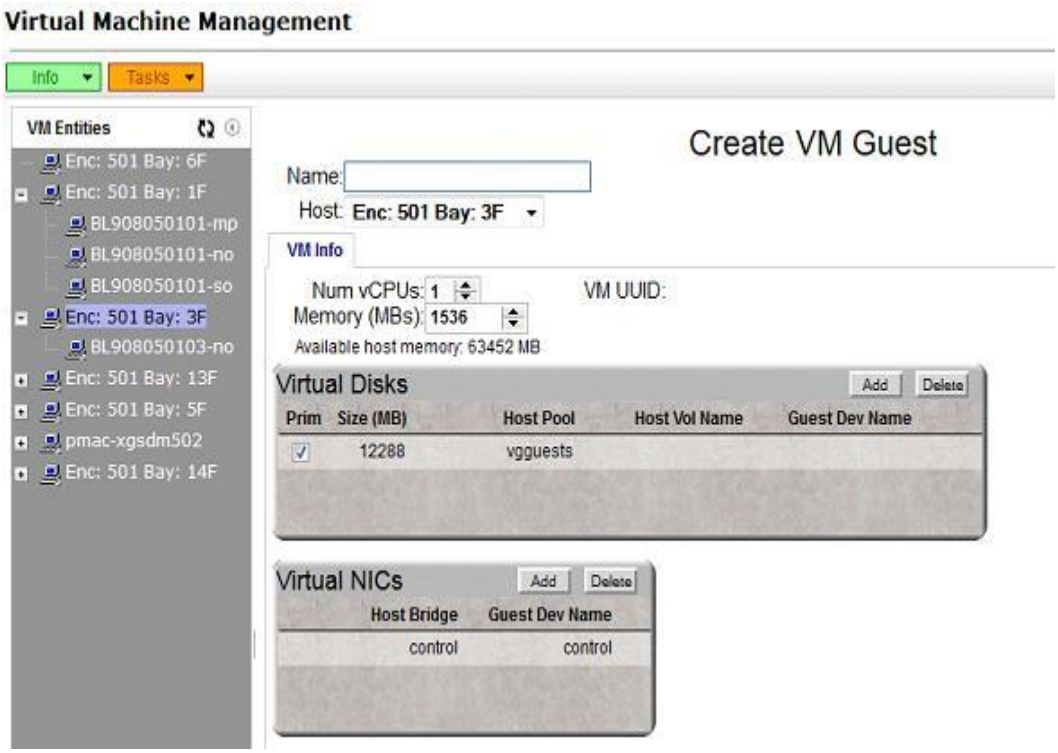
- **Install SOAM / MP Host Servers (SO Network** Elements) has been completed.

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

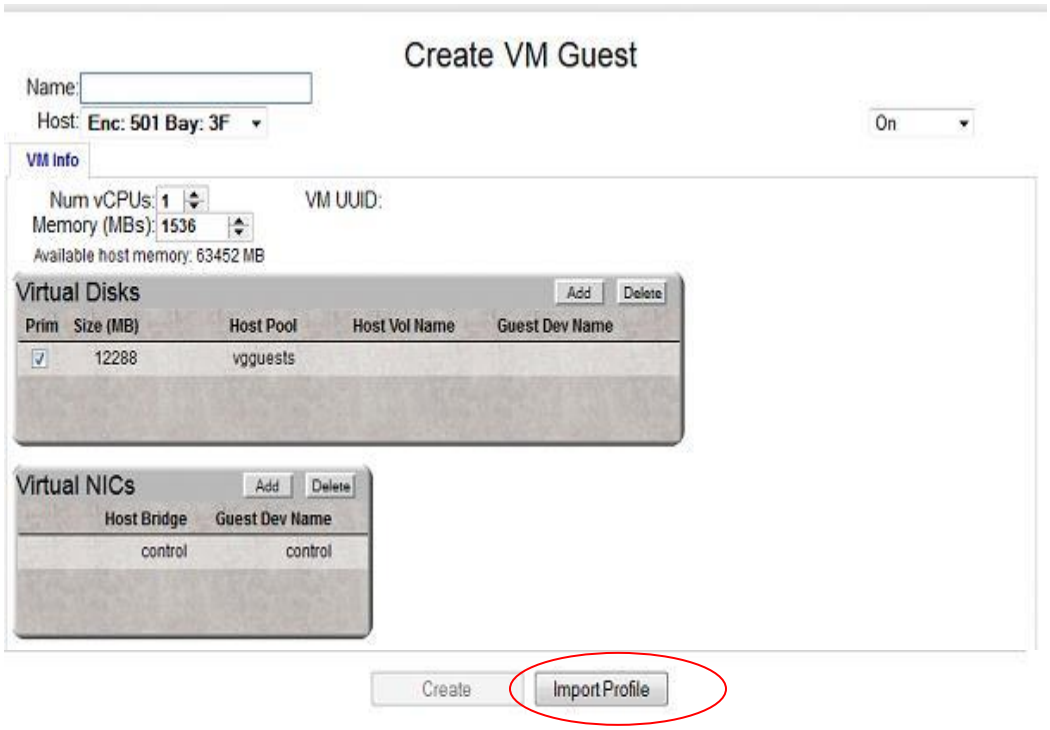
Procedure 3: Create, IPM and Install Application on all Virtual Machines (SO Network Elements)

Step	Procedure	Result
Blade deployments (ex: **ProLiantBL460cGen8**) will use only one IP to access the PM&C that manages the entire enclosure for this OCUDR site.		
1. ☐	*Add image to management server.*	Follow **Appendix J Adding Software Images to PM&C Server** to add **TPD** and **OCUDR** software images to this PM&C repository. *Note: Images may already exist if this is a blade deployment, with SOAM/MP blades controled by the same PM&C as the NOAMP.*
2. ☐	**PM&C GUI:** *Login to PM&C GUI*	Open web browser and enter: **http://<pmac_management_network_ip>** Login as pmacadmin user. 
3. ☐	**PM&C GUI:** *Navigate to VM Management menu*	Navigate to the **VM Management** menu 

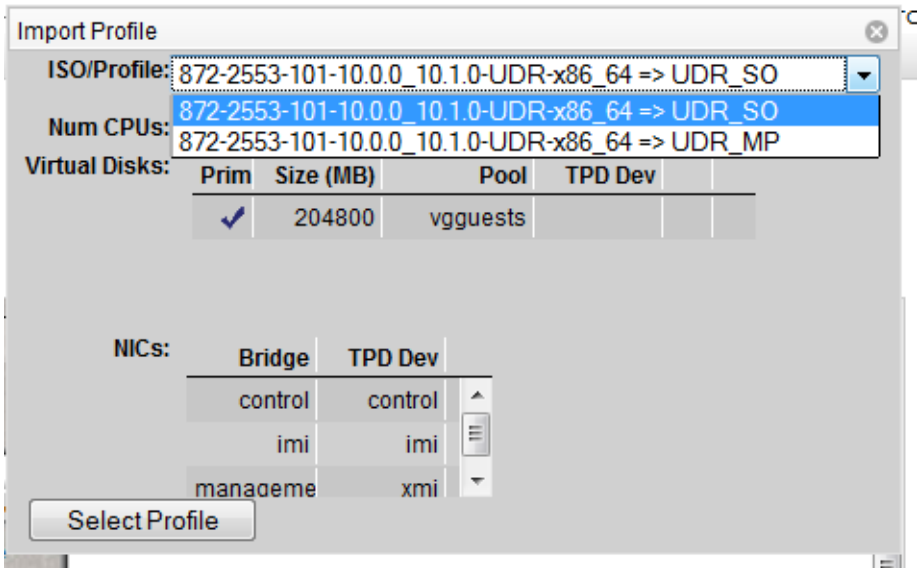
Procedure 3: Create, IPM and Install Application on all Virtual Machines (SO Network Elements)

Step	Procedure	Result
4. ☐	**PM&C GUI:** *Select the desired Server and create the VM Guest*	Select the TVOE blade from the "VM Entities" listing on the left side of the screen. The selected server's guest machine configuration will then be displayed in the remaining area of the window.  Click **`Create Guest`**. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

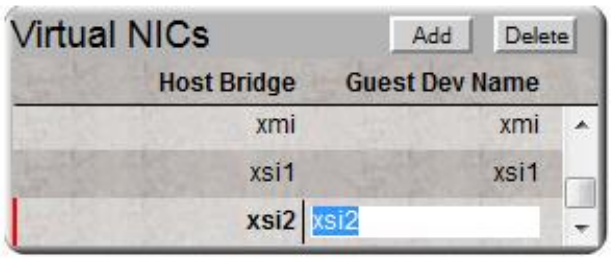
Procedure 3: Create, IPM and Install Application on all Virtual Machines (SO Network Elements)

Step	Procedure	Result
5. ☐	**PM&C GUI:** *Click on the* ***Import Profile*** *dialogue button*	A **"Create VM Guest"** window is displayed that is similar to the below:.  Click "**`Import Profile`**" button**.** • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

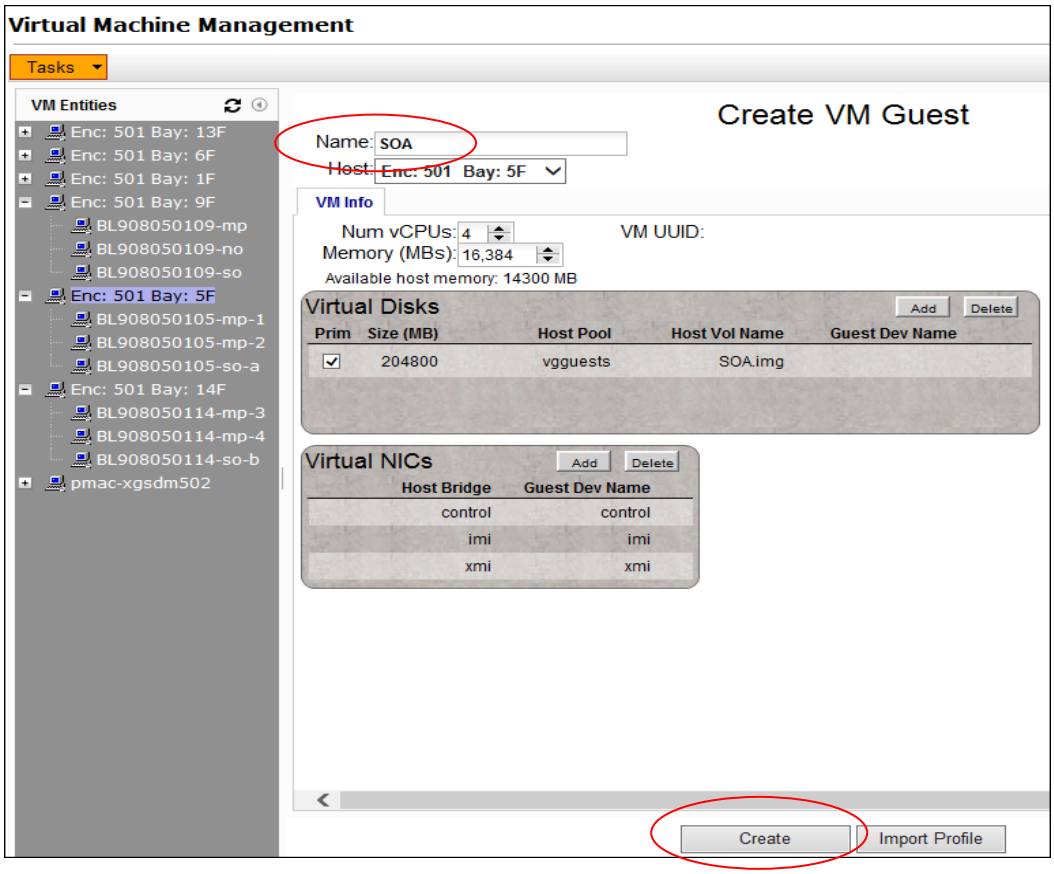
Procedure 3: Create, IPM and Install Application on all Virtual Machines (SO Network Elements)

Step	Procedure	Result
6. ☐	**PM&C GUI:** *Select the desired* ***ISO/Profile*** *value*	Select the desired **ISO/Profile**. - If creating a VM for a SOAM server, use the "**UDR_SO**" profile. - If creating a VM for an MP, use the "**UDR_MP**" profile.  Click **"Select Profile"** button. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

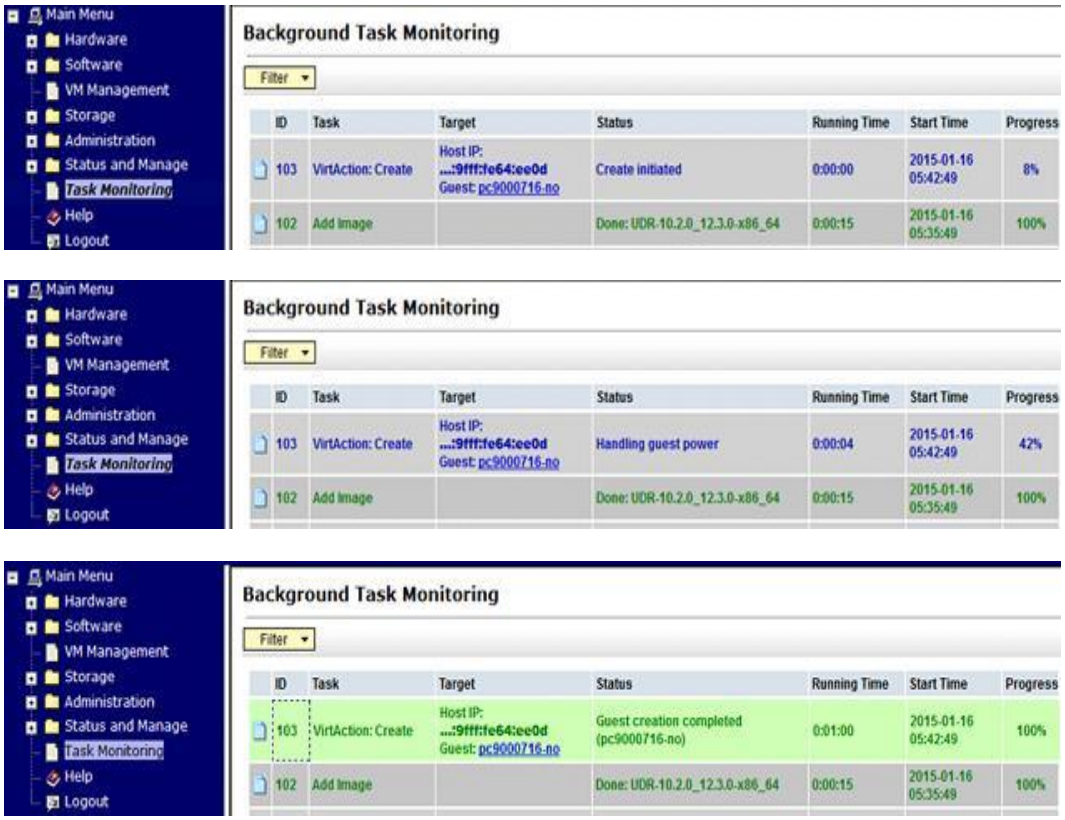
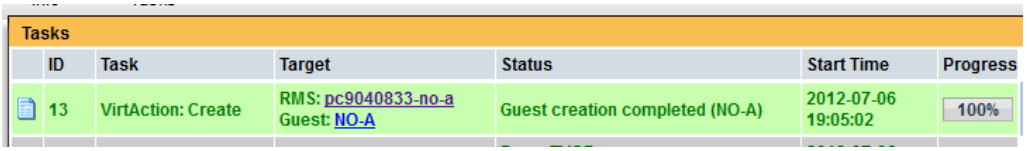
Procedure 3: Create, IPM and Install Application on all Virtual Machines (SO Network Elements)

Step	Procedure	Result
7. ☐	**PM&C GUI:** *Customize the **NICs** list to suit your deployment*	The default **Virtual NICs** are configured for a deployment with two XSI networks. - If your depoloyment has only a single **XSI** network, select the row for "**xsi2**" by clicking on it then click the **Delete** button:  - If your deployment has more than two **XSI** networks, click the **Add** button, select them from the Host Bridge drop box and type in the same name into **Guest Dev Name**. - Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

Procedure 3: Create, IPM and Install Application on all Virtual Machines (SO Network Elements)

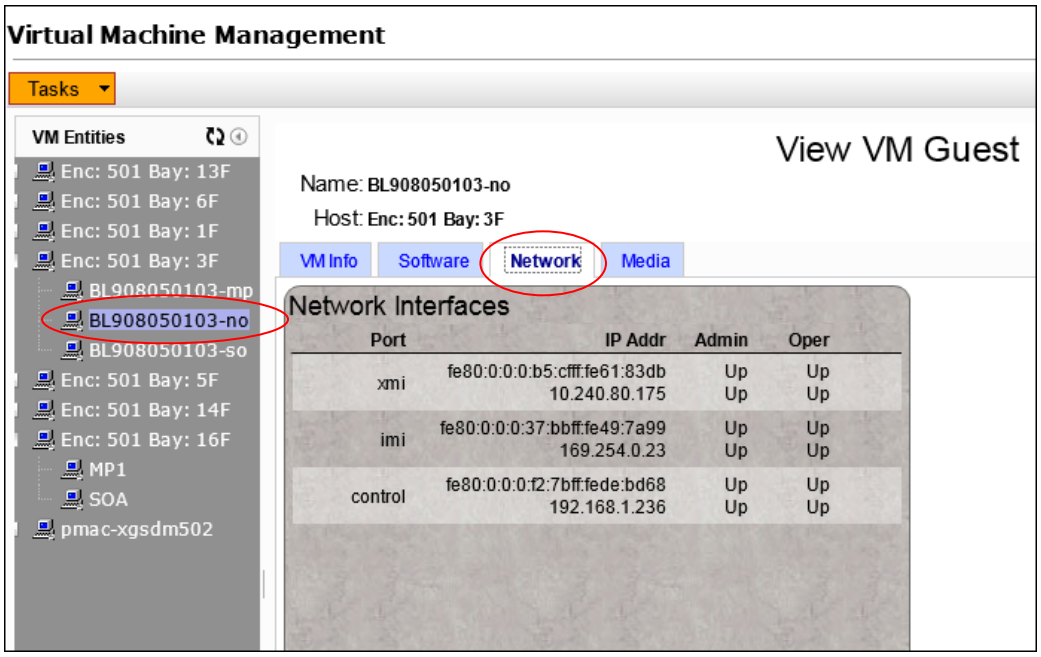
Step	Procedure	Result
8. ☐	**PM&C GUI:** *Override the VM Guest **Name** to make it unique for the site*	A "**Create VM Guest**" window is displayed that is similar to the below..  Override the **Name** field to something like: SOA, SOB, MP1 or MP2, etc (Don't use hyphens in the name). You could also include a location within the Name value such as SOMRSVNCA. (**This will not become the ultimate hostname. It is just an internal tag for the VM host manager.)** Click **`Create`** button • Record the Site **VM Guest Name** of each VM that is added in the space provided below: • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ SOAM-A: _____ ☐ SOAM-B: _____ ☐ MP-1: _____ ☐ MP-2: _____ ☐ MP-3: _____ ☐ MP-4: _____

Procedure 3: Create, IPM and Install Application on all Virtual Machines (SO Network Elements)

Step	Procedure	Result
9. ☐	**PM&C GUI:** Select… **Main Menu** **→ Task Monitoring** …as shown on the right.	 . • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
10. ☐	**PM&C GUI:** *Verify that Create VM task successfully completes.* The user should see a screen similar to the one on the right with **Progress** value of **100%**.	Verify that the Virtual Machine successfully created.  • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

Note: The steps above may be completed for each VM Guest that this PM&C administers before proceeding on to the next step. This way you may install and upgrade multiple VM Guests in parallel. A C-Class system can have two blades at a site that are virtualized.

Procedure 3: Create, IPM and Install Application on all Virtual Machines (SO Network Elements)

Step	Procedure	Result
11. ☐	*Install Operating System (TPD)*	Follow steps defined in … **Appendix F.2** Installing Operating Systems with PM&C … to install TPD software on VM Guests. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
12. ☐	**PM&C GUI:** *Get and record control IP address of VM Guest*	Navigate to the **VM Management** menu Select the VM Guest Name from the VM Entities list, and click **"Network"** tab  Derermine control IP address of VM Guest and record it. • Record the Site **control IP Address** of each VM that is added in the space provided below: • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ SOAM-A: _____ ☐ SOAM-B: _____ ☐ MP-1: _____ ☐ MP-2: _____ ☐ MP-3: _____ ☐ MP-4: _____

Procedure 3: Create, IPM and Install Application on all Virtual Machines (SO Network Elements)

Step	Procedure	Result
13. ☐	*Install OCUDR application software.*	Follow steps defined in … **Appendix 0** Installing OCUDR Application with PM&C … to install OCUDR software. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
Repeat Steps 4 - 13 for each Virtual Machine to install its operating system and application software.		
14. ☐	*Perform upgrade acceptance.*	Follow steps defined in … **Appendix H** Accept Application Installation on PM&C Managed Servers … to accept upgrade.
15. ☐	*Access the **NOAMP** server's console.*	Connect to the server's console using one of the access methods described in ***Section 2.1.2.***

16. ☐	*Log into the server console as the "**root**" user.*	`CentOS release 5.6 (Final)`
		`Kernel 2.6.18-238.19.1.el5prerel5.0.0_72.22.0 on an x86_64`
		
		`hostname1260476221 login: root`
		`Password: <root_password>`

17. ☐	**NOAMP:**
	
	Transfer file to TVOE Host
		`# scp /var/TKLC/db/filemgmt/udrInitConfig.sh \`
		`  admusr@<tvoe_host_name>:/var/tmp`
		
		`admusr@<tvoe_host_name>'s password: <admusr_password>`
		
		• Check-off the associated **Check Box** as addition is completed for the **TVOE** host.
		
		☐ TVOE Host (SOAM-A / MP-1 / MP-2)
		
		☐ TVOE Host (SOAM-B / MP-3 / MP-4)

Procedure 3: Create, IPM and Install Application on all Virtual Machines (SO Network Elements)

Step	Procedure	Result

18. ☐	**TVOE Host:**
	1) SSH to server.
	2) Log into the server as the "**admusr**" user..
		`# ssh admusr@<tvoe_host_name>`
		`admusr@<tvoe_host_name>'s password: <admusr_password>`
		• Check-off the associated **Check Box** as addition is completed for the **TVOE** host.
		☐ TVOE Host (SOAM-A / MP-1 / MP-2)
		☐ TVOE Host (SOAM-B / MP-3 / MP-4)

19. ☐	**TVOE host:**
	Switch to root user.
		`[admusr@hostname1326744539 ~]$ su -`
		`password: <root_password>`
		• Check-off the associated **Check Box** as addition is completed for the **TVOE** host.
		☐ TVOE Host (SOAM-A / MP-1 / MP-2)
		☐ TVOE Host (SOAM-B / MP-3 / MP-4)

20. ☐	**TVOE host:** Change directory.	`# cd /var/tmp` • Check-off the associated **Check Box** as addition is completed for the **TVOE** host. ☐ TVOE Host (SOAM-A / MP-1 / MP-2) ☐ TVOE Host (SOAM-B / MP-3 / MP-4)
21. ☐	**TVOE host:** Update script permissions.	`# chmod 555 udrInitConfig.sh` • Check-off the associated Check Box as addition is completed for the TVOE host. ☐ TVOE Host (SOAM-A / MP-1 / MP-2) ☐ TVOE Host (SOAM-B / MP-3 / MP-4)

Procedure 3: Create, IPM and Install Application on all Virtual Machines (SO Network Elements)

Step	Procedure	Result
22. ☐	**TVOE host:** Run configuration script as root.	# **./udrInitConfig.sh** Verify no failures are reported. A trace to display the settings for all VM Guests on this server should be shown in output. In case of failures, save the log file /var/TKLC/log/udrVMCfg/udrInitConfig.log. • Check-off the associated Check Box as addition is completed for the TVOE host. ☐ TVOE Host (SOAM-A / MP-1 / MP-2) ☐ TVOE Host (SOAM-B / MP-3 / MP-4)
23. ☐	**TVOE host:** Reboot the server.	# **init 6** • Check-off the associated **Check Box** as addition is completed for the **TVOE** host. ☐ TVOE Host (SOAM-A / MP-1 / MP-2) ☐ TVOE Host (SOAM-B / MP-3 / MP-4)
THIS PROCEDURE HAS BEEN COMPLETED		

5.0 LOW CAPACITY C-CLASS SOFTWARE INSTALLATION PROCEDURE

The user should confirm that the server has been verified through the Hardware Verification Plan [3] before beginning this procedure. ProLiantBL460Gen8, ProLiantBL460Gen8+ or ProLiantBL460Gen9 are supported for this procedure.

The following Low Capacity C-Class configurations will be supported and can utilize the procedures in this section:

- **One server per site system**
  This includes all OCUDR software running on a TVOE virtualization environment. This configuration will be supported for lab testing systems only.

- **Two server per site system**
  This includes all OCUDR software running on a TVOE virtualization environment in each server, resulting in a fully-virtualized, fully-redundant HA configuration. This can be deployed either as a single site or as a geo-redundant deployment, with two servers at each site.

5.1 Install NOAMP / SOAM / MP Servers

This procedure will install and configure the operating system on hardware that will host NOAMP, SOAM and MP VM Guests.

Needed material:

- TVOE Media

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

Procedure 4: Install NOAMP / SOAM / MP Servers

Step	Procedure	Result
1. ☐	*Access the HP server's console.*	Connect to the HP server's console using one of the access methods described in ***Section 2.1.2.***
2. ☐	*Verify the type of server hardware*	# **`hardwareInfo	grep Hardware`** Hardware ID: ProLiantBL460Gen8, ProLiantBL460Gen8+ or ProLiantBL460Gen9
3. ☐	*Update firmware*	Confirm that the firmware is upgraded to latest version. For more information, please refer to Platform 7.0 docset [5].
4. ☐	*Update BIOS settings*	Follow steps defined in **Appendix D.1 BIOS Settings** to update BIOS settings.
5. ☐	*Add image to management server.*	Follow **Appendix J Adding Software Images to PM&C Server** to add TVOE image.

Procedure 4: Install NOAMP / SOAM / MP Servers

Step	Procedure	Result
6. ☐	*Clean the Disk Array*	**Note**: Execute only if previous install on the Blade. Follow steps defined in .. **Appendix M.2 Removing Blade Disk Array Configuration (Sidecar)** … to clean the Disk Array
7. ☐	*Install Operating System (TVOE)*	Follow steps defined in … **Appendix F.2** Installing Operating Systems with PM&C *(BL460 hardware)* … to install TVOE software.
8. ☐	*Configure TVOE network*	Follow steps defined in … **Appendix L.1** Configure TVOE Network for Normal or Low Capacity C-Class Configurations … to configure TVOE network.
9. ☐	*Configure Disk Array on the TVOE Host*	Follow steps defined in … **Appendix E.2** Configuring Blade Disk Array (NO Network Element Servers with Sidecar) … to configure the disk array.

10. ☐	*Configure a logical storage pool from TVOE Host*	a. Create a file names as "configStorageBlade" through vi command.
		`[root@BL908050101-tvoe ~]# vi /home/admusr/configStorageBlade`
		Add the line below in the file
		`vg --name="stripePool_vg" --members="sdb" --virtstoragepool`
		b. Create storage pool
		`[root@BL908050101-tvoe ~]# /usr/TKLC/plat/sbin/storageMgr configStorageBlade`
		c. Verify pool is listed below
		`[root@BL908050101-tvoe ~]# virsh pool-list`
		`Name State Autostart`
		`-----------------------------------------`
		`stripePool_vg active yes`
		`vgguests active yes`

THIS PROCEDURE HAS BEEN COMPLETED		

5.2 Create, IPM and Install Application on all Virtual Machines

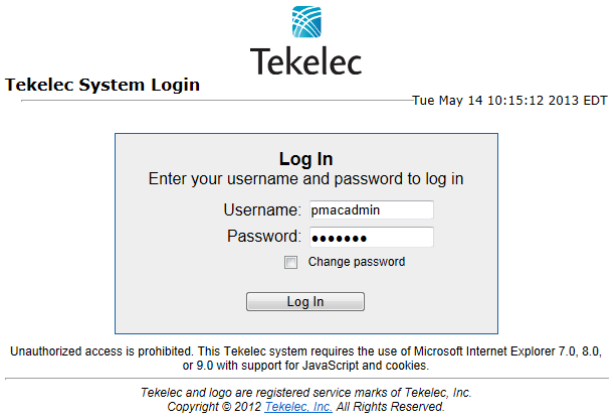
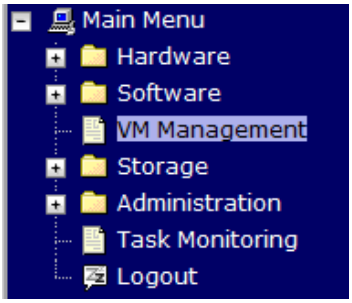
This procedure will create Virtual Machines (VMs) for NOAMP, SOAM and MP servers, install the TPD Operating System on each VM and install the OCUDR application on each VM. It details the create/IPM/install for a single VM and should be repeated for every VM. A Low capacity C-Class blade is configured with 1 NOAMP, 1 SOAM and 1 MP.

Requirements:

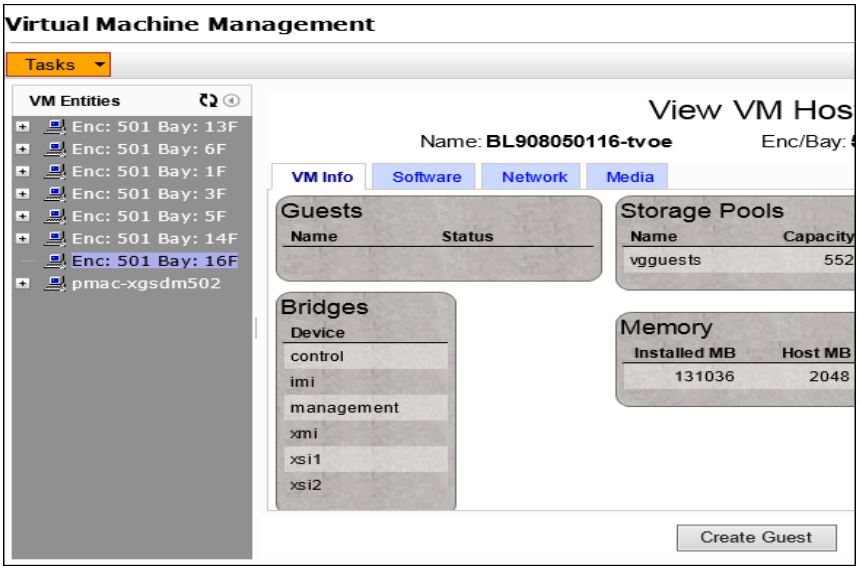
- **Procedure 4: Install NOAMP / SOAM / MP Host Servers** has been completed.

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

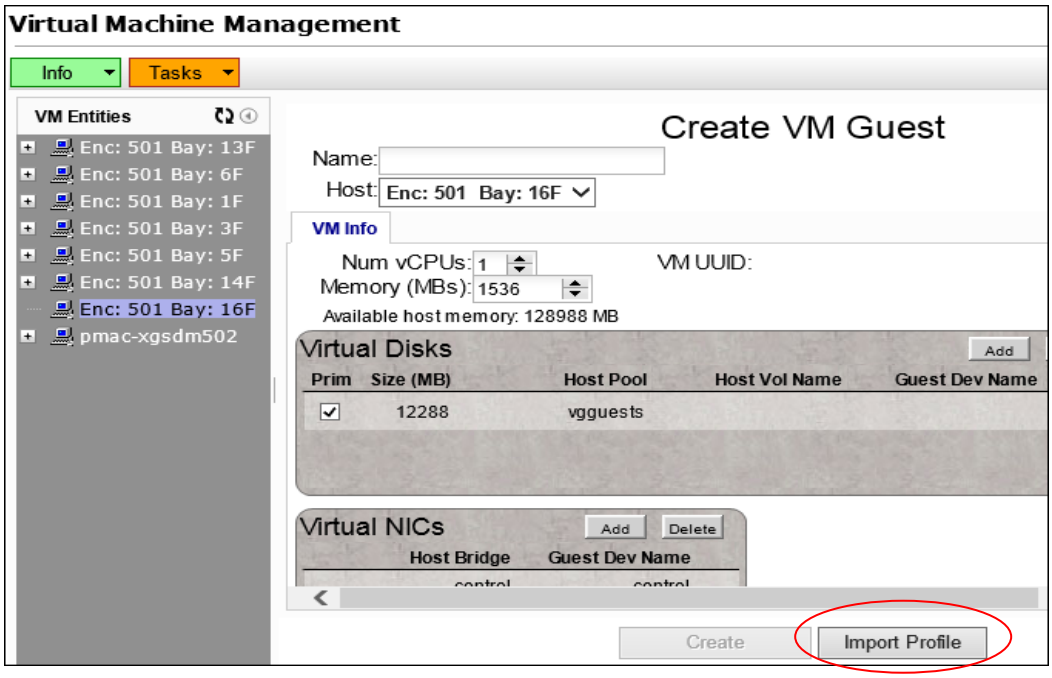
Procedure 5: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
Blade deployments (ex: **ProLiantBL460cGen8**) will use only one IP to access the PM&C that manages the entire enclosure for this OCUDR site.		
1. ☐	*Add image to management server.*	Follow **Appendix J Adding Software Images to PM&C Server** to add **TPD** and **OCUDR** software images to this PM&C repository. *Note: Images may already exist if this is a blade deployment, with SOAM/MP blades controled by the same PM&C as the NOAMP.*
2. ☐	**PM&C GUI:** *Login to PM&C GUI*	Open web browser and enter: **`http://<pmac_management_network_ip>`** Login as pmacadmin user. 
3. ☐	**PM&C GUI:** *Navigate to VM Management menu*	Navigate to the **`VM Management`** menu 

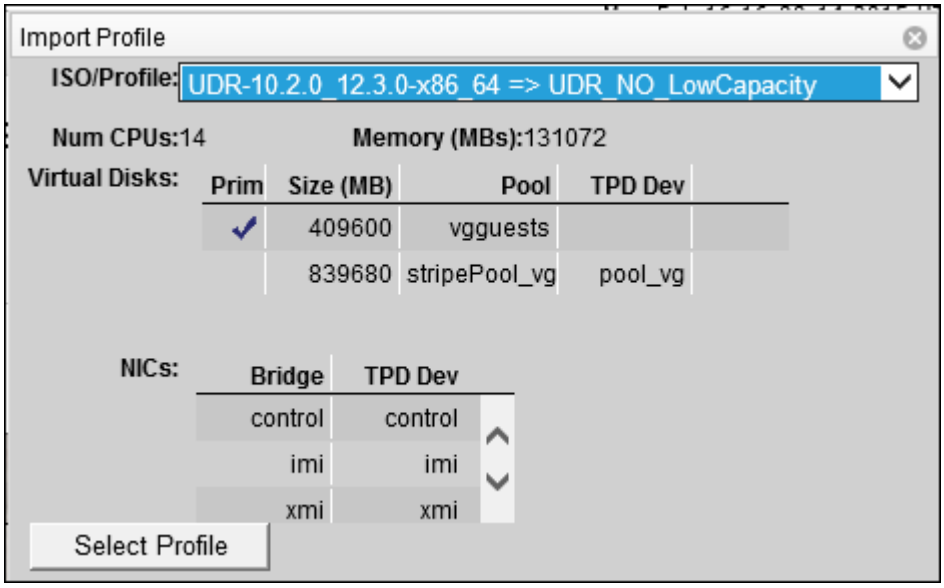
Procedure 5: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
4. ☐	**PM&C GUI:** *Select the desired server and create the VM Guest*	Select the TVOE blade from the "VM Entities" listing on the left side of the screen. The selected server's guest machine configuration will then be displayed in the remaining area of the window.  Click **`Create Guest`**. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2

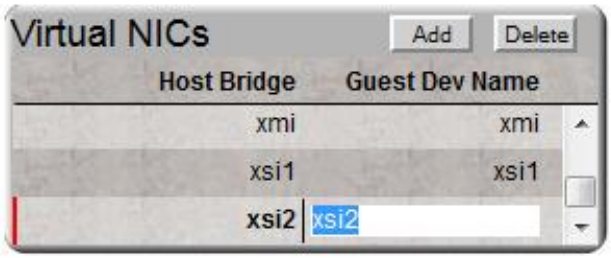
Procedure 5: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
5. ☐	**PM&C GUI:** *Click on the* ***Import Profile*** *dialogue button*	A **"Create VM Guest"** window is displayed that is similar to the below:  Click **"Import Profile"** button. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2

Procedure 5: Create, IPM and Install Application on all Virtual Machines

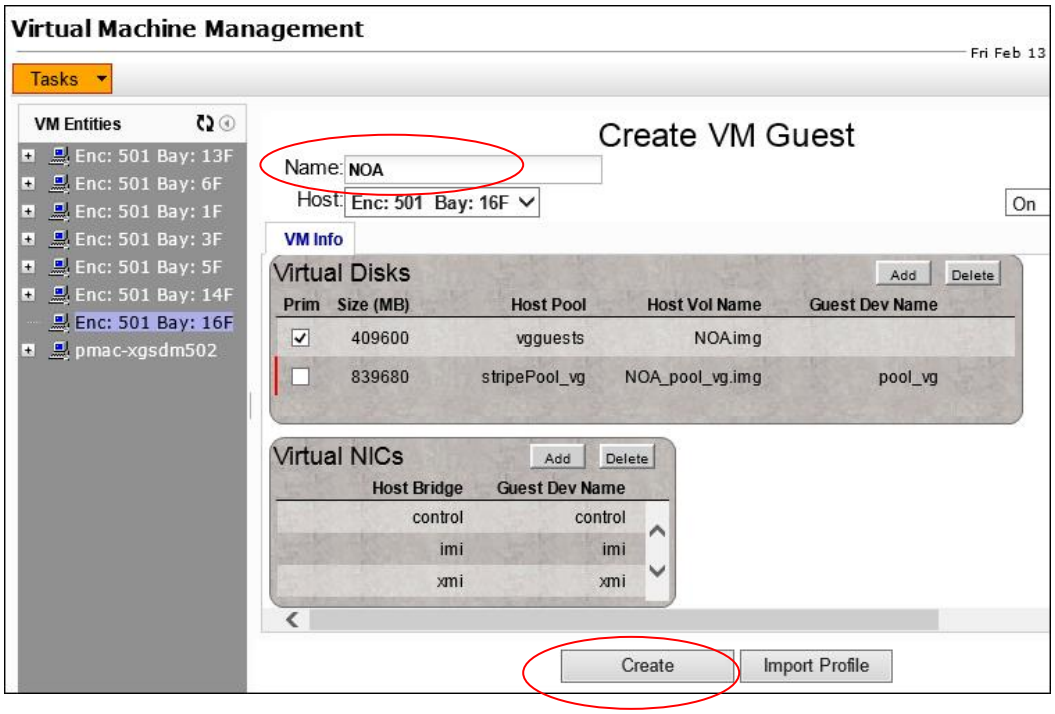
Step	Procedure	Result
6. ☐	**PM&C GUI:** *Select the desired* ***ISO/Profile*** *value*	Select the desired **ISO/Profile**. - If creating a VM for a NOAMP server, use the "**UDR_NO_LowCapacity**" profile. - If creating a VM for a SOAM server, use the "**UDR_SO_LowCapacity**" profile. - If creating a VM for an MP, use the "**UDR_MP_LowCapacity**" profile.  Click **"Select Profile"** button. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2

Procedure 5: Create, IPM and Install Application on all Virtual Machines

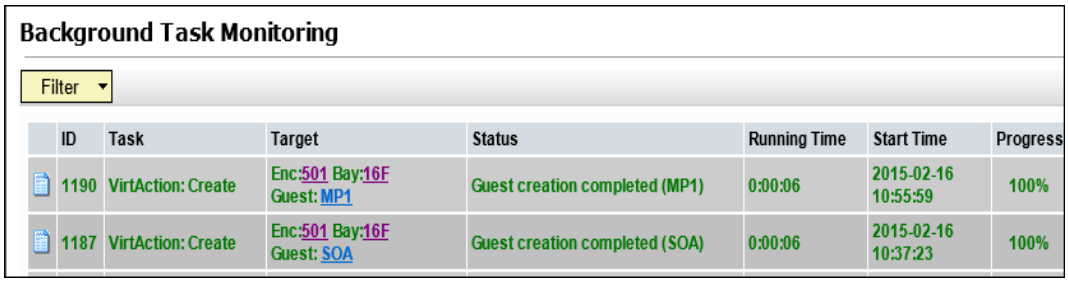
Step	Procedure	Result
7. ☐	**PM&C GUI:** *Customize the **NICs** list to suit your deployment*	The default **Virtual NICs** are configured for a deployment with one XSI network (for NOAMPs) or two XSI networks (for MPs). - If your depoloyment has only a single **XSI** network, select the row for "**xsi2**" (if it's present) by clicking on it then click the **Delete** button:  - If your deployment has more than two **XSI** networks, click the **Add** button, select them from the Host Bridge drop box and type in the same name into **Guest Dev Name**. - Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2

Procedure 5: Create, IPM and Install Application on all Virtual Machines

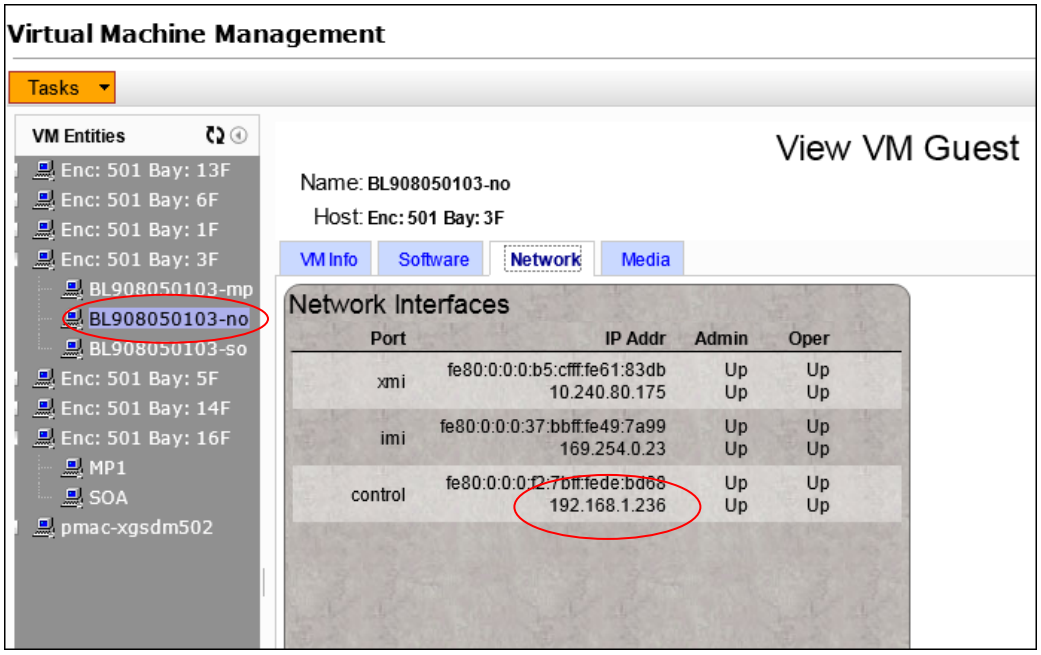
Step	Procedure	Result

8. ☐	**PM&C GUI:**
	
	*Override the VM Guest **Name** to make it unique for the site*
		A "**Create VM Guest**" window is displayed that is similar to the below.
		
		 
		
		Override the **Name** field to something like: NOA, NOB, SOA, SOB, MP1 or MP2, etc. (Don't use hyphens in the name). You could also include a location within the Name value such as SOMRSVNCA. (**This will not become the ultimate hostname. It is just an internal tag for the VM host manager.)**
		
		NOTE: **For 64GB Blades only**, please adjust the Disk Partition sizes as following (see "Virtual Disks" section in the screen shot above and update the "vgguests row" for each server VM):
		`NOAMP = 309600 MB`
		`SOAM = 102400 MB`
		`MP = 102400 MB`
		
		Click **`Create`** button
		
		• Record the Site **VM Guest Name** of each VM that is added in the space provided below:
		• Check-off the associated **Check Box** as addition is completed for the **VM**.
		
		☐ NOAMP-A _____ ☐ NOAMP-B _____
		
		☐ SOAM-A: _____ ☐ SOAM-B: _____
		
		☐ MP-1: _____ ☐ MP-2: _____

Procedure 5: Create, IPM and Install Application on all Virtual Machines

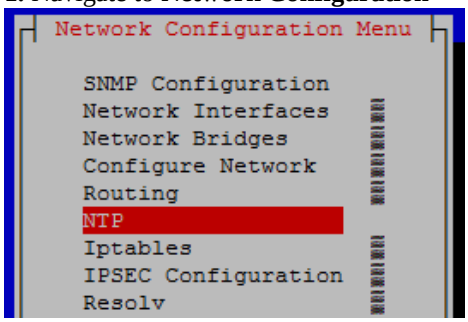
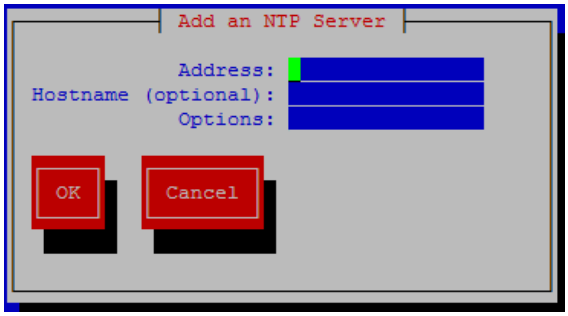
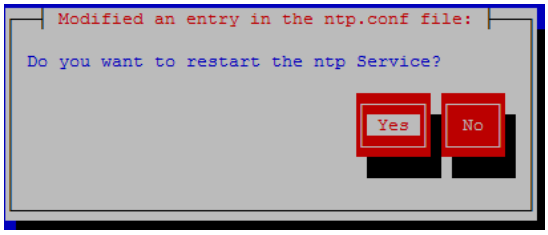
Step	Procedure	Result
9. ☐	**PM&C GUI:** Select… **Main Menu** **→ Task Monitoring** …as shown on the right.	 • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2
10. ☐	**PM&C GUI:** *Verify that Create VM task successfully completes.* *The user should see a screen similar to the one on the right with **Progress** value of **100%**.*	Verify that the Virtual Machine successfully created.  • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2
Note: The steps above may be completed for each VM Guest that this PM&C administers before proceeding on to the next step. This way you may install and upgrade multiple VM Guests in parallel. A low capacity C-Class system has two blades at a site.		
11. ☐	*Install Operating System (TPD)*	Follow steps defined in … **Appendix F.2** Installing Operating Systems with PM&C … to install TPD software on VM Guests. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2

Procedure 5: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
12. ☐	**PM&C GUI:** *Get and record control IP address of VM Guest*	Navigate to the **VM Management** menu Select the VM Guest Name from the VM Entities list, and click **"Network"** tab  Derermine control IP address of VM Guest and record it. • Record the Site **control IP Address** of each VM that is added in the space provided below: • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A _____ ☐ NOAMP-B _____ ☐ SOAM-A: _____ ☐ SOAM-B: _____ ☐ MP-1: _____ ☐ MP-2: _____

13. ☐	For **NOAMPs** only:
	
	Prepare NOAMP for installation of OCUDR application software
	
	Connect to the NOAMP server Control IPaddress
		Manually configure XMI network on the NOAMPs only; the below steps must be executed before installing OCUDR:
		
		`[root@hostname1260476221 ~] # netAdm set --device=xmi --onboot=yes --netmask=<XMI_NETMASK> --address=<XMI_IP_Address_for_NOAMP_A>`
		`Interface xmi updated`
		
		`[root@hostname1260476221 ~] # netAdm add --device=xmi --route=default --gateway=<XMI_IP_Address_for_default_gateway>`
		`Route to xmi added`
		
		Restart the network by running the following:
		`root@hostname1260476221 ~] # service network restart`

Procedure 5: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
14. ☐	For **NOAMP-A** only: *Enter Platform configuration menu*	Enter platform configuration by running the following: # **su - platcfg**
15. ☐	For **NOAMP-A** only: Configure NTP for NOAMP-A	**1.** Navigate to **Network Configuration ➢ NTP.**  **2.** Select **Edit**, then **"Add a New NTP Server."** **3.** Enter the IP Address of the TVOE Host.  **4.** Select **OK**, then "**Exit**." **5.** Select **Yes** to restart ntp Service.  **6**. Delete any default NTP servers (example in Appendix L.6). 7. Exit platcfg.

Procedure 5: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result

16. ☐	*Prepare NOAMP for installation of OCUDR application software*
	
	Connect to the NOAMP server Control IPaddress
		Note: Create a Logical volume from NOAMP VM Guest before installing OCUDR Application on the NOAMP VM Guest.
		
		Create a logical volume from NOAMP VM Guest:
		`root@hostname1260476221 ~] #  vgcreate  stripe_vg /dev/pool_vg`
		`Volume group "stripe_vg" successfully created`
		
		Create a logical volume rundb:
		`root@hostname1260476221 ~] # lvcreate -L 385G --alloc anywhere --name rundb stripe_vg`
		`Logical volume "rundb" created`
		
		Make filesystem on rundb:
		`root@hostname1260476221 ~] #  mkfs -t ext4 /dev/stripe_vg/rundb`
		`mke2fs 1.41.12 (17-May-2010)`
		`Filesystem label=`
		`OS type: Linux`
		`Block size=4096 (log=2)`
		`Fragment size=4096 (log=2)`
		`Stride=64 blocks, Stripe width=192 blocks`
		`45883392 inodes, 183502848 blocks`
		`9175142 blocks (5.00%) reserved for the super user`
		`First data block=0`
		`Maximum filesystem blocks=4294967296`
		`5601 block groups`
		`32768 blocks per group, 32768 fragments per group`
		`8192 inodes per group`
		`Superblock backups stored on blocks:`
		`32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,`
		`4096000, 7962624, 11239424, 20480000, 23887872, 71663616, 78675968`
		
		`Allocating group tables: done`
		`Writing inode tables: done`
		`Creating journal (32768 blocks): done`
		`Writing superblocks and filesystem accounting information: done`

Procedure 5: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
17. ☐	*Install OCUDR application software.*	Follow steps defined in … **Appendix 0** Installing OCUDR Application with PM&C … to install OCUDR software. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2
Repeat Steps 4 - 17 for each Virtual Machine to install its operating system and application software.		
18. ☐	*Perform upgrade acceptance.*	Follow steps defined in … **Appendix H** Accept Application Installation on PM&C Managed Servers … to accept upgrade.
19. ☐	*Access the **NOAMP** server's console.*	Connect to the server's console using one of the access methods described in ***Section 2.1.2.***

20. ☐	Log into the server console as the "**root**" user.	`CentOS release 5.6 (Final)`
		`Kernel 2.6.18-238.19.1.el5prerel5.0.0_72.22.0 on an x86_64`
		
		`hostname1260476221 login:` **`root`**
		`Password:` ***`<root_password>`***

21. ☐	**NOAMP:**
	
	Transfer file to TVOE Host
		`# scp /var/TKLC/db/filemgmt/udrInitConfig.sh \`
		`  admusr@<tvoe_host_name>:/var/tmp`
		
		`admusr@<tvoe_host_name>'s password:` **`<admusr_password>`**
		
		• Check-off the associated **Check Box** as addition is completed for the **TVOE** host.
		
		☐ TVOE Host (NOAMP-A / SOAM-A / MP-1)
		
		☐ TVOE Host (NOAMP-B / SOAM-B / MP-2)

Procedure 5: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result

22. ☐	*Login to TVOE Host:*
	1) SSH to server.
	2) Log into the server as the "**admusr**" user.
		`# ssh admusr@<tvoe_host_name>`
		`admusr@<tvoe_host_name>'s password: <admusr_password>`
		• Check-off the associated **Check Box** as addition is completed for the **TVOE** host.
		☐ TVOE Host (NOAMP-A / SOAM-A / MP-1)
		☐ TVOE Host (NOAMP-B / SOAM-B / MP-2)

23. ☐	**TVOE host:**
	Switch to root user.
		`[admusr@hostname1326744539 ~]$ su -`
		`password: <root_password>`
		• Check-off the associated **Check Box** as addition is completed for the **TVOE** host.
		☐ TVOE Host (NOAMP-A / SOAM-A / MP-1)
		☐ TVOE Host (NOAMP-B / SOAM-B / MP-2)

24. ☐	**TVOE host:** *Change directory.*	`# cd /var/tmp` • Check-off the associated **Check Box** as addition is completed for the **TVOE** host. ☐ TVOE Host (NOAMP-A / SOAM-A / MP-1) ☐ TVOE Host (NOAMP-B / SOAM-B / MP-2)
25. ☐	**TVOE host:** *Update script permissions.*	`# chmod 555 udrInitConfig.sh` • Check-off the associated Check Box as addition is completed for the TVOE host. ☐ TVOE Host (NOAMP-A / SOAM-A / MP-1) ☐ TVOE Host (NOAMP-B / SOAM-B / MP-2)

Procedure 5: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
26. ☐	**TVOE host:** *Run configuration script as root.*	# **./udrInitConfig.sh** Verify no failures are reported. A trace to display the settings for all VM Guests on this server should be shown in output. In case of failures, save the log file /var/TKLC/log/udrVMCfg/udrInitConfig.log. • Check-off the associated Check Box as addition is completed for the TVOE host. ☐ TVOE Host (NOAMP-A / SOAM-A / MP-1) ☐ TVOE Host (NOAMP-B / SOAM-B / MP-2)
27. ☐	**TVOE host:** Reboot the server.	# **init 6** • Check-off the associated **Check Box** as addition is completed for the **TVOE** host. ☐ TVOE Host (NOAMP-A / SOAM-A / MP-1) ☐ TVOE Host (NOAMP-B / SOAM-B / MP-2)
THIS PROCEDURE HAS BEEN COMPLETED		

6.0 LOW CAPACITY RMS CONFIGURATION SOFTWARE INSTALLATION PROCEDURE

The user should confirm that the server has been verified through the Hardware Verification Plan [3] before beginning this procedure.

The following HP RMS configurations will be supported and can utilize the procedures in this section:

- **1-RMS sever per site system**
  This includes all OCUDR software running on a TVOE virtualization environment. This configuration will be supported for lab testing systems only.

- **2-RMS server per site system**
  This includes all OCUDR software running on a TVOE virtualization environment in each server, resulting in a fully-virtualized, fully-redundant HA configuration. This can be deployed either as a single site or as a geo-redundant deployment, with 2 RMS servers at each site.

6.1 Install NOAMP /SOAM / MP Servers

This procedure will install and configure the operating system on hardware that will host NOAMP, SOAM and MP VM Guests. ProLiantDL380Gen8, ProLiantDL380Gen8+ or ProLiantDL380Gen9 are supported for this procedure.

Needed material:

- TVOE Media

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

Procedure 6: Install NOAMP/ SOAM / MP Servers

Step	Procedure	Result
1. ☐	*Access the HP server's console.*	Connect to the HP server's console using one of the access methods described in *Section 2.1.2.*
2. ☐	*Verify the type of server hardware*	`# hardwareInfo | grep Hardware` Hardware ID: ProLiantDL380Gen8, ProLiantDL380Gen8+ or ProLiantDL380Gen9
3. ☐	*Update firmware*	Confirm that the firmware is upgraded to latest version. For more information, please refer to Platform 7.0 docset [5].
4. ☐	*Update BIOS settings*	Follow steps defined in **Appendix D.1 BIOS Settings** to update BIOS settings.

Procedure 6: Install NOAMP/ SOAM / MP Servers

Step	Procedure	Result
5. ☐	*Clean the Disk Array*	**Note**: Execute only if previous install on the RMS server. Follow steps defined in … **Appendix M.1:** Removing RMS Disk Array Configuration for HP … to clean the Disk Array
6. ☐	*Install Operating System (TVOE)*	Follow steps defined in … **Appendix F.1 Installing Operating Systems with ILO** *(DL380 hardware)* … to install TVOE software.
7. ☐	*Configure TVOE network*	If this Oracle RMS has 8 ports, follow steps defined in **Appendix L.2** Configure TVOE Network for Topology 7 (HP RMS & Oracle RMS with 8 ports) If this Oracle RMS has 6 ports, follow steps defined in **Appendix L.3** Configure TVOE Network for Topology 7 (Oracle RMS with 6 ports) If the Oracle RMS has only 4 ports, follow steps defined in … **Appendix L.4** Configure TVOE Network for Topology 7 (Oracle RMS with 4 ports) … to configure TVOE network.
8. ☐	*Configure Disk Array*	Follow steps defined in … **Appendix E.1 Configuring Disk Array (NO Network Element Servers)** … to configure the disk array.

Procedure 6: Install NOAMP/ SOAM / MP Servers

Step	Procedure	Result

9. ☐	*Configure a logical storage pool*	a. Create the file name "configStorageBlade" through vi command.
		`[root@pc9000714-tvoe ~]# vi configStorageBlade`
		Add the line below in the file
		`vg --name="stripePool_vg" --members="sdb,sdc,sdd" --virtstoragepool`
		b. Create storage pool
		`[root@pc9000714-tvoe ~]# /usr/TKLC/plat/sbin/storageMgr configStorageBlade`
		c. Verify pool is listed below
		`[root@pc9000714-tvoe ~]# virsh pool-list`
		`Name State Autostart`
		`-----------------------------------------`
		`stripePool_vg active yes`
		`vgguests active yes`

10. ☐	*Deploy PM&C*	Follow steps defined in **Appendix I.1 Deploying PM&C on TVOE Server**.
11. ☐	*Configure PM&C application*	Follow steps defined in **Appendix I.2 Configure PM&C Application**.
12. ☐	*Configure Cabinet*	Follow steps defined in **Appendix I.3 Add Cabinet to PM&C System Inventory**.
13. ☐	*Configure RMS*	Follow steps defined in **Appendix I.4 Add Rack Mount Server to PM&C System Inventory**.
THIS PROCEDURE HAS BEEN COMPLETED		

6.2 Create, IPM and Install Application on all Virtual Machines

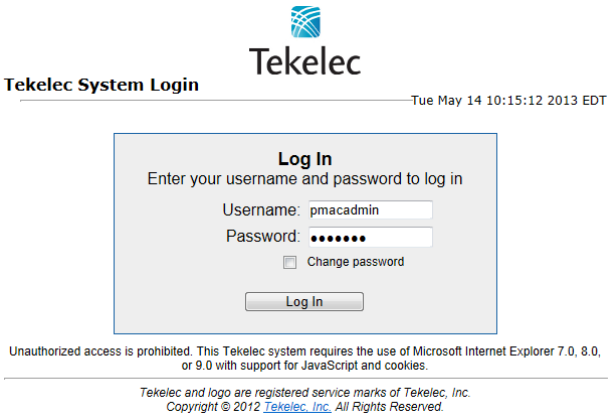
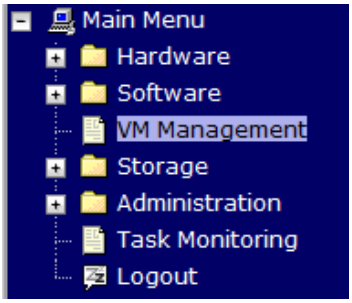
This procedure will create Virtual Machines (VMs) for NOAMP, SOAM and MP servers, install the TPD Operating System on each VM, and install the OCUDR application on each VM. It details the create/IPM/install for a single VM and should be repeated for every VM.

Requirements:

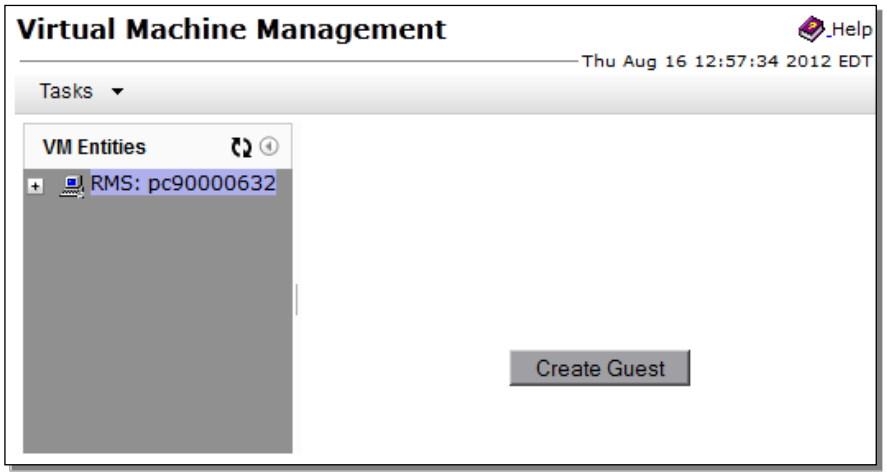
- **Procedure 6:** Install NOAMP /SOAM / MP Servers has been completed.

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

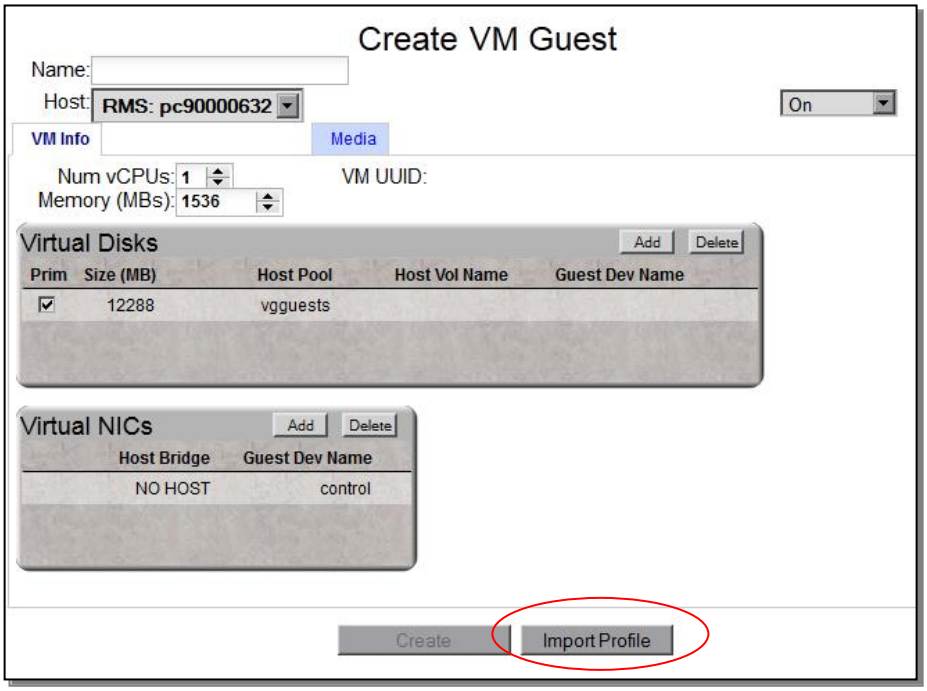
Procedure 7: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
Rack Mount Server deployments (ex: **ProLiantDL380pGen8**) will use two IP addresses per SO Network Element to access the PM&C deployed on each member RMS.		
1. ☐	*Add image to management server.*	Follow **Appendix J Adding Software Images to PM&C Server** to add **TPD** and **OCUDR** software images to this PM&C repository.
2. ☐	**PM&C GUI:** *Login to PM&C GUI*	Open web browser and enter: **`http://<pmac_management_network_ip>`** Login as pmacadmin user. 
3. ☐	**PM&C GUI:** *Navigate to VM Management menu*	Navigate to the **`VM Management`** menu 

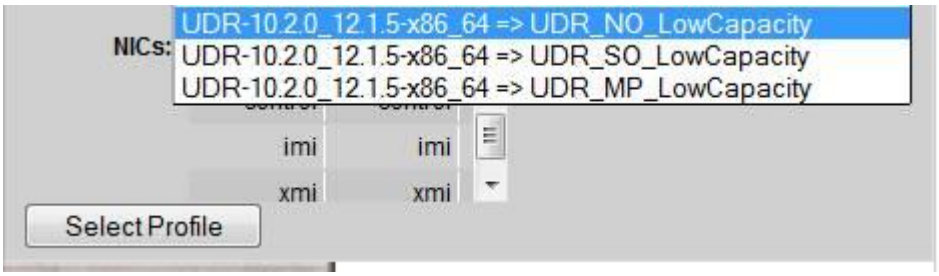
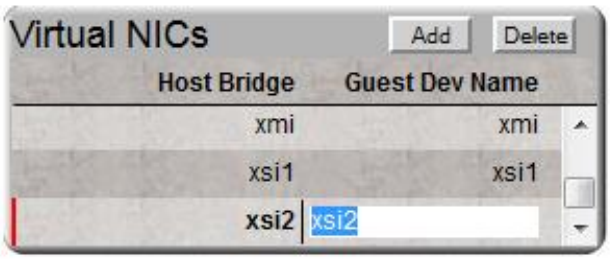
Procedure 7: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
4. ☐	**PM&C GUI:** *Select the desired Server and create the VM Guest*	Select the rack mounted server from the "VM Entities" listing on the left side of the screen. The selected server's guest machine configuration will then be displayed in the remaining area of the window.  Click **Create Guest**. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2

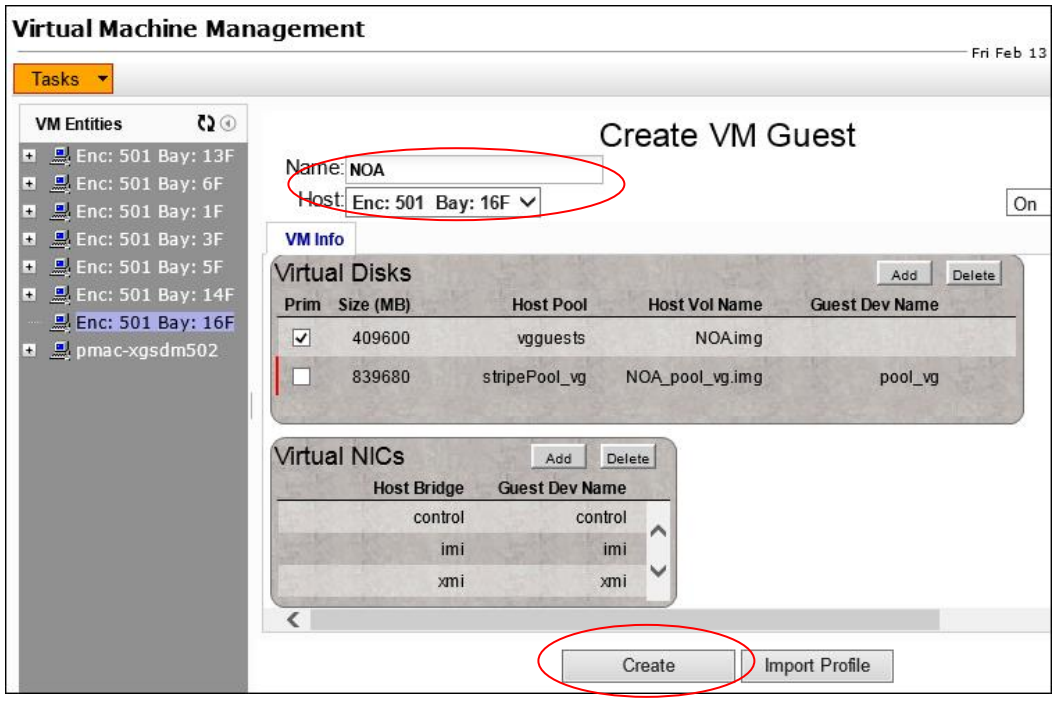
Procedure 7: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
5. ☐	**PM&C GUI:** *Click on the **Import Profile** dialogue button*	A **"Create VM Guest"** window is displayed that is similar to the below:  Click "**Import Profile**" button . • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2

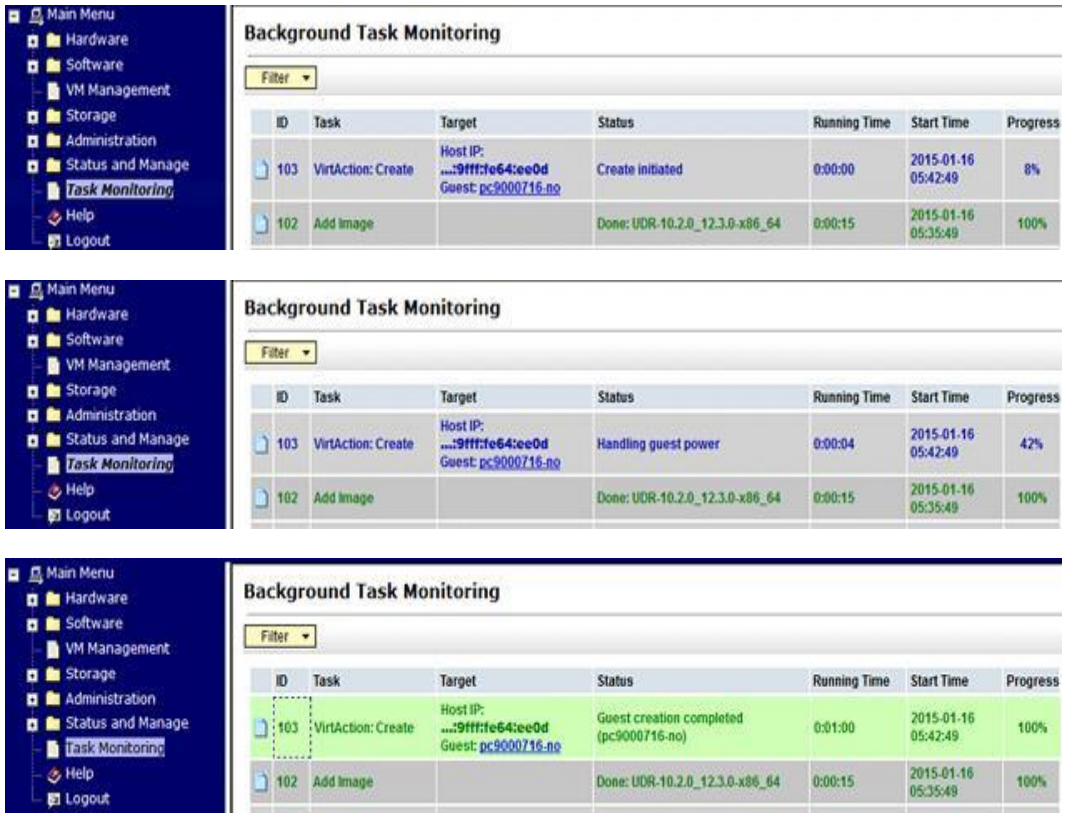
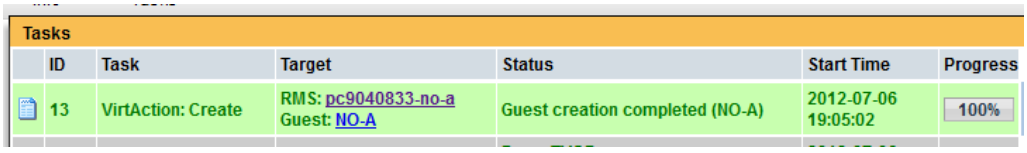
Procedure 7: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
6. ☐	**PM&C GUI:** *Select the desired **ISO/Profile** value*	Select the desired **ISO/Profile**. - If creating a VM for a NOAMP server, use the "**UDR_NO_LowCapacity**" profile. - If creating a VM for a SOAM server, use the "**UDR_SO_ LowCapacity**" profile. - If creating a VM for an MP, use the "**UDR_MP_LowCapacity**" profile.  Click **"Select Profile"** button. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2
7. ☐	**PM&C GUI:** *Customize the **NICs** list to suit your deployment*	The default **Virtual NICs** are configured for a deployment with one XSI network (for NOAMPs) or two XSI networks (for MPs). - If your depoloyment has only a single **XSI** network, select the row for "**xsi2**" by clicking on it then click the **Delete** button:  - If your deployment has more than two **XSI** networks, click the **Add** button, select them from the Host Bridge drop box and type in the same name into **Guest Dev Name**. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2

Procedure 7: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
8. ☐	**PM&C GUI:** *Override the VM Guest* ***Name*** *to make it unique for the site*	A "**Create VM Guest**" window is displayed that is similar to the below.  Override the **Name** field to something like: NOA, NOB, SOA, SOB, MP1 or MP2, etc. (Don't use hyphens in the name) You could also include a location within the Name value such as SOMRSVNCA. (**This will not become the ultimate hostname. It is just an internal tag for the VM host manager.)** Click **`Create`** button • Record the Site **VM Guest Name** of each VM that is added in the space provided below: • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A: _____ ☐ NOAMP-B _____ ☐ SOAM-A: _____ ☐ SOAM-B: _____ ☐ MP-1: _____ ☐ MP-2: _____

Procedure 7: Create, IPM and Install Application on all Virtual Machines

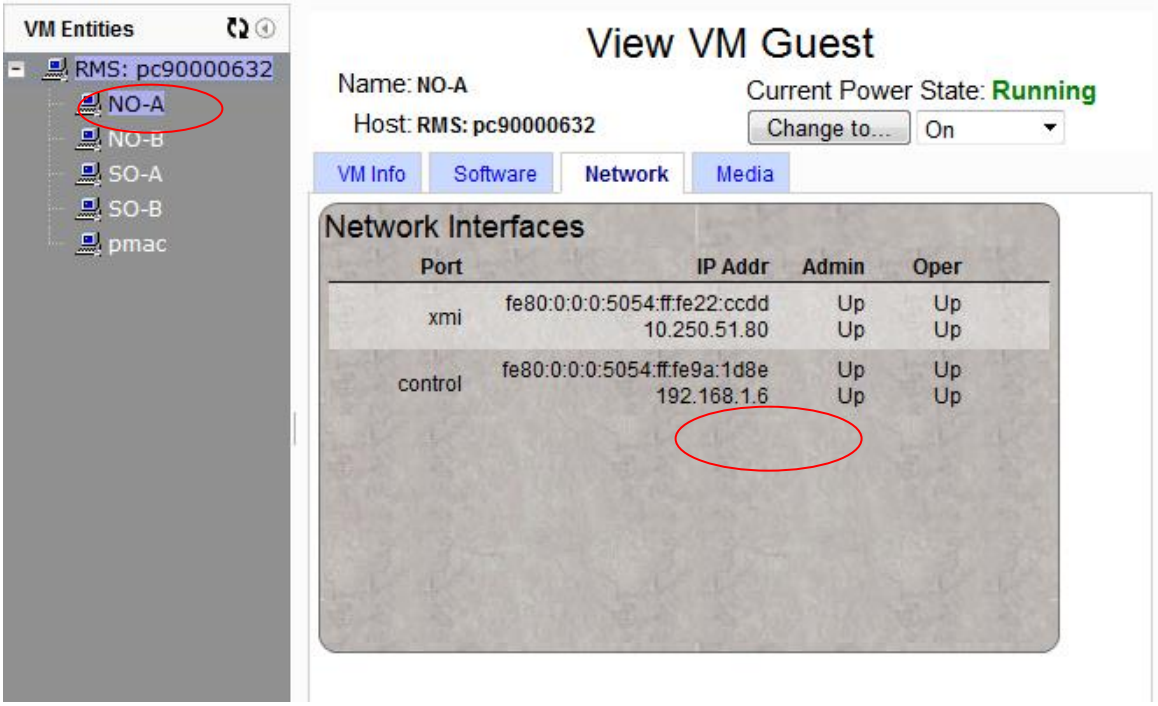
Step	Procedure	Result
9. ☐	**PM&C GUI:** Select… **Main Menu → Task Monitoring** …as shown on the right.	 • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2
10. ☐	**PM&C GUI:** *Verify that Create VM task successfully completes.* The user should see a screen similar to the one on the right with **Progress** value of **100%**.	Verify that the Virtual Machine successfully created.  • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2

Note: The steps above may be completed for each VM Guest that this PM&C administers before proceeding on to the next step. This way you may install and upgrade multiple VM Guests in parallel.

Procedure 7: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
11. ☐	*Install Operating System (TPD)*	Follow steps defined in … **Appendix F.2** Installing Operating Systems with PM&C … to install TPD software on VM Guests. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2

Procedure 7: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
12. ☐	**PM&C GUI:** *Get and record control IP address of VM Guest*	Navigate to the **VM Management** menu Select the VM Guest Name from the VM Entities list, and click **"Network"** tab  Derermine control IP address of VM Guest and record it. • Record the Site **control IP Address** of each VM that is added in the space provided below: • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A: _____ ☐ NOAMP-B _____ ☐ SOAM-A: _____ ☐ SOAM-B: _____ ☐ MP-1: _____ ☐ MP-2: _____

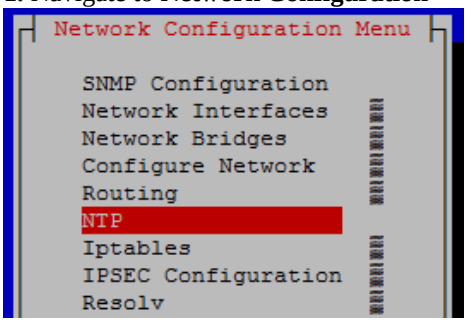
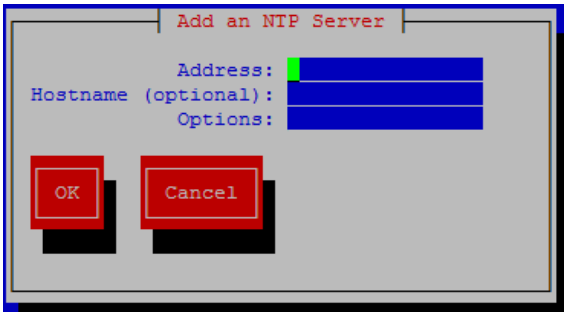
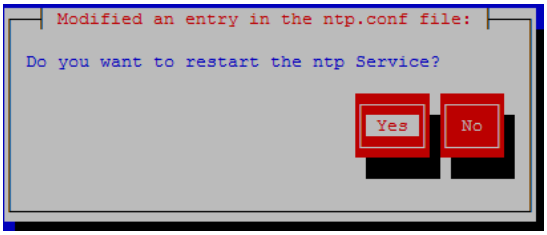
Procedure 7: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result

13. ☐	For **NOAMP-A** only:
	
	Prepare NOAMP for installation of OCUDR application software
	
	Connect to the NOAMP server Control IPaddress
		Manually configure XMI network on the first NOAMP guest only, (NOA); the below steps must be executed before installing OCUDR:
		
		`[root@hostname1260476221 ~] # netAdm set --device=xmi --onboot=yes --netmask=<XMI_NETMASK> --address=<XMI_IP_Address_for_NOAMP_A>`
		`Interface xmi updated`
		
		`[root@hostname1260476221 ~] # netAdm add --device=xmi --route=default --gateway=<XMI_IP_Address_for_default_gateway>`
		`Route to xmi added`

14. ☐	For **NOAMP-A** only: Enter Platform configuration menu	Enter platform configuration by running the following: # `su - platcfg`

Procedure 7: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
15. ☐	For **NOAMP-A** only: Configure NTP for NOAMP-A	**1.** Navigate to **Network Configuration ➢ NTP.**  **2.** Select **Edit**, then **"Add a New NTP Server."** **3.** Enter the IP Address of the TVOE Host.  **4.** Select **OK**, then "**Exit**." **5.** Select **Yes** to restart ntp Service.  **6**. Delete any default NTP servers (example in Appendix L.6). 7. Exit platcfg.

Procedure 7: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result

16. ☐	*For **All NOAMP** servers:*
	
	Prepare NOAMP for installation of OCUDR application software
	
	Connect to the NOAMP server Control IPaddress
		Create a logical volume from NOAMP VM Guest:
		`root@hostname1260476221 ~] # vgcreate stripe_vg /dev/pool_vg`
		`Volume group "stripe_vg" successfully created`
		
		Create a logical volume rundb:
		`root@hostname1260476221 ~] # lvcreate -L 385G --alloc anywhere --name rundb stripe_vg`
		`Logical volume "rundb" created`
		
		Make filesystem on rundb:
		`root@hostname1260476221 ~] # mkfs -t ext4 /dev/stripe_vg/rundb`
		`mke2fs 1.41.12 (17-May-2010)`
		`Filesystem label=`
		`OS type: Linux`
		`Block size=4096 (log=2)`
		`Fragment size=4096 (log=2)`
		`Stride=64 blocks, Stripe width=192 blocks`
		`45883392 inodes, 183502848 blocks`
		`9175142 blocks (5.00%) reserved for the super user`
		`First data block=0`
		`Maximum filesystem blocks=4294967296`
		`5601 block groups`
		`32768 blocks per group, 32768 fragments per group`
		`8192 inodes per group`
		`Superblock backups stored on blocks:`
		`32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,`
		`4096000, 7962624, 11239424, 20480000, 23887872, 71663616, 78675968`
		
		`Allocating group tables: done`
		`Writing inode tables: done`
		`Creating journal (32768 blocks): done`
		`Writing superblocks and filesystem accounting information: done`
		
		• Check-off the associated **Check Box** as addition is completed for the **VM**.
		
		☐ NOAMP-A: _____ ☐ NOAMP-B _____

17. ☐	*For **All NOAMP** servers:*
	
	Verify the logical volume created successfully
		`# lvs stripe_vg`
		
		`LV VG Attr LSize Pool Origin Data% Move Log Cpy%Sync Convert`
		`rundb stripe_vg -wa-ao---- 385.01g`
		
		• Check-off the associated **Check Box** as addition is completed for the **VM**.
		
		☐ NOAMP-A: _____ ☐ NOAMP-B _____

Procedure 7: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
18. ☐	*Install OCUDR application software.*	Follow steps defined in … **Appendix 0** Installing OCUDR Application with PM&C … to install OCUDR software. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2
Repeat Steps 4 - 18 for each Virtual Machine to install its operating system and application software.		
19. ☐	*Perform upgrade acceptance.*	Follow steps defined in … **Appendix H** Accept Application Installation on PM&C Managed Servers … to accept upgrade.
20. ☐	*Access the **NOAMP** server's console.*	Connect to the server's console using one of the access methods described in ***Section 2.1.2.***

21. ☐	Log into the server console as the "**root**" user.	`CentOS release 5.6 (Final)`
		`Kernel 2.6.18-238.19.1.el5prerel5.0.0_72.22.0 on an x86_64`
		
		`hostname1260476221 login:` **`root`**
		`Password:` ***`<root_password>`***

22. ☐	**NOAMP:**
	
	Transfer file to TVOE Host
		`# scp /var/TKLC/db/filemgmt/udrInitConfig.sh \`
		`admusr@<tvoe_host_name>:/var/tmp`
		`admusr@<tvoe_host_name>'s password:` **`<admusr_password>`**
		
		• Check-off the associated **Check Box** as addition is completed for the **TVOE** host.
		
		☐ TVOE Host (NOAMP-A / SOAM-A / MP-1)
		
		☐ TVOE Host (NOAMP-B / SOAM-B / MP-2)

Procedure 7: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
23. ☐	*Login to TVOE Host:* **1)** SSH to server. **2)** Log into the server as the "**admusr**" user..	# **ssh admusr@<tvoe_host_name>** admusr@<tvoe_host_name>'s password: **<admusr_password>** • Check-off the associated **Check Box** as addition is completed for the **TVOE** host. ☐ TVOE Host (NOAMP-A / SOAM-A / MP-1) ☐ TVOE Host (NOAMP-B / SOAM-B / MP-2)
24. ☐	**TVOE host:** Switch to root user.	[admusr@hostname1326744539 ~]$ **su -** password: **<root_password>** • Check-off the associated **Check Box** as addition is completed for the **TVOE** host. ☐ TVOE Host (NOAMP-A / SOAM-A / MP-1) ☐ TVOE Host (NOAMP-B / SOAM-B / MP-2)
25. ☐	**TVOE host:** Change directory.	# **cd /var/tmp** • Check-off the associated **Check Box** as addition is completed for the **TVOE** host. ☐ TVOE Host (NOAMP-A / SOAM-A / MP-1) ☐ TVOE Host (NOAMP-B / SOAM-B / MP-2)
26. ☐	**TVOE host:** Update script permissions.	# **chmod 555 udrInitConfig.sh** • Check-off the associated **Check Box** as addition is completed for the **TVOE** host. ☐ TVOE Host (NOAMP-A / SOAM-A / MP-1) ☐ TVOE Host (NOAMP-B / SOAM-B / MP-2)

Procedure 7: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
27. ☐	**TVOE host:** Run configuration script as root.	# `./udrInitConfig.sh` Verify no failures are reported. A trace to display the settings for all VM Guests on this server should be shown in output. In case of failures, save the log file /var/TKLC/log/udrVMCfg/udrInitConfig.log • Check-off the associated **Check Box** as addition is completed for the **TVOE** host. ☐ TVOE Host (NOAMP-A / SOAM-A / MP-1) ☐ TVOE Host (NOAMP-B / SOAM-B / MP-2)
28. ☐	**TVOE host:** Reboot the server.	# `init 6` • Check-off the associated **Check Box** as addition is completed for the **TVOE** host. ☐ TVOE Host (NOAMP-A / SOAM-A / MP-1) ☐ TVOE Host (NOAMP-B / SOAM-B / MP-2)
THIS PROCEDURE HAS BEEN COMPLETED		

7.0 LOW CAPACITY ORACLE RMS CONFIGURATION SOFTWARE INSTALLATION PROCEDURE

The user should confirm that the server has been verified through the Hardware Verification Plan [3] before beginning this procedure.

The following Oracle RMS Configurations will be supported and can utilize the procedures in this section:

- **1-RMS sever per site system**
  This includes all OCUDR software running on a TVOE virtualization environment. This configuration will be supported only for lab testing systems.

- **2-RMS server per site system**
  This includes all OCUDR software running on a TVOE virtualization environment in each server, resulting in a fully-virtualized, fully-redundant HA configuration. This can be deployed either as a single site or as a geo-redundant deployment, with 2 RMS servers at each site.

7.1 Install NOAMP /SOAM / MP Servers

This procedure will install and configure the operating system on hardware that will host NOAMP, SOAM and MP VM Guests. Oracle X5-2s (ORACLESERVERX5-2) are supported for this procedure.

Needed material:

- TVOE Media

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

Procedure 8: Install NOAMP/ SOAM / MP Servers

Step	Procedure	Result
1. ☐	*Access the Oracle RMS server's console.*	Connect to the Oracle RMS server's console using Appendix 0 Accessing the iLo VGA Redirection Window for Oracle Accessing the iLo VGA Redirection Window for Oracle RMS Servers or Appendix A.3 Accessing the iLo Console for Oracle RMS Servers.
2. ☐	*Verify the type of server hardware*	`# hardwareInfo | grep Hardware` `Hardware ID: ORACLESERVERX5-2`
3. ☐	*Update firmware*	Follow steps defined in … **Appendix D.2** Oracle RMS Firmware Upgrade … to update firmware.
4. ☐	*Update BIOS settings*	Follow steps defined in **Appendix D.3** BIOS Settings for Oracle RMS Servers **…** to update BIOS settings.

Procedure 8: Install NOAMP/ SOAM / MP Servers

Step	Procedure	Result
5. ☐	*Clean the Disk Array*	**Note**: Execute only if previous install on the Oracle RMS Server. Follow steps defined in .. **Appendix M.3** Removing RMS Disk Array Configuration for Oracle Servers … to clean the Disk Array
6. ☐	*Install Operating System (TVOE)*	Follow steps defined in … **Appendix F.3** Installing Operating Systems with ILO for Oracle … to install TVOE software.
7. ☐	*Configure TVOE network*	Follow steps defined in . . . **Appendix L.3** Error! Reference source not found. . . . to configure TVOE network.
8. ☐	*Configure Disk Array*	Follow steps defined in . . . **Appendix E.3** Configuring Oracle RMS Disk Array (NO Network Element Servers) . . . to configure the disk array.

9. ☐	*Configure a logical storage pool*	a. Create the file name "configStorageBlade" through vi command.
		`[root@pc9000714-tvoe ~]# vi configStorageBlade`
		Add the line below in the file
		`vg --name="stripePool_vg" --members="sdb" --virtstoragepool`
		b. Create storage pool
		`[root@pc9000714-tvoe ~]# /usr/TKLC/plat/sbin/storageMgr configStorageBlade`
		c. Verify pool is listed below
		`[root@pc9000714-tvoe ~]# virsh pool-list`
		`Name State Autostart`
		`-----------------------------------------`
		`stripePool_vg active yes`
		`vgguests active yes`

Procedure 8: Install NOAMP/ SOAM / MP Servers

Step	Procedure	Result
10. ☐	*Deploy PM&C*	Follow steps defined in **Appendix I.1 Deploying PM&C on TVOE Server**.
11. ☐	*Configure PM&C application*	Follow steps defined in **Appendix I.2 Configure PM&C Application**.
12. ☐	*Configure Cabinet*	Follow steps defined in **Appendix I.3 Add Cabinet to PM&C System Inventory**.
13. ☐	*Configure RMS*	Follow steps defined in **Appendix I.4 Add Rack Mount Server to PM&C System Inventory**.
THIS PROCEDURE HAS BEEN COMPLETED		

7.2 Create, IPM and Install Application on all Virtual Machines

This procedure will create Virtual Machines (VMs) for NOAMP, SOAM and MP servers, install the TPD Operating System on each VM, and install the OCUDR application on each VM. It details the create/IPM/install for a single VM and should be repeated for every VM.

Requirements:

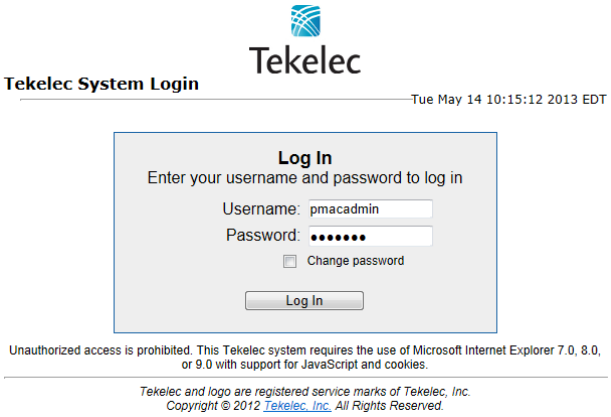
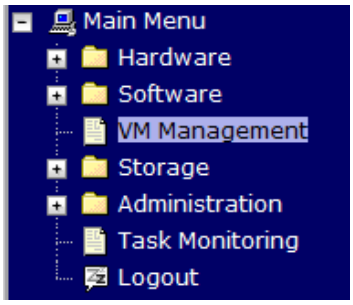
- **Procedure 8:** Install NOAMP /SOAM / MP Servers has been completed.

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

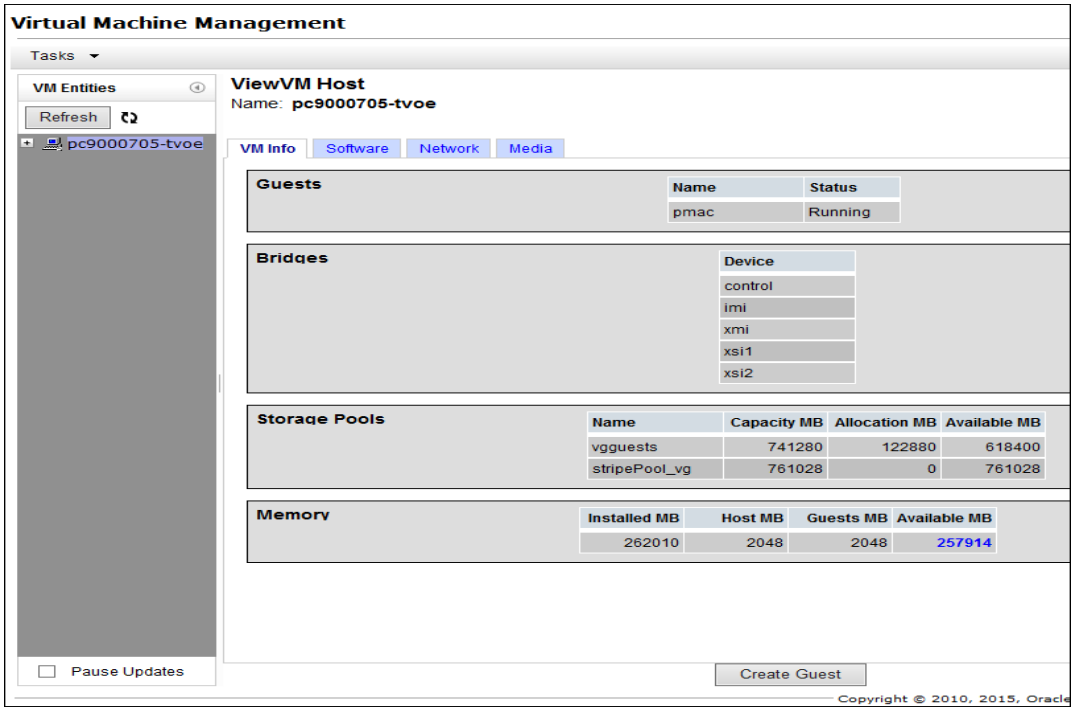
Procedure 9: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
1. ☐	*Add image to manage - ment server.*	Follow **Appendix J Adding Software Images to PM&C Server** to add **TPD** and **OCUDR** software images to this PM&C repository.

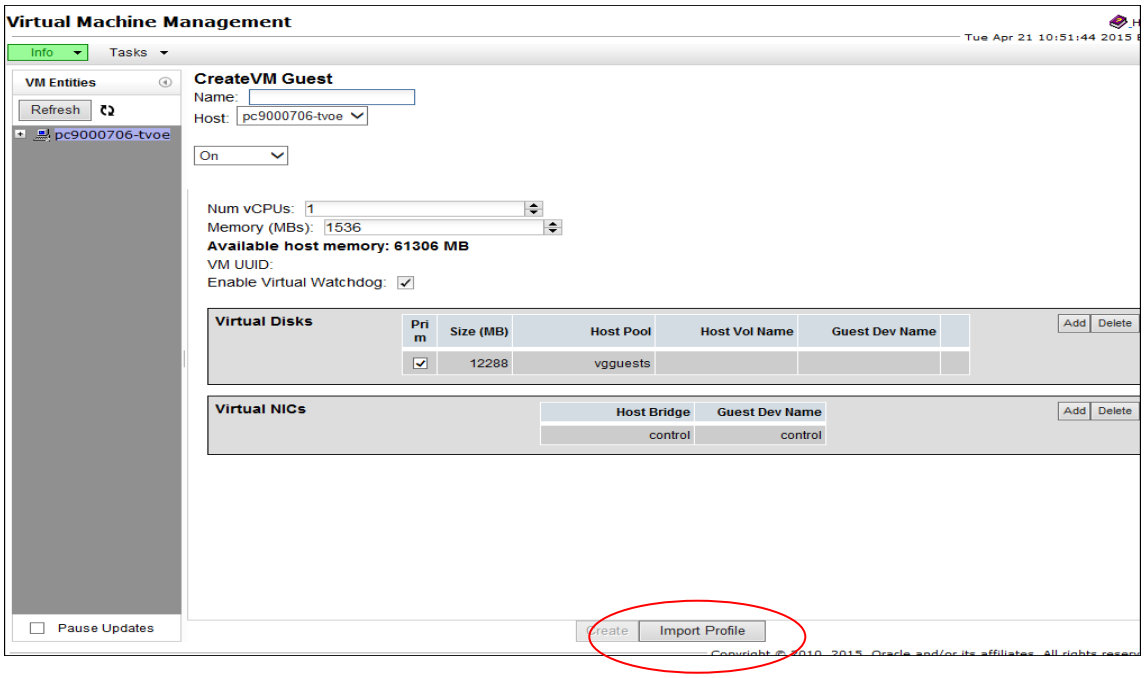
Procedure 9: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
2. ☐	**PM&C GUI:** *Login to PM&C GUI*	Open web browser and enter: **http://<pmac_management_network_ip>** Login as pmacadmin user. 
3. ☐	**PM&C GUI:** *Navigate to VM Manage-ment menu*	Navigate to the **VM Management** menu 

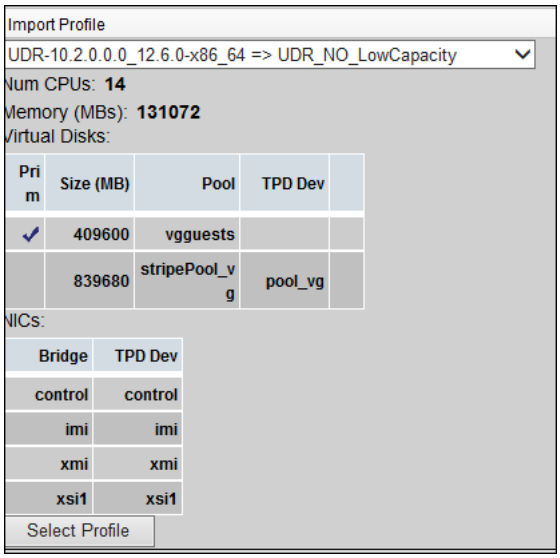
Procedure 9: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
4. ☐	**PM&C GUI:** *Select the desired Server and create the VM Guest*	Select the desired server from the "VM Entities" listing on the left side of the screen. The selected server's guest machine configuration will then be displayed in the remaining area of the window.  Click **`Create Guest`**. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2

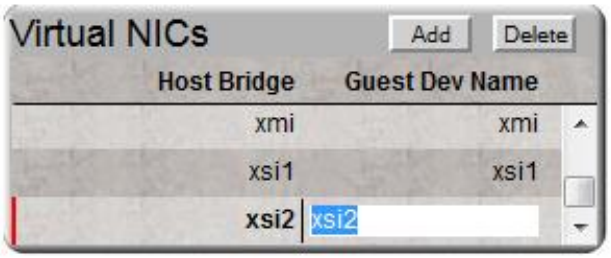
Procedure 9: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
5. ☐	**PM&C GUI:** *Click on the* ***Import Profile*** *dialogue button*	A **"Create VM Guest"** window is displayed that is similar to the below:.  Click "**Import Profile**" button . • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2

Procedure 9: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
6. ☐	**PM&C GUI:** *Select the desired* ***ISO/Profile*** *value*	Select the desired **ISO/Profile**. - If creating a VM for a NOAMP server, use the "**UDR_NO_LowCapacity**" profile. - If creating a VM for a SOAM server, use the "**UDR_SO_LowCapacity**" profile. - If creating a VM for an MP, use the "**UDR_MP_LowCapacity**" profile.  Click "**`Select Profile`**" button. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2

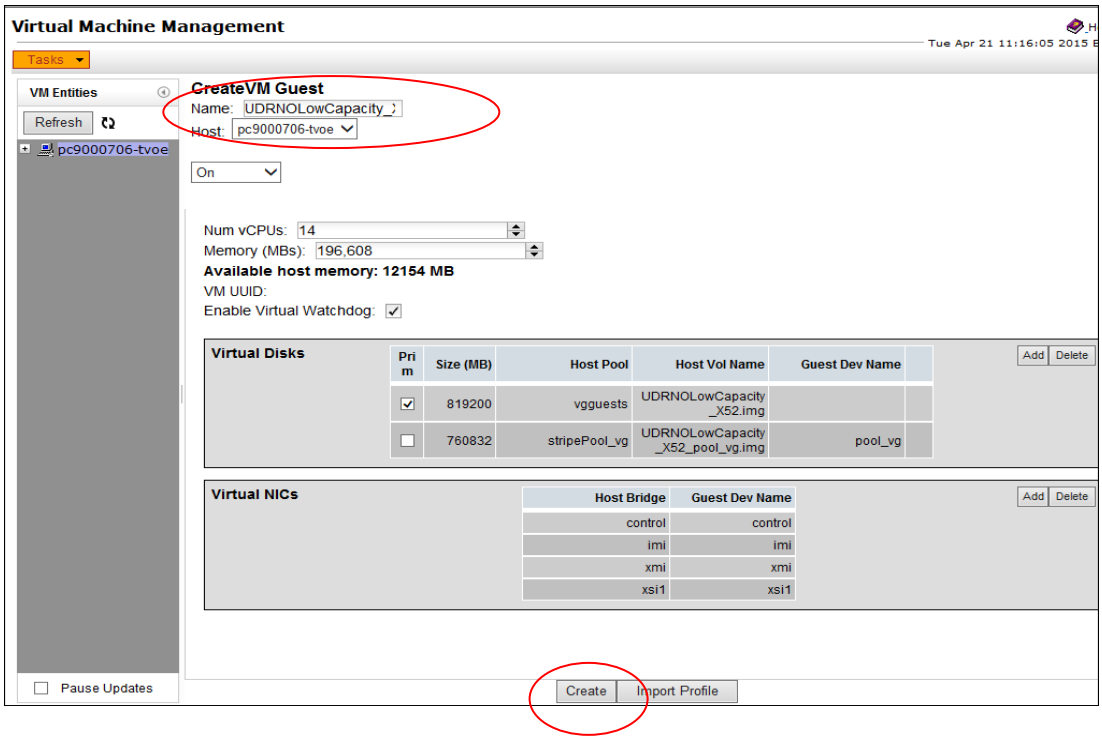
Procedure 9: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
7. ☐	**PM&C GUI:** *Customize the **NICs** list to suit your deployment*	The default **Virtual NICs** are configured for a deployment with one XSI network (for NOAMPs) or two XSI networks (for MPs). - If your depoloyment has only a single **XSI** network for MPs, select the row for "**xsi2**" by clicking on it then click the **Delete** button:  - If your deployment has more than two **XSI** networks, click the **Add** button, select them from the Host Bridge drop box and type in the same name into **Guest Dev Name**. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2

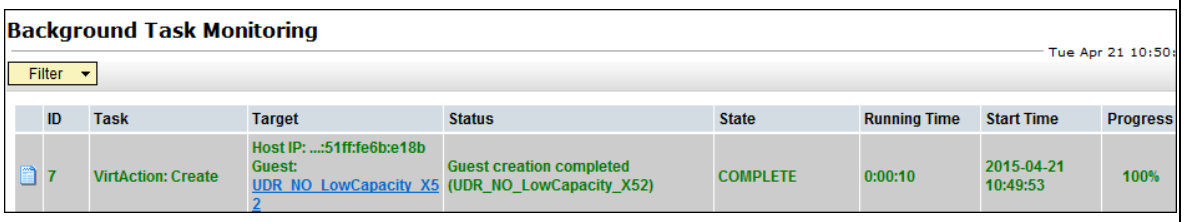
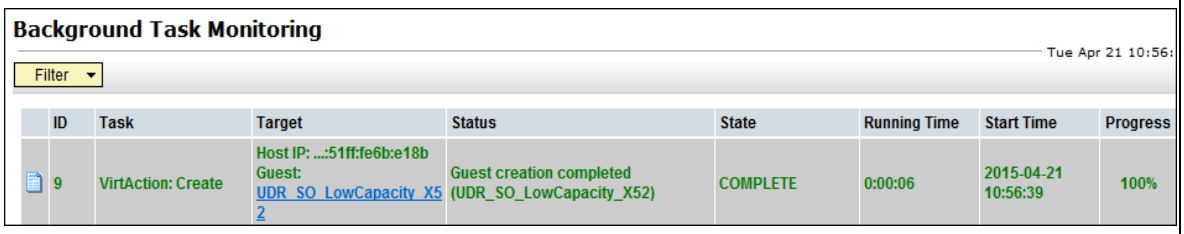
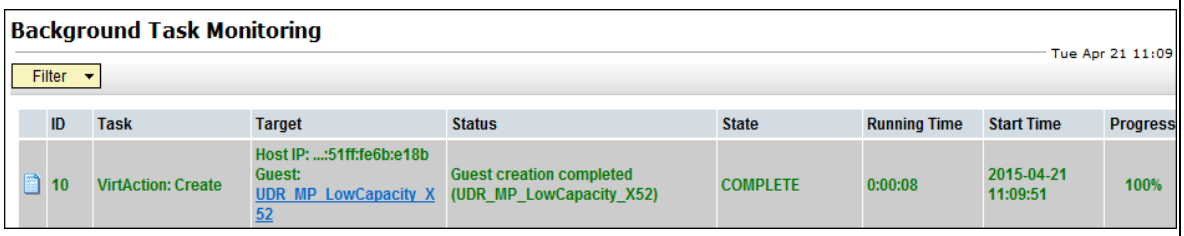
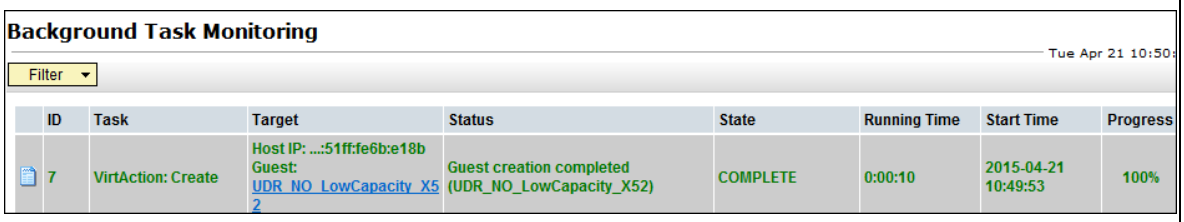
Procedure 9: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
8. ☐	**PM&C GUI** Adjust the disk sizes NOAMP, SOAM and MPs accordingly.	For NOAMP, change vgguests size to 778240, change stripePool_vg to 760832: **Create VM Guest** Name: **NO-A** Host: RMS: pc9000701-tvoe On Num vCPUs: **14** Memory (MBs): **131,072** **Available host memory: 257914 MB** VM UUID: Enable Virtual Watchdog: ☑ **Virtual Disks** Add Delete Prim / Size (MB) / Host Pool / Host Vol Name / Guest Dev Name ☑ 778240 vgguests NO-A.img ☐ 760832 stripePool_vg NO-A_pool_vg.img pool_vg For SOAM, change vgguests size to 71680: Num vCPUs: **2** Memory (MBs): **16,384** **Available host memory: 126842 MB** VM UUID: Enable Virtual Watchdog: ☑ **Virtual Disks** Add Delete Prim / Size (MB) / Host Pool / Host Vol Name / Guest Dev Name ☑ 71680 vgguests SO-A.img For MP, change vgguests size to 71680: **Create VM Guest** Name: **MP2** Host: RMS: pc9000701-tvoe On Num vCPUs: **12** Memory (MBs): **32,768** **Available host memory: 77690 MB** VM UUID: Enable Virtual Watchdog: ☑ **Virtual Disks** Add Delete Prim / Size (MB) / Host Pool / Host Vol Name / Guest Dev Name ☑ 71680 vgguests MP2.img

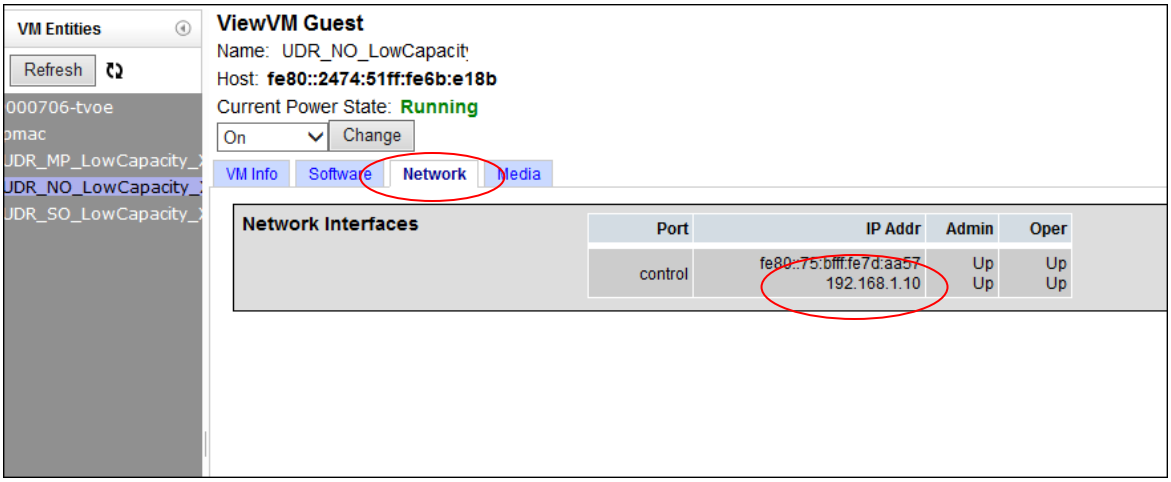
Procedure 9: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
9. ☐	**PM&C GUI:** *Override the VM Guest **Name** to make it unique for the site*	A "**Create VM Guest**" window is displayed that is similar to the below (Ex for NOAMP):  Override the **Name** field to something like: NOA, NOB, SOA, SOB, MP1 or MP2, etc. (Don't use hyphens in the name) You could also include a location within the Name value such as SOMRSVNCA. (**This will not become the ultimate hostname. It is just an internal tag for the VM host manager.)** Click **`Create`** button • Record the Site **VM Guest Name** of each VM that is added in the space provided below: • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A: _____ ☐ NOAMP-B _____ ☐ SOAM-A: _____ ☐ SOAM-B: _____ ☐ MP-1: _____ ☐ MP-2: _____

Procedure 9: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
10. ☐	**PM&C GUI:** Select… **Main Menu** **→ Task Monitoring** …as shown on the right.	 **Background Task Monitoring** Tue Apr 21 10:50: Filter ID | Task | Target | Status | State | Running Time | Start Time | Progress 7 | VirtAction: Create | Host IP: ...:51ff:fe6b:e18b Guest: UDR_NO_LowCapacity_X52 | Guest creation completed (UDR_NO_LowCapacity_X52) | COMPLETE | 0:00:10 | 2015-04-21 10:49:53 | 100%  **Background Task Monitoring** Tue Apr 21 10:56: Filter ID | Task | Target | Status | State | Running Time | Start Time | Progress 9 | VirtAction: Create | Host IP: ...:51ff:fe6b:e18b Guest: UDR_SO_LowCapacity_X52 | Guest creation completed (UDR_SO_LowCapacity_X52) | COMPLETE | 0:00:06 | 2015-04-21 10:56:39 | 100%  **Background Task Monitoring** Tue Apr 21 11:09 Filter ID | Task | Target | Status | State | Running Time | Start Time | Progress 10 | VirtAction: Create | Host IP: ...:51ff:fe6b:e18b Guest: UDR_MP_LowCapacity_X52 | Guest creation completed (UDR_MP_LowCapacity_X52) | COMPLETE | 0:00:08 | 2015-04-21 11:09:51 | 100% • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2
11. ☐	**PM&C GUI:** *Verify that Create VM task successfully completes.* The user should see a screen similar to the one on the right with **Progress** value of **100%**.	Verify that the Virtual Machine successfully created.  **Background Task Monitoring** Tue Apr 21 10:50: Filter ID | Task | Target | Status | State | Running Time | Start Time | Progress 7 | VirtAction: Create | Host IP: ...:51ff:fe6b:e18b Guest: UDR_NO_LowCapacity_X52 | Guest creation completed (UDR_NO_LowCapacity_X52) | COMPLETE | 0:00:10 | 2015-04-21 10:49:53 | 100% • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2
	Note: **Steps 4 -11** may be completed for each VM Guest that this PM&C administers before proceeding on to the next step. This way you may install and upgrade multiple VM Guests in parallel.	

Procedure 9: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
12. ☐	*Install Operating System (TPD)*	Follow steps defined in … **Appendix F.2** Installing Operating Systems with PM&C … to install TPD software on VM Guests. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2
13. ☐	**PM&C GUI:** *Get and record control IP address of VM Guest*	Navigate to the **VM Management** menu Select the VM Guest Name from the VM Entities list, and click **"Network"** tab  Derermine control IP address of VM Guest and record it. • Record the Site **control IP Address** of each VM that is added in the space provided below: • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A: _____ ☐ NOAMP-B _____ ☐ SOAM-A: _____ ☐ SOAM-B: _____ ☐ MP-1: _____ ☐ MP-2: _____

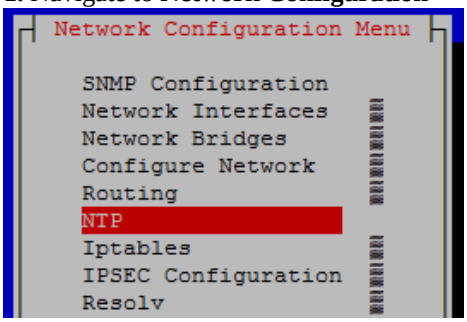
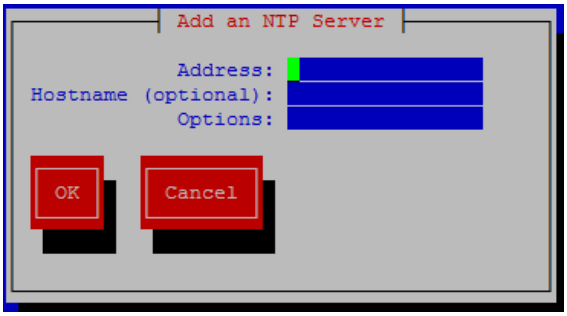
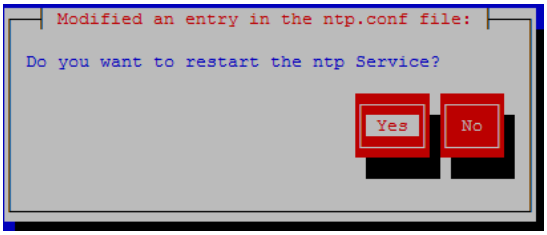
Procedure 9: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result

14. ☐	For **NOAMP-A** only:
	
	Prepare NOAMP for installation of OCUDR application software
	
	Connect to the NOAMP server Control IPaddress
		Manually configure XMI network on the first NOAMP guest only, (NOA); **the below steps must be executed before installing OCUDR**:
		
		`[root@hostname1260476221 ~] # netAdm set --device=xmi --onboot=yes --netmask=<XMI_NETMASK> --address=<XMI_IP_Address_for_NOAMP_A>`
		`Interface xmi updated`
		
		`[root@hostname1260476221 ~] # netAdm add --device=xmi --route=default --gateway=<XMI_IP_Address_for_default_gateway>`
		`Route to xmi added`

15. ☐	For **NOAMP-A** only: Enter Platform configuration menu	Enter platform configuration by running the following: # **su - platcfg**

Procedure 9: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
16. ☐	For **NOAMP-A** only: Configure NTP for NOAMP-A	**1.** Navigate to **Network Configuration ➢ NTP.**  **2.** Select **Edit**, then **"Add a New NTP Server."** **3.** Enter the IP Address of the TVOE Host.  **4.** Select **OK**, then "**Exit**." **5.** Select **Yes** to restart ntp Service.  **6**. Delete any default NTP servers (example in Appendix L.6). 7. Exit platcfg.

Procedure 9: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result

17. ☐	*For **All NOAMP** Servers:*
	
	Prepare NOAMP for installation of OCUDR application software
	
	Connect to the NOAMP server Control IPaddress
		Create a logical volume from NOAMP VM Guest:
		`root@hostname1260476221 ~] #` **`vgcreate stripe_vg /dev/pool_vg`**
		`Volume group "stripe_vg" successfully created`
		
		Create a logical volume rundb:
		`root@hostname1260476221 ~] #` **`lvcreate -L 385G --alloc anywhere --name rundb stripe_vg`**
		`Logical volume "rundb" created`
		
		Make filesystem on rundb:
		`root@hostname1260476221 ~] #` **`mkfs -t ext4 /dev/stripe_vg/rundb`**
		`mke2fs 1.41.12 (17-May-2010)`
		`Filesystem label=`
		`OS type: Linux`
		`Block size=4096 (log=2)`
		`Fragment size=4096 (log=2)`
		`Stride=64 blocks, Stripe width=192 blocks`
		`45883392 inodes, 183502848 blocks`
		`9175142 blocks (5.00%) reserved for the super user`
		`First data block=0`
		`Maximum filesystem blocks=4294967296`
		`5601 block groups`
		`32768 blocks per group, 32768 fragments per group`
		`8192 inodes per group`
		`Superblock backups stored on blocks:`
		`32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,`
		`4096000, 7962624, 11239424, 20480000, 23887872, 71663616, 78675968`
		
		`Allocating group tables: done`
		`Writing inode tables: done`
		`Creating journal (32768 blocks): done`
		`Writing superblocks and filesystem accounting information: done`
		
		• Check-off the associated **Check Box** as addition is completed for the **VM**.
		
		☐ NOAMP-A: _____ ☐ NOAMP-B _____

18. ☐	*For **All NOAMP** Servers:*
	
	Verify the logical volume created successfully
		`# lvs stripe_vg`
		
		`LV VG Attr LSize Pool Origin Data% Move Log Cpy%Sync Convert`
		`rundb stripe_vg -wa-ao---- 385.01g`
		
		• Check-off the associated **Check Box** as addition is completed for the **VM**.
		
		☐ NOAMP-A: _____ ☐ NOAMP-B _____

Procedure 9: Create, IPM and Install Application on all Virtual Machines

Step	Procedure	Result
19. ☐	*Install OCUDR application software.*	Follow steps defined in … **Appendix 0** Installing OCUDR Application with PM&C … to install OCUDR software. • Check-off the associated **Check Box** as addition is completed for the **VM**. ☐ NOAMP-A ☐ NOAMP-B ☐ ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2
20. ☐	**Repeat Steps 4 – 19** for each Virtual Machine to install its operating system and application software.	
21. ☐	*Perform upgrade acceptance.*	Follow steps defined in … **Appendix H** Accept Application Installation on PM&C Managed Servers … to accept upgrade.
THIS PROCEDURE HAS BEEN COMPLETED		

8.0 CONFIGURATION PROCEDURES

8.1 Configuring NOAMP-A Server (1st NOAMP site only)

This procedure does all steps that are necessary for configuring the first NOAMP server. This includes configuring a temporary interface to the NOAMP-A GUI, creating Network Elements for all required networks, configuring Services and creating/configuring the first NOAMP-A server.

Requirements:

- **Procedure 1: Install NOAMP Servers (NO and DR Network Elements)**
- **or Procedure 4: Install NOAMP / SOAM / MP Servers Servers**
- **or Procedure 6: Install NOAMP /SOAM / MP Servers Servers**
- **or Procedure 8: Install NOAMP /SOAM / MP Servers Servers** has been completed.

Assumptions:

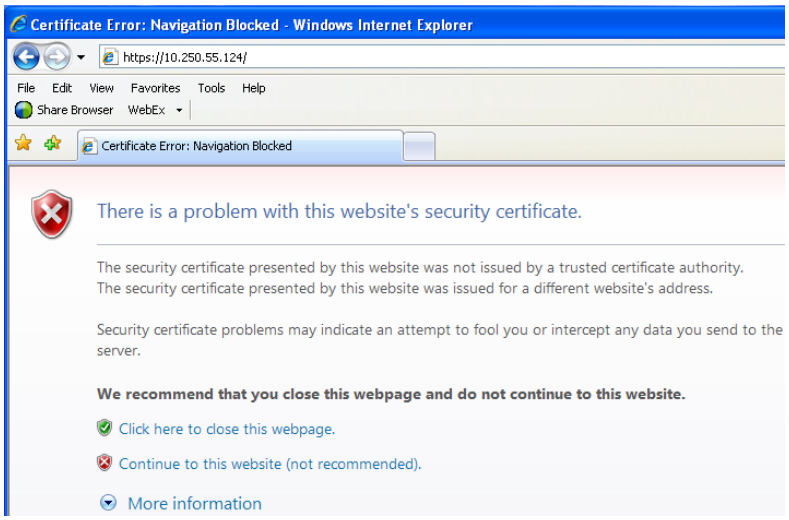
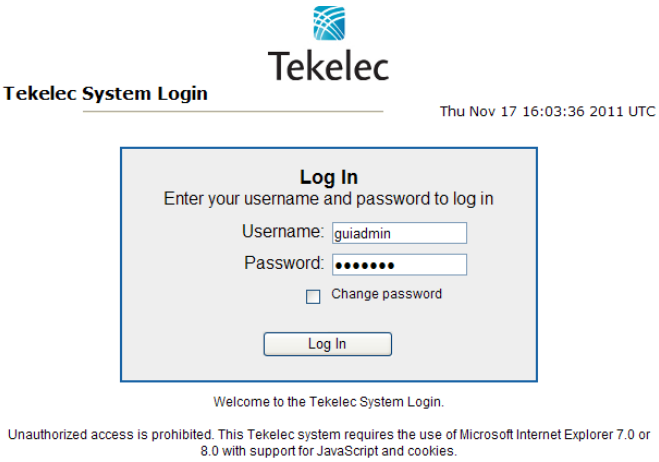
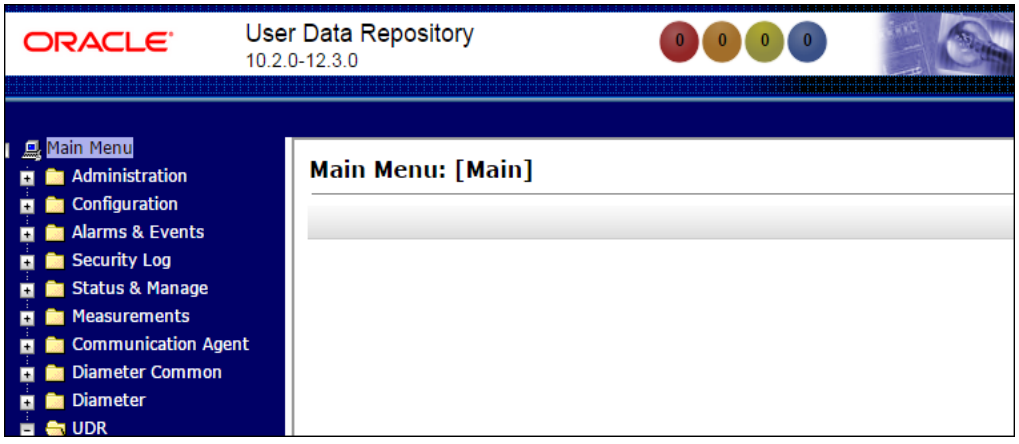
- This procedure assumes that the OCUDR Network Element XML file for the Primary Provisioning NOAMP site has previously been created, as described in Appendix N: Creating an XML file for Installing OCUDR Network Elements.
- This procedure assumes that the Network Element XML files are either on a USB flash drive or the laptop's hard drive. The steps are written as if the XML files are on a USB flash drive, but the files can exist on any accessible drive.

This procedure requires that the user connects to the OCUDR GUI prior to configuring the first OCUDR server. This can be done either by one of two procedures:

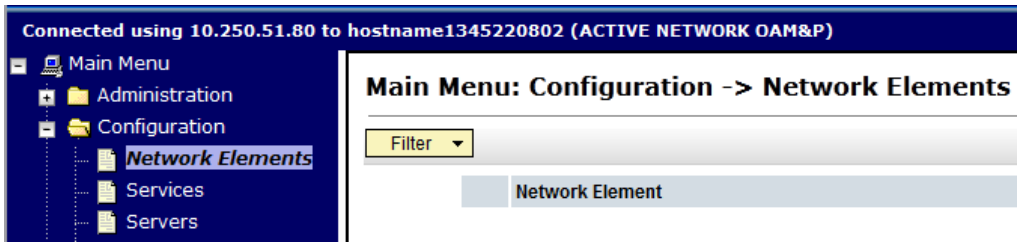
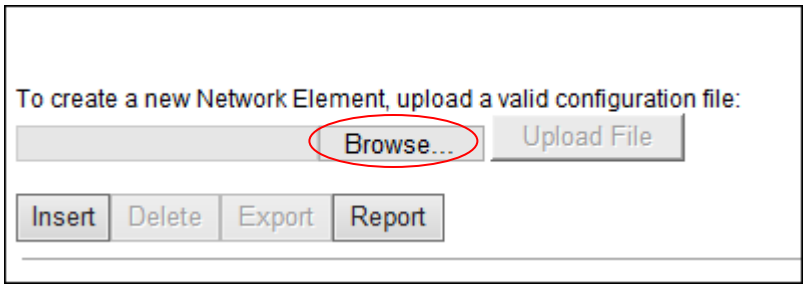
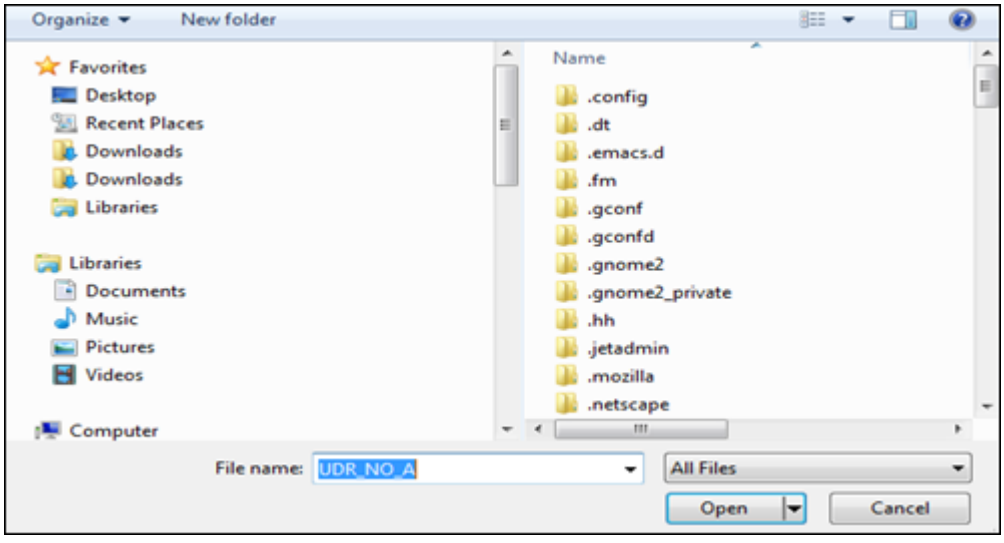
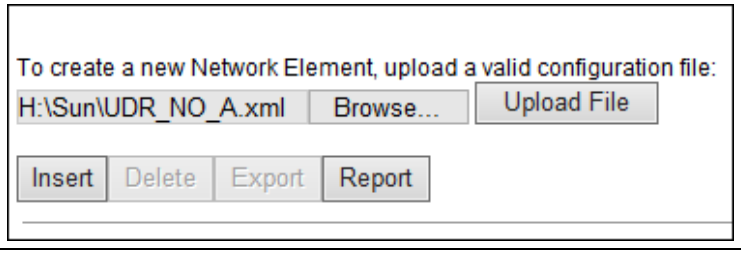
1. (If one was not created yet in previous procedure) Configuring a Temporary External XMI IP Address, as described in **Appendix B.1** Creating Temporary External XMI IP Addressor optinally
2. Plugging a laptop into an unused, unconfigured port on the NOAMP-A server using a direct-connect Ethernet cable, as described in **Appendix B.3: Establishing a Local Connection for Accessing OCUDR GUI (RMS only)**

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

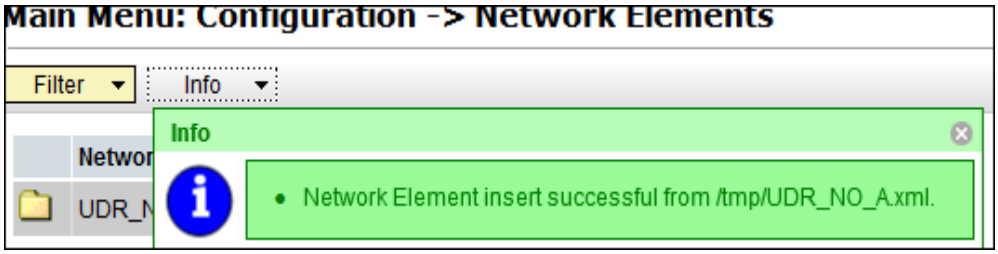
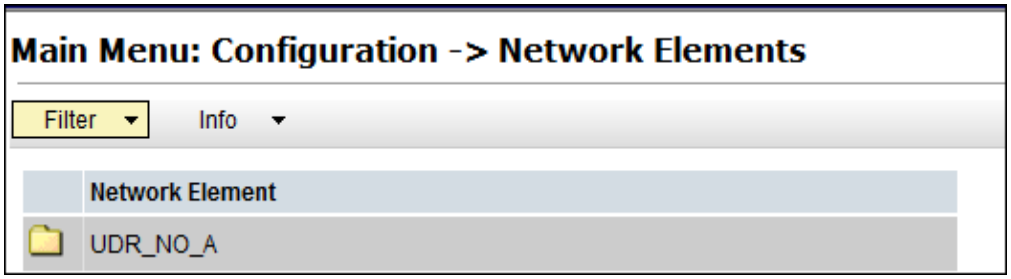
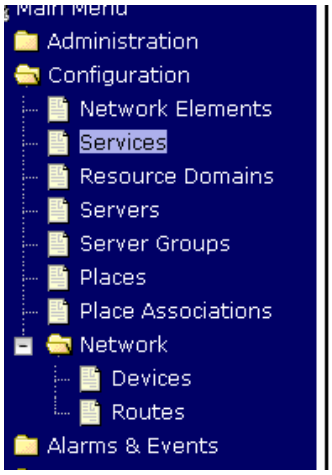
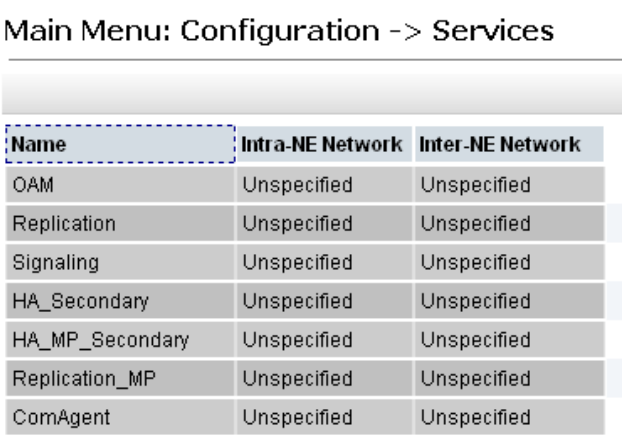
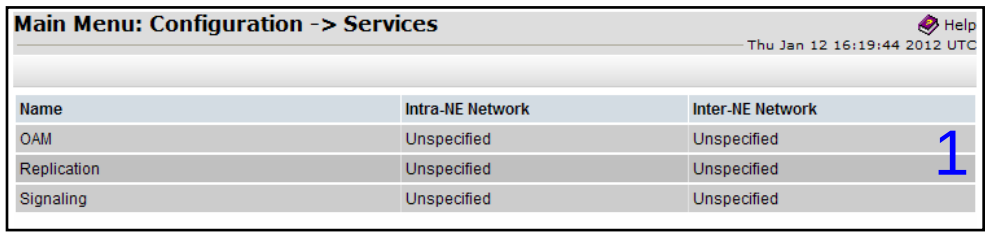
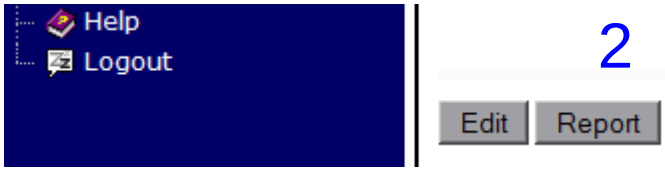
Procedure 10: Configuring NOAMP-A Server (1st NOAMP site only)

Step	Procedure	Result
1. ☐	**NOAMP Server A:** Launch an approved web browser and connect to the NOAMP Server A IP address **NOTE:** If presented with the "security certificate" warning screen shown to the right, choose the following option: **"Continue to this website (not recommended)".**	
2. ☐	**NOAMP Server A:** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	
3. ☐	**NOAMP Server A:** The user should be presented the OCUDR Main Menu as shown on the right.	

Procedure 10: Configuring NOAMP-A Server (1st NOAMP site only)

Step	Procedure	Result
4. ☐	**NOAMP Server A:** *Configuring Network Element* Select… **Main Menu** → **Configuration** → ***Network Elements*** …as shown on the right.	
5. ☐	**NOAMP Server A:** From the **Configuration / Network Elements** screen… Select the **"Browse"** dialogue button (scroll to bottom left corner of screen).	
6. ☐	**NOAMP Server A:** **Note**: This step assumes that the **xml** files were previously prepared, as described in Appendix N. **1)** Select the location containing the site **.xml** file. **2)** Select the **.xml** file and click the **"Open"** dialogue button.	
7. ☐	**NOAMP Server A:** Select the **"Upload File"** dialogue button (bottom left corner of screen).	

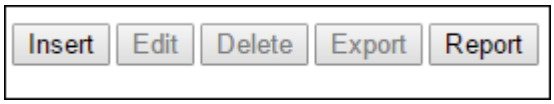
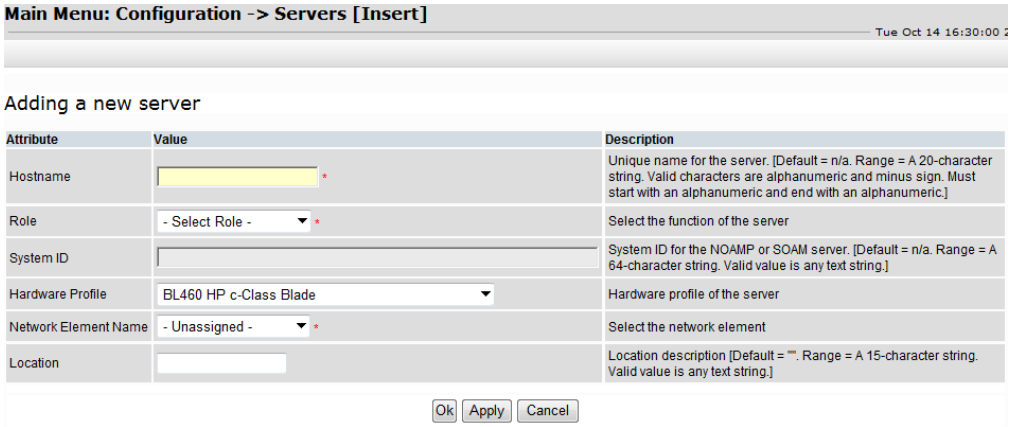
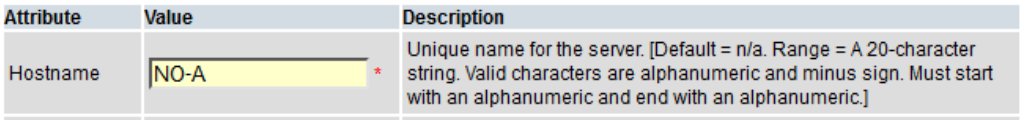
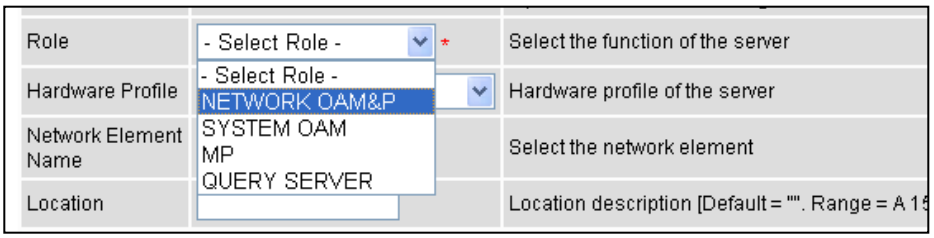
Procedure 10: Configuring NOAMP-A Server (1st NOAMP site only)

Step	Procedure	Result
8. ☐	**NOAMP Server A:** If the values in the **.xml** file pass validation rules, the user receives a banner information message showing that the data has been successfully committed to the DB. **Note:** *You may have to left mouse click the **"Info"** banner option in order to see the banner output.*	 
9. ☐	Select… **<u>Main Menu</u>** → **Configuration** → ***Services*** …as shown on the right.	 
10. ☐	**NOAMP Server A:** **1)** The user will be presented with the "**Services**" configuration screen as shown on the right. **2)** Select the **"Edit"** dialogue button.	 

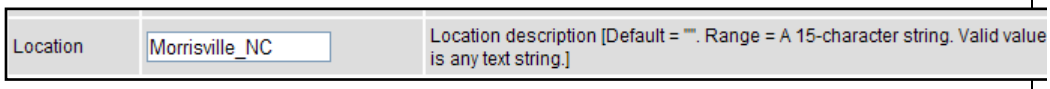
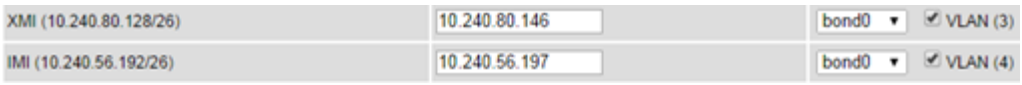
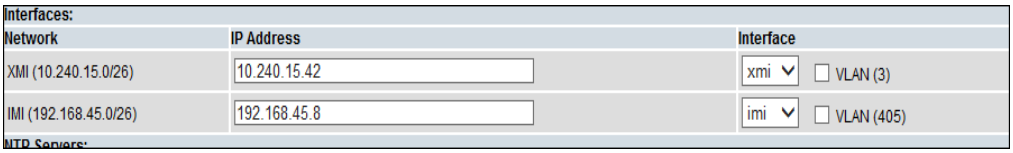
Procedure 10: Configuring NOAMP-A Server (1st NOAMP site only)

Step	Procedure	Result
11. ☐	**NOAMP Server A:** **1)** Set the services values as shown on the right. **2)** Select the **"Apply"** dialogue button. **3)** Select the **"OK"** dialogue button in the popup window.	Services Name / Intra-NE Network / Inter-NE Network OAM: IMI / XMI Replication: IMI / XMI Signaling: Unspecified / Unspecified HA_Secondary: IMI / XMI HA_MP_Secondary: IMI / XMI Replication_MP: IMI / XMI ComAgent: IMI / XMI Ok Apply Cancel You must restart all Servers to apply any services changes, ComAgent OK Cancel **Note:** Servers do not need to be restarted if this is a fresh installation. **Note:** ComAgent Service shall be configured to run on Signaling Network. Please configure as shown above and continue. ComAgent Service shall be configured again later as described in Section 8.11 Configure ComAgent Service on Signaling Network. **Note:** ComAgent Service is used for NOAMP ⇔ MP and MP ⇔ MP communication.
12. ☐	**NOAMP Server A:** The user will be presented with the "**Services**" configuration screen as shown on the right	Name / Intra-NE Network / Inter-NE Network OAM: IMI / XMI Replication: IMI / XMI Signaling: Unspecified / Unspecified HA_Secondary: IMI / XMI HA_MP_Secondary: IMI / XMI Replication_MP: IMI / XMI ComAgent: IMI / XMI
13. ☐	**NOAMP Server A:** *Configuring OCUDR Server* Select… **Main Menu** → **Configuration** → ***Servers*** …as shown on the right.	ORACLE User Data Repository 10.2.0.0.0-12.5.0 Main Menu Administration Configuration Network Elements Network Services Servers Server Groups Resource Domains Main Menu: Configuration -> Servers Filter Hostname / Role / System ID / Server Group / Network Element / Location / Place / Details

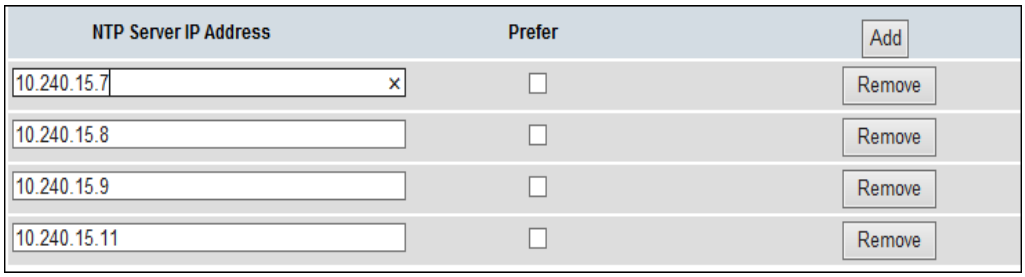
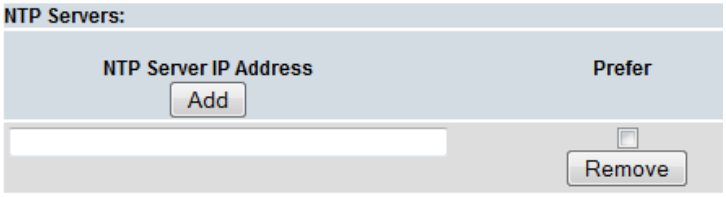
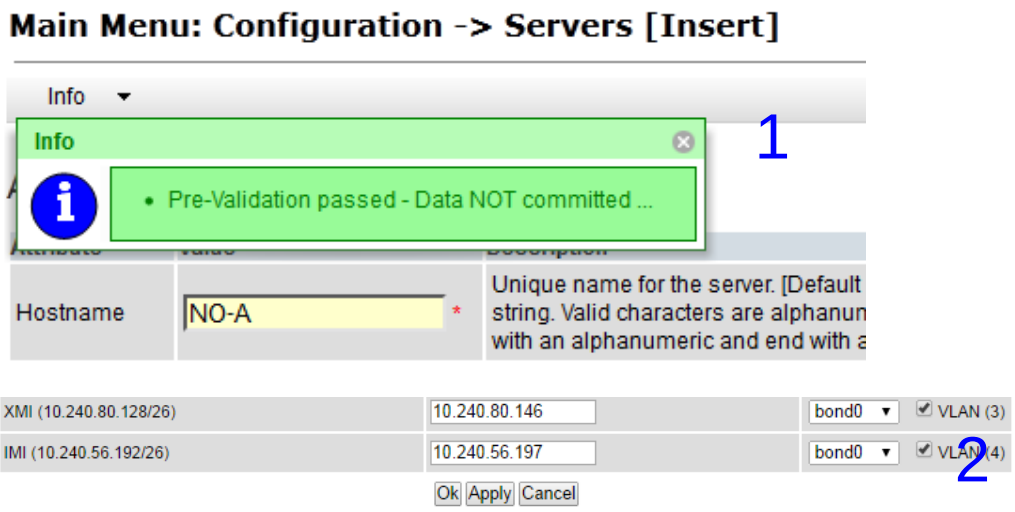
Procedure 10: Configuring NOAMP-A Server (1st NOAMP site only)

Step	Procedure	Result
14. ☐	**NOAMP Server A:** Select the **"Insert"** dialogue button.	
15. ☐	**NOAMP Server A:** The user is now presented with the **"Adding a new server"** configuration screen.	
16. ☐	**NOAMP Server A:** Input the assigned "**hostname"** for the NOAMP-A Server.	
17. ☐	**NOAMP Server A:** Select **"NETWORK OAM&P"** for the server **"Role"** from the pull-down menu.	
18. ☐	**NOAMP Server A:** Input the "**System ID"** for the NOAMP Server.	
19. ☐	**NOAMP Server A:** Select the correct **Hardware Profile** from the pull-down menu.	Select Hardware Profile: • **UDR DL380 for RMS installations** • **BL 460 c-Class Blade for blade installations** • **UDR_NO_Low_Capacity for Virtual NO server installations** • **UDR SO for SO virtual server installations** (not used in this procedure) • **UDR MP for MP virtual server installations** (not used in this procedure) 

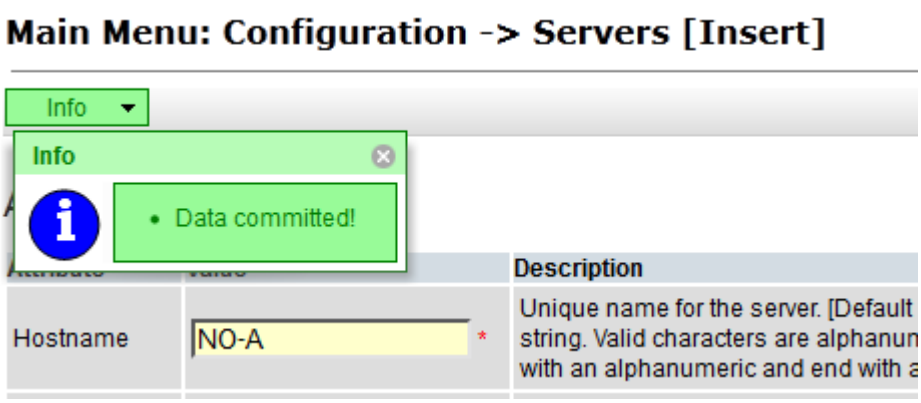
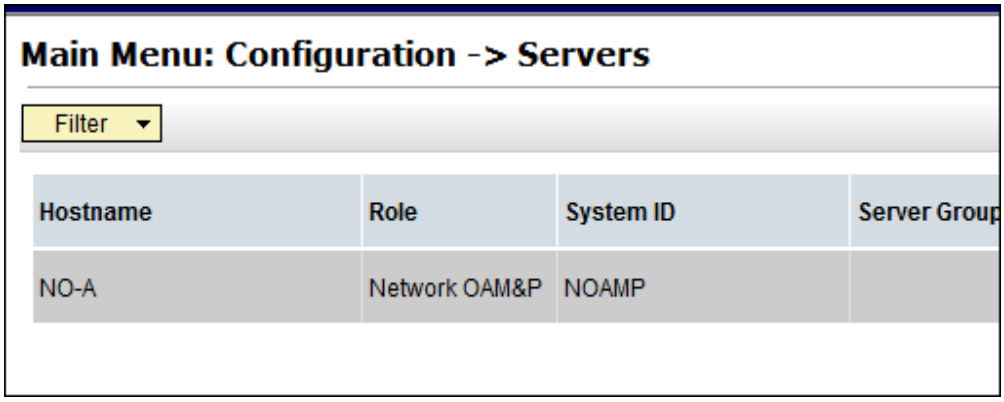
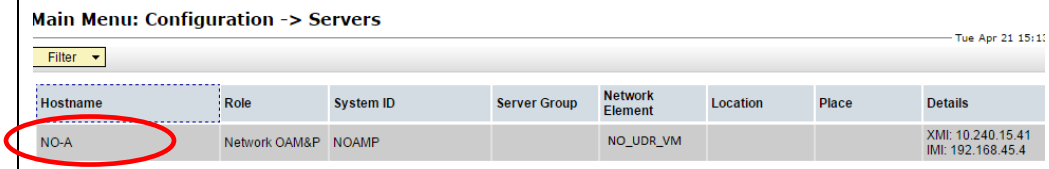
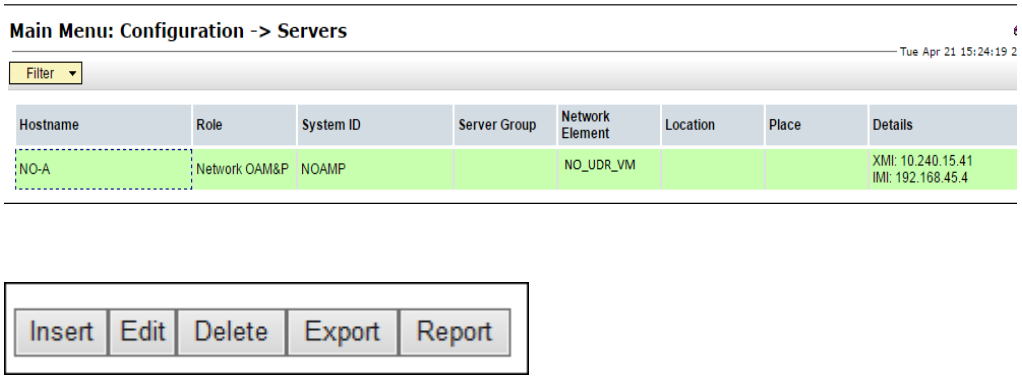
Procedure 10: Configuring NOAMP-A Server (1st NOAMP site only)

Step	Procedure	Result
20. ☐	**NOAMP Server A:** Select the **Network Element Name** from the pull-down menu. **NOTE:** *After the Network Element Name is selected, the Interfaces fields will be displayed.*	
21. ☐	**NOAMP Server A:** Enter the site location. **NOTE:** *Location is an optional field.*	
22. ☐	**NOAMP Server A:** **1)** Enter the **XMI** and **IMI** IP addresses for the **OCUDR Server**. **2)** Set **XMI** and **IMI** Interfaces according to to deployment type.	Normal Capacity Configuration: Set XMI and IMI Interfaces according to bond0. Check VLAN boxes.  Low Capacity Configuration:  Virtual NO on Low Capacity Configurations: set XMI to "xmi" , IMI to "imi". VLAN boxes are not checked in this case.

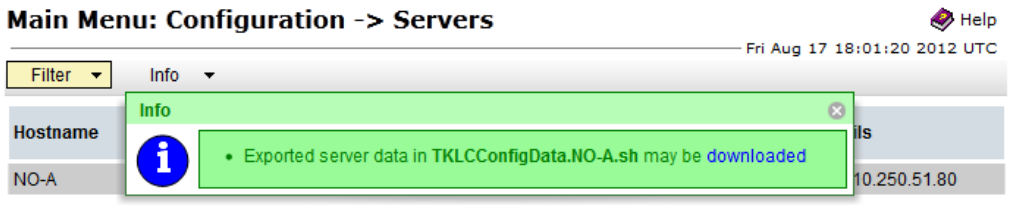
Procedure 10: Configuring NOAMP-A Server (1st NOAMP site only)

Step	Procedure	Result
23. ☐	**NOAMP Server A:** Click the "**Add**" button under NTP Servers and add the address of the customer supplied NTP server. .	 Set one ore more NTP Server IP Address(es) to customer supplied NTP server(s). It is recommended to have minimum of 3 and up to 4 external NTP servers for reliable functioning of NTP service.  **Note**: In case of NOAMP virtual server: Set the NTP Server IP Address to the host server, given as "<TVOE_XMI_address>".
24. ☐	**NOAMP Server A:** **1)** The user should be presented with a banner information message stating **"Pre-Validation passed"**. **2)** Click the **"Apply"** dialogue button.	

Procedure 10: Configuring NOAMP-A Server (1st NOAMP site only)

Step	Procedure	Result
25. ☐	**NOAMP Server A:** If the values provided match the network ranges assigned to the NOAMP NE, the user will receive a banner information message showing that the data has been validated and committed to the DB.	
26. ☐	**NOAMP Server A:** Applying the OCUDR Server Configuration File Select… **<u>Main Menu</u>** **→ Configuration** **→ *Servers*** …as shown on the right.	
27. ☐	**NOAMP Server A:** The **"Configuration →Servers" screen** should now show the newly added **OCUDR Server** in the list.	
28. ☐	**NOAMP Server A:** **1)** Use the cursor to select the **OCUDR Server** entry added in **Steps 14 - 25**. The row containing the desired **Server** should now be highlighted in **GREEN**. **2)** Select the **"Export"** dialogue button.	

Procedure 10: Configuring NOAMP-A Server (1st NOAMP site only)

Step	Procedure	Result
29. ☐	**NOAMP Server A:** The user will receive a banner information message showing a download link for the **OCUDR Server** configuration data.	 The configuration file was created and stored in the /var/TKLC/db/filemgmt directory. The configuration file will have a file name like TKLCConfigData.<***hostname***>.sh.

30. ☐	**NOAMP Server A:**
	
	1) Access the command prompt.
	
	2) Log into the NOAMP-A server as the "**admusr**" user.
		`login as: admusr`
		`root@10.250.xx.yy's password: <admusr_password>`
		`Last login: Mon Jul 30 10:33:19 2012 from 10.25.80.199`
		`[root@pc9040833-no-a ~]#`

31. ☐	**NOAMP Server A:**
	
	Output similar to that shown on the right will appear as the server access the command prompt.
		***** TRUNCATED OUTPUT *****
		
		`VPATH=/opt/TKLCcomcol/runcm5.16:/opt/TKLCcomcol/cm5.16`
		`PRODPATH=`
		`RELEASE=5.16`
		`RUNID=00`
		`VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr/TKLC/awptransportmgr:/usr/TKLC/awpss7:/usr/TKLC/exhr`
		`PRODPATH=/opt/comcol/prod`
		`RUNID=00`
		`[admusr@pc9040833-no-a ~]#`

32. ☐	**NOAMP Server A**: Switch to "**root**" user.	`[admusr@ pc9040833-no-a ~]$ su -` `password: <root_password>`

Procedure 10: Configuring NOAMP-A Server (1st NOAMP site only)

Step	Procedure	Result
33. ☐	**NOAMP Server A:** Copy the **server** configuration file to the **"/var/tmp"** directory on the server, making sure to rename the file by omitting the server hostname from the file name. **NOTE:** *The server will poll the **/var/tmp** directory for the presence of the configuration file and automatically execute it when found.*	***Example:*** TKLCConfigData<.server_hostname>.sh ➔ will translate to ➔TKLCConfigData.sh `# cp –p /var/TKLC/db/filemgmt/TKLCConfigData.NO-A.sh /var/tmp/TKLCConfigData.sh`

34. ☐	**NOAMP Server A:**
	
	After the script completes, a broadcast message will be sent to the terminal.
	
	Ignore the output shown and press the **<ENTER>** key to return to the command prompt.
	
	NOTE: *The user should be aware that the time to complete this step varies by server and may take from 3-20 minutes to complete.*
		***** NO OUTPUT FOR ≈ 3-20 MINUTES *****
		
		`Broadcast message from root (Thu Dec 1 09:41:24 2011):`
		
		`Server configuration completed successfully!`
		`See /var/TKLC/appw/logs/Process/install.log for details.`
		
		`Please remove the USB flash drive if connected and reboot the server.`
		<ENTER>

35. ☐	**NOAMP Server A:** Configure the time zone.	**# set_ini_tz.pl <time zone>** **Note:** The following command example uses America/New_York time zone. Replace, as appropriate, with the time zone you have selected for this installation. For UTC, use "Etc/UTC". See Appendix P for a list of valid time zones. **# set_ini_tz.pl "America/New_York"**
36. ☐	**NOAMP Server A:** Initiate a reboot of the **NOAMP Server**.	**# init 6**

Procedure 10: Configuring NOAMP-A Server (1st NOAMP site only)

Step	Procedure	Result

37. ☐	**NOAMP Server A:**
	
	Wait until server reboot is done. Then, SSH into the NOAMP-A server.
	
	Output similar to that shown on the right may be observed
		Wait about 9 minutes until the server reboot is done.
		
		Using an SSH client such as putty, ssh to the NOAMP-A server.
		
		`login as: admusr`
		`root@10.250.xx.yy's password: <admusr_password>`
		`Last login: Mon Jul 30 10:33:19 2012 from 10.25.80.199`
		
		Note: If the server isn't up, wait a few minutes and re-enter the ssh command. You can also try running the "ping" command to see if the server is up.

38. ☐	**NOAMP Server A:**
	
	Output similar to that shown on the right will appear as the server access the command prompt.
		***** TRUNCATED OUTPUT *****
		
		`VPATH=/opt/TKLCcomcol/runcm5.16:/opt/TKLCcomcol/cm5.16`
		`PRODPATH=`
		`RELEASE=5.16`
		`RUNID=00`
		`VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr/TKLC/awptransportmgr:/usr/TKLC/awpss7:/usr/TKLC/exhr`
		`PRODPATH=/opt/comcol/prod`
		`RUNID=00`
		`[admusr@pc9040833-no-a ~]$`

39. ☐	**NOAMP Server A**: Switch to "**root**" user.	`[admusr@ pc9040833-no-a ~]$ su -` `password: <root_password>`

40. ☐	**NOAMP Server A:**
	
	Verify that the **XMI and IMI IP addresses** entered in **Step 22** have been applied
	
	NOTE: *The server's **XMI and IMI** addresses can be verified by reviewing the server configuration through the OCUDR GUI.*
	
	i.e.
	Main Menu
	→ Configuration
	→ Servers
	
	*Scroll to line entry containing the server's **hostname.***
		`# ifconfig |grep in |grep -v inet6`
		
		`Example with bond:`
		
		`bond0.3  Link encap:Ethernet  HWaddr F0:92:1C:18:59:10`
		`inet addr:10.240.80.146  Bcast:10.240.80.191  Mask:255.255.255.192`
		`bond0.4  Link encap:Ethernet  HWaddr F0:92:1C:18:59:10`
		`inet addr:10.240.56.197  Bcast:10.240.56.255  Mask:255.255.255.192`
		
		`Example with xmi/imi`
		
		`[root@NO-A ~]# ifconfig | grep in | grep -v inet6`
		`control  Link encap:Ethernet  HWaddr 02:0C:D1:66:ED:15`
		`inet addr:192.168.1.10  Bcast:192.168.1.255  Mask:255.255.255.0`
		`imi  Link encap:Ethernet  HWaddr 02:DA:46:3E:98:4F`
		`inet addr:192.168.45.4  Bcast:192.168.45.63  Mask:255.255.255.192`
		`lo  Link encap:Local Loopback`
		`inet addr:127.0.0.1  Mask:255.0.0.0`
		`xmi  Link encap:Ethernet  HWaddr 02:D0:D0:AA:EF:A1`
		`inet addr:10.240.15.41  Bcast:10.240.15.63  Mask:255.255.255.192`

Procedure 10: Configuring NOAMP-A Server (1st NOAMP site only)

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>41.
☐</td><td>NOAMP Server A:

Use the “ntpq” command to verify that the server has connectivity to the assigned Primary (and Secondary if one was provided) NTP server(s).</td><td># ntpq -np
<pre>
     remote   refid   st t when poll reach   delay   offset jitter
==
*10.250.32.10   192.5.41.209   2 u 651 1024 377   0.339   0.583   0.048
+10.250.32.51   192.5.41.209   2 u 656 1024 377   0.416   0.641   0.086
</pre></td></tr>
<tr><td colspan="3">IF CONNECTIVITY TO THE NTP SERVER(S) CANNOT BE ESTABLISHED, STOP AND EXECUTE THE FOLLOWING STEPS:

• Have the customer IT group provide a network path from the OAM server IP to the assigned NTP IP addresses.

ONCE NETWORK CONNECTIVITY IS ESTABLISHED TO THE ASSIGNED NTP IP ADDRESSES, THEN RESTART THIS PROCEDURE BEGINNING WITH STEP 36.</td></tr>
<tr><td>42.
☐</td><td>NOAMP Server A:

Execute a “alarmMgr” to verify the current health of the server</td><td># alarmMgr --alarmStatus

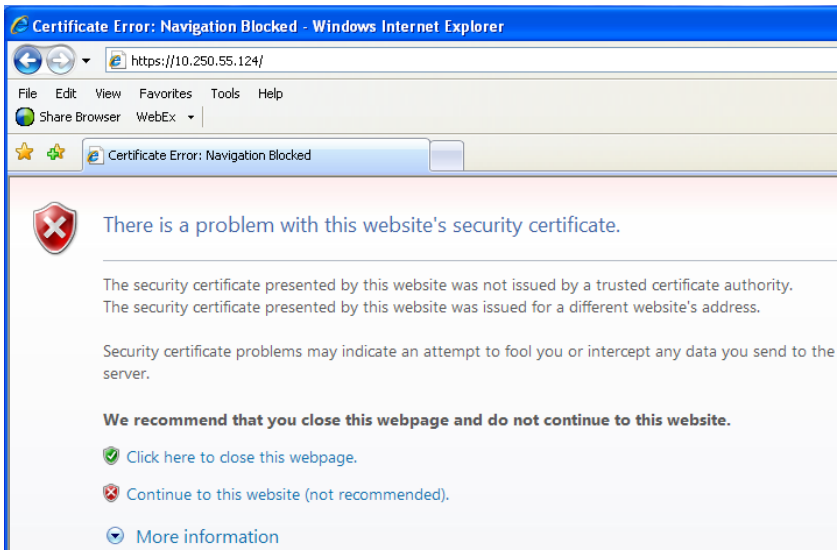
NOTE: This command should return no output on a healthy system.</td></tr>
<tr><td>43.
☐</td><td>NOAMP Server A:

Exit the SSH session for the NOAMP-A server</td><td># exit</td></tr>
<tr><td>44.
☐</td><td>NOAMP Server A:

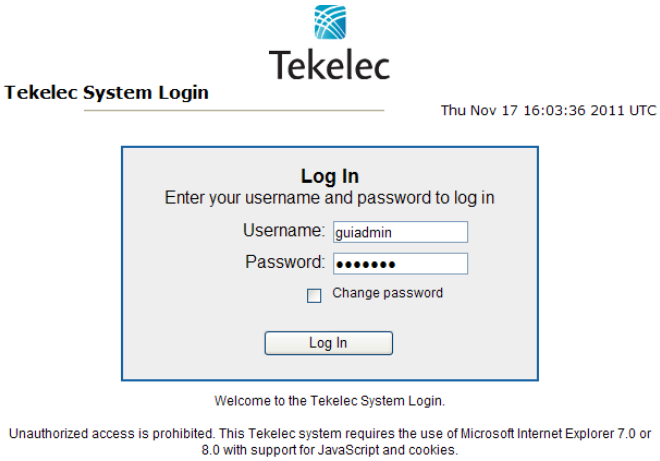
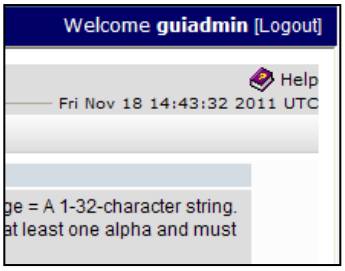
Verify that you can log back into the GUI.

Launch an approved web browser and connect to the NOAMP Server A IP address.

NOTE: If presented with the “security certificate” warning screen shown to the right, choose the following option:

“Continue to this website (not recommended)”.</td><td> 
</td></tr>
</table>

Procedure 10: Configuring NOAMP-A Server (1st NOAMP site only)

Step	Procedure	Result
45. ☐	**NOAMP Server A:** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	
46. ☐	**NOAMP Server A:** Click the **"Logout"** link on the server GUI..	
THIS PROCEDURE HAS BEEN COMPLETED		

8.2 Create Configuration for Remaining Servers (All Sites)

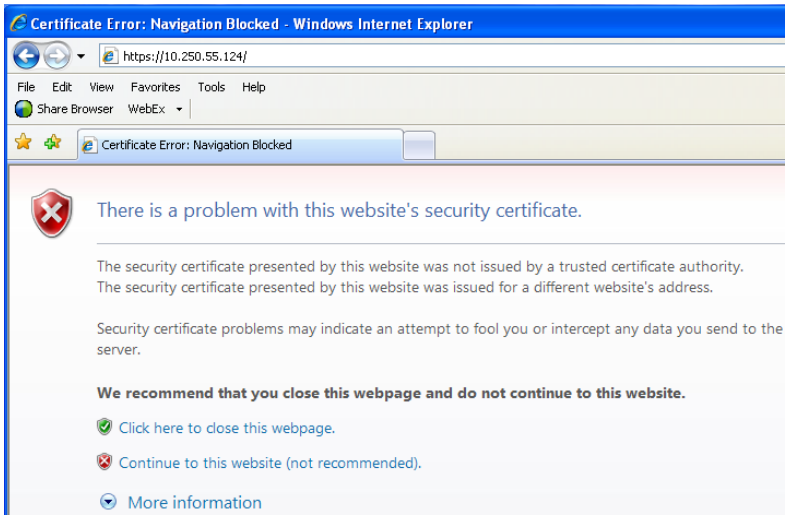
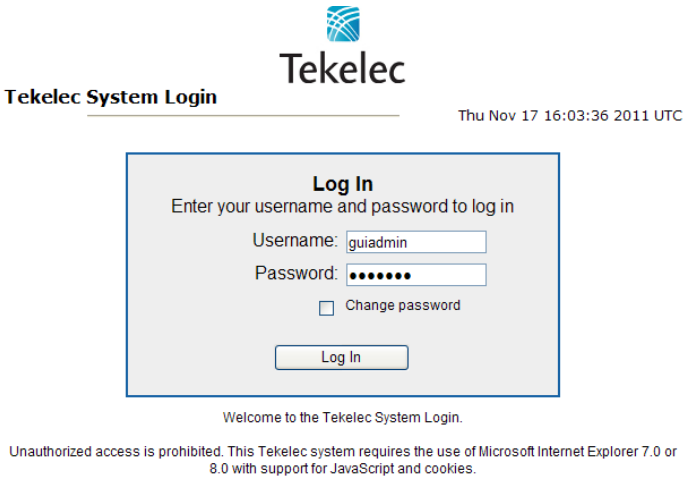
This procedure is used to create and configure all OCUDR Servers (Primary and DR Servers) except the first NOAMP-A server.

Requirements:

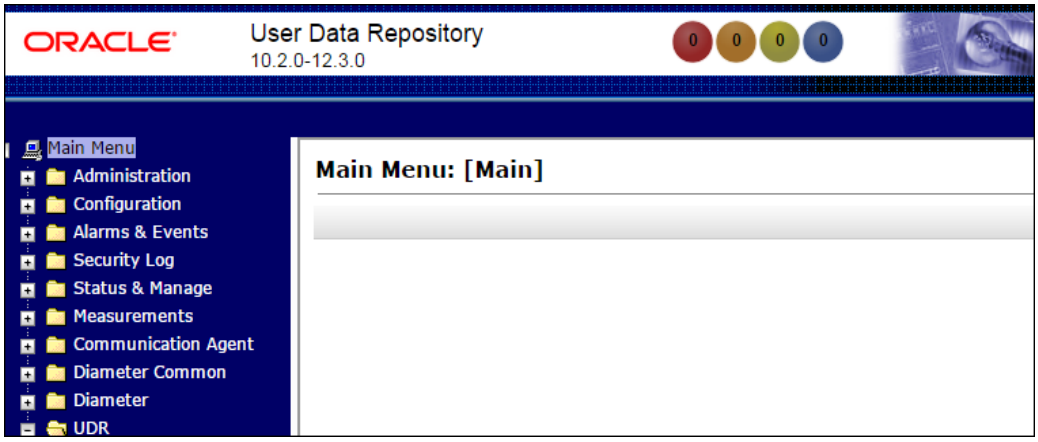
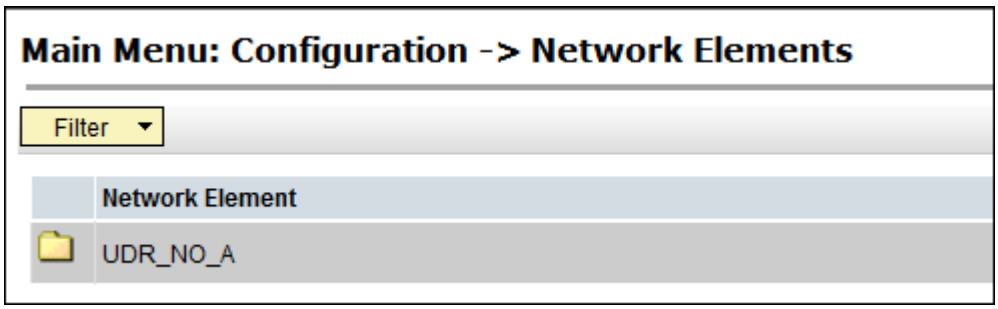
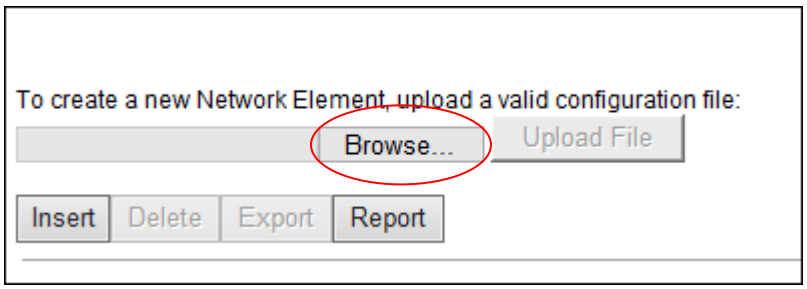
- **Procedure 3: Create, IPM and Install Application on all Virtual Machines (SO Network Elements)**
- **or Procedure 5: Create, IPM and Install Application on all Virtual Machines**
- **or Procedure 7: Create, IPM and Install Application on all Virtual Machines**
- **or Procedure 9: Create, IPM and Install Application on all Virtual Machines** has been completed on all servers being configured by this procedure
- **Procedure 10: Configuring NOAMP-A Server (1st NOAMP site only)** has been completed

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

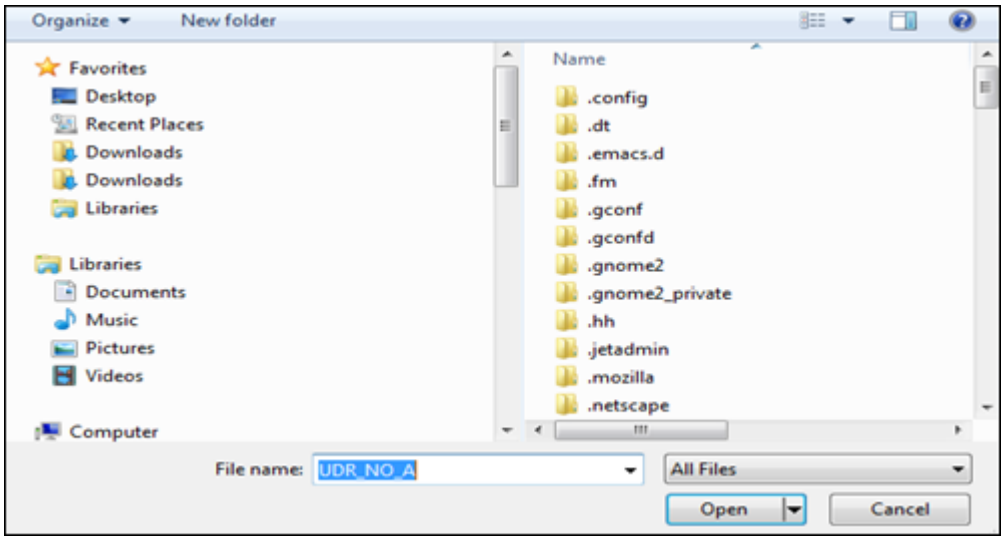
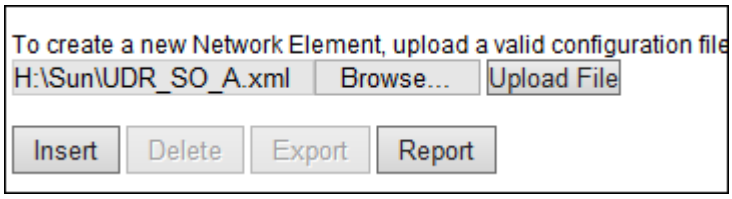
Procedure 11: Create Configuration for Remaining Servers

Step	Procedure	Result
1. ☐	NOAMP Server A: Launch an approved web browser and connect to the NOAMP Server A IP address **NOTE:** If presented with the security warning screen shown to the right, choose the following option: **"Proceed to xxx.xx.xx.xx (unsafe)".**	
2. ☐	NOAMP Server A: The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	

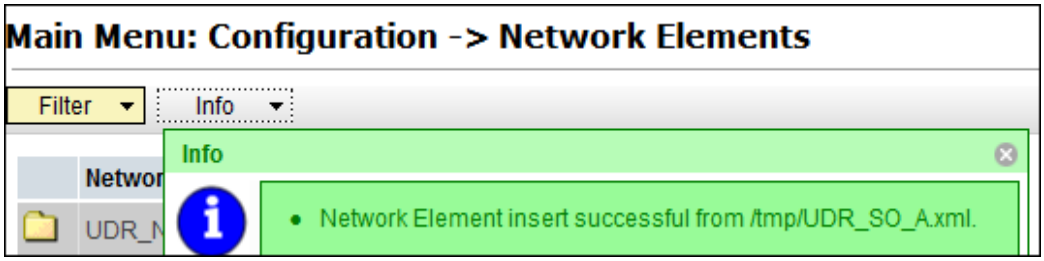
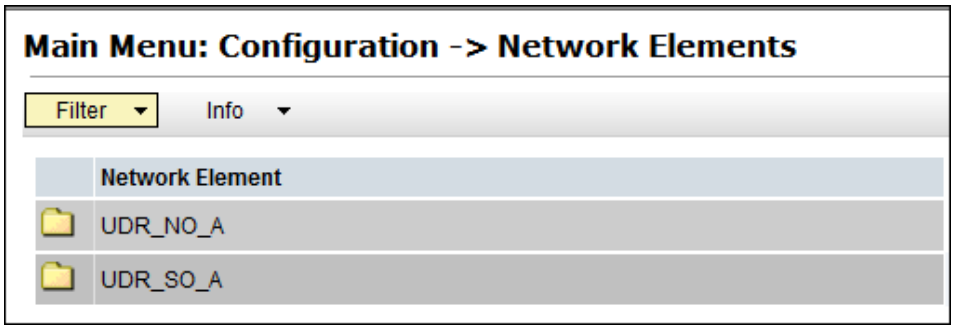
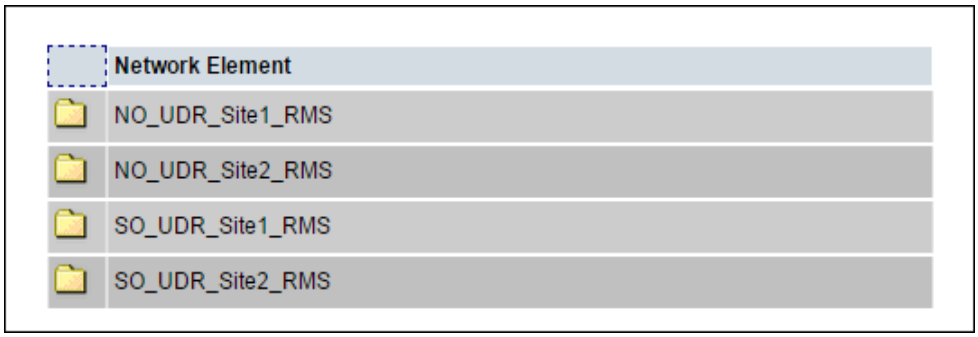
Procedure 11: Create Configuration for Remaining Servers

Step	Procedure	Result
3. ☐	NOAMP Server A: The user should be presented the OCUDR Main Menu as shown on the right.	
For steps 4 – 8 add the remaing Network Elements one at a time. This includes the SO network Element for the Primary site and the DR elements (NO and SO) if present. (DR elements can be uploaded during DR install)		
4. ☐	NOAMP Server A: *Configuring Network Element* Select… Main Menu → Configuration → *Network Elements* …as shown on the right.	
5. ☐	NOAMP Server A: From the **Configuration / Network Elements** screen… Select the "**Browse"** dialogue button (scroll to bottom left corner of screen).	

Procedure 11: Create Configuration for Remaining Servers

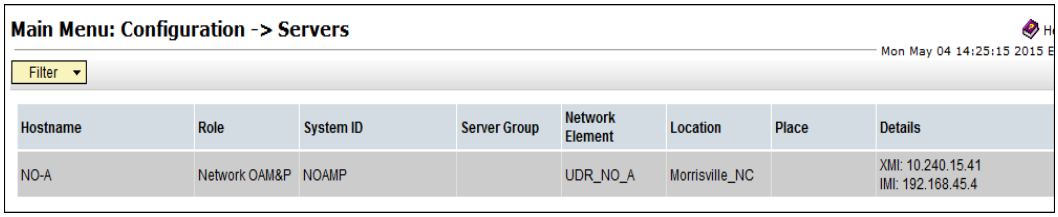
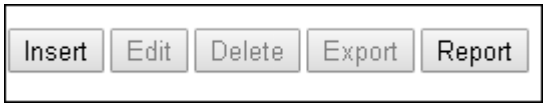
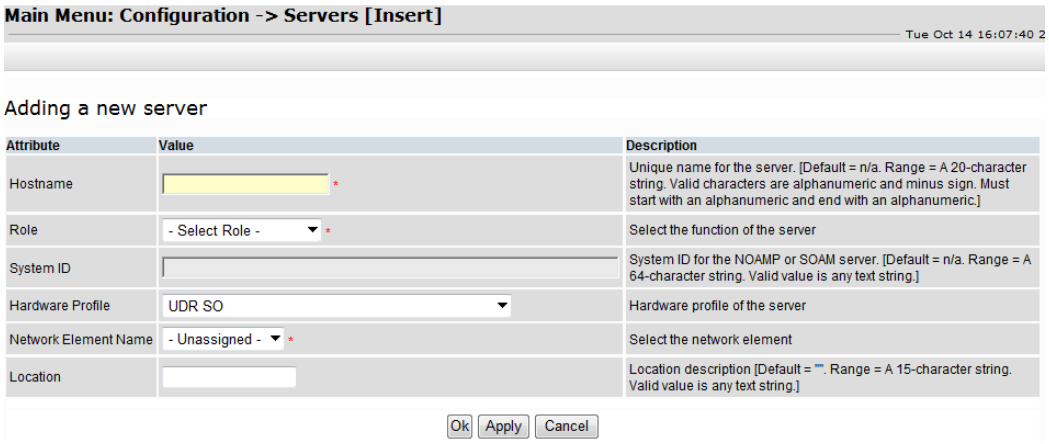
Step	Procedure	Result
6. ☐	**NOAMP Server A**: **Note**: This step assumes that the xml files were previously prepared, as described in Appendix N. 1) Select the location containing the site **.xml** file. 2) Select the **.xml** file and click the "**Open**" dialogue button.	
7. ☐	NOAMP Server A: Select the "**Upload File**" dialogue button (bottom left corner of screen).	

Procedure 11: Create Configuration for Remaining Servers

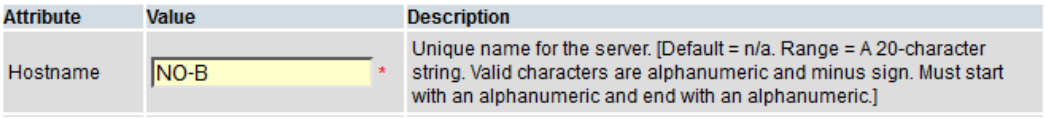
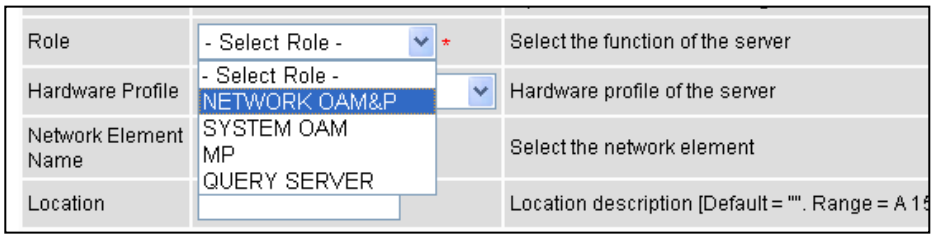
Step	Procedure	Result
8. ☐	NOAMP Server A: If the values in the **.xml** file pass validation rules, the user receives a banner information message showing that the data has been successfully committed to the DB. **Note**: *You may have to left mouse click the "Info" banner option in order to see the banner output.*	  Example with DR elements: 

Note: The following steps need to run for all servers EXCEPT the first NOAMP-A server. These steps include a check box for NOAMP-A server. That check box is only referring to NOAMP-A servers that are not at the primary provisioning site, such as the NOAMP-A server at the Disaster Recovery (DR) site.

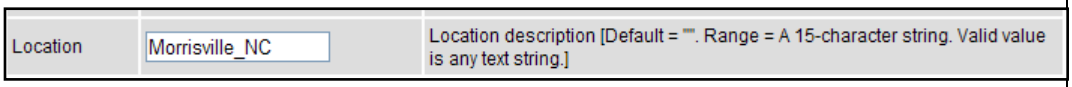
Procedure 11: Create Configuration for Remaining Servers

Step	Procedure	Result
9. ☐	NOAMP Server A: Select… Main Menu → Configuration → *Servers* …as shown on the right.	 • "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
10. ☐	NOAMP Server A: Select the "Insert" dialogue button at the bottom left.	 • "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
11. ☐	NOAMP Server A: The user is now presented with the "Adding a new server" configuration screen.	 • "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

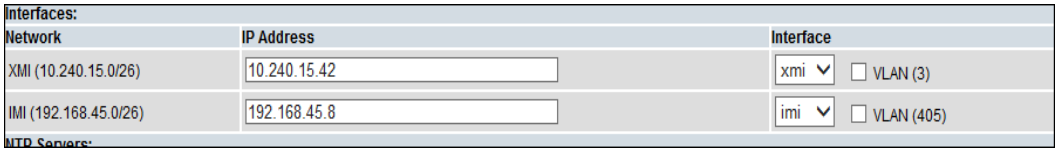
Procedure 11: Create Configuration for Remaining Servers

Step	Procedure	Result
12. ☐	NOAMP Server A: Input the assigned "hostname" for the server.	 • "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
13. ☐	NOAMP Server A: Select the appropriate server "Role" from the pull-down menu.	 • "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
14. ☐	NOAMP Server A: Input the "System ID" for the server. NOTE: *System ID is not required for MP.*	 • "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

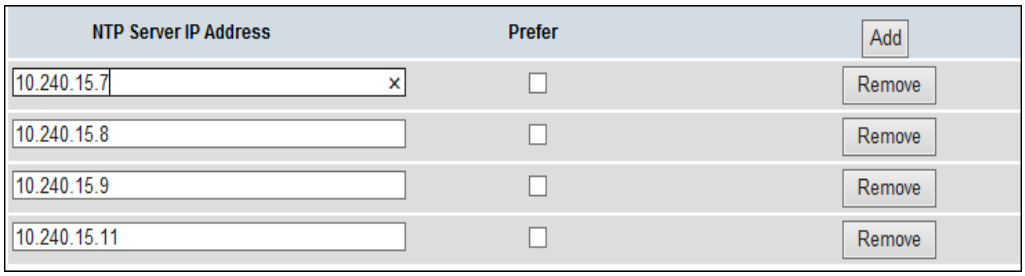
Procedure 11: Create Configuration for Remaining Servers

Step	Procedure	Result
15. ☐	NOAMP Server A: Select the correct **Hardware Profile** from the pull-down menu.	Select Hardware Profile: • BL460 HP c-Class Blade NOAMP installations • UDR_NO_LowCapacity for NO virtual server installations • UDR SO for SO virtual server installations • UDR MP for MP virtual server installations  • "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
16. ☐	NOAMP Server A: Select the Network Element Name from the pull-down menu. NOTE: *After the Network Element Name is selected, the Interfaces fields will be displayed.* NOTE: *NO and DR pairs will have their own Network element as per Appendix N. SO pairs will also have their own Network Element which they share with their associated MP.*	 • "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
17. ☐	NOAMP Server A: Enter the site location. NOTE: *Location is an optional field.*	 • "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

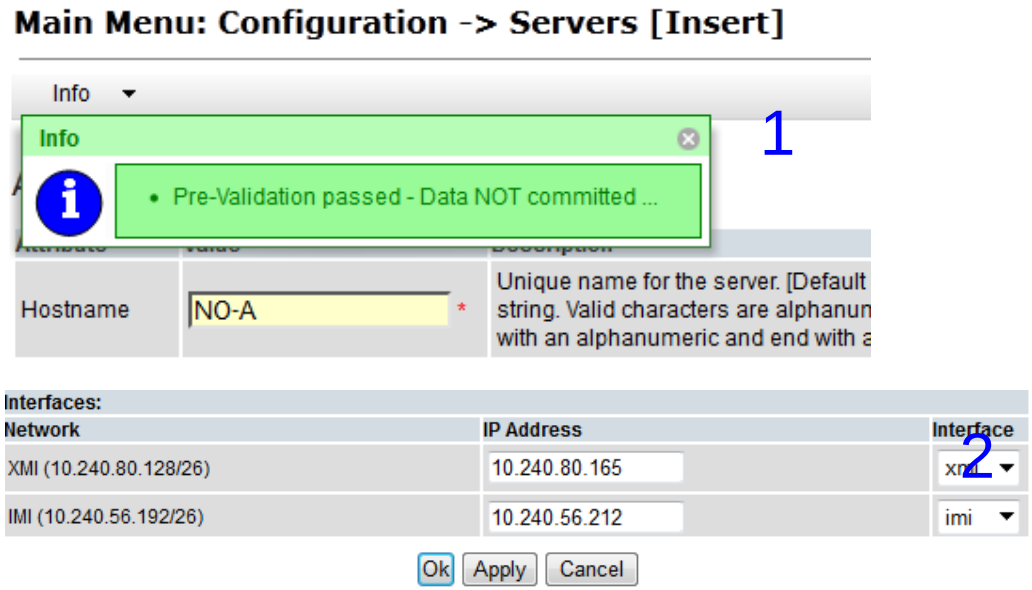
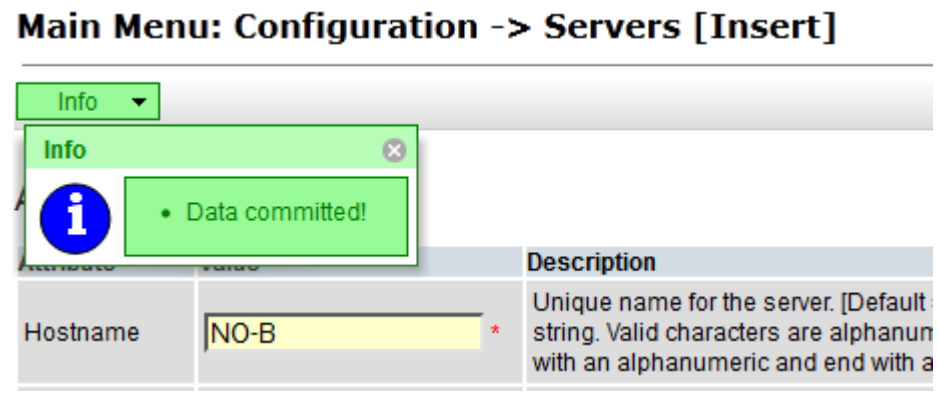
Procedure 11: Create Configuration for Remaining Servers

Step	Procedure	Result
18. ☐	NOAMP Server A: 1) Enter the XMI and IMI IP addresses for the OCUDR Server. 2) Set the XMI and IMI Interface according to deployment type.	Normal Capacity C-Class Configuration: • SO: Set XMI to "xmi" and set IMI to "imi". VLAN boxes are *not* checked. • MP: Set XMI to "xmi" and set IMI to "imi". VLAN boxes are *not* checked. • NOAMP: Set both XMI and IMI to bond0. Check all VLAN boxes.  Low Capacity Systems: • SO: Set XMI to "xmi" and set IMI to "imi". VLAN boxes are *not* checked. • MP: Set XMI to "xmi" and set IMI to "imi". VLAN boxes are *not* checked. • NOAMP: Set XMI to "xmi" and set IMI to "imi". VLAN boxes are *not* checked.  "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

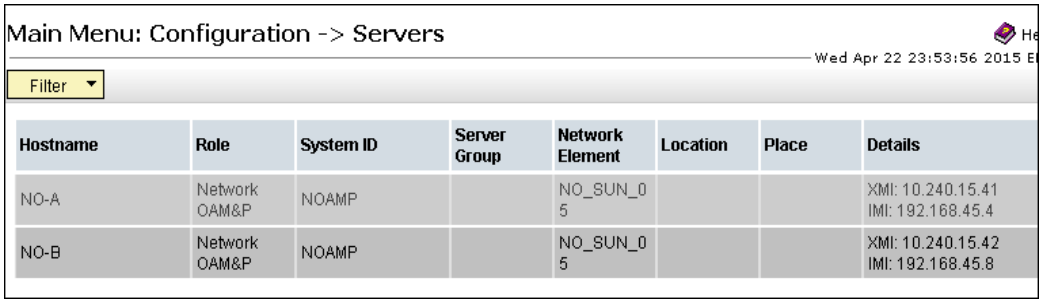
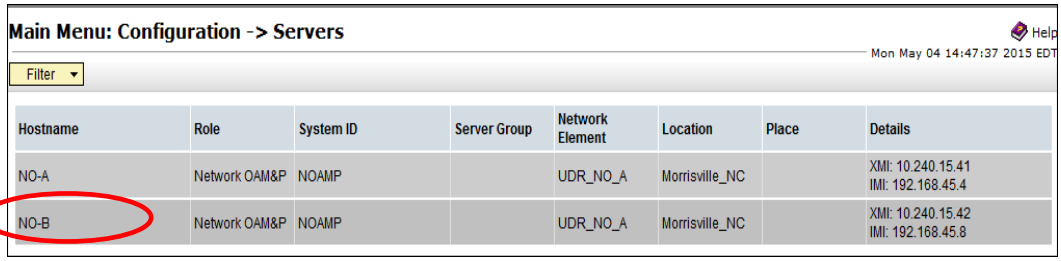
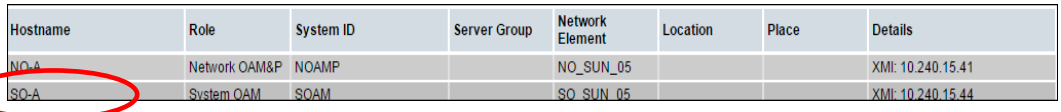
Procedure 11: Create Configuration for Remaining Servers

Step	Procedure	Result
19. ☐	NOAMP Server A: Click the "Add" button under NTP Servers and add the address(s) of the NTP server(s).	 NTP Server according to server type: • *NOAMP*: Set one ore more NTP Server IP Address(es) to customer supplied NTP server(s). It is recommended to have minimum of 3 and up to 4 external NTP servers for reliable functioning of NTP service. • *SOAM and MP:* Set the NTP Server IP Address to the host server, given as "<TVOE_XMI_address>" in *Appendix L Configure TVOE Network*.  **Note**: In case of NOAMP virtual server: Set the NTP Server IP Address to the host server, given as "<TVOE_XMI_address>" in *Appendix L Configure TVOE Network*. "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

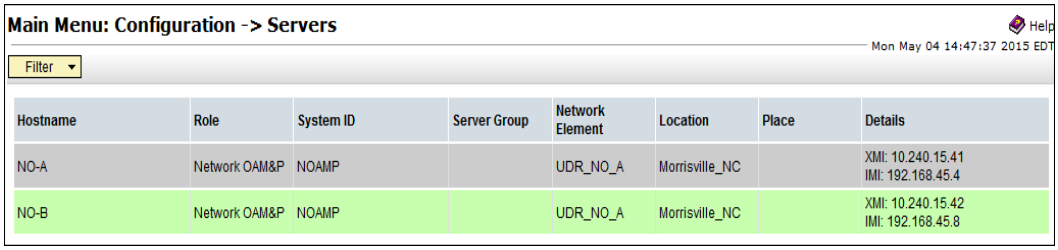
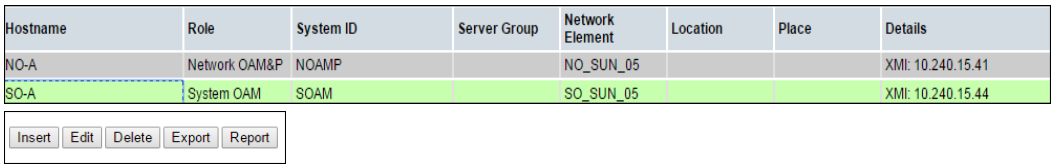
Procedure 11: Create Configuration for Remaining Servers

Step	Procedure	Result
20. ☐	NOAMP Server A: 1) The user should be presented with a banner information message stating "Pre-Validation passed". 2) Click the "Apply" dialogue button.	 • "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
21. ☐	NOAMP Server A: If the values provided match the network ranges assigned to the OCUDR NE, the user will receive a banner information message showing that the data has been validated and committed to the DB.	 • "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

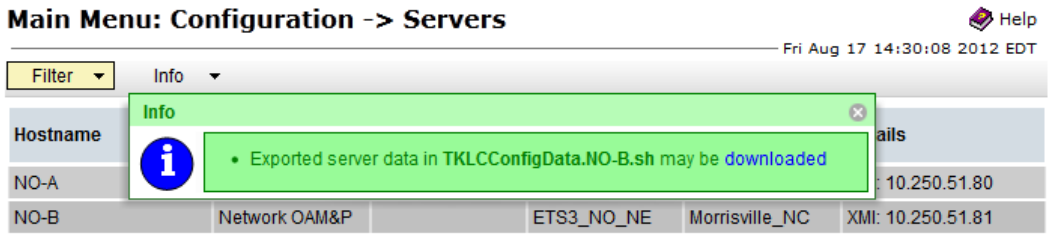
Procedure 11: Create Configuration for Remaining Servers

Step	Procedure	Result
22. ☐	NOAMP Server A: *Applying the Server Configuration File* Select… Main Menu → Configuration → *Servers* …as shown on the right.	 Main Menu: Configuration -> Servers Wed Apr 22 23:53:56 2015 E Filter Hostname | Role | System ID | Server Group | Network Element | Location | Place | Details NO-A | Network OAM&P | NOAMP | | NO_SUN_05 | | | XMI: 10.240.15.41 IMI: 192.168.45.4 NO-B | Network OAM&P | NOAMP | | NO_SUN_05 | | | XMI: 10.240.15.42 IMI: 192.168.45.8 • "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
23. ☐	NOAMP Server A: The "Configuration →Servers" screen should now show the newly added OCUDR Server in the list.	Normal or Low Capacity Configuration:  Main Menu: Configuration -> Servers Mon May 04 14:47:37 2015 EDT Filter Hostname | Role | System ID | Server Group | Network Element | Location | Place | Details NO-A | Network OAM&P | NOAMP | | UDR_NO_A | Morrisville_NC | | XMI: 10.240.15.41 IMI: 192.168.45.4 NO-B | Network OAM&P | NOAMP | | UDR_NO_A | Morrisville_NC | | XMI: 10.240.15.42 IMI: 192.168.45.8 Single Server Configuration:  Hostname | Role | System ID | Server Group | Network Element | Location | Place | Details NO-A | Network OAM&P | NOAMP | | NO_SUN_05 | | | XMI: 10.240.15.41 SO-A | System OAM | SOAM | | SO_SUN_05 | | | XMI: 10.240.15.44 • "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

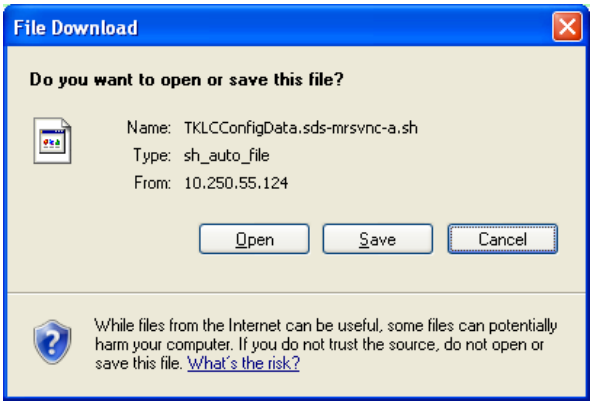
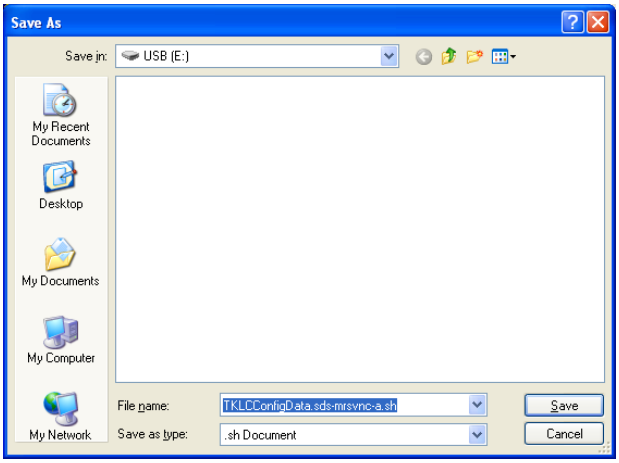
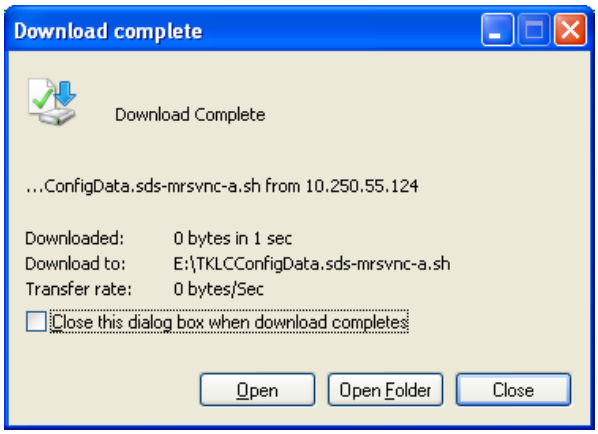
Procedure 11: Create Configuration for Remaining Servers

Step	Procedure	Result
24. ☐	NOAMP Server A: 1) Use the cursor to select the OCUDR Server entry added in Steps 9 - 21. The row containing the desired Server should now be highlighted in GREEN. 2) Select the "Export" dialogue button.	Normal or Low Capacity Configuration:  **Main Menu: Configuration -> Servers** Help Mon May 04 14:47:37 2015 EDT Filter Hostname | Role | System ID | Server Group | Network Element | Location | Place | Details NO-A | Network OAM&P | NOAMP | | UDR_NO_A | Morrisville_NC | | XMI: 10.240.15.41 IMI: 192.168.45.4 NO-B | Network OAM&P | NOAMP | | UDR_NO_A | Morrisville_NC | | XMI: 10.240.15.42 IMI: 192.168.45.8 Single Server Configuration:  Hostname | Role | System ID | Server Group | Network Element | Location | Place | Details NO-A | Network OAM&P | NOAMP | | NO_SUN_05 | | | XMI: 10.240.15.41 SO-A | System OAM | SOAM | | SO_SUN_05 | | | XMI: 10.240.15.44 Insert Edit Delete Export Report • "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
25. ☐	NOAMP Server A: The user will receive a banner information message showing a download link for the OCUDR Server configuration data.	**Main Menu: Configuration -> Servers** Help Fri Aug 17 14:30:08 2012 EDT Filter Info Info • Exported server data in **TKLCConfigData.NO-B.sh** may be downloaded Hostname ... ails NO-A ... 10.250.51.80 NO-B | Network OAM&P | | ETS3_NO_NE | Morrisville_NC | XMI: 10.250.51.81 The configurationt file was created and stored in the /var/TKLC/db/filemgmt directory on the primary NOAMP-A server. The configuration file will have a file name like TKLCConfigData.<*hostname*>.sh. • "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

Procedure 11: Create Configuration for Remaining Servers

Step	Procedure	Result
26. ☐	NOAMP Server A: Click on the "downloaded" link inside the Info box.	 • "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

Procedure 11: Create Configuration for Remaining Servers

Step	Procedure	Result
27. ☐	NOAMP Server A: 1) Click the "Save" dialogue button. 2) Save the configuration file to a USB flash drive. 3) Click the "Close" dialogue button	 1  2  3 • "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

Note: The steps above may be completed for one or all servers listed in the "Check Off" section before continuing...

Procedure 11: Create Configuration for Remaining Servers

Step	Procedure	Result
28. ☐	NOAMP Server A: Apply server configuration scripts.	Use the configuration scripts created and exported in the steps above to apply configuration to each server: • For HP rack mount NOAMP/DR servers and Oracle RMS (X5) NOAM/DR servers: Follow Appendix K.1 Applying Server Configuration with ILO • For all other servers: Follow Appendix K.2 Applying Server Configuration with PM&C ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
THIS PROCEDURE HAS BEEN COMPLETED		

8.3 **Configure XSI Networks** (All SOAM Sites)

This procedure configures the XSI networks used on MP to support signaling traffic.

Requirements:

- **Procedure 11: Create Configuration for Remaining Servers** has been completed.

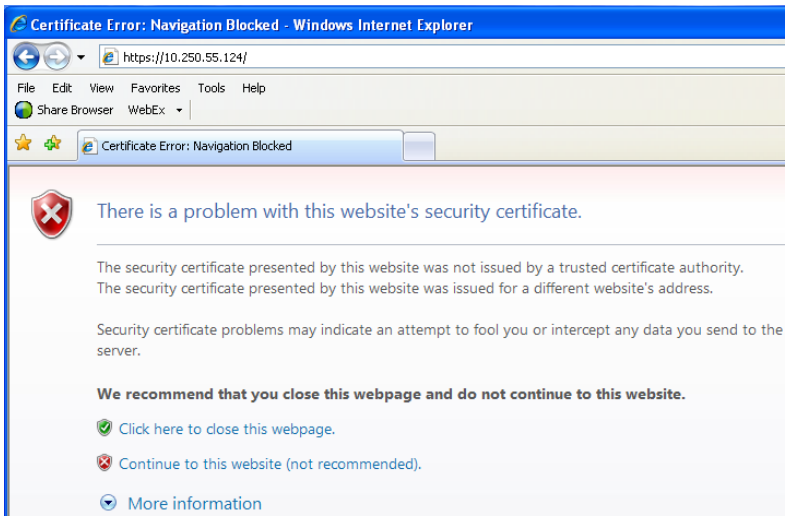
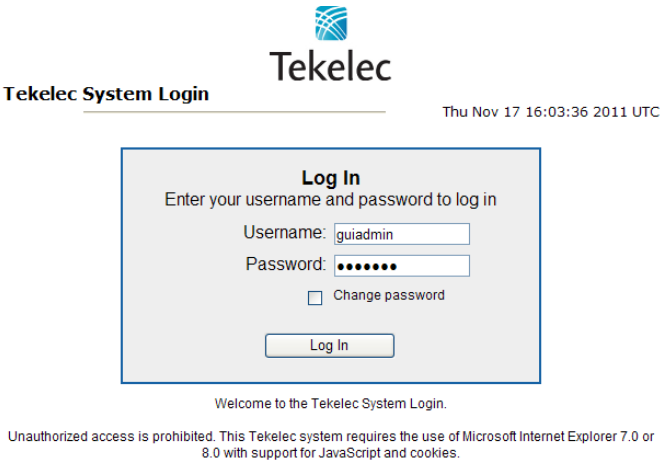
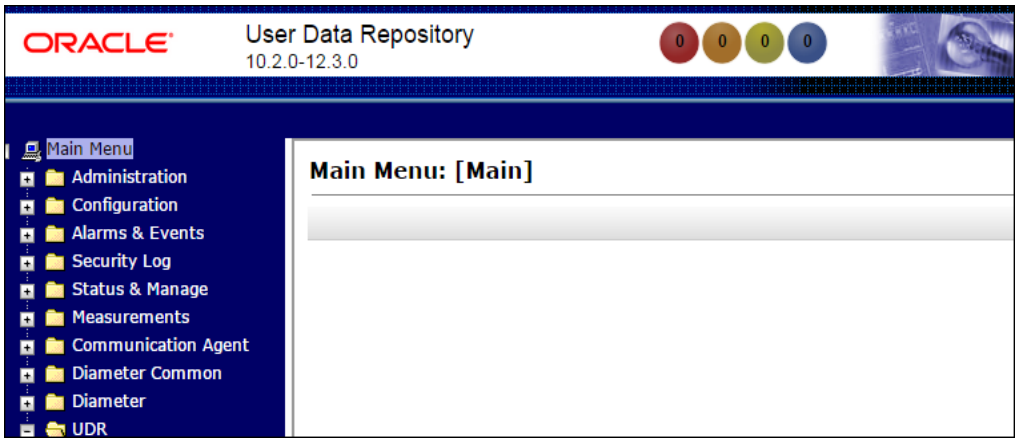
Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.

Note: If a setup has two sites and ComAgent over XSI supported for the same setup, then if adding XSI network for the other site, will need to keep the name the same for both the XSI networks.

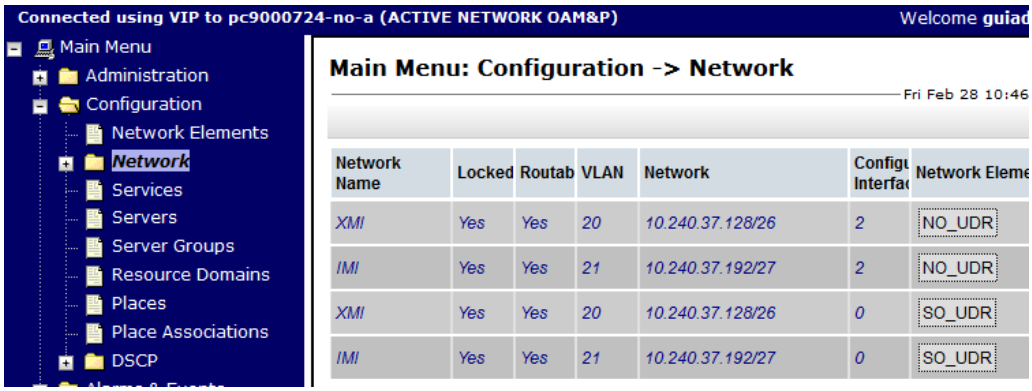
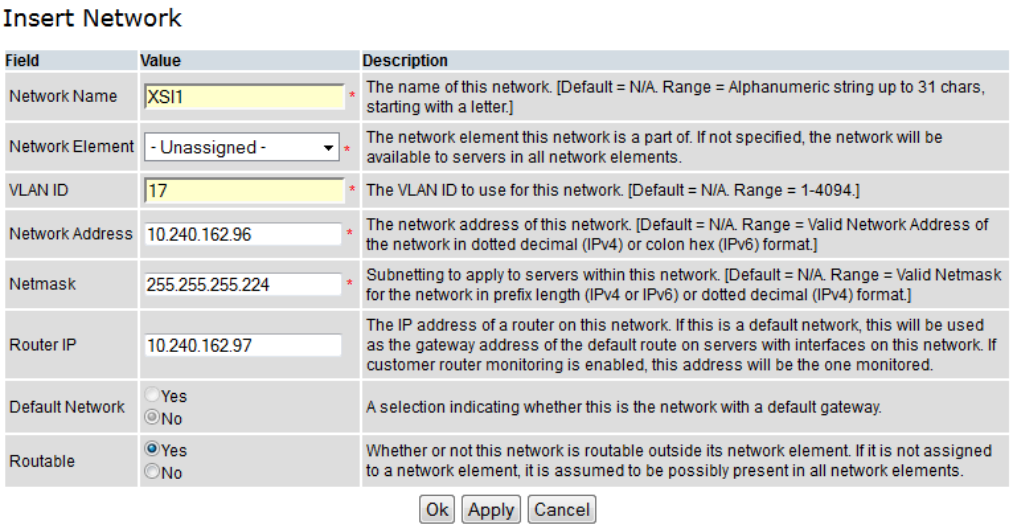
Procedure 12: Configure XSI Networks

Step	Procedure	Result

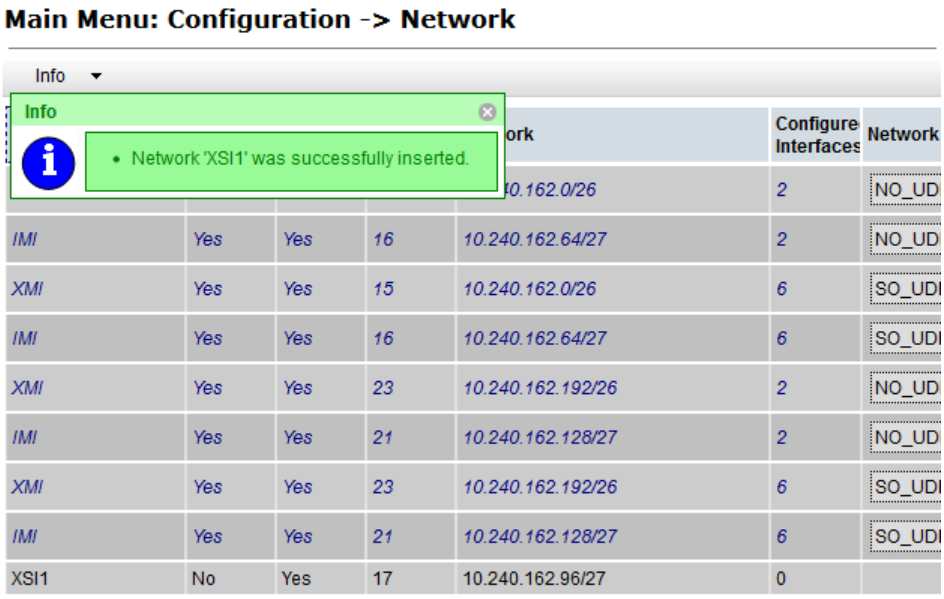
Procedure 12: Configure XSI Networks

Step	Procedure	Result
1. ☐	**NOAMP Server A** Launch an approved web browser and connect to the XMI IP address assigned to **NOAMP Server A** using https:// **NOTE:** If presented with the "security certificate" warning screen shown to the right, choose the following option: **"Continue to this website (not recommended)".**	
2. ☐	**NOAMP Server A** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	
3. ☐	**NOAMP Server A** The user should be presented the Main Menu as shown on the right.	

Procedure 12: Configure XSI Networks

Step	Procedure	Result
4. ☐	**NOAMP Server A** Select… **Main Menu** → **Configuration** → ***Network*** …as shown on the right.	
5. ☐	**NOAMP Server A** Add the **XSI1** network	Click the **Insert** button.  Output similar to that shown below may be observed.  Enter all of the above fields for the **XSI1** network according to the customer's network parameters. The default values for **Network Element** (Unassigned), **Default Network** (No) and **Routable** (Yes) should be retained. ComAgent Service is configured to run on XSI1 in Section 8.11 8.10Configure ComAgent Service, this network shall be used for MP⇔NOAMP ComAgent Traffic. This network may or may not be used for MP Signaling Traffic. **Note**: Network names can be overloaded to support multiple subnets. When defining network for ComAgent Service, use same network name for Primary and DR Site.
Repeat **Step 5** of this procedure to **Insert** additional signaling networks (**XSI2,** etc) as required.		

Procedure 12: Configure XSI Networks

Step	Procedure	Result
6. ☐	**NOAMP Server A** New XSI network is displayed along with a success message.	
THIS PROCEDURE HAS BEEN COMPLETED		

8.4 OAM Pairing for the Primary NOAMP Servers (1st NOAMP site only)

The user should be aware that during the OAM Pairing procedure, various errors may be seen at different stages of the procedure. During the execution of a step, the user is directed to ignore errors related to values other than the ones referenced by that step.

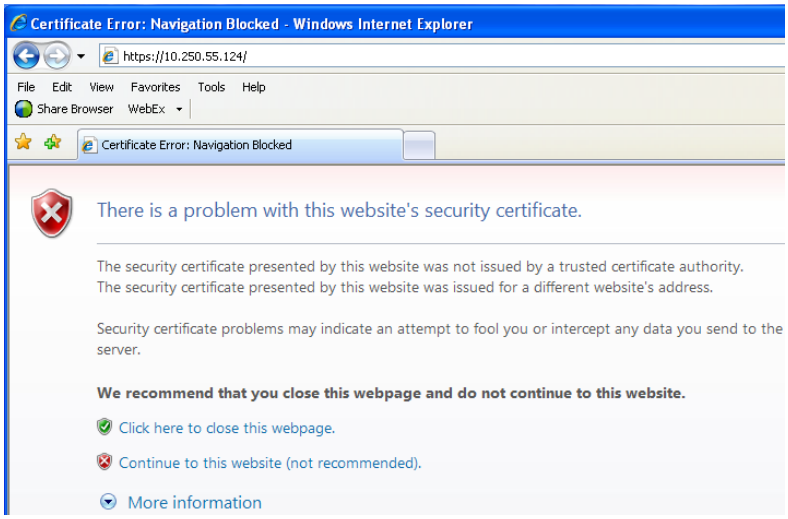
This procedure creates active/standby pair for the NOAMP servers at the Primary Provisioning Site..

Requirements:

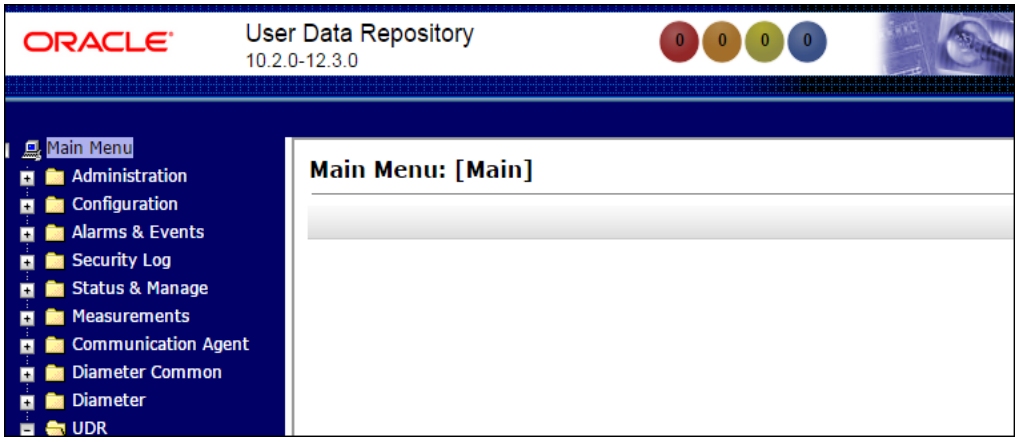
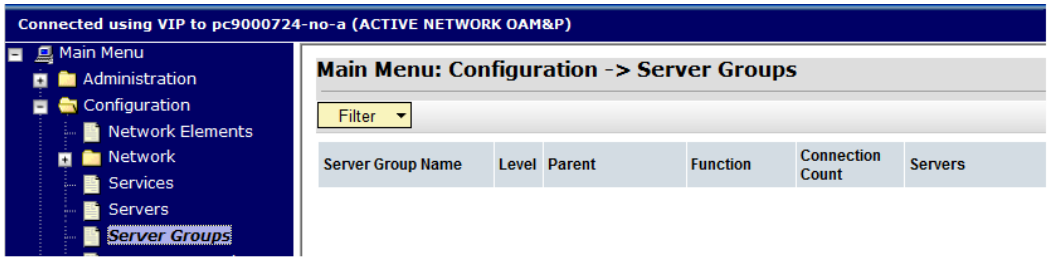
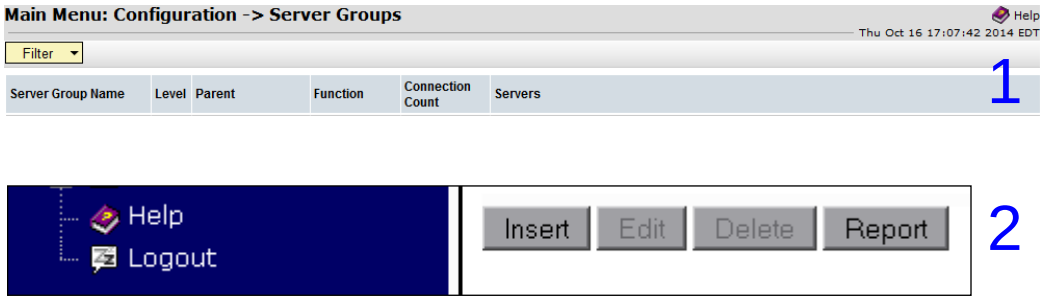
- **Procedure 11: Create Configuration for Remaining Servers** has been completed.

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

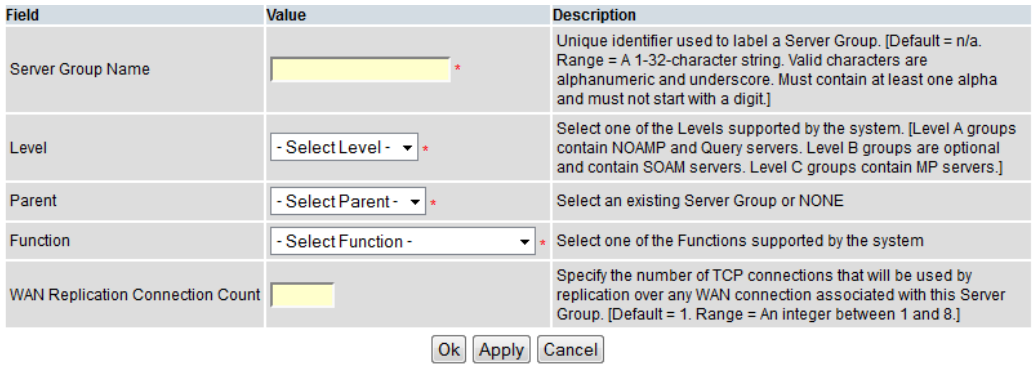
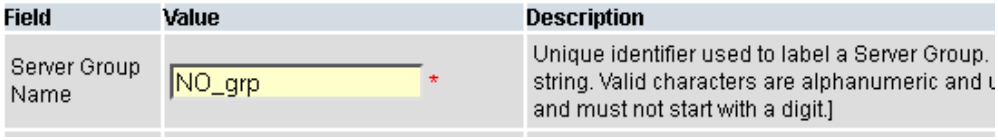
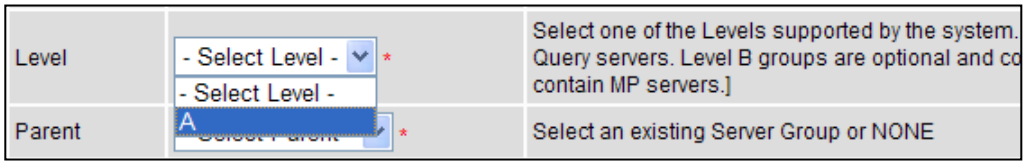
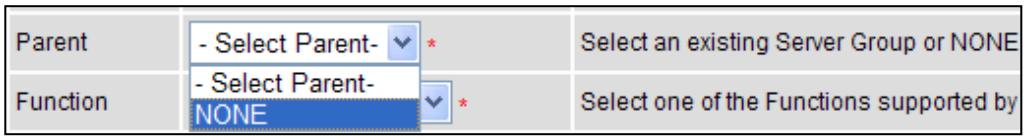
Procedure 13: OAM Pairing for the Primary NOAMP Servers

Step	Procedure	Result
1. ☐	**NOAMP Server A:** Launch an approved web browser and connect to the XMI IP address assigned to **NOAMP Server A** using https:// **NOTE:** If presented with the "security certificate" warning screen shown to the right, choose the following option: **"Continue to this website (not recommended)".**	
2. ☐	**NOAMP Server A:** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	

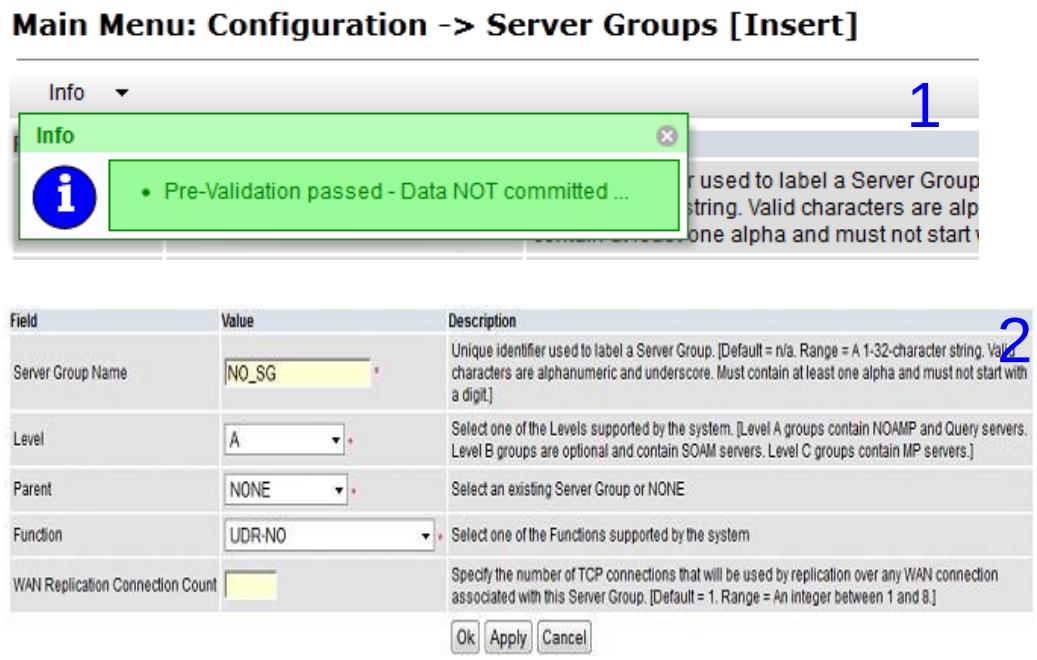
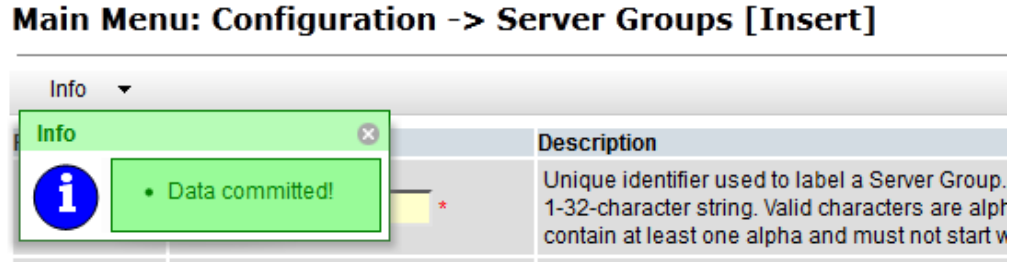
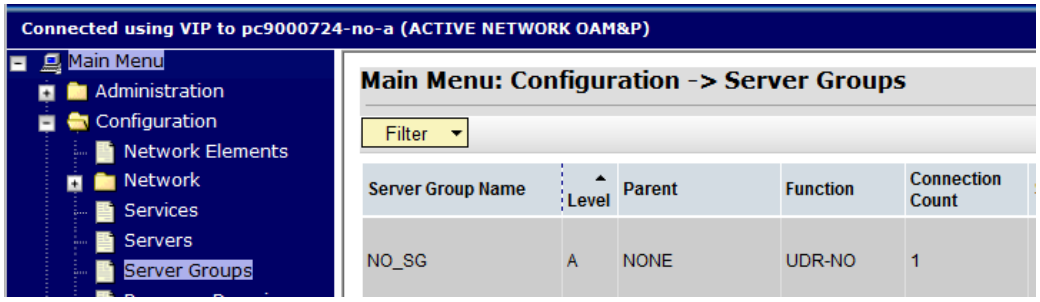
Procedure 13: OAM Pairing for the Primary NOAMP Servers

Step	Procedure	Result
3. ☐	**NOAMP Server A:** The user should be presented the Main Menu as shown on the right.	
4. ☐	**NOAMP Server A:** *Configuring Server Group* Select… **<u>Main Menu</u>** **→ Configuration** **→ *Server Groups*** …as shown on the right.	
5. ☐	**NOAMP Server A:** **1)** The user will be presented with the **"Server Groups"** configuration screen as shown on the right. **2)** Select the **"Insert"** dialogue button from the bottom left corner of the screen. **NOTE:** *The user may need to use the vertical scroll-bar in order to make the **"Insert"** dialogue button visible.*	

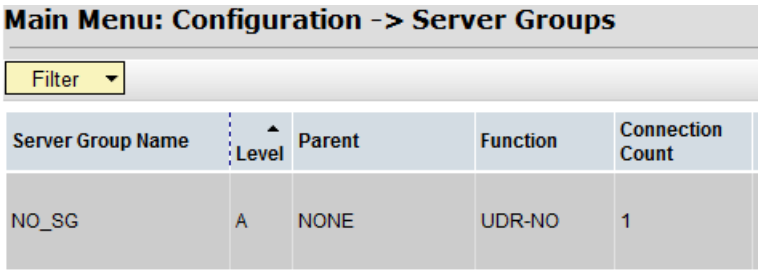
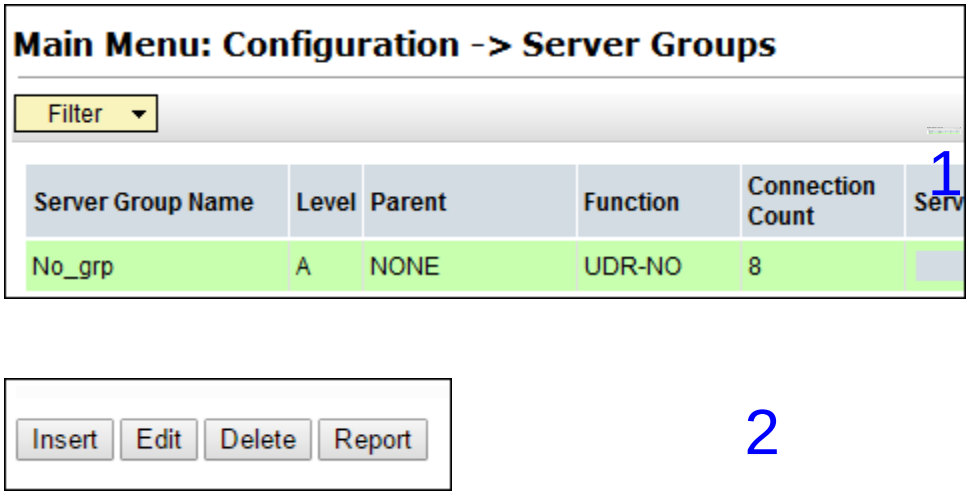
Procedure 13: OAM Pairing for the Primary NOAMP Servers

Step	Procedure	Result
6. ☐	**NOAMP Server A:** The user will be presented with the **"Server Groups [Insert]"** screen as shown on the right.	
7. ☐	**NOAMP Server A:** Input the **Server Group Name**.	
8. ☐	**NOAMP Server A:** Select **"A"** on the **"Level"** pull-down menu.	
9. ☐	**NOAMP Server A:** Select **"None"** on the **"Parent"** pull-down menu.	
10. ☐	**NOAMP Server A:** Select "**UDR-NO**" on the "**Function**" pull-down menu.	
11. ☐	**NOAMP Server A:** Input value "**8**" into "**WAN Replication Connection Count**".	

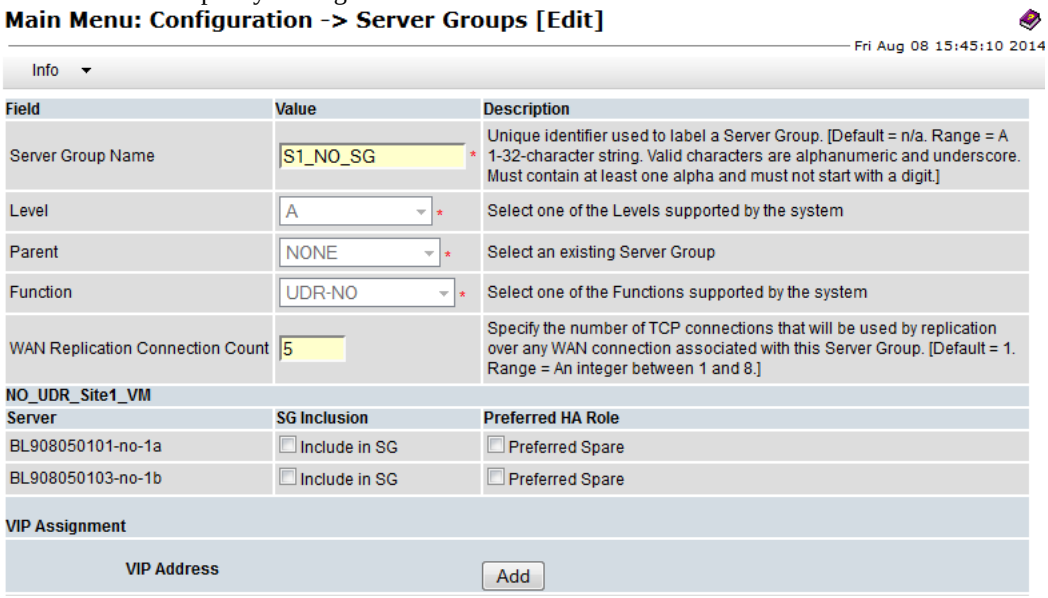
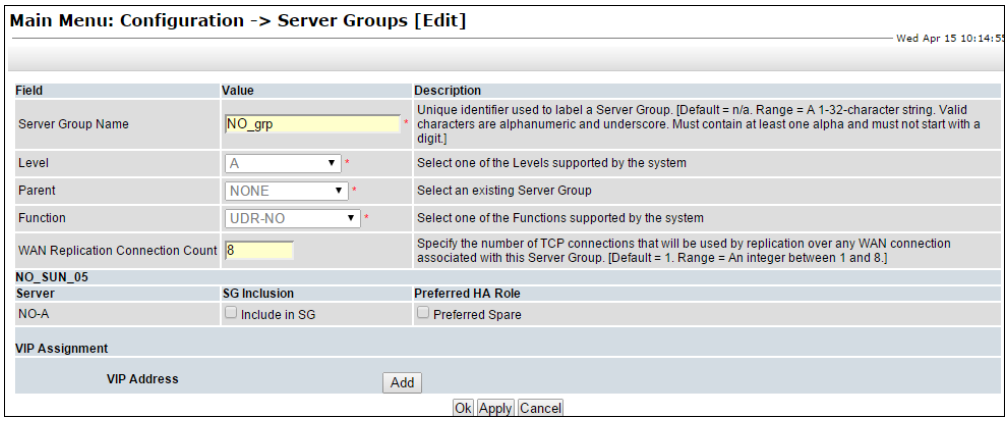
Procedure 13: OAM Pairing for the Primary NOAMP Servers

Step	Procedure	Result
12. ☐	**NOAMP Server A:** **1)** The user should be presented with a banner information message stating **"Pre-Validation passed"**. **2)** Select the **"Apply"** dialogue button.	
13. ☐	**NOAMP Server A:** The user should be presented with a banner information message stating **"Data committed"**.	
14. ☐	**NOAMP Server A:** Select… **Main Menu** → **Configuration** → ***Server Groups*** …as shown on the right.	

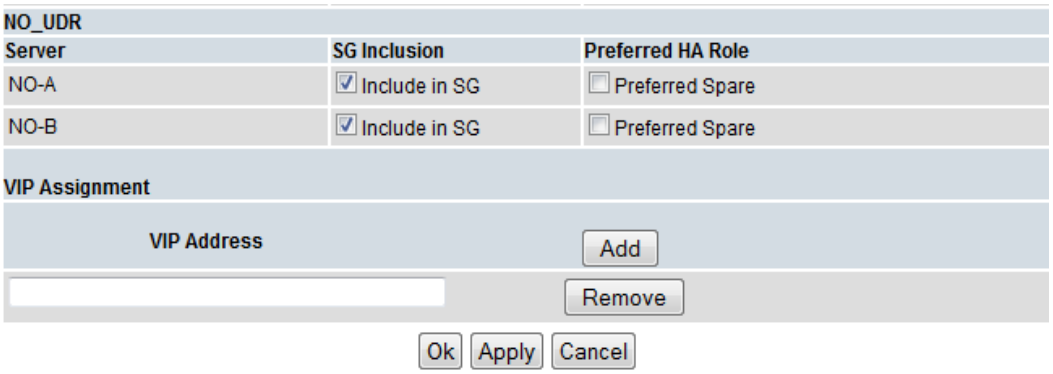
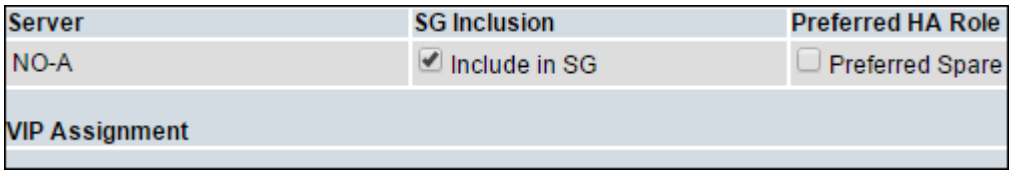
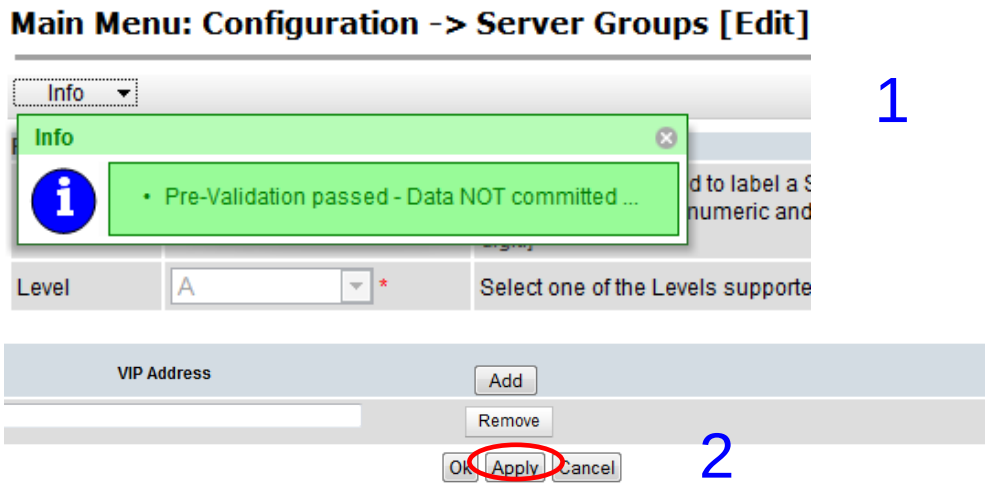
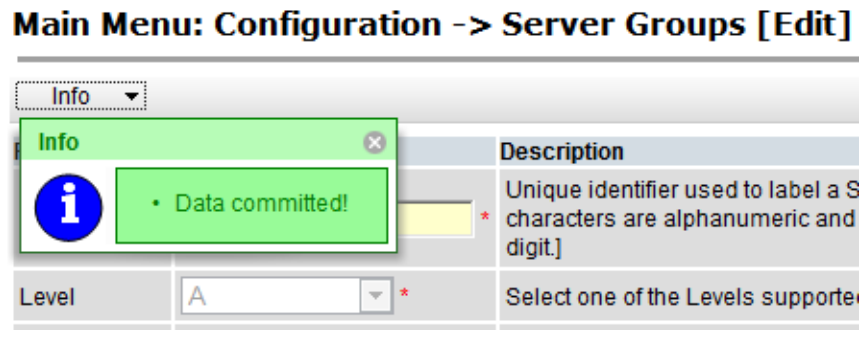
Procedure 13: OAM Pairing for the Primary NOAMP Servers

Step	Procedure	Result
15. ☐	**NOAMP Server A:** The **Server Group** entry added in **Steps 6 - 13** should now appear on the **"Server Groups"** configuration screen as shown on the right.	
16. ☐	**NOAMP Server A:** **1)** Select the **Server Group** entry added in **Steps 6 - 13**. The line entry should now be highlighted in **GREEN**. **2)** Select the **"Edit"** dialogue button from the bottom left corner of the screen. **NOTE:** *The user may need to use the vertical scroll-bar in order to make the **"Edit"** dialogue button visible.*	 2

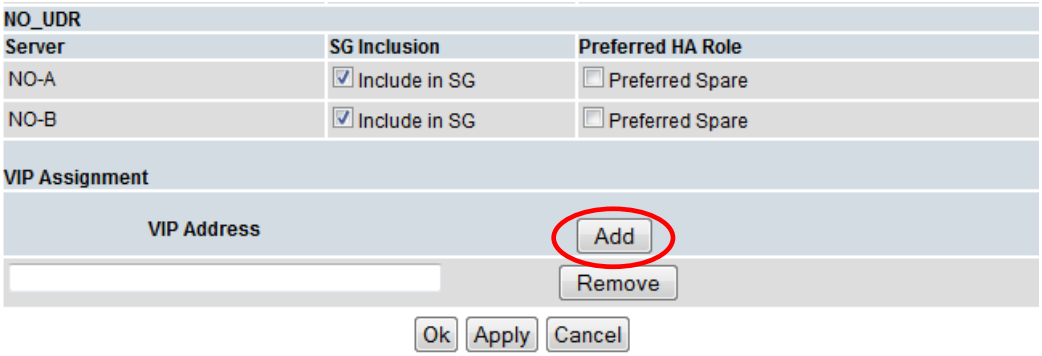
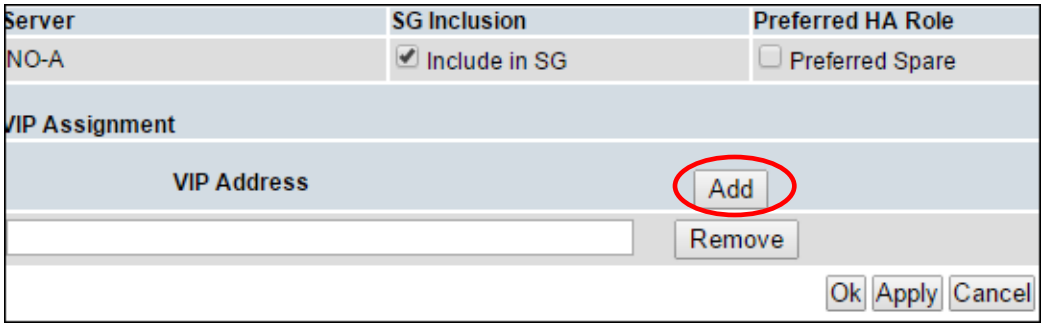
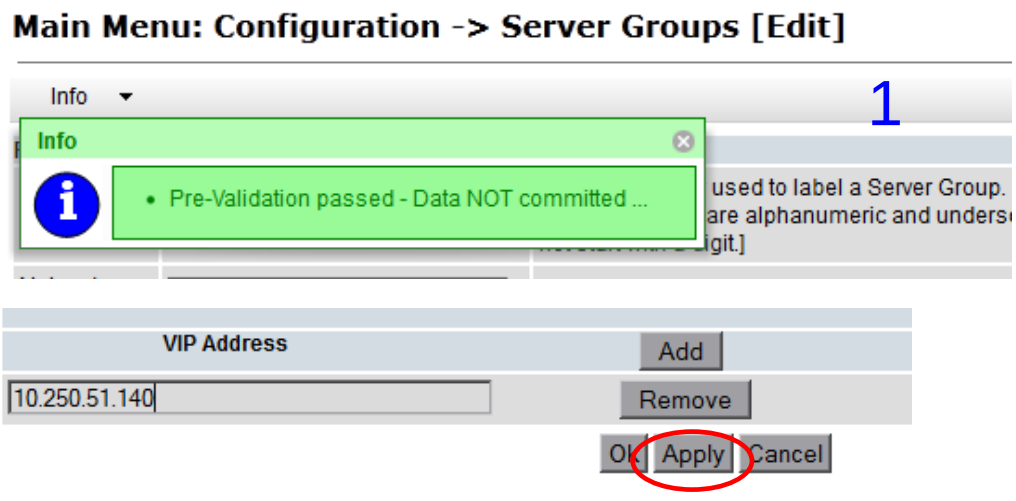
Procedure 13: OAM Pairing for the Primary NOAMP Servers

Step	Procedure	Result
17. ☐	**NOAMP Server A:** The user will be presented with the **"Server Groups [Edit]"** screen as shown on the right.	Normal or Low Capacity Configuration:  **Main Menu: Configuration -> Server Groups [Edit]** Fri Aug 08 15:45:10 2014 Info Field / Value / Description Server Group Name: S1_NO_SG * — Unique identifier used to label a Server Group. [Default = n/a. Range = A 1-32-character string. Valid characters are alphanumeric and underscore. Must contain at least one alpha and must not start with a digit.] Level: A * — Select one of the Levels supported by the system Parent: NONE * — Select an existing Server Group Function: UDR-NO * — Select one of the Functions supported by the system WAN Replication Connection Count: 5 — Specify the number of TCP connections that will be used by replication over any WAN connection associated with this Server Group. [Default = 1. Range = An integer between 1 and 8.] NO_UDR_Site1_VM Server / SG Inclusion / Preferred HA Role BL908050101-no-1a — Include in SG — Preferred Spare BL908050103-no-1b — Include in SG — Preferred Spare VIP Assignment VIP Address — Add Single Server Configuration:  **Main Menu: Configuration -> Server Groups [Edit]** Wed Apr 15 10:14:55 Field / Value / Description Server Group Name: NO_grp * — Unique identifier used to label a Server Group. [Default = n/a. Range = A 1-32-character string. Valid characters are alphanumeric and underscore. Must contain at least one alpha and must not start with a digit.] Level: A * — Select one of the Levels supported by the system Parent: NONE * — Select an existing Server Group Function: UDR-NO * — Select one of the Functions supported by the system WAN Replication Connection Count: 8 — Specify the number of TCP connections that will be used by replication over any WAN connection associated with this Server Group. [Default = 1. Range = An integer between 1 and 8.] NO_SUN_05 Server / SG Inclusion / Preferred HA Role NO-A — Include in SG — Preferred Spare VIP Assignment VIP Address — Add Ok Apply Cancel

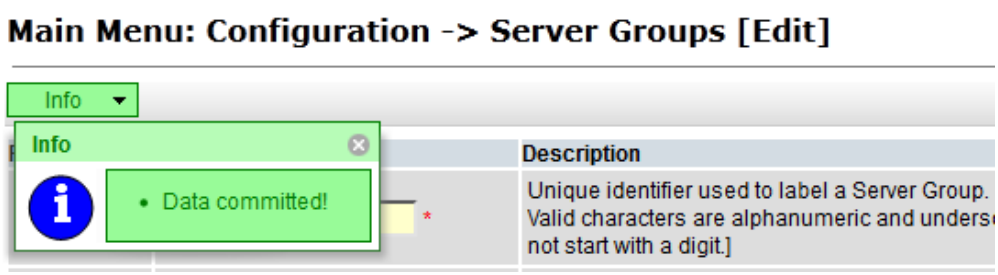
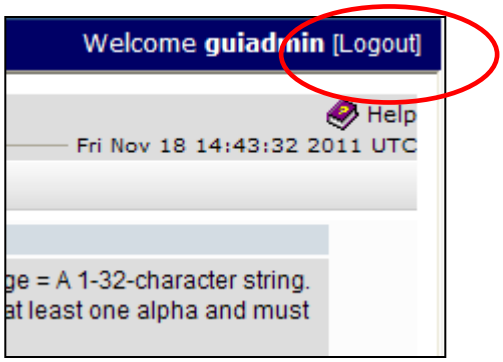
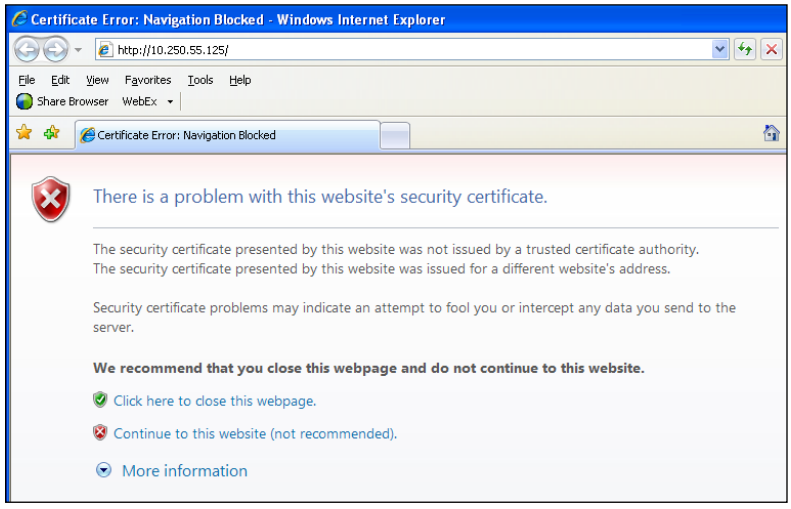
Procedure 13: OAM Pairing for the Primary NOAMP Servers

Step	Procedure	Result
18. ☐	**NOAMP Server A:** Check the boxes to include the **"A"** server and the **"B"** server into the NOAMP **Server Group**. Note: For Single Server Installation, only NO-A will be displayed; therefore only one box will be selected.	Normal or Low Capacity Configuration:  Single Server Configuration: 
19. ☐	**NOAMP Server A:** **1)** The user should be presented with a banner information message stating **"Pre-Validation passed"**. **2)** Select the **"Apply"** dialogue button.	
20. ☐	**NOAMP Server A:** The user should be presented with a banner information message stating **"Data committed"**.	

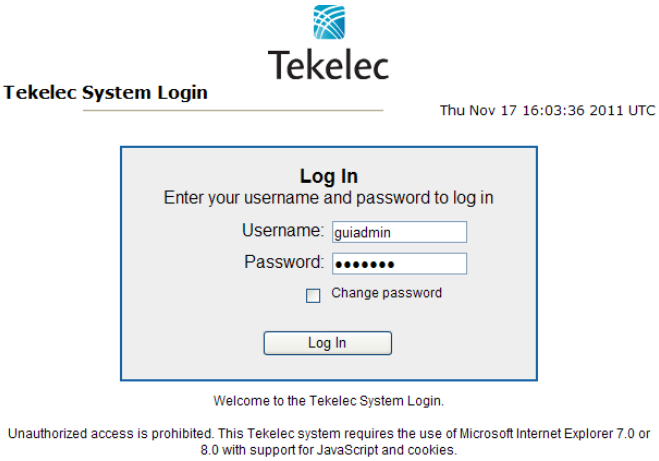
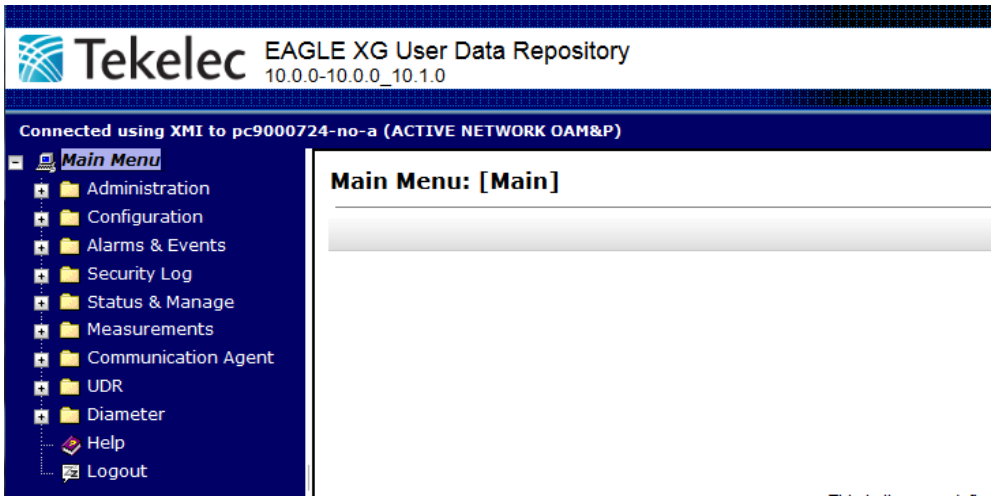
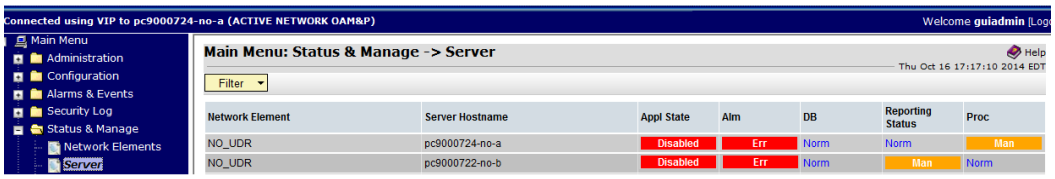
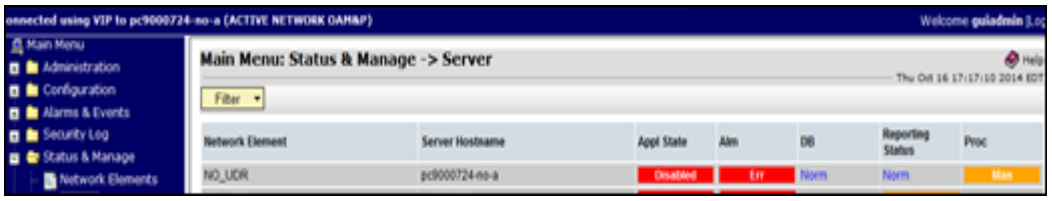
Procedure 13: OAM Pairing for the Primary NOAMP Servers

Step	Procedure	Result
21. ☐	**NOAMP Server A:** Click the **"Add"** dialogue button for the **VIP Address**. **Note**: VIP Address optional for Single Server Configuration.	Normal or Low Capacity Configuration:  Single Server Configuration: 
22. ☐	**NOAMP Server A:** Input the **VIP Address**	
23. ☐	**NOAMP Server A:** **1)** The user should be presented with a banner information message stating **"Pre-Validation passed"**. **2)** Select the **"Apply"** dialogue button.	

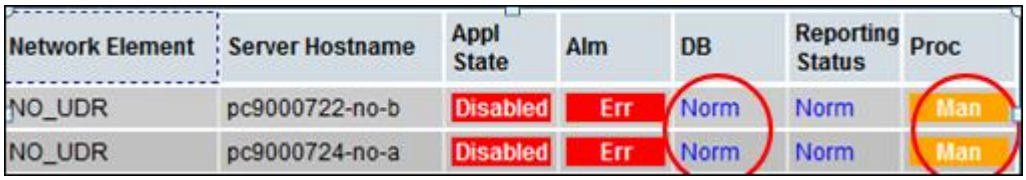
Procedure 13: OAM Pairing for the Primary NOAMP Servers

Step	Procedure	Result
24. ☐	**NOAMP Server A:** The user should be presented with a banner information message stating **"Data committed"**.	
25. ☐	**NOAMP Server A:** Click the **"Logout"** link on the OAM A server GUI.	
26. ☐	**IMPORTANT:** Wait at least **5 minutes** before proceeding on to the next Step.	• 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. • **Note**: Single Server Configuration will not need to establish the master/slave relationship for High Availability (HA). Allow a minimum of **5 minutes** before continuing to the next Step.
27. ☐	**NOAMP VIP:** Launch an approved web browser and connect to the **XMI Virtual IP Address (VIP)** assigned in **STEP 22** to the **OCUDR Server Group** using **"https://"**.	

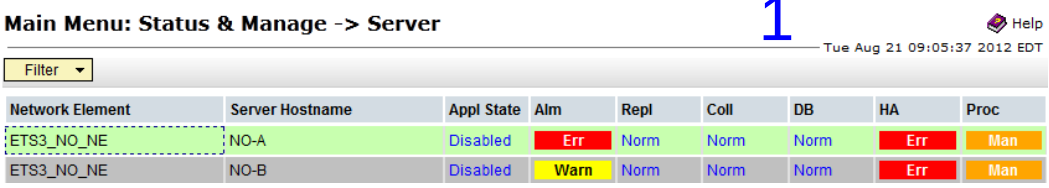
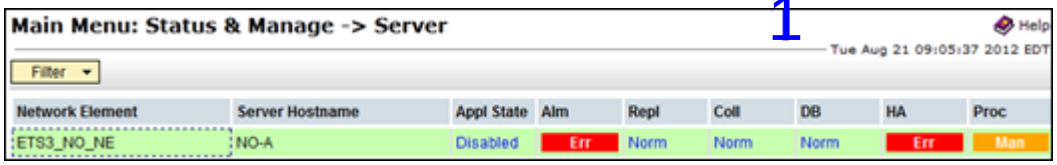
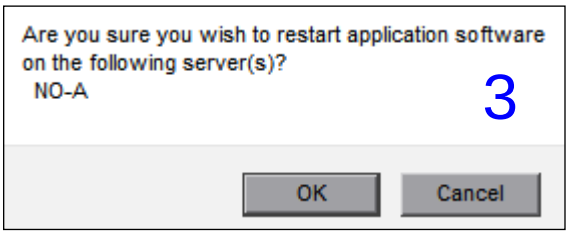
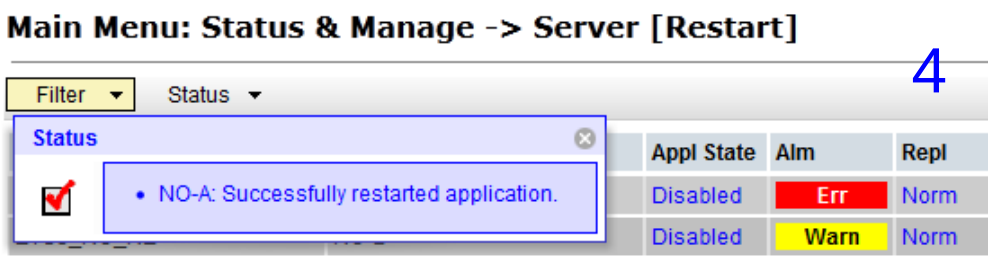
Procedure 13: OAM Pairing for the Primary NOAMP Servers

Step	Procedure	Result
28. ☐	**NOAMP VIP:** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	
29. ☐	**NOAMP VIP:** The user should be presented the Main Menu as shown on the right.	
30. ☐	**NOAMP VIP:** *Restarting the NOAMP Server Application* Select… **Main Menu** → **Status & Manage** → ***Server*** …as shown on the right.	Normal or Low Capacity Configuration:  Single Server Configuration: 

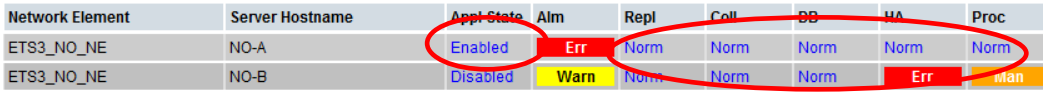
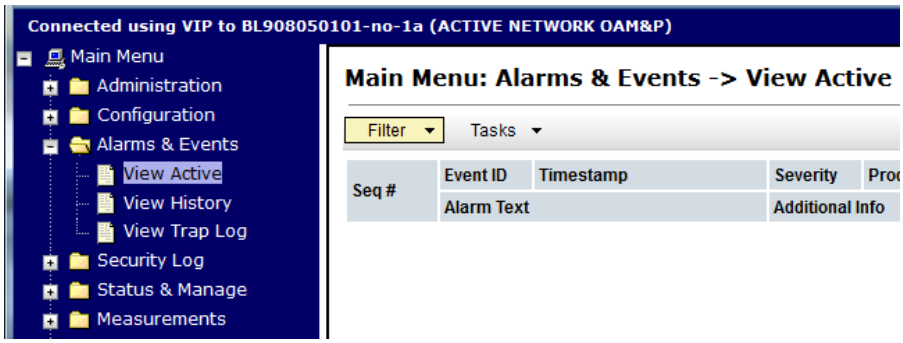
Procedure 13: OAM Pairing for the Primary NOAMP Servers

Step	Procedure	Result
31. ☐	**NOAMP VIP:** **1)** The **"A"** and **"B"** servers should now appear in the right panel. Note: For single server, only the "A" server will appear. **2)** Verify that the **"DB"** status shows **"Norm"** and the **"Proc"** status shows **"Man"** for one/both servers before proceeding to the next Step.	Normal or Low Capacity Configuration:  Single Server Configuration: 

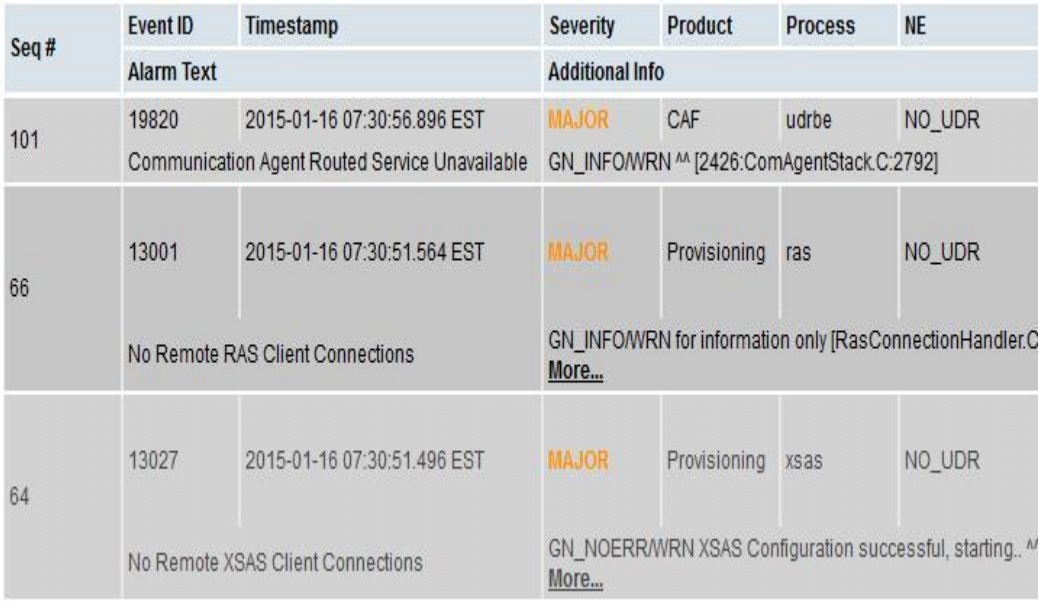
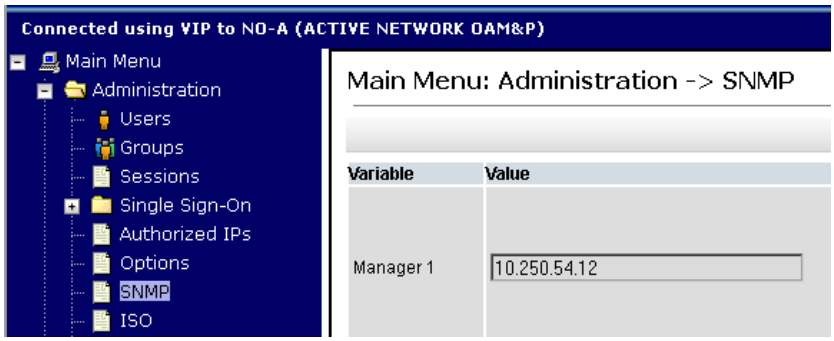
Procedure 13: OAM Pairing for the Primary NOAMP Servers

Step	Procedure	Result
32. ☐	**NOAMP VIP:** **1)** Using the mouse, select **NOAMP Server A**. The line entry should now be highlighted in **GREEN**. **2)** Select the **"Restart"** dialogue button from the bottom left corner of the screen. **3)** Click the **"OK"** button on the confirmation dialogue box. **4)** The user should be presented with a confirmation message (in the banner area) for **NOAMP Server A** stating: **"Successfully restarted application"**. **NOTE:** *The user may need to use the vertical scroll-bar in order to make the **"Restart"** dialogue button visible.*	Normal or Low Capacity Configuration:  Single Server Configuration:    

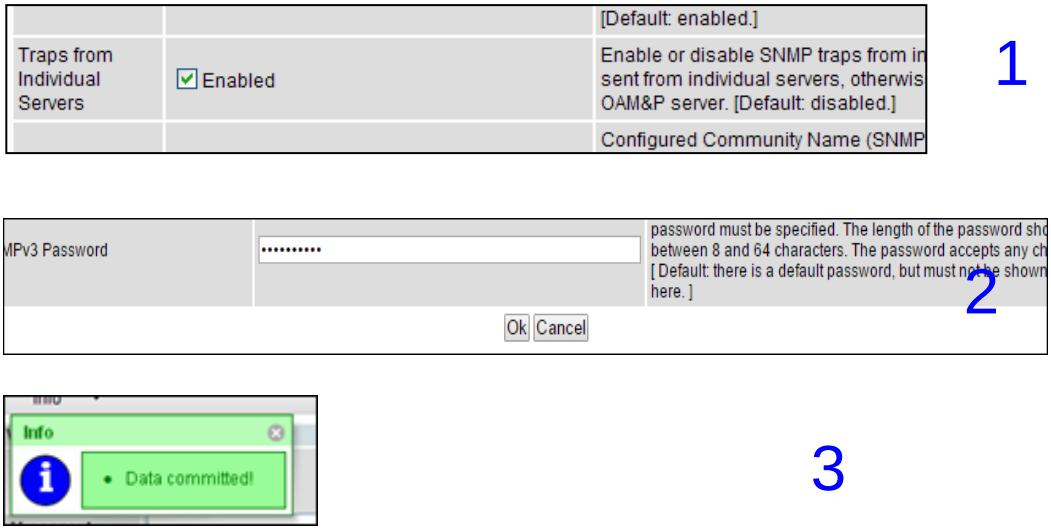
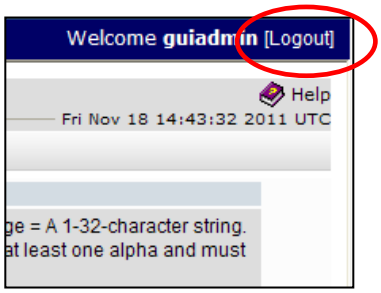
Procedure 13: OAM Pairing for the Primary NOAMP Servers

Step	Procedure	Result
33. ☐	**NOAMP VIP:** Verify that the **"Appl State"** now shows **"Enabled"** and that the **"Repl, Coll, DB, HA & Proc"** status columns all show **"Norm"** for **NOAMP Server A** before proceeding to the next Step. **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.	Normal or Low Capacity Configuration:  Single Server Configuration: 
34. ☐	**NOAMP VIP:** Restart **NOAMP Server B**.	**Note: Don't perform this step for single server installations.** Repeat steps 32 and 33 above to restart NOAMP Server B.
35. ☐	**NOAMP VIP:** *Verifying the NOAMP Server Alarm status* Select… **Main Menu** **→ Alarms & Events** **→ *View Active*** …as shown on the right.	

Procedure 13: OAM Pairing for the Primary NOAMP Servers

Step	Procedure	Result
36. ☐	**NOAMP VIP:** Verify that the noted **Event IDs** are the only alarms present on the system at this time.	 Verify that only the following Event IDs are the only alarms present: - **13001** (*No Remote RAS Client Connections*) - **13027** (*"No Remote XSAS Client Connections"*) - **19820** (*"Communicaton Agent Routed Service Unavailable"*) **Note:** *It may take a few minutes for residual process alarms to clear.*
37. ☐	**NOAMP VIP:** Configuring SNMP for Traps from Individual Servers Select… **Main Menu** **→ Administration** **→Remote Servers** **→ *SNMP Trapping*** …as shown on the right.	

Procedure 13: OAM Pairing for the Primary NOAMP Servers

Step	Procedure	Result
38. ☐	**NOAMP VIP:** **1)** Using the cursor, place a "check" in the check box for **"Traps from Individual Servers"**. **2)** Click the **"OK"**button located at thebottom in the center of the screen. . **3)** Verify that a banner message stating ***"Data committed"*** is received.	
39. ☐	**NOAMP VIP:** Click the **"Logout"** link on the server GUI.	
THIS PROCEDURE HAS BEEN COMPLETED		

8.5 OAM Pairing for SOAM and DR sites (All SOAM and DR sites)

The user should be aware that during the OAM Pairing procedure, various errors may be seen at different stages of the procedure. During the execution of a step, the user is directed to ignore errors related to values other than the ones referenced by that step.

The steps in this procedure are for all SOAM servers and the DR NOAMP servers.

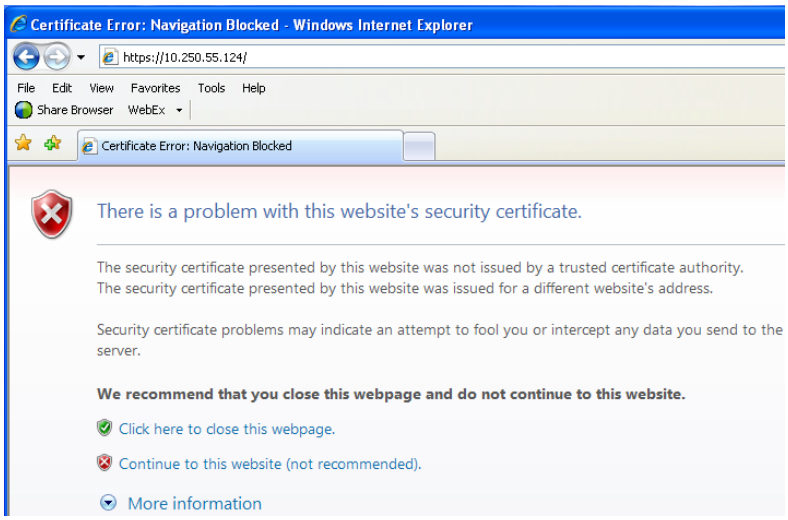
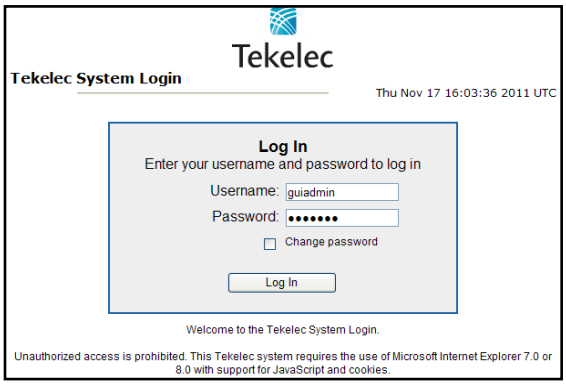
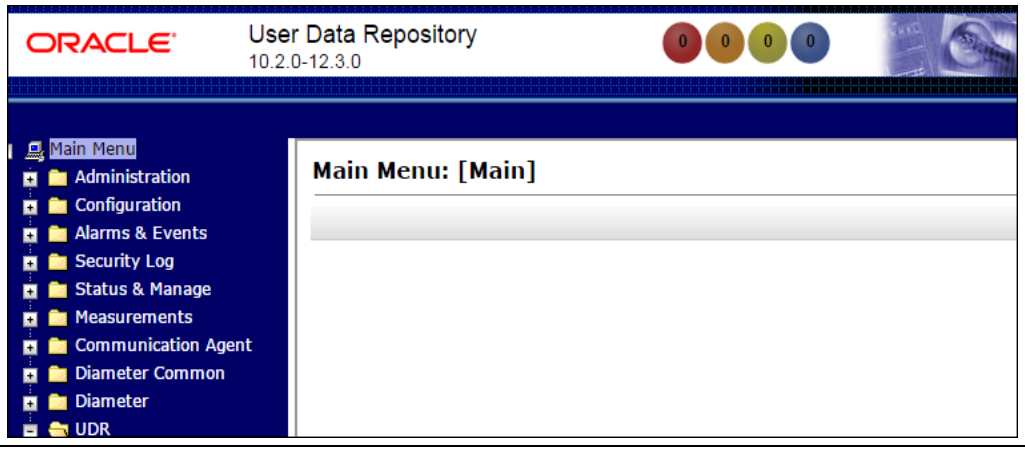
This procedure creates active/standby pair for the SOAM servers at any site or the DR NOAMP Servers.

Requirements:

- **Procedure 11: Create Configuration for Remaining Servers** has been completed.
- **Procedure 13: OAM Pairing for the Primary NOAMP Servers** has been completed.

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

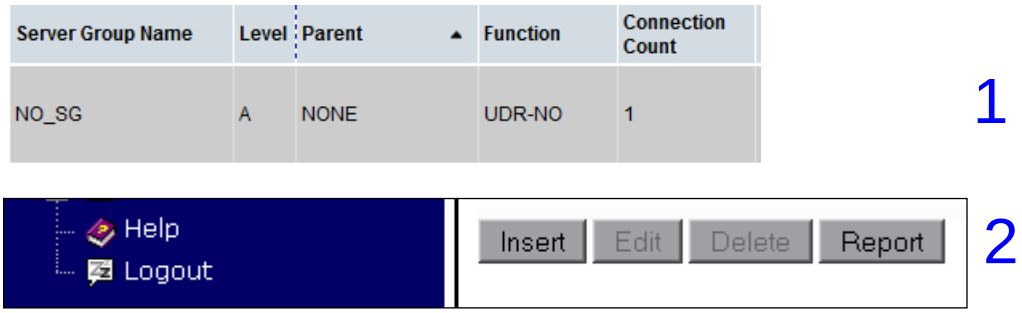
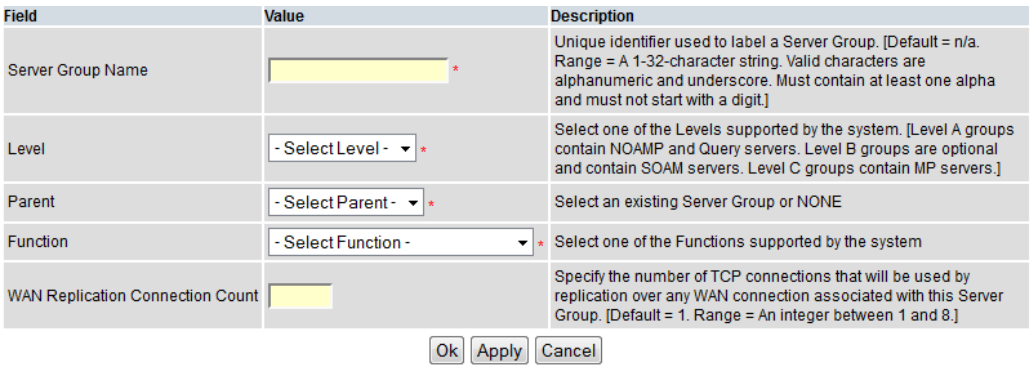
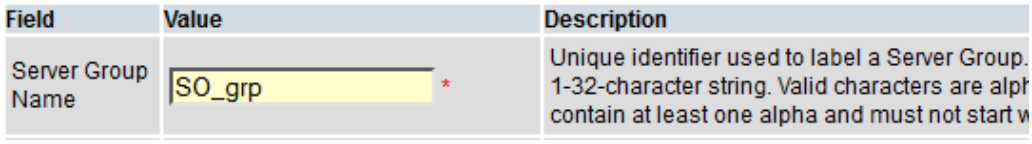
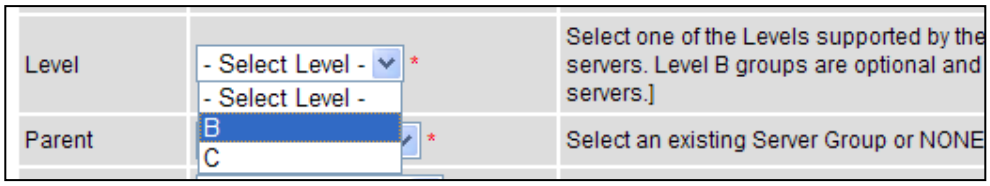
Procedure 14: Pairing the OAM Servers for SOAM or DR NOAMP sites

Step	Procedure	Result
1. ☐	**Active NOAMP VIP:** Launch an approved web browser and connect to the **XMI Virtual IP Address (VIP)** of the **Active NOAMP site** using https:// **NOTE:** If presented with the "security certificate" warning screen shown to the right, choose the following option**:** **"Continue to this website (not recommended)".**	
2. ☐	**Active NOAMP VIP:** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	
3. ☐	**Active NOAMP VIP:** The user should be presented the Main Menu as shown on the right.	

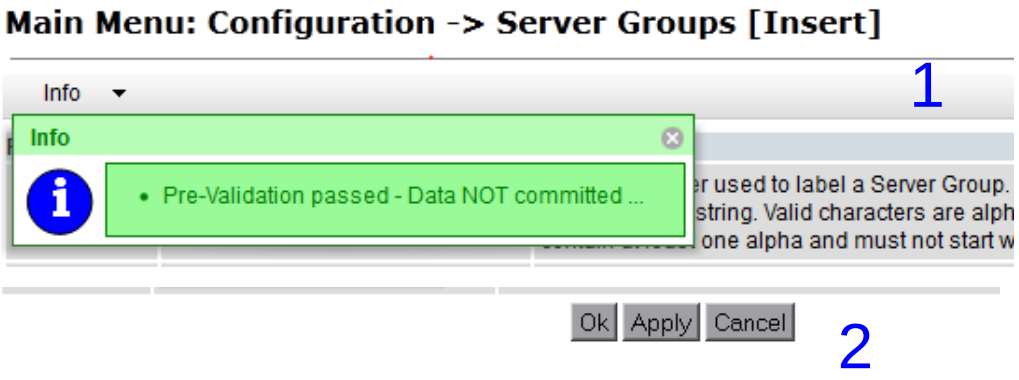
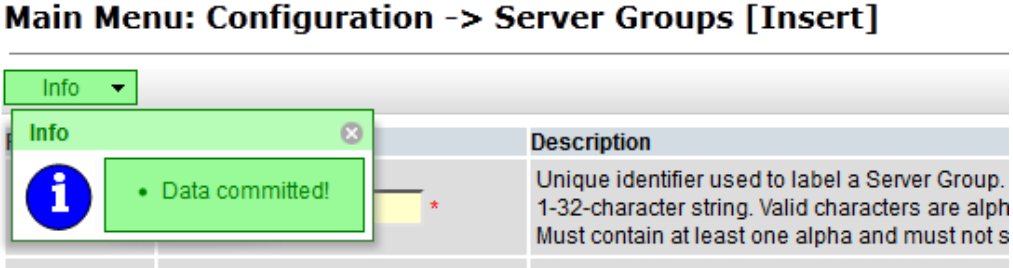
Procedure 14: Pairing the OAM Servers for SOAM or DR NOAMP sites

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** *For **Primary NOAMP Standby** server only:* Mark the server 'forced standby' **Main Menu** **→ Status & Manage** **→ *HA*** Click "**Edit**" button on bottom left Find the row for the Primary NOAMP Standby server and change **"Max Allowed HA Role" to "Standby".**	* **Note**: Don't perform this step for single server installations. **Main Menu: Status & Manage -> HA** Tue May 05 10:11 Filter Hostname / OAM HA Role / Application HA Role / Max Allowed HA Role / Mate Hostname List / Network Element / Server Role / Active VIPs NO-A / Active / OOS / Active / NO-B / UDR_NO_A / Network OAM&P / 10.240.15.40 NO-B / Standby / OOS / Active / NO-A / UDR_NO_A / Network OAM&P / SO-A / Unavailable / Unavailable / / / UDR_SO_A / System OAM / SO-B / Unavailable / Unavailable / / / UDR_SO_A / System OAM / MP1 / Unavailable / Unavailable / / / UDR_SO_A / MP / MP2 / Unavailable / Unavailable / / / UDR_SO_A / MP / **Main Menu: Status & Manage -> HA [Edit]** Info Hostname / Max Allowed HA Role / Description NO-A / Active / The maximum desired HA Role for NO-A NO-B / Standby / The maximum desired HA Role for NO-B Ok Cancel
5. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Configuration** **→ *Server Groups*** …as shown on the right.	Connected using VIP to pc9000724-no-a (ACTIVE NETWORK OAM&P) Welcome Main Menu Administration Configuration Network Elements Network Services Servers Server Groups **Main Menu: Configuration -> Server Groups** Thu Oct 16 16:2 Filter Server Group Name / Level / Parent / Function / Connection Count / Servers (NE / Server / HA Role Pref / VIPs) NO_SG / A / NONE / UDR-NO / 1 / NO_UDR / pc9000722-no-b / / 10.240.37.130 NO_UDR / pc9000724-no-a / / 10.240.37.130

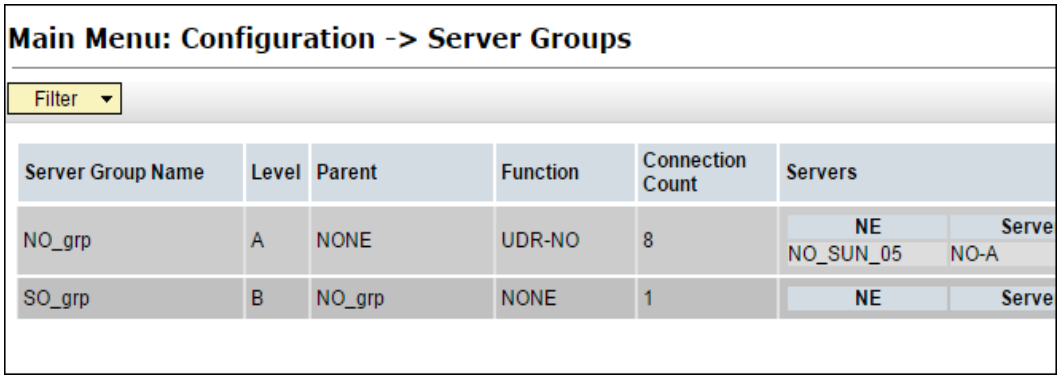
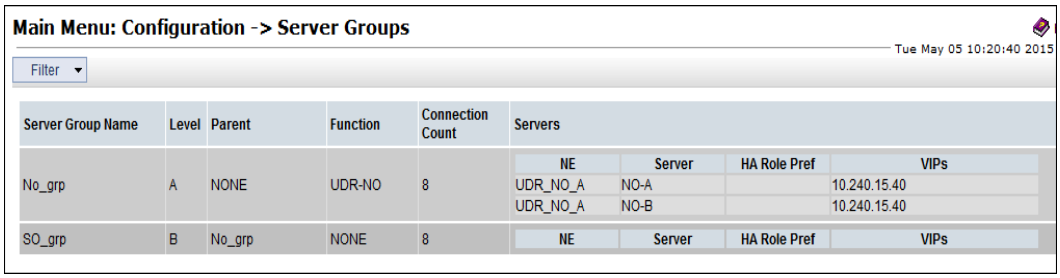
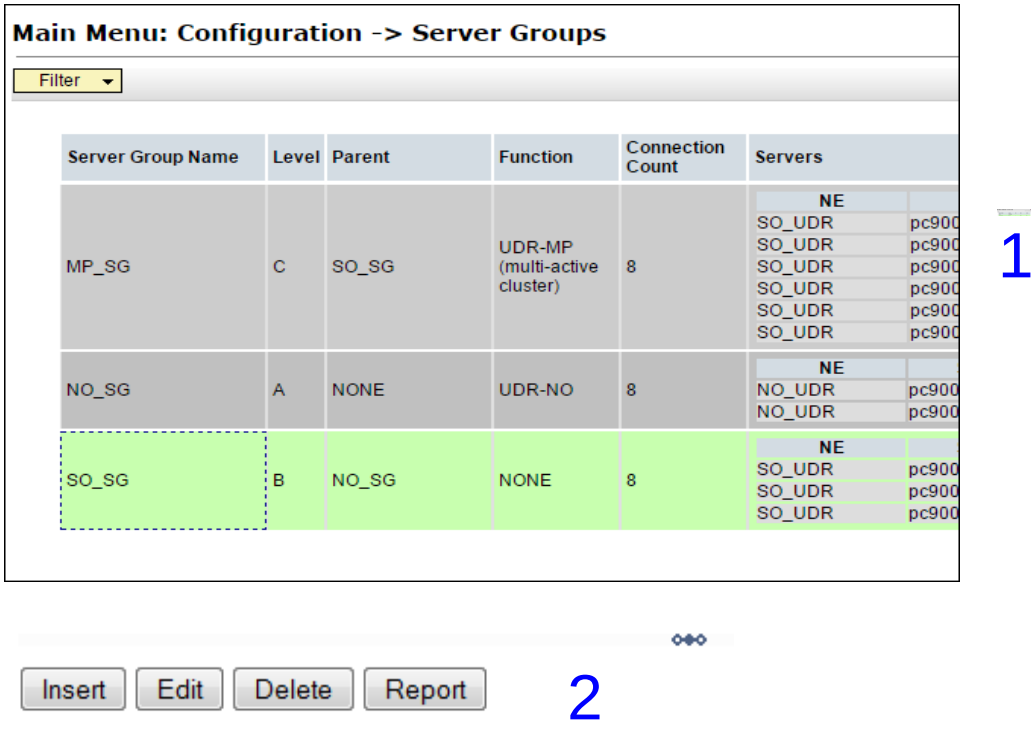
Procedure 14: Pairing the OAM Servers for SOAM or DR NOAMP sites

Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** **1)** The user will be presented with the **"Server Groups"** configuration screen as shown on the right. **2)** Select the **"Insert"** dialogue button from the bottom left corner of the screen. **NOTE:** The user may need to use the vertical scroll-bar in order to make the **"Insert"** dialogue button visible.	
7. ☐	**Active NOAMP VIP:** Configuring the SOAM or DR NOAMP Server Group The user will be presented with the **"Server Groups [Insert]"** screen as shown on the right.	
8. ☐	**Active NOAMP VIP:** Input the **Server Group Name**.	
9. ☐	**Active NOAMP VIP:** Assign the correct group **Level**.	 Note: Use these setting for group level: • For DR NOAMP server group: select **"A"** on the **"Level"** pull-down menu.. • For SOAM server group: select **"B"** on the **"Level"** pull-down menu.

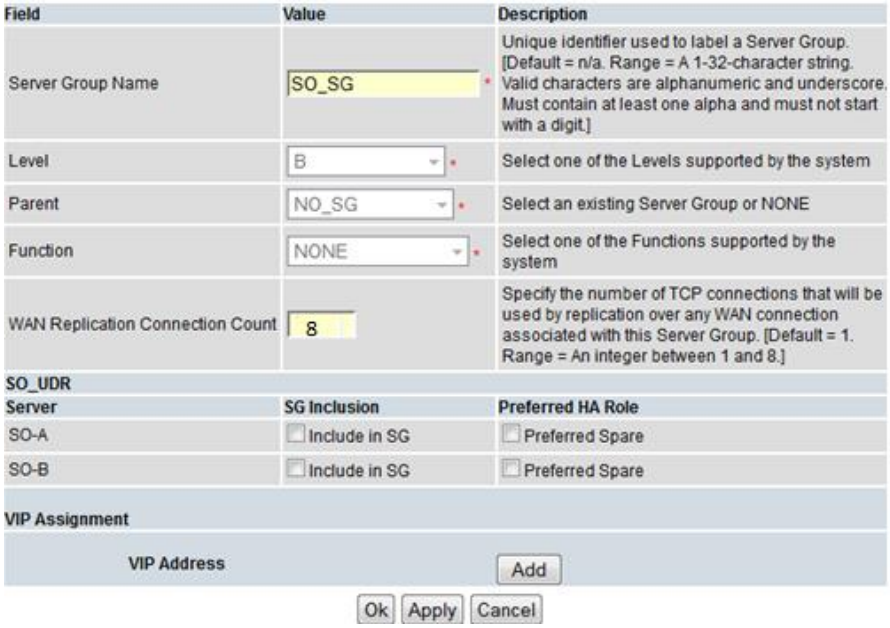
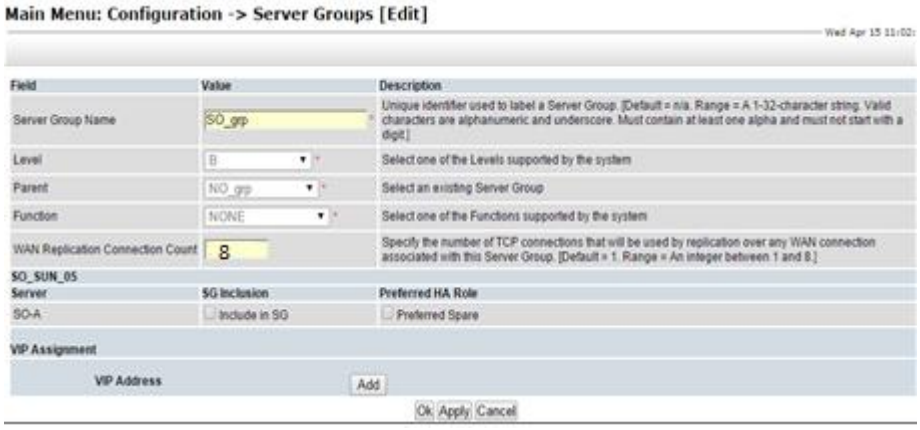
Procedure 14: Pairing the OAM Servers for SOAM or DR NOAMP sites

Step	Procedure	Result
10. ☐	**Active NOAMP VIP:** Assign the correct **Parent**.	 **Note**: Use these setting for parent: • For DR NOAMP server group: select "**NONE**" on the **"Parent"** pull-down menu. • For SOAM server group: select the 1st NOAMP Site's server group, as entered in **Procedure 9, Step 7** on the **"Parent"** pull-down menu.
11. ☐	**Active NOAMP VIP:** Assign the correct **Function**.	 **Note**: Use these setting for function: • For DR NOAMP server group: select "**UDR-NO**" on the **"Function"** pull-down menu. • For SOAM server group: select "**NONE**" on the **"Function"** pull-down menu.
12. ☐	**Active NOAMP VIP:** *For DR NOAMP only:* Input value "**8**" into "**WAN Replication Connection Count**".	
13. ☐	**Active NOAMP VIP:** **1)** The user should be presented with a banner information message stating **"Pre-Validation passed"**. **2)** Select the **"Apply"** dialogue button.	
14. ☐	**Active NOAMP VIP:** The user should be presented with a banner information message stating **"Data committed"**.	

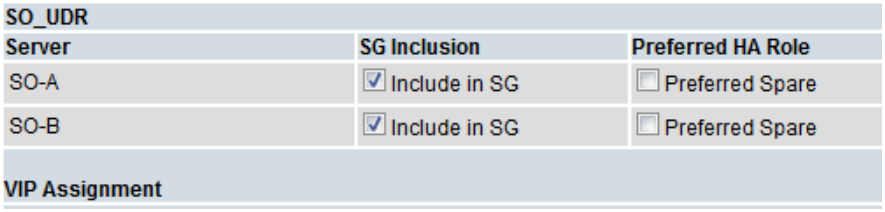
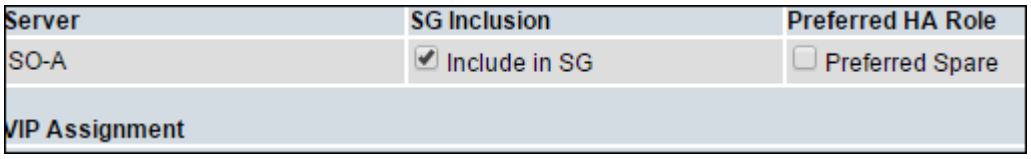
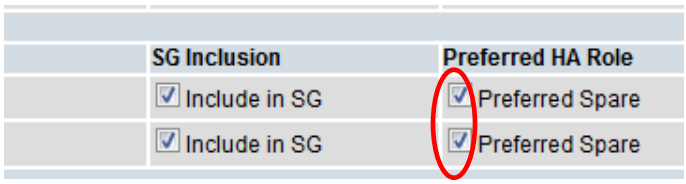
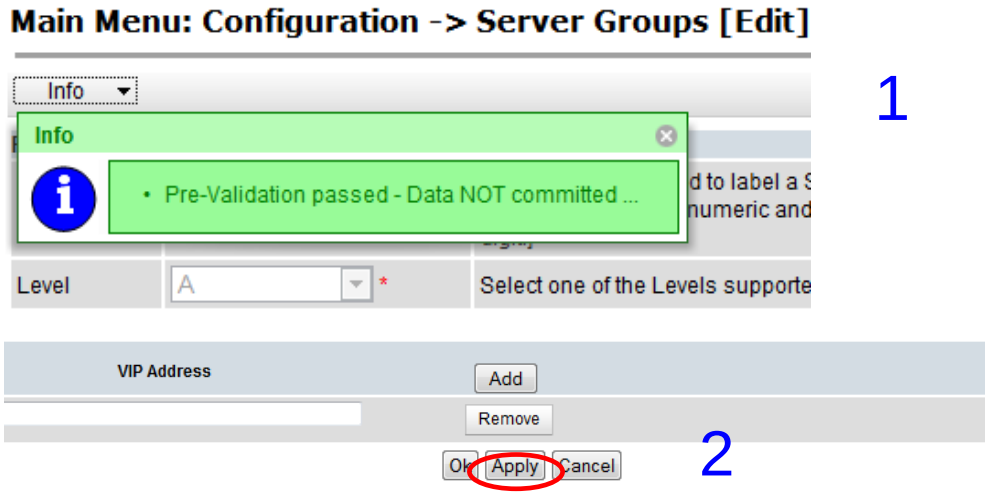
Procedure 14: Pairing the OAM Servers for SOAM or DR NOAMP sites

Step	Procedure	Result
15. ☐	**Active NOAMP VIP:** Select… **Main Menu** → **Configuration** → ***Server Groups*** …as shown on the right.	
16. ☐	**Active NOAMP VIP:** The **Server Group** entry should be shown on the **"Server Groups"** configuration screen as shown on the right.	
17. ☐	**NOAMP Server A:** **1)** Select the **Server Group** entry applied in **Step 7**. The line entry should now be highlighted in **GREEN**. **2)** Select the **"Edit"** dialogue button from the bottom left corner of the screen. **NOTE:** *The user may need to use the vertical scroll-bar in order to make the **"Edit"** dialogue button visible.*	

Procedure 14: Pairing the OAM Servers for SOAM or DR NOAMP sites

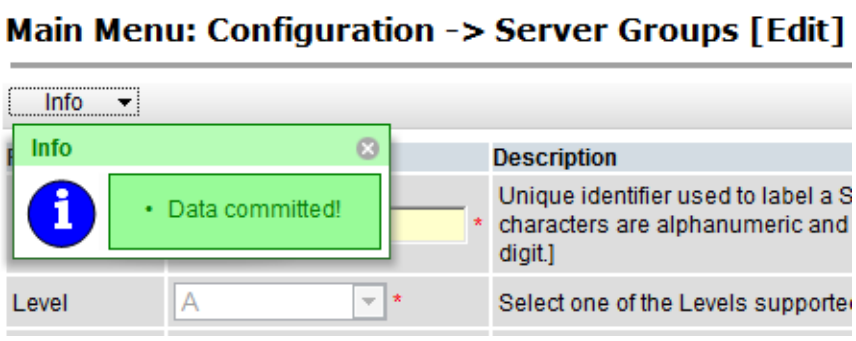
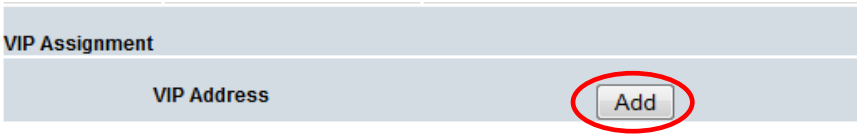
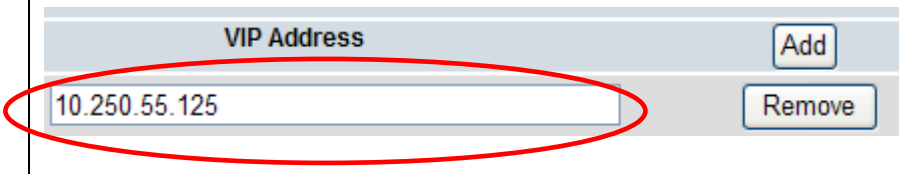
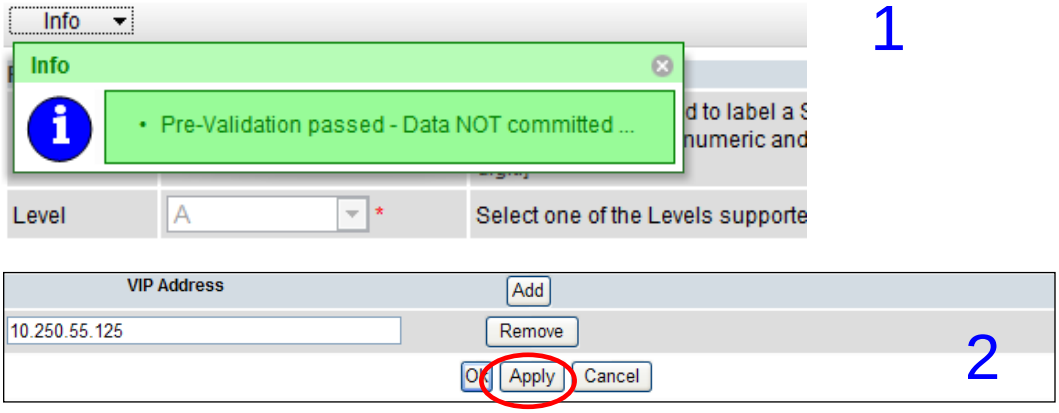
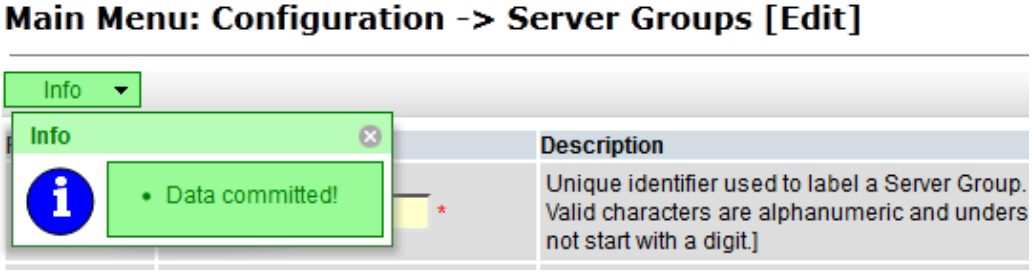
Step	Procedure	Result
18. ☐	**Active NOAMP VIP:** Adding a Server to the OAM Server Group (SOAM or DR NOAMP) The user will be presented with the **"Server Groups [Edit]"** screen as shown on the right.	Normal or Low Capacity Configuration:  Single Server Configuration: 

Procedure 14: Pairing the OAM Servers for SOAM or DR NOAMP sites

Step	Procedure	Result
19. ☐	**Active NOAMP VIP:** Select the **"A"** server and the **"B"** server from the list of **"Servers"** by clicking the check box next to their names. Note: For Single Server Installation, only SO-A will be displayed; therefore only one box will be selected.	Normal or Low Capacity Configuration:  Single Server Configuration: 
20. ☐	**Active NOAMP VIP:** *For **DR NOAMP** servers only:* Check the Preferred Spare boxes next to their names	 ***NOTE:*** **DR NOAMP** will not be accessible via their **VIP** unless they become the **Active NOAMP**. Individual servers in the **DR NOAMP** server group are always accessible by their **XMI** addresses.
21. ☐	**Active NOAMP VIP:** **1)** The user should be presented with a banner information message stating **"Pre-Validation passed"**. **2)** Select the **"Apply"** dialogue button.	

1

Procedure 14: Pairing the OAM Servers for SOAM or DR NOAMP sites

Step	Procedure	Result
22. ☐	**Active NOAMP VIP:** The user should be presented with a banner information message stating **"Data committed"**.	
23. ☐	**Active NOAMP VIP:** Click the **"Add"** dialogue button for the **VIP Address**.	
24. ☐	**Active NOAMP VIP:** Input the **VIP Address**	
25. ☐	**Active NOAMP VIP:** **1)** The user should be presented with a banner information message stating **"Pre-Validation passed"**. **2)** Select the **"Apply"** dialogue button.	
26. ☐	**Active NOAMP VIP:** The user should be presented with a banner information message stating **"Data committed"**.	

Procedure 14: Pairing the OAM Servers for SOAM or DR NOAMP sites

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>27.
☐</td><td>IMPORTANT:

Wait at least 5 minutes before proceeding on to the next Step.</td><td>• 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.
• Note: Single Server Configurations do not establish master/slave relationship for High Availability (HA).
• Allow a minimum of 5 minutes before continuing to the next Step.</td></tr>
<tr><td>28.
☐</td><td>Active NOAMP VIP:

Select…

<u>Main Menu</u>
→ Status & Manage
→ HA

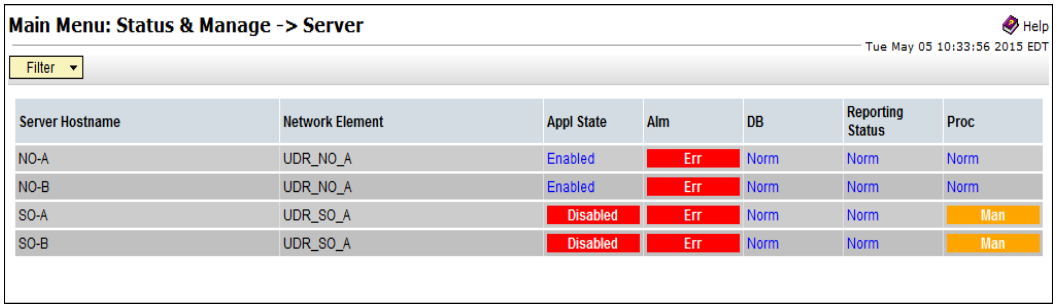
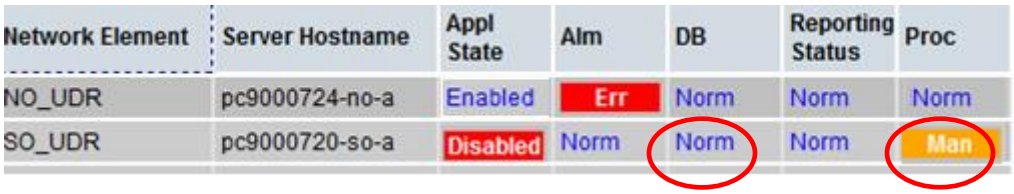
…as shown on the right.</td><td>
Main Menu: Status & Manage -> HA
Tue May 05 10:24:36
Filter
<table>
<tr><th>Hostname</th><th>OAM HA Role</th><th>Application HA Role</th><th>Max Allowed HA Role</th><th>Mate Hostname List</th><th>Network Element</th><th>Server Role</th><th>Active VIPs</th></tr>
<tr><td>NO-A</td><td>Active</td><td>OOS</td><td>Active</td><td>NO-B</td><td>UDR_NO_A</td><td>Network OAM&P</td><td>10.240.15.40</td></tr>
<tr><td>NO-B</td><td>Standby</td><td>OOS</td><td>Active</td><td>NO-A</td><td>UDR_NO_A</td><td>Network OAM&P</td><td></td></tr>
<tr><td>SO-A</td><td>Active</td><td>OOS</td><td>Active</td><td>SO-B</td><td>UDR_SO_A</td><td>System OAM</td><td>10.240.15.43</td></tr>
<tr><td>SO-B</td><td>Standby</td><td>OOS</td><td>Standby</td><td>SO-A</td><td>UDR_SO_A</td><td>System OAM</td><td></td></tr>
<tr><td>MP1</td><td>Unavailable</td><td>Unavailable</td><td></td><td></td><td>UDR_SO_A</td><td>MP</td><td></td></tr>
<tr><td>MP2</td><td>Unavailable</td><td>Unavailable</td><td></td><td></td><td>UDR_SO_A</td><td>MP</td><td></td></tr>
</table>
</td></tr>
<tr><td>29.
☐</td><td>Active NOAMP VIP:

<u>Note:</u>

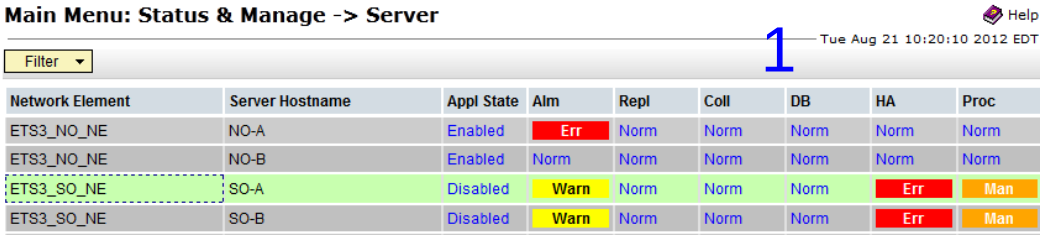
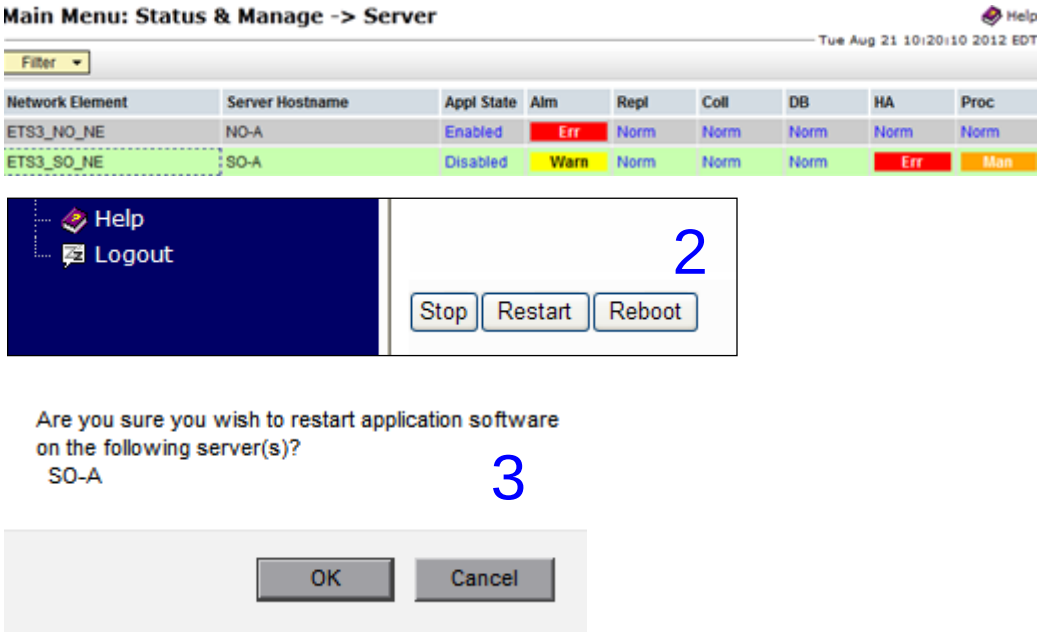
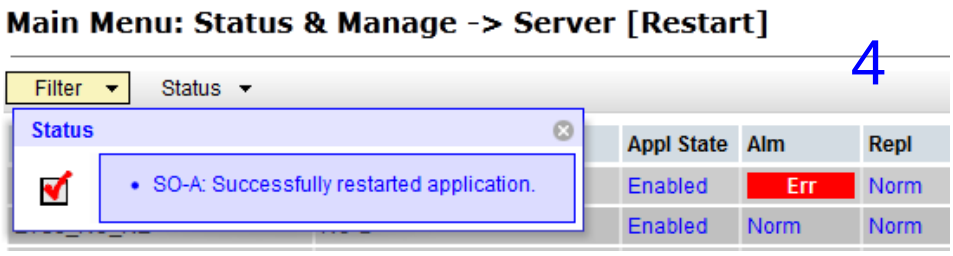
DRNO servers will have OAM MAX HA Role of Spare and no Active VIPs (shown in red)

SOAM server(s) will have OAM MAX HA Role of Active or Standby and an Active VIP.</td><td>
Normal or Low Capacity Configuration:
<table>
<tr><th>Hostname</th><th>OAM Max HA Role</th><th>Application Max HA Role</th><th>Max Allowed HA Role</th><th>Mate Hostname List</th><th>Network Element</th><th>Server Role</th><th>Active VIPs</th></tr>
<tr><td>BL119122305-SO-1A</td><td>Active</td><td>OOS</td><td>Active</td><td>BL119122306-SO-1B</td><td>SO_UDR_Site1_VM</td><td>System OAM</td><td>10.240.168.</td></tr>
<tr><td>BL119122306-SO-1B</td><td>Standby</td><td>OOS</td><td>Active</td><td>BL119122305-SO-1A</td><td>SO_UDR_Site1_VM</td><td>System OAM</td><td></td></tr>
<tr><td>BL119121305-SO-2A</td><td>Active</td><td>OOS</td><td>Active</td><td>BL119121306-SO-2B</td><td>SO_UDR_Site2_VM</td><td>System OAM</td><td>10.240.168.</td></tr>
<tr><td>BL119121306-SO-2B</td><td>Standby</td><td>OOS</td><td>Active</td><td>BL119121305-SO-2A</td><td>SO_UDR_Site2_VM</td><td>System OAM</td><td></td></tr>
<tr><td>BL119122301-NO-1A</td><td>Standby</td><td>OOS</td><td>Active</td><td>BL119122303-NO-1B</td><td>NO_UDR_Site1_VM</td><td>Network OAM&P</td><td></td></tr>
<tr><td>BL119122303-NO-1B</td><td>Active</td><td>OOS</td><td>Active</td><td>BL119122301-NO-1A</td><td>NO_UDR_Site1_VM</td><td>Network OAM&P</td><td>10.240.168.</td></tr>
<tr><td>BL119121301-NO-2A</td><td>Spare</td><td>OOS</td><td>Active</td><td>BL119121303-NO-2B</td><td>NO_UDR_Site2_VM</td><td>Network OAM&P</td><td></td></tr>
<tr><td>BL119121303-NO-2B</td><td>Spare</td><td>OOS</td><td>Active</td><td>BL119121301-NO-2A</td><td>NO_UDR_Site2_VM</td><td>Network OAM&P</td><td></td></tr>
</table>
Single Server Configuration:
<table>
<tr><th>Hostname</th><th>OAM HA Role</th><th>Application HA Role</th><th>Max Allowed HA Role</th><th>Mate Hostname List</th><th>Network Element</th><th>Server Role</th><th>Active VIPs</th></tr>
<tr><td>NO-A</td><td>Active</td><td>OOS</td><td>Active</td><td></td><td>NO_SUN_05</td><td>Network OAM&P</td><td>10.240.15.40</td></tr>
<tr><td>SO-A</td><td>Active</td><td>OOS</td><td>Active</td><td></td><td>SO_SUN_05</td><td>System OAM</td><td>10.240.15.41</td></tr>
</table>
</td></tr>
</table>

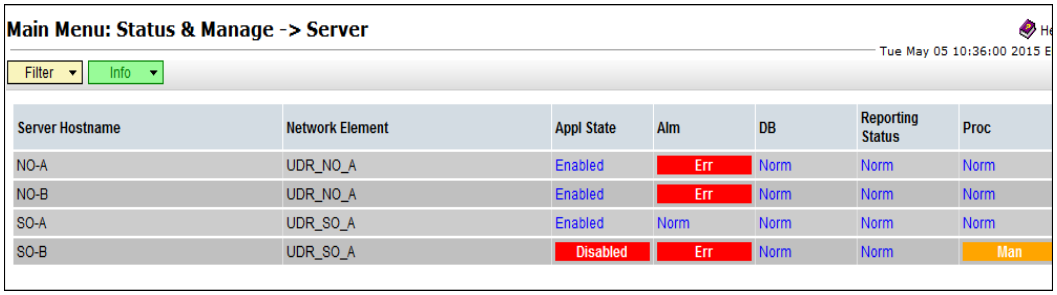
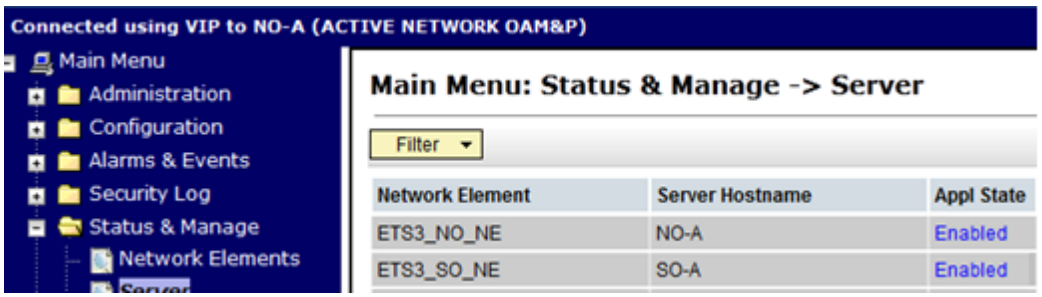
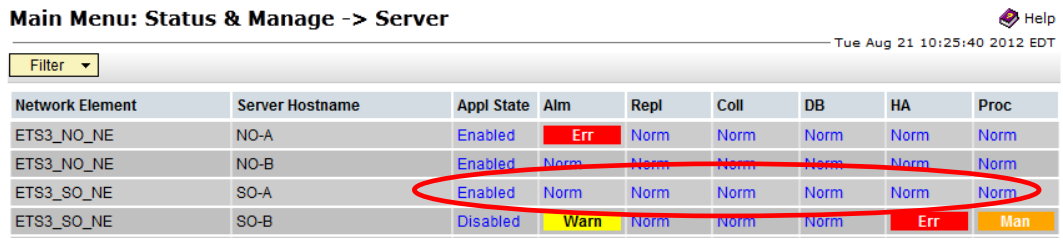
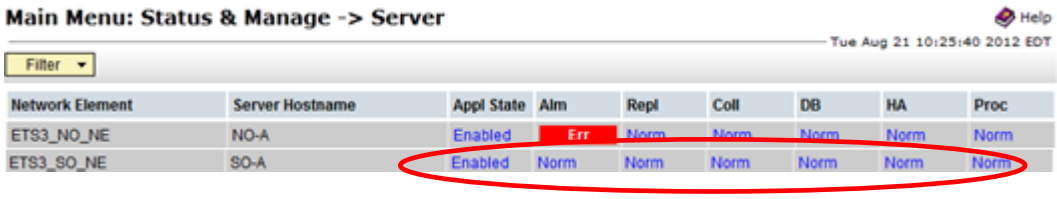
Procedure 14: Pairing the OAM Servers for SOAM or DR NOAMP sites

Step	Procedure	Result
30. ☐	**Active NOAMP VIP:** Restarting the OAM Server Application Select… **Main Menu** **→ Status & Manage** **→ *Server*** …as shown on the right.	
31. ☐	**Active NOAMP VIP:** **1)** The **"A"** and **"B"** servers should now appear in the right panel. (Only "A" for single server installs) **2)** Verify that the "**DB**" status shows "Norm" and the "**Proc**" status shows "Man" for both servers before proceeding to the next Step. (Only "A" server for single server configuration)	Normal or Low Capacity Configuration:  Single Server Configuration: 

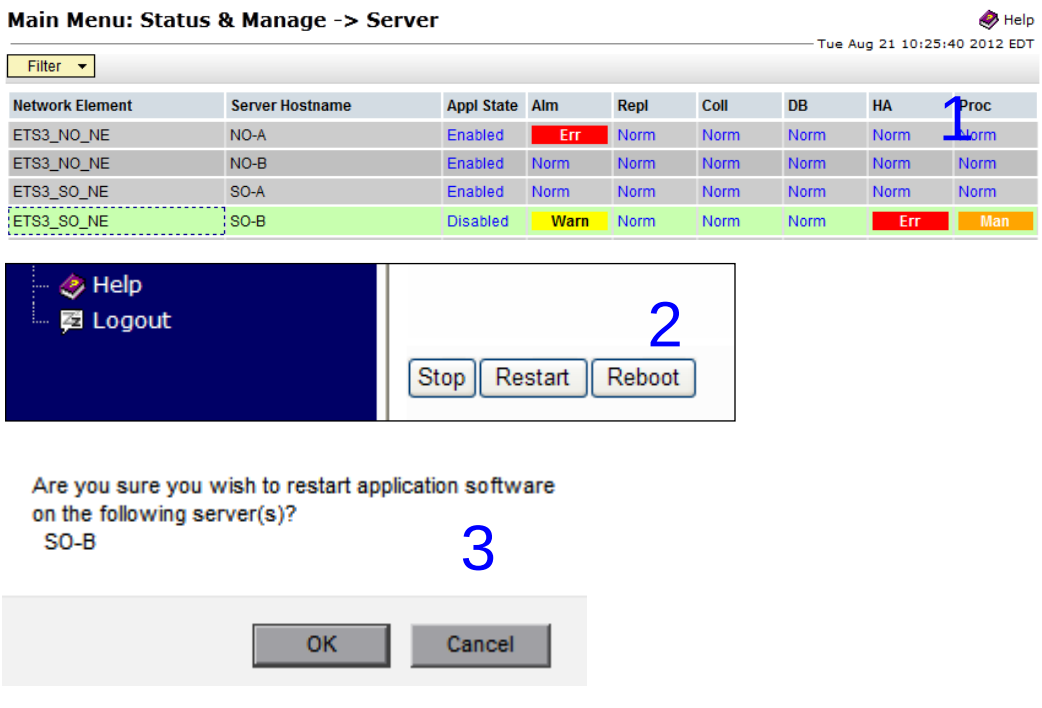
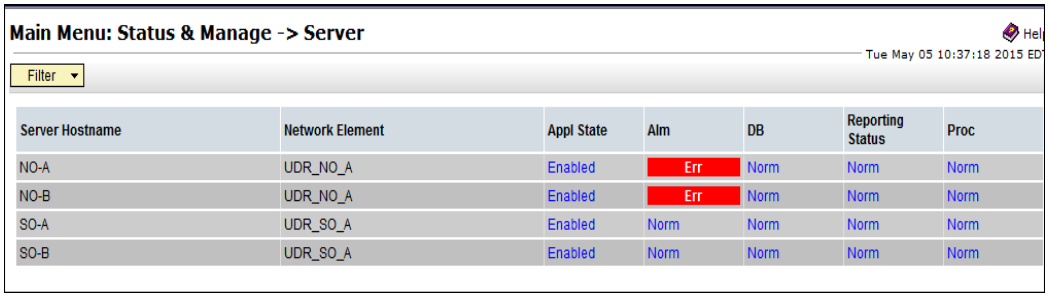
Procedure 14: Pairing the OAM Servers for SOAM or DR NOAMP sites

Step	Procedure	Result
32. ☐	**Active NOAMP VIP:** **1)** Using the mouse, select **Server A**. The line entry should now be highlighted in **GREEN**. **2)** Select the **"Restart"** dialogue button from the bottom left corner of the screen. **3)** Click the **"OK"** button on the confirmation dialogue box. **4)** The user should be presented with a confirmation message (in the banner area) for **Server A** stating: **"Successfully restarted application"**. **NOTE:** The user may need to use the vertical scroll-bar in order to make the **"Restart"** dialogue button visible.	Normal or Low Capacity Configuration:  Single Server Configuration:  

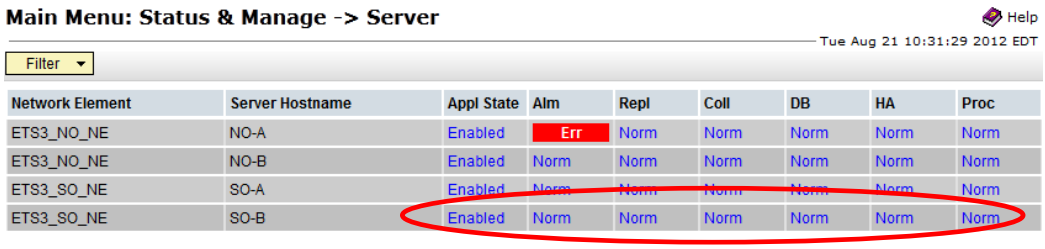
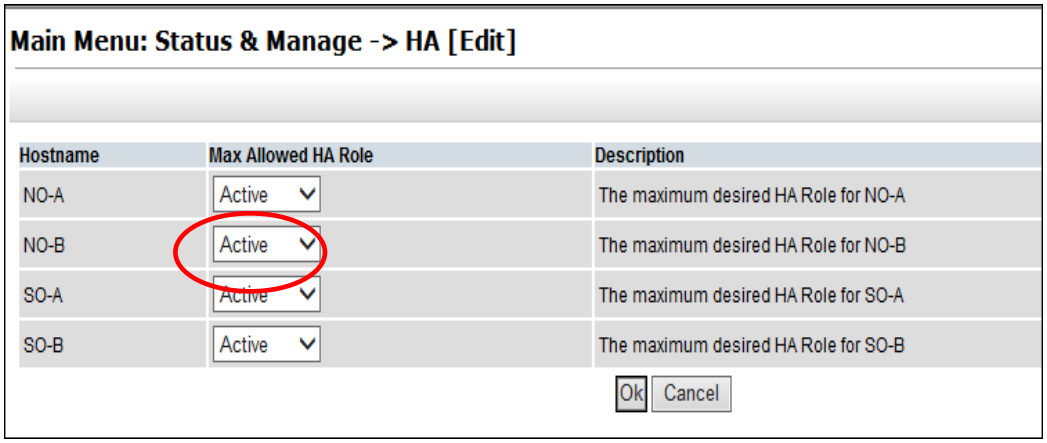
Procedure 14: Pairing the OAM Servers for SOAM or DR NOAMP sites

Step	Procedure	Result
33. ☐	**Active NOAMP VIP:** Select… **Main Menu** → **Status & Manage** → ***Server*** …as shown on the right.	Normal or Low Capacity Configuration:  Single Server Configuration: 
34. ☐	**Active NOAMP VIP:** Verify that the **"Appl State"** now shows **"Enabled"** and that the **"Alm, Repl, Coll, DB, HA & Proc"** status columns all show **"Norm"** for **OAM Server A** before proceeding to the next Step. **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.*	Normal or Low Capacity Configuration:  Single Server Configuration: 
Perform steps 35 – 38 for multiple server Configurations only (not single server).		

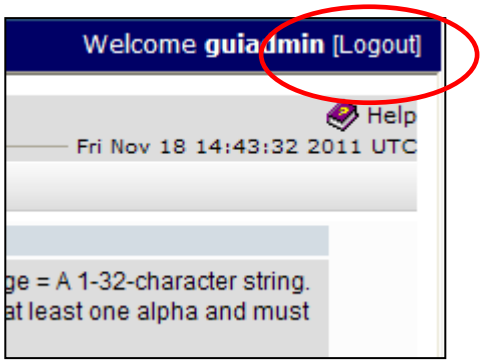
Procedure 14: Pairing the OAM Servers for SOAM or DR NOAMP sites

Step	Procedure	Result
35. ☐	**Active NOAMP VIP:** **1)** Using the mouse, select **Server B**. The line entry should now be highlighted in **GREEN**. **2)** Select the **"Restart"** dialogue button from the bottom left corner of the screen. **3)** Click the **"OK"** button on the confirmation dialogue box. **4)** The user should be presented with a confirmation message (in the banner area) for **Server B** stating: **"Successfully restarted application"**. **NOTE:** *The user may need to use the vertical scroll-bar in order to make the **"Restart"** dialogue button visible.*	
36. ☐	**Active NOAMP VIP:** Select… **<u>Main Menu</u>** **→ Status & Manage** **→ *Server*** …as shown on the right.	

Procedure 14: Pairing the OAM Servers for SOAM or DR NOAMP sites

Step	Procedure	Result
37. ☐	**Active NOAMP VIP:** Verify that the **"Appl State"** now shows **"Enabled"** and that the **"Alm, Repl, Coll, DB, HA & Proc"** status columns all show **"Norm"** for **OAM Server A** and **OAM Server B** before proceeding to the next Step. **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.*	
Repeat the steps above for each **DR NOAMP** and **SOAM** site being installed.		
38. ☐	**Active NOAMP VIP:** *For **Primary NOAMP Standby** server only:* Move the server back to 'Active' **Main Menu** **→ Status & Manage** **→ *HA[Edit]*** Find the row for the Primary NOAMP Standby server and change **"Max Allowed HA Role" back to "Active".**	

Procedure 14: Pairing the OAM Servers for SOAM or DR NOAMP sites

Step	Procedure	Result
39.	**Active NOAMP VIP:** Click the **"Logout"** link on the server GUI.	
THIS PROCEDURE HAS BEEN COMPLETED		

8.6 Configuring MP Server Groups (All SOAM sites)

The user should be aware that during the Message Processor (MP) installation procedure, various errors may be seen at different stages of the procedure. During the execution of a step, the user is directed to ignore errors related to values other than the ones referenced by that step.

This procedure creates server groups for each MP..

Requirements:

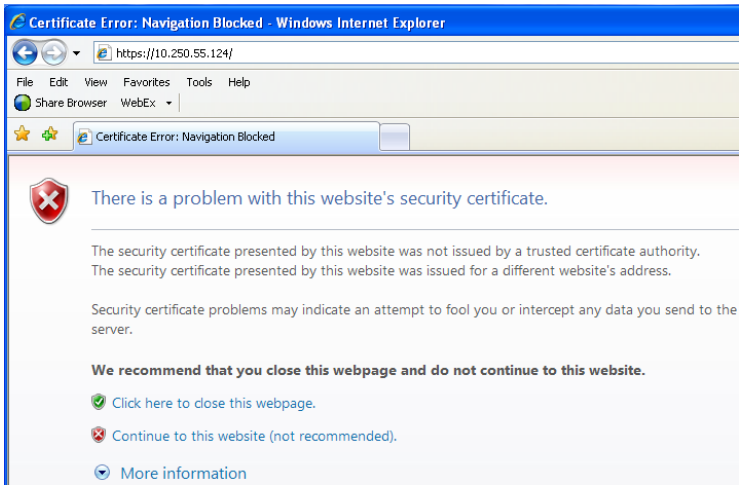
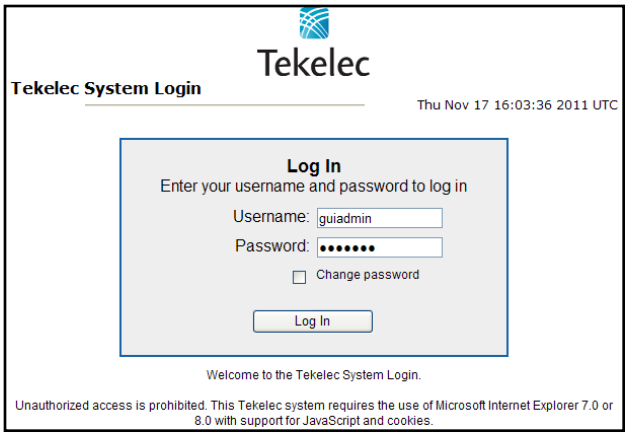
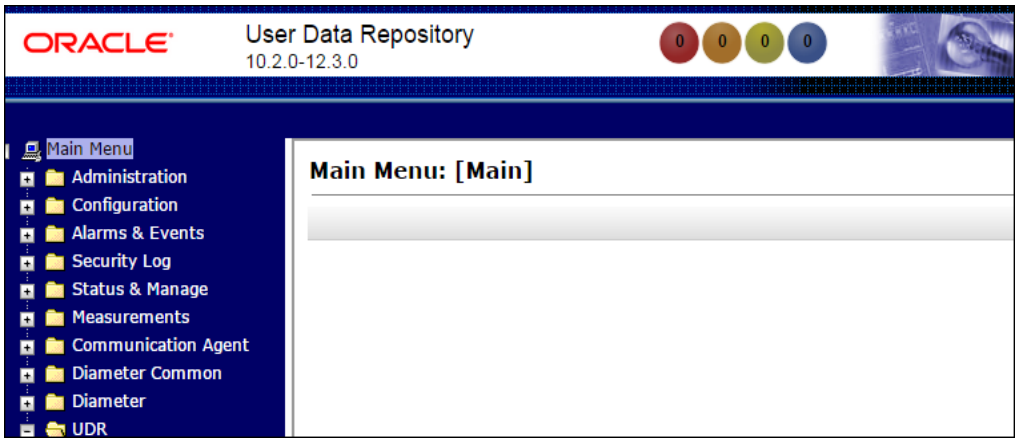
- **Procedure 11: Create Configuration for Remaining Servers** has been completed.
- **Procedure 13: OAM Pairing for the Primary NOAMP Servers** has been completed.
- **Procedure 14: OAM Pairing for SOAM and DR sites (All SOAM and DR sites)** has been completed.

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

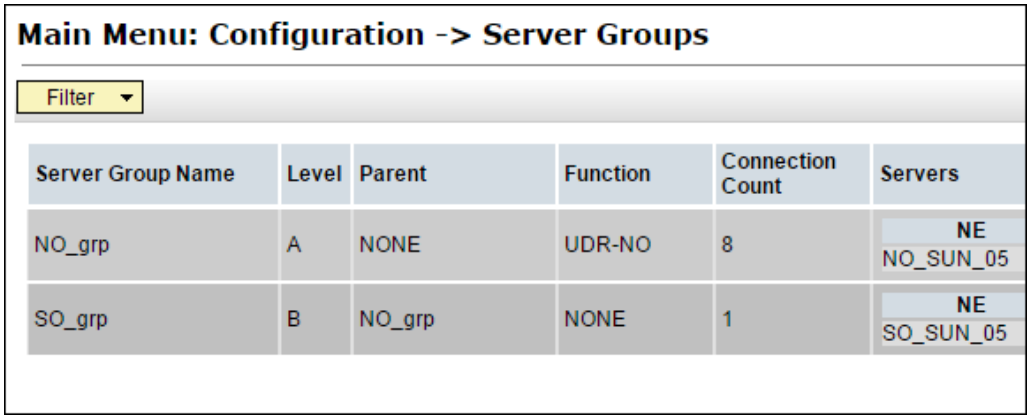
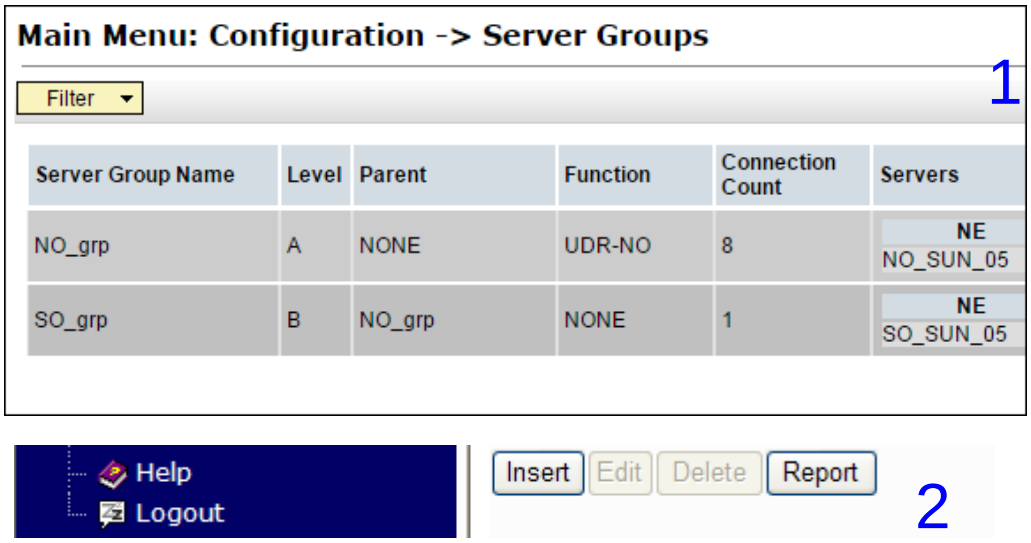
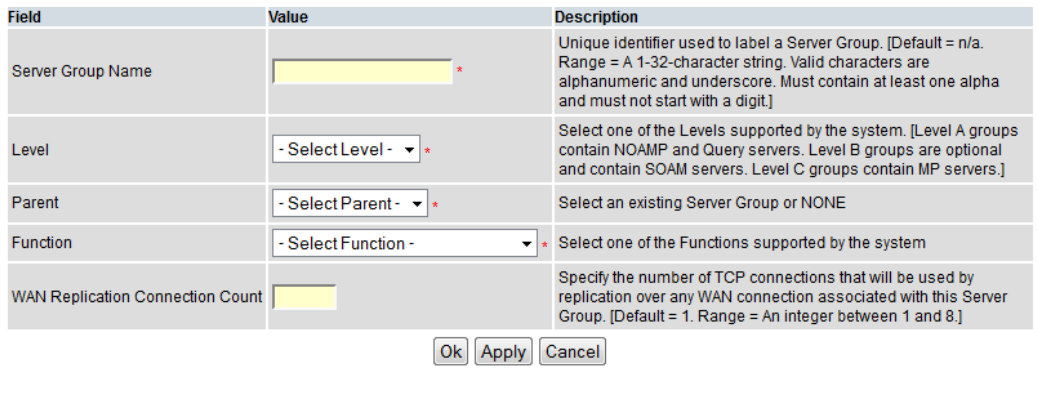
Procedure 15: Configuring MP Server Groups

Step	Procedure	Result

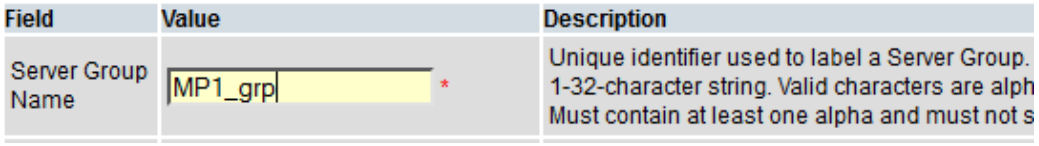
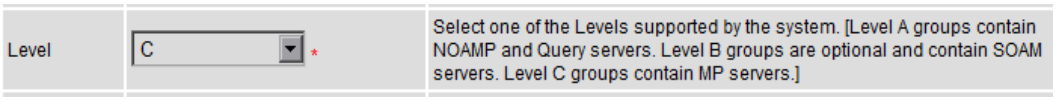
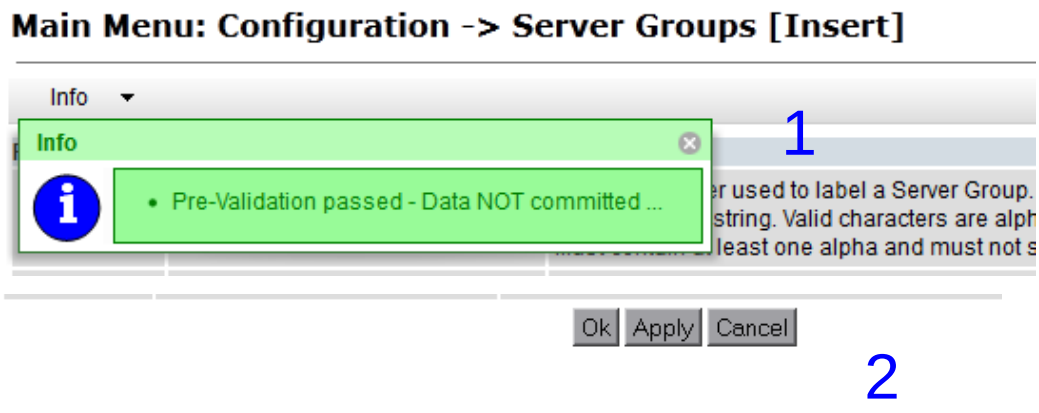
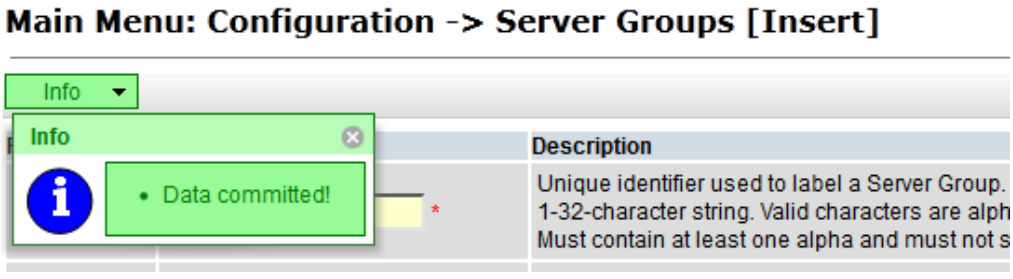
Procedure 15: Configuring MP Server Groups

Step	Procedure	Result
1. ☐	**Active NOAMP VIP:** Launch an approved web browser and connect to the **XMI Virtual IP Address (VIP)** of the **Active NOAMP site** using https:// **NOTE:** If presented with the "security certificate" warning screen shown to the right, choose the following option**:** **"Continue to this website (not recommended)".**	
2. ☐	**Active NOAMP VIP:** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	
3. ☐	**Active NOAMP VIP:** The user should be presented the Main Menu as shown on the right.	

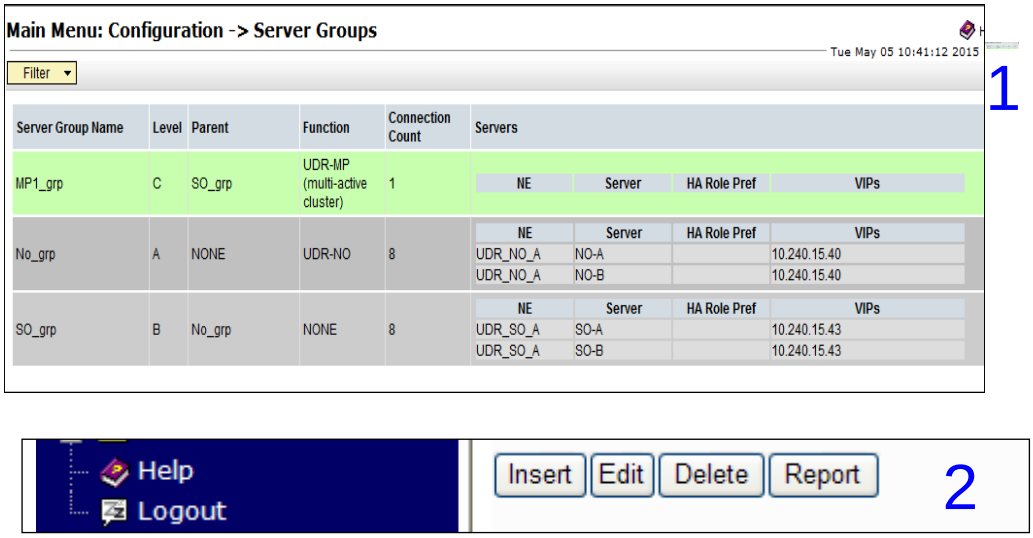
Procedure 15: Configuring MP Server Groups

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** Select… **Main Menu** → **Configuration** → ***Server Groups*** …as shown on the right.	
5. ☐	**Active NOAMP VIP:** **1)** The user will be presented with the **"Server Groups"** configuration screen as shown on the right. **2)** Select the **"Insert"** dialogue button from the bottom left corner of the screen. **NOTE:** *The user may need to use the vertical scroll-bar in order to make the **"Insert"** dialogue button visible.*	
6. ☐	**Active NOAMP VIP:** The user will be presented with the **"Server Groups [Insert]"** screen as shown on the right	

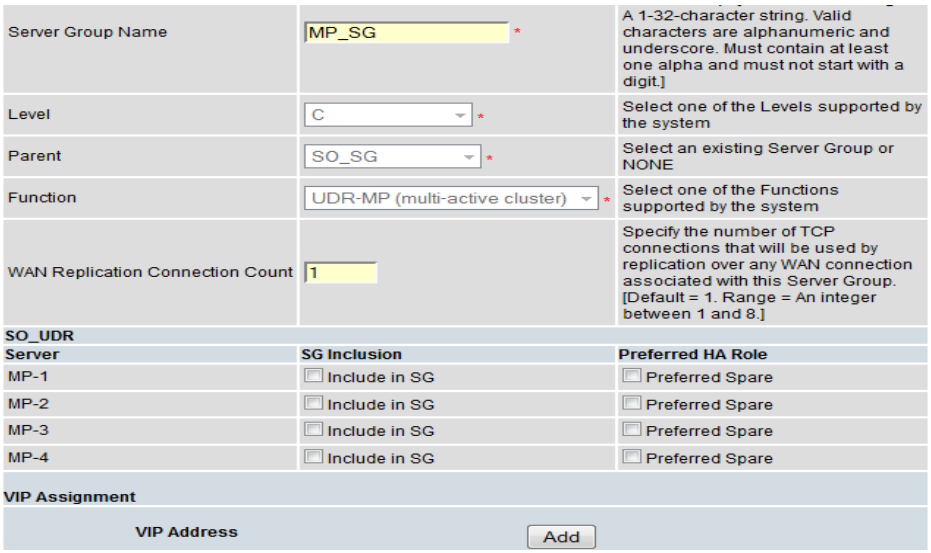
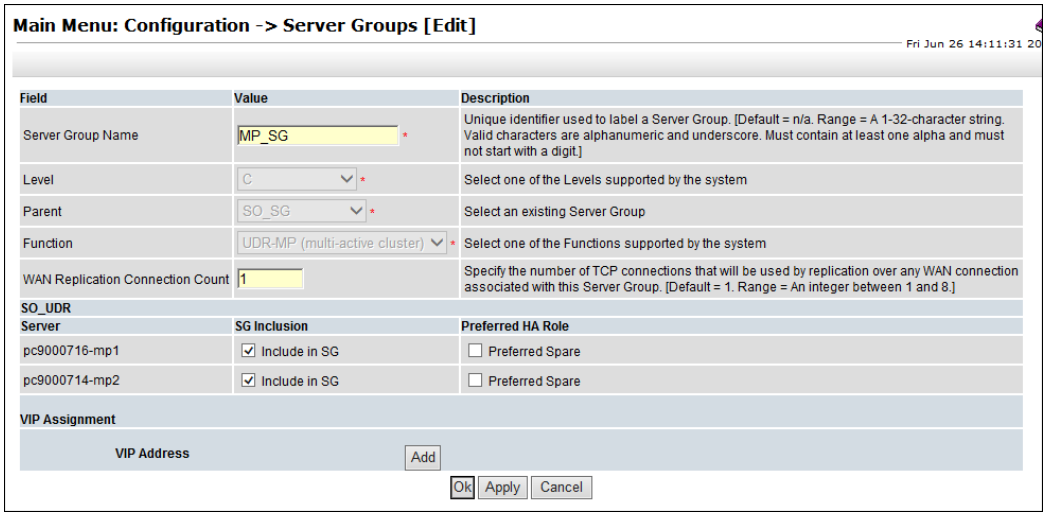
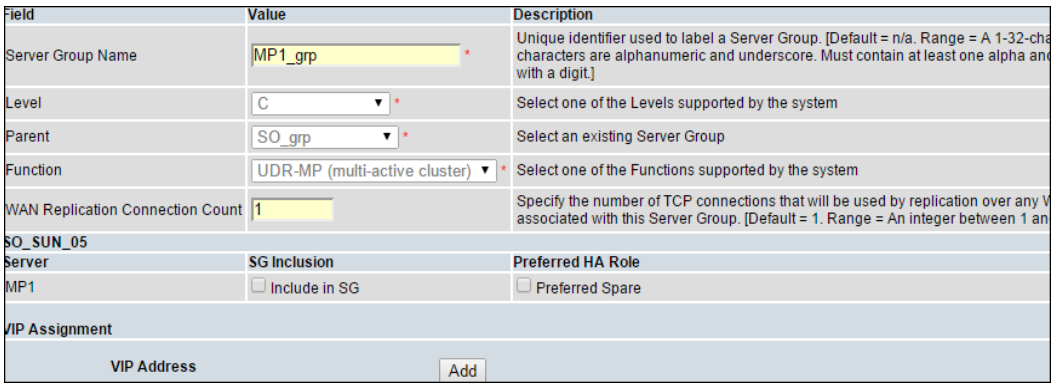
Procedure 15: Configuring MP Server Groups

Step	Procedure	Result
7. ☐	**Active NOAMP VIP:** Input the **Server Group Name**.	
8. ☐	**Active NOAMP VIP:** Select **"C"** on the **"Level"** pull-down menu..	
9. ☐	**Active NOAMP VIP:** Select the desired SOAM server group on the **"Parent"** pull-down menu.	
10. ☐	**Active NOAMP VIP:** Select "**UDR-MP (multi-active cluster)**" on the "**Function**" pull-down menu.	
11. ☐	**Active NOAMP VIP:** **1)** The user should be presented with a banner information message stating **"Pre-Validation passed"**. **2)** Select the **"Apply"** dialogue button.	
12. ☐	**Active NOAMP VIP:** The user should be presented with a banner information message stating **"Data committed"**.	

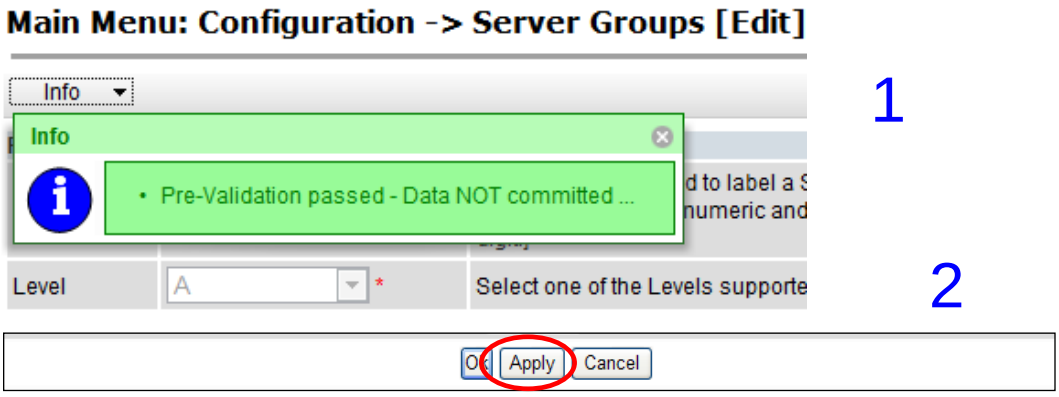
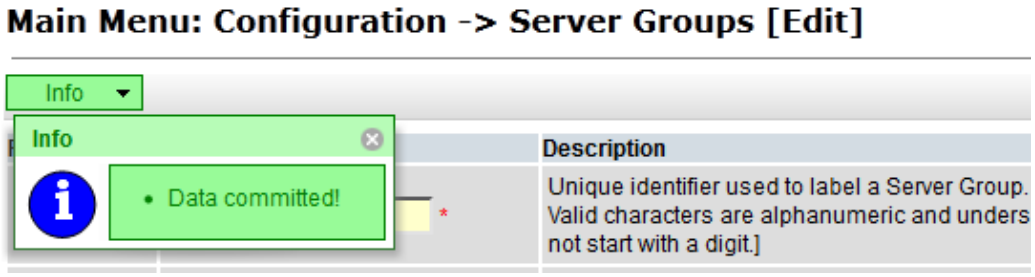
Procedure 15: Configuring MP Server Groups

Step	Procedure	Result
13. ☐	**Active NOAMP VIP:** **1)** Using the mouse, select the MP Server Group associated with the MP being installed. **2)** Select the **"Edit"** dialogue button from the bottom left corner of the screen.	

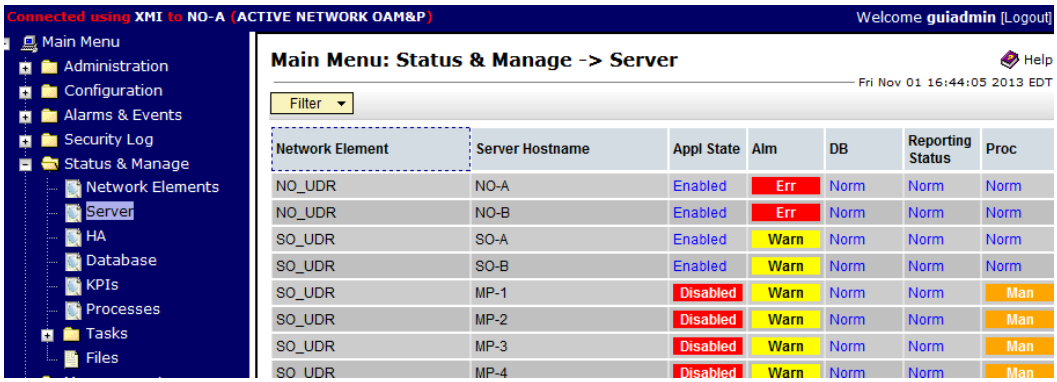
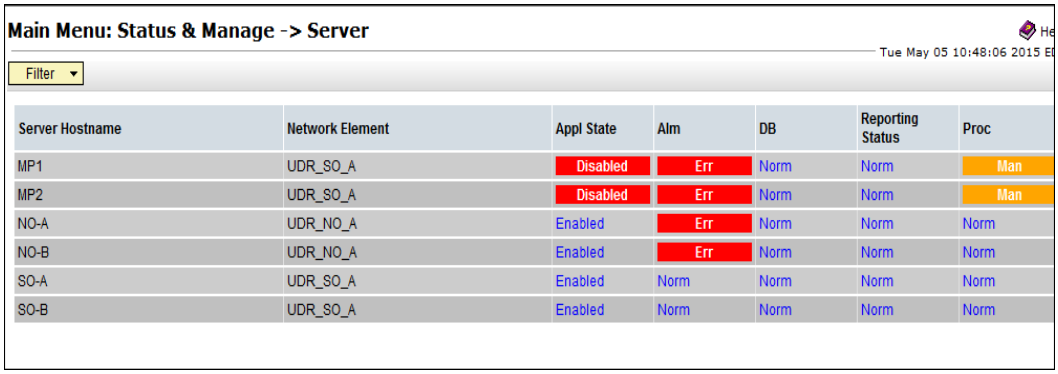
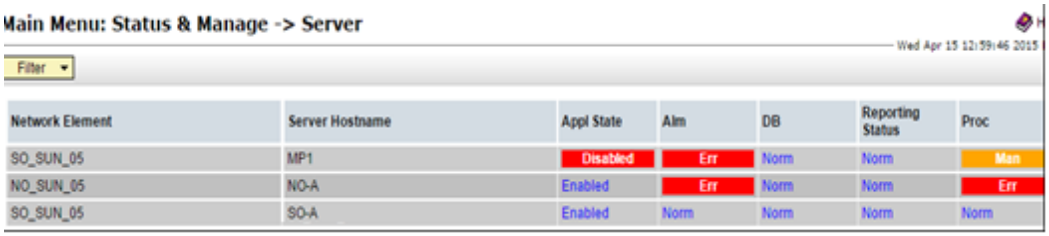
Procedure 15: Configuring MP Server Groups

Step	Procedure	Result
14. ☐	**Active NOAMP VIP:** The user will be presented with the **"Configuration → Server Groups [Edit]"** screen as shown on the right	Normal Capacity Configuration:  Low Capacity Configuration:  Single Server Configuration: 

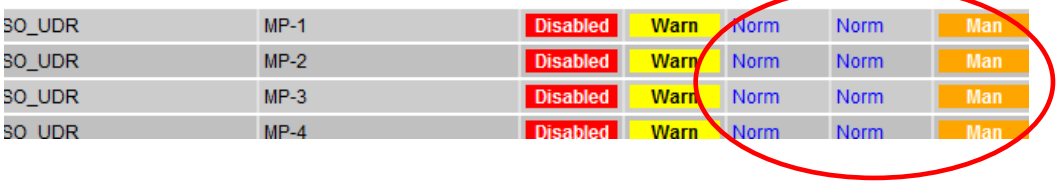
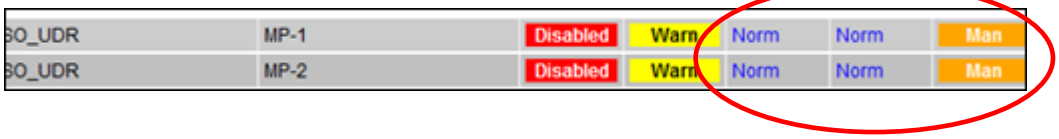
Procedure 15: Configuring MP Server Groups

Step	Procedure	Result
15. ☐	**Active NOAMP VIP:** Put a check mark in the box labeled **"Include in SG"** for each MP to be included in this Server Group. Note: Low Capacity Configurations have 2 MPs and Single Server Configurations have 1 MP.	Normal Capacity Configuration: SO_UDR Server / SG Inclusion / Preferred HA Role MP-1 ☑ Include in SG ☐ Preferred Spare MP-2 ☑ Include in SG ☐ Preferred Spare MP-3 ☑ Include in SG ☐ Preferred Spare MP-4 ☑ Include in SG ☐ Preferred Spare Low Capacity Configuration: SO_UDR Server / SG Inclusion / Preferred HA Role MP-1 ☑ Include in SG ☐ Preferred Spare MP-2 ☑ Include in SG ☐ Preferred Spare Single Server Configuration: SO_UDR Server / SG Inclusion / Preferred HA Role MP-1 ☑ Include in SG ☐ Preferred Spare
16. ☐	**Active NOAMP VIP:** **1)** The user should be presented with a banner information message stating **"Pre-Validation passed"**. **2)** Select the **"Apply"** dialogue button.	
17. ☐	**Active NOAMP VIP:** The user should be presented with a banner information message stating **"Data committed"**.	 Main Menu: Configuration -> Server Groups [Edit] Info Info • Data committed! Description Unique identifier used to label a Server Group. Valid characters are alphanumeric and unders not start with a digit.]
18. ☐	**IMPORTANT:** Wait at least **5 minutes** before proceeding on to the next Step.	• Now that the Message Processor(s) have been placed within their respective Server Groups, each must establish DB replication with the Active SOAM server at the NE. It may take several minutes for this process to be completed. • UDR processs alarms may be present until Section 8.8 Configure SPR Application on MP **(All SOAM Sites)** is completed. • Allow a minimum of **5 minutes** before continuing to the next Step.

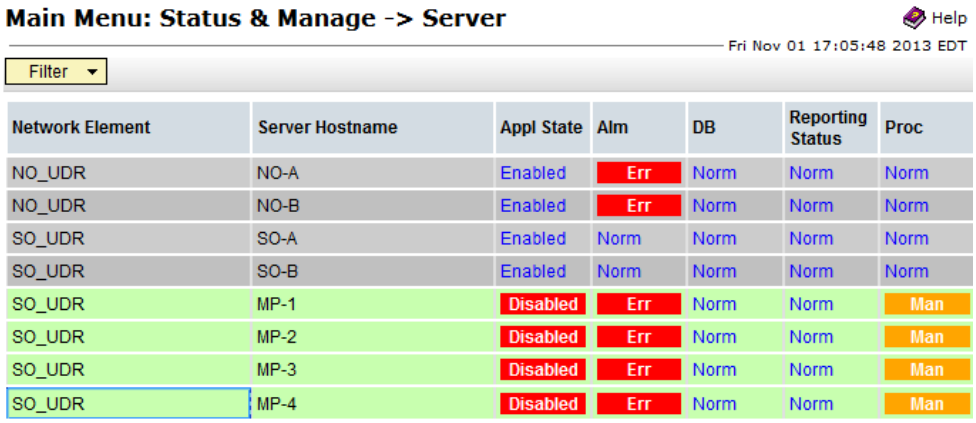
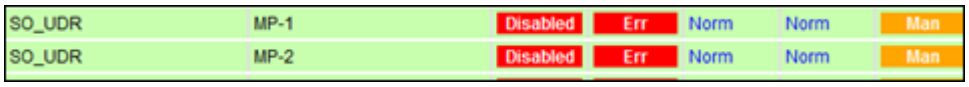
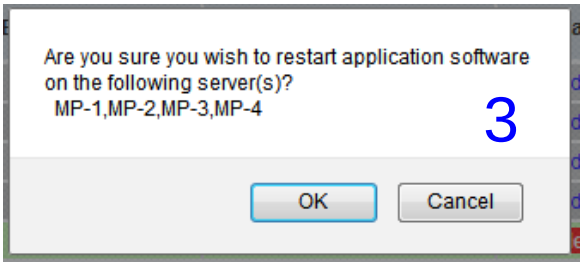
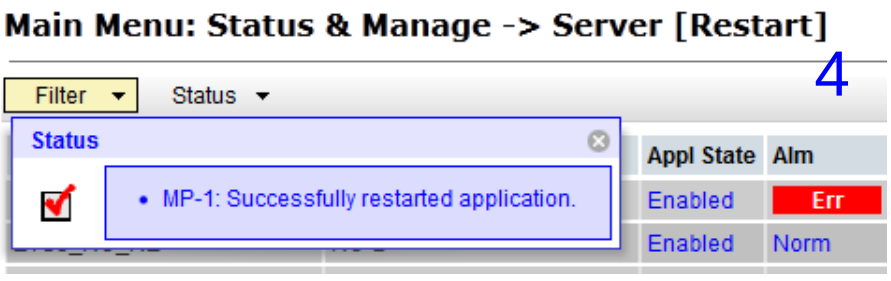
Procedure 15: Configuring MP Server Groups

Step	Procedure	Result
19. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *Server*** …as shown on the right.	Normal Capacity Configuration:  Low Capacity Configuration:  Single Server Configuration: 

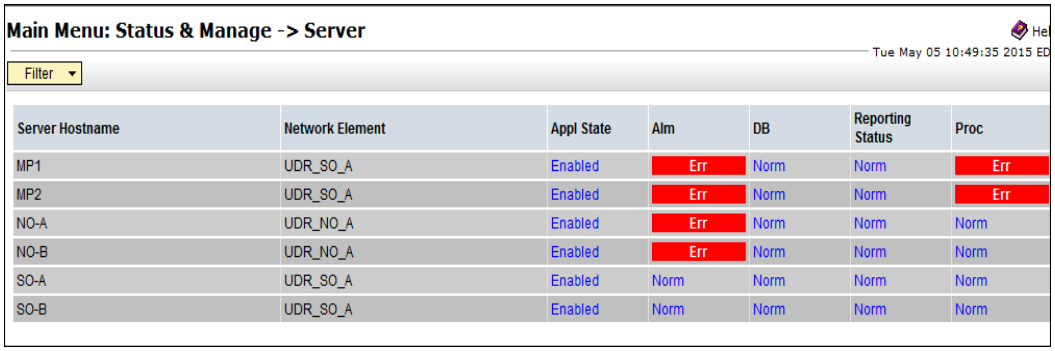
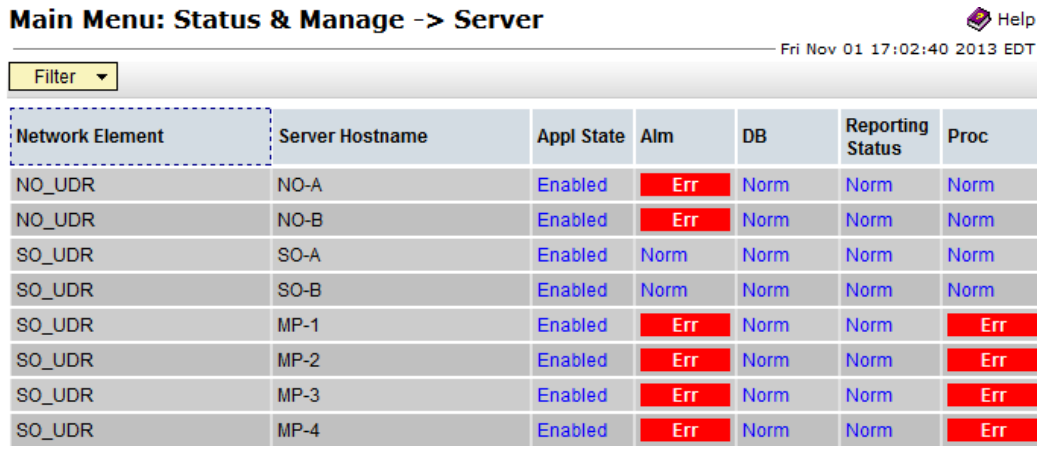
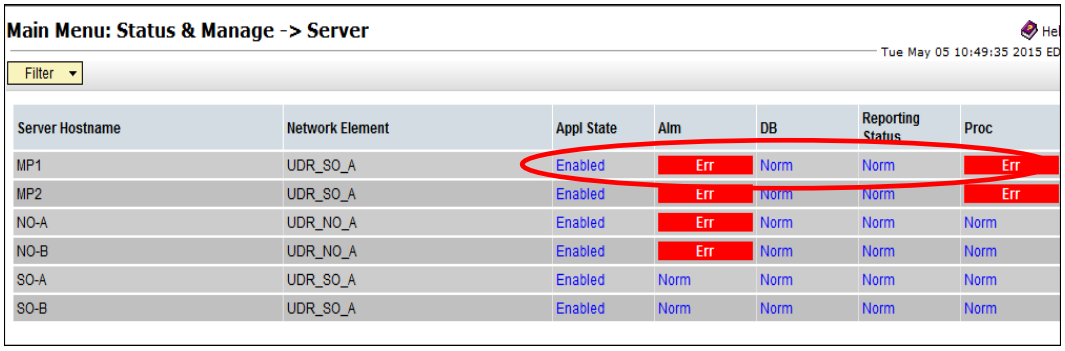
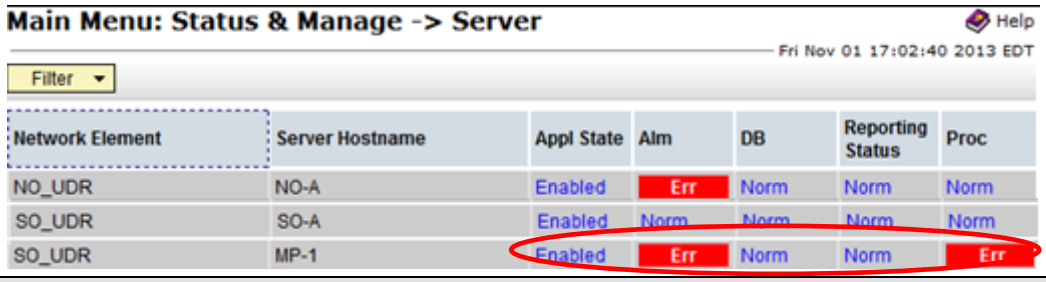
Procedure 15: Configuring MP Server Groups

Step	Procedure	Result
20. ☐	**Active NOAMP VIP:** Verify that the **"DB & Reporting Status"** status columns show **"Norm"** for the MPs at this point. The **"Proc"** column should show **"Man"**.	Normal Capacity Configuration:  Low Capacity Configuration:  Single Server Configuration: 

Procedure 15: Configuring MP Server Groups

Step	Procedure	Result
21. ☐	**Active NOAMP VIP:** **1)** Select each **"MP"** with **"Man"** status using the mouse and holding the **Ctrl** key. The line entries should be highlighted in **GREEN**. **2)** Select the **"Restart"** dialogue button from the bottom left corner of the screen. **3)** Click the **"OK"** button on the confirmation dialogue box. **4)** The user should be presented with a confirmation message (in the banner area) stating: **"Successfully restarted application"**. **NOTE:** The user may need to use the vertical scroll-bar in order to make the **"Restart"** dialogue button visible.	Normal Capacity Configuration:  Main Menu: Status & Manage -> Server Help Fri Nov 01 17:05:48 2013 EDT 1 Filter Network Element / Server Hostname / Appl State / Alm / DB / Reporting Status / Proc NO_UDR NO-A Enabled Err Norm Norm Norm NO_UDR NO-B Enabled Err Norm Norm Norm SO_UDR SO-A Enabled Norm Norm Norm Norm SO_UDR SO-B Enabled Norm Norm Norm Norm SO_UDR MP-1 Disabled Err Norm Norm Man SO_UDR MP-2 Disabled Err Norm Norm Man SO_UDR MP-3 Disabled Err Norm Norm Man SO_UDR MP-4 Disabled Err Norm Norm Man Low Capacity Configuration:  SO_UDR MP-1 Disabled Err Norm Norm Man SO_UDR MP-2 Disabled Err Norm Norm Man Single Server Configuration:  Help Logout 2 Stop Restart Reboot  Are you sure you wish to restart application software on the following server(s)? MP-1,MP-2,MP-3,MP-4 3 OK Cancel  Main Menu: Status & Manage -> Server [Restart] 4 Filter Status Status MP-1: Successfully restarted application. Appl State Alm Enabled Err Enabled Norm

Procedure 15: Configuring MP Server Groups

Step	Procedure	Result
22. ☐	**Active NOAMP VIP:** Select… **Main Menu** → **Status & Manage** → ***Server*** …as shown on the right.	
23. ☐	**Active NOAMP VIP:** Verify that the **"Appl State"** now shows **"Enabled"** and that the **"DB & Reporting Status"** status columns all show **"Norm"** for the **MPs**. The **"Alm & Proc"** columns may show **"Err"** at this point.	Normal Capacity Configuration:  Low Capacity Configuration:  Single Server Configuration: 
	THIS PROCEDURE HAS BEEN COMPLETED	

8.7 Configure MP Signaling Interfaces (All SOAM Sites)

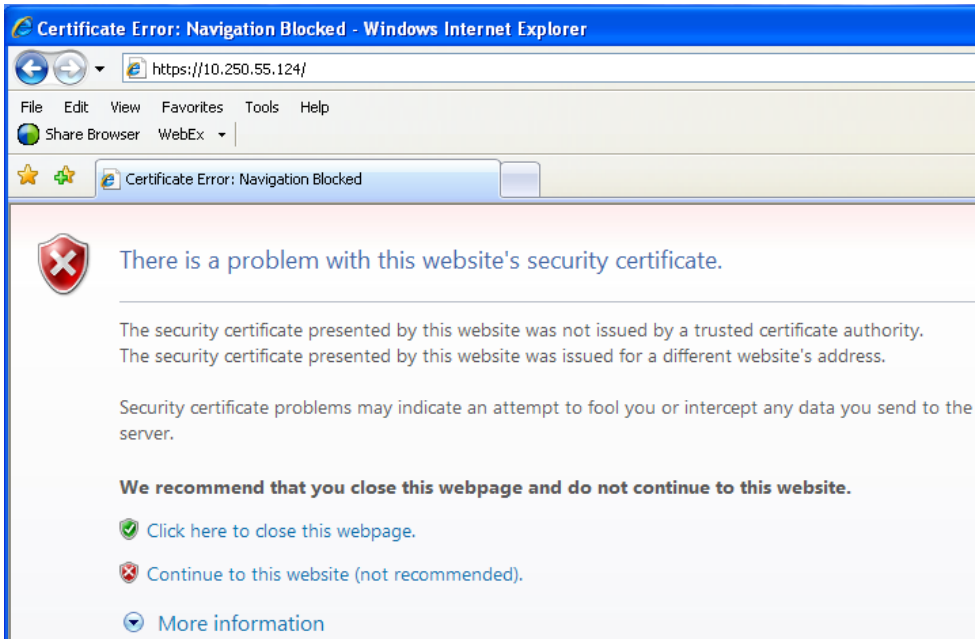
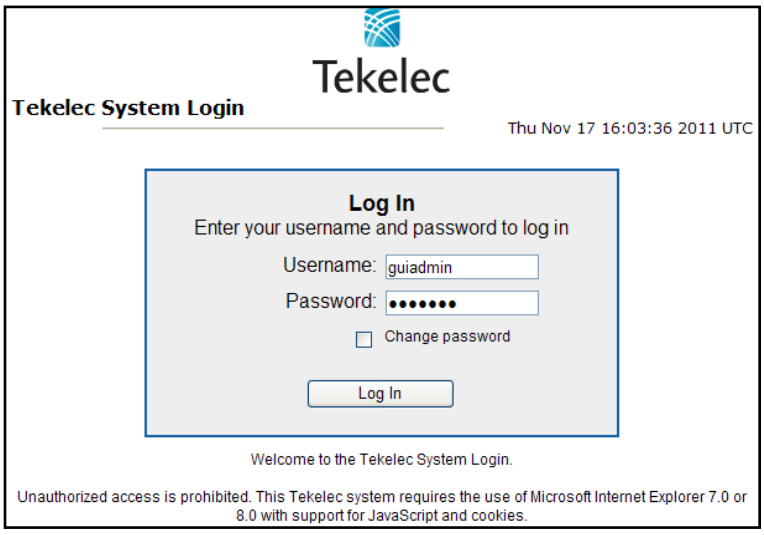
This procedure configures XSI IP Interface and adds the XSI signaling route for all MP Servers.

Requirements:

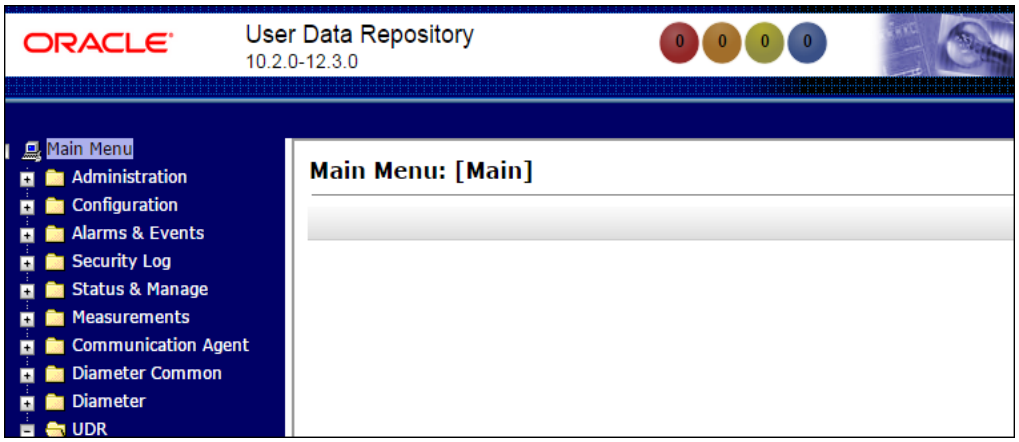
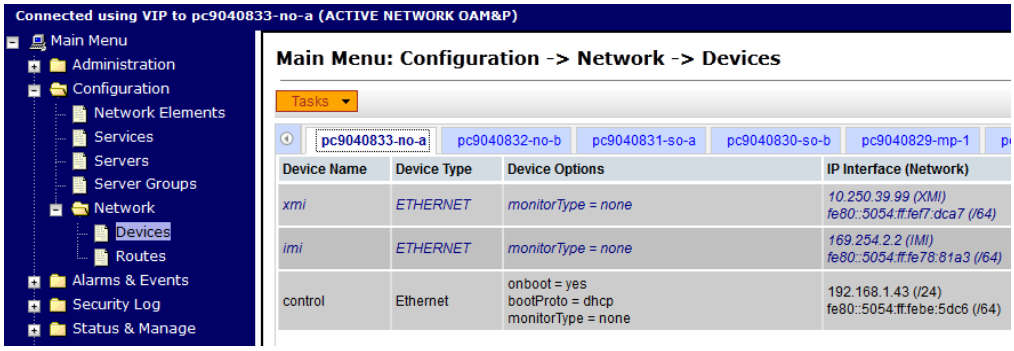
Procedure 15: Configuring MP Server Groups has been completed.

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

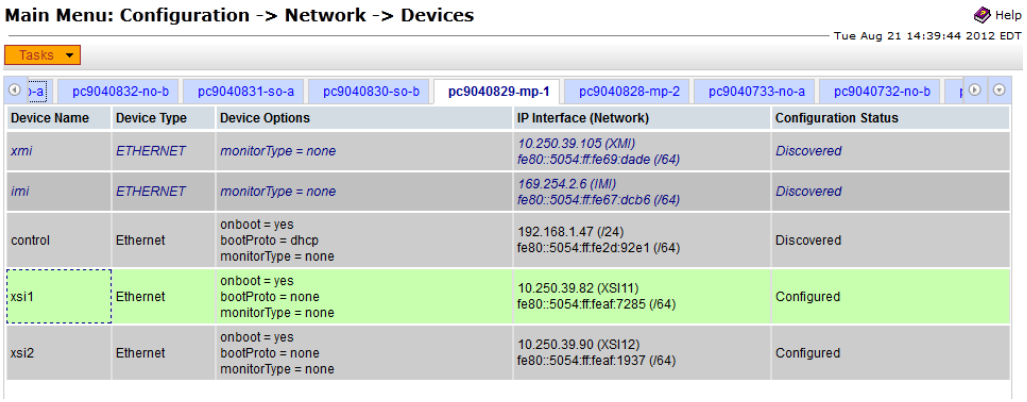
Procedure 16: Configure MP Signaling Interfaces

Step	Procedure	Result
1. ☐	**Active NOAMP VIP** Launch an approved web browser and connect to the **XMI Virtual IP Address (VIP)** of the **Active NOAMP site** using https:// **NOTE:** If presented with the "security certificate" warning screen shown to the right, choose the following option: **"Continue to this website (not recommended)".**	
2. ☐	**Active NOAMP VIP** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	

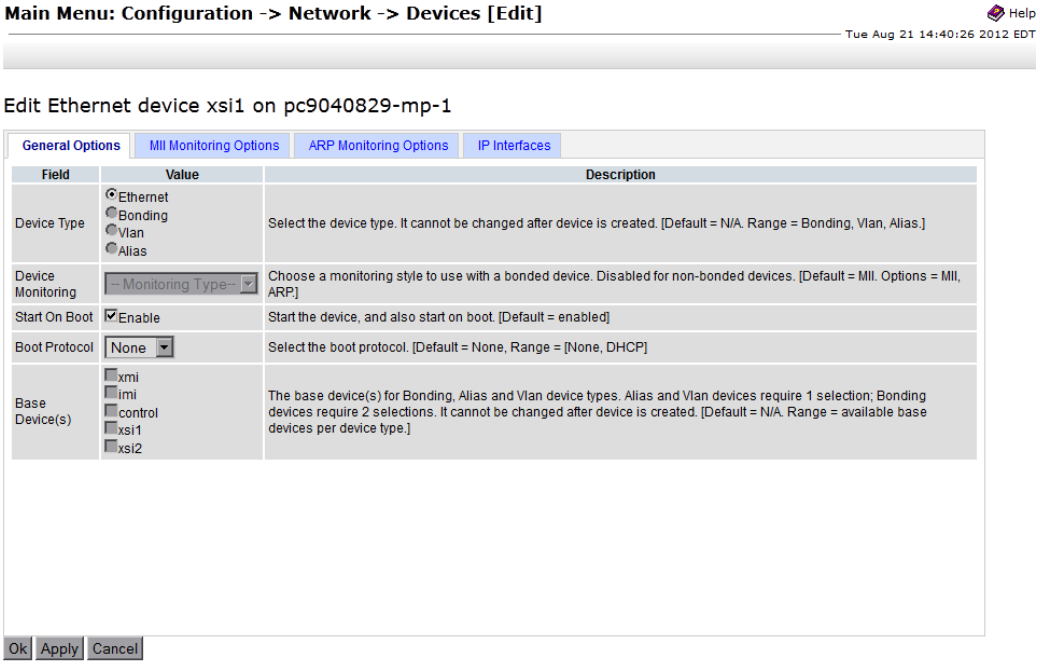
Procedure 16: Configure MP Signaling Interfaces

Step	Procedure	Result
3. ☐	**Active NOAMP VIP** The user should be presented the Main Menu as shown on the right.	
Note: Repeat the steps below (**Steps** 4 - 9) for each MP.		
4. ☐	Bring up xsi1 on the servers before executing steps below.	**NOTE: For any Low Capacity or any Gen9 Servers only:** Execute "ifup xsi1" on all the MP Servers: # ifup xsi1
5. ☐	**Active NOAMP VIP** Select… **Main Menu** → **Configuration** → ***Network*** → ***Devices*** …as shown on the right.	 • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ MP-1 (XSI-1) ☐ MP-2 (XSI-1) ☐ MP-3(XSI-1) ☐ MP-4 (XSI-1) ☐ MP-1 (XSI-2) ☐ MP-2 (XSI-2) ☐ MP-3(XSI-2) ☐ MP-4 (XSI-2)

Procedure 16: Configure MP Signaling Interfaces

Step	Procedure	Result
6. ☐	**Active NOAMP VIP** Select the xsi device for the desired MP	Click on the desired **MP** tab. Select the **xsi1** device. Output similar to that shown below may be observed.  **Main Menu: Configuration -> Network -> Devices** Help Tue Aug 21 14:39:44 2012 EDT Tasks pc9040832-no-b | pc9040831-so-a | pc9040830-so-b | **pc9040829-mp-1** | pc9040828-mp-2 | pc9040733-no-a | pc9040732-no-b Device Name / Device Type / Device Options / IP Interface (Network) / Configuration Status xmi / ETHERNET / monitorType = none / 10.250.39.105 (XMI) fe80::5054:ff:fe69:dade (/64) / Discovered imi / ETHERNET / monitorType = none / 169.254.2.6 (IMI) fe80::5054:ff:fe67:dcb6 (/64) / Discovered control / Ethernet / onboot = yes, bootProto = dhcp, monitorType = none / 192.168.1.47 (/24) fe80::5054:ff:fe2d:92e1 (/64) / Discovered xsi1 / Ethernet / onboot = yes, bootProto = none, monitorType = none / 10.250.39.82 (XSI11) fe80::5054:ff:feaf:7285 (/64) / Configured xsi2 / Ethernet / onboot = yes, bootProto = none, monitorType = none / 10.250.39.90 (XSI12) fe80::5054:ff:feaf:1937 (/64) / Configured • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ MP-1 (XSI-1) ☐ MP-2 (XSI-1) ☐ MP-3(XSI-1) ☐ MP-4 (XSI-1) ☐ MP-1 (XSI-2) ☐ MP-2 (XSI-2) ☐ MP-3(XSI-2) ☐ MP-4 (XSI-2)
7. ☐	**Active NOAMP VIP** Edit the xsi device for the desired MP	 2 1 Insert Edit Delete Report Report All Take Ownership 1. Click on the **Take Ownership** button. 2. Re-select the **xsi1** device. 3. Click on the **Edit** button. • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ MP-1 (XSI-1) ☐ MP-2 (XSI-1) ☐ MP-3(XSI-1) ☐ MP-4 (XSI-1) ☐ MP-1 (XSI-2) ☐ MP-2 (XSI-2) ☐ MP-3(XSI-2) ☐ MP-4 (XSI-2)

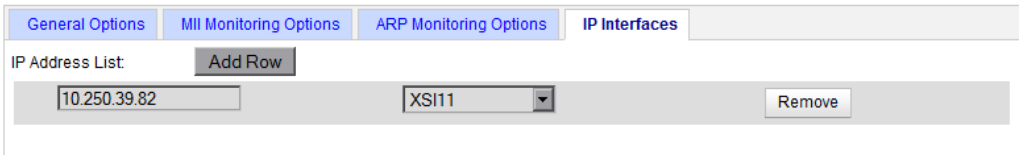
Procedure 16: Configure MP Signaling Interfaces

Step	Procedure	Result
8. ☐	**Active NOAMP VIP** Enable "Start On Boot"	Click on the **General Options** tab. Check the **Start on Boot** check box (to make it enabled). Output similar to that shown below may be observed.  **Main Menu: Configuration -> Network -> Devices [Edit]** Help Tue Aug 21 14:40:26 2012 EDT Edit Ethernet device xsi1 on pc9040829-mp-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 bonded device. Disabled for non-bonded 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): xmi, imi, control, 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.] Ok Apply Cancel • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ MP-1 (XSI-1) ☐ MP-2 (XSI-1) ☐ MP-3(XSI-1) ☐ MP-4 (XSI-1) ☐ MP-1 (XSI-2) ☐ MP-2 (XSI-2) ☐ MP-3(XSI-2) ☐ MP-4 (XSI-2)

Procedure 16: Configure MP Signaling Interfaces

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>9.
☐</td><td>Active NOAMP VIP

Add an xsi IP Address.</td><td>Click on the IP Interfaces tab.
Click the Add Row button.
Output similar to that shown below may be observed.
Main Menu: Configuration -> Network -> Devices [Edit]

Edit Ethernet device xsi1 on pc9040829-mp-1
 

Set the Network Name to xsi1.
Enter the xsi1 IP Address.
Click on the Ok button.

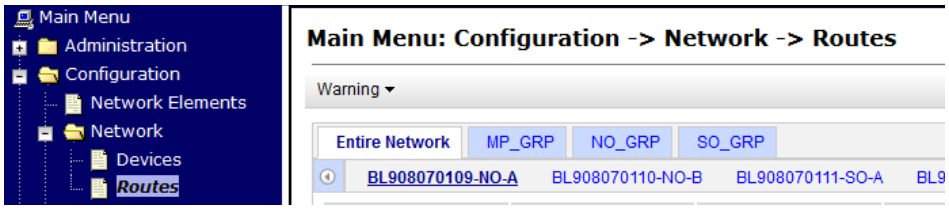
• “Check off” the associated Check Box as addition is completed for each Server.

☐ MP-1 (XSI-1) ☐ MP-2 (XSI-1) ☐ MP-3(XSI-1) ☐ MP-4 (XSI-1)
☐ MP-1 (XSI-2) ☐ MP-2 (XSI-2) ☐ MP-3(XSI-2) ☐ MP-4 (XSI-2)</td></tr>
<tr><td colspan="3">Repeat Steps 4 - 9 for each MP and its Signaling network(s).

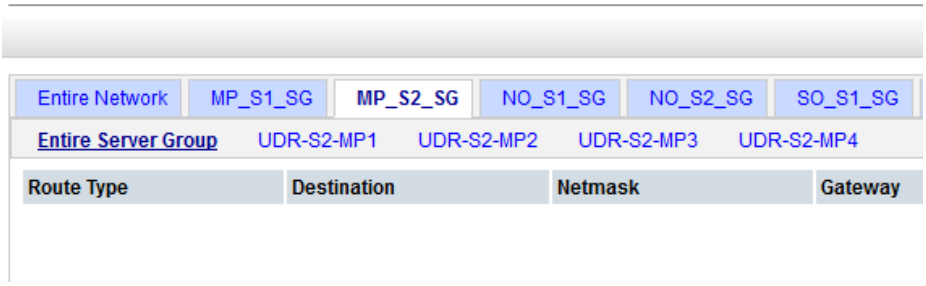
NOTE: If a second XSI network is present (XSI-2), steps 4 - 9 must be run for each MP’s XSI-2 network.</td></tr>
<tr><td>10.
☐</td><td>Active NOAMP VIP

Select…

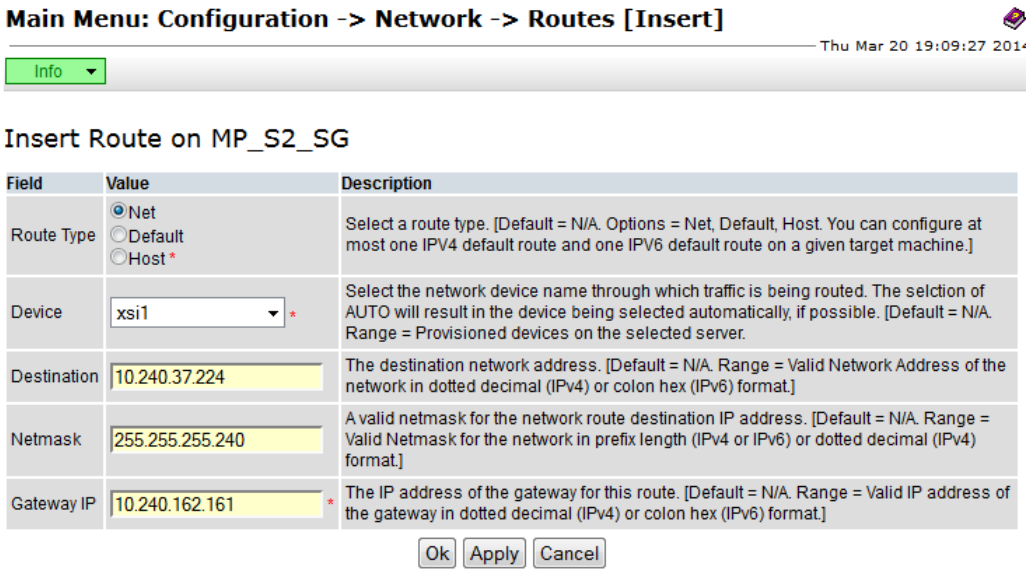
<u>Main Menu</u>
→ Configuration
→ Network
→ Routes

…as shown on the right.</td><td> 
</td></tr>
</table>

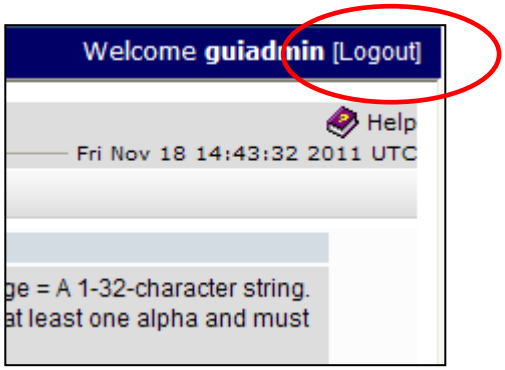
Procedure 16: Configure MP Signaling Interfaces

Step	Procedure	Result
11. ☐	**Active NOAMP VIP** Insert a new route for the MP.	Click on the desired **Server Group** tab on the top line. Then click on the **Entire Server Group** tab on the line below **Server Group** line. Output similar to that shown below may be observed. **Main Menu: Configuration -> Network -> Routes**  Click on the **Insert** button  • **"Check off"** the associated **Check Box** as addition is completed for each **Network**. ☐ XSI-1 ☐ XSI-2

Procedure 16: Configure MP Signaling Interfaces

Step	Procedure	Result
12. ☐	**Active NOAMP VIP** Add xsi signaling route to MP	Output similar to that shown below may be observed.  **Main Menu: Configuration -> Network -> Routes [Insert]** Thu Mar 20 19:09:27 201 Info Insert Route on MP_S2_SG Field / Value / Description Route Type: Net, Default, Host * — Select a route type. [Default = N/A. Options = Net, Default, Host. You can configure at most one IPV4 default route and one IPV6 default route on a given target machine.] Device: xsi1 * — Select the network device name through which traffic is being routed. The selction of AUTO will result in the device being selected automatically, if possible. [Default = N/A. Range = Provisioned devices on the selected server. Destination: 10.240.37.224 — The destination network address. [Default = N/A. Range = Valid Network Address of the network in dotted decimal (IPv4) or colon hex (IPv6) format.] Netmask: 255.255.255.240 — A valid netmask for the network route destination IP address. [Default = N/A. Range = Valid Netmask for the network in prefix length (IPv4 or IPv6) or dotted decimal (IPv4) format.] Gateway IP: 10.240.162.161 * — The IP address of the gateway for this route. [Default = N/A. Range = Valid IP address of the gateway in dotted decimal (IPv4) or colon hex (IPv6) format.] Ok Apply Cancel Set **Route Type** to desired value Set **Device** to **xsi1** Enter **Destination:** This is the address of the Diameter Sh clients that will connect to OCUDR on the signaling network, Enter **Netmask** for the Diameter Sh client network. Enter **Gateway IP**: This is the gateway for OCUDR signaling network as configured in Procedure 3, Step 10. Click **Apply** button • **"Check off"** the associated **Check Box** as addition is completed for each **Network**. ☐ XSI-1 ☐ XSI-2
Repeat **Step 11-12** for each Network.		
13. ☐	Repeat **Step 11-12** for MP ⇔ ComAgent communication intended to be configured on XSI1 as described in 8.11 Configure ComAgent Service on Signaling Network**.** This step is only needed for geo-redundant systems. **Note**: Destination would be DR Site XSI1 Address if configuring Primary Site and vice-versa. **Note**: Netmask would be DR Site XSI1 Address if configuring Primary Site and vice-versa. **Note**: Gateway IP would be Primary Site XSI1 Gateway if configuring Primary Site and vice-versa.	

Procedure 16: Configure MP Signaling Interfaces

Step	Procedure	Result
14. ☐	**Active NOAMP VIP:** Click the **"Logout"** link on the server GUI.	
THIS PROCEDURE HAS BEEN COMPLETED		

8.8 Configure SPR Application on MP (All SOAM Sites)

This procedure configures the SPR application for MP Servers on each SOAM site.

Requirements:

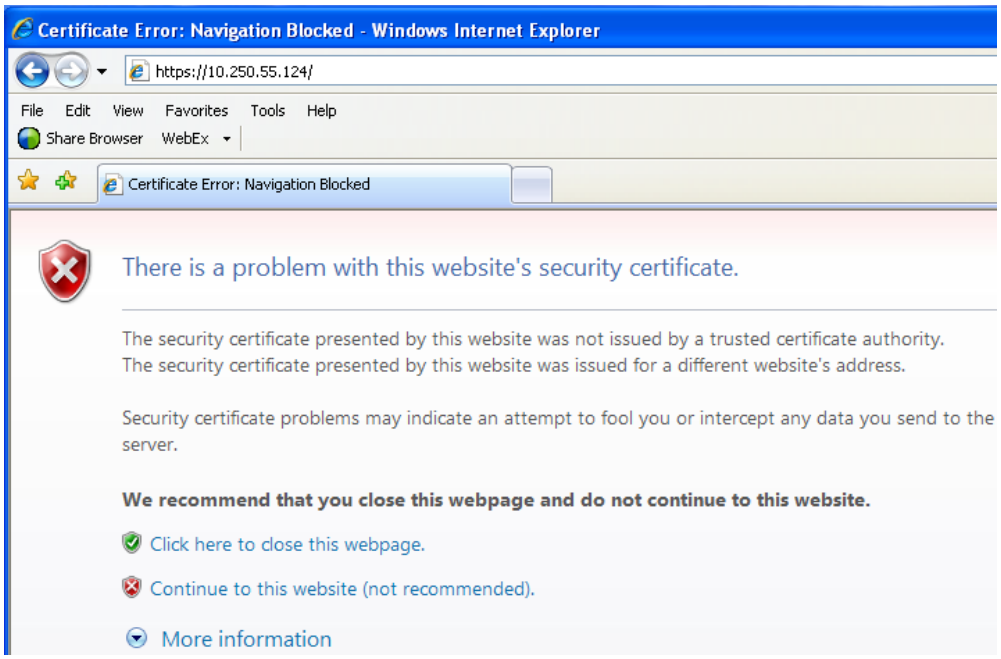
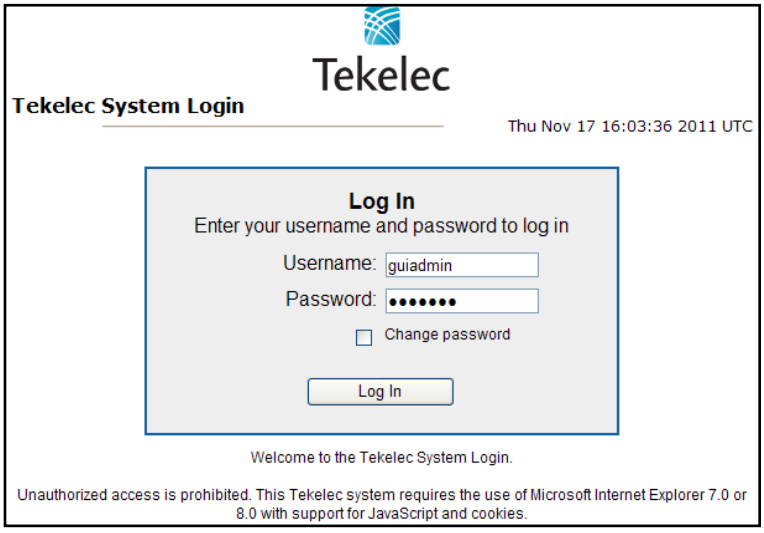
Procedure 16: Configure MP Signaling Interfaces (All SOAM Sites) has been completed.

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

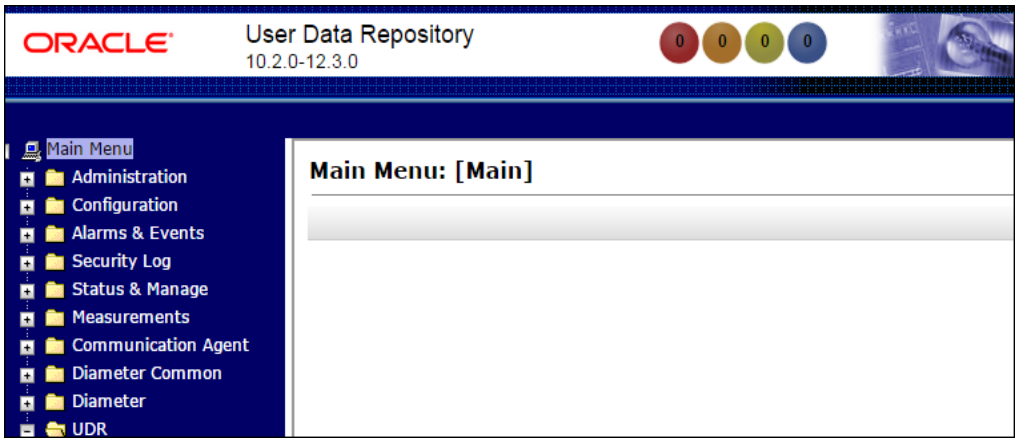
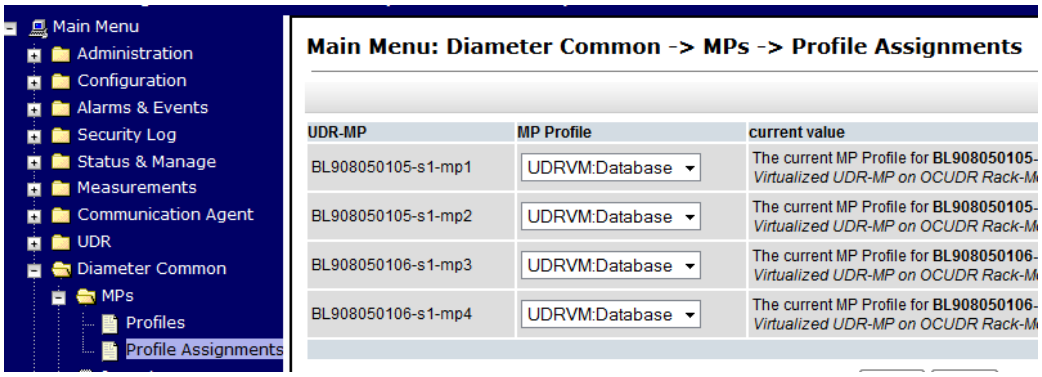
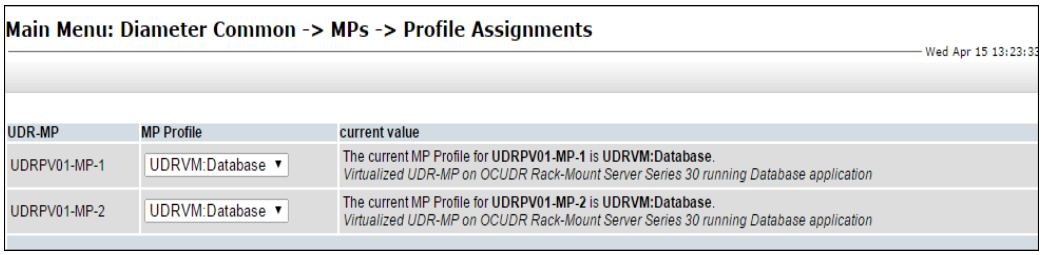
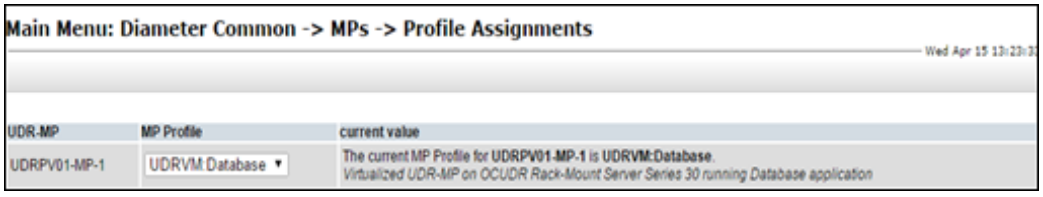
Procedure 17: Configure SPR Application on MP

Step	Procedure	Result

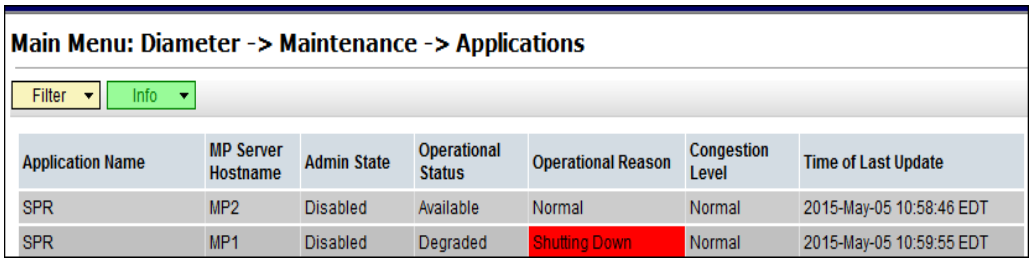
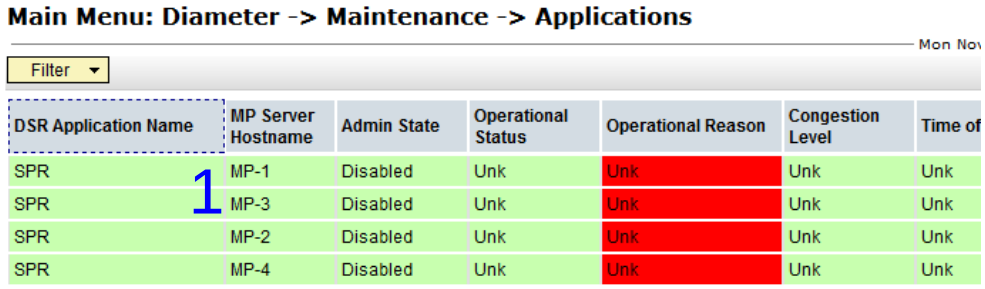
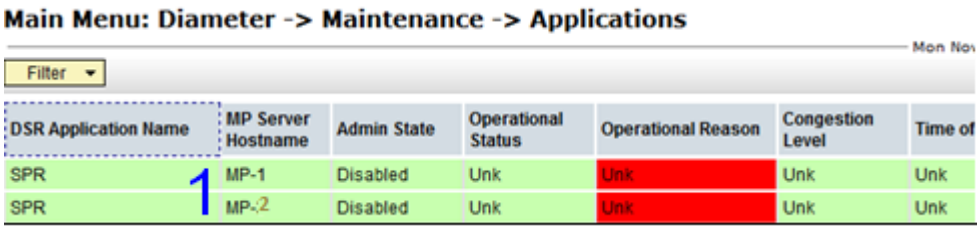
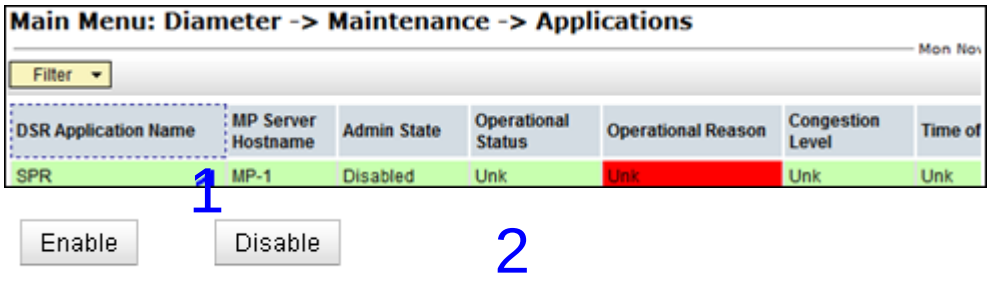
Procedure 17: Configure SPR Application on MP

Step	Procedure	Result
1. ☐	**Active SOAM VIP** Launch an approved web browser and connect to the **XMI Virtual IP Address (VIP)** of the **Active SOAM site** using https:// **NOTE:** If presented with the "security certificate" warning screen shown to the right, choose the following option: **"Continue to this website (not recommended)".**	
2. ☐	**Active SOAM VIP** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	

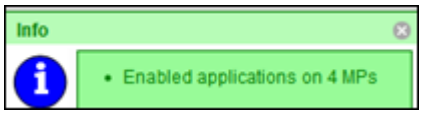
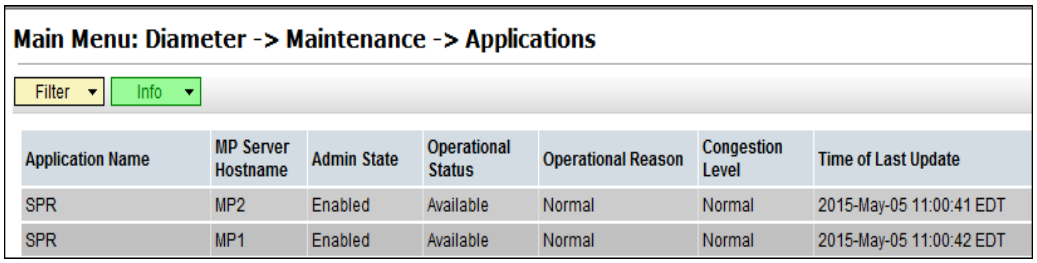
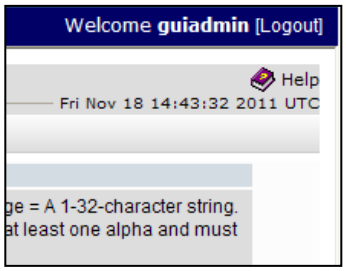
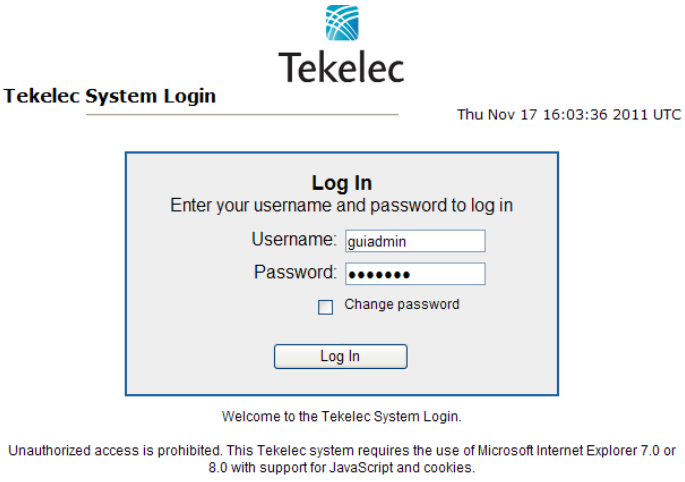
Procedure 17: Configure SPR Application on MP

Step	Procedure	Result
3. ☐	**Active SOAM VIP** The user should be presented the Main Menu as shown on the right.	
4. ☐	**Active SOAM VIP** Select… **Main Menu** ***→ Diamter Common*** ***→ MPs*** ***→Profile Assignments*** Select profile as **UDRVM:Database** and click on **Assign (for each MP)**	Normal Capacity Configuration:  Low Capacity Configuration:  Single Server Configuration: 

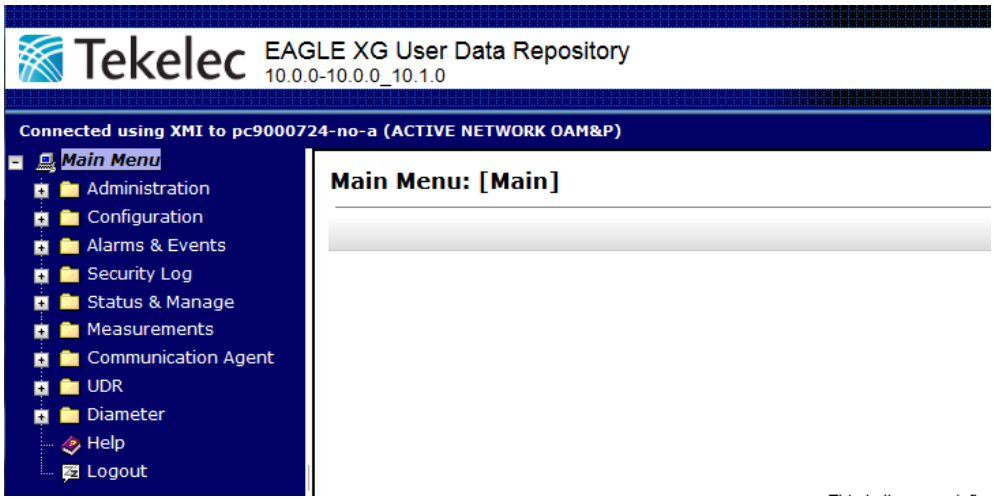
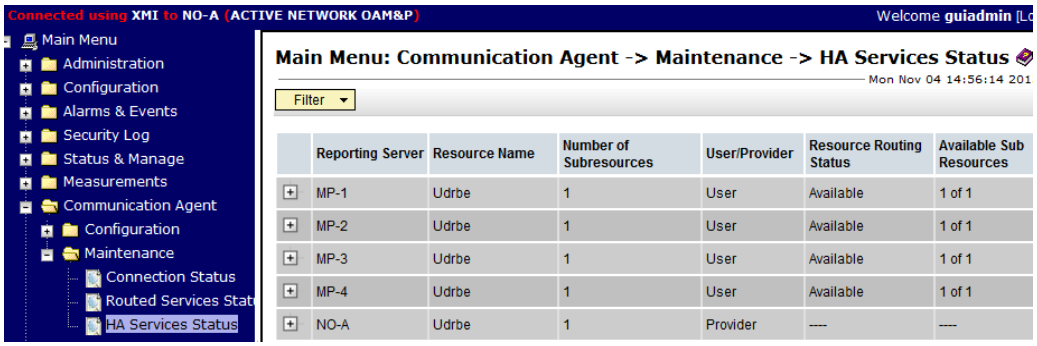
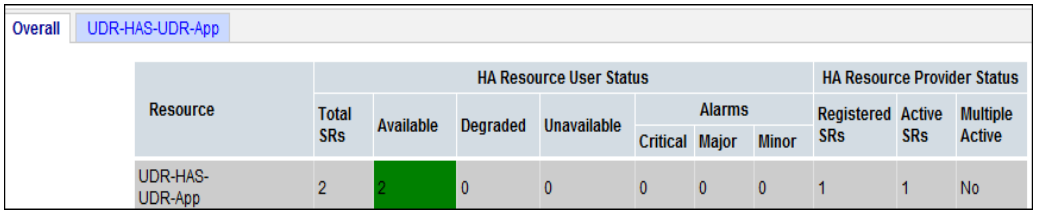
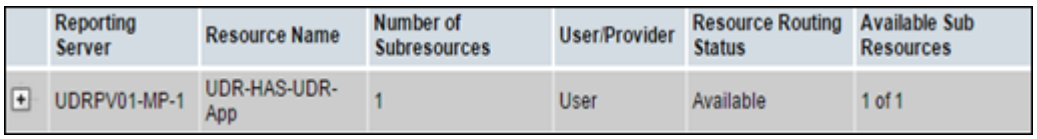
Procedure 17: Configure SPR Application on MP

Step	Procedure	Result
5. ☐	**Active SOAM VIP** Select… **Main Menu** → ***Diameter*** → ***Maintenance*** → ***Applications*** …as shown on the right.	
6. ☐	**Active SOAM VIP** **1)** Select the **"SPR"** Application on each **"MP"** using the mouse and holding the **Ctrl** key. The line entries should be highlighted in **GREEN**. **2)** Click on Enable Button	Normal Capacity Configuration:  Low Capacity Configuration:  Single Server Configuration: 

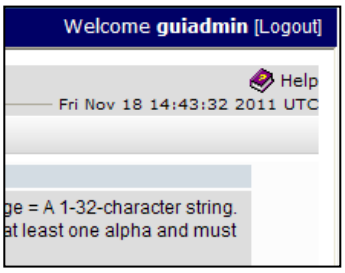
Procedure 17: Configure SPR Application on MP

Step	Procedure	Result
7. ☐	**Active SOAM VIP** The user should be presented with a banner information message stating **"Enabled application"**.	 
8. ☐	**Active SOAM VIP** Click the **"Logout"** link on the server GUI.	
9. ☐	**Active NOAMP VIP** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	

Procedure 17: Configure SPR Application on MP

Step	Procedure	Result
10. ☐	**Active NOAMP VIP** The user should be presented the OCUDR Main Menu as shown on the right.	
11. ☐	**Active NOAMP VIP** Verify service appears on NOAMP GUI page Select… **<u>Main Menu</u>** **→ Communication Agent** ***→ Maintenance*** ***→ HA Services Status*** …as shown on the right.	Normal Capcity Configuration:  Low Capacity Configuration:  Single Server Configuration: 

Procedure 17: Configure SPR Application on MP

Step	Procedure	Result
12. ☐	**Active NOAMP VIP** Click the **"Logout"** link on the server GUI.	
THIS PROCEDURE HAS BEEN COMPLETED		

8.9 Configure NOAMP Signaling Interfaces (All NOAM Sites)

This procedure configures XSI IP Interface and adds the XSI signaling route for all NOAMP Servers. **ComAgent Service is required** to be configured on XSI Network. Normal Capacity C-Class Configurations use this procedure.

Requirements:

- **Procedure 13: OAM Pairing for the Primary NOAMP Servers** has been completed.
-

- **Procedure 14:** Pairing the OAM Servers for SOAM or DR NOAMP sites

- has been completed.
- **Procedure 15: Configuring MP Server Groups** has been completed.

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

Procedure 18: Configure NOAMP Signaling Interfaces

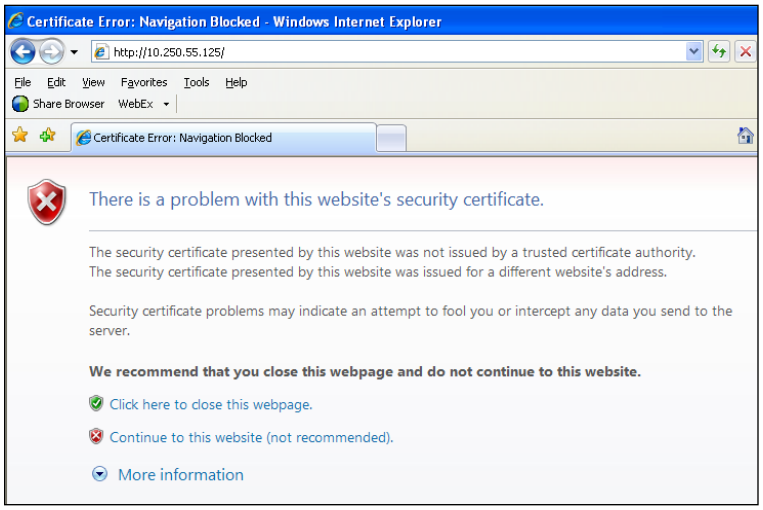
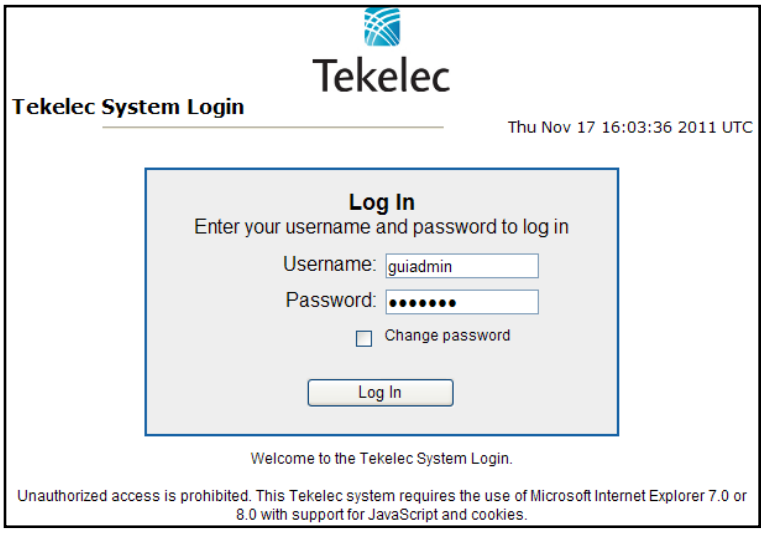
Step	Procedure	Result
1. ☐	Create bond interface for signaling network on NOAMP **for Toplogy 4 and Topology 4A ONLY**	**For Toplogy 4 and Topology 4A ONLY:** Deployments with two pairs of enclosure switches (**Toplogy 4** and **Topology 4A** in reference [6]) will host XSI on **bond1**: **Execute Step 2 - 7 on all NOAMP servers**
2. ☐	**NOAMP Server :** **1)** Access the command prompt. **2)** Log into the NOAMP server as the "**admusr**" user..	login as: admusr admusr@10.250.xx.yy's password: **<admusr_password>** Last login: Mon Jul 30 10:33:19 2012 from 10.25.80.199 [admusr@pc9040833-no-a ~]#
3. ☐	**NOAMP Server:** Output similar to that shown on the right will appear as the server access the command prompt.	***** TRUNCATED OUTPUT ***** VPATH=/opt/TKLCcomcol/runcm5.16:/opt/TKLCcomcol/cm5.16 PRODPATH= RELEASE=5.16 RUNID=00 VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr/TKLC/awptransportmgr:/usr/TKLC/awpss7:/usr/TKLC/exhr PRODPATH=/opt/comcol/prod RUNID=00 [admusr@pc9040833-no-a ~]#
4. ☐	**NOAMP Server** : Switch to "**root**" user.	[admusr@ pc9040833-no-a ~]$ **su -** password: **<root_password>**
5. ☐	**NOAMP Server***:* *Add bond for signaling* *[Topology 4 only]*	**Toplogy 4 and Topology 4A ONLY:** Deployments with two pairs of enclosure switches (**Toplogy 4** and **Topology 4A** in reference **[6]**) will host XSI on **bond1**: # **netAdm add --device=bond1 --onboot=yes --bootproto=none** Interface bond1 added

Procedure 18: Configure NOAMP Signaling Interfaces

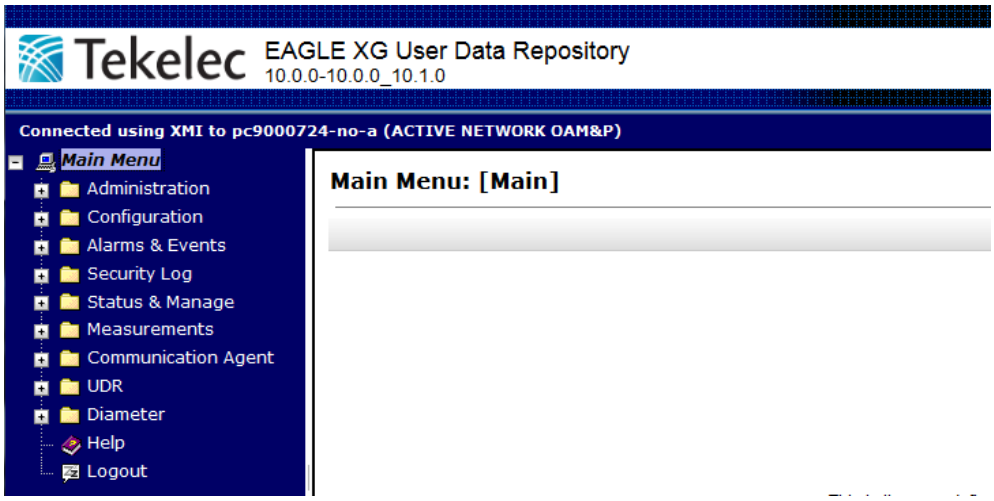
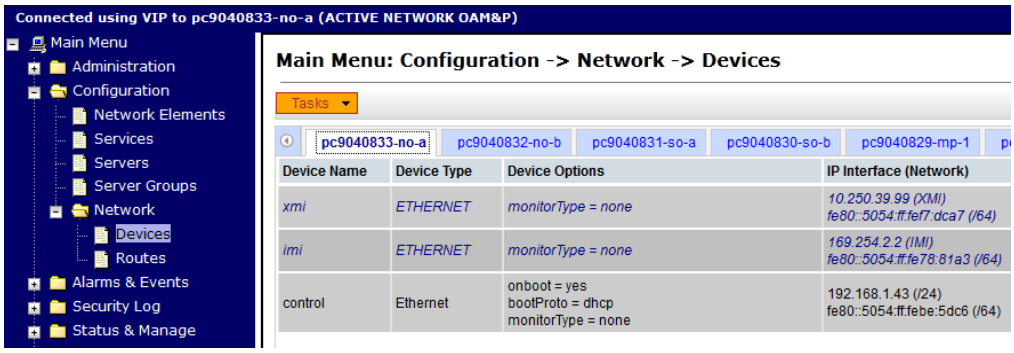
Step	Procedure	Result

6. ☐	**NOAMP Server:**
	
	Bond interfaces eth11 and eth12 for signaling
	
	[Topology 4 only]
		Toplogy 4 and Topology 4A ONLY:
		
		Deployments with two pairs of enclosure switches (**Toplogy 4** and **Topology 4A** in reference **[6]**) will host XSI on **bond1:**
		
		`# netAdm set --device=bond1 --bondInterfaces=eth11,eth12`
		`Interface bond1 updated`

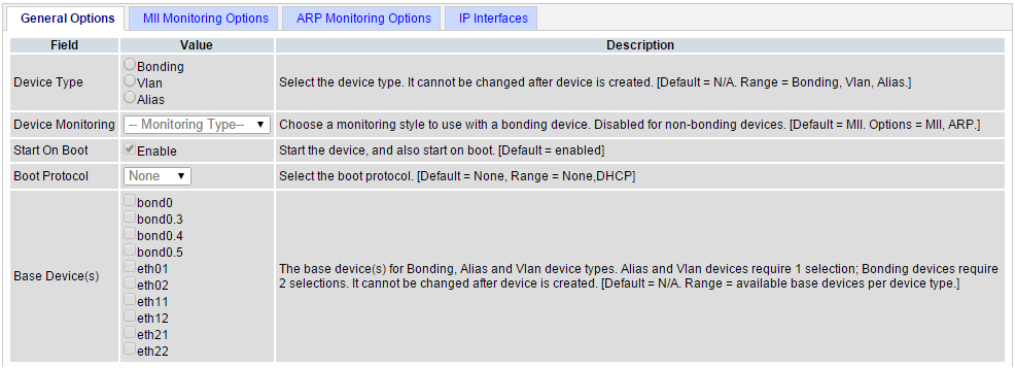
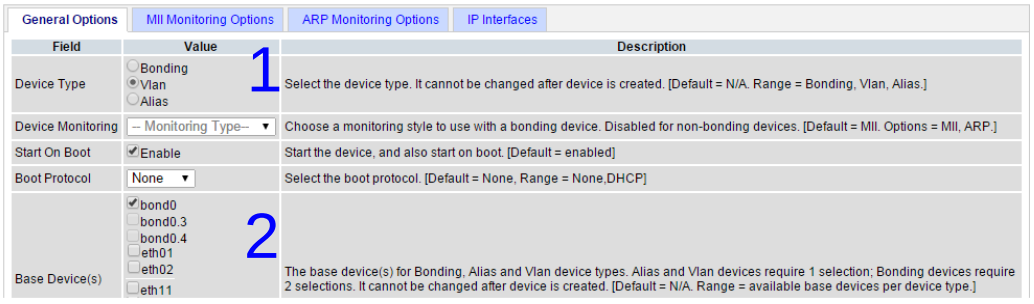
7. ☐	**NOAMP Server:**
	
	Bring up bond1 on the server
	
	***Note**: Output similar to that shown on the right may be observed*
		Restart the network interfaces:
		
		`# ifup bond1`
		
		`RTNETLINK answers: File exists`

8. ☐	**Active NOAMP VIP** Launch an approved web browser and connect to the **XMI Virtual IP Address (VIP)** of the **Active NOAMP site** using "https://"	
9. ☐	**Active NOAMP VIP** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	

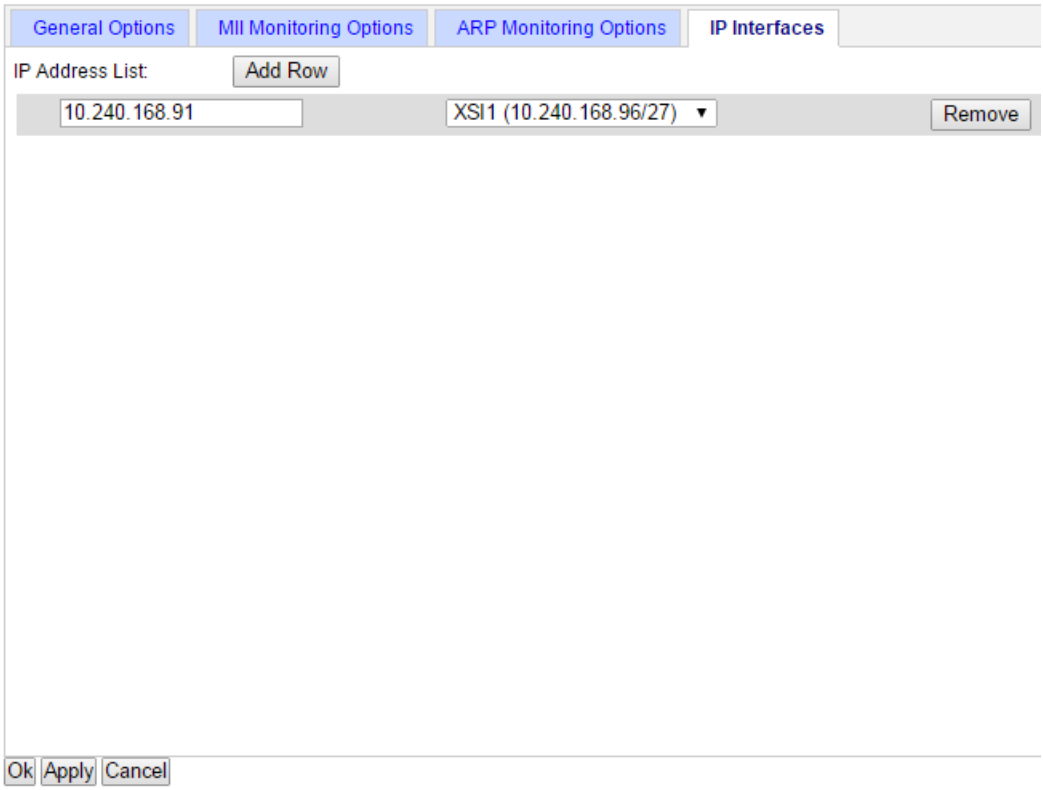
Procedure 18: Configure NOAMP Signaling Interfaces

Step	Procedure	Result
10. ☐	**Active NOAMP VIP** The user should be presented the Main Menu as shown on the right.	
11. ☐	**Active NOAMP VIP** Select… **Main Menu** → **Configuration** → ***Network*** → ***Devices*** …as shown on the right.	For Normal Capacity C-Class Configuration:  • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NO-A (XSI-1) ☐ NO-B (XSI-1)

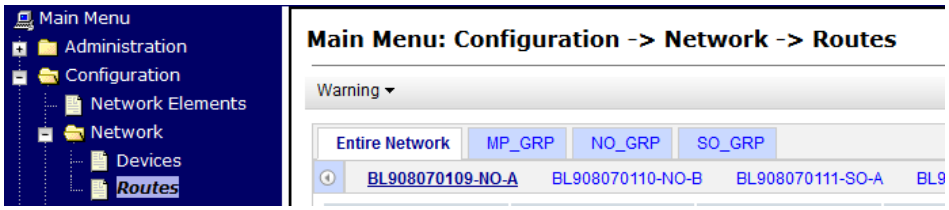
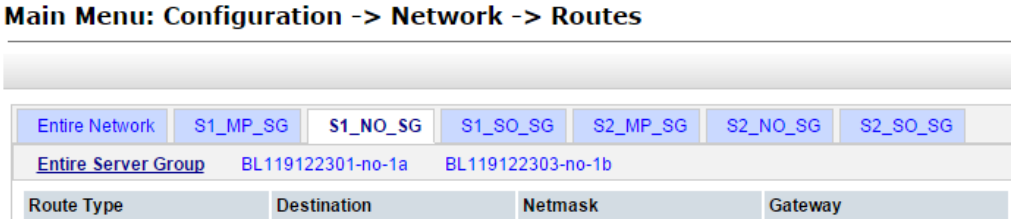
Procedure 18: Configure NOAMP Signaling Interfaces

Step	Procedure	Result
12. ☐	**Active NOAMP VIP** Click on Insert.	Click on the desired **NOAMP** tab. Output similar to that shown below may be observed. Insert Device on BL119122301-no-1a  General Options | MII Monitoring Options | ARP Monitoring Options | IP Interfaces Field / Value / Description Device Type: 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): bond0, bond0.3, bond0.4, bond0.5, eth01, eth02, eth11, eth12, eth21, eth22 — 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.] • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NO-A (XSI-1) ☐ NO-B (XSI-1)
13. ☐	**Active NOAMP VIP** **1.** Select Device Type as Vlan and **2.** For Normal Capactiy C-Class: Select Base Device as Signaling Bond Interface i.e. bond0 on Topology 1 and Topology 1A and bond1 on Topology 4 and Topology 4A	Click on the **General Options** tab. Select Device Type as Vlan and Select Base Device as Signaling Bond Interface i.e. bond0 on Topology 1 and Topology 1A and bond1 on Topology 4 and Topology 4A Output similar to that shown below may be observed. Insert Device on BL119122301-no-1a  General Options | MII Monitoring Options | ARP Monitoring Options | IP Interfaces Field / Value / Description Device Type: Bonding, Vlan, Alias — 1 — 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): bond0, bond0.3, bond0.4, eth01, eth02, eth11 — 2 — 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.] • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NO-A (XSI-1) ☐ NO-B (XSI-1)

Procedure 18: Configure NOAMP Signaling Interfaces

Step	Procedure	Result
14. ☐	**Active NOAMP VIP** Add an xsi IP Address.	Click on the **IP Interfaces** tab. Click the **Add Row** button. Output similar to that shown below may be observed. Insert Device on BL119122301-no-1a  Set the Network Name to **xsi1**. Enter the **xsi1 IP Address.** Click on the **Ok** button. • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NO-A (XSI-1) ☐ NO-B (XSI-1)
Repeat **Steps 11-14** for each NOAMP and its Signaling network to be used for ComAgent. **Note: Steps 15-20** are only required for geo-redundant systems.		

Procedure 18: Configure NOAMP Signaling Interfaces

Step	Procedure	Result
15. ☐	**Active NOAMP VIP** Select… **Main Menu** → **Configuration** → ***Network*** → ***Routes*** …as shown on the right.	
16. ☐	**Active NOAMP VIP** Insert a new route for the NOAMP for **Primary Site**.	Click on the desired **Primary Site Server Group** tab on the top line. Then click on the **Entire Server Group** tab on the line below **Server Group** line. Output similar to that shown below may be observed.  Click on the **Insert** button  • **"Check off"** the associated **Check Box** as addition is completed for each **Network**. ☐ XSI-1

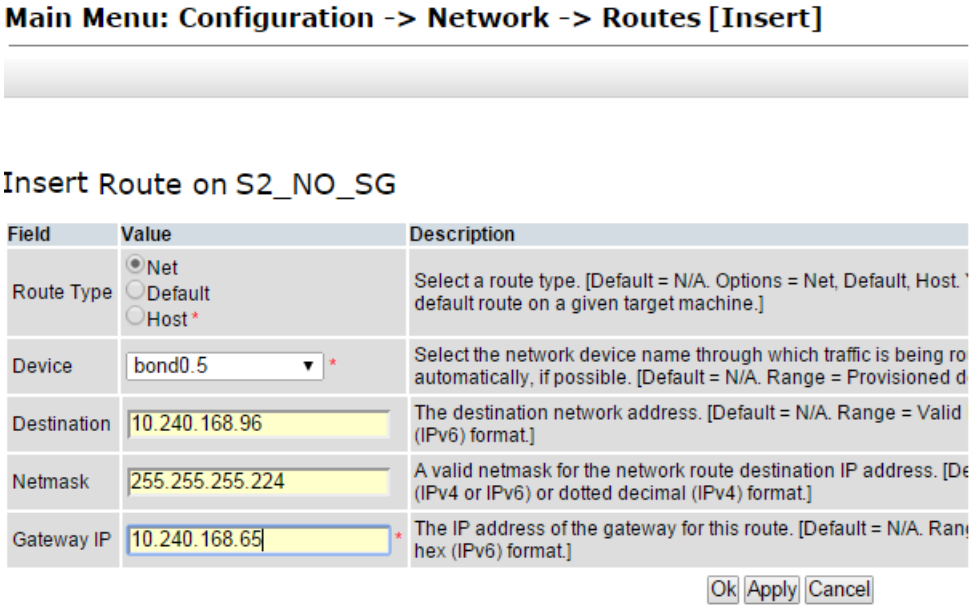
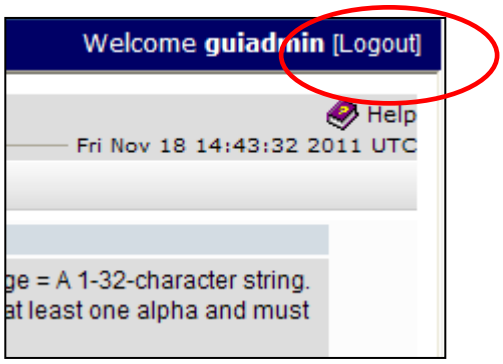
Procedure 18: Configure NOAMP Signaling Interfaces

Step	Procedure	Result
17. ☐	**Active NOAMP VIP** Add xsi signaling route to NOAMP for **Primary Site**	Output similar to that shown below may be observed. **Main Menu: Configuration -> Network -> Routes [Insert]** Insert Route on S1_NO_SG Field / Value / Description Route Type: Net / Default / Host * — Select a route type. [Default = N/A. Options = Net, Default, Host. ' default route on a given target machine.] Device: bond0.5 * — Select the network device name through which traffic is being ro automatically, if possible. [Default = N/A. Range = Provisioned d Destination: 10.240.168.64 — The destination network address. [Default = N/A. Range = Valid (IPv6) format.] Netmask: 255.255.255.224 — A valid netmask for the network route destination IP address. [De (IPv4 or IPv6) or dotted decimal (IPv4) format.] Gateway IP: 10.240.168.97 * — The IP address of the gateway for this route. [Default = N/A. Rang hex (IPv6) format.] Ok Apply Cancel Set **Route Type** to desired value Set **Device** to **Signaling Interface** Enter **Destination:** This is the address of the DR Site Signaling network address of MPs that will connect to Primary Site NOAMP on the signaling network, Enter **Netmask** for the DR Site Signaling network. Enter **Gateway IP** : This is the gateway for OCUDR Primary Site signaling network as configured in Procedure 3, Step 10. Click **Apply** button • **"Check off"** the associated **Check Box** as addition is completed for each **Network**. ☐ XSI-1

Procedure 18: Configure NOAMP Signaling Interfaces

Step	Procedure	Result
18. ☐	**Active NOAMP VIP** Insert a new route for the NOAMP for **DR Site**.	Click on the desired **DR Site Server Group** tab on the top line. Then click on the **Entire Server Group** tab on the line below **Server Group** line. Output similar to that shown below may be observed. **Main Menu: Configuration -> Network -> Routes** Entire Network | S1_MP_SG | S1_NO_SG | S1_SO_SG | S2_MP_SG | S2_NO_SG | S2_SO_SG Entire Server Group | BL121081301-NO-2A | BL121081303-NO-2B Route Type | Destination | Netmask | Gateway Click on the **Insert** button [Insert] • **"Check off"** the associated **Check Box** as addition is completed for each **Network**. ☐ XSI-1

Procedure 18: Configure NOAMP Signaling Interfaces

Step	Procedure	Result
19. ☐	**Active NOAMP VIP** Add xsi signaling route to NOAMP for **DR Site**	Output similar to that shown below may be observed.  Main Menu: Configuration -> Network -> Routes [Insert] Insert Route on S2_NO_SG Field / Value / Description Route Type: Net / Default / Host * — Select a route type. [Default = N/A. Options = Net, Default, Host. ' default route on a given target machine.] Device: bond0.5 * — Select the network device name through which traffic is being ro automatically, if possible. [Default = N/A. Range = Provisioned d Destination: 10.240.168.96 — The destination network address. [Default = N/A. Range = Valid (IPv6) format.] Netmask: 255.255.255.224 — A valid netmask for the network route destination IP address. [De (IPv4 or IPv6) or dotted decimal (IPv4) format.] Gateway IP: 10.240.168.65 * — The IP address of the gateway for this route. [Default = N/A. Ran hex (IPv6) format.] Ok Apply Cancel Set **Route Type** to desired value Set **Device** to **Signaling Interface** Enter **Destination:** This is the address of the Primary Site Signaling network address of MPs that will connect to DR Site NOAMP on the signaling network, Enter **Netmask** for the Primary Site Signaling network. Enter **Gateway IP** : This is the gateway for OCUDR DR Site signaling network as configured in Procedure 3, Step 10. Click **Apply** button • **"Check off"** the associated **Check Box** as addition is completed for each **Network**. ☐ XSI-1
20. ☐	**Active NOAMP VIP:** Click the **"Logout"** link on the server GUI.	 Welcome guiadmin [Logout] Help Fri Nov 18 14:43:32 2011 UTC ge = A 1-32-character string. at least one alpha and must
THIS PROCEDURE HAS BEEN COMPLETED		

8.10 Configure NOAMP Signaling Interfaces (virtual NOAMP servers on Low Capacity Systems)

This procedure configures XSI IP Interface and adds the XSI signaling route for all NOAMP Virtual Servers on RMS.

Requirements:

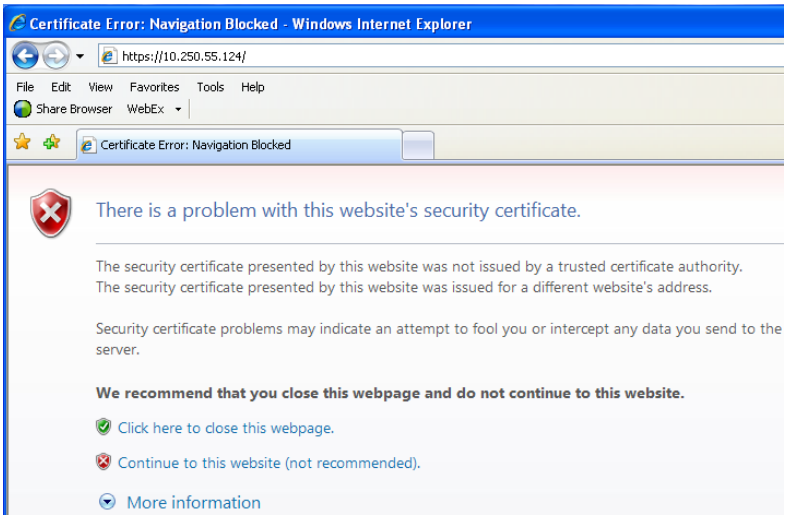
- **Procedure 13: OAM Pairing for the Primary NOAMP Servers** has been completed.
-

- **Procedure 14:** Pairing the OAM Servers for SOAM or DR NOAMP sites

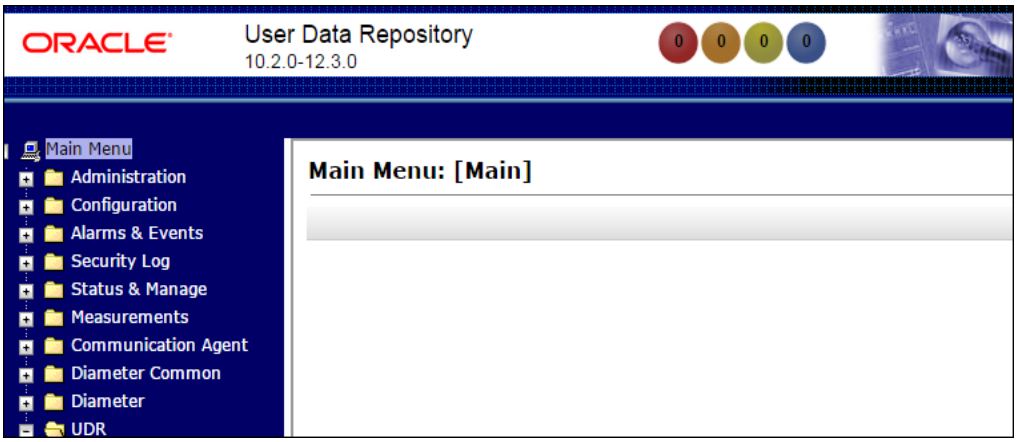
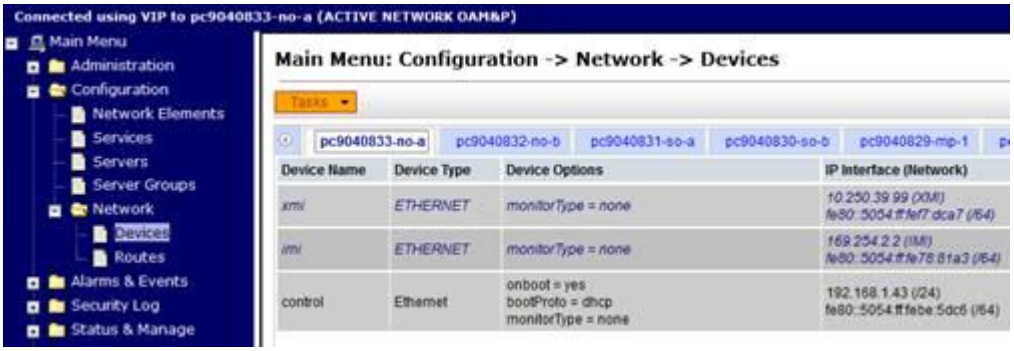
- has been completed.
- **Procedure 15: Configuring MP Server Groups** has been completed.

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

Procedure 19: Configure NOAMP Signaling Interfaces (virtual NOAMP servers on Low Capacity Systems)

Step	Procedure	Result
1. ☐	**Active NOAMP VIP** Launch an approved web browser and connect to the **XMI Virtual IP Address (VIP)** of the **Active NOAMP site** using https:// **NOTE:** If presented with the "security certificate" warning screen shown to the right, choose the following option: **"Continue to this website (not recommended)".**	
2. ☐	**Active NOAMP VIP** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	

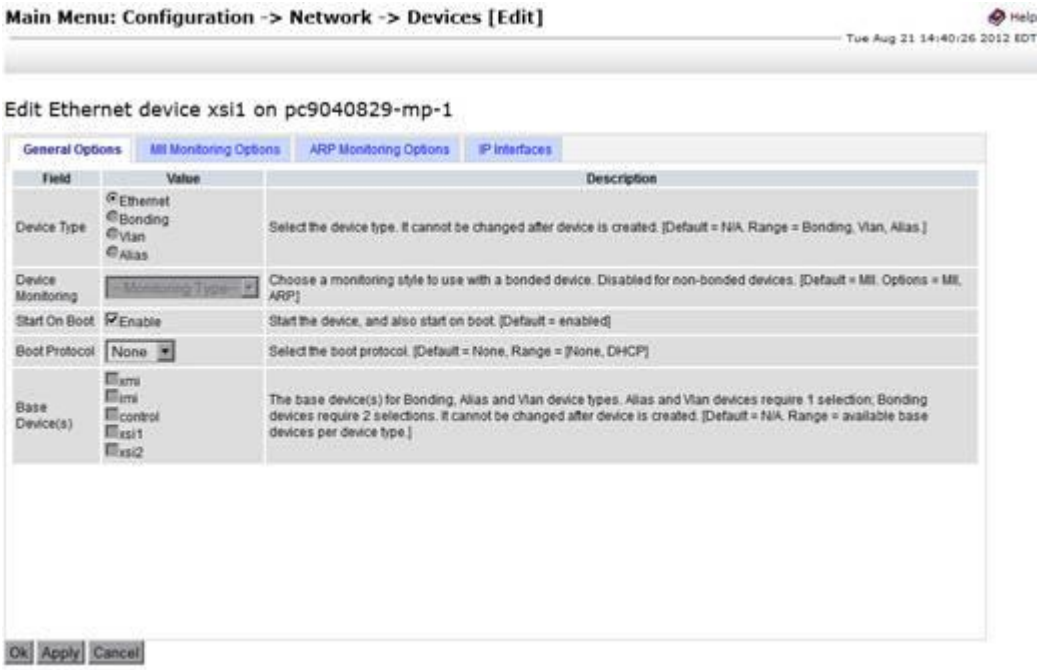
Procedure 19: Configure NOAMP Signaling Interfaces (virtual NOAMP servers on Low Capacity Systems)

Step	Procedure	Result
3. ☐	**Active NOAMP VIP** The user should be presented the Main Menu as shown on the right.	
4. ☐	Bring up xsi1 on the servers before executing steps below.	**NOTE: For Low Capacity Servers only:** Execute “ifup xsi1” on all NO Servers: # ifup xsi1
Note: Repeat the steps below (**Steps** 5 **-** 9) for each NOAMP.		
5. ☐	**Active NOAMP VIP** Select… **Main Menu** → **Configuration** → ***Network*** → ***Devices*** …as shown on the right.	 • **“Check off”** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A (XSI-1) ☐ NOAMP-B (XSI-1)

Procedure 19: Configure NOAMP Signaling Interfaces (virtual NOAMP servers on Low Capacity Systems)

Step	Procedure	Result
6. ☐	**Active NOAMP VIP** Select the xsi device for the desired NOAMP	Click on the desired **NOAMP** tab. Select the **xsi1** device. Output similar to that shown below may be observed. **Main Menu: Configuration -> Network -> Devices** BL908050103-no | BL908050101-no | BL908050103-so | BL908050101-so | BL908050103-mp | BL908050101-mp Device Name / Device Type / Device Options / IP Interface (Network) xsi1 / Ethernet / onboot = yes, bootProto = none / 10.196.62.200 (XSI1), fe80::b0:80ff:fe4d:fe9d (/64) xmi / Ethernet / bootProto = none, onboot = yes / 10.240.80.145 (XMI), 10.240.80.144 (/26), fe80::95:21ff:feba:9433 (/64) control / "Ethernet" / bootProto = "dhcp", hwAddr = "02:2A:91:F8:8F:18", onboot = "yes", persistent_dhclient = yes / 192.168.1.199 (/24), fe80::2a:91ff:fef8:8f18 (/64) imi / Ethernet / bootProto = none, onboot = yes / 169.254.0.2 (IMI), fe80::38:33ff:feb3:9466 (/64) • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A (XSI-1) ☐ NOAMP-B (XSI-1)
7. ☐	**Active NOAMP VIP** Edit the xsi device for the desired NOAMP	 1. Click on the **Take Ownership** button. 2. Re-select the **xsi1** device. 3. Click on the **Edit** button. • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A (XSI-1) ☐ NOAMP-B (XSI-1)

Procedure 19: Configure NOAMP Signaling Interfaces (virtual NOAMP servers on Low Capacity Systems)

Step	Procedure	Result
8. ☐	**Active NOAMP VIP** Enable "Start On Boot"	Click on the **General Options** tab. Check the **Start on Boot** check box (to make it enabled). Output similar to that shown below may be observed.  • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A (XSI-1) ☐ NOAMP-B (XSI-1)

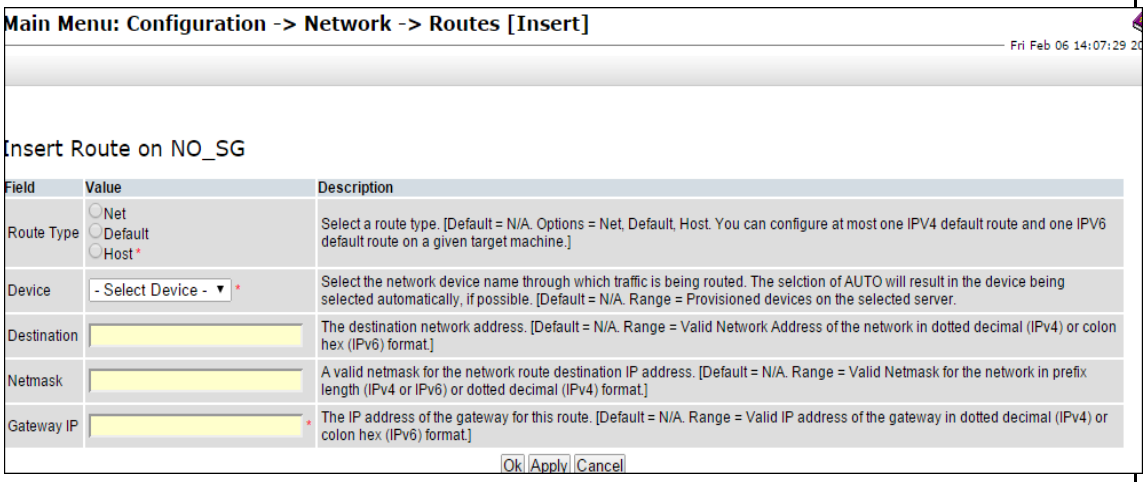
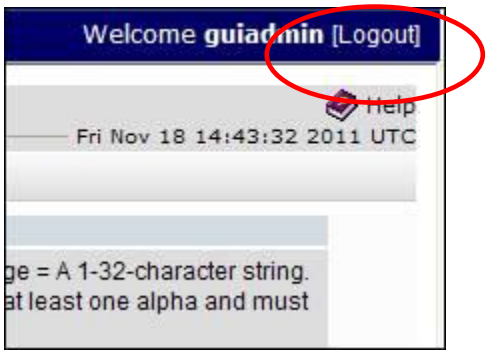
Procedure 19: Configure NOAMP Signaling Interfaces (virtual NOAMP servers on Low Capacity Systems)

Step	Procedure	Result
9. ☐	**Active NOAMP VIP** Add an xsi IP Address.	Click on the **IP Interfaces** tab. Click the **Add Row** button. Output similar to that shown below may be observed.  Set the Network Name to **xsi1**. Enter the **xsi1 IP Address.** Click on the **Ok** button. • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A (XSI-1) ☐ NOAMP-B (XSI-1)
Repeat **Steps** 5 **-** 9 for each NOAMP and its Signaling network(s). **NOTE:** If a second **XSI** network is present (XSI-2), Steps 5 **-** 9 must be run for each NOAMP's XSI-2 network. **NOTE:** Steps 10-12 are only needed for geo-redundant systems.		
10. ☐	**Active NOAMP VIP** Select… **Main Menu** → **Configuration** → ***Network*** → ***Routes*** …as shown on the right.	

Procedure 19: Configure NOAMP Signaling Interfaces (virtual NOAMP servers on Low Capacity Systems)

Step	Procedure	Result
11. ☐	**Active NOAMP VIP** Insert a new route for the MP.	Click on the desired **Server Group** tab on the top line. Then click on the **Entire Server Group** tab on the line below **Server Group** line. Output similar to that shown below may be observed.  Click on the **Insert** button  • **"Check off"** the associated **Check Box** as addition is completed for each **Network**. ☐ XSI-1

Procedure 19: Configure NOAMP Signaling Interfaces (virtual NOAMP servers on Low Capacity Systems)

Step	Procedure	Result
12. ☐	**Active NOAMP VIP** Add xsi signaling route to MP	Output similar to that shown below may be observed.  Main Menu: Configuration -> Network -> Routes [Insert] Fri Feb 06 14:07:29 20 Insert Route on NO_SG Field / Value / Description Route Type: Net, Default, Host * — Select a route type. [Default = N/A. Options = Net, Default, Host. You can configure at most one IPV4 default route and one IPV6 default route on a given target machine.] Device: - Select Device - * — Select the network device name through which traffic is being routed. The selction of AUTO will result in the device being selected automatically, if possible. [Default = N/A. Range = Provisioned devices on the selected server.] Destination — The destination network address. [Default = N/A. Range = Valid Network Address of the network in dotted decimal (IPv4) or colon hex (IPv6) format.] Netmask — A valid netmask for the network route destination IP address. [Default = N/A. Range = Valid Netmask for the network in prefix length (IPv4 or IPv6) or dotted decimal (IPv4) format.] Gateway IP * — The IP address of the gateway for this route. [Default = N/A. Range = Valid IP address of the gateway in dotted decimal (IPv4) or colon hex (IPv6) format.] Ok Apply Cancel Set **Route Type** to desired value Set **Device** to **xsi1** Enter **Destination:** This is the address of the Diameter Sh clients that will connect to OCUDR on the signaling network, Enter **Netmask** for the Diameter Sh client network. Enter **Gateway IP**: This is the gateway for OCUDR signaling network as configured in Procedure 3, Step 10. Click **Apply** button • **"Check off"** the associated **Check Box** as addition is completed for each **Network**. ☐ XSI-1
Repeat **Step 11-12** for each Network.		
13.	**Active NOAMP VIP:** Click the **"Logout"** link on the server GUI.	 Welcome guiadmin [Logout] Help Fri Nov 18 14:43:32 2011 UTC ge = A 1-32-character string. at least one alpha and must
THIS PROCEDURE HAS BEEN COMPLETED		

8.11 Configure ComAgent Service on Signaling Network

This procedure configures ComAgent communication between NOAMP and MP to use Signaling Network. **ComAgent Service is required to be configured on XSI Network.**

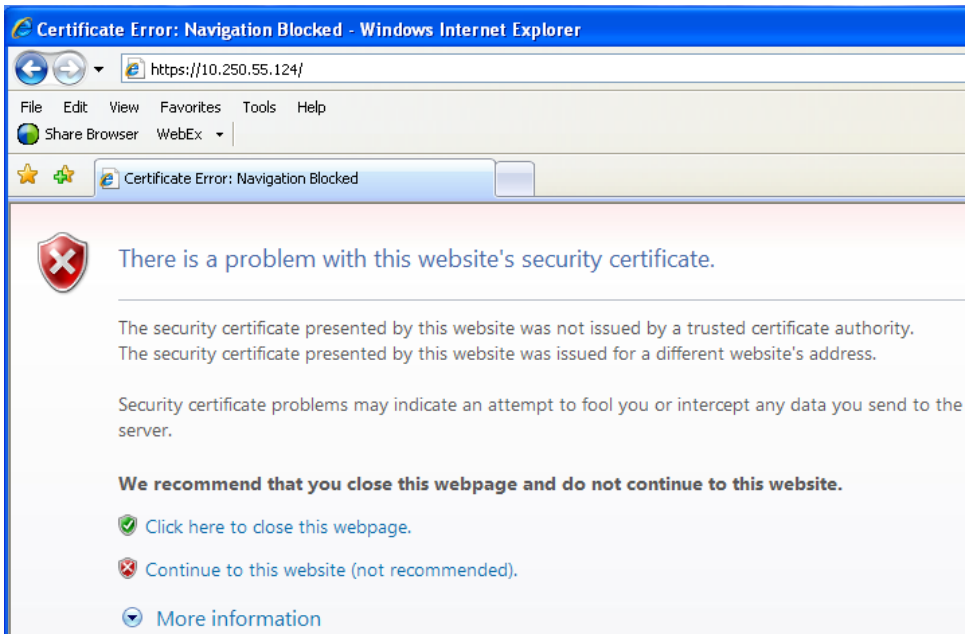
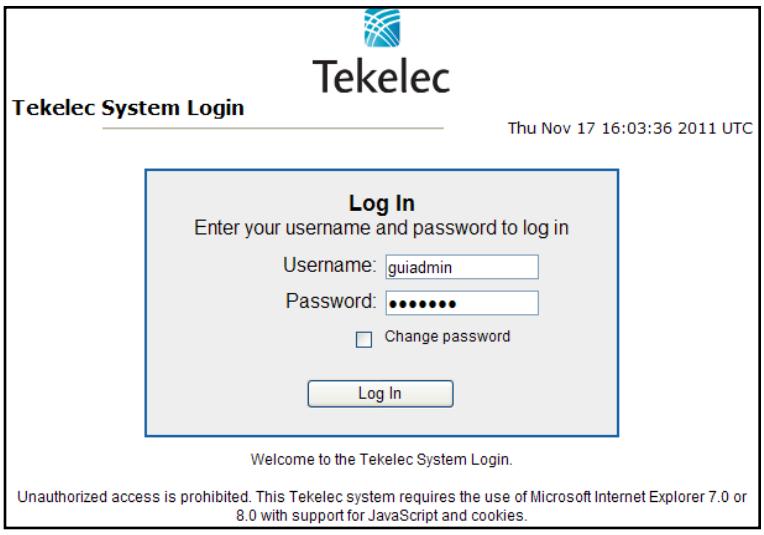
Requirements:

- **Procedure 16: Configure MP Signaling Interfaces (All SOAM Sites)** has been completed.
- **Procedure 18:**

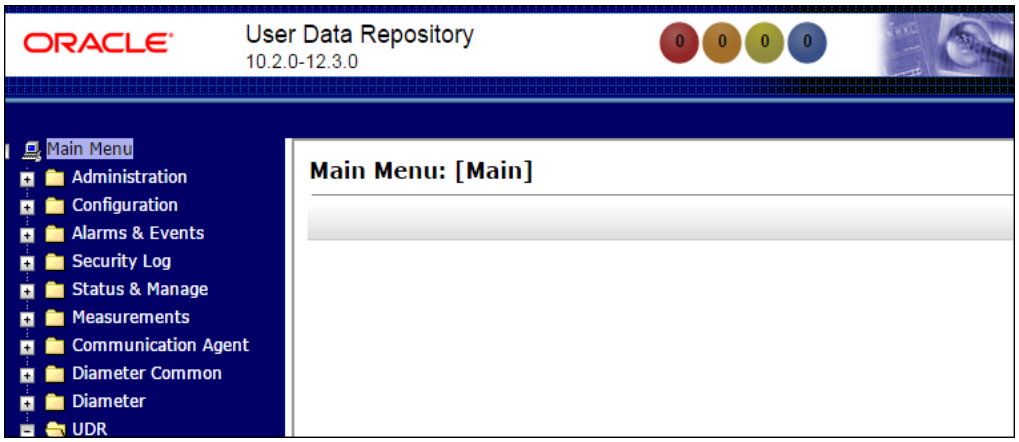
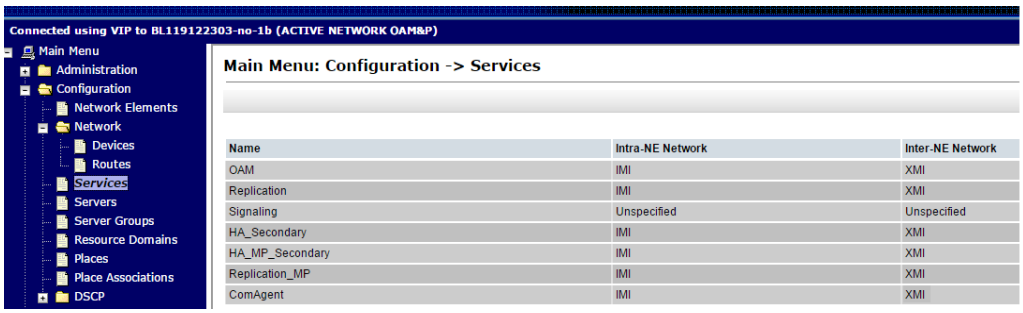
- **Configure NOAMP Signaling Interfaces (All NOAM** Sites) has been completed.
- **Procedure 19**: **Configure NOAMP Signaling Interfaces (virtual NOAMP servers on Low Capacity Systems)** has been completed.

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

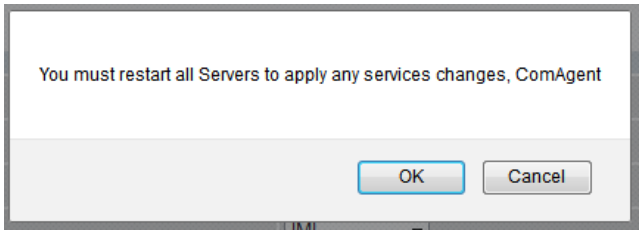
Procedure 20: Configure ComAgent Service on Signaling Network

Step	Procedure	Result
1. ☐	**Active NOAMP VIP** Launch an approved web browser and connect to the **XMI Virtual IP Address (VIP)** of the **Active NOAMP site** using https:// **NOTE:** If presented with the "security certificate" warning screen shown to the right, choose the following option: **"Continue to this website (not recommended)".**	
2. ☐	**Active NOAMP VIP** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	

Procedure 20: Configure ComAgent Service on Signaling Network

Step	Procedure	Result
3. ☐	**Active NOAMP VIP** The user should be presented the Main Menu as shown on the right.	
4. ☐	**Active NOAMP VIP** Select… **Main Menu** → **Configuration** → ***Services*** …as shown on the right.	

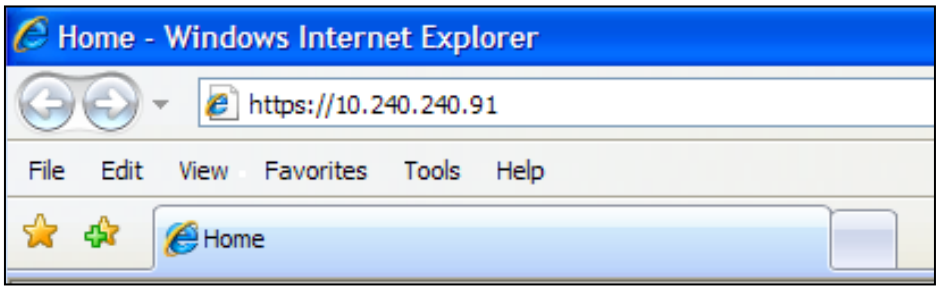
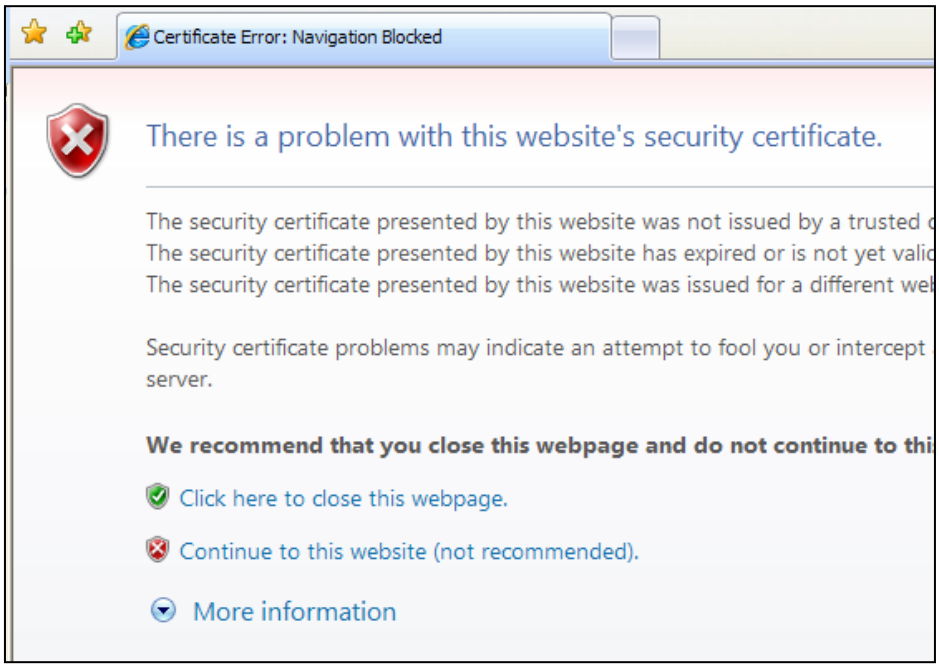
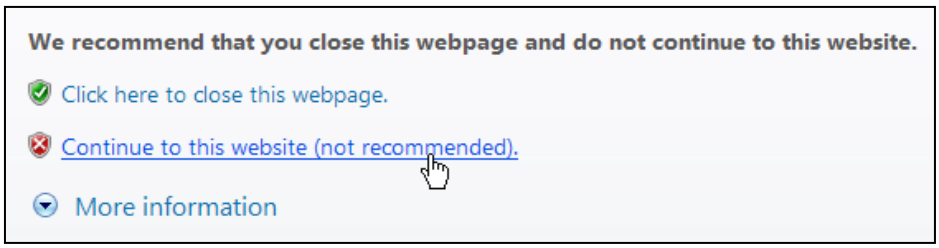
Procedure 20: Configure ComAgent Service on Signaling Network

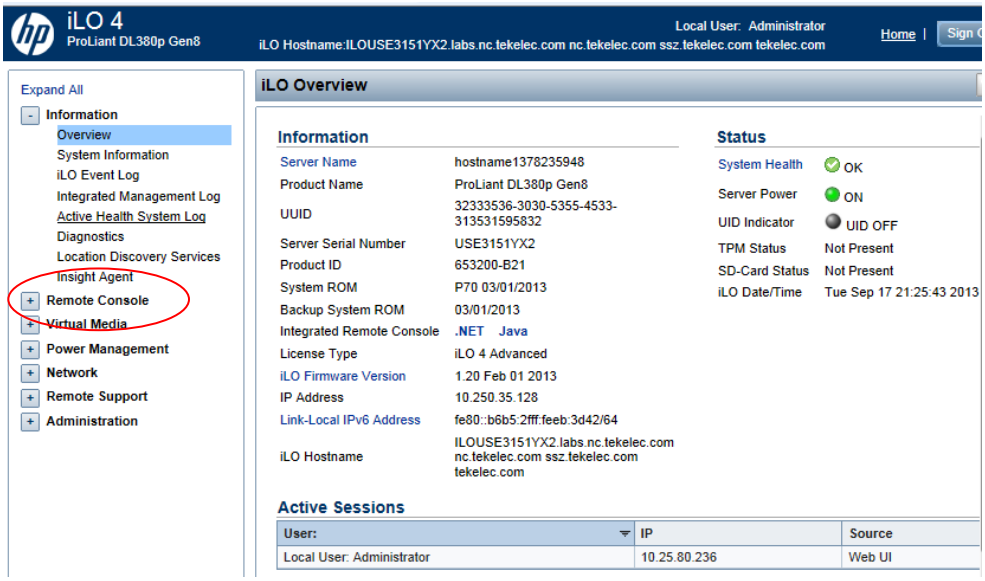
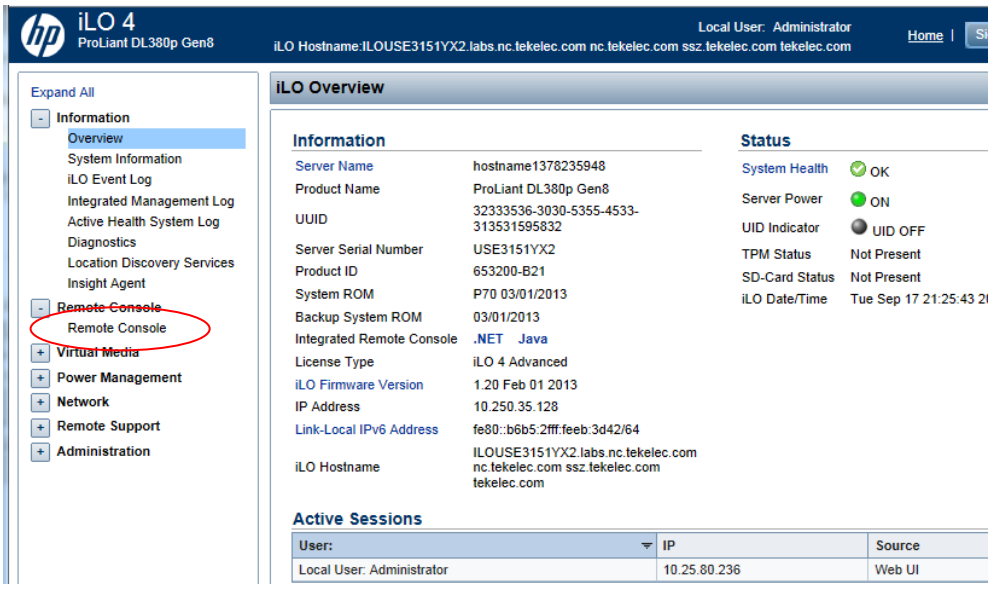
Step	Procedure	Result
5. ☐	**NOAMP Server A:** **1)** Set the services values as shown on the right. **2)** Select the **"Apply"** dialogue button. **3)** Select the **"OK"** dialogue button in the popup window.	Services Name / Intra-NE Network / Inter-NE Network OAM: IMI / XMI Replication: IMI / XMI Signaling: Unspecified / Unspecified HA_Secondary: IMI / XMI HA_MP_Secondary: IMI / XMI Replication_MP: IMI / XMI ComAgent: IMI / XSI1 Ok Apply Cancel  NOAMP and MP Servers need to be restarted. **Note:** **For Topology 1**, any of the following configurations can be used for ComAgent service : Intra-NE Network : Inter-NE Network IMI : XSI1 XSI1 : XSI1 **For Topology 4**, any of the following configurations can be used for ComAgent service : Intra-NE Network : Inter-NE Network XSI1 : XSI1 **For Topology 7**, any of the following configurations can be used for ComAgent service: Intra-NE Network : Inter-NE Network IMI : XSI1 XSI1 : XSI1
6. ☐	**Active NOAMP VIP** The user will be presented with the "**Services**" configuration screen as shown on the right	Name / Intra-NE Network / Inter-NE Network OAM: IMI / XMI Replication: IMI / XMI Signaling: Unspecified / Unspecified HA_Secondary: IMI / XMI HA_MP_Secondary: IMI / XMI Replication_MP: IMI / XMI ComAgent: IMI / XSI1
7. ☐	**Restart all NOAMP and MP Servers**	`# init 6` Note: This should be executed on all NOAMPs and MPs.
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix A. Accessing the iLO VGA Redirection Window

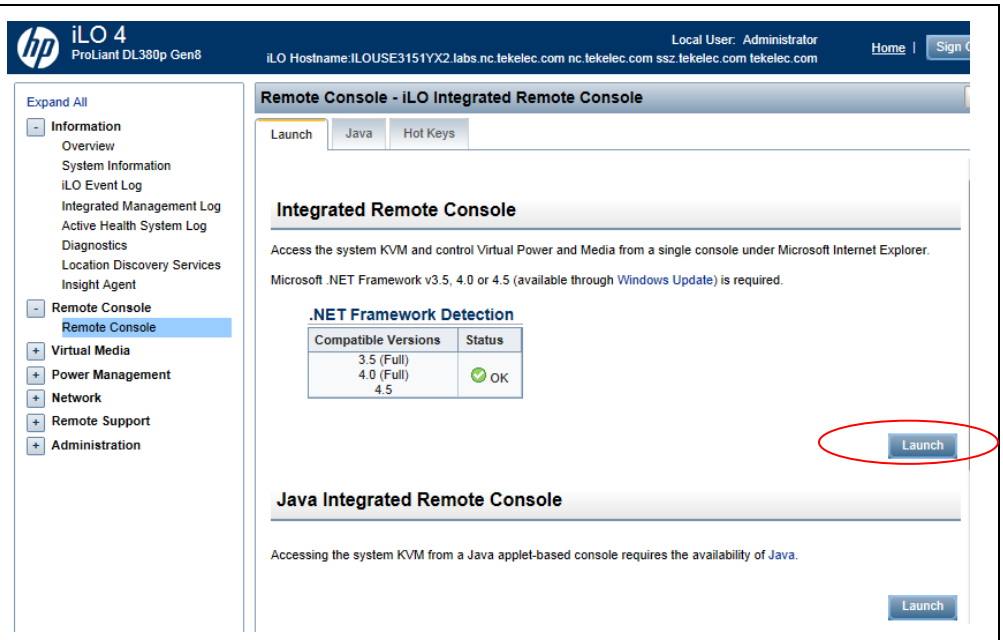
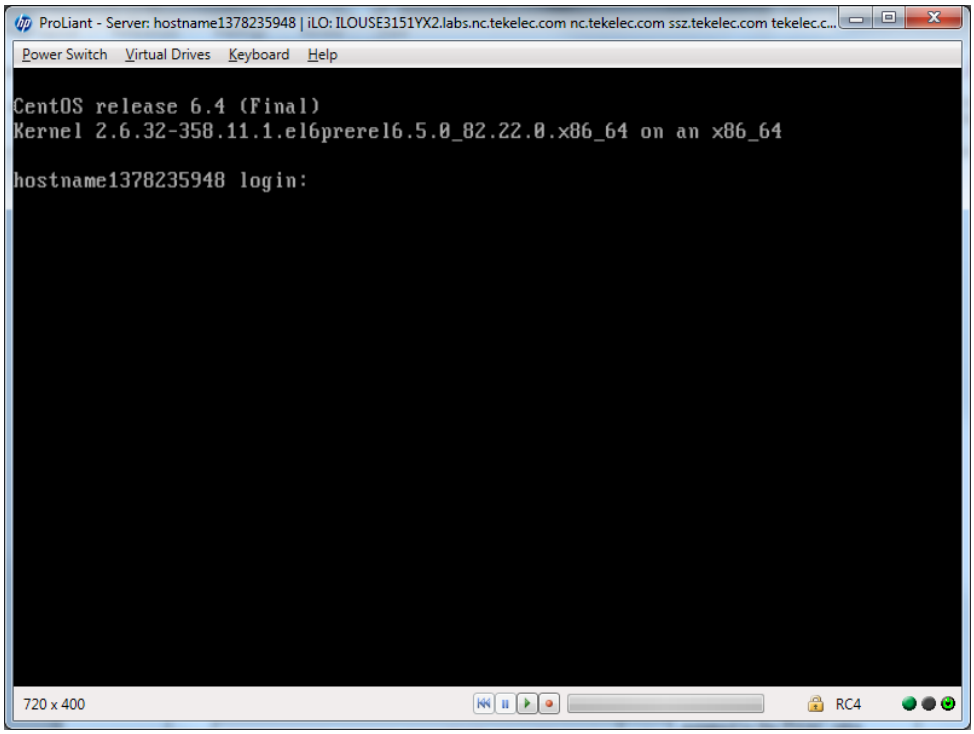
A.1 Accessing the iLo VGA Redirection Window for HP

Appendix A.1: Accessing the iLO VGA Redirection Window for HP

Step	Procedure	Result
1. ☐	Launch an approved web browser and connect to the iLO interface **NOTE:** *Always use https:// for iLO GUI access..*	
2. ☐	The web browser will display a warning message regarding the Security Certificate.	
3. ☐	Select the option to "Continue to the website (not recommended)	

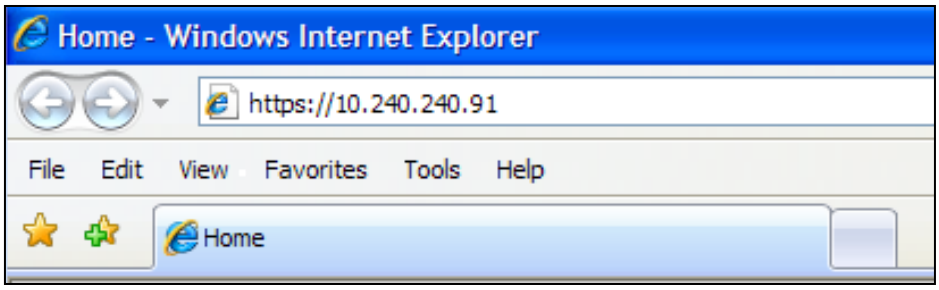
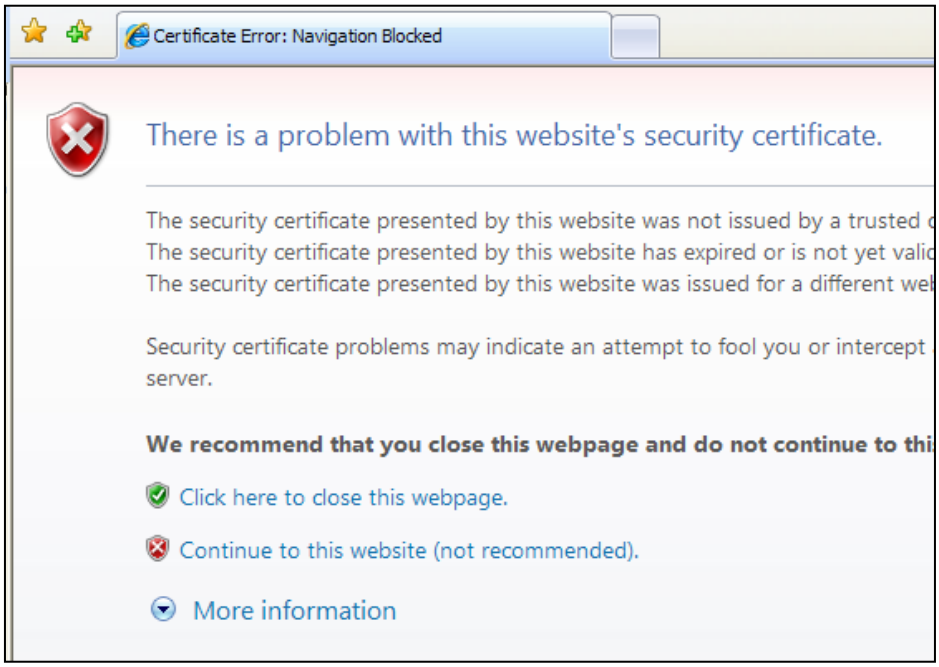
4. ☐	Login to the iLO console as "Administrator"	
5. ☐	The admin GUI is displayed. Expand the "**Remote Console**" tab in the left panel of the GUI.	
6. ☐	The Remote Console tab is expanded Click on the "**Remote Console**" option	

Appendix A.1: Accessing the iLO VGA Redirection Window for HP

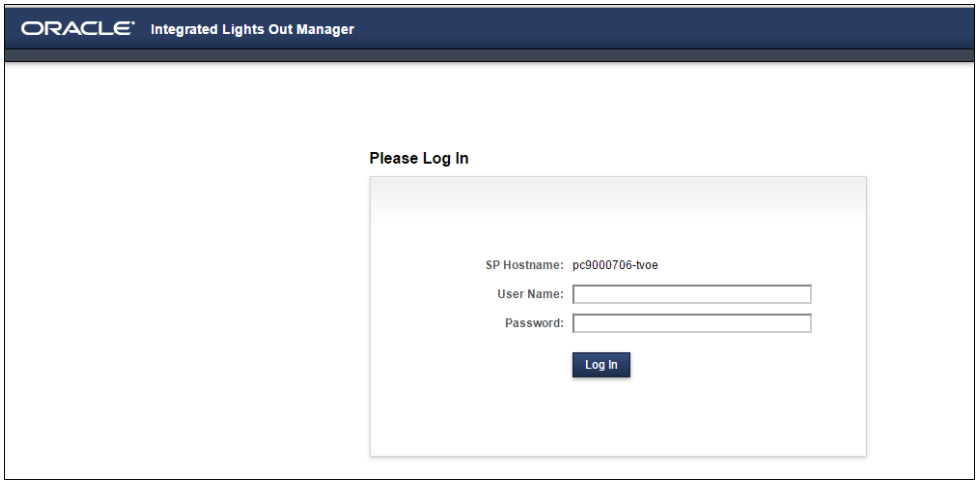
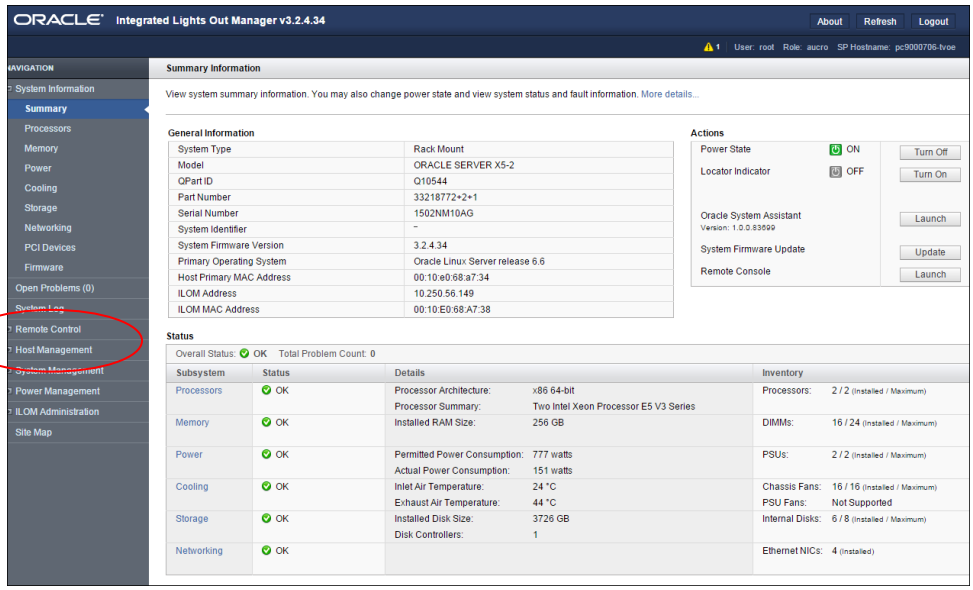
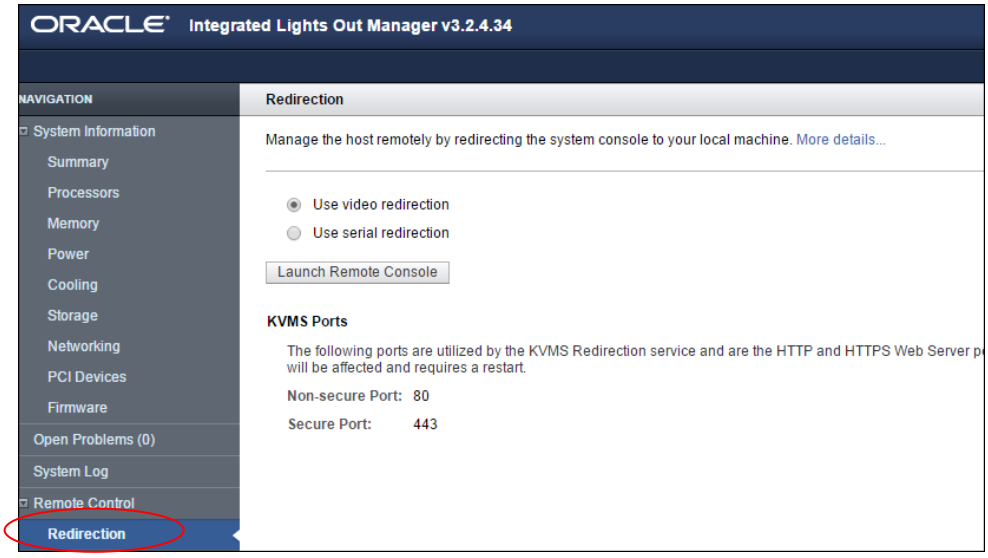
7. ☐	The Remote Console GUI is displayed Click on the "**Launch**" button under "**Integrated Remote Console**"	
8. ☐	The iLO Console window is displayed. **NOTE:** *The console window resembles an MS-DOS window but DOES NOT have a scroll-back buffer.*	
THIS PROCEDURE HAS BEEN COMPLETED		

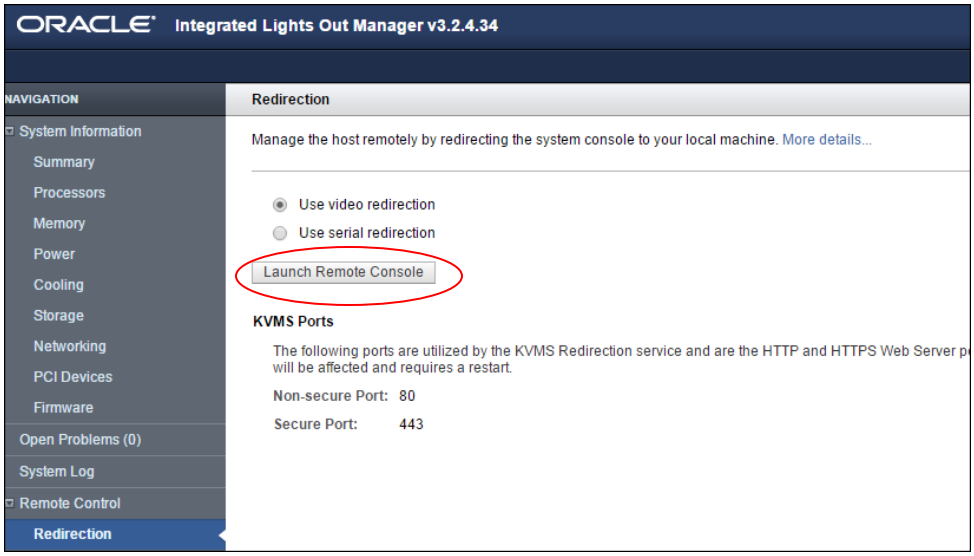
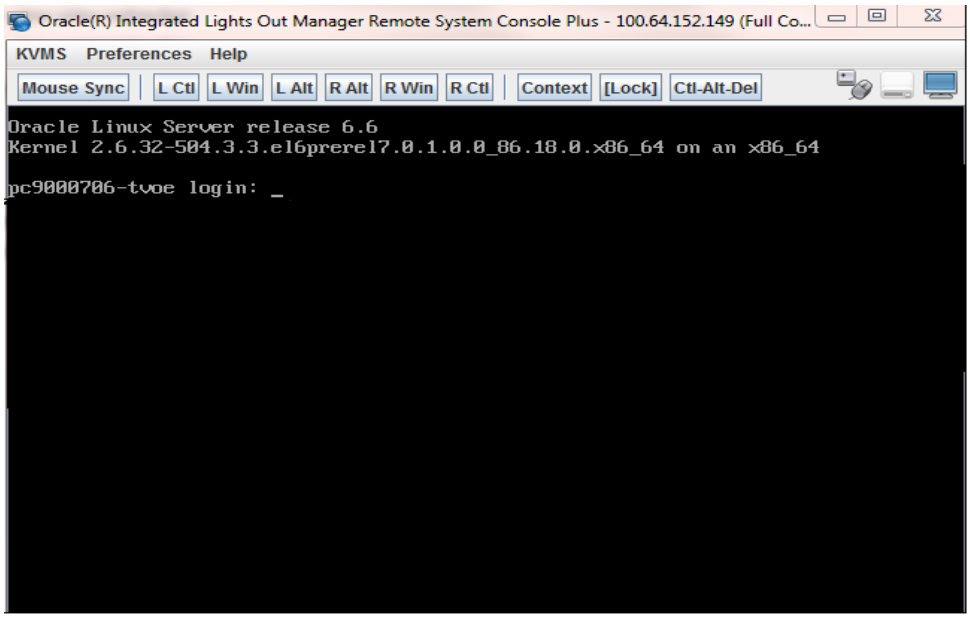
A.2 Accessing the iLo VGA Redirection Window for Oracle RMS Servers

Appendix A.2: Accessing the iLO VGA Redirection Window for Oracle RMS Servers

Step	Procedure	Result
1. ☐	Launch an approved web browser and connect to the iLO interface **NOTE:** *Always use https:// for iLO GUI access..*	
2. ☐	The web browser will display a warning message regarding the Security Certificate.	
3. ☐	Select the option to "Continue to the website (not recommended)	

Appendix A.2: Accessing the iLO VGA Redirection Window for Oracle RMS Servers

4. ☐	Login to the iLO console as "Administrator"	
5. ☐	The admin GUI is displayed. Expand the "**Remote Control**" tab in the left panel of the GUI.	
6. ☐	The Remote Control tab is expanded Click on the "**Redirection**" option Verify "Use Video redirecton" radio button is selected.	

7. ☐	The Remote Control GUI is displayed Click on the "**Launch Remote Console**" button ** Note: Some security pop up windows may appear – accept them to continue with opening the console.	
8. ☐	The iLO Console window is displayed. **NOTE:** *The console window resembles an MS-DOS window but DOES NOT have a scroll-back buffer.*	
THIS PROCEDURE HAS BEEN COMPLETED		

A.3 Accessing the iLo Console for Oracle RMS Servers

Appendix A.3: Accessing the iLO Console for Oracle RMS Servers

Step	Procedure	Result
1. ☐	Login to the Server ILO console **NOTE:** *Output similar to that shown on the right will appear.*	Login to server using iLO IP address: **login as: root** **Password:xxxxxxxxx** Oracle(R) Integrated Lights Out Manager Version 3.2.4.10 r94551 Copyright (c) 2014, Oracle and/or its affiliates. All rights reserved. Hostname: pc9000705-tvoe ->
2. ☐	*CD to console directory*	**-> cd HOST/console** /HOST/console
3. ☐	*Start the /HOST/console* **NOTE:** *Output similar to that shown on the right will appear.*	**-> start** Are you sure you want to start /HOST/console (y/n)? **y** Serial console started. To stop, type ESC (**Hit enter key** Oracle Linux Server release 6.6 Kernel 2.6.32-504.1.3.el6prerel7.0.1.0.0_86.16.0.x86_64 on an x86_64 **hostnameb2b8de74dc20 login: admusr** **Password:xxxxxxxxxx** Last login: Thu May 7 13:30:24 on tty1 [admusr@hostnameb2b8de74dc20 ~]$

Appendix B. Accessing the OCUDR GUI

The user can now launch an approved web browser on this laptop and connect to **https://<XMI_IP_Address_for_NO_A>** to access the OCUDR GUI using a temporary IP address.

B.1 Creating Temporary External XMI IP Address

This procedure creates a temporary external XMI IP address that will be used for accessing the OCUDR GUI prior to configuring the first OCUDR server. This procedure assumes that the user has access to the ILO and can access an external (XMI) network at the customer site.

Appendix B.1: Creating Temporary External XMI IP Address

Step	In this procedure you will configure a temporary external XMI IP Address for NOAMP Server A for the 1st NOAMP site. The user will use this IP Address in a web browser to access the GUI to configure the first OCUDR server.	
1. ☐	Log onto the Server ILO as indicated in **Appendix A.1** **NOTE:** *Output similar to that shown on the right will appear.*	CentOS release 5.6 (Final) Kernel 2.6.18-238.19.1.el5prerel5.0.0_72.22.0 on an x86_64 hostname1260476221 login: **root** Password: ***<root_password>***
2. ☐	**Server ILO:** *Add XMI VLAN to the first OCUDR server (NOAMP-A)*	# **netAdm add --device=bond0.<xmi_vlan> --onboot=yes --netmask=<XMI_NETMASK> --address=<XMI_IP_Address_for_NOAMP_A>** Interface bond0.# added
3. ☐	**Server ILO:** *Add route to the default gateway for the first OCUDR site*	# **netAdm add --device=bond0.<xmi_vlan> --route=default --gateway=<XMI_IP_Address_for_default_gateway>** Route to bond0.# added
4. ☐	**Server ILO:** *Restart the network on the server*	Restart the network by running the following: # **service network restart**
5. ☐	**Server ILO:** *Ping the default gateway to ensure connectivity.*	[root@hostname1260476221 ~]# **ping <XMI_IP_Address_for_default_gateway>** [root@hostname1260476221 ~]#
6. ☐	**Server ILO** Log off the ILO	[root@hostname1260476221 ~]# **exit** CentOS release 5.6 (Final) Kernel 2.6.18-238.19.1.el5prerel5.0.0_72.22.0 on an x86_64 [root@hostname1260476221 ~] login:

Appendix B.1: Creating Temporary External XMI IP Address

THIS PROCEDURE HAS BEEN COMPLETED

B.2 Creating Temporary External XMI IP Address without Interface Bonding

Note: *This section presents a recommendation to accommodate lab environments that, due to equipment constraint, do not have the support of switches capable of providing bonded interfaces.* ***This configuration is not meant or implied to be an officially supported topology for OCUDR deployments.***

Note: *Interconnects should conform to Section 8 of reference [6].*

Appendix B.2: Creating Temporary External XMI IP Address without Interface Bonding

Step	In this procedure you will configure a temporary external XMI IP Address for NOAMP Server A for the 1st NOAMP site. The user will use this IP Address in a web browser to access the GUI to configure the first OCUDR server.	
1. ☐	Log onto the Server A ILO as indicated in **Appendix A.1.** **NOTE:** *Output similar to that shown on the right will appear.*	CentOS release 5.6 (Final) Kernel 2.6.18-238.19.1.el5prerel5.0.0_72.22.0 on an x86_64 hostname1260476221 login: **root** Password: ***<root_password>***
2. ☐	**Server ILO:** Add XMI IP address to the first OCUDR server (NOAMP-A) and have it use interface eth01	[root@hostname1260476221 ~]# **netAdm set --device=eth01 --onboot=yes --netmask=<XMI_NETMASK> --address=<XMI_IP_Address_for_NOAMP_A>** Interface eth01 updated [root@hostname1260476221 ~]#
3. ☐	**Server ILO:** Add route to the default gateway for the first OCUDR site	[root@hostname1260476221 ~]# **netAdm add --device=eth01 --route=default --gateway=<XMI_IP_Address_for_default_gateway>** Route to eth01 added [root@hostname1260476221 ~]#
4. ☐	**Server ILO:** Restart the network on the server	Restart the network by running the following: # **service network restart**
5. ☐	**Server ILO:** Ping the default gateway to ensure connectivity.	[root@hostname1260476221 ~]# **ping <XMI_IP_Address_for_default_gateway>** [root@hostname1260476221 ~]#

Appendix B.2: Creating Temporary External XMI IP Address without Interface Bonding

6. ☐	**Server ILO**
	
	Log off the ILO
		`[root@hostname1260476221 ~]# exit`
		
		`CentOS release 5.6 (Final)`
		`Kernel 2.6.18-238.19.1.el5prerel5.0.0_72.22.0 on an x86_64`
		
		`[root@hostname1260476221 ~] login:`

THIS PROCEDURE HAS BEEN COMPLETED		

B.3 Establishing a Local Connection for Accessing the OCUDR GUI (RMS only)

This procedure contains steps to connect a laptop to the SDM-A server via a directly cabled Ethernet connection and setting the IP address of the laptop. This procedure enables the user to use the laptop for accessing the OCUDR GUI prior to configuring the first OCUDR server.

Appendix B.3: Establishing a Local Connection for Accessing OCUDR GUI (RMS only)

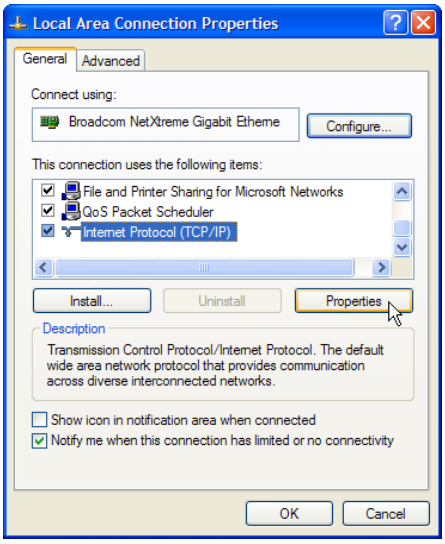
Step	In this procedure you will configure a temporary external XMI IP Address for NOAMP Server A for the 1st NOAMP site. The user will use this IP Address in a web browser to access the GUI to configure the first OCUDR server.	
1. ☐	Access the SDM-A server's console.	Connect to the UDR-A server's console using one of the access methods described in ***Section 2.1.2.***

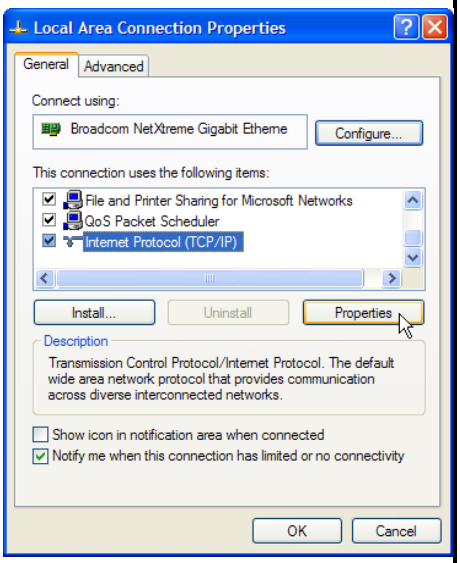
2. ☐	**1)** Access the command prompt.
	
	2) Log into the SDM-A server as the "**root**" user.
		`CentOS release 5.6 (Final)`
		`Kernel 2.6.18-238.19.1.el5prerel5.0.0_72.22.0 on an x86_64`
		
		`hostname1260476221 login: root`
		`Password: <root_password>`

3. ☐	Configure static IP 192.168.100.11 on the eth14 port of the SDM-A server.	`[root@hostname1260476221 ~]# netAdm set --device=eth14 --address=192.168.100.11 --netmask=255.255.255.0 --onboot=yes` `[root@hostname1260476221 ~]#`
4. ☐	**1)** Plug in one end of the Ethernet cable (straight-thru) into the back of SDM-A server ETH14 (top left port). **2)** Plug the other end of the Ethernet cable into the laptop's Ethernet jack.	

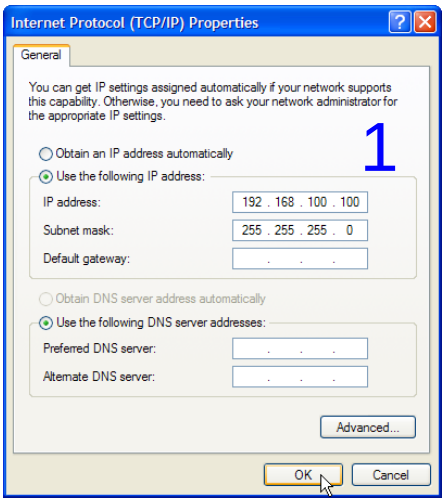
Appendix B.3: Establishing a Local Connection for Accessing OCUDR GUI (RMS only)

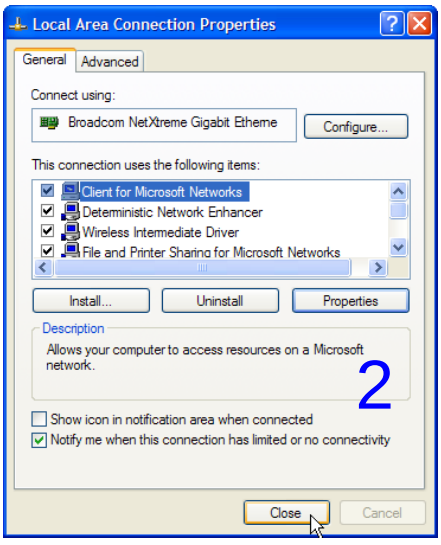
<table>
<tr>
<td>5. ☐</td>
<td>Access the laptop network interface card's TCP/IP "Properties" screen.

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


</td>
<td>
Windows Vista / Win 7
• 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)"


</td>
</tr>
<tr>
<td>6. ☐</td>
<td>1) Set the IP address and netmask of the laptop's network interface card to an IP address within the same network subnet as the statically assigned IP address used in Step 3 of this procedure (192.168.100.100 is suggested) and click "OK".

2) Click "Close" from the network interface card's main "Properties" screen.</td>
<td>


</td>
<td>


</td>
</tr>
<tr>
<td colspan="4">THIS PROCEDURE HAS BEEN COMPLETED</td>
</tr>
</table>

- The user can now launch an approved web browser on this laptop and connect to https://192.168.100.11 to access the OCUDR GUI using a temporary IP address.

Appendix C. Mounting Media on HP Servers

C.1 Mounting Physical Media on HP Servers (RMS only)

This procedure contains steps to mount electronic and physical media on HP rack mount servers.

Appendix C.1: Mounting Physical Media on HP Rack Mount Servers

Step	In this procedure you will mount media on HP rack mount servers, for ISO access or other file transfer.	
1. ☐	Access the server's console.	Connect to the server's console using one of the access methods described in ***Section 2.1.2.***

2. ☐	**1)** Access the command prompt.
	
	2) Log into the SDM-A server as the "**root**" user.
		`CentOS release 5.6 (Final)`
		`Kernel 2.6.18-238.19.1.el5prerel5.0.0_72.22.0 on an x86_64`
		
		`hostname1260476221 login: root`
		`Password: <root_password>`

3. ☐	**HP Server:** Insert the USB flash drive containing the server configuration file into the USB port on the front panel of **HP Server**.	 **Figure 4 - HP DL380 Front Panel: USB Port**

4. ☐	**HP Server:**
	
	Output similar to that shown on the right will appear as the USB flash drive is inserted into the **HP Server** front USB port.
	
	Press the **<ENTER>** key to return to the command prompt.
		`[root@hostname1260476099 ~]# sd 3:0:0:0: [sdb] Assuming drive cache: write through`
		`sd 3:0:0:0: [sdb] Assuming drive cache: write through <ENTER>`
		
		`[root@hostname1260476099 ~]#`

5. ☐	**HP Server:**
	
	Verify that the USB flash drive's partition has been mounted by the OS: Search **df** for the device named in the previous step's output .
		`[root@hostname1260476099 ~]# df |grep sdb`
		`/dev/sdb1  2003076  8  2003068  1%`
		`/media/sdb1`
		`[root@hostname1260476099 ~]#`

Appendix C.1: Mounting Physical Media on HP Rack Mount Servers

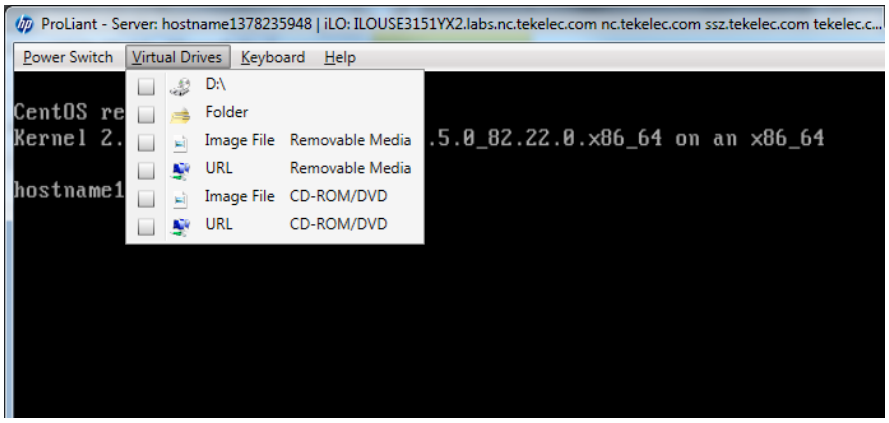
6. ☐	**HP Server:**
	
	UDB media may be accessed via the path shown
		`[root@hostname1260476099 ~]# cd /media/sdb1`
		
		`[root@hostname1260476099 ~]#`

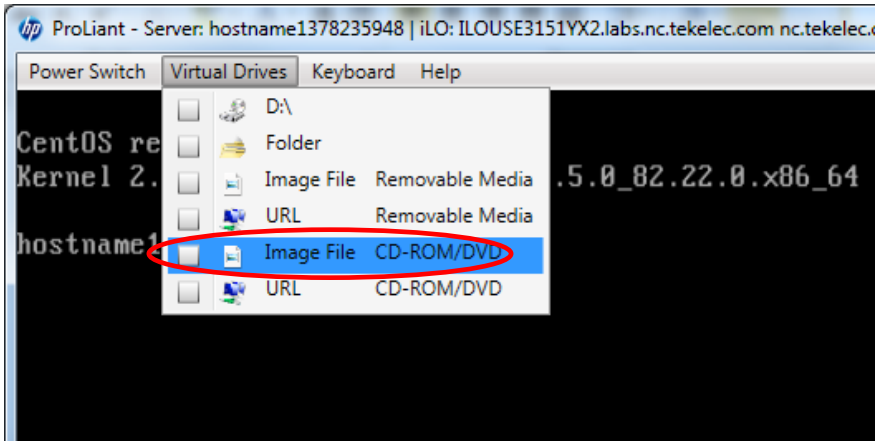
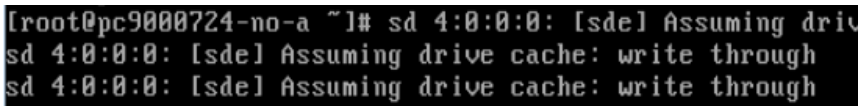
7. ☐	**HP Server:** *When you are finished using the mounted drive*, remove the USB flash drive from the USB port on the front panel of the server.	 **Figure 5 - HP DL380 Front Panel: USB Port**
THIS PROCEDURE HAS BEEN COMPLETED		

C.2 Mounting Virtual Media on HP Servers

This procedure contains steps to mount virtual media on HP rack mount servers via ILO.

Appendix C.2: Mounting Virtual Media on HP Rack Mount Servers

Step	In this procedure you will mount media on HP rack mount servers via ILO, for ISO access or other file transfer.	
1. ☐	Access the server's ILO VGA.	Connect to the server's ILO VGA using the access method described in **Appendix A.1.**
2. ☐	**ILO Remote Console:** Select "**Virtual Drives**" from the top menu bar.	

3. ☐	**HP Server:** Select from the menu options presented: **Image File** to access files on your laptop client machine. **URL** to access files on the network. **Folder** to open a directory on your client machine. **CD-ROM/DVD** to mount ISO type files. **Removable Media** for other file types.	
4. ☐	**HP Server:** **Folder** mounting will cause device information to display to console. **or** **CD-ROM/DVD** media may be accessed via the device shown by **getCDROM**	 [root@hostname1260476099 ~]# **getCDROM** Virtual_DVD-ROM|sr0 /dev/sr0

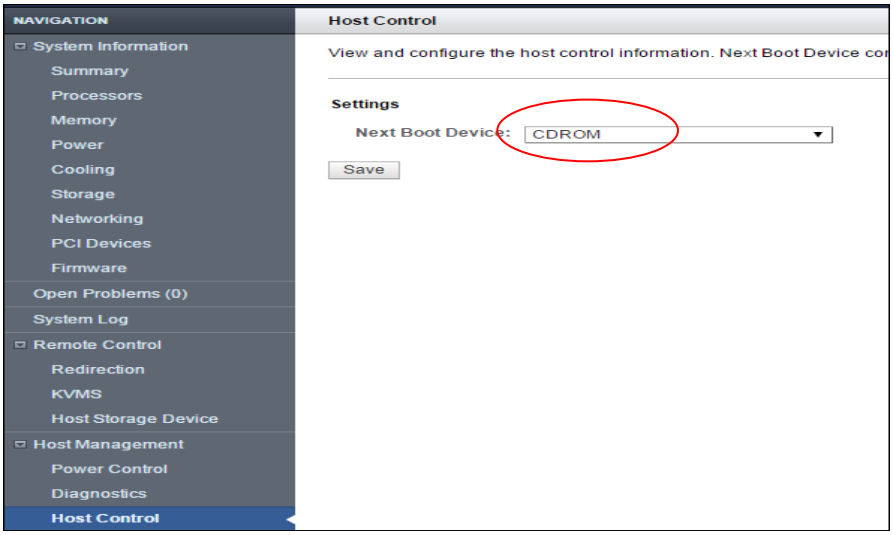
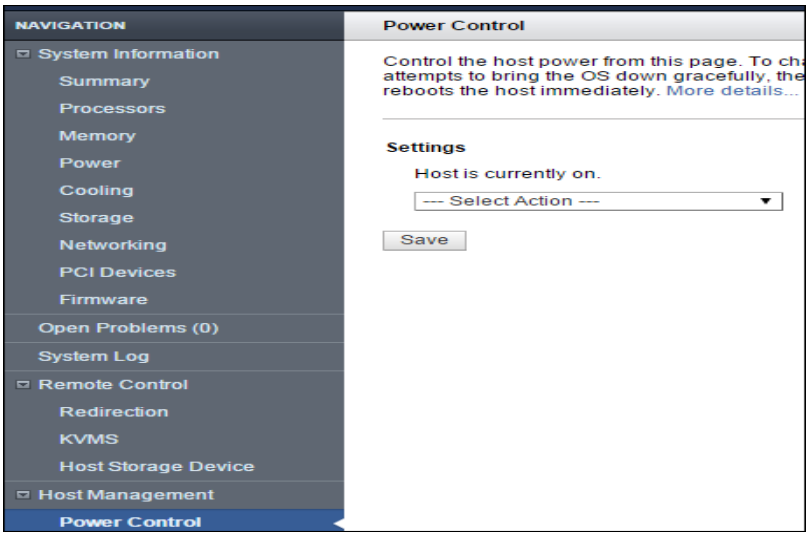
5. ☐	**HP Server:**
	
	Mount device to access its data
		`[root@pc9000724-no-a ~]# sd 4:0:0:0: [sde] Assuming driv`
		`sd 4:0:0:0: [sde] Assuming drive cache: write through`
		`sd 4:0:0:0: [sde] Assuming drive cache: write through`
		
		`# mount /dev/<device_name> /mnt/<mount_name>`
		`mount: block device /dev/sde is write-protected, mounting read-only`

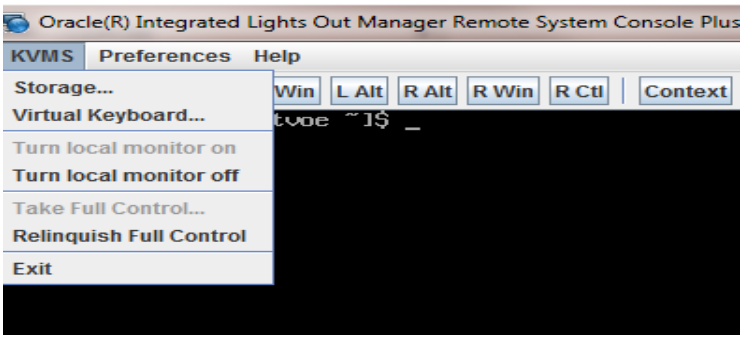
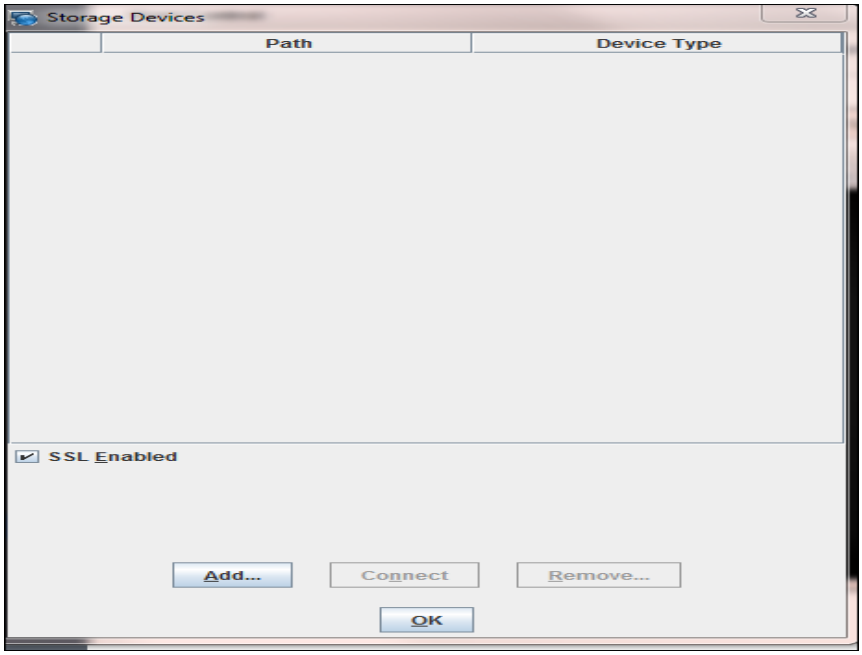
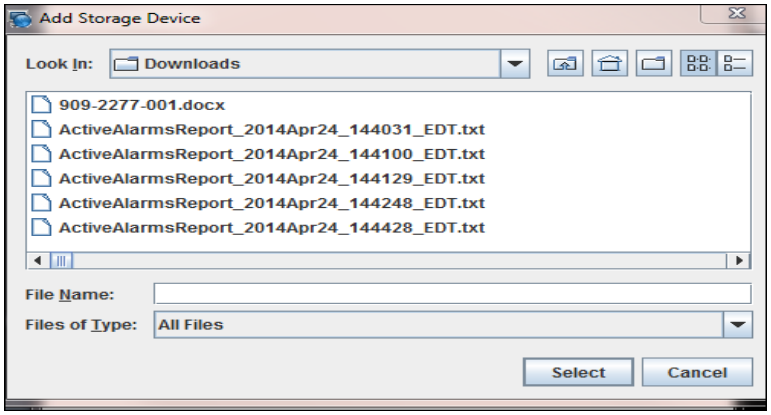
THIS PROCEDURE HAS BEEN COMPLETED		

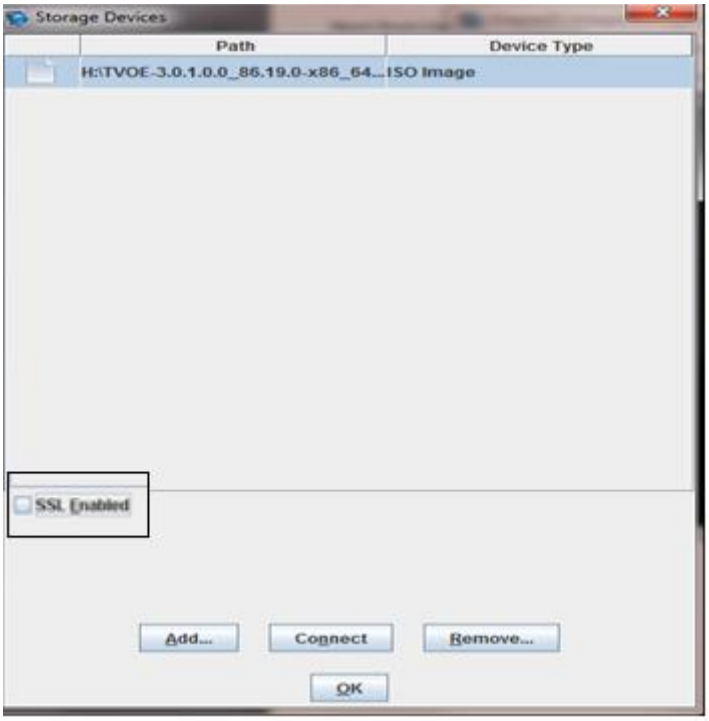
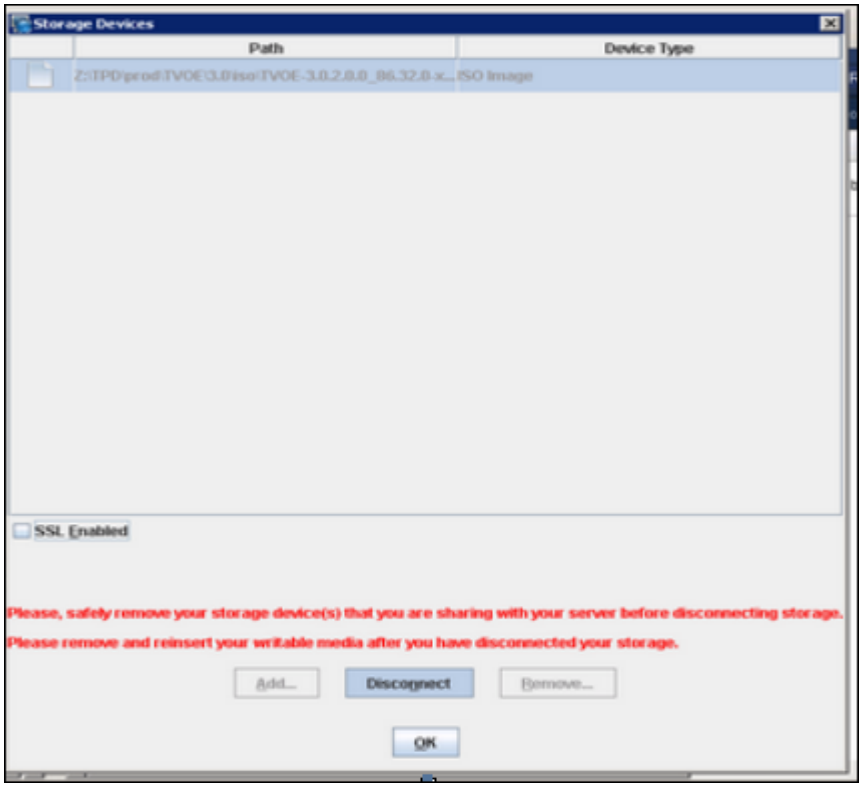
C.3 Mounting Virtual Media on Oracle RMS Servers

This procedure contains steps to mount virtual media on Oracle RMS servers via ILO.

Appendix C.3: Mounting Virtual Media on Oracle RMS Servers

Step	In this procedure you will mount media on Oracle RMS servers via ILO, for ISO access or other file transfer.	
1. ☐	Access the server's ILO VGA.	Connect to the server's ILO VGA using the access method described in Appendix 0: Accessing the iLo VGA Redirection Window for Oracle RMS `Servers`.
2.	**ILO Admin GUI:** Change the Next Boot Device Select "**Host Management/Host Control**" Select "**CDROM**" from "**Next Boot Device**" drop down box. Click "**Save**"	
3.	**ILO Admin GUI:** Go to "**Host Management/ Power Control**" Verify "**Host is currently on**" Note: If it's turned off, turn it back on.	

4. ☐	**ILO Remote Console:** Select "**KMVS/Storage**" from the top menu bar. Select "Add" button on next screen near bottom of the screen.	 
5. ☐	**ILO Remote Console:** Select desired **Image File** from files on your laptop/desktop client machine.	

6.	**ILO Remote Console:** 1. Select/highlight the ISO file 2. **Uncheck SSL Enabled** checkbox before connecting to the TVOE iso. 3. Click **Connect** 4. Click **OK**	 
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix D. Hardware Setup

D.1 BIOS Settings for HP Blade and Rack Mount Servers

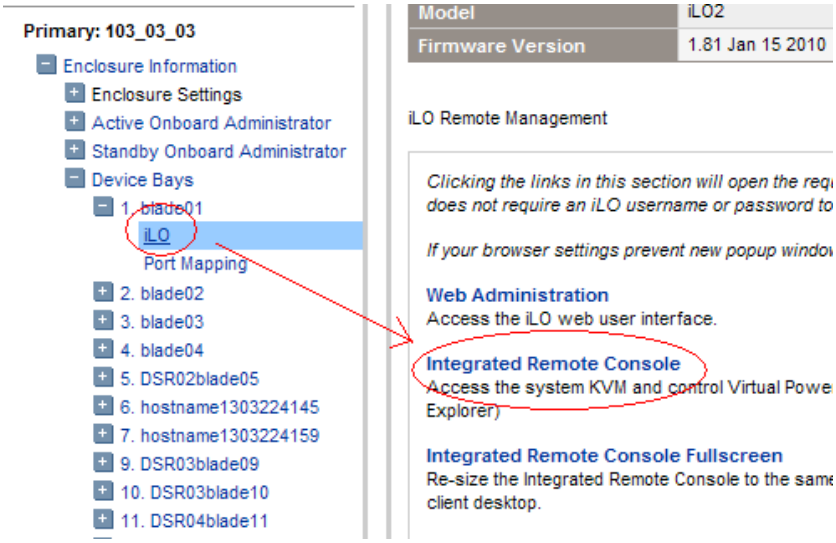
This procedure will configure HP BIOS settings for Blade and RMS.

Needed material:

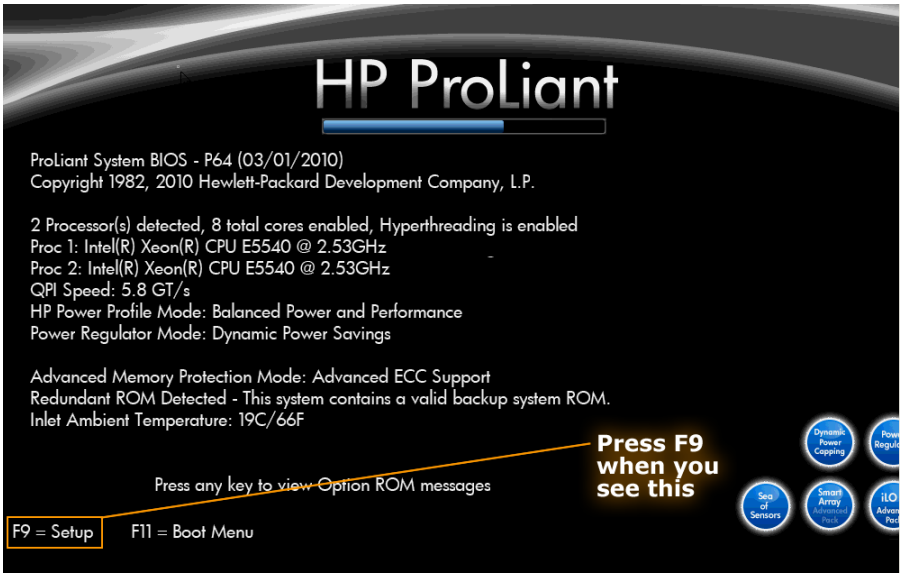
- None

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

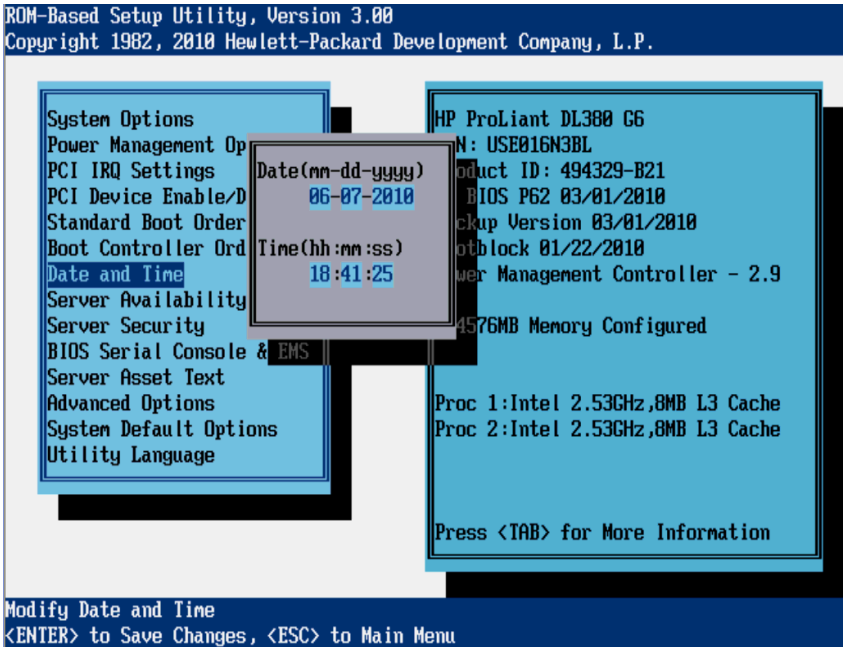
Appendix D.1: BIOS Settings for HP Blade and Rack Mount Servers

Step	In this procedure you will configure BIOS settings for HP hardware.	
1. ☐	Access the HP server's console.	Connect to the server's console using one of the access methods described in ***Section 2.1.2.***
2. ☐	Access the HP server's console according to its hardware type	For Rack Mount Servers (RMS), connect to the server's console using one of the access methods described in ***Section 2.1.2.*** For Blade servers: 1. Navigate to the IP address of the active OA. Login as an administrative user. 2. Navigate to **Enclosure Information > Device Bays > <Blade 1> > iLO** 3. Click on **Integrated Remote Console**  **Note:** This will launch the iLO interface for that blade. If this is the first time the iLO is being accessed, you will be prompted to install an addon to your web browser, follow the on screen instructions to do so.

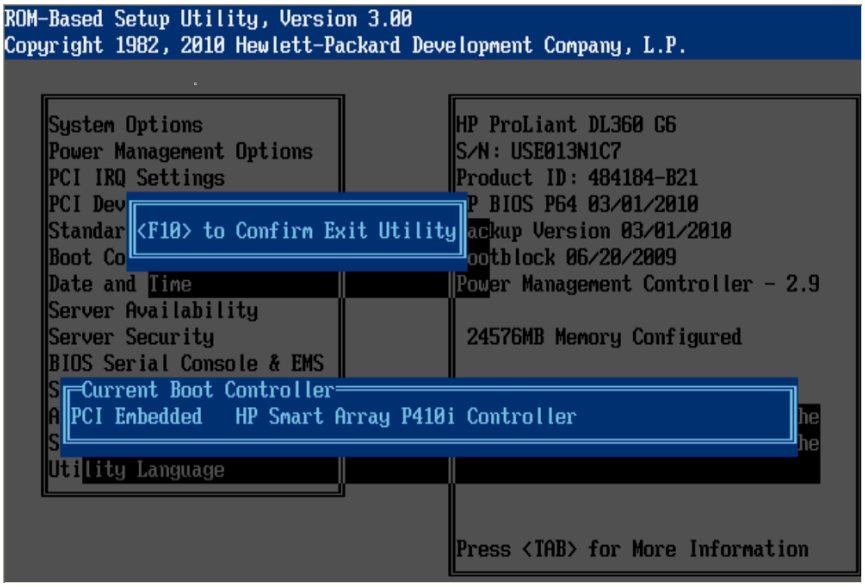
Appendix D.1: BIOS Settings for HP Blade and Rack Mount Servers

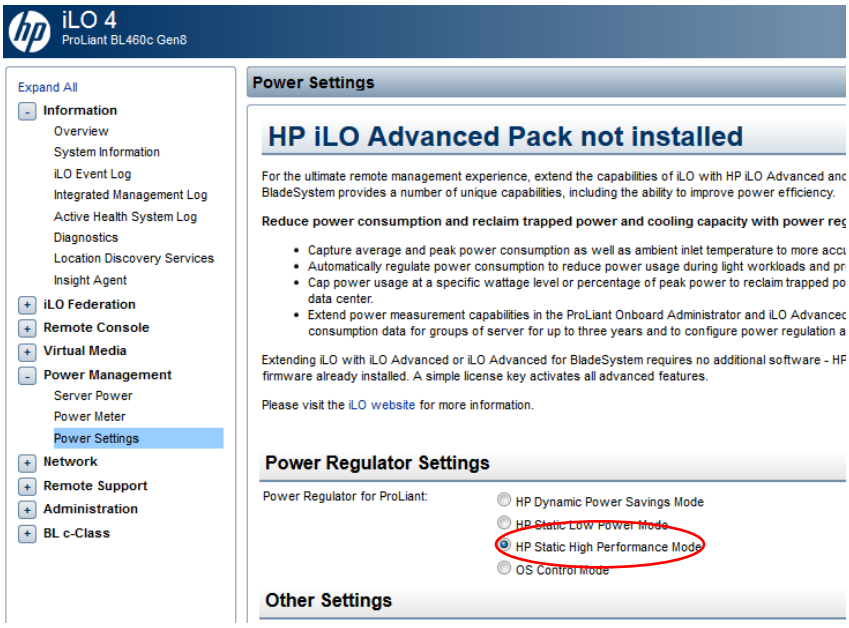
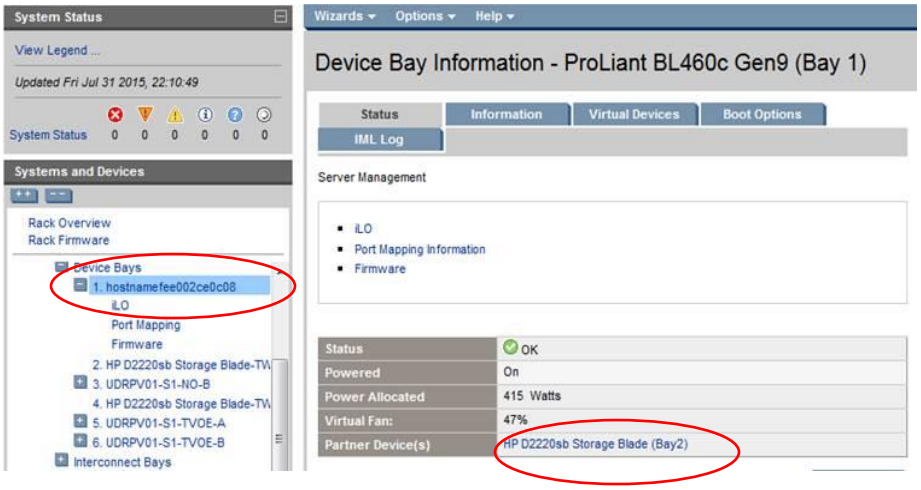
3. ☐	Access the Server BIOS	Reboot the server. **For Blade**, this can be achieved by selecting **Cold Boot** from under the Integrated Console's **Power Switch** menu. **For RMS**, this can be achieved by pressing and holding the power button until the server turns off, then after approximately 5-10 seconds press the power button to enable power. As soon as you see **F9=Setup** in the lower left corner of the screen, press **[F9]** to access the BIOS setup screen. You may be required to press [F9] 2-3 times. The F9=Setup will change to F9 Pressed once it is accepted. See example below.  **Expected Result:** ROM-Based Setup Utility is accessed and the ROM-Based Setup Utility menu will be displayed.

Appendix D.1: BIOS Settings for HP Blade and Rack Mount Servers

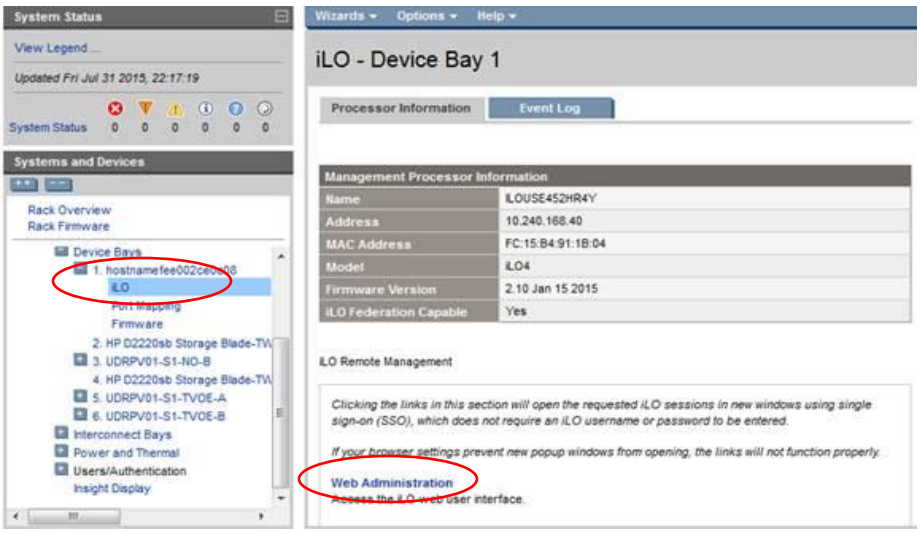
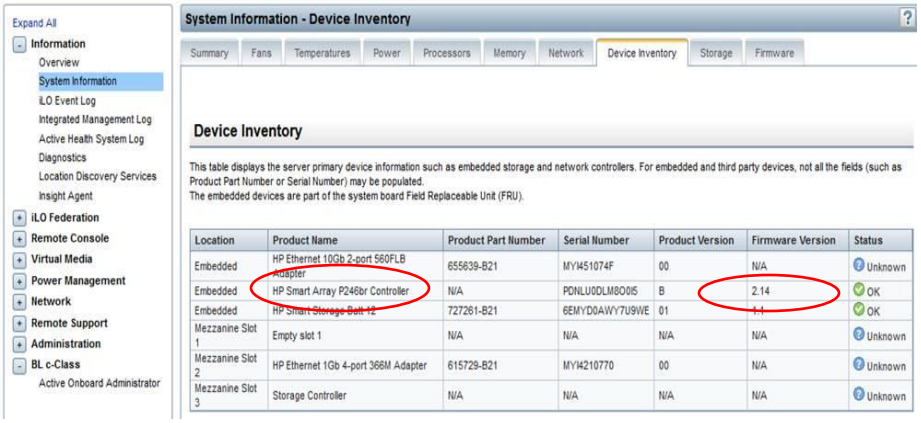
4. ☐	Set Server CMOS Clock	Scroll to *Date and Time* and press **[ENTER]** Set the date and time and press **[ENTER]**.  **Expected Result:** Correct Time & Date is set.
5. ☐	Configure iLO serial port settings ***(RMS Only)***	For RMS only, the serial ports on HP DL360 G6 rack mount servers need to be configured so the serial port used by the BIOS and TPD are connected to the “VSP” on the iLO. This will allow the remote administration of the servers without the need for external terminal servers. If this configuration has not been completed correctly and the server rebooted, the syscheck “syscheck -v hardware serial” test will fail. Select **System Options** option and press **[ENTER]**. Select **Serial Port Options** option and press **[ENTER]**. Change **Embedded Serial Port** to **COM2** and press **[ENTER]**. Change **Virtual Serial Port** to **COM1** and press **[ENTER]**. Press <ESC> two times
6. ☐	Configure Power Profile settings	The Power Profile on HP servers used in OCUDR need to be configured for optimum OCUDR software performance on both RMS and blade hardware. Select **Power Management Options** option and press **[ENTER]**. Select **HP Power Profile** option and press **[ENTER]**. Change it to **Maximum Performance** and press **[ENTER]**.

Appendix D.1: BIOS Settings for HP Blade and Rack Mount Servers

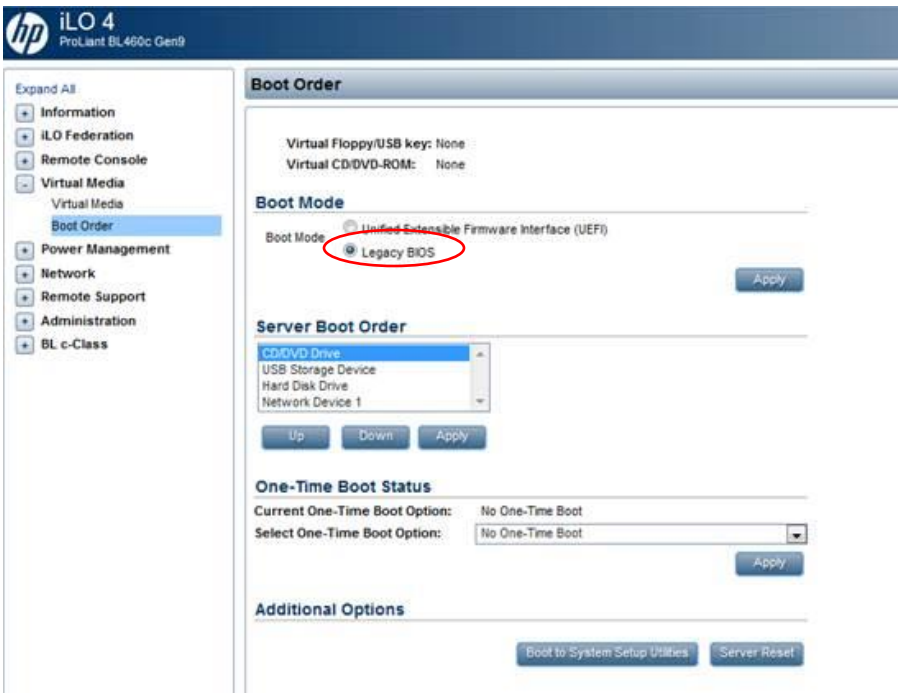
7. ☐	Configure Power Regulator settings	The Power Regulator on HP servers used in SDM need to be configured for optimum SDM software performance on both RMS and blade hardware. Still under **Power Management Options** options … Select **HP Power Regulator** option and press **[ENTER]**. *Note:* A note may appear to say certain processors support only one power state. If this appears, press [ESC] to clear it. Change setting to **HP Static High Performance Mode** and press **[ENTER]**.
8. ☐	Save Configuration and Exit	Press <ESC> two times Press [**F10]** to save the configuration and exit. The server will reboot  **Expected Result:** Settings are saved and server reboots.

9. ☐	Confirm the HP server's Power Regulator setting.	If not already connected to the server's iLO, connect using **Appendix A.1 Accessing the iLo VGA Redirection Window for HP**. On the HP Server's iLO: 1. Navigate to **Power Management > Power Settings** 2. Confirm **Power Regulator for ProLiant** is set to: **'HP Static High Performance Mode'** 
The following steps 10 – 12 are for **HP Gen9** hardware only for NOAMPs.		
10. ☐	Launch an approved web browser and connect to the Active OA ILO interface Verify the Partner Device(s).	In the left tree menu Click: **Device Bays -> #. HOSTNAME**  **Note**: Ensure that Partner Device(s) is HPD2220sb not D2200sb

Appendix D.1: BIOS Settings for HP Blade and Rack Mount Servers

11. ☐	**Server ILO:** Login blade iLO	In left tree menu Click: **iLO** then **Web Administration** 
12. ☐	**Server ILO:** Verify HP Smart Array Controller	From left tree menu Click: **System Information**, then click the **Device Inventory tab**.  Ensure HP Smart Array controller is P246br and firmware version is at least 2.14.
The following step 13 is for **HP Gen9** hardware only.		

Appendix D.1: BIOS Settings for HP Blade and Rack Mount Servers

13. ☐	**Server ILO:** Verify the Boot Mode	From left tree menu Click: **Virtual Media > Boot Order**  **Note 1:** Ensure the Boot Mode on Gen9 is set to "Legacy BIOs" **Note 2**: If the BIOS Mode setting must be changed, the server will need to be in a power off state which can be applied under P**ower Management > Server Power** menu.
THIS PROCEDURE HAS BEEN COMPLETED		

NOTE: *These settings are current as of Document 820-6641-01, Revision B. (Manufacturing Acceptance Test Plan, Subscriber Data Management Rack Mount Servers). Please refer to the latest revision for current values.*

D.2 Oracle RMS Firmware Upgrade

This procedure will upgrade the server firmware. The actual firmware is to be downloaded at the My Oracle Support Site.

Needed material:

- Oracle Firmware Upgrade Pack, Release Notes 3.1.x, E60195 [10]
- Oracle Firmware Upgrade Pack, Upgrade Guide, 3.1.x, E60196 [11]
- Access to My Oracle Support Site (MOS)

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

Appendix D.2: Oracle RMS Firmware Upgrade

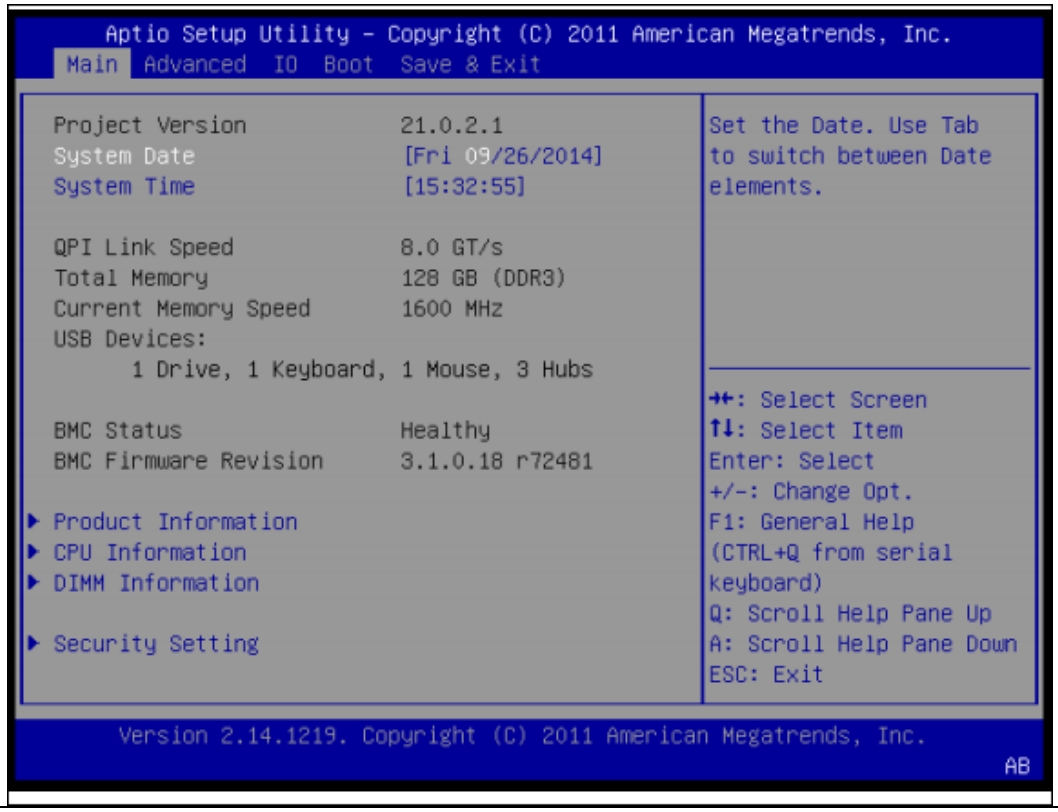
Step	Procedure	Result

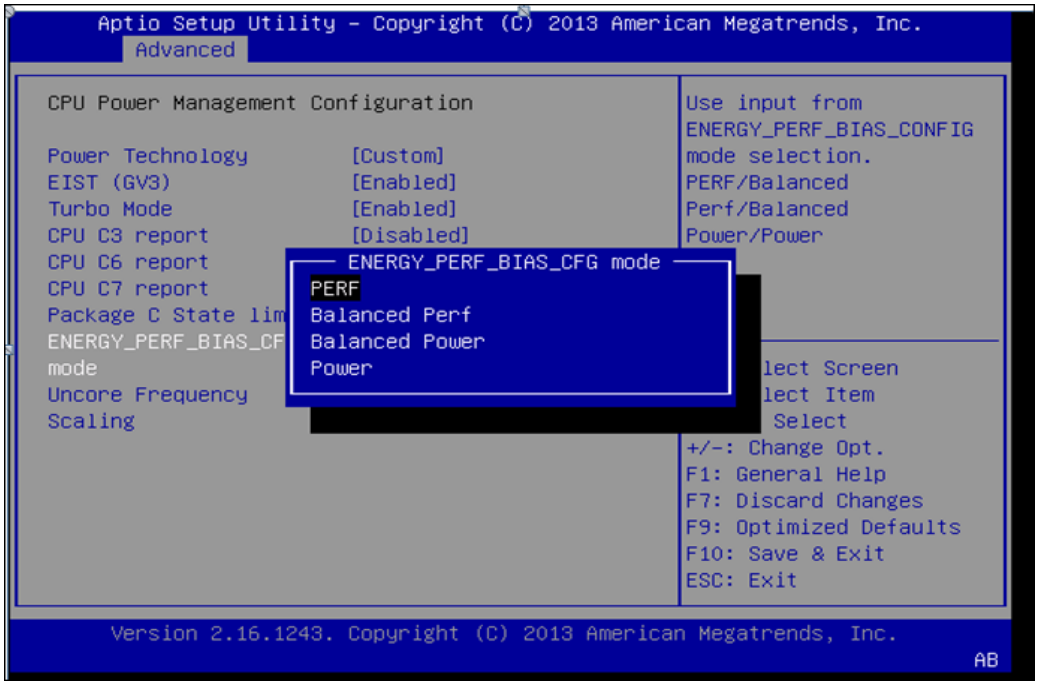
Step	Procedure	Result
1. ☐	*Upgrade Firmware if necessary*	The Oracle Firmware Upgrade Pack (FUP) consists of documentation used to assist in the upgrading of Oracle rack mount servers. The pack consists of Release Notes and an Upgrade Guide (refer to Needed Material above). However, if a firmware update is required, it is recommended to use the latest available release. Firmware components can be downloaded from My Oracle Support at https://support.oracle.com. Refer to the FUP Release Notes E60195 [10] for directions on how to acquire the firmware.
THIS PROCEDURE HAS BEEN COMPLETED		

D.3 BIOS Settings for Oracle RMS Servers

This procedure will configure BIOS settings for Oracle Rack Mount Servers.

Appendix D.3: Bios Settings for Oracle RMS Servers

Step	Procedure	Result
1. ☐	Access the Oracle server's console.	Connect to the server's console using Appendix 0: Accessing the iLo VGA Redirection Window for Oracle RMS Servers or Appendix A.3 Accessing the iLo Console for Oracle RMS Servers.
2. ☐	Oracle server's console Reboot the server and press F2 Key	Reboot the server. After the server is powered on, **press the F2 key** when prompted to access the Setup Utility. 
3. ☐	Oracle server's console	Set the server date and time to GMT (Greenwich Mean Time).

Step	Procedure	Result
4. ☐	Oracle server's console	Go to the Advanced Menu.  1) Select **Processors**. 2) Select **CPU Power Management Configuration**. 3) If Energy Performance **is not set to [Performance]**, select **Energy Performance and press Enter**. 4) In the resulting menu, select the **Performance** option and press **Enter**. 5) Press **<ESC>** to return to the Advanced menu. For X5-2 servers, press the **Escape** key once to return to the **Advanced** menu. For other servers, press the Escape key twice to return to the Advanced menu. 6) Select the **Exit or Save & Exit** menu and press **Enter** on **Save Changes and Reset** 7) Answer **Yes** to the prompt for confirmation
5. ☐	Oracle server's console	Go to the **Save & Exit** menu. a) Select **Save Changes and Reset**
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix E. Configuring Disk Array (NO Network Element Servers)

This procedure contains steps to configure disk array before installing the application.

E.1 Configuring RMS Disk Array (NO Network Element Servers)

Appendix E.1: Configuring RMS Disk Array on NO Network Element Servers

Step	Procedure	Result
1. ☐	*Access the HP server's console.*	Connect to the HP server's console using one of the access methods described in ***Section 2.1.2.***
2. ☐	*Enter command to show physical drives*	# **hpssacli ctrl all show config**

Appendix E.1: Configuring RMS Disk Array on NO Network Element Servers

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>3. ☐</td><td>View output from the above command</td><td>Verify that there are two slots: Slot 2 should have eight unassigned physical drives, Slot 1 should have one logical drive with two 900.1 GB physical drives and four unassigned physical drives.

NOTE: If this command does not show two slots with fourteen total physical drives, the hardware does not conform to a disk array system and neither the material in this or the next section applies to the system (in such case, this procedure must be skipped).

NOTE: If this command shows all drives are assigned, you may be installing onto hardware that has been through a prior installation (in such case, perform Appendix M.1 Removing RMS Disk Array Configuration before returning to this step).

<pre>
Smart Array P420 in Slot 2   (sn: PDKRH0ARH3X0CO)
   unassigned

      physicaldrive 1I:1:1 (port 1I:box 1:bay 1, SAS, 146 GB, OK)
      physicaldrive 1I:1:2 (port 1I:box 1:bay 2, SAS, 146 GB, OK)
      physicaldrive 1I:1:3 (port 1I:box 1:bay 3, SAS, 146 GB, OK)
      physicaldrive 1I:1:4 (port 1I:box 1:bay 4, SAS, 146 GB, OK)
      physicaldrive 2I:1:5 (port 2I:box 1:bay 5, SAS, 146 GB, OK)
      physicaldrive 2I:1:6 (port 2I:box 1:bay 6, SAS, 146 GB, OK)
      physicaldrive 2I:1:7 (port 2I:box 1:bay 7, SAS, 146 GB, OK)
      physicaldrive 2I:1:8 (port 2I:box 1:bay 8, SAS, 146 GB, OK)

   SEP (Vendor ID PMCSIERA, Model SRCv8x6G) 380 (WWID: 5001438025183C4F)

Smart Array P420i in Slot 0 (Embedded)   (sn: 5001438025A44EF0)
   array A (SAS, Unused Space: 0 MB)

      logicaldrive 1 (838.3 GB, RAID 1, OK)

      physicaldrive 1I:2:1 (port 1I:box 2:bay 1, SAS, 900.1 GB, OK)
      physicaldrive 1I:2:2 (port 1I:box 2:bay 2, SAS, 900.1 GB, OK)

   unassigned

      physicaldrive 1I:2:3 (port 1I:box 2:bay 3, SAS, 146 GB, OK)
      physicaldrive 1I:2:4 (port 1I:box 2:bay 4, SAS, 146 GB, OK)
      physicaldrive 2I:2:5 (port 2I:box 2:bay 5, SAS, 146 GB, OK)
      physicaldrive 2I:2:6 (port 2I:box 2:bay 6, SAS, 146 GB, OK)

   SEP (Vendor ID PMCSIERA, Model SRCv8x6G) 380 (WWID: 5001438025A44EFF)
</pre>
</td></tr>
<tr><td>4. ☐</td><td>Create first Slot 2 assigment</td><td># hpssacli ctrl slot=2 create type=ld \
drives=1I:1:1,1I:1:2,1I:1:3,1I:1:4 raid=1+0 stripsize=256

NOTE: This command returns no output.</td></tr>
<tr><td>5. ☐</td><td>Create second Slot 2 assigment</td><td># hpssacli ctrl slot=2 create type=ld \
drives=2I:1:5,2I:1:6,2I:1:7,2I:1:8 raid=1+0 stripsize=256

NOTE: This command returns no output.</td></tr>
</table>

Appendix E.1: Configuring RMS Disk Array on NO Network Element Servers

Step	Procedure	Result
6. ☐	*Create **Slot 0** assigment*	# **hpssacli ctrl slot=0 create type=ld drives=allunassigned \ raid=1+0 stripsize=256** ***NOTE**: This command returns no output.*
7. ☐	*Enter command to show physical drives*	# **hpssacli ctrl all show config**

Appendix E.1: Configuring RMS Disk Array on NO Network Element Servers

Step	Procedure	Result
8. ☐	*View output from the above command*	Verify output of the previous command. This should appear like the example output below. Verify that there are four logical drives: three logical drives with four physical drives, and a single logical drive with two physical drives.

```
Smart Array P420 in Slot 2                (sn: PDKRH0ARH3X0HB)

   array A (SAS, Unused Space: 0 MB)

      logicaldrive 1 (273.4 GB, OK, RAID 1+0, OK)

      physicaldrive 1I:1:1 (port 1I:box 1:bay 1, SAS, 146 GB, OK)
      physicaldrive 1I:1:2 (port 1I:box 1:bay 2, SAS, 146 GB, OK)
      physicaldrive 1I:1:3 (port 1I:box 1:bay 3, SAS, 146 GB, OK)
      physicaldrive 1I:1:4 (port 1I:box 1:bay 4, SAS, 146 GB, OK)

   array B (SAS, Unused Space: 0 MB)

      logicaldrive 2 (273.4 GB, OK, RAID 1+0, OK)

      physicaldrive 2I:1:5 (port 2I:box 1:bay 5, SAS, 146 GB, OK)
      physicaldrive 2I:1:6 (port 2I:box 1:bay 6, SAS, 146 GB, OK)
      physicaldrive 2I:1:7 (port 2I:box 1:bay 7, SAS, 146 GB, OK)
      physicaldrive 2I:1:8 (port 2I:box 1:bay 8, SAS, 146 GB, OK)

   SEP (Vendor ID PMCSIERA, Model SRCv8x6G) 380 (WWID: 500143802518449F)

Smart Array P420i in Slot 0 (Embedded)    (sn: 5001438025A465B0)

   array A (SAS, Unused Space: 0 MB)

      logicaldrive 1 (838.3 GB, RAID 1, OK)

      physicaldrive 1I:2:1 (port 1I:box 2:bay 1, SAS, 900.1 GB, OK)
      physicaldrive 1I:2:2 (port 1I:box 2:bay 2, SAS, 900.1 GB, OK)

   array B (SAS, Unused Space: 0 MB)

      logicaldrive 2 (273.4 GB, OK, RAID 1+0, OK)

      physicaldrive 1I:2:3 (port 1I:box 2:bay 3, SAS, 146 GB, OK)
      physicaldrive 1I:2:4 (port 1I:box 2:bay 4, SAS, 146 GB, OK)
      physicaldrive 2I:2:5 (port 2I:box 2:bay 5, SAS, 146 GB, OK)
      physicaldrive 2I:2:6 (port 2I:box 2:bay 6, SAS, 146 GB, OK)

   SEP (Vendor ID PMCSIERA, Model SRCv8x6G) 380 (WWID: 5001438025A465BF)
```

Appendix E.1: Configuring RMS Disk Array on NO Network Element Servers

Step	Procedure	Result

9. ☐	*Check for existing physical volumes*	`# pvs`
		
		`[root@hostname1380908951 ~]# pvs`
		`  PV         VG        Fmt  Attr PSize   PFree`
		`  /dev/sda2  vgroot    lvm2 a--  838.06g 827.06g`
		
		NOTE: *If additional devices /dev/sdb, /dev/sdc/, and /dev/sdd are displayed by this command then physical volumes are already configured. In such case continue to* ***Step*** *Error! Reference source not found. of this procedure.*

10. ☐	*Create physical volume* ***sdb***	`# pvcreate /dev/sdb` `Physical volume "/dev/sdb" successfully created`
11. ☐	*Create physical volume* ***sdc***	`# pvcreate /dev/sdc` `Physical volume "/dev/sdc" successfully created`
12. ☐	*Create physical volume* ***sdd***	`# pvcreate /dev/sdd` `Physical volume "/dev/sdd" successfully created`

13. ☐	*Execute the following syscheck/restart steps in order*	`# syscheck --reconfig disk smart`
		`# service smartd restart`
		`# syscheck disk smart`

THIS PROCEDURE HAS BEEN COMPLETED		

E.2 Configuring Blade Disk Array (NO Network Element Servers with Sidecar)

Appendix E.2: Configuring Blade Disk Array on NO Network Element Servers with Sidecar

Step	Procedure	Result
1. ☐	*Access the HP server's console.*	Connect to the HP server's console using one of the access methods described in ***Section 2.1.2.***
2. ☐	*Enter command to show physical drives*	`# hpssacli ctrl all show config`

Appendix E.2: Configuring Blade Disk Array on NO Network Element Servers with Sidecar

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>3. ☐</td><td>View output from the above command</td><td>Verify that there are two slots: Slot 0 should one logical drive with two 900.1 GB physical drives, Slot 3 should have an twelve (12) unassigned physical drives.

NOTE: If this command does not show two slots with fourteen total physical drives, the hardware does not conform to a disk array system and neither the material in this or the next section applies to the system (in such case, this procedure must be skipped).

NOTE: If this command shows all drives are assigned, you may be installing onto hardware that has been through a prior installation (in such case, perform Appendix M.2 Removing Blade Disk Array Configuration (Sidecar) before returning to this step).

<pre>Smart Array P220i in Slot 0 (Embedded)   (sn: PCQVU0CRH5V2JU)

   array A (SAS, Unused Space: 0 MB)

      logicaldrive 1 (838.3 GB, RAID 1, OK)

      physicaldrive 1I:1:1 (port 1I:box 1:bay 1, SAS, 900.1 GB, OK)
      physicaldrive 1I:1:2 (port 1I:box 1:bay 2, SAS, 900.1 GB, OK)

   SEP (Vendor ID PMCSIERA, Model SRCv4x6G) 380 (WWID: 5001438028DDB56F)

Smart Array P410i in Slot 3   (sn: 5001438025905EB0)

   unassigned

      physicaldrive 1I:1:1 (port 1I:box 1:bay 1, SAS, 146 GB, OK)
      physicaldrive 1I:1:2 (port 1I:box 1:bay 2, SAS, 146 GB, OK)
      physicaldrive 1I:1:3 (port 1I:box 1:bay 3, SAS, 146 GB, OK)
      physicaldrive 1I:1:4 (port 1I:box 1:bay 4, SAS, 146 GB, OK)
      physicaldrive 1I:1:5 (port 1I:box 1:bay 5, SAS, 146 GB, OK)
      physicaldrive 1I:1:6 (port 1I:box 1:bay 6, SAS, 146 GB, OK)
      physicaldrive 1I:1:7 (port 1I:box 1:bay 7, SAS, 146 GB, OK)
      physicaldrive 1I:1:8 (port 1I:box 1:bay 8, SAS, 146 GB, OK)
      physicaldrive 1I:1:9 (port 1I:box 1:bay 9, SAS, 146 GB, OK)
      physicaldrive 1I:1:10 (port 1I:box 1:bay 10, SAS, 146 GB, OK)
      physicaldrive 1I:1:11 (port 1I:box 1:bay 11, SAS, 146 GB, OK)
      physicaldrive 1I:1:12 (port 1I:box 1:bay 12, SAS, 146 GB, OK)

Expander 250 (WWID: 50014380251F83E6, Port: 1I, Box: 1)</pre></td></tr>
<tr><td>4. ☐</td><td>Create Slot 3 assigment</td><td># hpssacli ctrl slot=3 create type=ld \
drives=allunassigned raid=1+0 stripsize=256

NOTE: This command returns no output.</td></tr>
<tr><td>5. ☐</td><td>Enter command to show physical drives</td><td># hpssacli ctrl all show config</td></tr>
</table>

Appendix E.2: Configuring Blade Disk Array on NO Network Element Servers with Sidecar

Step	Procedure	Result
6. ☐	*View output from the above command*	Verify output of the previous command. This should appear like the example output below. Verify that there are four logical drives: three logical drives with four physical drives, and a single logical drive with two physical drives. Smart Array P220i in **Slot 0** (Embedded) (sn: PCQVU0CRH5V2JU) array A (SAS, Unused Space: 0 MB) **logicaldrive 1** (838.3 GB, RAID 1, OK) physicaldrive 1I:1:1 (port 1I:box 1:bay 1, SAS, 900.1 GB, OK) physicaldrive 1I:1:2 (port 1I:box 1:bay 2, SAS, 900.1 GB, OK) SEP (Vendor ID PMCSIERA, Model SRCv4x6G) 380 (WWID: 5001438028DDB56F) Smart Array P410i in **Slot 3** (sn: 5001438025905EB0) array A (SAS, Unused Space: 0 MB) **logicaldrive 1** (820.2 GB, RAID 1+0, OK) physicaldrive 1I:1:1 (port 1I:box 1:bay 1, SAS, 146 GB, OK) physicaldrive 1I:1:2 (port 1I:box 1:bay 2, SAS, 146 GB, OK) physicaldrive 1I:1:3 (port 1I:box 1:bay 3, SAS, 146 GB, OK) physicaldrive 1I:1:4 (port 1I:box 1:bay 4, SAS, 146 GB, OK) physicaldrive 1I:1:5 (port 1I:box 1:bay 5, SAS, 146 GB, OK) physicaldrive 1I:1:6 (port 1I:box 1:bay 6, SAS, 146 GB, OK) physicaldrive 1I:1:7 (port 1I:box 1:bay 7, SAS, 146 GB, OK) physicaldrive 1I:1:8 (port 1I:box 1:bay 8, SAS, 146 GB, OK) physicaldrive 1I:1:9 (port 1I:box 1:bay 9, SAS, 146 GB, OK) physicaldrive 1I:1:10 (port 1I:box 1:bay 10, SAS, 146 GB, OK) physicaldrive 1I:1:11 (port 1I:box 1:bay 11, SAS, 146 GB, OK) physicaldrive 1I:1:12 (port 1I:box 1:bay 12, SAS, 146 GB, OK) Expander 250 (WWID: 50014380251F83E6, Port: 1I, Box: 1)

Appendix E.2: Configuring Blade Disk Array on NO Network Element Servers with Sidecar

Step	Procedure	Result

7. ☐	*Check for existing physical volumes*	`# pvs`
		
		For Normal Capacity (Gen8 and Gen8+):
		`[root@hostname1380908951 ~]# pvs`
		`PV VG Fmt Attr PSize PFree`
		`/dev/sda2 vgroot lvm2 a-- 838.06g 827.06g`
		
		For Low Capacity (Gen8 and Gen8+):
		`[root@hostname1380908951 ~]# pvs`
		`PV VG Fmt Attr PSize PFree`
		`/dev/sda2 vgroot lvm2 a-- 819.03g 827.06g`
		
		For Normal Capacity (Gen9):
		`[root@BL9080501-Gen9-no-a ~]# pvs`
		`PV VG Fmt Attr PSize PFree`
		`/dev/sdb2 vgroot lvm2 a-- 838.06g 827.06g`
		
		For Low Capacity (Gen9):
		`[root@BL9080501-Gen9-no-a ~]# pvs`
		
		`PV VG Fmt Attr PSize PFree`
		`/dev/sdb2 vgroot lvm2 a-- 819.03g 827.06g`
		
		NOTE: *If an additional device /dev/sdb is displayed by this command then physical volumes are already configured. In such case continue to* ***Step 9*** *of this procedure.*

8. ☐	*Create physical volume* ***sdb***	`# pvcreate /dev/sdb` `Physical volume "/dev/sdb" successfully created`

9. ☐	*Create volume group* ***stripe_vg***	*****Don't execute for Low Capacity C-Class***
		
		`# vgcreate stripe_vg /dev/sdb`
		
		`Volume group "stripe_vg" successfully created`

10. ☐	*Create logical volume* ***rundb***	*****Don't execute for Low Capacity C-Class***
		
		`# lvcreate -L 385G --alloc anywhere --name rundb stripe_vg`
		
		`Rounding size (98560 extents) up to stripe boundary size (98562 extents)`
		`Logical volume "rundb" created`

Appendix E.2: Configuring Blade Disk Array on NO Network Element Servers with Sidecar

Step	Procedure	Result

11. ☐	*Make filesystem on **rundb***	*****Don't execute for Low Capacity C-Class***
		
		`# mkfs -t ext4 /dev/stripe_vg/rundb`
		`mke2fs 1.43-WIP (20-Jun-2013)`
		`Filesystem label=`
		`OS type: Linux`
		`Block size=4096 (log=2)`
		`Fragment size=4096 (log=2)`
		`Stride=0 blocks, Stripe width=0 blocks`
		`25231360 inodes, 100925440 blocks`
		`5046272 blocks (5.00%) reserved for the super user`
		`First data block=0`
		`Maximum filesystem blocks=4294967296`
		`3080 block groups`
		`32768 blocks per group, 32768 fragments per group`
		`8192 inodes per group`
		`Superblock backups stored on blocks:`
		`32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,`
		`4096000, 7962624, 11239424, 20480000, 23887872, 71663616, 78675968`
		
		`Allocating group tables: done`
		`Writing inode tables: done`
		`Creating journal (32768 blocks): done`
		`Writing superblocks and filesystem accounting information: done`
		
		`This filesystem will be automatically checked every 22 mounts or`
		`180 days, whichever comes first. Use tune2fs -c or -i to override.`

Execute the following step 12 on Gen9 servers only!		

12. ☐	*Execute the following syscheck/restart steps in order*	`# syscheck --reconfig disk smart`
		`# service smartd restart`
		`# syscheck disk smart`

THIS PROCEDURE HAS BEEN COMPLETED		

E.3 Configuring Oracle RMS Disk Array (NO Network Element Servers)

Appendix E.3: Configuring Oracle RMS Disk Array on NO Network Element Servers

Step	Procedure	Result
1. ☐	*Access the Oracle RMS server's console.*	Connect to the server's console using Appendix 0: Accessing the iLo VGA Redirection Window for Oracle RMS Servers or ssh to tvoe server or Appendix A.3 Accessing the iLo Console for Oracle RMS Servers.

Appendix E.3: Configuring Oracle RMS Disk Array on NO Network Element Servers

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>2. ☐</td><td>Remove prior RAID configuration if necessary</td><td>If the hardware has been through a prior installation, perform Appendix M.3: Removing RMS Disk Array Configuration for Oracle Servers before continuing.</td></tr>
<tr><td>3. ☐</td><td>Configure Disk Array</td><td># raidconfig create raid --stripe-size 128 --level 10 -d c0d2,c0d3,c0d4,c0d5

[root@UDRPV09-S1-TVOE-B ~]# raidconfig create raid --stripe-size 128 --level 10 -d c0d2,c0d3,c0d4,c0d5
Create RAID level 10 using the following disk(s):
Disk c0d2 (controller 0 slot 2)
Disk c0d3 (controller 0 slot 3)
Disk c0d4 (controller 0 slot 4)
Disk c0d5 (controller 0 slot 5) [y/n]? y
RAID created successfully
[root@UDRPV09-S1-TVOE-B ~]#</td></tr>
<tr><td>4. ☐</td><td>Verify the disk array configuration</td><td># raidconfig list all

The disk array configuration should be as shown:

CONTROLLER c0
==========
Manufacturer Model F/W Version RAID Volumes Disks

LSI Logic MegaRAID 9361-8i 4.230.40-3739 2 6

RAID Volumes
==========
ID Name Device Status Num Disks Level Size (GiB)
----
c0r0 /dev/sda OK 2 1 1117
c0r1 /dev/sdb OK 4 10 743

DISKS In Use
==========
ID Chassis Slot RAID ID Status Type Media Spare Size (GiB)
----
c0d0 0 0 c0r0 OK sas HDD - 1117
c0d1 0 1 c0r0 OK sas HDD - 1117
c0d2 0 2 c0r1 OK sas SSD - 372
c0d3 0 3 c0r1 OK sas SSD - 372
c0d4 0 4 c0r1 OK sas SSD - 372
c0d5 0 5 c0r1 OK sas SSD - 372</td></tr>
<tr><td>5. ☐</td><td>Reboot the server</td><td>Reboot the tvoe server (to make changes from /dev/sdc to /dev/sdb)
reboot</td></tr>
</table>

Appendix E.3: Configuring Oracle RMS Disk Array on NO Network Element Servers

Step	Procedure	Result

6. ☐	*Execute the following syscheck/restart steps in order*	`# syscheck --reconfig disk smart`
		`# service smartd restart`
		`# syscheck disk smart`

Appendix F. Installing Operating Systems

This procedure contains steps to apply server configuration scripts to rack mount servers.

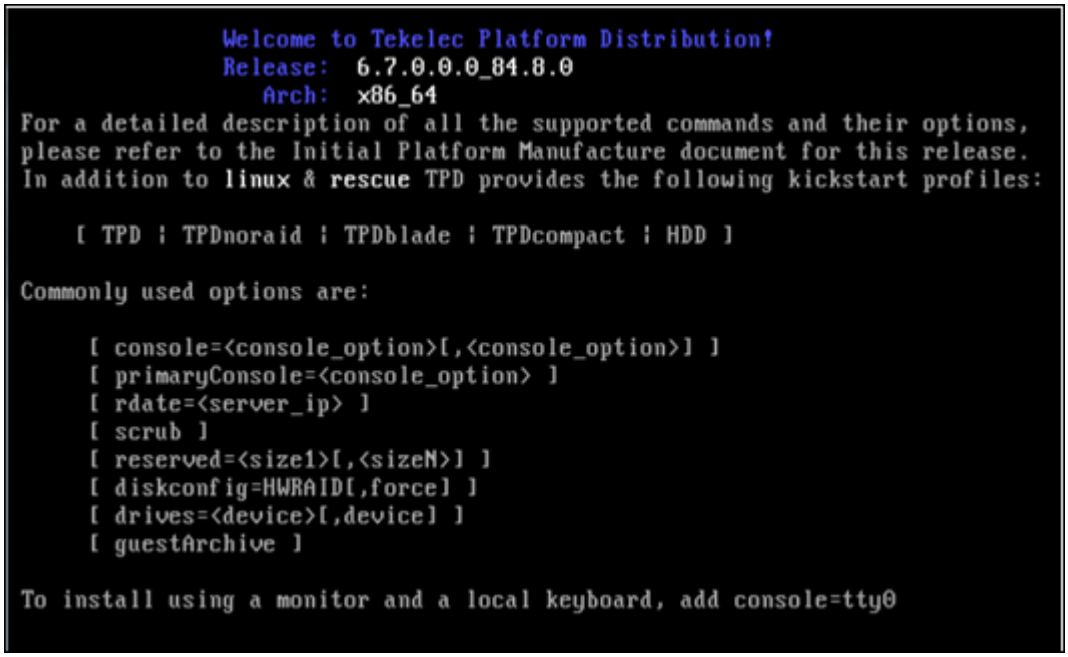
F.1 Installing Operating Systems with ILO

Appendix F.1: Installing Operating Systems with ILO

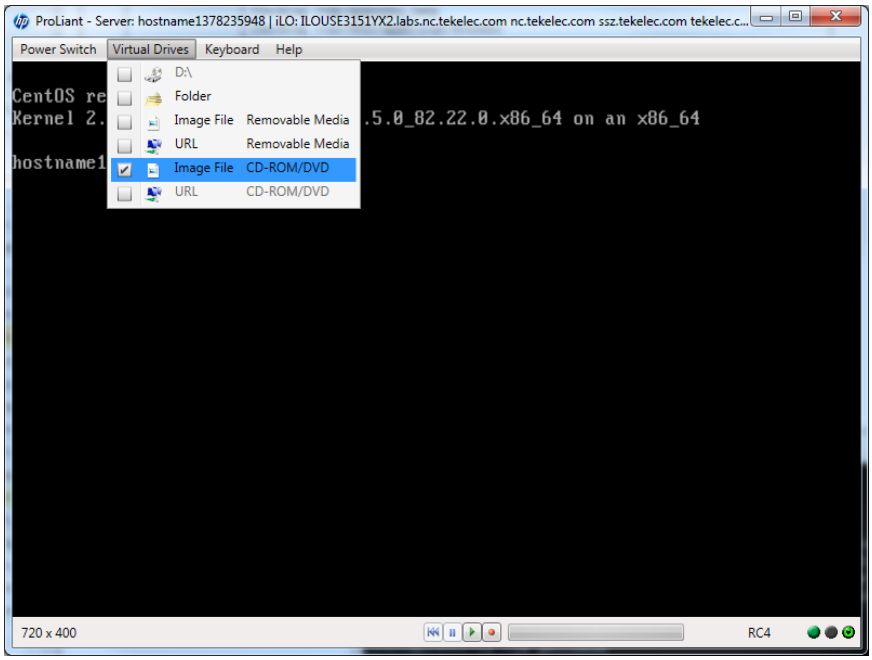
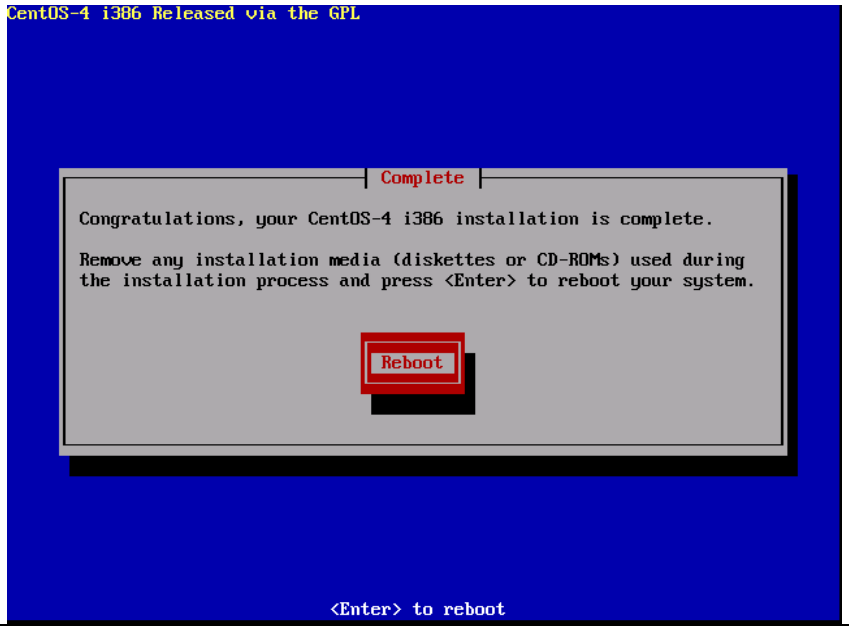
Step	Procedure	Result
1. ☐	*Access the HP server's console.*	Connect to the HP server's console using one of the access methods described in ***Section 2.1.2.***
2. ☐	*Mount the media containing the **TPD software**.*	Follow steps defined in … **Appendix C.1** Mounting Physical Media on HP Servers **or** **Appendix C.2** Mounting Virtual Media on HP Servers … to mount the OS software.

3. ☐	*Initiate a reboot of the server.*	`# reboot`
		
		`Broadcast message from sathiya@sathiya-laptop (/dev/pts/1) at 11:28 ...`
		
		`The system is going down for reboot NOW!`

Appendix F.1: Installing Operating Systems with ILO

Step	Procedure	Result
4. ☐	*Begin Platform Installation process*	Once the server reboots, it will reboot from the TPD media and a boot prompt shall be displayed. IPM the server using the following command exactly as shown below ***Note**: no space between the HWRAID, comma, and force: HWRAID,force* **`TPDnoraid diskconfig=HWRAID,force console=tty0`** 

Appendix F.1: Installing Operating Systems with ILO

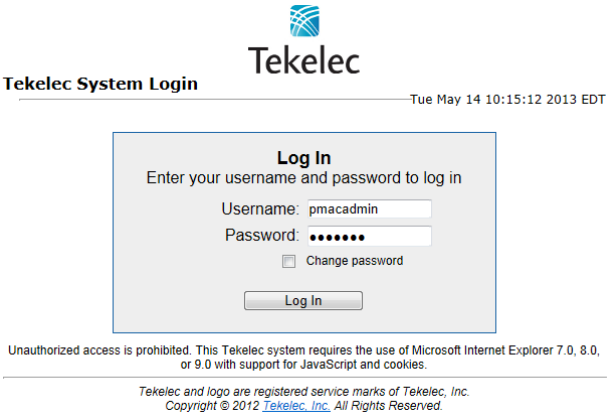
Step	Procedure	Result
5. ☐	*Platform installation Complete* *When you are finished using the mounted drive, unmount it by…* 1) running **umount** 2) Selecting **Virtual Drives** menu and clicking the drive option in use to remove its check mark.	Platform installation process takes about 30 minutes, you will see several messages and screens in the process. Once the Platform installation is complete, you will be prompted to press Enter as shown in second screen shot below. (Note: unmount before selecting "Enter") **Remove the USB drive or unmount the ISO image from the iLO** and press **Enter** to reboot the server. Note that the CD may eject automatically. # umount /dev/<device_name>  

Appendix F.1: Installing Operating Systems with ILO

Step	Procedure	Result
6. ☐	*Server Reboot*	Once the management 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.
7. ☐	*Verify that the TPD release is **6.7.x**.*	`# getPlatRev` `6.7.0.0.1-84.17.0`
8. ☐	*Execute **"alarmMgr" command** to verify health of the server before Application install.*	`# alarmMgr --alarmStatus` ***NOTE**: This command should return no output on a healthy system.*
9. ☐	*Execute **"verifyIPM"** as a secondary way to verify health of the server before Application install.*	`# verifyIPM` ***NOTE**: This command should return no output on a healthy system.*
THIS PROCEDURE HAS BEEN COMPLETED		

F.2 Installing Operating Systems with PM&C

Appendix F.2: Installing Operating Systems with PM&C

Step	Procedure	Result
1. ☐	**PM&C GUI:** Login to PM&C GUI	Open web browser and enter: `http://<pmac_management_network_ip>` Login as pmacadmin user. 

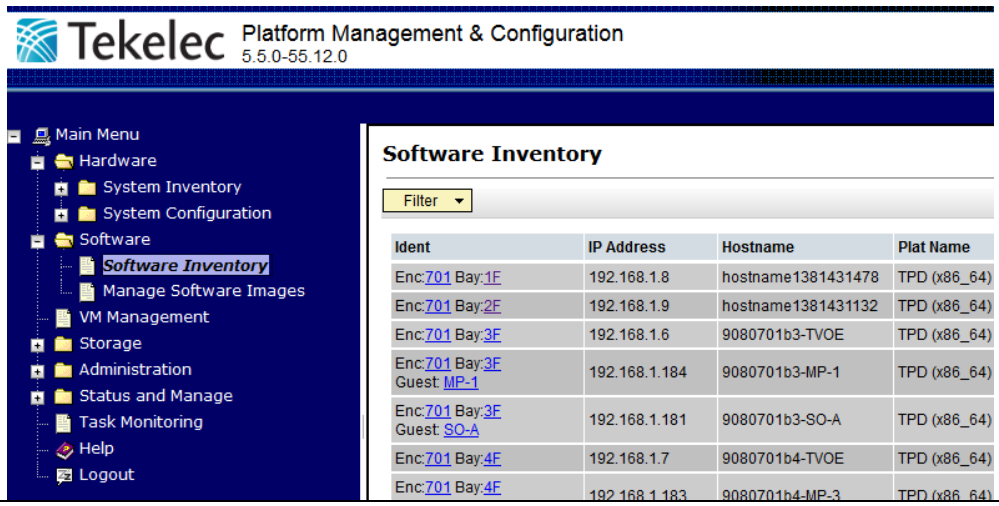
2. ☐

PM&C GUI:

Select…

Main Menu
→ **Software**
→ ***Software Inventory***

…as shown on the right.



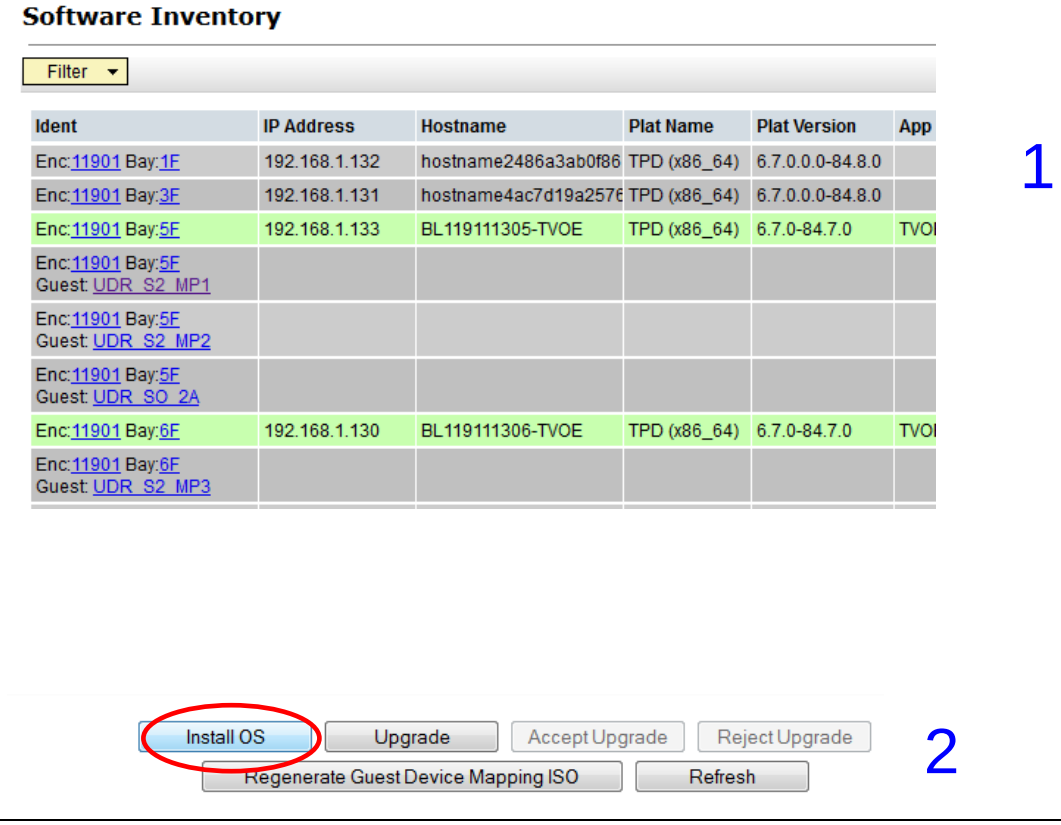
3. ☐

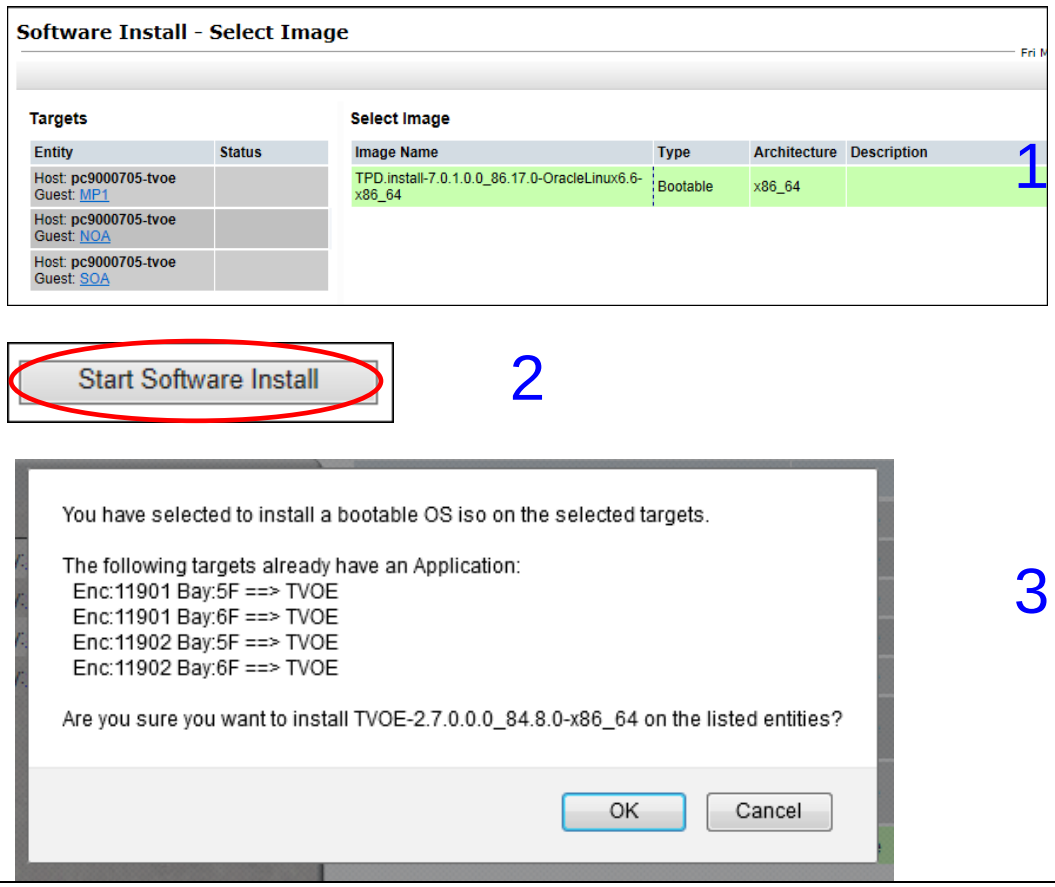
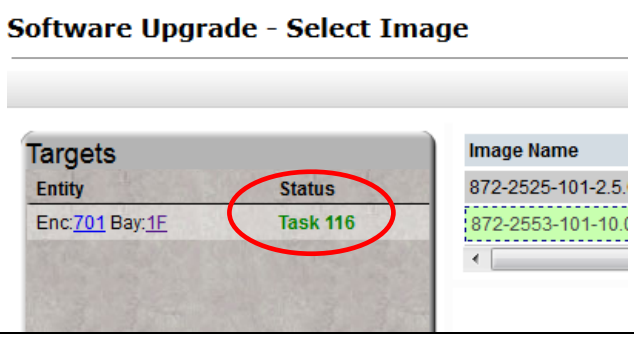
PM&C GUI:

1) Highlight the desired servers based on its **hardware Identity**…

Note: *You may select multiple blades/servers for simulataneous upgrade to the same release by holding the* ***Ctrl*** *(Control) key while selecting lines with the mouse.*

2) Click on the **Install OS** button.



4. ☐	**PM&C GUI:** **1)** Select the desired **Image Name** of the OS software. **2)** Click on the **Start Software Install** button. **3)** Click on the popup dialog box **OK** button.	
5. ☐	**PM&C GUI:** *Upgrade Tasks* will appear for each upgrade started this way under the left column **Status**.	

6. ☐

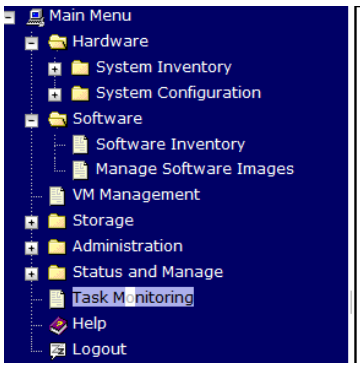
PM&C GUI:

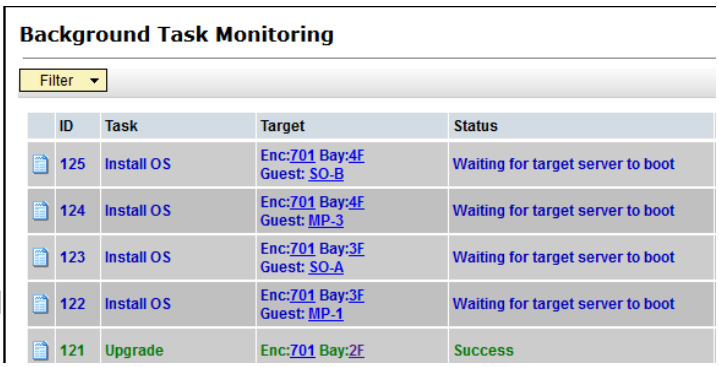
Select…

Main Menu
→ Task Monitoring

…as shown on the right.

Note: *Install tasks may be monitored for completion on this screen.*





7. ☐

PM&C GUI:

Look for install completion in the **Status** *column.*

ID	Task	Target	Status
173	Install OS	Enc:701 Bay:4F Guest: SO-B	Done: TPD.install-6.5.0_82.22.0-CentOS6.4-x86_64
172	Install OS	Enc:701 Bay:4F Guest: MP-3	Done: TPD.install-6.5.0_82.22.0-CentOS6.4-x86_64
171	Install OS	Enc:701 Bay:3F Guest: SO-A	Done: TPD.install-6.5.0_82.22.0-CentOS6.4-x86_64

Execute steps 8-9 for all Gen9 installations EXCEPT for "Normal Capacity SO/MP Host Installs"

8. ☐

Run vgscan

Run the following command on **Gen9** server only:

```
# vgscan
```

Reading all physical volumes. This may take a while...
Found volume group "vgroot" using metadata type lvm2

9. ☐

Execute the following syscheck/restart steps in order

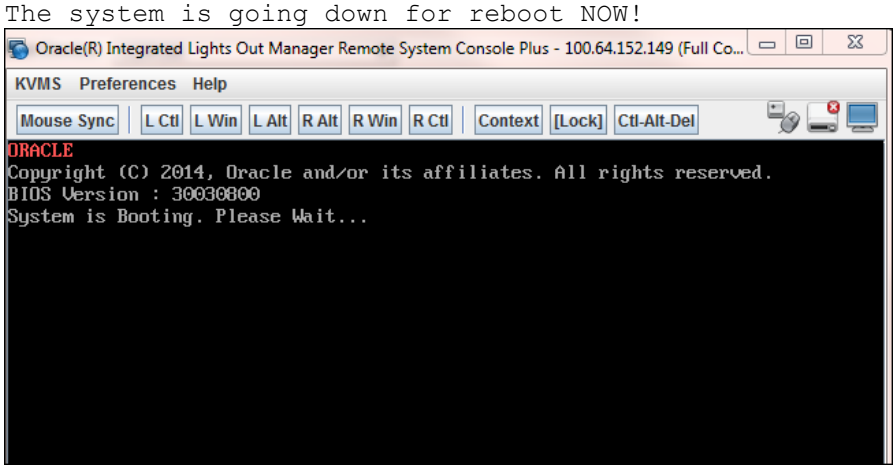
```
# syscheck --reconfig disk smart
# service smartd restart
# syscheck disk smart
```

THIS PROCEDURE HAS BEEN COMPLETED

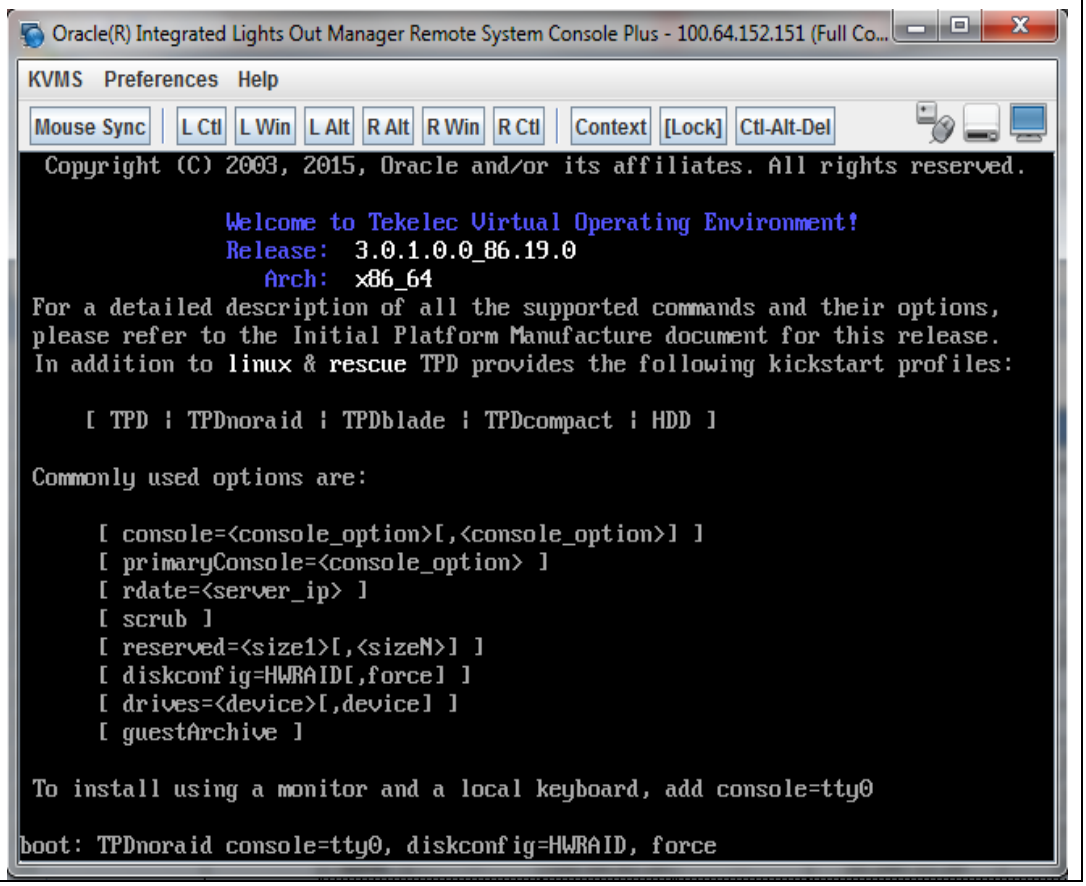
F.3 Installing Operating Systems with ILO for Oracle RMS

Appendix F.3: Installing Operating Systems with ILO for Oracle RMS

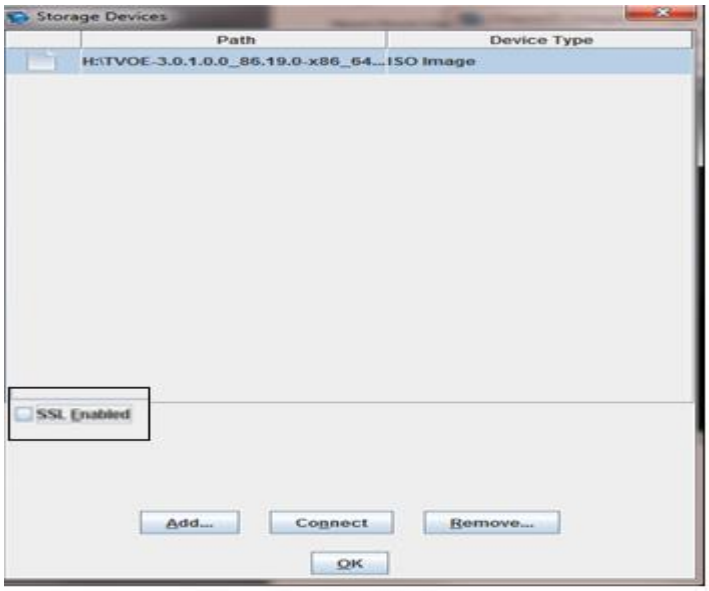
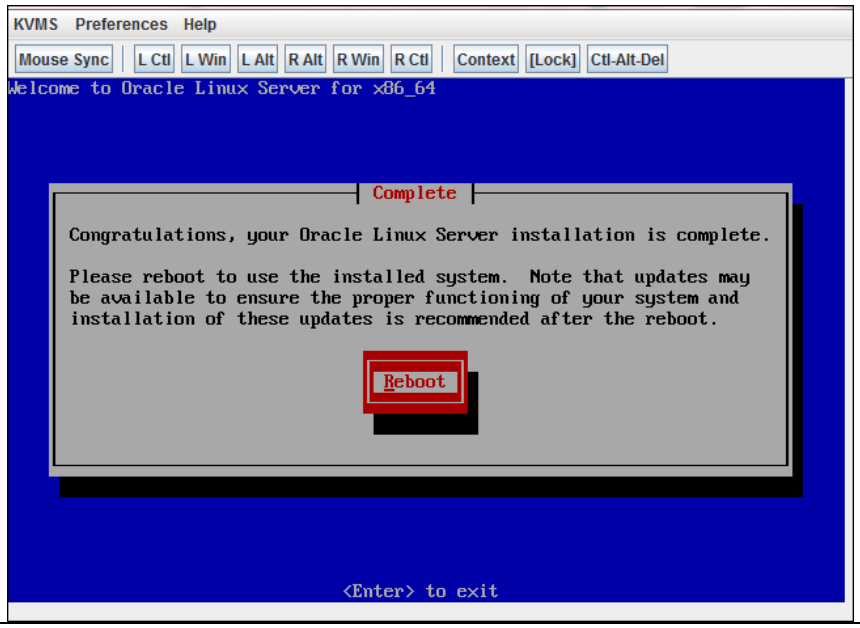
Step	Procedure	Result
1. ☐	*Mount the media containing the **OS software**.*	Follow steps defined in … Appendix 0 Mounting Virtual Media on Oracle RMS Servers … to mount the OS software.

2. ☐	*iLO Console window*
	
	Login as root user
	
	Initiate a reboot of the server.
		`# reboot`
		
		`The system is going down for reboot NOW!`
		 

Appendix F.3: Installing Operating Systems with ILO for Oracle RMS

Step	Procedure	Result
3. ☐	*Begin Platform Installation process*	Once the server reboots, it will reboot from the TPD media and a boot prompt shall be displayed. IPM the server using the following command exactly as shown below (no space between HWRAID and force): **TPDnoraid console=tty0, diskconfig=HWRAID,force** 

Appendix F.3: Installing Operating Systems with ILO for Oracle RMS

Step	Procedure	Result
4. ☐	*Platform installation Complete* **Uncheck SSL Enabled** checkbox before disconnecting (if not done already) *From iLO console:* *To Disconnect the ISO image:* *Go to KVMS/Storage and select "Disconnect"*	Platform installation process takes about 30 minutes, you will see several messages and screens in the process. Once the Platform installation is complete, you will be prompted to press "Enter" as shown in second diagram. **Disconnect the ISO image from the iLO** and press `Enter` to reboot the server.  
5. ☐	*Post Server Reboot*	Once the management 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. Log back into the system as root.

Appendix F.3: Installing Operating Systems with ILO for Oracle RMS

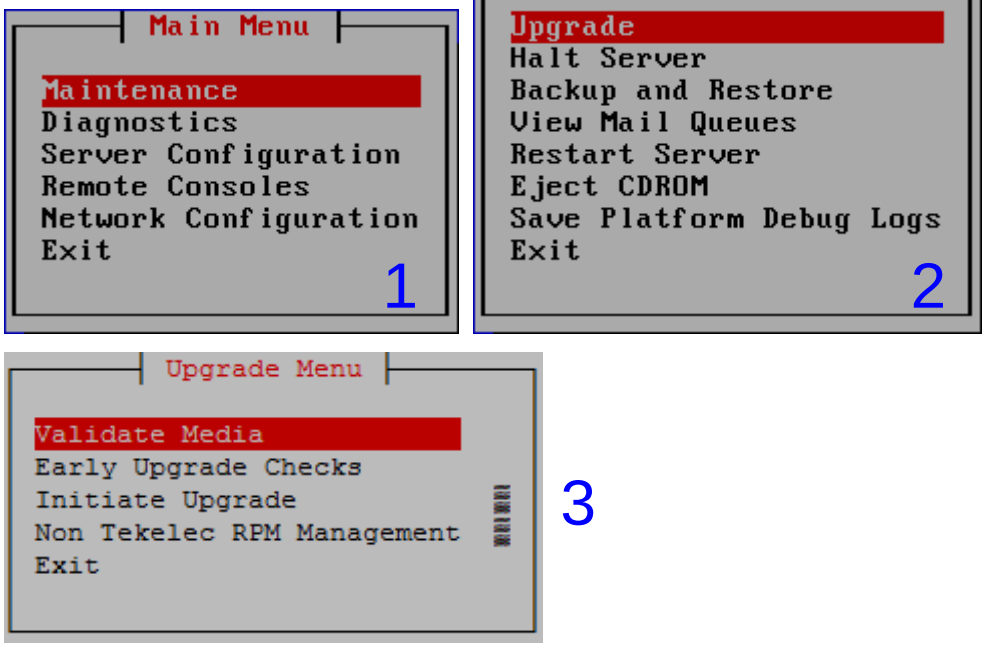
Step	Procedure	Result
6. ☐	*Verify that the TPD release is **7.0.1.x**.*	# **getPlatRev** 7.0.1.0.0-86.19.0
7. ☐	*Execute **"alarmMgr" command** to verify health of the server before Application install.*	# **alarmMgr --alarmStatus** ***NOTE**: This command should return no output on a healthy system.*
8. ☐	*Execute **"verifyIPM"** as a secondary way to verify health of the server before Application install.*	# **verifyIPM** ***NOTE**: This command should return no output on a healthy system.*
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix G. Installing OCUDR Application

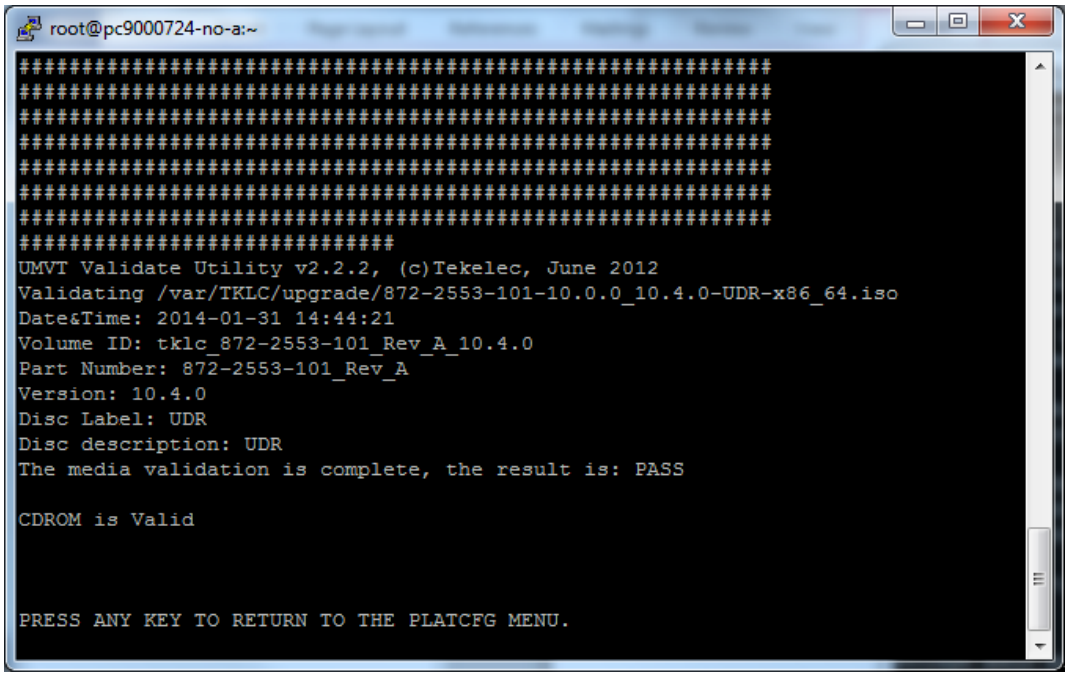
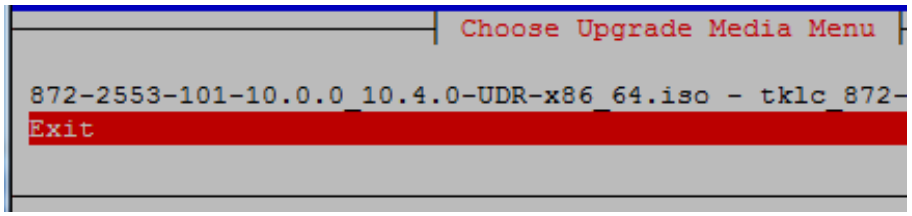
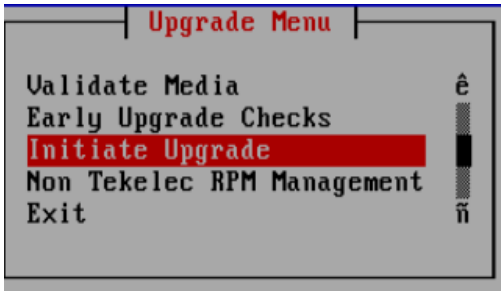
This procedure contains steps to apply server configuration scripts to rack mount servers.

G.1 Installing OCUDR Application with ILO

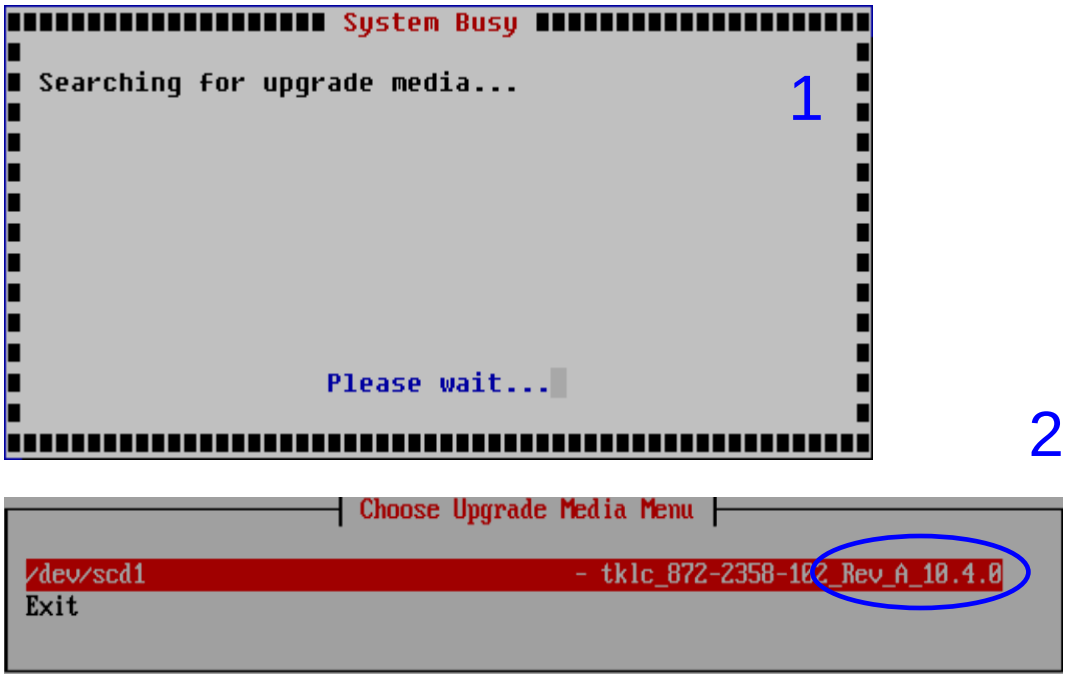
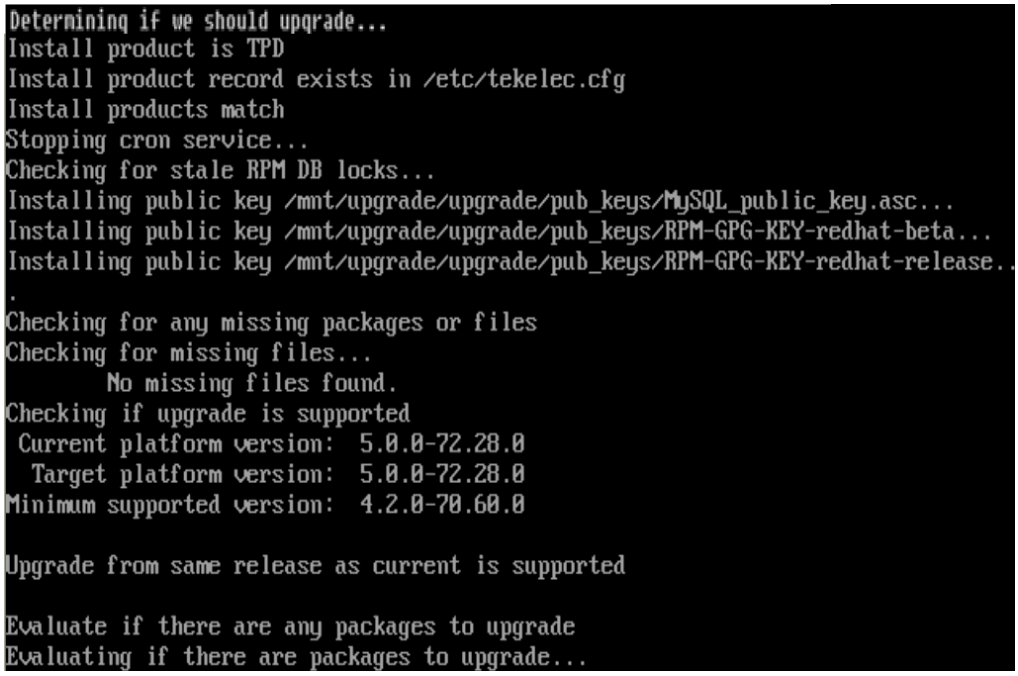
Appendix G.1: Install OCUDR Application with ILO

Step	Procedure	Result
1. ☐	*Access the HP server's console.*	Connect to the HP server's console using one of the access methods described in ***Section 2.1.2.***
2. ☐	*Mount the media containing the **OCUDR software**.*	Follow steps defined in **...** **C.1** Mounting Physical Media on HP Servers **or** **C.2** Mounting Virtual Media on HP Servers ... to mount the OCUDR software.
3. ☐	Login to the **"platcfg"** utility.	`[root@hostname1260476221 ~]# su - platcfg`
4. ☐	From the **"platcfg"** Main Menu… Select each option as shown on the right, pressing the **<ENTER>** key after each selection.	

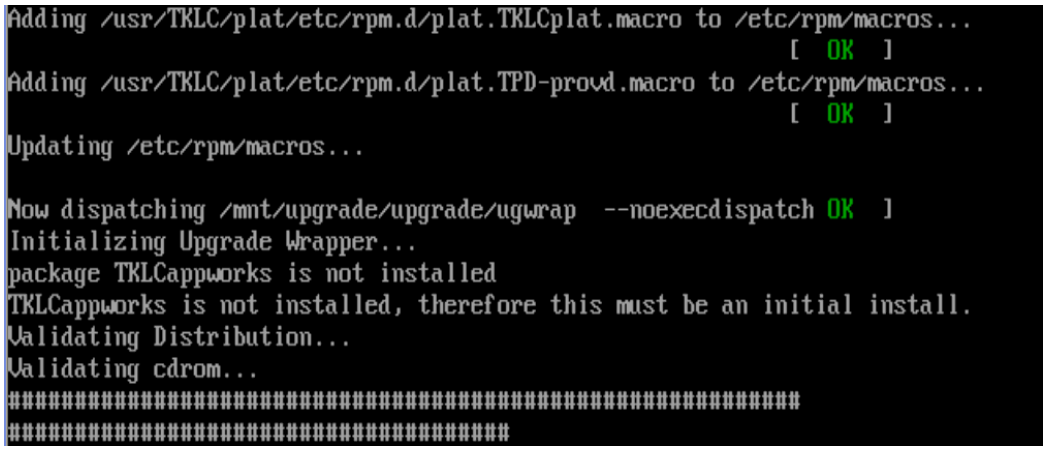
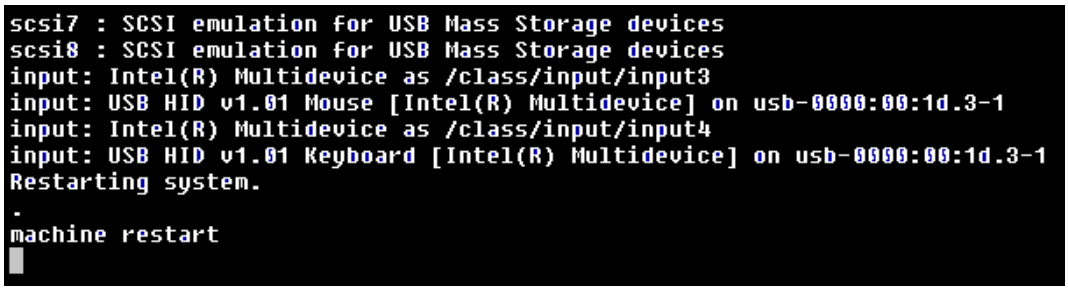
Appendix G.1: Install OCUDR Application with ILO

Step	Procedure	Result
5. ☐	From the **"platcfg"** Main Menu… Verify "CDROM is Valid." …… then press any key to return to platcfg menu.	
6. ☐	From the **"platcfg"** Main Menu… Select each option as shown on the right, pressing the **<ENTER>** key after each selection.	 1  2

Appendix G.1: Install OCUDR Application with ILO

Step	Procedure	Result
7. ☐	Verify that the Application release level shown matches the target release.	
8. ☐	Output similar to that shown on the right may be observed as the Application install progresses.	

Appendix G.1: Install OCUDR Application with ILO

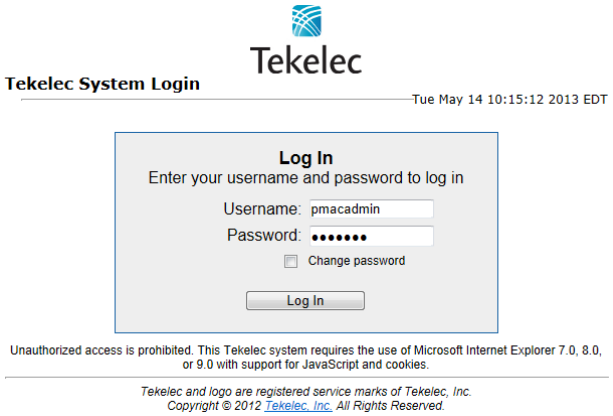
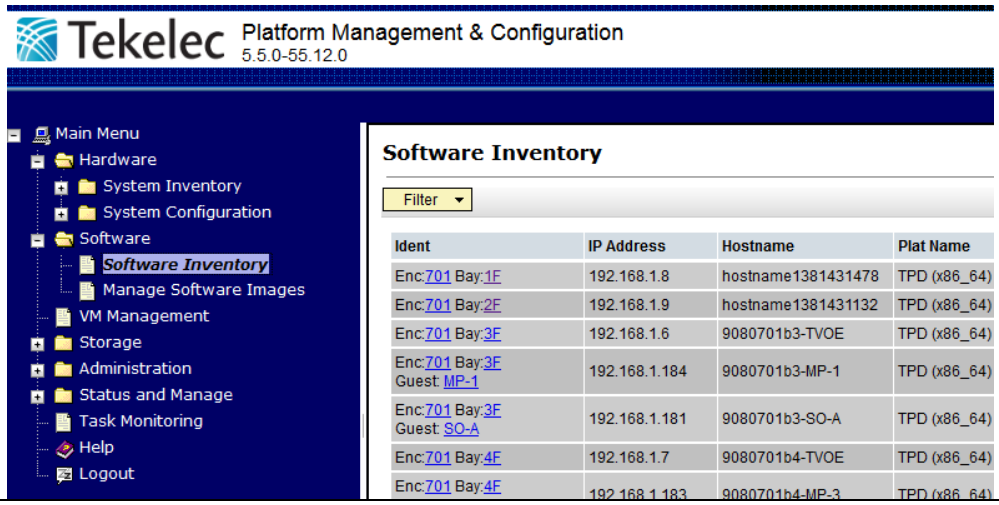
Step	Procedure	Result
9. ☐	Output similar to that shown on the right may be observed as the Application install progresses.	
10. ☐	Output similar to that shown on the right may be observed as the server initiates a post-install reboot.	
11. ☐	After the server has completed reboot… Log back into the server as the "**root**" user.	CentOS release 5.6 (Final) Kernel 2.6.18-238.19.1.el5prerel5.0.0_72.22.0 on an x86_64 hostname1260476221 login: **root** Password: ***<root_password>***
12. ☐	Output similar to that shown on the right will appear as the server returns to a command prompt.	***** TRUNCATED OUTPUT ***** |==| | This system has been upgraded but the upgrade has not yet | | been accepted or rejected. Please accept or reject the | | upgrade soon. | |==| VPATH=/opt/TKLCcomcol/runcm5.16:/opt/TKLCcomcol/cm5.16 PRODPATH= RELEASE=5.16 RUNID=00 VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr/TKLC/comagent-gui:/usr/TKLC/comagent:/usr/TKLC/udr PRODPATH=/opt/comcol/prod RUNID=00 [root@hostname1260476221 ~]#

Appendix G.1: Install OCUDR Application with ILO

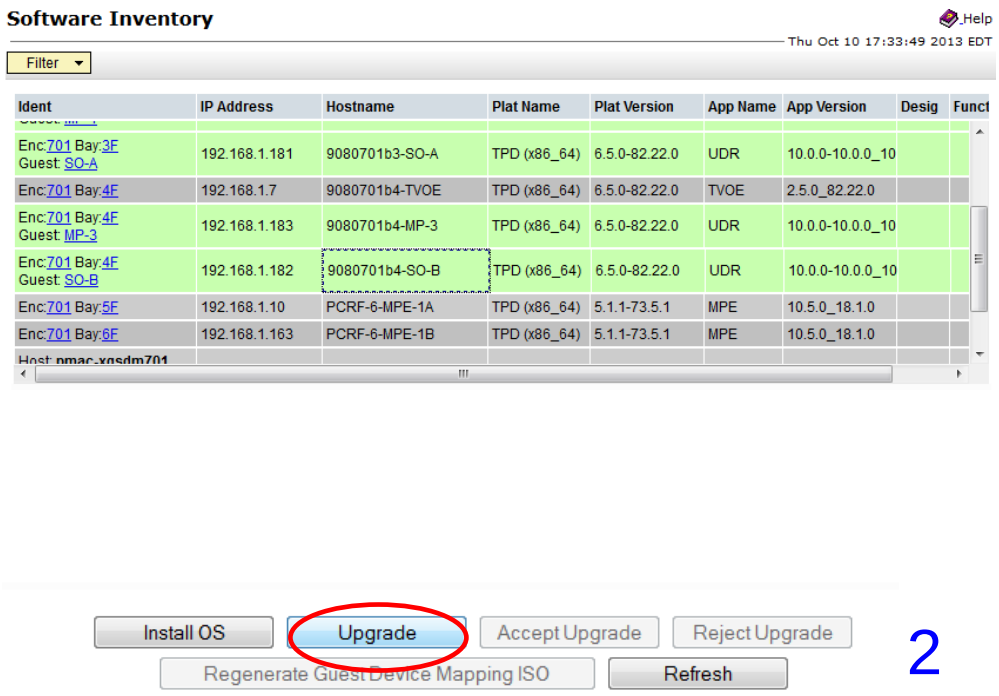
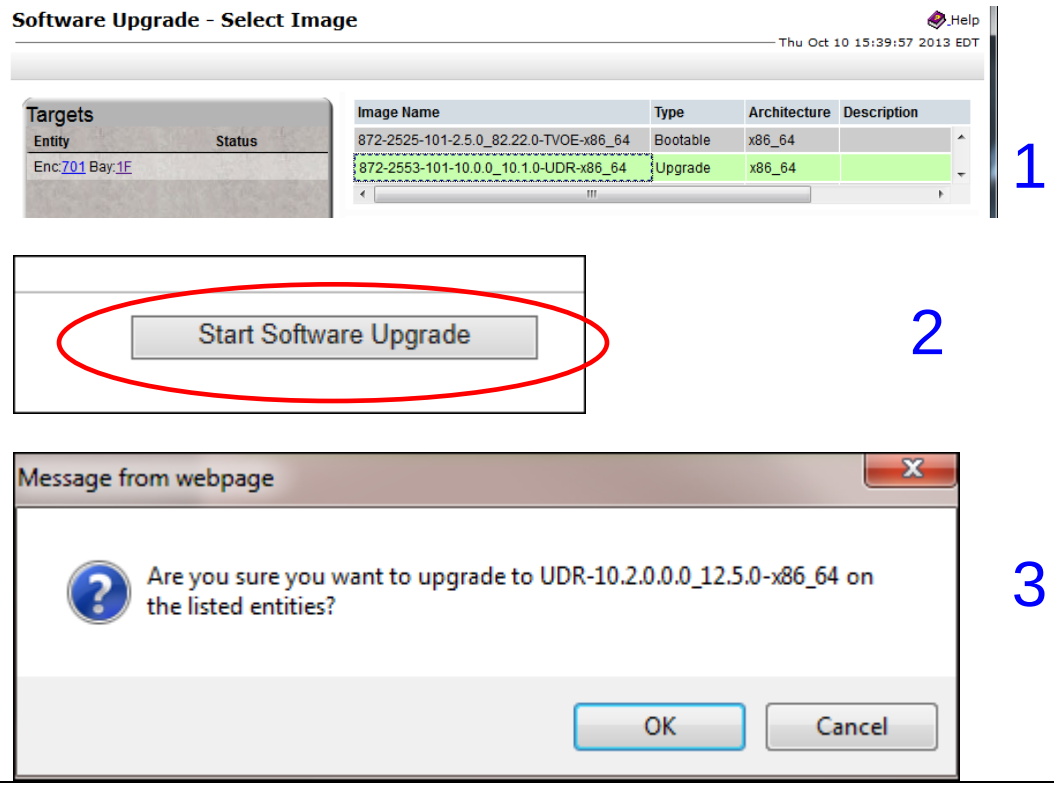
Step	Procedure	Result
13. ☐	*Verify successful upgrade.* *Command will generate no output if no issues are found.*	# **verifyUpgrade** ***NOTE**: This command should return no output on a healthy system.*
14. ☐	Verify that the Application release level shown matches the target release.	[root@hostname1260476221 ~]# **appRev** Install Time: Fri Aug 8 08:39:26 2014 Product Name: UDR Product Release: 10.0.0_10.11.2 Base Distro Product: TPD Base Distro Release: 6.7.0.0.1_84.17.0 Base Distro ISO: TPD.install-6.7.0.0.1_84.17.0-OracleLinux6.5-x86_64.iso OS: OracleLinux 6.5
15. ☐	***TVOE Management Server iLO:*** *Reboot the server*	Reboot the server: # **init 6** Wait until the reboot completes and re-login with TVOE root credentials.
16. ☐	***TVOE Management Server iLO:*** *Verify server health*	Verify server health: # **alarmMgr --alarmStatus** ***Note**: This command should return only one alarm related to pending upgrade acceptance.*
THIS PROCEDURE HAS BEEN COMPLETED		

G.2 Installing OCUDR Application with PM&C

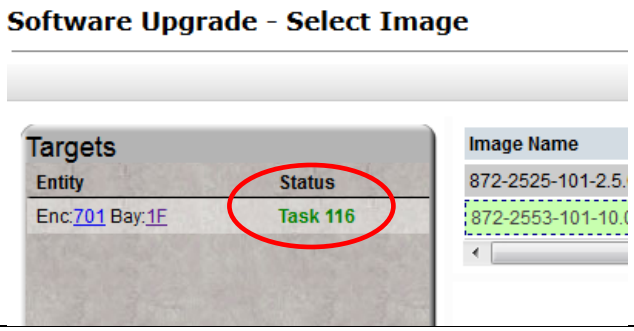
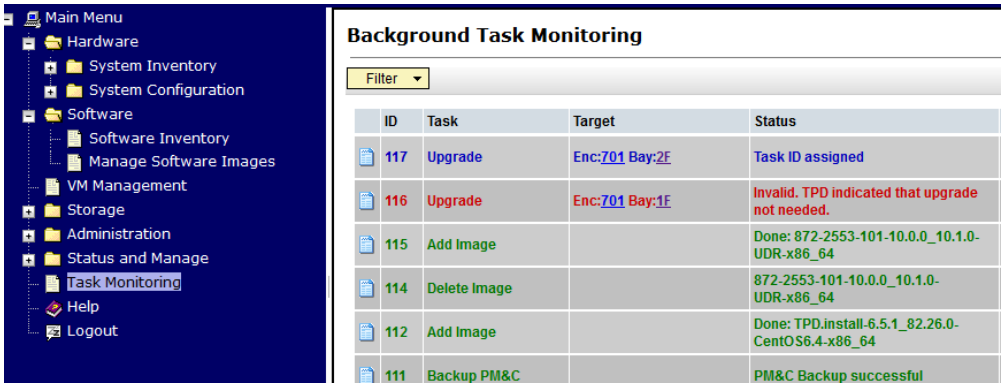
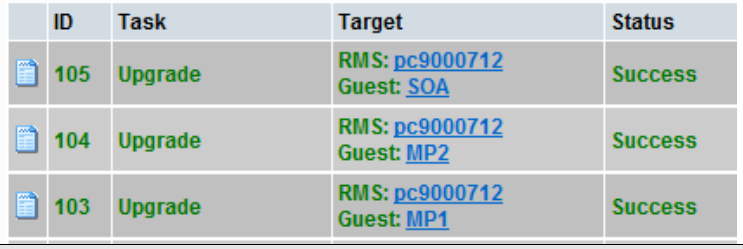
Appendix G.2: Installing OCUDR Application with PM&C

Step	Procedure	Result
1. ☐	**PM&C GUI:** Login to PM&C GUI	Open web browser and enter: **http://<pmac_management_network_ip>** Login as pmacadmin user. 
2. ☐	**PM&C GUI:** Select… **Main Menu** → **Software** → ***Software Inventory*** …as shown on the right.	

Appendix G.2: Installing OCUDR Application with PM&C

Step	Procedure	Result
3. ☐	**PM&C GUI:** **1)** Highlight the desired server or servers based on the Guest name and hardware host **Identity**… ***Note:*** *You may select multiple serverss for simulataneous upgrade to the same release by holding the* ***Ctrl*** *(Control) key while selecting lines with the mouse.* **2)** Click on the **Upgrade** button.	
4. ☐	**PM&C GUI:** **1)** Select the desired **Image Name** of the OCUDR software. **2)** Click on the **Upgrade** button. **3)** Click on the popup dialog box **OK** button.	

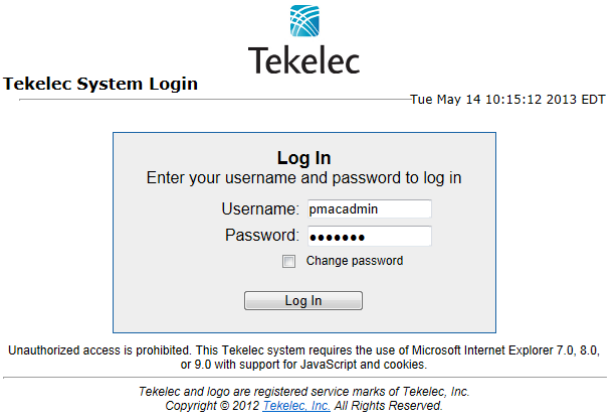
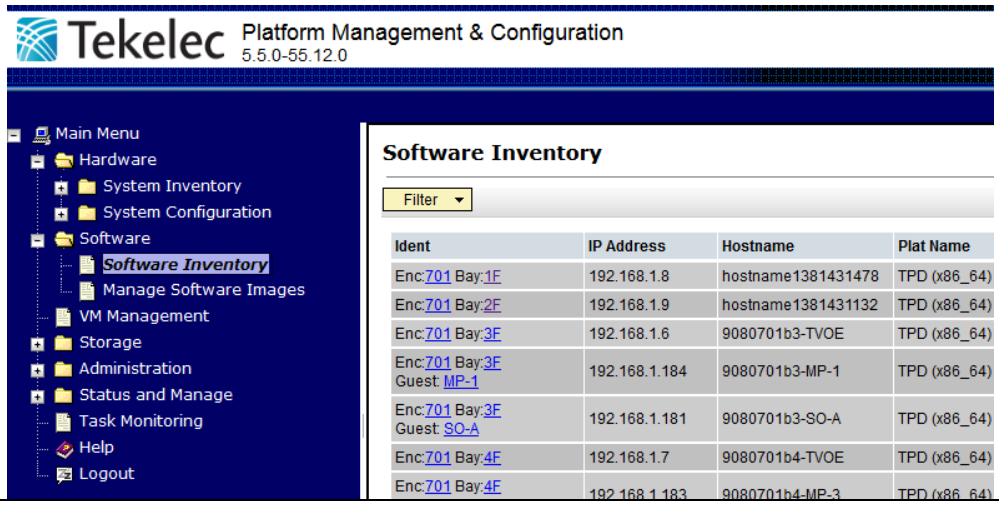
Appendix G.2: Installing OCUDR Application with PM&C

Step	Procedure	Result
5. ☐	**PM&C GUI:** *Upgrade Tasks* will appear for each upgrade started this way under the left column **Status**.	
6. ☐	**PM&C GUI:** Select… **<u>Main Menu</u>** **→ Task Monitoring** …as shown on the right. ***Note:*** *Upgrade tasks may be monitored for completion on this screen.*	
7. ☐	**PM&C GUI:** *Look for successful upgrade completion under the* **Status** *column*	
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix H. Accept Application Installation on PM&C Managed Servers

This procedure will accept the OCUDR Application Installation / Upgrade with PM&C.

Appendix H: Accept Application Installatin on PM&C Managed Servers

Step	Procedure	Result
1. ☐	**PM&C GUI:** Login to PM&C GUI	Open web browser and enter: **http://<pmac_management_network_ip>** Login as pmacadmin user. 
2. ☐	**PM&C GUI:** Select… **Main Menu** → **Software** → ***Software Inventory*** …as shown on the right.	

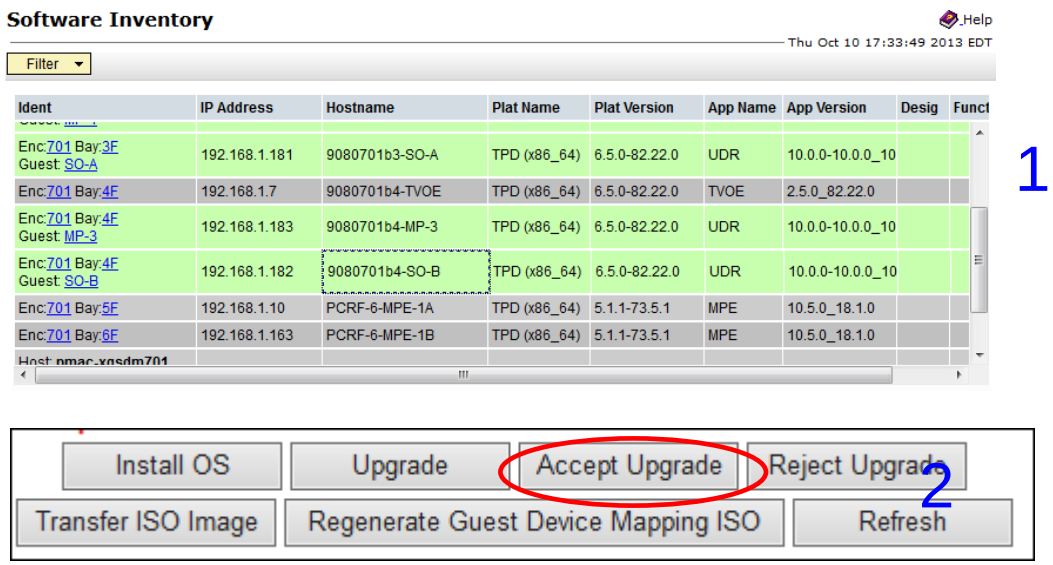
Appendix H: Accept Application Installatin on PM&C Managed Servers

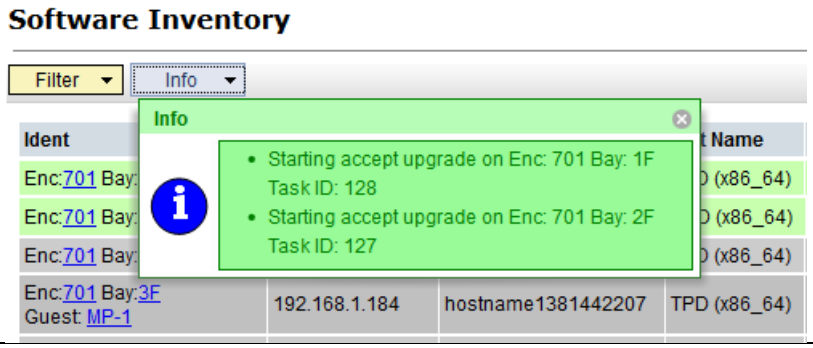
<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>3.
☐</td><td>PM&C GUI:

1) Highlight the desired server or servers based on its enclosure and bay Identity…

Note: You may select multiple servers for simulataneous upgrade to the same release by holding the Ctrl (Control) key while selecting lines with the mouse.

2) Click on the Accept Upgrade button.

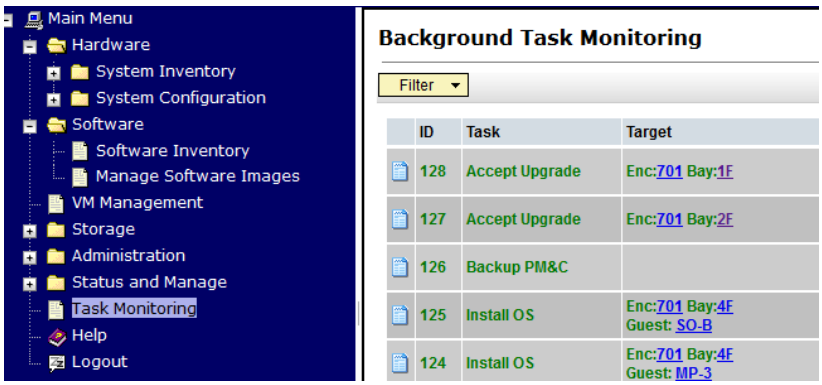
3) An Information message will be raised to indicate acceptance has begun.</td><td> 


</td></tr>
<tr><td>4.
☐</td><td>PM&C GUI:

Select…

<u>Main Menu</u>
→ Task Monitoring

…as shown on the right.

Note:
Acceptance tasks may be monitored for completion on this screen.</td><td> 
</td></tr>
<tr><td colspan="3">THIS PROCEDURE HAS BEEN COMPLETED</td></tr>
</table>

Appendix I. PM&C Deployment and Configuration

This procedure contains steps to deploy and configure PM&C on TVOE Servers.

I.1 Deploying PM&C on TVOE Server

Appendix I.1: Deploying PM&C on TVOE Server

Step	Procedure	Result
1. ☐	Access the **TVOE Server** console.	Connect to the **TVOE Server** console using one of the access methods as described in **Appendix A** or ssh to the server.
2. ☐	**TVOE Server (SSH):** *Login as "**admusr**" user.*	`login as:` **admusr** `password:` ***<admusr_password>***
3. ☐	**TVOE Server (SSH):** Switch to "**root**" user.	`$` **su -** `password:` **<root_password>**
4. ☐	**TVOE Server (SSH):** *Mount the media containing the **PM&C software**.*	Follow steps defined in … **C.1** Mounting Physical Media on HP Servers **or** **C.2** Mounting Virtual Media on HP Servers **Or** For Oracle RMS servers, copy the media to "/var/TKLC/upgrade" on TVOE server … to mount the PM&C software.
5. ☐	**TVOE Server (SSH):** *Mount PM&C media location*	Using the device location identified in step 4, mount the PM&C ISO with this command: # **mount -o loop <media_device> /mnt**

Appendix I.1: Deploying PM&C on TVOE Server

Step	Procedure	Result
6. ☐	**TVOE Management Server (SSH):** *Deploy PM&C*	***Note:*** Some lab deployments may host TVOE and PMAC on the XMI network/bridge instead of on a separate routable management network. Using the pmac-deploy script, deploy the PM&C # **cd /mnt/upgrade** Deploy PM&C by running the following command (on one line, **without line breaks**): **** Note: If installing multiple RMS servers, control IP needs to be changed.** ***Command Syntax:*** # **./pmac-deploy** **--controlIP=192.168.1.1** **--managementBridge=<management or xmi>** **--guest=<PMAC_Name>** **--hostname=<PMAC_Hostname>** **--managementIP=<PMAC_Management_ip_address>** **--managementNM=<PMAC_Management_netmask>** **--routeGW=<PMAC_Management_gateway_address>** **--ntpserver=<TVOE_Management_server_ip_address>** ***Example:*** # **./pmac-deploy --controlIP=192.168.1.1 --managementBridge=management or xmi** **--guest=pmac --hostname=pc9000712-pmac** **--managementIP=10.240.37.149 --managementNM=255.255.255.192** **--routeGW=10.240.37.129 --ntpserver=10.240.37.147** The PM&C will deploy and boot. The management and control network will come up based on the settings that were provided to the pmac-deploy script. This process takes about 5-10 minutes.
7. ☐	**TVOE Management Server (SSH):** *Unmount the media*	Unmout the DVD media using the following command: # **cd /** # **umount /mnt**

Appendix I.1: Deploying PM&C on TVOE Server

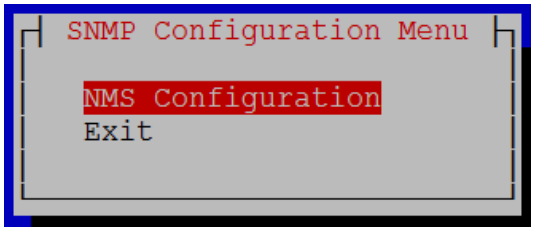
Step	Procedure	Result
8. ☐	**TVOE Server (SSH):** Log into the virtual PM&C server	Login using virsh, and wait until you see the login prompt: **# virsh** Welcome to virsh, the virtualization interactive terminal. Type: 'help' for help with commands 'quit' to quit **virsh # list** Id Name State ---------- 2 pmac running Log into the virtual PM&C server using PM&C root credentials. **virsh # console pmac** Connected to domain pmac Escape character is ^] **<ENTER>** PMAC-pc9000632 login: **admusr** Password: ***<admusr_password>*** [admusr@PMAC-pc9000632 ~]$ Switch to root [root@PMAC-pc9000632 ~]#
9. ☐	**Virtual PM&C:** *Verify the PM&C is configured correctly on the first boot*	Verify the PM&C configured correctly on first boot. # **ls /usr/TKLC/plat/etc/deployment.d/** ***NOTE**: This command should return no output on a healthy system.*
10. ☐	**Virtual PM&C:** *Set Timezone*	Determine the Time Zone to be used for the PM&C, and set the PM&C timezone ***Note:** Valid time zones can be found in Appendix P.* # **set_pmac_tz.pl <timezone>** ***Example:*** # **set_pmac_tz.pl America/New_York**

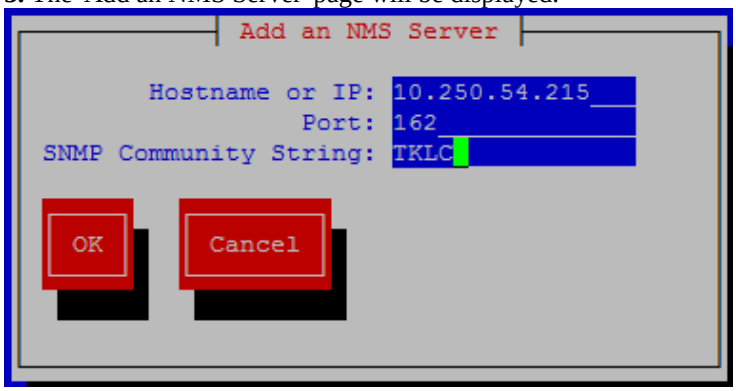
Appendix I.1: Deploying PM&C on TVOE Server

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>11.
☐</td><td>Virtual PM&C:

Configure SNMP</td><td>Configure SNMP trap destination by running the following:

su - platcfg

1. Navigate to Network Configuration ➢ SNMP Configuration ➢ NMS Configuration.
 

2. Select Edit and then choose ‘Add a New NMS Server’.
3. The 'Add an NMS Server' page will be displayed.
 

4. Complete the form by entering in all information about the SNMP trap destination.
5. Select OK to finalize the configuration.
6. The 'NMS Server Action Menu' will now be displayed.
7. Select Exit. The following dialogue will then be presented: ‘Do you want to restart the Alarm Routing Service?’
8. Select Yes and then wait a few seconds while the Alarm Routing Service is restarted.
9. At that time the ‘SNMP Configuration Menu’ will be presented.
10. Exit platcfg.

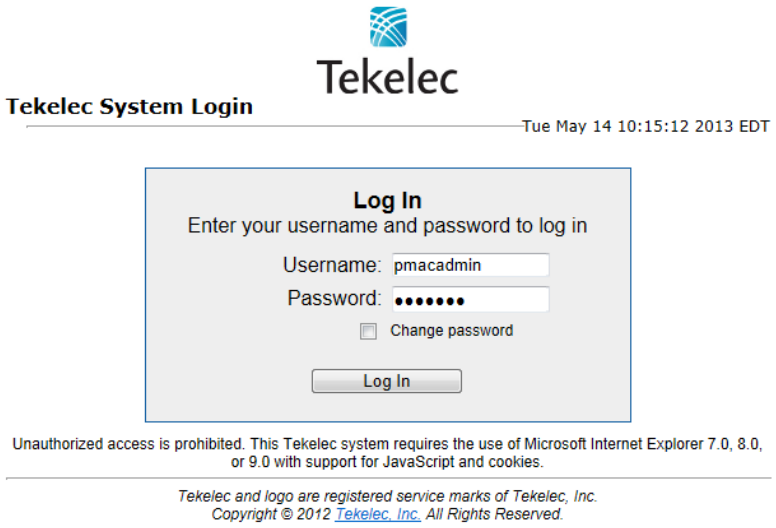
Note: All alarm information will then be sent to the NMS located at the destination.</td></tr>
<tr><td>12.
☐</td><td>Virtual PM&C:

Reboot PM&C server</td><td>Reboot the PM&C server to ensure all processes are started with the new Time Zone:

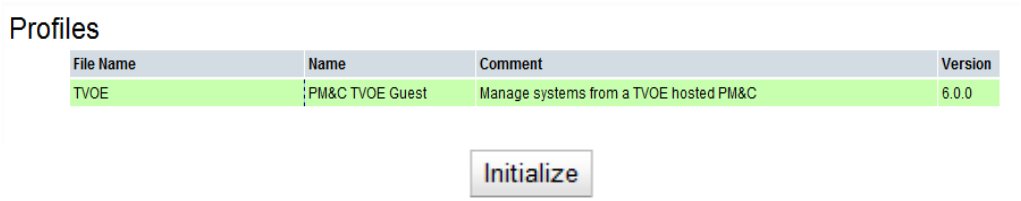
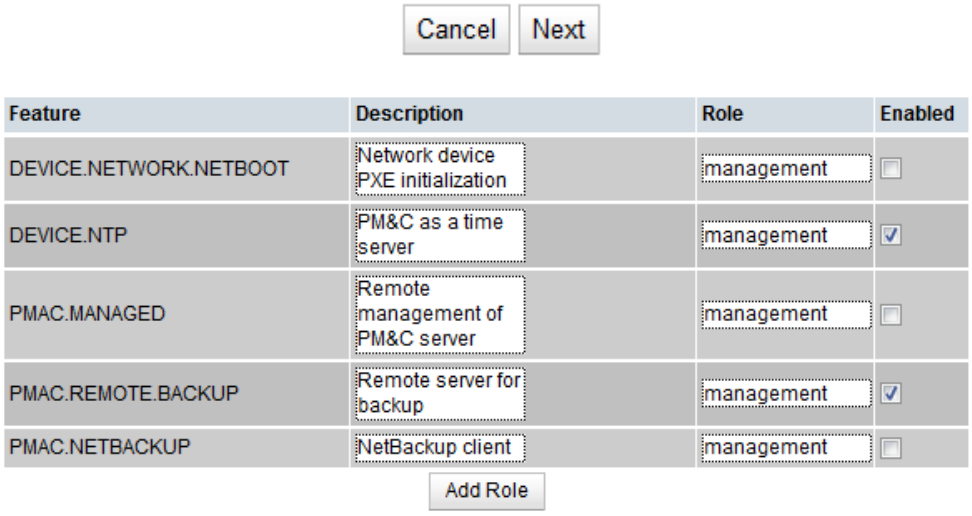
init 6</td></tr>
<tr><td colspan="3">THIS PROCEDURE HAS BEEN COMPLETED</td></tr>
</table>

I.2 Configure PM&C Application

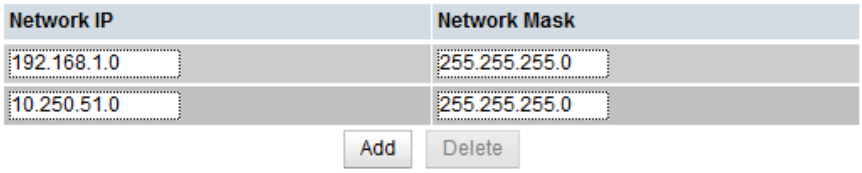
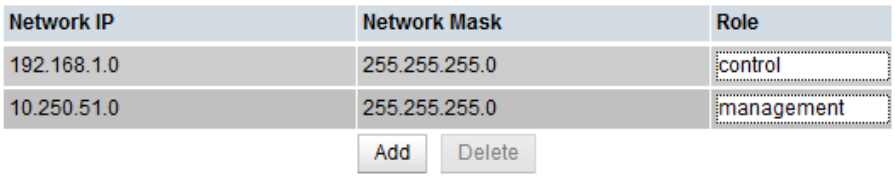
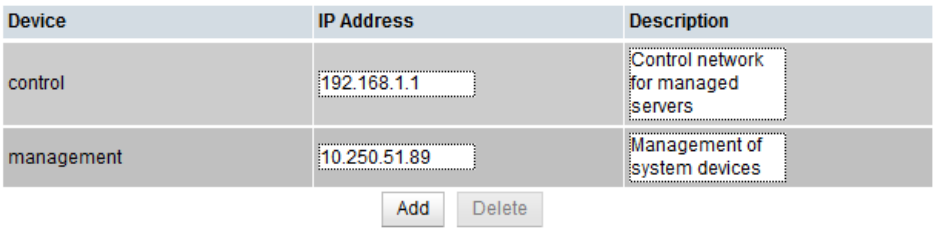
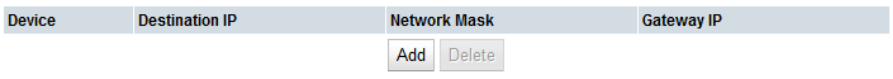
Appendix I.2: Configure PM&C Application

Step	Procedure	Result
1. ☐	**PM&C GUI:** *Login to PM&C GUI*	Open web browser and enter: `http://<pmac_management_network_ip>` Login as pmacadmin user. 

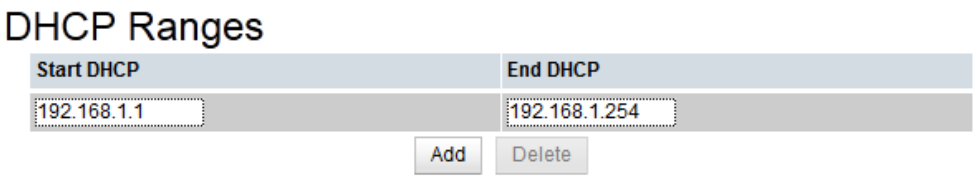
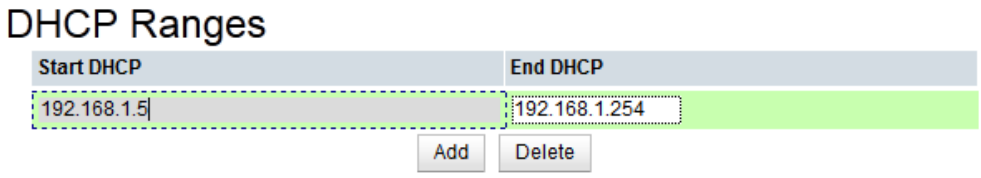
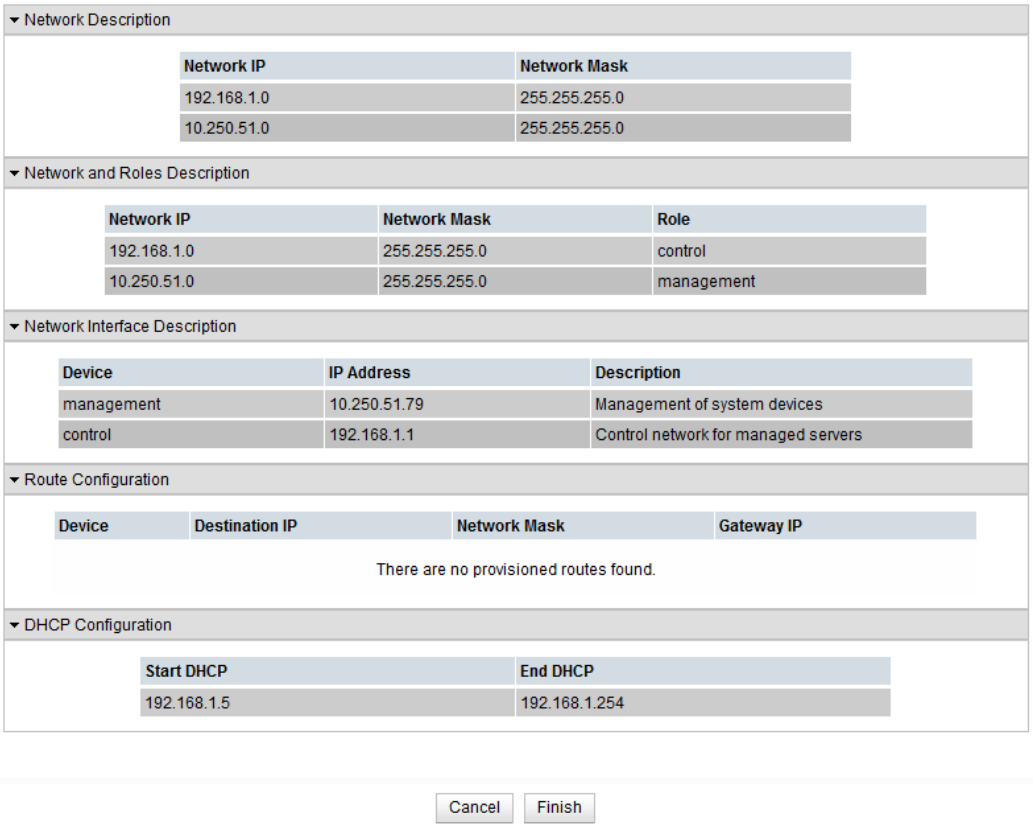
Appendix I.2: Configure PM&C Application

Step	Procedure	Result
2. ☐	**PM&C GUI:** *Select a profile*	The first time that the PM&C GUI is opened, an initialization screen appears and will look similar to the screen shown below:  Select the TVOE profile and click on **"Initialize"** button, then following screen will display  ***Note:*** *If you have missed the initialization process, please navigate to this GUI page:* ***Administration → PM&C Configuration → Feature Configuration*** Make sure that the enable checkbox is checked for the following features only: 1. DEVICE.NTP 2. PMAC,REMOTE.BACKUP Click on **"Next"** button ***Note:*** *If you have missed the initialization process, you will need to click on* ***"Apply"*** *button, then navigate to this GUI page* ***Administration → PM&C Configuration → Network Configuration*** *and click on the* ***"ReConfigure"*** *button.*

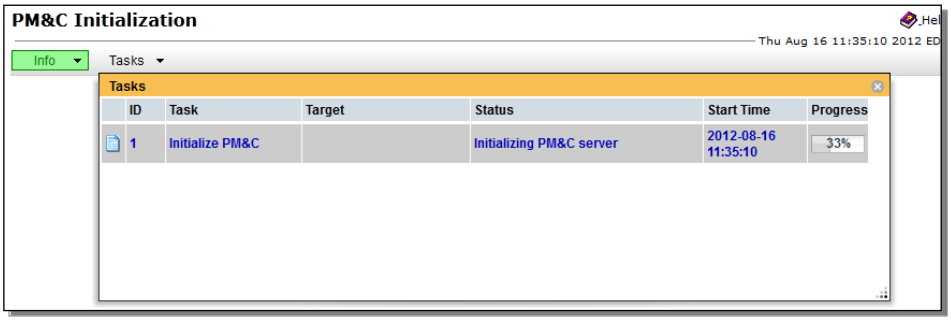
Appendix I.2: Configure PM&C Application

Step	Procedure	Result
3. ☐	**PM&C GUI:** *Network Description*	You will see this default screen similar to:  Enter the `Network IPs` and `Netmasks` for the control and Management Networks. Click on **"Next"** button.
4. ☐	**PM&C GUI:** *Network Roles*	You will see this default screen similar to:  Verify the roles and update if necessary. Click on **"Next"** button.
5. ☐	**PM&C GUI:** *Network Interface*	You will see this default screen similar to:  Verify the IP addresses for each Device and update if necessary. Click on **"Next"** button.
6. ☐	**PM&C GUI:** *Network Route*	You will see this default screen similar to:  No routes are required. Click on **"Next"** button when done.

Appendix I.2: Configure PM&C Application

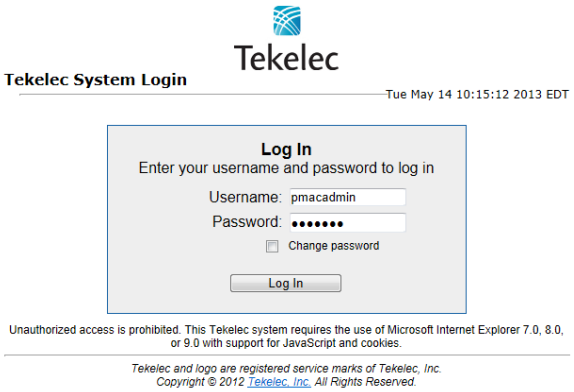
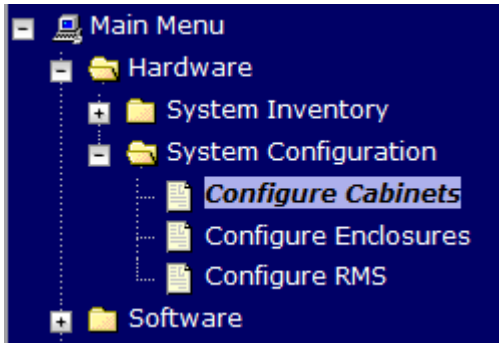
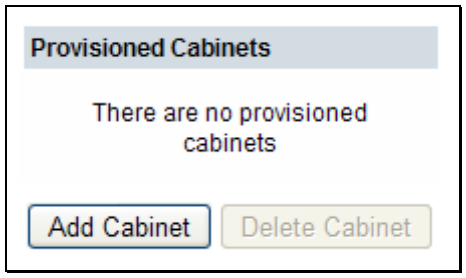
Step	Procedure	Result
7. ☐	**PM&C GUI:** *DHCP Ranges*	You will see this default screen similar to:  Set the Starting address in range to 192.168.1.5 and the Ending address in range to 192.168.1.254.  Click on **"Next"** button when done.
8. ☐	**PM&C GUI:** *Summary Settings*	The following summary screen will be displayed.  Verify the values, and click **"Finish"** button when done

Appendix I.2: Configure PM&C Application

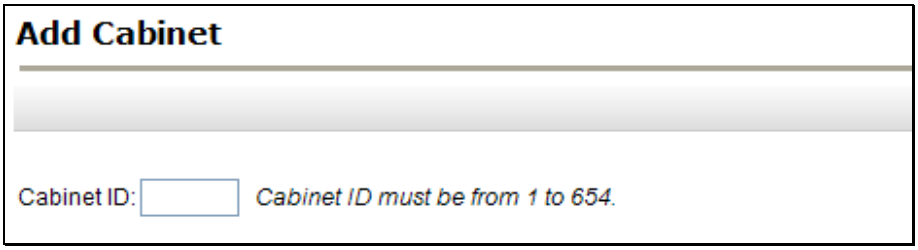
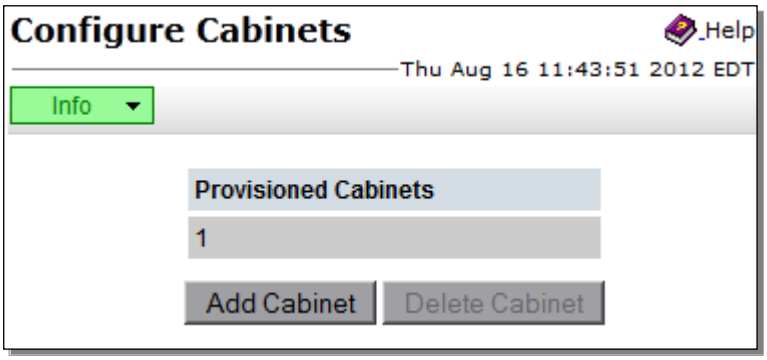
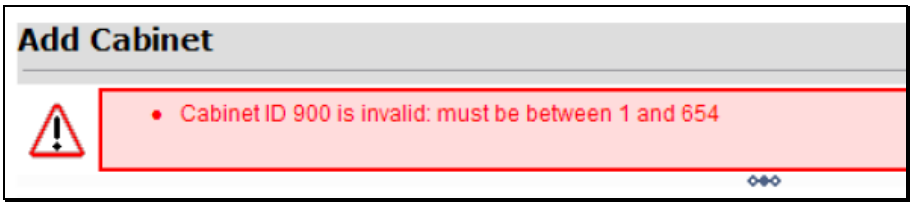
Step	Procedure	Result
9. ☐	**PM&C GUI:** *Complete the configuration*	The following summary screen will be displayed, click on Tasks to view the Initialization Progress  Navigate to GUI page **"Main Menu → Task Monitoring"** for status of this task. ID Task Target Status Running Time Start Time Progress 1 Initialize PM&C PM&C initialized 0:00:25 2012-08-16 11:35:10 100% Wait till the Progress bar turns green, that signifies that the PM&C Initialization was successful.
10. ☐	**PM&C GUI:** *Set the PM&C Application GUI Site Settings*	Navigate to GUI page: **Main Menu → Administration → GUI Site Settings** Set the "**Site name**" field to a descriptive name Set the "**Welcome Message**" field that is displayed upon login. Verify values, and click **"Update Settings"** button when done
11. ☐	**Virtual PM&C SSH:** *Perform PM&C application backup and save backup file*	Perform PM&C application backup by executing this command: **# pmacadm backup** The command output will be similar to this: `# PM&C backup been successfully initiated as task ID 7` ***Note:*** *The backup runs as a background task. To check the status of the background task use the PM&C GUI Task Monitor page, or issue the command " **pmaccli getBgTasks** ". The result should eventually be "PM&C Backup successful" and the background task should indicate "COMPLETE".* ***Note:*** *The "**pmacadm backup**" command uses a naming convention which includes a date/time stamp in the file name (Example file name: backupPmac_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.* The PM&C backup must be moved to a remote server. Transfer (sftp, scp, rsync, or preferred utility) the PM&C backup file to an appropriate remote server.
THIS PROCEDURE HAS BEEN COMPLETED		

I.3 Add Cabinet to PM&C System Inventory

Appendix I.3: Add Cabinet to PM&C System Inventory

Step	Procedure	Result
1. ☐	**PM&C GUI:** *Login to PM&C GUI*	Open web browser and enter: `http://<pmac_management_network_ip>` Login as pmacadmin user. 
2. ☐	**PM&C GUI:** *Configure Cabinets*	Navigate to this GUI page: **Main Menu → Hardware → System Configuration → Configure Cabinets**. 
3. ☐	**PM&C GUI:** *Navigate to Configure Cabinet*	On the Configure Cabinets panel click on "**Add Cabinet"** button 

Appendix I.3: Add Cabinet to PM&C System Inventory

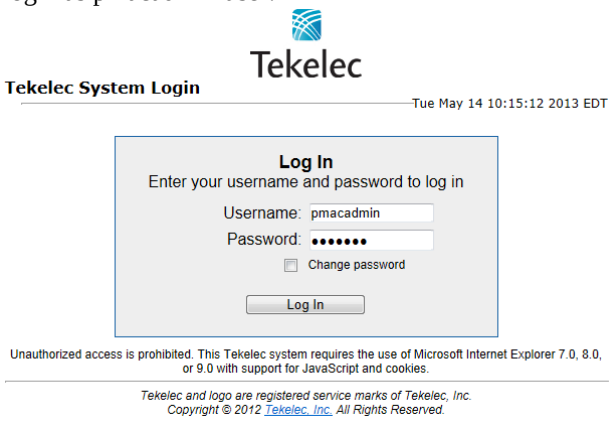
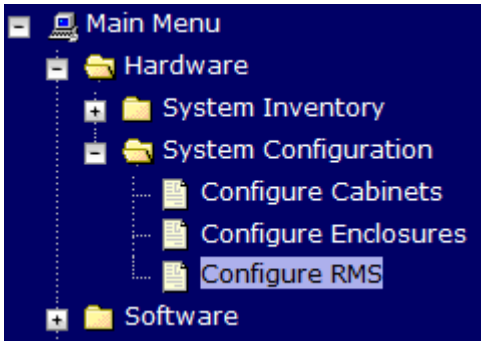
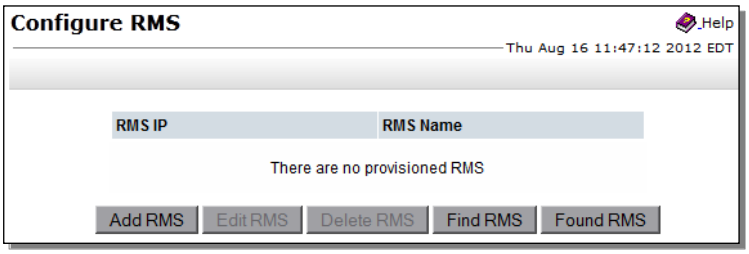
Step	Procedure	Result
4. ☐	**PM&C GUI:** *Enter Cabinet ID*	Enter the value for `CabinetID` and press **`Add Cabinet`**. 
5. ☐	**PM&C GUI:** *Check Errors*	If no error is reported to the user you will see the following:  Or you will see an error message: 
THIS PROCEDURE HAS BEEN COMPLETED		

I.4 Add Rack Mount Server to PM&C System Inventory

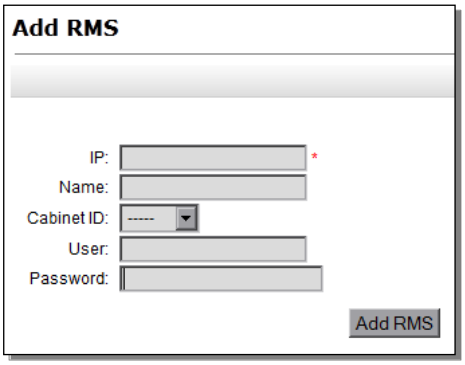
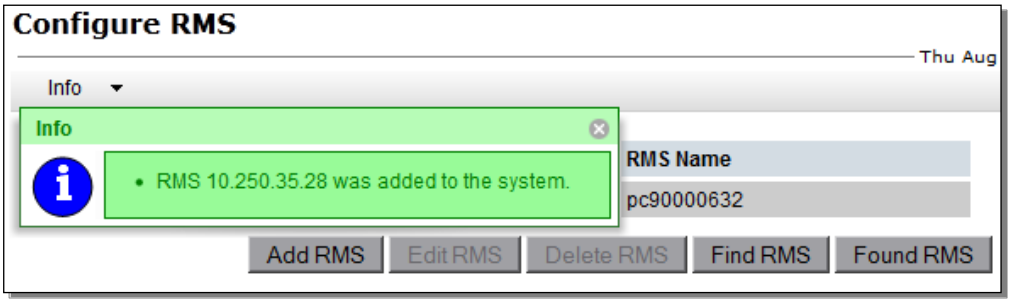
Appendix I.4: Add Rack Mount Server To PM&C System Inventory

Step	Procedure	Result

Appendix I.4: Add Rack Mount Server To PM&C System Inventory

Step	Procedure	Result
1. ☐	**PM&C GUI:** *Login to PM&C GUI*	Open web browser and enter: **`http://<pmac_management_network_ip>`** Login as pmacadmin user. 
2. ☐	**PM&C GUI:** Configure RMS	Navigate to this GUI page: **`Main Menu → Hardware → System Configuration → Configure RMS`** 
3. ☐	**PM&C GUI:** *Add RMS*	On the `Configure Cabinets` panel click on **`Add RMS`** 

Appendix I.4: Add Rack Mount Server To PM&C System Inventory

Step	Procedure	Result
4. ☐	**PM&C GUI:** *Enter RMS Information*	Enter the management port (iLO) IP Address of the rack mount server (this is the TVOE server upon which the current PM&C is hosted). Enter the User and Password login credentials for the ILO. Then press **Add RMS**.  **Note:** The PM&C contains default credentials for the management port, however if you know the default credentials will not work to log into the RMS ILO then please enter valid credentials for the rack mount server management port.
5. ☐	**PM&C GUI:** *Check Errors*	If no error is reported to the user you will see the following: 
THIS PROCEDURE HAS BEEN COMPLETED		

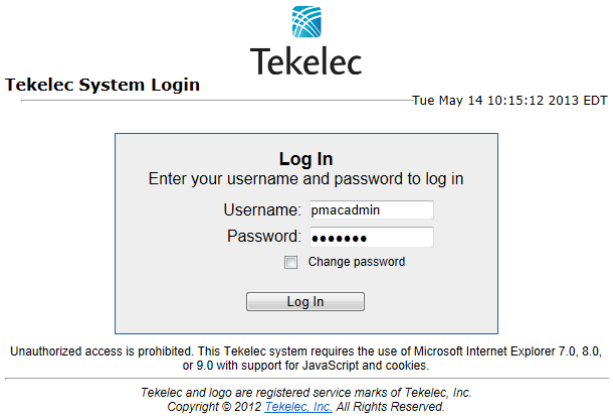
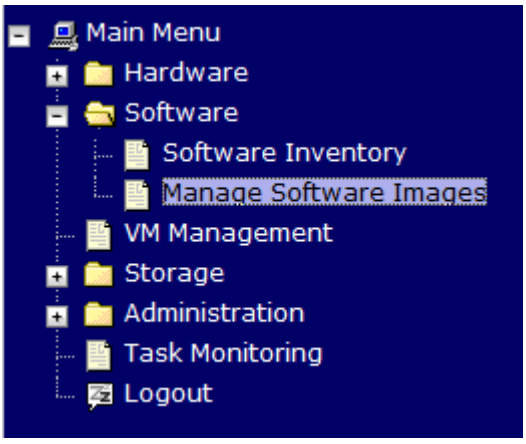
Appendix J. Adding Software Images to PM&C Server

This procedure contains steps to add software images to PM&C, including TPD, TVOE, and OCUDR application images.

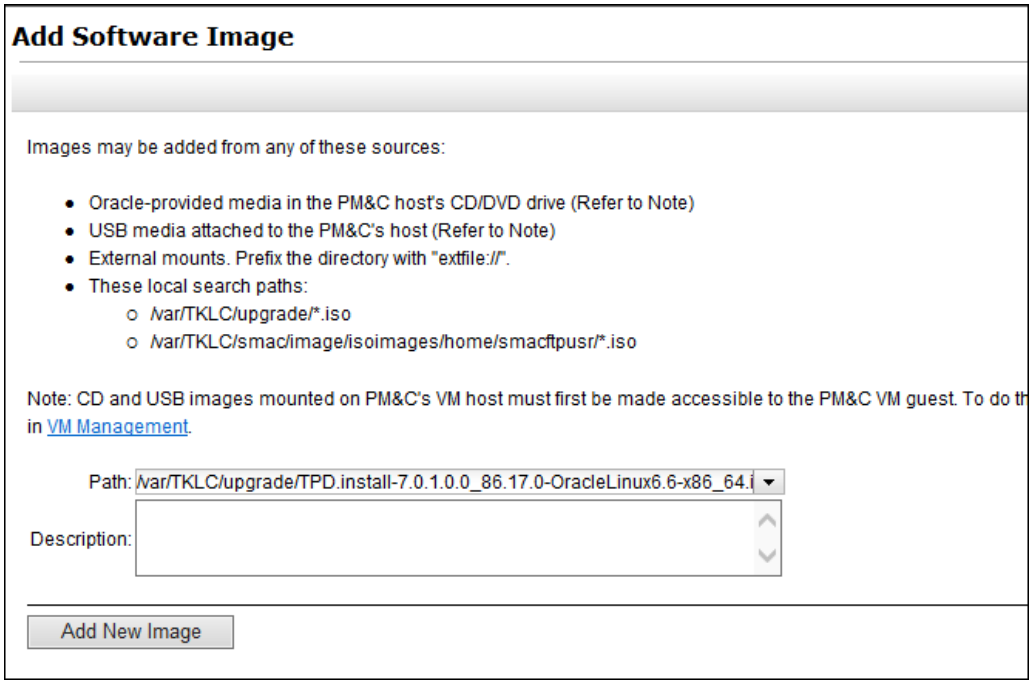
Appendix J: Add Software Images To PM&C Server

Step	Procedure	Result

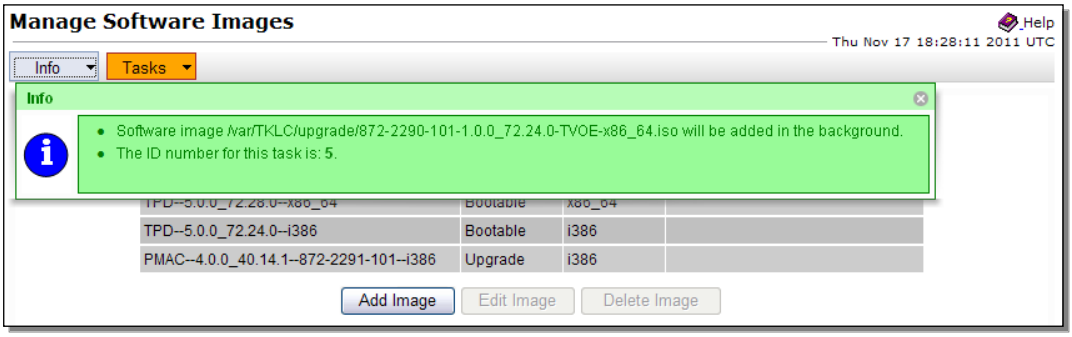
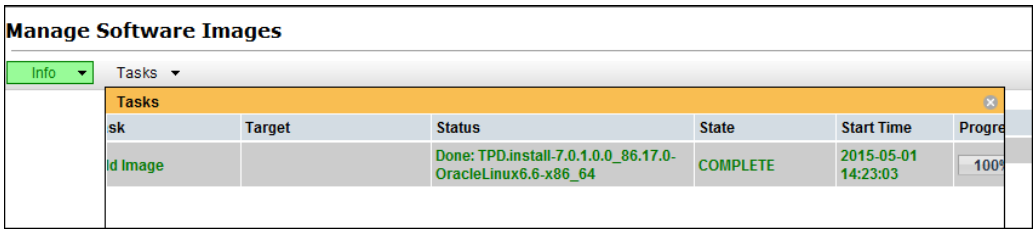
1. ☐	Load TPD ISO image to PM&C server	Use **sftp** to transfer the iso image to the PM&C server in the **/var/TKLC/smac/image/isoimages/home/smacftpusr/** directory as pmacftpusr user:
		• Change to the directory where your TPD, TVOE, or OCUDR ISO images are located
		• Using **sftp**, connect to the PM&C management server
		`# sftp pmacftpusr@<pmac_management_network_ip>`
		`# put <image>.iso`
		• After the image transfer is 100% complete, close the connection
		`# quit`

2. ☐	**PM&C GUI:** Login to PM&C GUI	Open web browser and enter: `http://<pmac_management_network_ip>` Login as pmacadmin user. 
3. ☐	**PM&C GUI:** Navigate to Manage Software Images	Navigate to this GUI page: **Main Menu → Software → Manage Software Images** 

Appendix J: Add Software Images To PM&C Server

Step	Procedure	Result
4. ☐	**PM&C GUI:** Add TPD image	Select **"Add Image"** button at the bottom of the screen  The image transferred to PM&C will appear in the list as a local file "/var/TKLC/...".  Select the appropriate path, enter an appropriate image description and press **"Add New Image"** button.

Appendix J: Add Software Images To PM&C Server

Step	Procedure	Result
5. ☐	**PM&C GUI:** Monitor the **Add Image** status	The **"Manage Software Images"** page is then re-displayed with a new background task entry in the table at the top of the page: 
6. ☐	**PM&C GUI:** Wait until the **Add Image** task finishes	When the task is complete, its text changes to green and its Progress column indicates "100%". Check that the correct image name appears in the Status column: 
7. ☐	**PM&C GUI:** Load OCUDR ISO image to PM&C server	To load OCUDR ISO image to PM&C server, repeat steps 1 through 6 of this Procedure.
8.	**PM&C Server:** SSH to Server	Follow the Steps 8 - 16 only for C Class Systems SSH to PM&C Server as admusr.
9.	**PM&C Server:** Switch to root	% sudo su -
10.	**PM&C Server:** Create new xml directory	% mkdir -p /usr/TKLC/smac/etc/switch/xml
11.	**PM&C Server:** Create new backup directory	% mkdir -p /usr/TKLC/smac/etc/switch/backup

Appendix J: Add Software Images To PM&C Server

Step	Procedure	Result
12.	**PM&C Server:** cd to new xml directory	% cd /usr/TKLC/smac/etc/switch/xml
13.	**PM&C Server:** Mount ISO	% mount /var/TKLC/smac/image/repository/UDR-<release>-x86_64.iso /mnt -o loop
14.	**PM&C Server:** Copy the xml templates	% cp /mnt/upgrade/overlay/UDR_NetConfig_Templates.zip /usr/TKLC/smac/etc/switch/xml
15.	**PM&C Server:** Unmount the directory	% umount /mnt
16.	**PM&C Server:** Unzip the xml templates	% unzip UDR_NetConfig_Templates.zip
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix K. Applying Server Configuration

K.1 Applying Server Configuration with ILO

This procedure contains steps to apply server configuration scripts to rack mount servers.

Appendix K.1: Applying Server Configuration with ILO

Step	In this procedure you willapply server configuration scripts to rack mount servers.	
1. ☐	Access the server's ILO VGA.	Connect to the server's ILO VGA using one of the the access methods described in **Appendix A.1** based on server type**.**
2. ☐	**ILO Remote Console:** *Mount the media containing the **server configuration script**.*	Follow steps defined in **...** **C.1** Mounting Physical Media on HP Servers **or** **C.2** Mounting Virtual Media on HP Servers Or **0** Mounting Virtual Media on Oracle RMS Servers ... to mount the physical (USB) or local (vitual) media containing the server configuration script. • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A ☐ NOAMP -B

3. ☐	**ILO Remote Console:**
	
	Copy the **server** configuration file to the **"/var/tmp"** directory on the server, making sure to rename the file by omitting the server hostname from the file name.
	
	NOTE: *The server will poll the **/var/tmp** directory for the presence of the configuration file and automatically execute it when found.*
		Example:
		TKLCConfigData<.server_hostname>.sh ➔ will translate to ➔TKLCConfigData.sh
		
		`[root@pc9040833-no-a ~]# cp -p /<mount-point>/TKLCConfigData.NO-A.sh /var/tmp/TKLCConfigData.sh`
		`[root@pc9040833-no-a ~]#`
		
		• **"Check off"** the associated **Check Box** as addition is completed for each **Server**.
		
		☐ NOAMP-A ☐ NOAMP -B

4. ☐	**ILO Remote Console:**
	
	After the script completes, a broadcast message will be sent to the terminal.
	
	Ignore the output shown and press the **<ENTER>** key to return to the command prompt.
	
	NOTE: *The user should be aware that the time to complete this step varies by server and may take from 3-20 minutes to complete.*
		***** NO OUTPUT FOR ≈ 3-20 MINUTES *****
		
		`Broadcast message from root (Thu Dec 1 09:41:24 2011):`
		
		`Server configuration completed successfully!`
		`See /var/TKLC/appw/logs/Process/install.log for details.`
		
		`Please remove the USB flash drive if connected and reboot the server.`
		<ENTER>
		
		`[root@pc9040833-no-a ~]#`
		
		• **"Check off"** the associated **Check Box** as addition is completed for each **Server**.
		
		☐ NOAMP-A ☐ NOAMP -B

5. ☐	**ILO Remote Console:**
	
	Configure the time zone.
		`[root@pc9040833-no-a ~]# set_ini_tz.pl <time zone>`
		
		Note: The following command example uses America/New_York time zone. Replace, as appropriate, with the time zone you have selected for this installation. For UTC, use "Etc/UTC". See Appendix P for a list of valid time zones.
		
		`[root@pc9040833-no-a ~]# set_ini_tz.pl "America/New_York"`
		
		• **"Check off"** the associated **Check Box** as addition is completed for each **Server**.
		
		☐ NOAMP-A ☐ NOAMP -B

6. ☐	**ILO Remote Console:** Initiate a reboot of the **OCUDR Server**.	`[root@pc9040833-no-a ~]# init 6` • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A ☐ NOAMP -B

7. ☐	**ILO Remote Console:**
	Output similar to that shown on the right may be observed as the server initiates a post-install reboot.
		`scsi7 : SCSI emulation for USB Mass Storage devices`
		`scsi8 : SCSI emulation for USB Mass Storage devices`
		`input: Intel(R) Multidevice as /class/input/input3`
		`input: USB HID v1.01 Mouse [Intel(R) Multidevice] on usb-0000:00:1`
		`input: Intel(R) Multidevice as /class/input/input4`
		`input: USB HID v1.01 Keyboard [Intel(R) Multidevice] on usb-0000:0`
		`Restarting system.`
		`.`
		`machine restart`

8. ☐	**ILO Remote Console:**
	After the server has completed reboot…
	
	Log back into the server as the "**root**" user.
		`CentOS release 5.6 (Final)`
		`Kernel 2.6.18-238.19.1.el5prerel5.0.0_72.22.0 on an x86_64`
		
		`hostname1260476221 login: root`
		`Password: <root_password>`

9. ☐	**ILO Remote Console:** Output similar to that shown on the right will appear as the server access the command prompt.	***** TRUNCATED OUTPUT ***** VPATH=/opt/TKLCcomcol/runcm5.16:/opt/TKLCcomcol/cm5.16 PRODPATH= RELEASE=5.16 RUNID=00 VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr/TKLC/awptransportmgr:/usr/TKLC/awpss7:/usr/TKLC/exhr PRODPATH=/opt/comcol/prod RUNID=00 [root@pc9040833-no-a ~]# • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A ☐ NOAMP -B
10. ☐	**ILO Remote Console:** Verify that the **XMI and IMI IP addressess** entered in **Procedure 5 Step 18** have been applied. NOTE: For RMS systems **XMI and IMI** are called by their device names: **XMI** = eth01 **IMI** = eth02 **NOTE:** *The server's **XMI** & **IMI** addresses can be verified by reviewing the server configuration through the OCUDR GUI.* ***i.e.*** **Main Menu** → **Configuration** → **Servers** *Scroll to line entry containing the server's **hostname.***	[root@pc9040725-no-a ~]# **ifconfig |grep in |grep -v inet6** control Link encap:Ethernet HWaddr 52:54:00:6C:3C:B4 inet addr:192.168.1.11 Bcast:192.168.1.255 Mask:255.255.255.0 imi Link encap:Ethernet HWaddr 52:54:00:F6:DC:4A inet addr:169.254.2.2 Bcast:169.254.2.255 Mask:255.255.255.0 lo Link encap:Local Loopback inet addr:127.0.0.1 Mask:255.0.0.0 xmi Link encap:Ethernet HWaddr 52:54:00:0F:1F:3B inet addr:10.250.39.19 Bcast:10.250.39.31 Mask:255.255.255.240 • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A ☐ NOAMP -B

11. ☐

ILO Remote Console:

Use the **"ntpq"** command to verify that the server has connectivity to the assigned Primary and Secondary NTP server(s).

```
[root@pc9040725-no-a ~]# ntpq -np
     remote           refid      st t when poll reach   delay   offset
jitter
==============================================================================
========
*10.250.32.10    192.5.41.209     2 u  651 1024  377    0.339    0.583
0.048
+10.250.32.51    192.5.41.209     2 u  656 1024  377    0.416    0.641
0.086
[root@pc9040725-no-a ~]#
```

- **"Check off"** the associated **Check Box** as addition is completed for each **Server**.

☐ NOAMP-A ☐ NOAMP -B

IF CONNECTIVITY TO THE NTP SERVER(S) CANNOT BE ESTABLISHED, STOP AND EXECUTE THE FOLLOWING STEPS:

- Have the customer IT group provide a network path from the OAM server IP to the assigned NTP IP addresses.

ONCE NETWORK CONNECTIVITY IS ESTABLISHED TO THE ASSIGNED NTP IP ADDRESSES, THEN RESTART THIS PROCEDURE BEGINNING WITH STEP 6.

12. ☐

ILO Remote Console:

Execute a **"alarmMgr"** to verify the current health of the server

```
# alarmMgr --alarmStatus
```

NOTE: This command should return no output on a healthy system.

- **"Check off"** the associated **Check Box** as addition is completed for each **Server**.

☐ NOAMP-A ☐ NOAMP -B

13. ☐

ILO Remote Console:

Exit session for the desired server

```
# exit
logout
Connection to 192.168.1.16 closed.
#
```

- **"Check off"** the associated **Check Box** as addition is completed for each **Server**.

☐ NOAMP-A ☐ NOAMP -B

THIS PROCEDURE HAS BEEN COMPLETED

K.2 Applying Server Configuration with PM&C

This procedure contains steps to apply server configuration scripts to virtual servers.

Appendix K.2: Applying Server Configuration with PM&C

Step	In this procedure you will apply server configuration scripts to virtual servers.	
1. ☐	**NOAMP Server A:** Connect to the NOAMP-A Server terminal at the Primary NOAMP site	SSH from PM&C: Use the Primary NOAMP-A XMI IP_address. • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
2. ☐	**NOAMP Server A:** **1)** Access the command prompt. **2)** Log into the Primary NOAMP-A server as the "**admusr**" user..	login as: admusr root@10.250.xx.yy's password: **<admusr_password>** Last login: Mon Jul 30 10:33:19 2012 from 10.25.80.199 $ • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
3. ☐	**NOAMP Server A:** Output similar to that shown on the right will appear as the server access the command prompt.	***** TRUNCATED OUTPUT ***** VPATH=/opt/TKLCcomcol/runcm5.16:/opt/TKLCcomcol/cm5.16 PRODPATH= RELEASE=5.16 RUNID=00 VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr/TKLC/awptransportmgr:/usr/TKLC/awpss7:/usr/TKLC/exhr PRODPATH=/opt/comcol/prod RUNID=00 [admusr@pc9040833-no-a ~]$ • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

4. ☐	**NOAMP Server A:** Switch to root user.	1. [admusr@pc9040833-no-a ~]$ **su -** password: **<root_password>** • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
5. ☐	**NOAMP Server A:** Change directory into the file management space	[root@pc9040833-no-a ~]# **cd /var/TKLC/db/filemgmt** • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
6. ☐	**NOAMP Server A:** Get a directory listing and find the desired servers configuration files . Note: Server names are in red.	[root@pc9040833-no-a ~]# **ls -ltr TKLCConfigData*.sh** ***** TRUNCATED OUTPUT ***** -rw-rw-rw- 1 root root 1257 Aug 17 14:01 TKLCConfigData.NOAMP-A.sh -rw-rw-rw- 1 root root 1311 Aug 17 14:30 TKLCConfigData.NO-B.sh • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

7. ☐	**NOAMP Server A:**
	
	Copy the configuration files found in the previous step to the PM&C. server that manages the desired server
		Note: The below example shows copying 2 files. Any number of configuration files can be copied in one step.
		
		`[root@pc9040833-no-a ~]# scp -p <configuration_file-a> <configuration_file-b> admusr@<Desired_PMAC_IP>:/tmp`
		`admusr@10.240.39.4's password: <admusr_password>`
		`TKLCConfigData.so-carync-a.sh 100% 1741 1.7KB/s 00:00`
		`TKLCConfigData.so-carync-b.sh 100% 1741 1.7KB/s 00:00`
		`[root@no-mrsvnc-a filemgmt]#`
		
		• **"Check off"** the associated **Check Box** as addition is completed for each **Server**.
		
		☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B
		☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

8. ☐	**NOAMP Server A:**
	
	Exit the ssh session to NOAMP Server A:
		`[root@pc9040833-no-a ~]# exit`
		`logout`
		`Connection to 192.168.1.4 closed.`
		`#`
		
		• **"Check off"** the associated **Check Box** as addition is completed for each **Server**.
		
		☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B
		
		☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

9. ☐	**PM&C Server:** Connect to the PM&C Server terminal that manages the desired server	Connect to the PM&C server's terminal using one of the access methods described in ***Section 2.1.2.*** for HP Servers or [Appendix 0 Accessing the iLo VGA Redirection Window for Oracle Accessing the iLo VGA Redirection Window for Oracle RMS Servers for Oracle RMS servers or Appendix A.3 Accessing the iLo Console for Oracle RMS Servers]. • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

10. ☐	**PM&C Server:** Copy the server configuration file to the Control IP for the desired server Note: An example of how to find the Control IP is shown in, **Procedure 3**: Create, IPM and Install Application on all Virtual Machines, **Step 12.**	Note: The name of the configuration file varies for each server. The output is just an example. admusr@pmac ~]$ **scp -p /tmp/**<*configuration_file*> admusr@<DesiredServer_*Control_IP*>:/tmp/ **admusr@192.168.1.10's password: <admusr_password>** **TKLCConfigData.so-carync-a.sh 100% 1741 1.7KB/s 00:00** **[root@pmac ~]** • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
11. ☐	**PM&C Server:** Connect to the desired server console from the PM&C Server Console	Using an SSH client such as putty, ssh to the virtual server using root credentials and the < Control IP Address> from pmac. [root@PMAC-pc9040833 ~]# ssh admusr@<DesiredServer_*Control_IP*> admusr@192.168.1.10's password: **<admusr_password>** • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
12. ☐	**Desired Server:** Output similar to that shown on the right will appear as the server access the command prompt	***** TRUNCATED OUTPUT ***** VPATH=/opt/TKLCcomcol/runcm5.16:/opt/TKLCcomcol/cm5.16 PRODPATH= RELEASE=5.16 RUNID=00 VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr/TKLC/comagent-gui:/usr/TKLC/comagent:/usr/TKLC/exhr PRODPATH=/opt/comcol/prod RUNID=00 [admusr@hostname1326744539 ~]$ • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

13. ☐	**Desired Server:**
	
	Switch to root user.
		`[admusr@hostname1326744539 ~]$ su -`
		`password: <root_password>`
		
		• **"Check off"** the associated **Check Box** as addition is completed for each **Server**.
		
		☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B
		
		☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

14. ☐	**Desired Server:**
	
	Copy the **server** configuration file to the **"/var/tmp"** directory on the server, making sure to rename the file by omitting the server hostname from the file name.
	
	NOTE: *The server will poll the **/var/tmp** directory for the presence of the configuration file and automatically execute it when found.*
		Example:
		TKLCConfigData<.server_hostname>.sh ➔ will translate to ➔TKLCConfigData.sh
		
		`[root@pc9040833-no-a ~]# cp -p /tmp/TKLCConfigData.NO-B.sh /var/tmp/TKLCConfigData.sh`
		`[root@pc9040833-no-a ~]#`
		
		• **"Check off"** the associated **Check Box** as addition is completed for each **Server**.
		
		☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B
		
		☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

15. ☐	**Desired Server:**
	
	After the script completes, a broadcast message will be sent to the terminal.
	
	Ignore the output shown and press the **<ENTER>** key to return to the command prompt.
	
	NOTE: *The user should be aware that the time to complete this step varies by server and may take from 3-20 minutes to complete.*
		***** NO OUTPUT FOR ≈ 3-20 MINUTES *****
		
		`Broadcast message from root (Thu Dec 1 09:41:24 2011):`
		
		`Server configuration completed successfully!`
		`See /var/TKLC/appw/logs/Process/install.log for details.`
		
		`Please remove the USB flash drive if connected and reboot the server.`
		<ENTER>
		
		`[root@pc9040833-no-a ~]#`
		
		• **"Check off"** the associated **Check Box** as addition is completed for each **Server**.
		
		☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B
		
		☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

16. ☐	**Desired Server:**
	
	Configure the time zone.
		`[root@pc9040833-no-a ~]# set_ini_tz.pl <time zone>`
		
		Note: The following command example uses America/New_York time zone. Replace, as appropriate, with the time zone you have selected for this installation. For UTC, use "Etc/UTC". See Appendix P for a list of valid time zones.
		
		`[root@pc9040833-no-a ~]# set_ini_tz.pl "America/New_York"`
		
		• **"Check off"** the associated **Check Box** as addition is completed for each **Server**.
		
		☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B
		
		☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

17. ☐	**Desired Server:** Initiate a reboot of the **OCUDR Server**.	`[root@pc9040833-no-a ~]# init 6` • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

18. ☐	**PM&C Server:**
	
	The SSH session for the desired server was terminated by previous step.
	
	Output similar to that shown on the right may be observed.
		The previous step should cause the ssh session to the desired server to close and user should return to the PM&C server console prompt. The user should see output similar to the below output:
		
		`Connection to 192.168.1.16 closed by remote host.`
		`Connection to 192.168.1.16 closed.`
		`#`
		
		• **"Check off"** the associated **Check Box** as addition is completed for each **Server**.
		
		☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B
		
		☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

19. ☐	**PM&C Server:**
	
	Wait until server reboot is done. Then, SSH into the desired server using the Control IP Address.
	
	Output similar to that shown on the right may be observed
		Wait about 9 minutes until the server reboot is done.
		
		Using an SSH client such as putty, ssh to the desired server using root credentials and the <Control IP Address>**.**
		
		`[root@PMAC-pc9040833 ~]# ssh admusr@192.168.1.xx`
		`admusr@192.168.1.20's password: <admusr_password>`
		
		Note: If the server isn't up, wait a few minutes and re-enter the ssh command. You can also try running the "ping 192.168.1.xx" command to see if the server is up.
		
		• **"Check off"** the associated **Check Box** as addition is completed for each **Server**.
		
		☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B
		
		☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

20. ☐	**Desired Server:**
	
	Output similar to that shown on the right will appear as the server access the command prompt.
		***** TRUNCATED OUTPUT *****
		
		`VPATH=/opt/TKLCcomcol/runcm5.16:/opt/TKLCcomcol/cm5.16`
		`PRODPATH=`
		`RELEASE=5.16`
		`RUNID=00`
		`VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr/TKLC/awptransportmgr:/usr/TKLC/awpss7:/usr/TKLC/exhr`
		`PRODPATH=/opt/comcol/prod`
		`RUNID=00`
		`[admusr@pc9040833-no-a ~]$`
		
		• **"Check off"** the associated **Check Box** as addition is completed for each **Server**.
		
		☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B
		
		☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

21. ☐	**Desired Server:**
	
	Switch to root user.
		`[admusr@hostname1326744539 ~]$ su -`
		`password: <root_password>`
		
		• **"Check off"** the associated **Check Box** as addition is completed for each **Server**.
		
		☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B
		
		☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

<table>
<tr>
<td>22.
☐</td>
<td>Desired Server:

Verify that the XMI and IMI IP addresses entered in Procedure 5 Step 18 have been applied

NOTE: The server's XMI and IMI addresses can be verified by reviewing the server configuration through the OCUDR GUI.

i.e.
<u>Main Menu</u>
→ Configuration
→ Servers

Scroll to line entry containing the server's hostname.</td>
<td>
<pre>[root@pc9040725-no-a ~]# ifconfig |grep in |grep -v inet6
control   Link encap:Ethernet HWaddr 52:54:00:6C:3C:B4
          inet addr:192.168.1.11 Bcast:192.168.1.255
Mask:255.255.255.0
imi   Link encap:Ethernet HWaddr 52:54:00:F6:DC:4A
          inet addr:169.254.2.2 Bcast:169.254.2.255 Mask:255.255.255.0
lo   Link encap:Local Loopback
          inet addr:127.0.0.1 Mask:255.0.0.0
xmi   Link encap:Ethernet HWaddr 52:54:00:0F:1F:3B
          inet addr:10.250.39.19 Bcast:10.250.39.31
Mask:255.255.255.240</pre>
• "Check off" the associated Check Box as addition is completed for each Server.

☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B

☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
</td>
</tr>
<tr>
<td>23.
☐</td>
<td>Desired Server:

Use the "ntpq" command to verify that the server has connectivity to the assigned Primary and Secondary NTP server(s).</td>
<td>
<pre>[root@pc9040725-no-a ~]# ntpq -np
     remote   refid   st t when poll reach   delay   offset
jitter
==
======
*10.250.32.10   192.5.41.209   2 u 651 1024 377   0.339   0.583
0.048
+10.250.32.51   192.5.41.209   2 u 656 1024 377   0.416   0.641
0.086
[root@pc9040725-no-a ~]#</pre>
• "Check off" the associated Check Box as addition is completed for each Server.

☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B

☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
</td>
</tr>
<tr>
<td></td>
<td>  </td>
<td>IF CONNECTIVITY TO THE NTP SERVER(S) CANNOT BE ESTABLISHED, STOP AND EXECUTE THE FOLLOWING STEPS:</td>
</tr>
</table>

	• Have the customer IT group provide a network path from the OAM server IP to the assigned NTP IP addresses. **ONCE NETWORK CONNECTIVITY IS ESTABLISHED TO THE ASSIGNED NTP IP ADDRESSES, THEN RESTART THIS PROCEDURE BEGINNING WITH STEP 17**	
24. ☐	**Desired Server:** Execute a **"alarmMgr"** to verify the current health of the server	`# alarmMgr --alarmStatus` NOTE: This command should return no output on a healthy system. • **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

25. ☐	**Desired Server:**
	
	Exit the SSH session for the desired server
		`# exit`
		`logout`
		`Connection to 192.168.1.16 closed.`
		`#`
		
		• **"Check off"** the associated **Check Box** as addition is completed for each **Server**.
		
		☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B
		
		☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

26. ☐	**PM&C Server:**
	
	Optional Step:
	If the desired server is managed by a different PM&C server, do this step.
	
	Exit the SSH session for the second PM&C server
		`# exit`
		`logout`
		`Connection to 192.168.1.4 closed.`
		`#`
		
		• **"Check off"** the associated **Check Box** as addition is completed for each **Server**.
		
		☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B
		
		☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4

Repeat steps 1 - 26 for each remaining server.		
27. ☐	**PM&C Server:** Close PM&C Server Console	**PM&C Server:** Close PM&C Server Console
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix L. Configure TVOE Network

This procedure contains steps to apply server configuration scripts to virtual servers.

L.1 Configure TVOE Network for Normal or Low Capacity C-Class Configurations

This procedure will configure the network on TVOE servers that will host SOAM and MP VM Guests (Normal capacity configuration) or NOAMP/SOAM and MP VM Guests (Low capacity configuration).

Requirements:

- **An understanding of the topology being deployed, as outlined in reference [6].**
- **Interconnects should conform to reference [6].**

Appendix L.1: Configure TVOE Network for Normal or Low Capacity C-Class Configurations

Step	Procedure	Result
1. ☐	*Access the server's console.*	Connect to the tvoe server's console using one of the access methods described in ***Section 2.1.2.*** (switch to root user)
2. ☐	***TVOE server:*** *Add VLAN for XMI*	# **netAdm add --device=bond0.<xmi_vlan>** Interface bond0.# added
3. ☐	***TVOE server:*** *Add VLAN for IMI*	# **netAdm add --device=bond0.<imi_vlan>** Interface bond0.# added
4. ☐	***TVOE server:*** *Add VLAN for management*	***Note:*** Some lab deployments may host TVOE and PMAC on the XMI network/bridge instead of a separate routable management. This step is only required if the deployment has a separate management network. # **netAdm add --device=bond0.<management_vlan>** Interface bond0.# added

Appendix L.1: Configure TVOE Network for Normal or Low Capacity C-Class Configurations

Step	Procedure	Result
5. ☐	***TVOE server:*** *Topology Check*	**The next steps will depend on your system topology. If you are unfamiliar with which topology you are deploying, access your Onboard Administrator (OA) web interface and look at "Rack Overview."** **This will present the rear view of the enclosure.** **Highlighted in red are a single pair of enclosure switches on a Topology 1/1A system:**  **Highlighted in red are two pairs of enclosure switches on a Topology 4/4A system:** 

Appendix L.1: Configure TVOE Network for Normal or Low Capacity C-Class Configurations

Step	Procedure	Result
6. ☐	***TVOE server:*** *Add bond for signalling* *[Topology 4 only]*	**Toplogy 4 and Topology 4A ONLY:** Deployments with two pairs of enclosure switches (**Toplogy 4** and **Topology 4A** in reference **[6]**) will host XSI on **bond1:** **# netAdm add --device=bond1 --onboot=yes --bootproto=none** Interface bond1 added
7. ☐	***TVOE server:*** *Bond interfaces eth11 and eth12 for signalling* *[Topology 4 only]*	**Toplogy 4 and Topology 4A ONLY:** Deployments with two pairs of enclosure switches (**Toplogy 4** and **Topology 4A** in reference **[6]**) will host XSI on **bond1:** **# netAdm set --device=bond1 --bondInterfaces=eth11,eth12** Interface bond1 updated
8. ☐	***TVOE server:*** *Add VLAN for XSI-1*	Deployments with only one pair of enclosure switches (**Toplogy 1** and **Topology 1A** in reference **[6]**) will create XSI VLAN on **bond0:** **# netAdm add --device=bond0.<xsi1_vlan>** Interface bond0.# added . . . **or** . . . Deployments with two pairs of enclosure switches (**Toplogy 4** and **Topology 4A** in reference **[6]**) will create XSI VLAN on **bond1:** **# netAdm add --device=bond1.<xsi1_vlan>** Interface bond1.# added
Repeat **Step** 8 for additional **XSI** networks if they are present, each using its own unique **<xsi_vlan>** number.		
9. ☐	***TVOE server:*** *Add bridge network for XMI*	**# netAdm add --name=xmi --type=Bridge --bridgeInterface=bond0.<xmi_vlan>** Bridge xmi added!
10. ☐	***TVOE server:*** *Add bridge network for IMI*	**# netAdm add --name=imi --type=Bridge --bridgeInterface=bond0.<imi_vlan>** Bridge imi added!
11. ☐	***TVOE server:*** *Add bridge network for management*	***Note:*** Some lab deployments may host TVOE and PMAC on the XMI network/bridge instead of a separate routable management. This step is only required if the deployment has a separate management network. **# netAdm add --name=management --type=Bridge ** **--bridgeInterface=bond0.<management_vlan>** Bridge management added!

Appendix L.1: Configure TVOE Network for Normal or Low Capacity C-Class Configurations

Step	Procedure	Result

12. ☐	***TVOE server:***
	
	Add bridge network for XSI-1
		Deployments with only one pair of enclosure switches (**Toplogy 1** and **Topology 1A** in reference **[6]**) will create XSI VLAN on **bond0:**
		
		`# netAdm add --name=xsi1 --type=Bridge \`
		`  --bridgeInterface=bond0.<xsi1_vlan>`
		`Bridge xsi1 added!`
		
		. . . **or** . . .
		
		Deployments with two pairs of enclosure switches (**Toplogy 4** and **Topology 4A** in reference **[6]**) will create XSI VLAN on **bond1:**
		
		`# netAdm add --name=xsi1 --type=Bridge \`
		`  --bridgeInterface=bond1.<xsi1_vlan>`
		`Bridge xsi1 added!`

Repeat **Step 12** for additional **XSI** networks if they are present, each using its own unique **<xsi_vlan>** number.		
Execute **steps 13 and 14** if deployment hosts TVOE and PMAC on the XMI network/bridge.		

13. ☐	***TVOE server:***
	
	Assign TVOE host an address on XMI network
		`# netAdm set --type=Bridge --name=xmi --bootproto=none  \`
		`--address=<TVOE_XMI_address> --netmask=<tvoe_xmi_netmask>`
		`Bridge xmi updated!`

14. ☐	***TVOE Server:***
	
	Add the default route to XMI
		`# netAdm add --route=default --gateway= <xmi_default_route_ip> \`
		`--device=xmi`
		`Route to xmi added!`

Execute **steps 15 and 16** if deployment hosts TVOE and PMAC on a separate routable managmenet network.		

15. ☐	***TVOE server:***
	
	Assign TVOE host an address on management network
		`# netAdm set --type=Bridge --name=management --bootproto=none  \`
		`--address=<TVOE_management_address> --netmask=<management_netmask>`
		`Bridge management updated!`

16. ☐	***TVOE Server:***
	
	Add the default route to management
		`# netAdm add --route=default --`
		`gateway=<management_default_route_ip> \`
		`--device=management`
		`Route to management added!`

17. ☐	***TVOE Server:*** *Additional Configuration*	Execute steps in L.6: Configure TVOE Server (Hostname, Time Zone, SNMP, NTP, etc) to complete the TVOE Server Configuration.
THIS PROCEDURE HAS BEEN COMPLETED		

L.2 Configure TVOE Network for Topology 7 (HP RMS & Oracle RMS with 8 ports)

This section for Topology 7 deployment requires **HP DL380** or **Oracle X5-2** rack mount servers.

Requirements:

- **An understanding of the topology being deployed, as outlined in reference [6].**
- **Interconnects should conform to reference [6]. (** <nicx> values in the procedure below can be found in a table in section 2.0 in this document)**

Appendix L.2: Configure TVOE Network for Topology 7 (HP RMS and Oracle RMS with 8 ports)

Step	Procedure	Result
1. ☐	*Access the server's console.*	Connect to the TVOE server's console using one of the access methods described in ***Section 2.1.2.*** **for HP OR one of the access methods** described in Appendix 0: Accessing the iLo VGA Redirection Window for Oracle RMS `Servers` or Appendix A.3 Accessing the iLo Console for Oracle RMS Servers. (switch to root user)

2. ☐	***TVOE server:***
	
	Create bond0 device
		Verify the bond0 network by running the following command
		
		`# netAdm query --device=bond0`
		`Protocol: none`
		`IP Address:`
		`Netmask:`
		`On Boot: yes`
		`Bonded Mode: active-backup`
		`Monitor: MII`
		`Interval: 100`
		`Enslaving: < nic1 nic2>`
		`Type: Bonding`
		`Bridge: Member of bridge control`
		
		If **bond0** exists and is enslaving **nic1** and **nic2** (refer to TR007403 for device name assignment), continue onto **Step 3**. Otherwise the bond must be created with these following commands:
		
		`# netAdm add --device=bond0 --onboot=yes --type=Bonding \`
		`--mode=active-backup --miimon=100`
		`Interface bond0 added`
		
		Execute the following to set the slave interfaces:
		`# netAdm set --device=<nic1> --type=Ethernet \`
		`--master=control --slave=yes`
		`Interface <ethernet_interface_1> updated`
		
		`# netAdm set --device=<nic2> --type=Ethernet \`
		`--master=control --slave=yes`
		`Interface <ethernet_interface_2> updated`

Appendix L.2: Configure TVOE Network for Topology 7 (HP RMS and Oracle RMS with 8 ports)

Step	Procedure	Result
3. ☐	***TVOE server:*** *Reset control network*	Verify the control network by running the following command **# netAdm query --type=Bridge --name=control** Bridge Name: control On Boot: yes Protocol: dhcp Persistent: yes Promiscuous: no Bridge Interface: **bond0** If the output matches the one above with Bridge Interface **bond0**, the Control Bridge must be modified **with the following command to remove bond interface zero**. Also, need to reset "onboot =yes". Otherwise continue onto **Step 4**. Note:The control network needs to be removed from bond0 when PMAC is to be run on each Oracle RMS Server. **# netAdm set --type=Bridge --name=control --delBridgeInt=bond0** Bridge control updated **# netAdm set --device=bond0 --onboot=yes** Interface bond0 updated
4. ☐	***TVOE server:*** *Add VLAN for IMI*	**# netAdm add --device=bond0.<imi_vlan>** Interface bond0.# added
5. ☐	***TVOE server:*** *Add bridge network for IMI*	**# netAdm add --name=imi --type=Bridge --bridgeInterface=bond0.<imi_vlan>** Bridge imi added!
6. ☐	***TVOE server:*** *Add Bond for XMI network*	**# netAdm add --device=bond1 --onboot=yes --bootproto=none** Interface bond1 added
7. ☐	***TVOE server:*** *Update Bond interfaces for XMI network*	**# netAdm set --device=bond1 --bondInterfaces=<nic3>,<nic5>** Interface bond1 updated
8. ☐	***TVOE server:*** *Add VLAN for XMI*	**# netAdm add --device=bond1.<xmi_vlan>** Interface bond1.# added
9.	***TVOE server:*** *Add Bridge network for XMI*	**# netAdm add --name=xmi --type=Bridge --bridgeInterface=bond1.<xmi_vlan>>**

Appendix L.2: Configure TVOE Network for Topology 7 (HP RMS and Oracle RMS with 8 ports)

Step	Procedure	Result
Note: Some deployments may host TVOE and PMAC on the XMI network/bridge instead of a separate routable management. **Execute steps 10 - 12** if the deployment hosts TVOE and PMAC on a separate routable management network. If XMI network/bridge is used execute steps 13-14.		
10. ☐	***TVOE server:*** *Add VLAN for management*	**# netAdm add --device=bond1.<management_vlan>** Interface bond1.# added
11. ☐	***TVOE server:*** *Add Bridge and TVOE IP on management network*	**# netAdm add --name=management --type=Bridge ** **--bridgeInterface=bond1.<management_vlan> ** **--bootproto=none --onboot=yes ** **--address=<tvoe_managemnt_address> ** **--netmask=<management_netmask>** Bridge management added!
12. ☐	***TVOE Server:*** *Add the default route to management network*	# **netAdm add --route=default --gateway=<management_default_route_ip> ** **--device=management** Route to management added
Execute steps 13 - 14 if the deployment hosts TVOE and PMAC on the XMI network/bridge.		
13. ☐	***TVOE server:*** *Update Bridge and TVOE IP on XMI network*	**# netAdm set --name=xmi --type=Bridge ** **--bridgeInterface=bond1.<xmi_vlan> ** **--bootproto=none --onboot=yes ** **--address=<tvoe_xmi_IP> ** **--netmask=<tvoe_xmi_netmask>** Bridge xmi added!
14. ☐	***TVOE Server:*** *Add the default route to xmi network*	# **netAdm add --route=default --gateway=<xmi_default_route_ip> ** **--device=xmi** Route to xmi added
15. ☐	***TVOE server:*** *Add bond 2 interface*	**netAdm add --device=bond2 --onboot=yes --bootproto=none** Interface bond2 added
16. ☐	***TVOE server:*** *Update Bond2 with eth interfaces*	**netAdm set --device=bond2 --bondInterfaces==<nic4>,<nic7>** Interface bond2 updated
17. ☐	***TVOE server:*** *Add VLAN for XSI1*	**# netAdm add --device=bond2.<xsi1_vlan>** Interface bond2.# added
18. ☐	***TVOE server:*** *Add bridge network for XSI1*	**# netAdm add --name=xsi1 --type=Bridge ** **--bridgeInterface=bond2.<xsi1_vlan>** Bridge xsi1 added!

Appendix L.2: Configure TVOE Network for Topology 7 (HP RMS and Oracle RMS with 8 ports)

Step	Procedure	Result

19. ☐	***TVOE server:***
	
	(Topology 7E only) Signaling Network2 Configuration
		a. For Topology 7E only (optional)
		i. *Add Bond3 Interface for XSI2 network*
		`# netAdm add --device=bond3 --onboot=yes --bootproto=none`
		ii. *Bond interfaces for XSI2 network*
		`# netAdm set --device=bond3 --bondInterfaces=<nic6>,<nic8>`
		iii. *Add VLAN for XSI2*
		`# netAdm add --device=bond3.<xsi2_vlan>`
		iv. *Add Bridge for XSI2 network*
		`# netAdm add --name=xsi2 --type=Bridge --bridgeInterface=bond3.<xsi2_vlan>`

20. ☐	***TVOE Server:*** *Additional Configuration*	Execute steps in L.6:Configure TVOE Server (Hostname, Time Zone, SNMP, NTP, etc) to complete the TVOE Server Configuration.
THIS PROCEDURE HAS BEEN COMPLETED		

L.3 Configure TVOE Network for Topology 7 (Oracle RMS with 6 ports)

This section for Topology 7 deployment requires **Oracle X5-2** rack mount servers.

Requirements:

- **An understanding of the topology being deployed, as outlined in reference [6].**
- **Interconnects should conform to reference [6]. (** <nicx> values in the procedure below can be found in a table in section 2.0 in this document)**

Appendix L.3: Configure TVOE Network for Topology 7 (Oracle RMS with 6 ports)

Step	Procedure	Result
1. ☐	*Access the server's console.*	Connect to the server's ILO VGA using the access method described in Appendix 0: Accessing the iLo VGA Redirection Window for Oracle RMS `Servers` or Appendix A.3 Accessing the iLo Console for Oracle RMS Servers. (switch to root)

2. ☐	***TVOE server:***
	
	Create bond0 device
		Verify the bond0 network by running the following command
		
		`# netAdm query --device=bond0`
		`Protocol: none`
		`IP Address:`
		`Netmask:`
		`On Boot: yes`
		`Bonded Mode: active-backup`
		`Monitor: MII`
		`Interval: 100`
		`Enslaving: < nic1 nic2>`
		`Type: Bonding`
		`Bridge: Member of bridge control`
		
		If **bond0** exists and is enslaving **nic1** and **nic2** (refer to TR007403 for device name assignment), continue onto **Step 4**. Otherwise the bond must be created with these following commands:
		
		`# netAdm add --device=bond0 --onboot=yes --type=Bonding \`
		`--mode=active-backup --miimon=100`
		`Interface bond0 added`
		
		Execute the following to set the slave interfaces:
		`# netAdm set --device=<nic1> --type=Ethernet \`
		`--master=control --slave=yes`
		`Interface <ethernet_interface_1> updated`
		
		`# netAdm set --device=<nic2> --type=Ethernet \`
		`--master=control --slave=yes`
		`Interface <ethernet_interface_2> updated`

Appendix L.3: Configure TVOE Network for Topology 7 (Oracle RMS with 6 ports)

Step	Procedure	Result
3. ☐	***TVOE server:*** *Reset control network*	Verify the control network by running the following command **# netAdm query --type=Bridge --name=control** Bridge Name: control On Boot: yes Protocol: dhcp Persistent: yes Promiscuous: no Hwaddr: 00:10:e0:68:b6:5e MTU: Delay : 4 Multicast Snooping : 0 Bridge Interface: **bond0** If the output matches the one above with Bridge Interface **bond0**, the Control Bridge must be modified **with the following command to remove bond interface zero**. Also, need to reset "onboot =yes". Otherwise continue onto **Step 4**. Note:The control network needs to be removed from bond0 when PMAC is to be run on each Oracle RMS Server. **# netAdm set --type=Bridge --name=control --delBridgeInt=bond0** Bridge control updated! **# netAdm set --device=bond0 --onboot=yes** **Interface bond0 updated**
4. ☐	***TVOE server:*** *Add VLAN for IMI*	**# netAdm add --device=bond0.<imi_vlan>** Interface bond0.# added
5. ☐	***TVOE server:*** *Add bridge network for IMI*	**# netAdm add --name=imi --type=Bridge --bridgeInterface=bond0.<imi_vlan>** Bridge imi added!
6. ☐	***TVOE server:*** *Add Bond 1 network*	**# netAdm add --device=bond1 --onboot=yes --bootproto=none** Interface bond1 added
7. ☐	***TVOE server:*** *Update Bond1 interfaces for network*	**# netAdm set --device=bond1 --bondInterfaces=<nic3>,<nic5>** Interface bond1 updated
8. ☐	***TVOE server:*** *Add Bond 2 network*	**# netAdm add --device=bond2 --onboot=yes --bootproto=none** Interface bond2 added

Appendix L.3: Configure TVOE Network for Topology 7 (Oracle RMS with 6 ports)

Step	Procedure	Result
9. ☐	***TVOE server:*** *Update Bond2 interfaces for network*	**# netAdm set --device=bond2 --bondInterfaces=<nic6>,<nic7>** Interface bond2 updated
10. ☐	***TVOE server:*** *Add VLAN for XMI*	**For Topology 7:** **# netAdm add --device=bond1.<xmi_vlan>** Interface bond1.# added For Topology 7E: **# netAdm add --device=bond0.<xmi_vlan>** Interface bond0.# added
11.	***TVOE server:*** *Add bridge network for XMI*	**For Topology 7:** **# netAdm add --name=xmi --type=Bridge --bridgeInterface=bond1.<xmi_vlan>>** **For topology 7E:** **# netAdm add --name=xmi --type=Bridge --bridgeInterface=bond0.<xmi_vlan>>**
Note: Some deployments may host TVOE and PMAC on the XMI network/bridge instead of a separate routable management. **Execute steps 12 - 14** if the deployment hosts TVOE and PMAC on a separate routable management network. Or, e**xecute steps 15-16,** if the deployment hosts TVOE and PMAC on the XMI network/bridge.		
12. ☐	***TVOE server:*** *Add VLAN for management*	For Topology 7: # **netAdm add --device=bond1.<management_vlan>** Interface bond1.# added For Topology 7E: # **netAdm add --device=bond0.<management_vlan>** Interface bond0.# added
13. ☐	***TVOE server:*** *Add bridge network for management*	For Topology 7: **# netAdm add --name=management --type=Bridge** **--bridgeInterface=bond1.<management_vlan> --bootproto=none --onboot=yes** **--address=<TVOE_management_address> --netmask=<management_netmask>** For Topology 7E: **# netAdm add --name=management --type=Bridge** **--bridgeInterface=bond0.<management_vlan> --bootproto=none --onboot=yes** **--address=<TVOE_management_address> --netmask=<management_netmask>** Bridge management added!
14. ☐	*Add the default route to management*	**# netAdm add --route=default --gateway=<management_default_route_ip>** **--device=management** Route to management added!
Execute steps 15 - 16 if not using a separate routable Management network		

Appendix L.3: Configure TVOE Network for Topology 7 (Oracle RMS with 6 ports)

Step	Procedure	Result
15. ☐	***TVOE server:*** *Add Bridge network for XMI*	For Topology 7: **# netAdm set --name=xmi --type=Bridge --bridgeInterface=bond1.<xmi_vlan> --bootproto=none –onboot=yes --address=<tvoe_IP> --netmask=<xmi_network_netmask>** **For Topology 7E:** **# netAdm set --name=xmi --type=Bridge --bridgeInterface=bond0.<xmi_vlan> --bootproto=none –onboot=yes --address=<tvoe_IP> --netmask=<xmi_network_netmask>** Bridge xmi added!
16. ☐	***TVOE Server:*** *Add the default route to xmi network*	**# netAdm add --route=default --device=xmi \ --gateway=<xmi_gateway_ip>** Route to xmi added
17. ☐	***TVOE server:*** *Add VLAN for XSI1*	For Topology 7: **# netAdm add --device=bond2.<xsi1_vlan>** Interface bond2.# added For Topology 7E: **# netAdm add --device=bond1.<xsi1_vlan>** Interface bond1.# added
18. ☐	***TVOE server:*** *Add bridge network for XSI1*	For Topology 7: **# netAdm add --name=xsi1 --type=Bridge --bridgeInterface= bond2.<xsi1_vlan>** For Topology 7E: **# netAdm add --name=xsi1 --type=Bridge --bridgeInterface= bond1.<xsi1_vlan>** Bridge xsi1 added!
19. ☐	***TVOE server:*** *Add VLAN for XSI2*	For Topology 7E only: **# netAdm add --device=bond2.<xsi2_vlan>** Interface bond2.# added
20. ☐	***TVOE server:*** *Add bridge network for XSI2*	For Topology 7E only: **# netAdm add --name=xsi2 --type=Bridge \ --bridgeInterface=bond2.<xsi2_vlan>** Bridge xsi2 added!
21. ☐	***TVOE Server:*** *Additional Configuration*	Execute steps in L.6:Configure TVOE Server (Hostname, Time Zone, SNMP, NTP, etc) to complete the TVOE Server Configuration.
THIS PROCEDURE HAS BEEN COMPLETED		

L.4 Configure TVOE Network for Topology 7 (Oracle RMS with 4 ports)

This section for Topology 7 deployment requires **Oracle X5-2 Config 2** (LOM and two dual port PCI) rack mount servers.

Requirements:

- **An understanding of the topology being deployed, as outlined in reference [6].**
- **Interconnects should conform to reference [6]. (** <nicx> values in the procedure below can be found in a table in section 2.0 in this document)**

Appendix L.4: Configure TVOE Network for Topology 7 (Oracle RMS with 4 ports)

Step	Procedure	Result
1. ☐	*Access the server's console.*	Connect to the server's ILO VGA using the access method described in Appendix 0: Accessing the iLo VGA Redirection Window for Oracle RMS `Servers` or Appendix A.3 Accessing the iLo Console for Oracle RMS Servers. (switch to root)

2. ☐	***TVOE server:***
	
	Create bond0 device
		Verify the bond0 network by running the following command
		
		`# netAdm query --device=bond0`
		`Protocol: none`
		`IP Address:`
		`Netmask:`
		`On Boot: yes`
		`Bonded Mode: active-backup`
		`Monitor: MII`
		`Interval: 100`
		`Enslaving: < nic1 nic2>`
		`Type: Bonding`
		`Bridge: Member of bridge control`
		
		If **bond0** exists and is enslaving **nic1** and **nic2** (refer to TR007403 for device name assignment), continue onto **Step 3**. Otherwise the bond must be created with these following commands:
		
		`# netAdm add --device=bond0 --onboot=yes --type=Bonding \`
		`--mode=active-backup --miimon=100`
		`Interface bond0 added`
		
		Execute the following to set the slave interfaces:
		`# netAdm set --device=<nic1> --type=Ethernet \`
		`--master=control --slave=yes`
		`Interface <ethernet_interface_1> updated`
		
		`# netAdm set --device=<nic2> --type=Ethernet \`
		`--master=control --slave=yes`
		`Interface <ethernet_interface_2> updated`

Appendix L.4: Configure TVOE Network for Topology 7 (Oracle RMS with 4 ports)

Step	Procedure	Result
3. ☐	***TVOE server:*** *Reset control network*	Verify the control network by running the following command **# netAdm query --type=Bridge --name=control** Bridge Name: control On Boot: yes Protocol: dhcp Persistent: yes Promiscuous: no Hwaddr: 00:10:e0:68:b6:5e MTU: Delay : 4 Multicast Snooping : 0 Bridge Interface: **bond0** If the output matches the one above with Bridge Interface **bond0**, the Control Bridge must be modified **with the following command to remove bond interface zero**. Also, need to reset "onboot =yes". Otherwise continue onto **Step 4**. The control network needs to be removed from bond0 when PMAC is to be run on each Sun X5-2 Server. **# netAdm set --type=Bridge --name=control --delBridgeInt=bond0** Bridge control updated! **# netAdm set --device=bond0 --onboot=yes** Interface bond0 updated
4. ☐	***TVOE server:*** *Add VLAN for IMI*	**# netAdm add --device=bond0.<imi_vlan>** Interface bond0.# added
5. ☐	***TVOE server:*** *Add Bridge network for IMI*	**# netAdm add --name=imi --type=Bridge --bridgeInterface=bond0.<imi_vlan>** Bridge imi added!
6. ☐	***TVOE server:*** *Add VLAN for XMI*	**# netAdm add --device=bond0.<xmi_vlan>** Interface bond0.# added
7.	***TVOE server:*** *Add Bridge network fro XMI*	**# netAdm add --name=xmi --type=Bridge --bridgeInterface=bond0.<xmi_vlan>>**
Note: Some deployments may host TVOE and PMAC on the XMI network/bridge instead of a separate routable management. **Execute steps 8 - 10** if the deployment hosts TVOE and PMAC on a separate routable management network. Or, e**xecute steps 11-12**, if the deployment hosts TVOE and PMAC on the XMI network/bridge		
8. ☐	***TVOE server:*** *Add VLAN for management*	# **netAdm add --device=bond0.<management_vlan>** Interface bond0.# added

Appendix L.4: Configure TVOE Network for Topology 7 (Oracle RMS with 4 ports)

Step	Procedure	Result
9. ☐	**TVOE server:** *Add bridge and TVOE IP on management network*	**# netAdm add --name=management --type=Bridge ** **--bridgeInterface=bond0.<management_vlan> ** **--bootproto=none --onboot=yes ** **--address=<TVOE_management_address> ** **--netmask=<management_netmask>** Bridge management added!
10. ☐	*Add the default route to management*	**netAdm add --route=default --gateway=<management_default_route_ip>** **--device=management** Route to management added!
Execute steps 11- 12 if the deployment hosts TVOE and PMAC on the XMI network/bridge.		
11. ☐	**TVOE server:** *Update bridge network for XMI*	**# netAdm set --name=xmi --type=Bridge ** **--bridgeInterface=bond0.<xmi_vlan> ** **--bootproto=none -onboot=yes ** **--address=<tvoe_xmi_IP>** **--netmask=<xmi_network_netmask>** Bridge xmi added!
12. ☐	**TVOE Server:** *Add the default route to xmi network*	# **netAdm add --route=default --device=xmi ** **--gateway=<xmi_gateway_ip>** Route to xmi added
13. ☐	**TVOE server:** *Add bond1 interface*	**# netAdm add --device=bond1 --onboot=yes --bootproto=none** Interface bond1 added
14. ☐	**TVOE server:** *Update Bond1 with eth interfaces*	**# netAdm set --device=bond1 --bondInterfaces=<nic5>,<nic6>** Interface bond1 updated
15. ☐	**TVOE server:** *Add VLAN for XSI1*	# **netAdm add --device=bond1.<xsi1_vlan>** Interface bond1.# added
16. ☐	**TVOE server:** *Add bridge network for XSI1*	**# netAdm add --name=xsi1 --type=Bridge ** **--bridgeInterface=bond1.<xsi1_vlan>** Bridge xsi1 added!
17. ☐	**TVOE server:** *Topology 7E only Signaling Network2 Configuration*	For Topology 7E only (optional) **i.** *Add VLAN for XSI 2* **# netAdm add --device=bond1.<xsi2_vlan>** Interface bond1.# added **ii.** *Add bridge for XSI2 network* **# netAdm add --name=xsi2 --type=Bridge -- ** **bridgeInterface=bond1.<xsi2_vlan>** Bridge xsi1 added!

Appendix L.4: Configure TVOE Network for Topology 7 (Oracle RMS with 4 ports)

Step	Procedure	Result
18. ☐	***TVOE Server:*** *Additional Configuration*	Execute steps in L.6:Configure TVOE Server (Hostname, Time Zone, SNMP, NTP, etc) to complete the TVOE Server Configuration.
THIS PROCEDURE HAS BEEN COMPLETED		

L.5 Configure Additional NTP Server (Setup Recommendation)

Appendix L.5: Configure Additional NTP Server (Setup Recommendation)

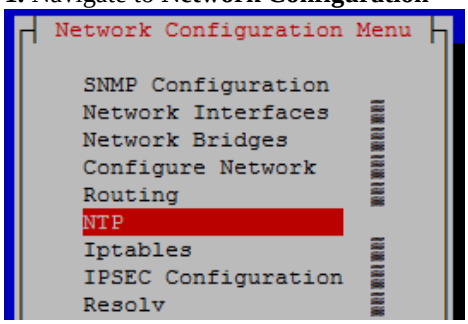
Step	Procedure	Result
1. ☐	*Access the server's console.*	Connect to the server's console using one of the access methods described in ***Section 2.1.2.***

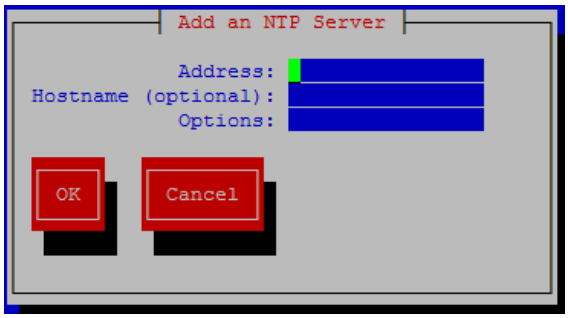
Appendix L.5: Configure Additional NTP Server (Setup Recommendation)

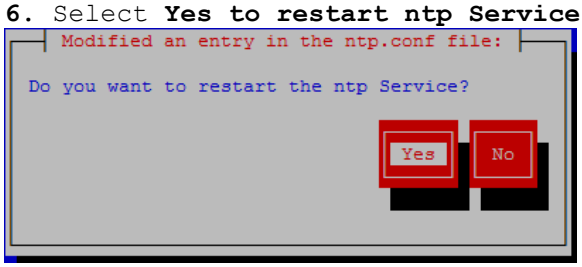
<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>2.
☐</td><td>TVOE Server:

Add additional NTP server.</td><td>Set the server hostname by running the following:

su - platcfg

1. Navigate to Network Configuration ➢ NTP.
 

2. Select Edit, then “Add a New NTP Server.”
3. Enter the IP Address of the additional NTP server.
 

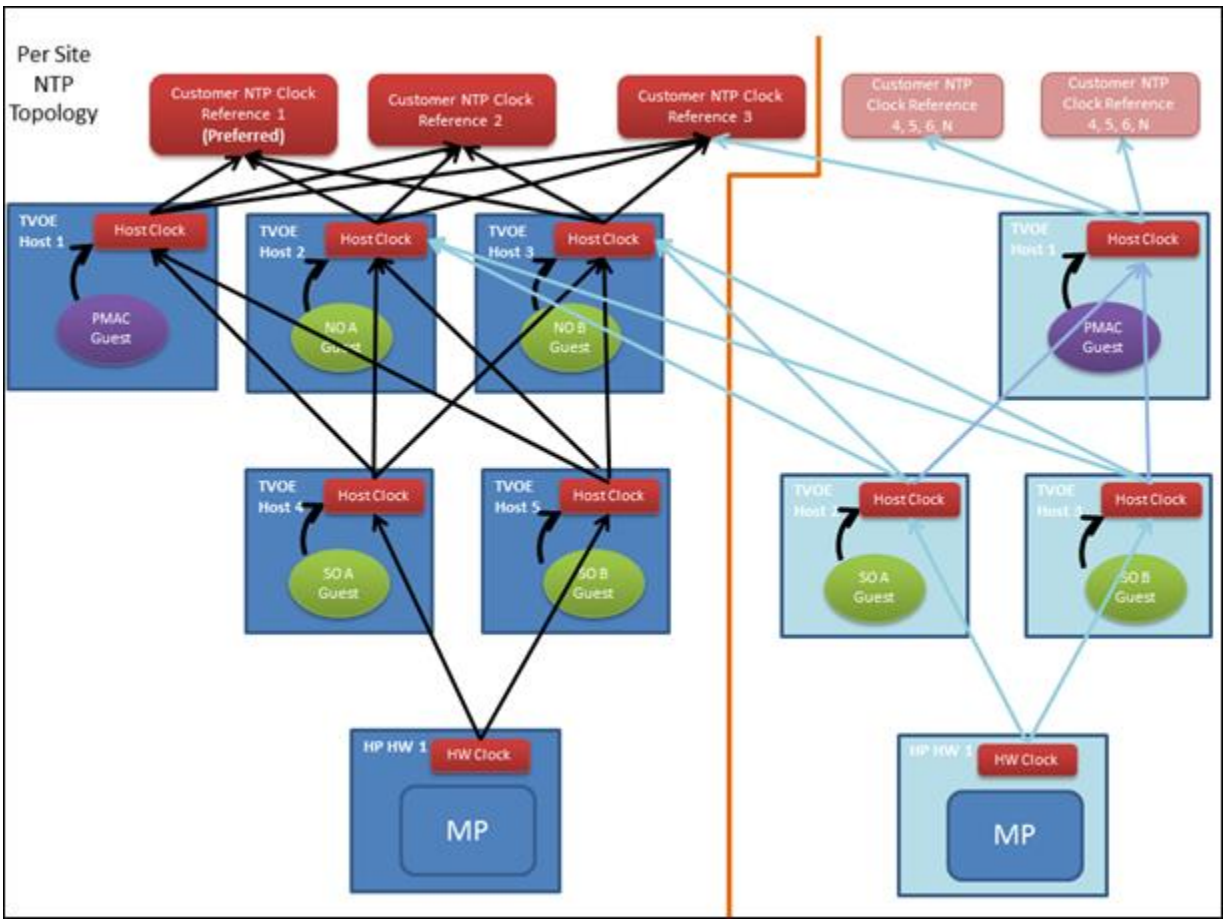
4. Select OK.
5. Jump back to Step 2 if more NTP servers need to be added.
5. Select Exit.
6. Select Yes to restart ntp Service.
 

7. Select Exit twice to leave platcfg.</td></tr>
<tr><td>3.
☐</td><td>Desired Server:

Use the “ntpq” command to verify that the server has connectivity to the assigned NTP servers.</td><td># ntpq -np
<pre>
     remote   refid   st t when poll reach   delay   offset jitter
==
*10.250.32.10   192.5.41.209   2 u 651 1024 377   0.339   0.583   0.048
+10.250.32.51   192.5.41.209   2 u 656 1024 377   0.416   0.641   0.086
</pre>
2. #</td></tr>
<tr><td colspan="3">THIS PROCEDURE HAS BEEN COMPLETED</td></tr>
</table>

Example Diagram with multiple NTP servers:

Care should be taken to ensure that all NTP references are reachable through the appropriate networking configuration. It is recommended to have minimum of 3 and up to 4 external NTP servers for reliable functioning of NTP service.



L.6 Configure TVOE Server (Hostname, Time Zone, SNMP, NTP, etc)

The following are additional configuration steps required after configuring the TVOE network.

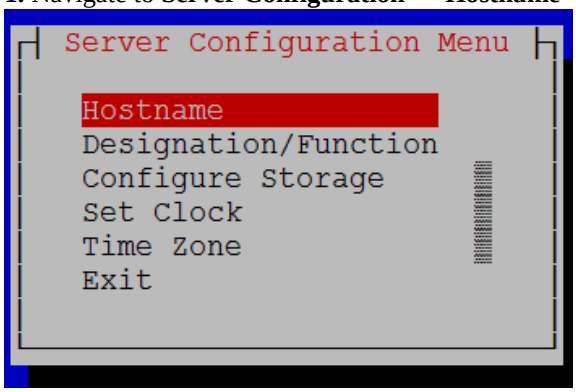
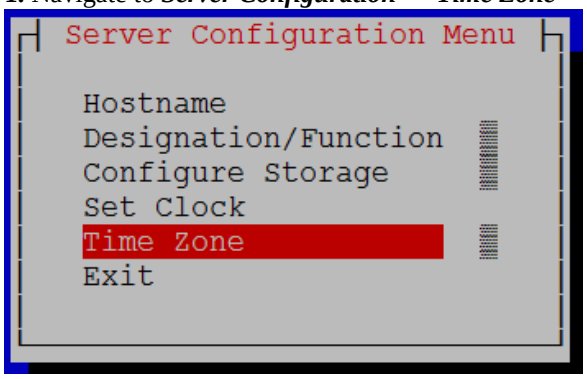
Requirements:

- **An understanding of the topology being deployed, as outlined in reference [6].**

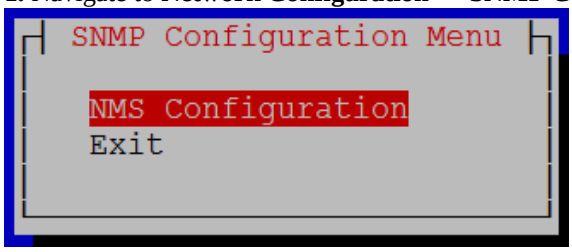
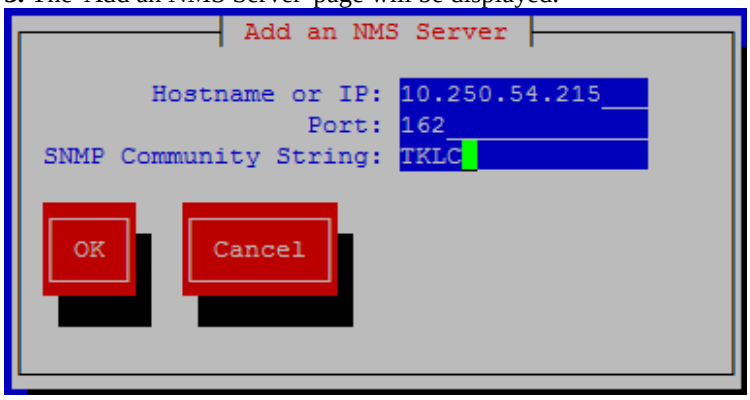
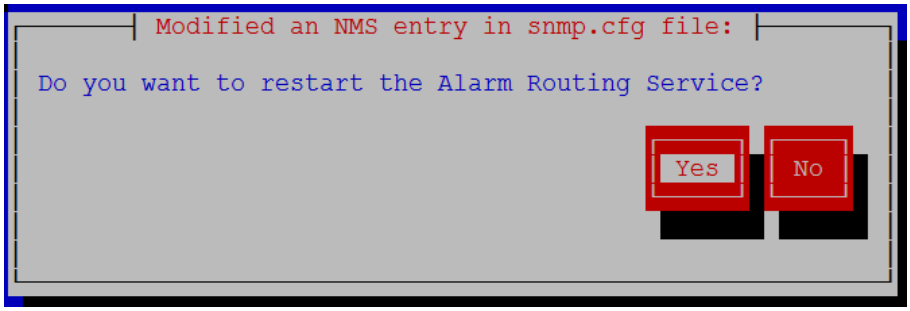
Appendix L.6: Configure TVOE Server (Hostname, Time Zone, SNMP, NTP, etc)

Step	*Procedure*	*Result*
1. ☐	*Access the server's console.*	Connect to the server's ILO VGA using the access method described in Appendix 0: Accessing the iLo VGA Redirection Window for Oracle RMS `Servers` or Appendix A.3 Accessing the iLo Console for Oracle RMS Servers. (switch to root)

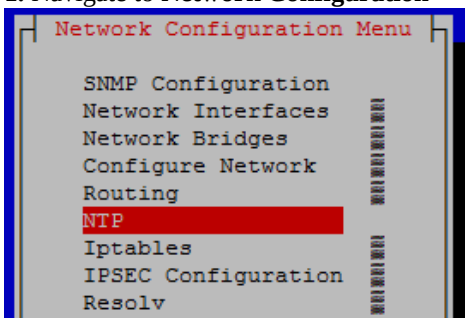
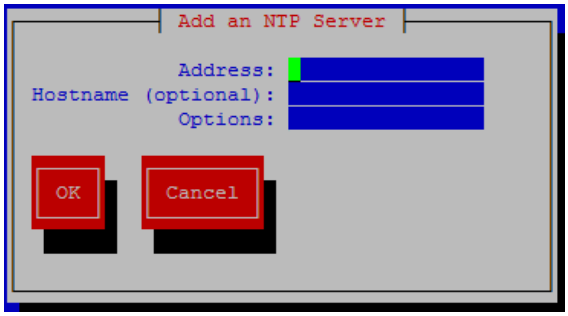
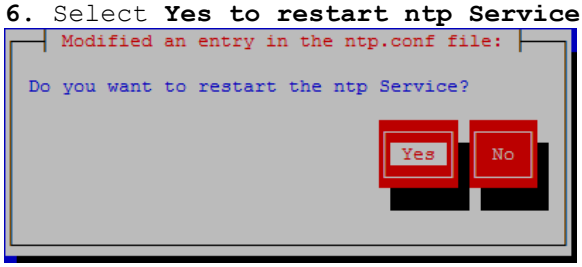
Appendix L.6: Configure TVOE Server (Hostname, Time Zone, SNMP, NTP, etc)

Step	Procedure	Result
2. ☐	***TVOE Server:*** *Set Hostname*	Set the server hostname by running the following: `# su - platcfg` **1.** Navigate to **Server Configuration ➢ Hostname**  **2.** Select Edit **3.** Set TVOE Management Server hostname **4.** Press OK. **5.** Navigate out of Hostname
3. ☐	***TVOE Server:*** *Set Time Zone and/or Hardware Clock*	Set the time zone and/or hardware clock **1.** Navigate to ***Server Configuration ➢ Time Zone***  **2.** Select Edit. **3.** Set the time zone **4**. Answer yes to "Set Hardware Clock to GMT". **5.** Press YES **6.** Navigate out of Server Configuration

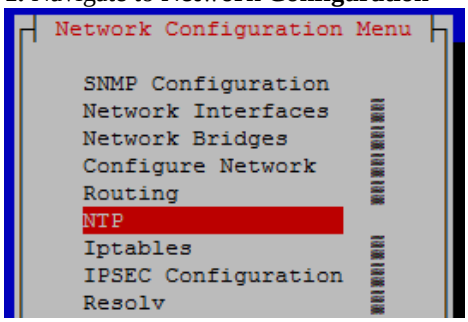
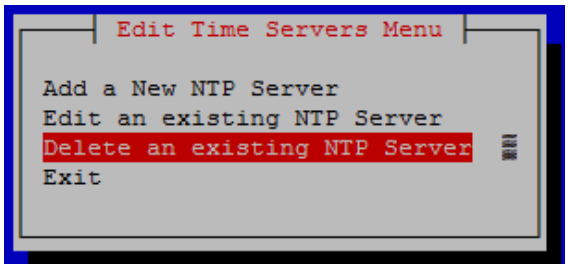
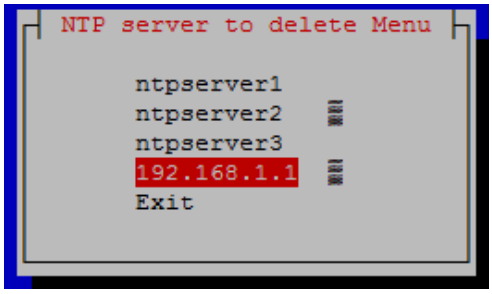
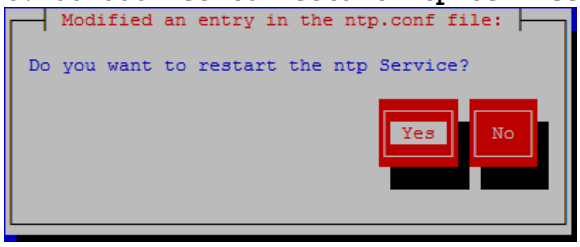
Appendix L.6: Configure TVOE Server (Hostname, Time Zone, SNMP, NTP, etc)

Step	Procedure	Result
4. ☐	***TVOE Server:*** *Configure SNMP trap destination*	Configure SNMP trap destination. **1.** Navigate to **Network Configuration ➢ SNMP Configuration ➢ NMS Configuration**.  **2.** Select **Edit** and then choose 'Add a New NMS Server'. **3.** The 'Add an NMS Server' page will be displayed.  **4.** Complete the form by entering in all information about the SNMP trap destination. **5.** Select **OK** to finalize the configuration. **6.** The 'NMS Server Action Menu' will now be displayed. **7.** Select **Exit**. The following dialogue will then be presented:  **8.** Select **Yes** and then wait a few seconds while the Alarm Routing Service is restarted. **9.** At that time the SNMP Configuration Menu will be presented. ***Note**: All alarm information will then be sent to the NMS located at the destination.*

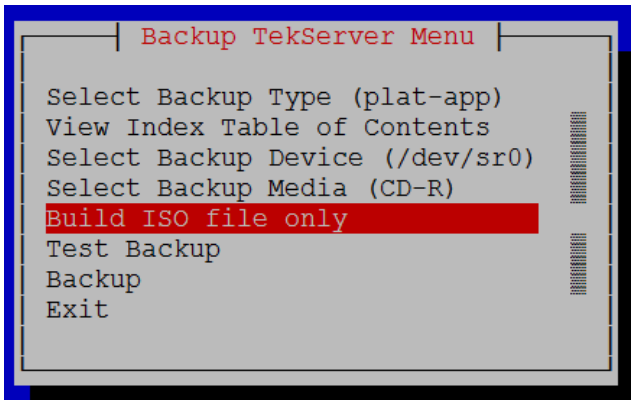
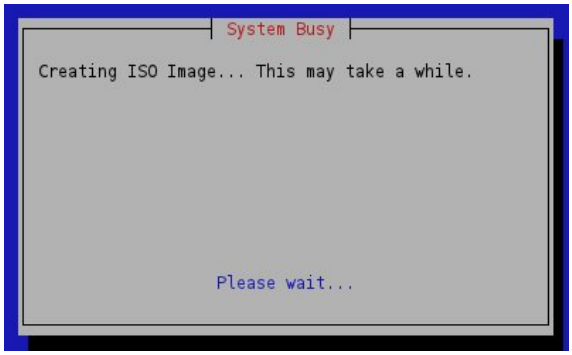
Appendix L.6: Configure TVOE Server (Hostname, Time Zone, SNMP, NTP, etc)

Step	Procedure	Result
5. ☐	*TVOE Server:* *Configure NTP*	**1.** Navigate to **Network Configuration ➢ NTP.**  **2.** Select **Edit**, then **"Add a New NTP Server."** **3.** Enter the IP Address of a **Customer provided NTP server**.  **4.** Select **OK.** **5.** Select **Exit.** **6.** Select **Yes to restart ntp Service.**  **7.** Select **Exit.**

Appendix L.6: Configure TVOE Server (Hostname, Time Zone, SNMP, NTP, etc)

Step	Procedure	Result
6. ☐	***TVOE Server:*** *Delete all default NTP servers.*	**1.** Navigate to **Network Configuration ➢ NTP.**  **2.** Select **Edit**, then **"Delete an existing NTP Server."**  **3.** Select the 192.168.1.1**NTP address**.  **4.** Select **OK.** **5.** Select **Exit.** **6.** Select **Yes to restart ntp Service.**  **7.** Select **Exit** twice to leave platcfg.
7. ☐	***TVOE Server:*** *Reboot the server*	Reboot the server: `# init 6` Wait until the reboot completes and re-login with TVOE root credentials.

Appendix L.6: Configure TVOE Server (Hostname, Time Zone, SNMP, NTP, etc)

Step	Procedure	Result
8. ☐	***TVOE Server:*** *Verify server health*	Verify server health: # **alarmMgr --alarmStatus** ***Note**: This command should return no output on a healthy system.*
9. ☐	***TVOE Server:*** *Perform a TVOE backup*	Login as platcfg user. The platcfg main menu will be shown # **su - platcfg** **1.** Navigate to **Maintenance ➤Backup and Restore ➤Backup Platform (CD/DVD)** **2.** The 'Backup TekServer Menu' page will now be shown.  **3.** Select **Build ISO file only**. ***Note**: Creating the ISO image may happen so quickly that this screen may only appear for an instant.*  **4.** After the ISO is created, platcfg will return to the Backup TekServer Menu as shown in step 2. **5.** The ISO has been created and is located in the **/var/TKLC/bkp/** directory. An example filename of a backup file that was created is: *"hostname1307466752-plat-app-201104171705.iso"* **6.** Exit platcfg.

Appendix L.6: Configure TVOE Server (Hostname, Time Zone, SNMP, NTP, etc)

Step	Procedure	Result

10. ☐	***Customer Server SSH:***
	
	Copy backup image to the customer server
		Login to the customer server and copy backup image to the customer server where it can be safely stored.
		
		If the customer system is a Linux system, please execute the following command to copy the backup image to the customer system.
		
		`# scp tvoexfer@<TVOE_IP_Address>:backup/* /path/to/destination/`
		
		When prompted, enter the tvoexfer user password and press **Enter**.
		
		An example of the output looks like:
		
		`# scp tvoexfer@<TVOE IP Address>:backup/* /path/to/destination/`
		`tvoexfer@10.24.34.73's password:`
		`hostname1301859532-plat-app-301104171705.iso  100% 134MB 26.9MB/s 00:05`
		
		The TVOE backup file has now been successfully placed on the Customer System.

THIS PROCEDURE HAS BEEN COMPLETED		

Appendix M. Removing Disk Array Configuration

This procedure contains steps to remove a prior disk array configuration. This is useful towards re-installing OCUDR on hardware with disk arrays that have hosted prior OCUDR instances. The steps here are only to be run after TPD is installed and before OCUDR application is installed.

M.1 Removing RMS Disk Array Configuration for HP

Appendix M.1: Removing RMS Disk Array Configuration

Step	Procedure	Result
1. ☐	*Access the server's console.*	*Connect to the RMS server's console using one of the access methods described in* ***Section 2.1.2.***
2. ☐	*Change to root user home directory*	`# cd`

3. ☐	*Remove volume group or storage pool*	`# lvs stripe_vg`
		`  LV  VG  Attr  LSize  Pool Origin Data% Move Log Cpy%Sync Convert`
		`  rundb  stripe_vg -wa-ao---- 385.01g`
		
		If stripe_vg is present then remove it
		
		# vgremove stripe_vg
		Do you really want to remove volume group "stripe_vg" containing 1 logical volumes? [y/n]: y
		Do you really want to remove active logical volume rundb? [y/n]: y
		
		# virsh pool-list
		Name State Autostart
		----------- 	
		stripePool_vg active yes
		vgguests active yes
		
		If stripePool_vg is present then remove it with below steps
		
		# virsh pool-destroy stripePool_vg
		Pool stripePool_vg destroyed
		
		# virsh pool-undefine stripePool_vg
		Pool stripePool_vg has been undefined
		
		# vgremove stripePool_vg
		Volume group "stripePool_vg" successfully removed

Appendix M.1: Removing RMS Disk Array Configuration

Step	Procedure	Result

4. ☐	*Remove all three physical volumes sdb, sdc, & sdd*	`# pvremove /dev/sdb`
		`Labels on physical volume "/dev/sdb" successfully wiped`
		
		`# pvremove /dev/sdc`
		`Labels on physical volume "/dev/sdc" successfully wiped`
		
		`# pvremove /dev/sdd`
		`Labels on physical volume "/dev/sdd" successfully wiped`

5. ☐	*Delete logical drive slot 2 ld **1***	`# hpssacli ctrl all show config`

Appendix M.1: Removing RMS Disk Array Configuration

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>6. ☐</td><td>Verify output matches expected values</td><td>IMPORTANT: If output from show config differs from the example here, you must adjust the slot and ld parameters in the commands to follow. There should be two slots (numbered 2 and 0), each with two logical drives (1 and 2). Slot 0 should contain a logicaldrive of two physical disks: it is important not to delete this logical drive.

Smart Array P420 in Slot 2 (sn: PDKRH0ARH3X0HB)

array A (SAS, Unused Space: 0 MB)

logicaldrive 1 (273.4 GB, RAID 1+0, OK)

physicaldrive 1I:1:1 (port 1I:box 1:bay 1, SAS, 146 GB, OK)
physicaldrive 1I:1:2 (port 1I:box 1:bay 2, SAS, 146 GB, OK)
physicaldrive 1I:1:3 (port 1I:box 1:bay 3, SAS, 146 GB, OK)
physicaldrive 1I:1:4 (port 1I:box 1:bay 4, SAS, 146 GB, OK)

array B (SAS, Unused Space: 0 MB)

logicaldrive 2 (273.4 GB, RAID 1+0, OK)

physicaldrive 2I:1:5 (port 2I:box 1:bay 5, SAS, 146 GB, OK)
physicaldrive 2I:1:6 (port 2I:box 1:bay 6, SAS, 146 GB, OK)
physicaldrive 2I:1:7 (port 2I:box 1:bay 7, SAS, 146 GB, OK)
physicaldrive 2I:1:8 (port 2I:box 1:bay 8, SAS, 146 GB, OK)

SEP (Vendor ID PMCSIERA, Model SRCv8x6G) 380 (WWID: 500143802518449F)

Smart Array P420i in Slot 0 (Embedded) (sn: 5001438025A465B0)

array A (SAS, Unused Space: 0 MB)

logicaldrive 1 (838.3 GB, RAID 1, OK)

physicaldrive 1I:2:1 (port 1I:box 2:bay 1, SAS, 900.1 GB, OK)
physicaldrive 1I:2:2 (port 1I:box 2:bay 2, SAS, 900.1 GB, OK)

array B (SAS, Unused Space: 0 MB)

logicaldrive 2 (273.4 GB, RAID 1+0, OK)

physicaldrive 1I:2:3 (port 1I:box 2:bay 3, SAS, 146 GB, OK)
physicaldrive 1I:2:4 (port 1I:box 2:bay 4, SAS, 146 GB, OK)
physicaldrive 2I:2:5 (port 2I:box 2:bay 5, SAS, 146 GB, OK)
physicaldrive 2I:2:6 (port 2I:box 2:bay 6, SAS, 146 GB, OK)

SEP (Vendor ID PMCSIERA, Model SRCv8x6G) 380 (WWID: 5001438025A465BF)</td></tr>
<tr><td>7. ☐</td><td>Delete logical drive slot 2 ld 1</td><td># hpssacli ctrl slot=2 ld 1 delete
Warning: Deleting the specified device(s) will result in data being lost.
Continue? (y/n) y</td></tr>
</table>

Appendix M.1: Removing RMS Disk Array Configuration

Step	Procedure	Result
8. ☐	*Delete logical drive slot 2 ld **2***	# **hpssacli ctrl slot=2 ld 2 delete** Warning: Deleting the specified device(s) will result in data being lost. Continue? (y/n) **y**
9. ☐	*Delete logical drive slot **0** ld 1*	# **hpssacli ctrl slot=0 ld 2 delete** Warning: Deleting the specified device(s) will result in data being lost. Continue? (y/n) **y**
10. ☐	*Execute the following syscheck/restart steps in order*	**# syscheck --reconfig disk smart** **# service smartd restart** **# syscheck disk smart**
THIS PROCEDURE HAS BEEN COMPLETED		

M.2 Removing Blade Disk Array Configuration (Sidecar)

Appendix M.2: Removing Blade Disk Array Configuration (Sidecar)

Step	Procedure	Result
1. ☐	*Access the server's console.*	*Connect to the blade server's console using one of the access methods described in **Section 2.1.2.***
2. ☐	*Change to root user home directory*	# **cd**

Appendix M.2: Removing Blade Disk Array Configuration (Sidecar)

Step	Procedure	Result

3.	*Remove volume group or storage pool*	**** Execute For Low Capacity C-Class only**
		
		`# lvs stripe_vg`
		`  LV            VG        Attr       LSize   Pool Origin Data%  Move Log Cpy%Sync Convert`
		`  rundb         stripe_vg -wa-ao---- 385.01g`
		
		If stripe_vg is present then remove it
		
		`# vgremove stripe_vg`
		`Do you really want to remove volume group "stripe_vg" containing 1 logical volumes? [y/n]: y`
		`Do you really want to remove active logical volume rundb? [y/n]: y`
		
		`Volume group "stripe_vg" successfully removed`
		
		`#  virsh pool-list`
		`Name                 State      Autostart`
		`-----------------------------------------`
		`stripePool_vg        active     yes`
		`vgguests             active     yes`
		
		If stripePool_vg is present then remove it with below steps
		
		`#  virsh pool-destroy stripePool_vg`
		`Pool stripePool_vg destroyed`
		
		`# virsh pool-undefine stripePool_vg`
		`Pool stripePool_vg has been undefined`
		
		`# vgremove stripePool_vg`
		`Volume group "stripePool_vg" successfully removed`

4. ☐	*Remove volume group*	*****Don't execute for Low Capacity C-Class***
		
		`# vgremove stripe_vg`
		Do you really want to remove volume group "stripe_vg" containing 1 logical volumes? [y/n]: **y**
		Do you really want to remove active logical volume rundb? [y/n]: **y**
		
		Note: if the following output appears after the first question – "Logical volume stripe_vg/rundb contains a filesystem in use". Execute the following steps below and repeat the command above:
		
		`# prod.dbdown -i`
		`# service comcol stop`
		`# umount /dev/mapper/stripe_vg-rundb`

Appendix M.2: Removing Blade Disk Array Configuration (Sidecar)

Step	Procedure	Result
5. ☐	*Check for existing physical volumes*	**# pvs** PV VG Fmt Attr PSize PFree /dev/sda lvm2 --- 820.21g 820.21g /dev/sdb2 vgroot lvm2 a-- 838.06g 827.06g
6. ☐	*From Step 5, Remove physical volume that does not have vgroot* *Note: This volume can vary*	Remove the physical volume that does not have vgroot or vgguests from step 5. # **pvremove /dev/sda** Labels on physical volume "/dev/sda" successfully wiped **NOTE:** Systems with bare-metal NOAMPs will only have a vgroot volume, but systems with VM NOAMPs over TVOE will have a vgroot and a vgguests volume.
7. ☐	*Display the Configuration*	# **hpssacli ctrl all show config**

Appendix M.2: Removing Blade Disk Array Configuration (Sidecar)

Step	Procedure	Result

8. ☐	*Verify output matches expected values*	**IMPORTANT:** If output from **`show config`** differs from the example here, you must adjust the **`slot`** and **`ld`** parameters in the commands to follow. There should be two slots (numbered 0 and 3). Slot 0 should contain a `logicaldrive` of two physical disks: *it is important not to delete this logical drive*.
		
		`Smart Array P220i in Slot 0 (Embedded) (sn: PCQVU0CRH5V2JU)`
		
		`array A (SAS, Unused Space: 0 MB)`
		`logicaldrive 1 (838.3 GB, RAID 1, OK)`
		
		`physicaldrive 1I:1:1 (port 1I:box 1:bay 1, SAS, 900.1 GB, OK)`
		`physicaldrive 1I:1:2 (port 1I:box 1:bay 2, SAS, 900.1 GB, OK)`
		
		`SEP (Vendor ID PMCSIERA, Model SRCv4x6G) 380 (WWID: 5001438028DDB56F)`
		
		`Smart Array P410i in Slot 3 (sn: 5001438025905EB0)`
		
		`array A (SAS, Unused Space: 0 MB)`
		`logicaldrive 1 (820.2 GB, RAID 1+0, OK)`
		
		`physicaldrive 1I:1:1 (port 1I:box 1:bay 1, SAS, 146 GB, OK)`
		`physicaldrive 1I:1:2 (port 1I:box 1:bay 2, SAS, 146 GB, OK)`
		`physicaldrive 1I:1:3 (port 1I:box 1:bay 3, SAS, 146 GB, OK)`
		`physicaldrive 1I:1:4 (port 1I:box 1:bay 4, SAS, 146 GB, OK)`
		`physicaldrive 1I:1:5 (port 1I:box 1:bay 5, SAS, 146 GB, OK)`
		`physicaldrive 1I:1:6 (port 1I:box 1:bay 6, SAS, 146 GB, OK)`
		`physicaldrive 1I:1:7 (port 1I:box 1:bay 7, SAS, 146 GB, OK)`
		`physicaldrive 1I:1:8 (port 1I:box 1:bay 8, SAS, 146 GB, OK)`
		`physicaldrive 1I:1:9 (port 1I:box 1:bay 9, SAS, 146 GB, OK)`
		`physicaldrive 1I:1:10 (port 1I:box 1:bay 10, SAS, 146 GB, OK)`
		`physicaldrive 1I:1:11 (port 1I:box 1:bay 11, SAS, 146 GB, OK)`
		`physicaldrive 1I:1:12 (port 1I:box 1:bay 12, SAS, 146 GB, OK)`
		
		`Expander 250 (WWID: 50014380251F83E6, Port: 1I, Box: 1)`

9. ☐	*Delete logical drive slot 3 ld **1***	`# hpssacli ctrl slot=3 ld 1 delete` Warning: Deleting the specified device(s) will result in data being lost. Continue? (y/n) **`y`**
THIS PROCEDURE HAS BEEN COMPLETED		

M.3 Removing RMS Disk Array Configuration for Oracle Servers

Appendix M.3: Removing RMS Disk Array Configuration for Oracle Servers

Step	Procedure	Result
1. ☐	*Access the server's console.*	Connect to the RMS server's console using one of the access methods described in Appendix 0: Accessing the iLo VGA Redirection Window for Oracle RMS Servers or Appendix A.3 Accessing the iLo Console for Oracle RMS Servers. (switch to root)
2. ☐	*Change to root user home directory*	`# cd`

3. ☐	*Check for presence of stripePool*	`# lvs stripePool_vg`
		`  LV  VG  Attr  LSize  Pool Origin Data%  Move Log Cpy%Sync Convert UDRNOSunX5_pool_vg.img  stripe_vg -wa-ao---- 743.00g`
		
		`#  virsh pool-list`
		`Name  State  Autostart`
		`-----------------------------------------`
		`stripePool_vg  active  yes`
		`vgguests  active  yes`

4. ☐	*Remove the stripePool disk arrayif present in step 3.*	`# virsh pool-destroy stripePool_vg`
		`Pool stripePool_vg destroyed`
		
		`# virsh pool-undefine stripePool_vg`
		`Pool stripePool_vg has been undefined`
		
		`# vgremove stripePool_vg`
		`Volume group "stripePool_vg" successfully removed`
		
		`# raidconfig list all -r c0r1`
		`RAID Volumes`
		`============`
		`ID  Name  Device  Status  Num Disks  Level  Size (GiB)`
		`-----------------------------------------------------------------------`
		`c0r1  /dev/sdb  OK  4  10  743`

5. ☐	*Remove volume /dev/sdb*	`#  pvremove /dev/sdb`
		`Labels on physical volume "/dev/sdb" successfully wiped`
		
		`# raidconfig delete raid -r c0r1`

6. ☐	*Execute the following syscheck/restart steps in order*	`# syscheck --reconfig disk smart`
		`# service smartd restart`
		`# syscheck disk smart`

THIS PROCEDURE HAS BEEN COMPLETED		

Appendix N. Creating an XML file for Installing OCUDR Network Elements

UDR Network Elements can be created by using an XML configuration file. The OCUDR software image (*.iso) contains two examples of XML configuration files for "NO" (Network OAM&P) and "SO" (System OAM) networks. These files are named **SDM_NOAMP_NE.xml** and **SDM_SOAM_NE.xml** and are stored on the **/usr/TKLC/udr/xml** directory. The customer is required to create individual XML files for each of their OCUDR Network Elements. The format for each of these XML files is identical.

Below is an example of the SDM_NOAMP_NE.xml file. The highlighted values are values that the user must update.

NOTE: *The **Description** column in this example includes comments for this document only. **Do not include** the Description column in the actual XML file used during installation.*

Table 10 – OCUDR XML NOAMP Network Element Configuration File

XML File Text	Description
<networkelement>	
<name>**NOAMP_NE**</name>	Unique identifier used to label a Network Element. [Range = 1-32 character string. Valid characters are alphanumeric and underscore. Must contain at least one alpha and must not start with a digit.]
<ntpservers>	
<ntpserver>**10.250.32.10**</ntpserver>	IP Address of the first NTP server. There must be at least one NTP server IP address defined.
<ntpserver>**10.250.32.51**</ntpserver>	IP Address of second NTP server, if it exists; otherwise, this line must be deleted.
</ntpservers>	
<networks>	
<network>	
<name>XMI</name>	Name of customer external network. **Note**: Do NOT change this name.
<vlanId>**3**</vlanId>	The VLAN ID to use for this VLAN. [Range = 2-4094.]
<ip>**10.250.39.16**</ip>	The network address of this VLAN [Range = A valid IP address]
<mask>**255.255.255.240**</mask>	Subnetting to apply to servers within this VLAN
<gateway>**10.250.39.17**</gateway>	The gateway router interface address associated with this network [Range = A valid IP address]
<isDefault>true</isDefault>	Indicates whether this is the network with a default gateway. [Range = true/false]
</network>	
<network>	
<name>IMI</name>	Name of customer internal network. **Note**: Do NOT change this name.
<vlanId>**4**</vlanId>	The VLAN ID to use for this VLAN. [Range = 2-4094.]
<ip>**169.254.2.0**</ip>	The network address of this VLAN [Range = A valid IP address]
<mask>**255.255.255.0**</mask>	Subnetting to apply to servers within this VLAN
<gateway>**169.254.2.1**</gateway>	The gateway router interface address associated with this network [Range = A valid IP address]
<isDefault>false</isDefault>	Indicates whether this is the network with a default gateway. [Range = true/false]
</network>	
</networks>	
</networkelement>	

Appendix O. 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 OCUDR 10.2 are 7.1 and 7.5.

O.1 NetBackup Client Installation 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.

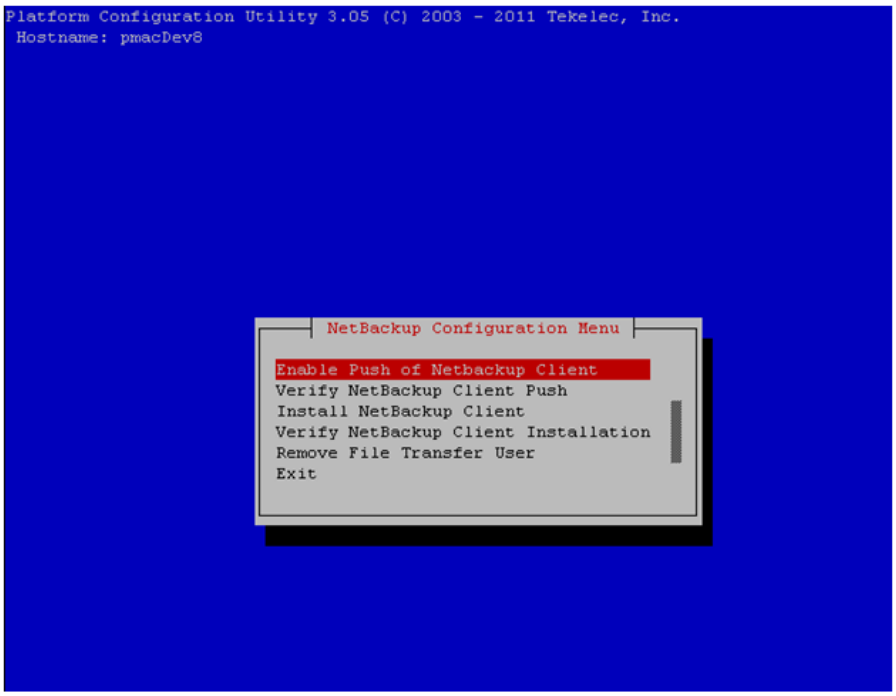
1. Application server iLO: Login and launch the integrated remote console

- 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

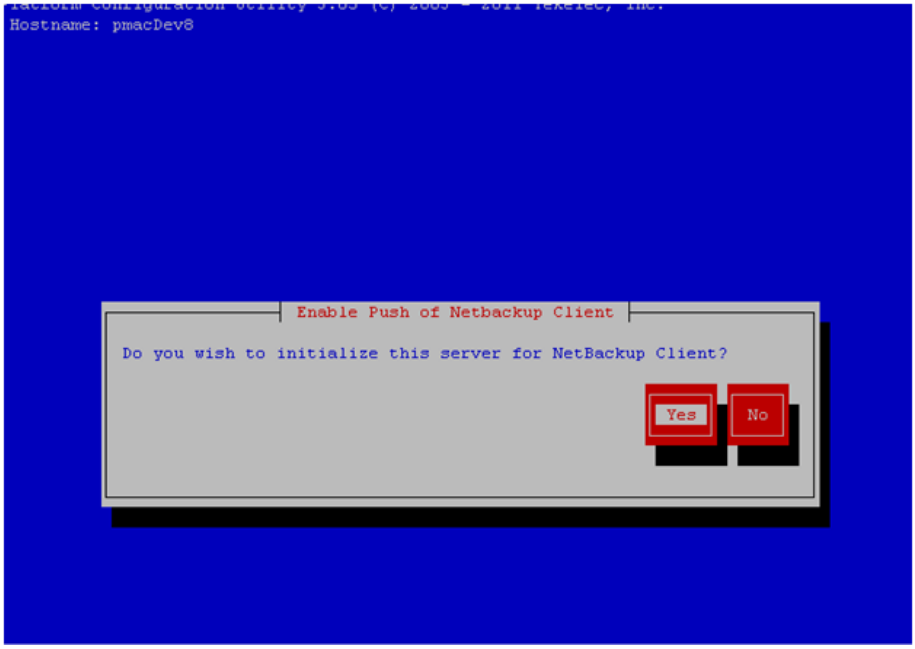
```
# su - platcfg
```

- Navigate to **NetBackup Configuration**



3. Application server iLO: Enable Push of NetBackup Client

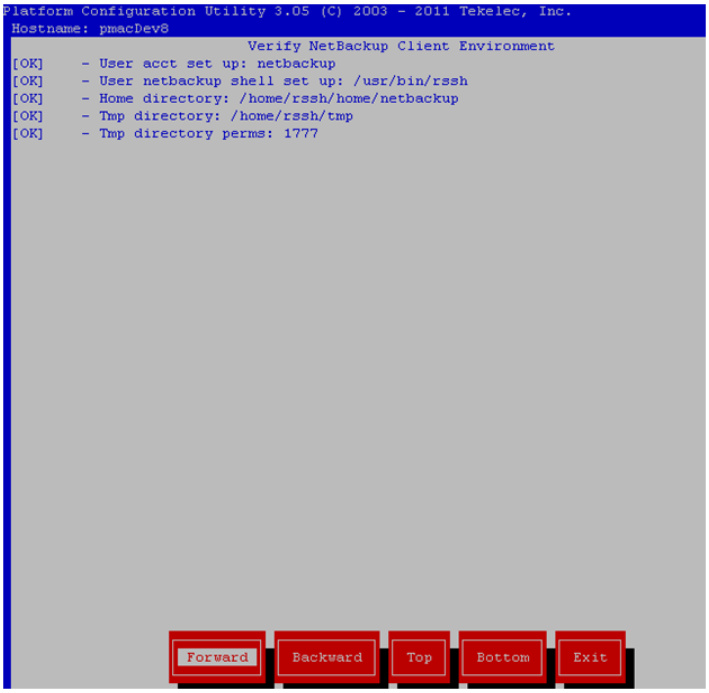
- Navigate to **NetBackup Configuration ➢ Enable Push of NetBackup Client**



- 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",

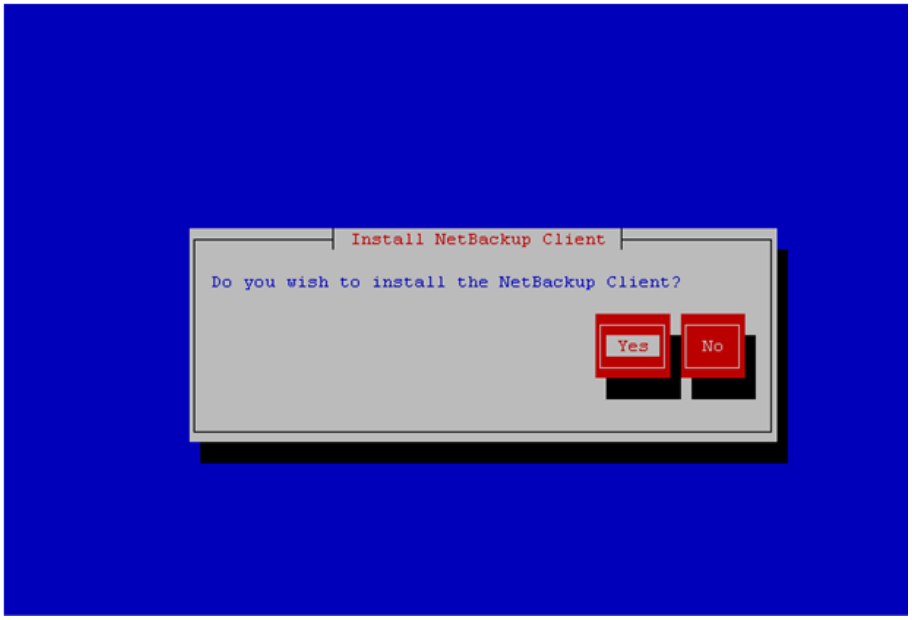
  is used to avoid modification of the client's current bp.conf file.

  #

  Note: Although the command executed above instructs you to execute the client_config command, DO NOT 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.

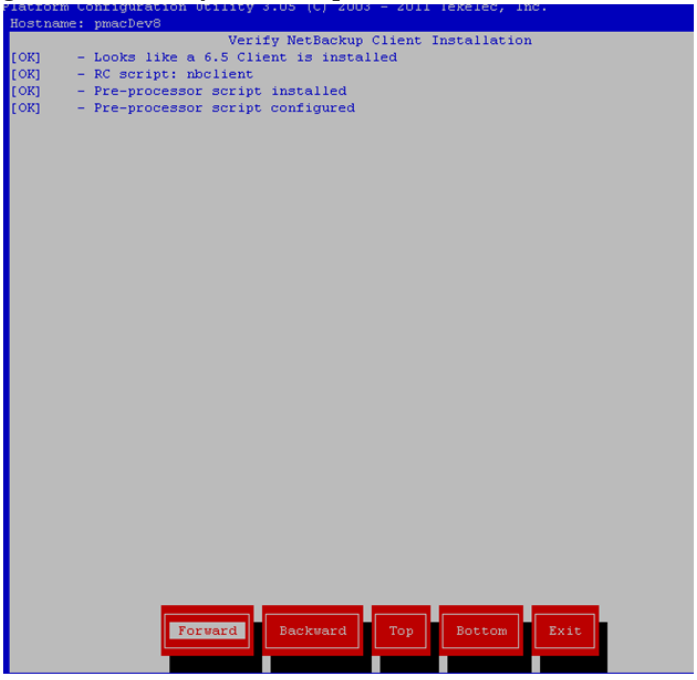
- Navigate to **NetBackup Configuration ➢ Install NetBackup Client**



- 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.

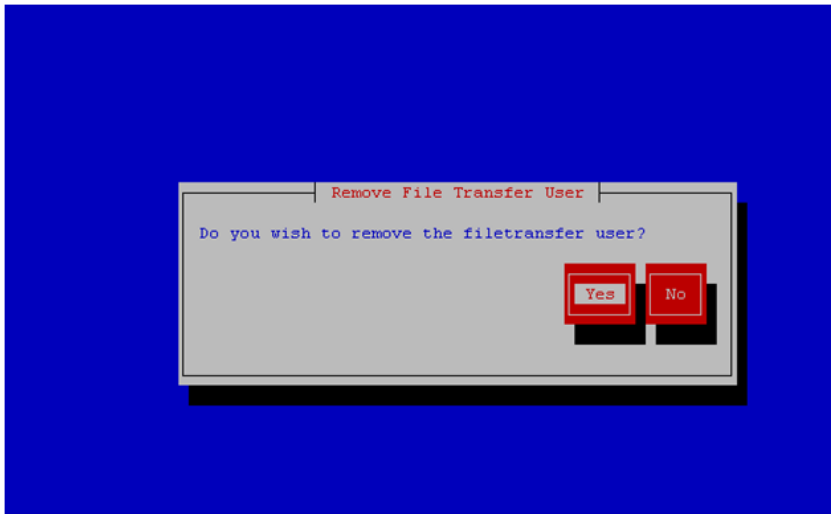
- Navigate to **NetBackup Configuration ➤ Verify NetBackup Client Installation**.



- 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.

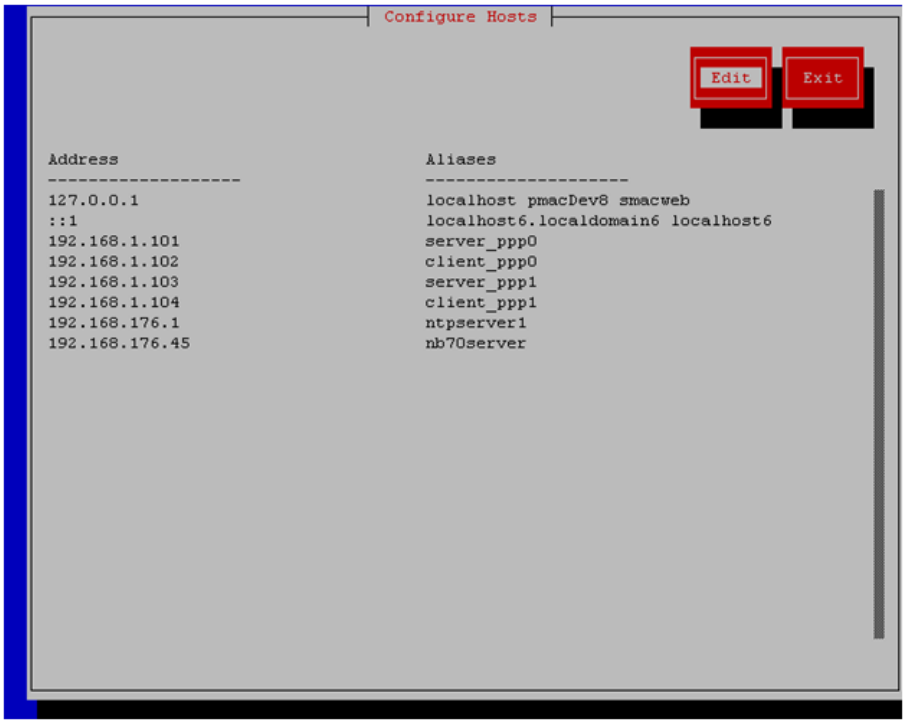
- List NetBackup servers hostname:

```
# cat /usr/openv/netbackup/bp.conf
SERVER = nb70server
CLIENT_NAME = pmacDev8
```

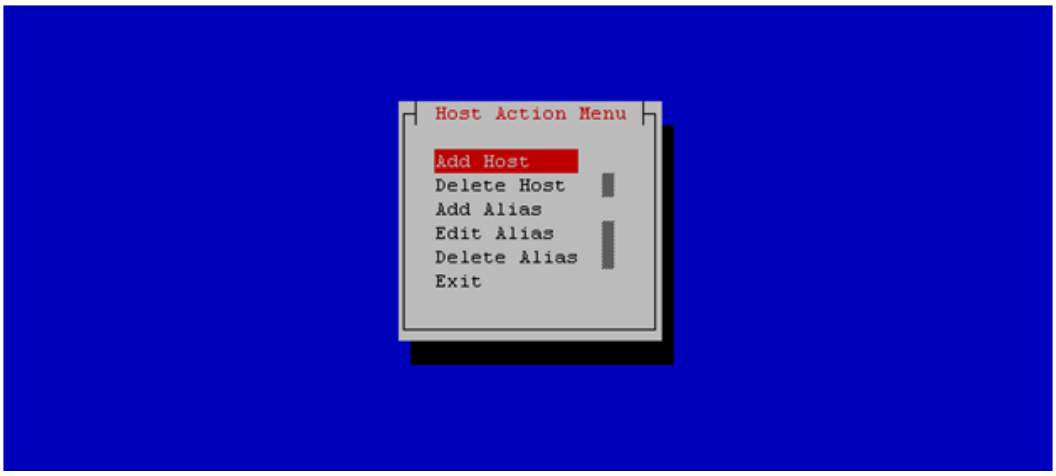
- Use platform configuration utility (platcfg) to update application hosts file with NetBackup Server alias.

```
# 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.

O.2 NetBackup Client Installation & Upgrade with AutoInstall

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 P. 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 blade 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 11 - List of Selected Time Zone Values

Time Zone Value	Description	Universal Time Code (UTC) Offset
Etc/UTC	GMT	0
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 Q. Contacting My Oracle Support (MOS)

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

Call the CAS main number at 1-800-223-1711 (toll-free in the US), or call the Oracle Support hotline for your local country from the list at http://www.oracle.com/us/support/contact/index.html. When calling, make the selections in the sequence shown below on the Support telephone menu:

[1] Select 2 for New Service Request

[2] Select 3 for Hardware, Networking and Solaris Operating System Support

[3] Select 2 for Non-technical issue

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.

MOS is available 24 hours a day, 7 days a week, 365 days a year.