Oracle® Communications User Data Repository

Cloud Installation Guide

Release 12.1

E67495-03

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Oracle Communications User Data Repository Cloud Installation Guide, Release 12.1

E67495-03

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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.

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1.0 INTRODUCTION

1.1 Purpose and Scope

This document describes the application-related installation procedures for an VMware User Data Repository 12.1 system.

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

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

1.2 References

Oracle customer documentation is available on the web at the Oracle Help Center site, http://docs.oracle.com. You do not have to register to access these documents. Viewing these files requires Adobe Acrobat Reader, which can be downloaded at www.adobe.com.

1. Access Oracle Help Center at http://docs.oracle.com.
2. Select the tab "Find a product."
3. Type "User Data Repository."
4. Takes you to "CGBU Documentation."
5. Select "User Data Repository" followed by version.

1.2.1 External

[1] UDR Cloud Resource Profile, E67495-01, latest revision

[2] *UDR Installation and Configuration Procedure,* E66198-*01, latest revision*

[3] *UDR Disaster Recovery Guide,* E66199-01, latest revision

1.3 Acronyms

An alphabetized list of acronyms used in the document

Table 1. Acronyms

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

1.4 Terminology

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

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

Site	Applicable for various applications, a Site is type of "Place". A Place is configured object that allows servers to be associated with a physical location. A Site place allows servers to be associated with a physical site. For example, Sites may be configured for Atlanta, Charlotte, and Chicago. Every server is associated with exactly one Site when the server is configured. For the Policy & Charging DRA application, when configuring a Site only put DA-MPs and SBR MP servers in the site. Do not add NOAMP, SOAM or IPFE MPs to a Site
Place Association	Applicable for various applications, a "Place Association" is a configured object that allows Places to be grouped together. A Place can be a member of more than one Place Association. The Policy & Charging DRA application defines two Place Association Types: Policy Binding Region and Policy & Charging Mated Sites.
Two Site Redundancy	Two Site Redundancy is a data durability configuration in which Policy and Charging data is unaffected by the loss of one site in a Policy & Charging Mated Sites Place Association containing two sites. Two Site Redundancy is a feature provided by Server Group configuration. This feature provides geographic redundancy. Some Server Groups can be configured with servers located in two geographically separate Sites(locations). This feature will ensure that there is always a functioning Active server in a Server Group even if all the servers in a single site fail.
Server Group Primary Site	A Server Group Primary Site is a term used to represent the principle location within a SOAM. SOAM Server groups are intended to span several Sites(Places). The Primary Site may be in a different Site(Place) for each configured SOAM. A Primary Site is described as the location in which the Active and Standby servers to reside, however there cannot be any Preferred Spare servers within this location. All SOAM Server Groups will have a Primary Site.
Server Group Secondary Site	A Server Group Secondary Site is a term used to represent location in addition to the Primary Site within a SOAM Server Group. SOAM Server groups are intended to span several Sites(Places The Secondary Site may be in a different Site(Place) for each configured SOAM. A Secondary Site is described as the location in which only Preferred Spare servers reside. The Active and Standby servers cannot reside within this location. If Two Site Redundancy is wanted, a Secondary Site is required for all SOAM Server Groups.

1.1 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 C for each NOAMP and SOAM site's NE prior to attempting to execute this procedure).
- The user has at least an intermediate skill set with command prompt activities on an Open Systems computing environment such as Linux or TPD.

1.2 **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 [3].

1.3 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 [3]. 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 for assistance before attempting to continue.

2.0 GENERAL DESCRIPTION

This document defines the steps to execute the initial installation of the User Data Repository (UDR) application on a VMware hypervisor or a OpenStack hypervisor.

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

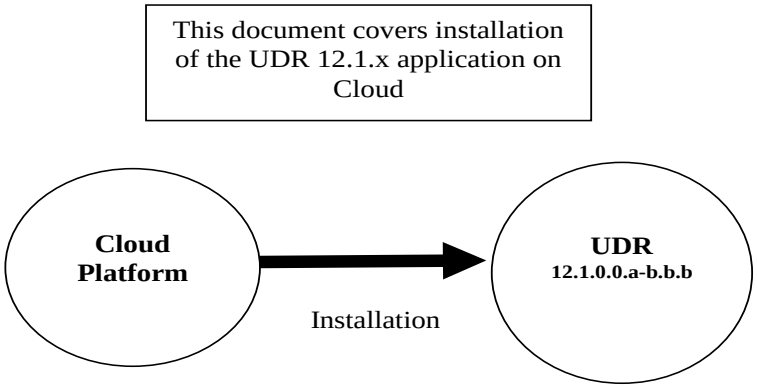


Figure 2. Initial Application Installation Path – Example shown

2.1 Required Materials

The following materials are required to complete UDR installation:

1. Target release UDR OVA Media
2. Target release UDR ISO Media only for ISO installs
3. Target release TPD Media only for ISO installs

The software media referenced here may be acquired online from the Oracle e-Delivery service at `edelivery.oracle.com`

This document and others referenced here can be acquired online from the Oracle Document Repository at the followin URL:

http://docs.oracle.com/en/industries/communications/user-data-repository/index.html

2.2 Installation Overview

This section describes the overal strategy to be employed for a single or multi-site UDR installation. It also lists the procedures required for installation with estimated times. Section 2.4 discusses the overall install strategy and includes an installation flow chart that can be used to determine exactly which procedures should be run for an installation. Section 3.2.3 lists the steps required to install a UDR system. These latter sections expand on the information from the matrix and provide a general timeline for the installation.

2.3 SNMP Configuration

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

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

- UDR Application Servers (NOAMP, SOAM, MPs)

UDR application servers can be configured to:

1. Send all their SNMP traps to the NOAMP via merging from their local SOAM. All traps will terminate at the NOAMP and be viewable from the NOAMP GUI (entire network) and the SOAM GUI (site specific). Traps are displayed on the GUI

both as alarms and logged in trap history. **This is the default configuration option and no changes are required for this to take effect.**

2. Send all their SNMP traps to an external Network Management Station (NMS). The traps will be seen at the SOAM AND/OR NOAM as alarms **AND** they will be viewable at the configured NMS(s) as traps.

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

2.4 Installation List of Procedures

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

Table 2. Installation Overview

Procedure	Phase	Elapsed Time (Minutes)	
		This Step	Cum.
Procedure 1	Verify Deployment Options and Cloud Resources	5	5
Procedure 2	Deploy UDR Virtual Machines (Only for VMware deployments)	20	25
Procedure 3	Deploy UDR Virtual Machines on OpenStack (Only for OpenStack deployments)	20	25
Procedure 4	Configure NOAMP-A Server (1st NOAMP only)	25	50
Procedure 5	Create Configuration for Remaining Servers	15	65
Procedure 6	Apply Configuration To Remaining Servers	15	80
Procedure 7	Configure XSI Networks (All SOAM Sites)	10	90
Procedure 8	OAM Pairing for Primary NOAMP Servers (1st NOAMP site only)	10	100
Procedure 9	OAM Pairing for SOAM and DR Sites (All SOAM and DR sites)	15	115
Procedure 10	OAM Pairing for MP Server Groups (All SOAM sites)	5	120
Procedure 11	Configure Signaling Routes	5	125
Procedure 12	Configure SPR Application on MP **(All SOAM Sites)**	10	135
Procedure 13	Configure NOAMP Signaling Routes **(All NOAM Sites)**	10	145
Procedure 14	Configure Services on Signaling Network	5	150
Procedure 15	Accept Installation	5	155

3.0 PRE-INSTALLATION PROCEDURE

3.1 Verify Deployment Options and Cloud Resources

This procedure determines appropriate HA Configurations and VM Profiles for the deployment, as well as verifies the environment.

Procedure 1: Verify Deployment Options and Cloud Resources

Step	Procedure	Result
1. ☐	Decide which UDR profile to deploy	The first step in deploying UDR for cloud is to review the Resource Profiles stated in [1]. A choice of HA configuration and resrouce profile must be driven by the available resources and expected use of the UDR deployment. • For demo purposes a OVA lab profile is the best option. • For support of larger datasets, ISO installation may be required.
2. ☐	Ensure availability of cloud resources	If you are using vCloud Director or vSphere as a non-priviliged user, contact your cloud administrator to esnure the availability of sufficient process, memory, storage and network resources to meet the requirements of your chosen configuration and profile in Step 1. Note: If you are a privileged user with VMWare vSphere, you can leverage procedures in Appendix A to configure storage and host networking for hosting UDR.
THIS PROCEDURE HAS BEEN COMPLETED		

4.0 CLOUD CREATION

4.1 Deploy UDR Virtual Machines on VMware

This procedure will create UDR virtual machines (guests).

Requirements:

- **Section 3.1 Verify Deployment Options and Cloud Resources** has been completed

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

Procedure 2: Deploy UDR Virtual Machines on VMware

Step	Procedure	Result
1. ☐	Ready Installation media	If using vSphere client, place installation media (OVA, or ISO) onto your local machine. If using vCloud Director, upload installation media using Appendix C-1: vCloud Director UDR Media Upload.
2. ☐	Create vApp	If using vCloud Director, follow: • Appendix C-2: Create vApp If using vSphere client procede to the next step.
3. ☐	Create UDR guests	If using vSphere client, follow: • Appendix B-1: Create Guests from OVA If using vCloud Director, follow: • Appendix C-5 Create Guests from ISO for large database NOAMP or • Appendix C-3 Create Guests from OVA for all other server types "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-2 ☐ MP-2 ☐ MP-3 ☐ MP-4
4. ☐ *Only OVA installs*	Configure guest resources	If using vSphere client to install by OVA, follow: • Appendix B-2: Configure Guest Resources If using vCloud Director to install by OVA, follow: • Appendix C-4: Configure Guest Resources If installing by ISO proceed to the next step. "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-2 ☐ MP-2 ☐ MP-3 ☐ MP-4
5. ☐ *Only ISO installs*	Install guest OS	Only for ISO installs using vCloud Director, follow Appendix C-6: Install Guests from ISO "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B

Procedure 2: Deploy UDR Virtual Machines on VMware

Step	Procedure	Result
6. ☐	Configure guest OAM network	If using vSphere client, follow: • Appendix B-3: Configure Guest OAM Network: Create Guests from OVA If using vCloud Director, follow: • Appendix C-7: Configure Guests OAM Network "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-2 ☐ MP-2 ☐ MP-3 ☐ MP-4
THIS PROCEDURE HAS BEEN COMPLETED		

4.2 Deploy UDR Virtual Machines on OpenStack

This procedure will create UDR virtual machines (guests) on OpenStack.

Requirements:

- **Section 3.1 Verify Deployment Options and Cloud Resources** has been completed

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

Procedure 3: Deploy UDR Virtual Machines on OpenStack

Step	Procedure	Result
1. ☐	Ready Installation media	Create and import OVA image file to OpenStack using Appendix G-1: OpenStack Image Creation
2. ☐	Ready Installation media	Create and import ISO image file to OpenStack using Appendix G-2: OpenStack Image Creation from ISO
3. ☐	Create Resource Profile	Create Resource Profile (Flavor) on OpenStack following: Appendix G-4: Create Resource Profiles (Flavors)
4. ☐	Create NOAMP VM Instances	On OpenStack, please follow this to create NOAMP vm instances: Appendix G-3: Create VM from ISO-Based Image "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B

Step	Procedure	Result
5. ☐	Create VM Instances	On OpenStack, please follow this to create vm instances: Appendix G-5:Create VM Instances Using qcow2 Image Use different flavor fo different Server stated in [1] "Check off" the associated Check Box as addition is completed for each Server. ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
6. ☐	Configure guest OAM network	Follow this step to configure OAM network for vm instances: Appendix G-7: VM Instance Network Configuration "Check off" the associated Check Box as addition is completed for each Server. ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
7. ☐	Create Virtual IPs	Create Virtual IP addresses following: Appendix G-8: Virtual IP Address Assignment
THIS PROCEDURE HAS BEEN COMPLETED		

5.0 UDR SERVER CONFIGURATION

5.1 Configure NOAMP-A Server (1st NOAMP only)

This procedure does all steps that are necessary for configuring the first NOAMP server. This includes creating the NOAMP Network Element, configuring Services and creating/configuring the first NOAMP-A server.

Requirements:

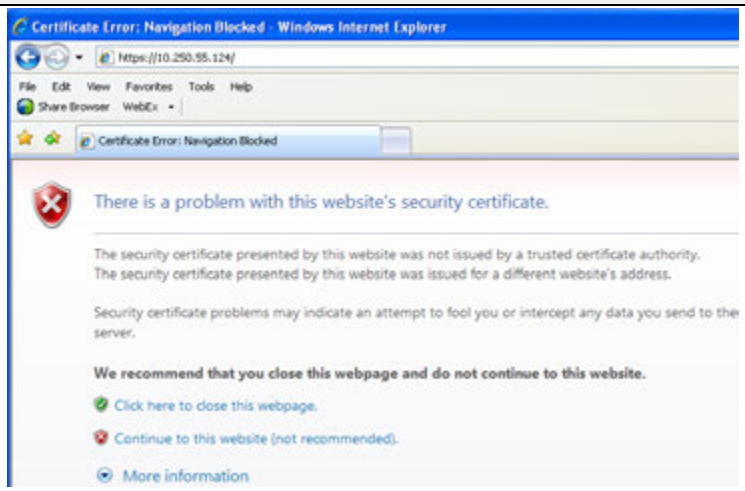
- **Section 4.0 Cloud Creation** has been completed

Assumptions:

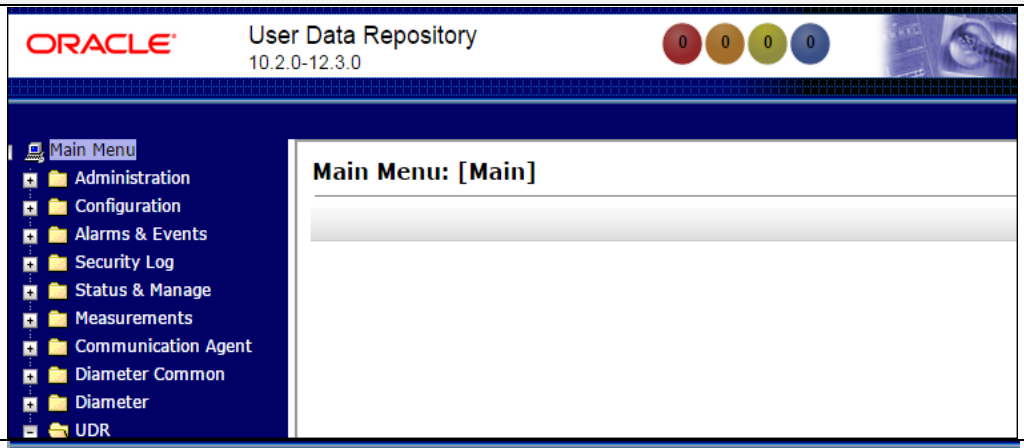
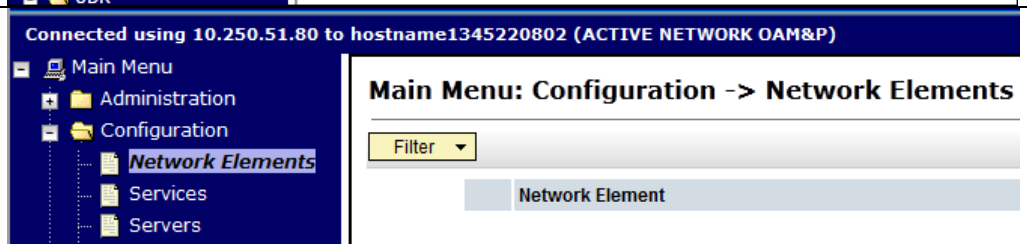
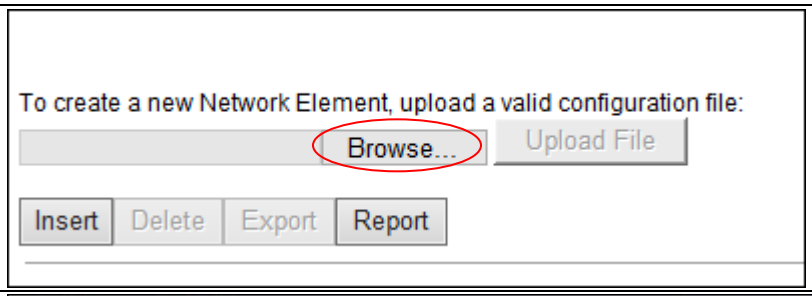
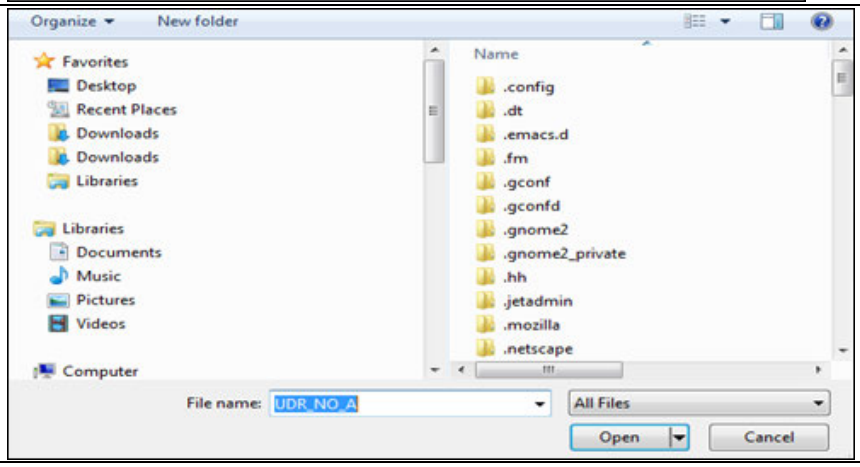
- This procedure assumes that the UDR Network Element XML file for the Primary Provisioning NOAMP site has previously been created, as described in Appendix D.
- This procedure assumes that the Network Element XML files are either on a USB flash drive or the laptop's hard drive. The steps are written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

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

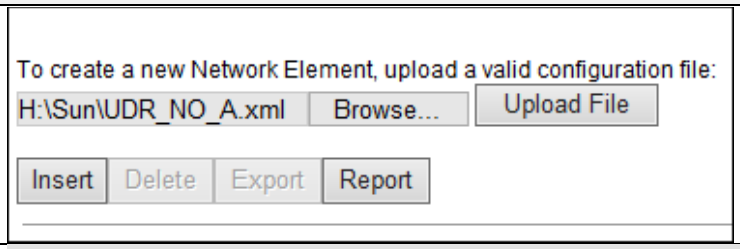
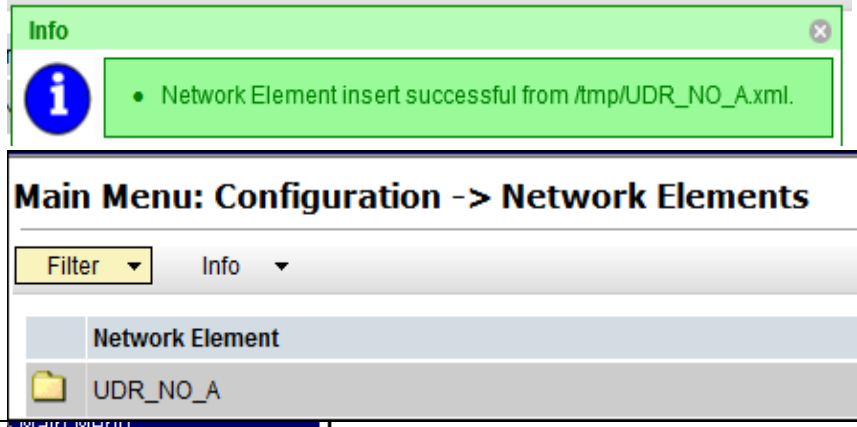
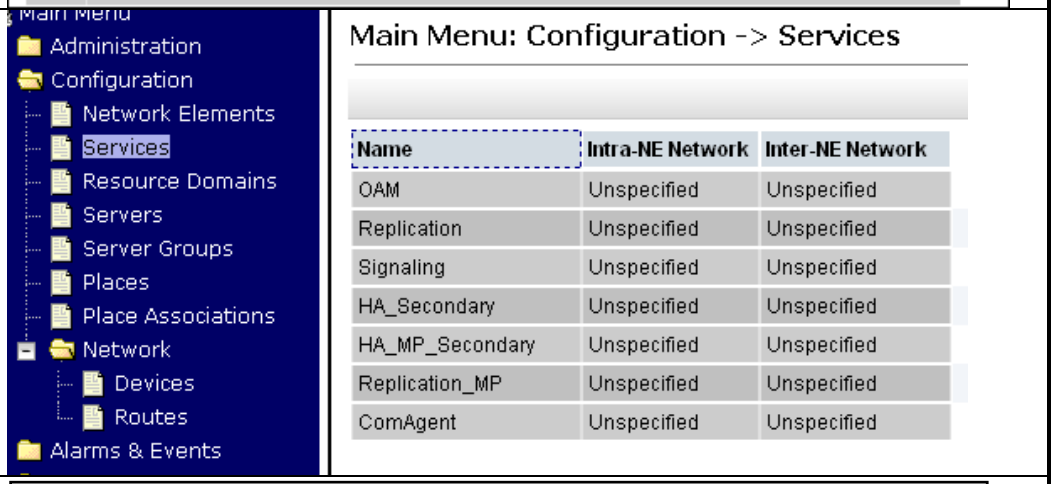
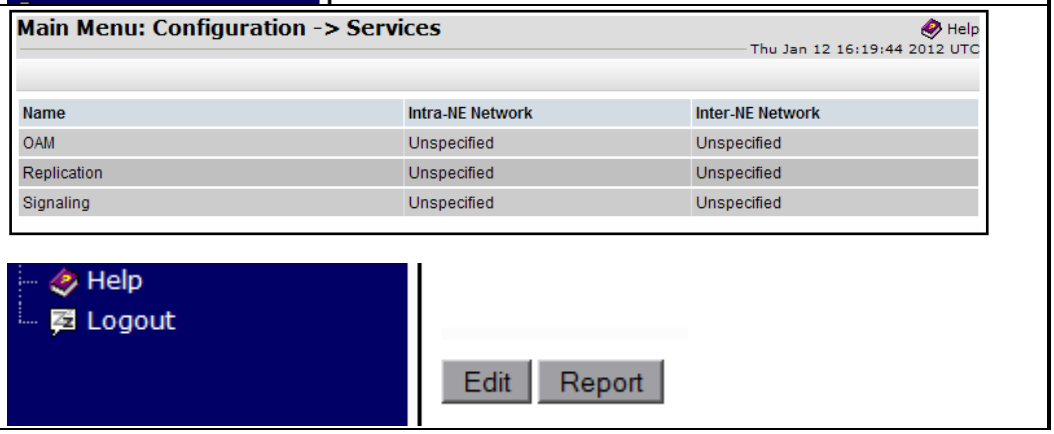
Procedure 4: Configure NOAMP-A Server (1st NOAMP only)

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.	

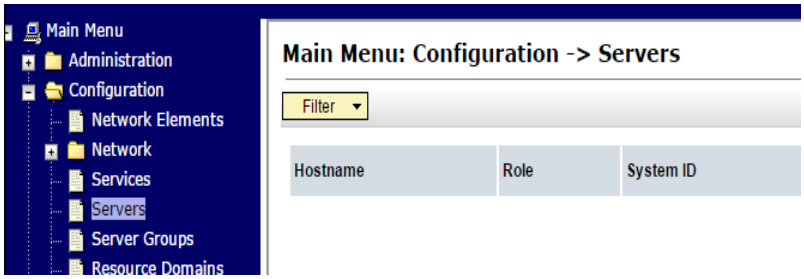
Procedure 4: Configure NOAMP-A Server (1st NOAMP only)

Step	Procedure	Result
3. ☐	**NOAMP Server A:** The user should be presented the UDR Main Menu as shown on the right.	
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 C. **1)** Select the location containing the site **.xml** file. **2)** Select the **.xml** file and click the **"Open"** dialogue button.	

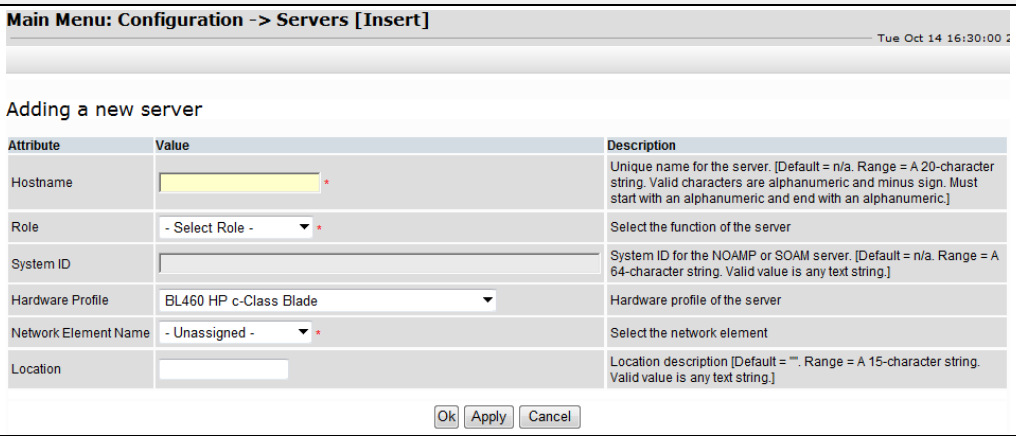
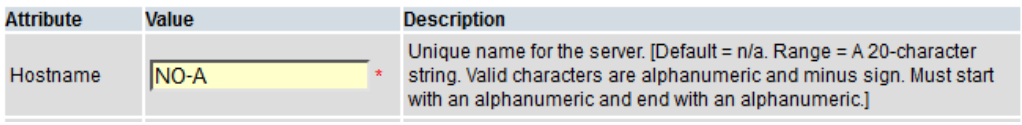
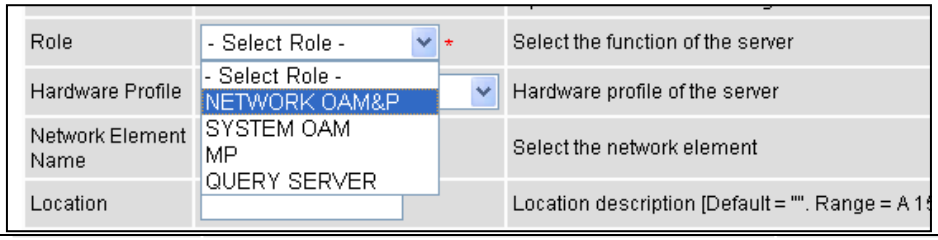
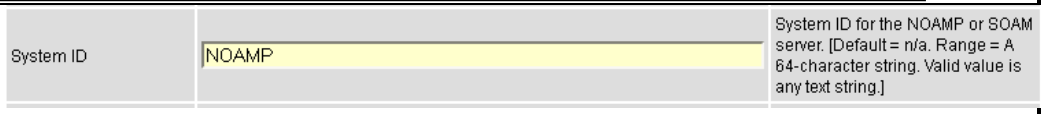
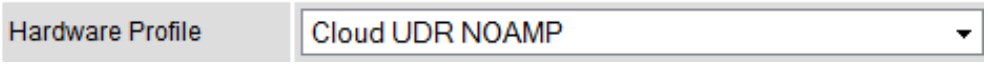
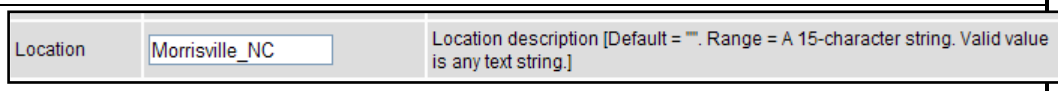
Procedure 4: Configure NOAMP-A Server (1st NOAMP only)

Step	Procedure	Result
7. ☐	**NOAMP Server A:** Select the **"Upload File"** dialogue button (bottom left corner of screen).	
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… **Main Menu** → **Configuration** → ***Services*** …as shown on the right.	
10. ☐	**NOAMP Server A:** Select the **"Edit"** dialogue button.	

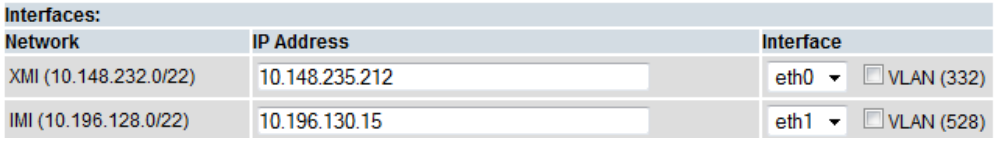
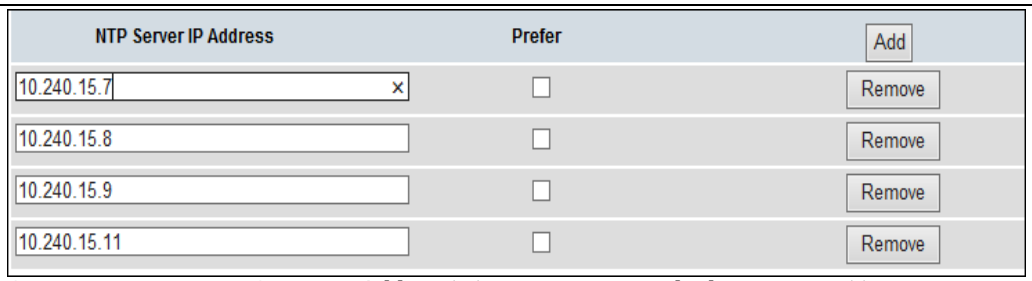
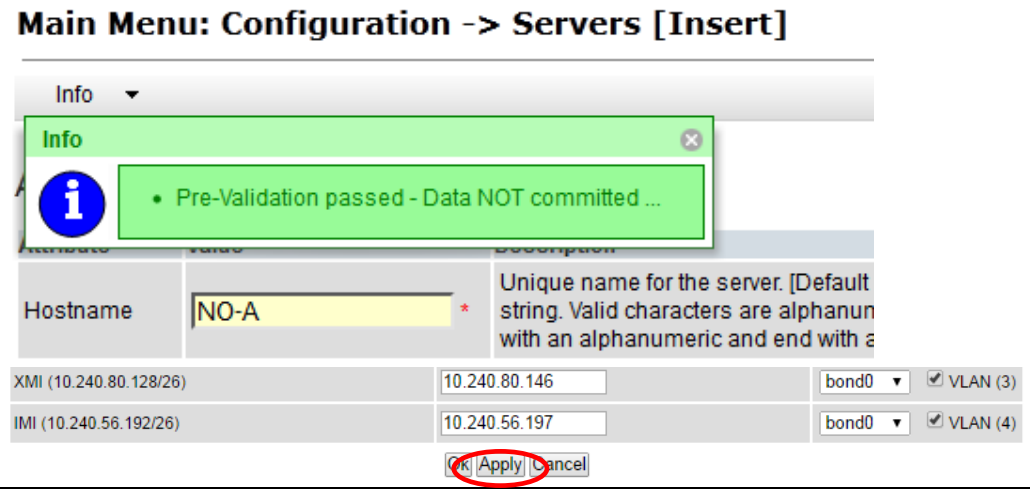
Procedure 4: Configure NOAMP-A Server (1st NOAMP only)

Step	Procedure	Result
11. ☐	**NOAMP Server A:** **1)** Set the services values as shown on the right (see **Note** section). **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 **Note:** Servers do not need to be restarted if this is a fresh installation. **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	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 UDR Server* Select… **Main Menu** **→ Configuration** **→ *Servers*** …as shown on the right.	
14. ☐	**NOAMP Server A:** Select the **"Insert"** dialogue button.	Insert Edit Delete Export Report

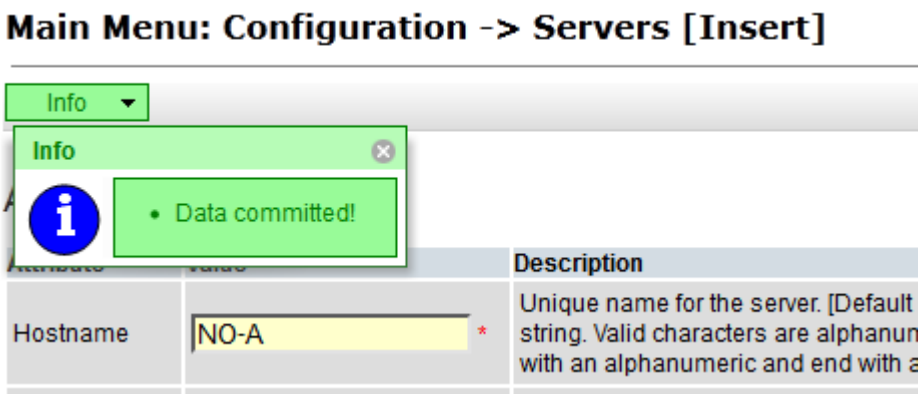
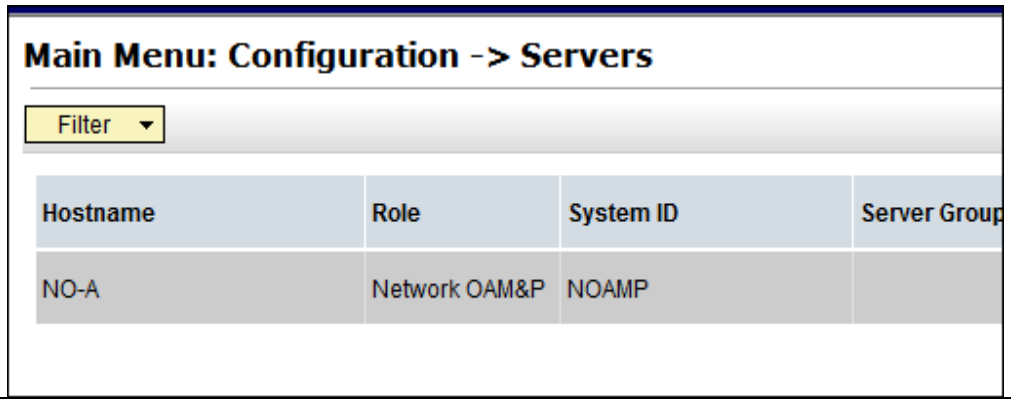
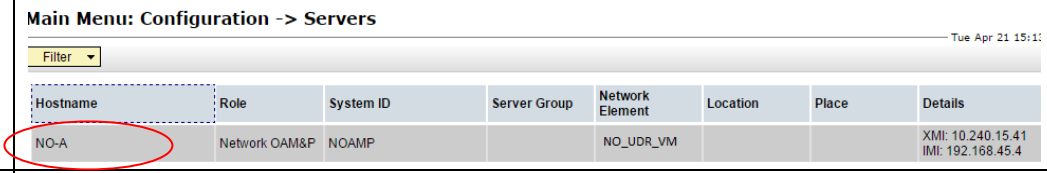
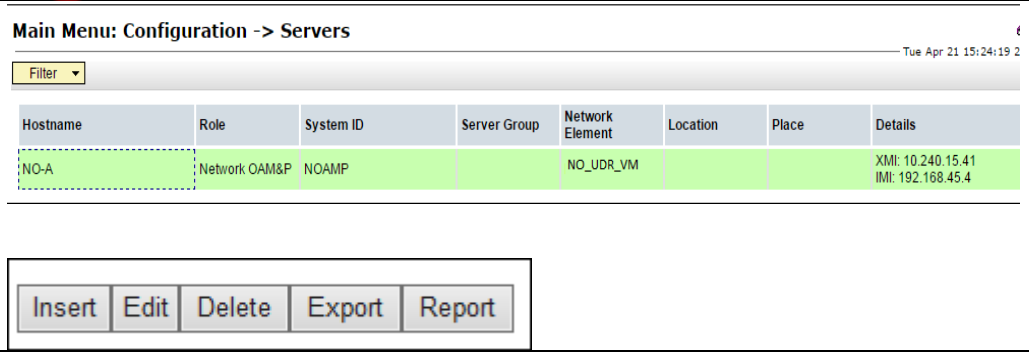
Procedure 4: Configure NOAMP-A Server (1st NOAMP only)

Step	Procedure	Result
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: **Cloud UDR NOAMP** 
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.*	

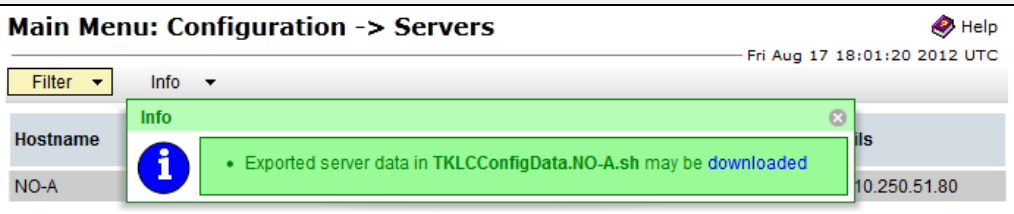
Procedure 4: Configure NOAMP-A Server (1st NOAMP only)

Step	Procedure	Result
22. ☐	**NOAMP Server A:** **1)** Enter the **IP Addresses** for the **UDR Server**. **2)** Set the **Interface** parameters according to to deployment type.	 Enter the IP Addresses for **XMI** and **IMI** networks. Set the Interface device for **XMI** and **IMI** networks according to this VM guest's network adapter assigment as viewable in **Appendix B-3 Step 3 or Appendix C-7 Step 5.** Leave the VLAN boxes unchecked.
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. 
24. ☐	**NOAMP Server A:** By clicking **Info** the user should be presented with a banner information message stating **"Pre-Validation passed"**. Click the **"Apply"** dialogue button.	

Procedure 4: Configure NOAMP-A Server (1st NOAMP 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 UDR Server Configuration File Select… **Main Menu** → **Configuration** → ***Servers*** …as shown on the right.	
27. ☐	**NOAMP Server A:** The **"Configuration →Servers" screen** should now show the newly added **UDR Server** in the list.	
28. ☐	**NOAMP Server A:** **1)** Use the cursor to select the **UDR Server** just inserted. The row containing the desired **Server** should now be highlighted in **GREEN**. **2)** Select the **"Export"** dialogue button.	

Procedure 4: Configure NOAMP-A Server (1st NOAMP only)

Step	Procedure	Result
29. ☐	**NOAMP Server A:** The user will receive a banner information message showing a download link for the **UDR 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**: Switch to "**root**" user.	`[admusr@ pc9040833-no-a ~]$ su -` `password: <root_password>`
32. ☐	**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.	***Example:*** TKLCConfigData<.server_hostname>.sh ➔ will translate to ➔TKLCConfigData.sh `# cp -p /var/TKLC/db/filemgmt/TKLCConfigData.NO-A.sh /var/tmp/TKLCConfigData.sh` **NOTE:** *The server will poll the **/var/tmp** directory for the presence of the configuration file and automatically execute it when found.*
33. ☐	**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>`

Procedure 4: Configure NOAMP-A Server (1st NOAMP only)

Step	Procedure	Result
34. ☐	**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". **# set_ini_tz.pl "America/New_York"**
35. ☐	**NOAMP Server A:** Initiate a reboot of the **NOAMP Server**.	**# reboot**
36. ☐	**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.
37. ☐	**NOAMP Server A:** Verify that the **XMI and IMI IP addresses** entered in **Step 22** have been applied	**$ ifconfig |grep in |grep -v inet6** Example: eth0 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 eth1 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 **NOTE:** *The server's **XMI and IMI** addresses can be verified by reviewing the server configuration through the UDR GUI.* **Main Menu** **→ Configuration** **→ Servers** *Scroll to line entry containing the server's **hostname.***
38. ☐	**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).	**$ 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

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 35 .

Procedure 4: Configure NOAMP-A Server (1st NOAMP only)

Step	Procedure	Result
39. ☐	**NOAMP Server A:** Execute a **"alarmMgr"** to verify the current health of the server	`$ alarmMgr --alarmStatus` `NOTE: This command should return no output on a healthy system.`
40. ☐	**NOAMP Server A:** Exit the SSH session for the NOAMP-A server	`$ exit`
THIS PROCEDURE HAS BEEN COMPLETED		

5.2 Create Configuration for Remaining Servers

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

Requirements:

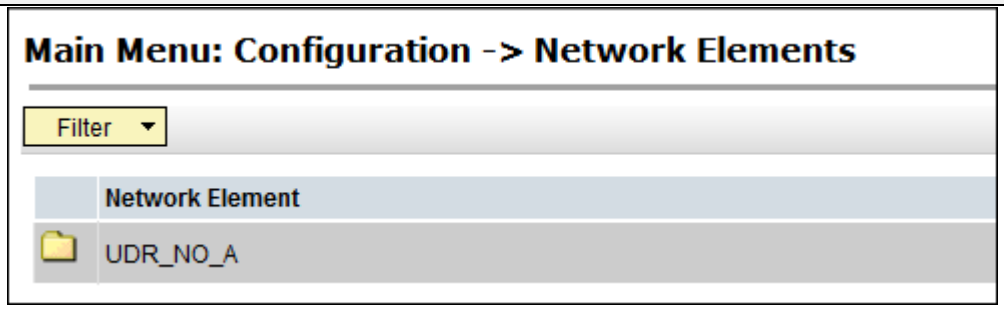
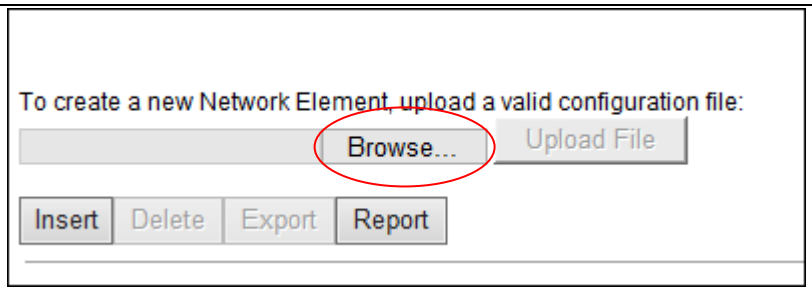
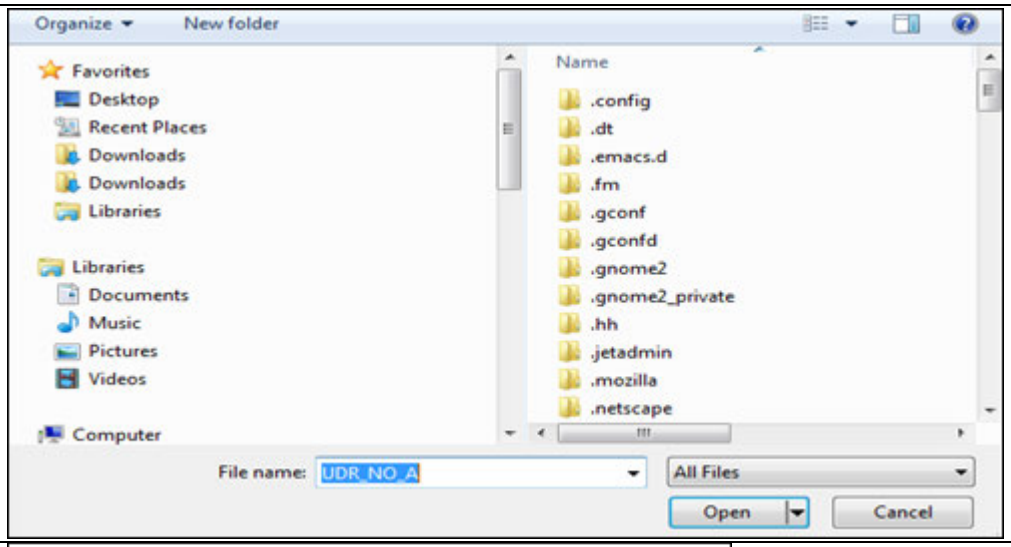
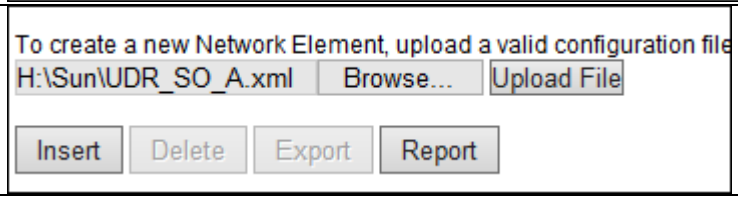
- **Section 5.1 Configure NOAMP-A Server (1st NOAMP only)** has been completed

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

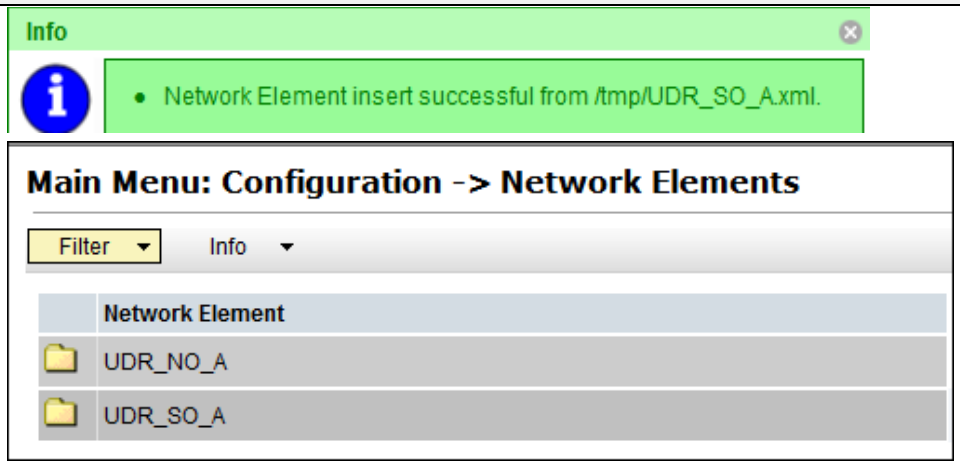
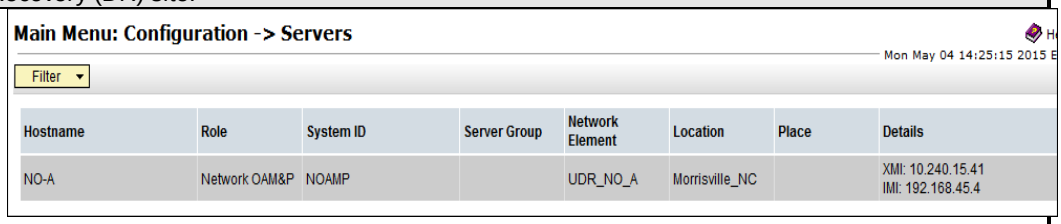
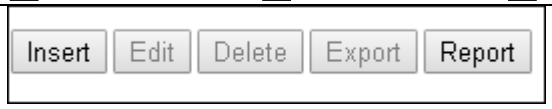
Procedure 5: Create Configuration for Remaining Servers

Step	Procedure	Result
1. ☐	**NOAMP Server A:** Launch an approved web browser and connect to the NOAMP Server A IP address **NOTE:** Choose **"Continue to this website (not recommended)"** if presented with the "security certificate" warning. **Login** to the GUI using the default user and password.	
For steps 4 – 8 add the remaining 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)		

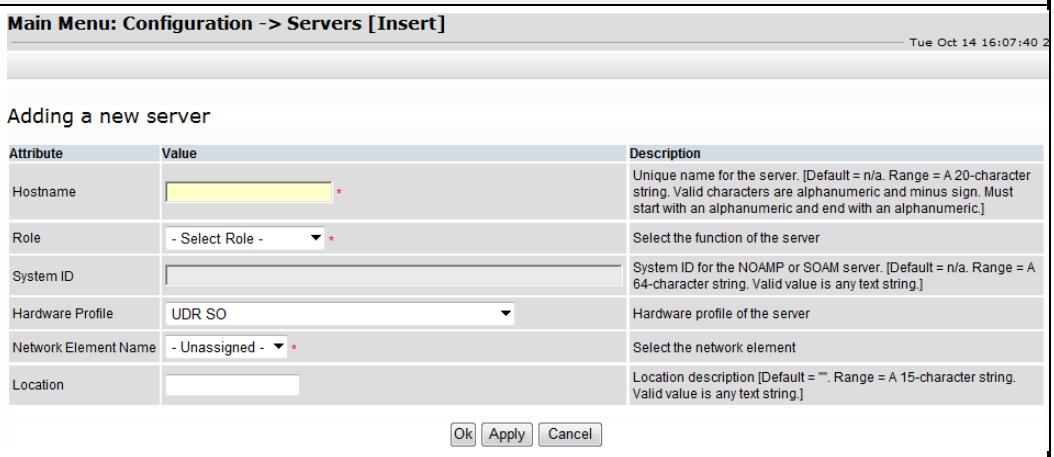
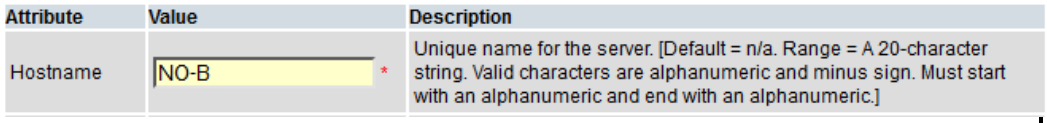
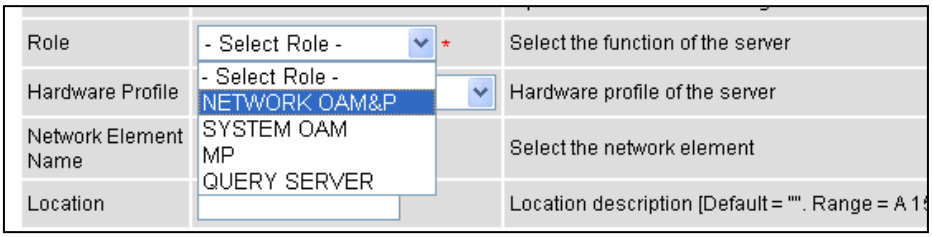
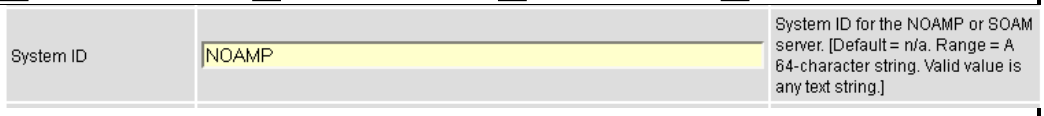
Procedure 5: Create Configuration for Remaining Servers

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

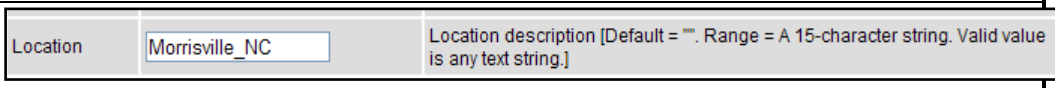
Procedure 5: Create Configuration for Remaining Servers

Step	Procedure	Result
6. ☐	**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.*	
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.		
7. ☐	**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-2 ☐ MP-2 ☐ MP-3 ☐ MP-4
8. ☐	**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-2 ☐ MP-2 ☐ MP-3 ☐ MP-4

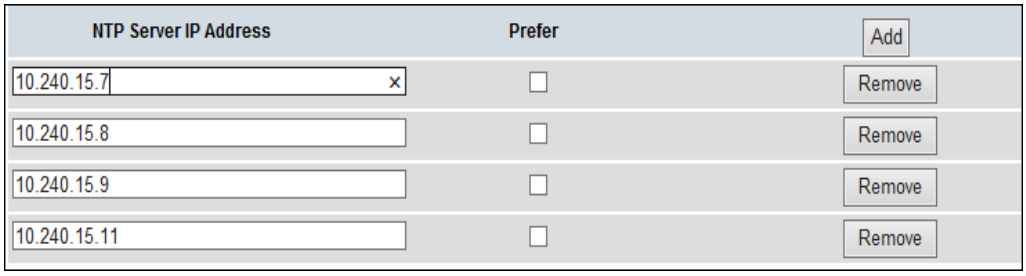
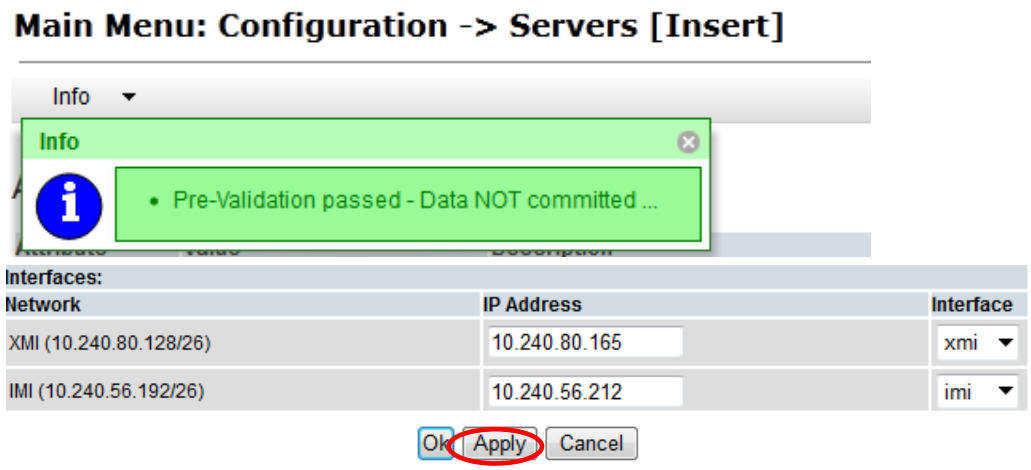
Procedure 5: Create Configuration for Remaining Servers

Step	Procedure	Result
9. ☐	**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-2 ☐ MP-2 ☐ MP-3 ☐ MP-4
10. ☐	**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-2 ☐ MP-2 ☐ MP-3 ☐ MP-4
11. ☐	**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-2 ☐ MP-2 ☐ MP-3 ☐ MP-4
12. ☐	**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-2 ☐ MP-2 ☐ MP-3 ☐ MP-4

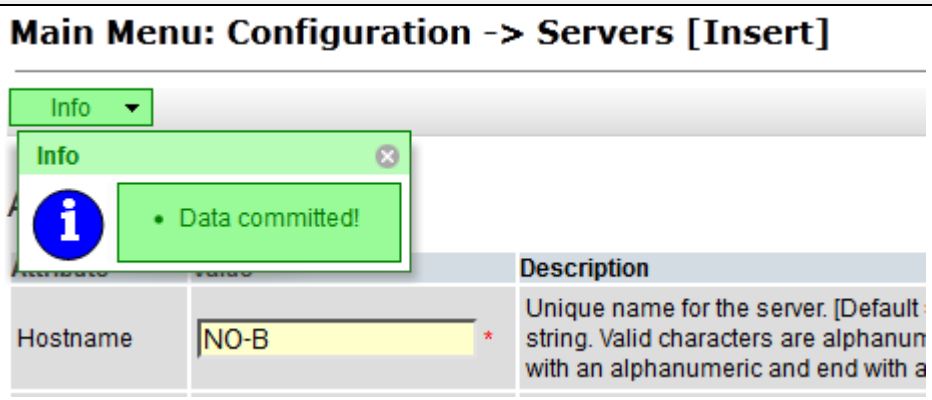
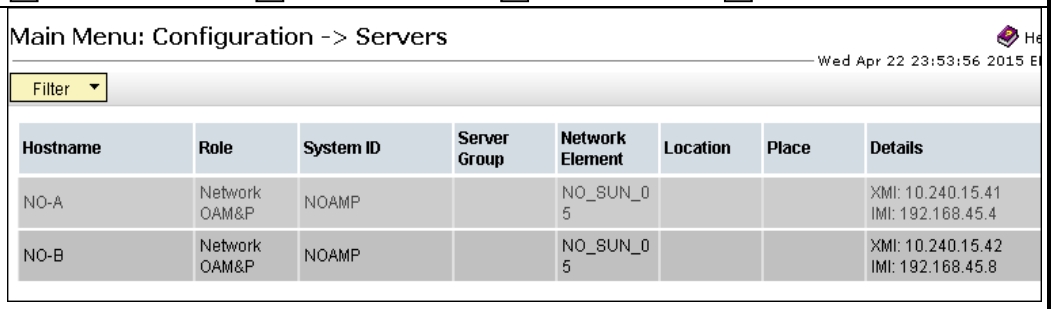
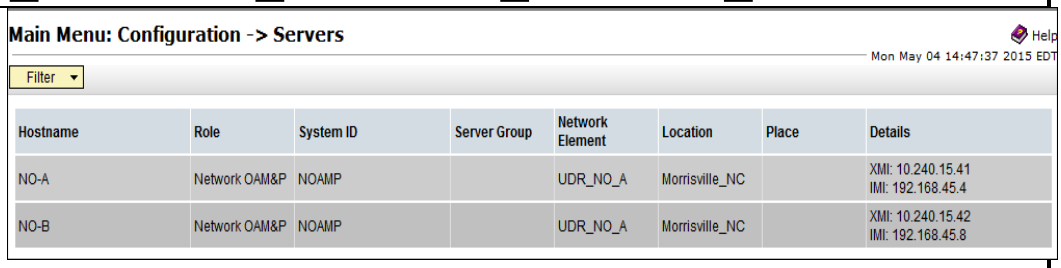
Procedure 5: Create Configuration for Remaining Servers

Step	Procedure	Result
13. ☐	**NOAMP Server A:** Select the correct **Hardware Profile** from the pull-down menu.	SOAM Select Hardware Profile: **Cloud UDR SOAM** MP Select Hardware Profile: **UDR VMware**  "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-2 ☐ MP-2 ☐ MP-3 ☐ MP-4
14. ☐	**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. 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-2 ☐ MP-2 ☐ MP-3 ☐ MP-4
15. ☐	**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
16. ☐	**NOAMP Server A:** **1)** Enter the **IP Addresses** for the **UDR Server**. **2)** Set the **Interface** parameters according to to deployment type.	 Enter the IP Addresses for **XMI** and **IMI** networks. Set the Interface device for **XMI** and **IMI** networks according to this VM guest's network adapter assigment as viewable in **Appendix B-3 Step 3 or Appendix C-7 Step 5.** Leave the VLAN boxes unchecked. "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

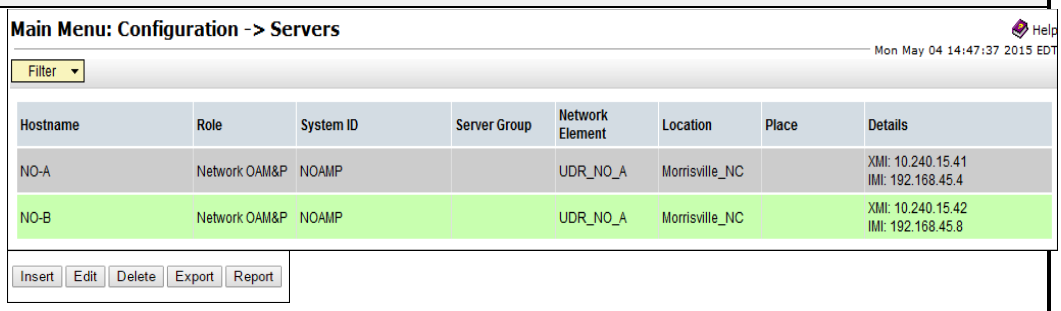
Procedure 5: Create Configuration for Remaining Servers

Step	Procedure	Result
17. ☐	**NOAMP Server A:** Click the "**Add**" button under NTP Servers and add the address(s) of the NTP server(s).	 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. "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. ☐	**NOAMP Server A:** By clicking **Info** the user should be presented with a banner information message stating **"Pre-Validation passed"**. 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

Procedure 5: Create Configuration for Remaining Servers

Step	Procedure	Result
19. ☐	**NOAMP Server A:** If the values provided match the network ranges assigned to the UDR 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
20. ☐	**NOAMP Server A:** *Applying the Server Configuration File* 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
21. ☐	**NOAMP Server A:** The "Configuration →Servers" screen should now show the newly added UDR Server in the list.	 "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 5: Create Configuration for Remaining Servers

Step	Procedure	Result
22. ☐	**NOAMP Server A:** 1) Use the cursor to select the UDR Server just inserted. The row containing the desired Server should now be highlighted in GREEN. 2) Select the "**Export**" 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
23. ☐	**VMware client:** **Repeat** this procedure to create configuration	Repeat this procedure to create configuration for each remaining server: ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
THIS PROCEDURE HAS BEEN COMPLETED		

5.3 Apply Configuration To Remaining Servers

This procedure is used to apply configuration to all UDR Servers (Primary and DR Servers) except the first NOAMP-A server.

Requirements:

- **Section 5.2 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 6: Apply Configuration to Remaining Servers

Step	Procedure	Result
1. ☐	**NOAMP Server A:** Connect to the NOAMP-A Server terminal at the Primary NOAMP site	SSH to 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` `admusr@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

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

Procedure 6: Apply Configuration to Remaining Servers

Step	Procedure	Result
3. ☐	**NOAMP Server A:** Change directory into the file management space	`[admusr@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
4. ☐	**NOAMP Server A:** Get a directory listing and find the desired servers configuration files . Note: Server names are in red.	`[admusr@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
5. ☐	**NOAMP Server A:** Copy the configuration files found in the previous step to the appropirate target server based on the configuration file's server name.	`[admusr@pc9040833-no-a ~]$ scp -p <configuration_file-a> <Associated_Server_XMI_IP>:/tmp` `admusr@10.240.39.4's password: <admusr_password>` `TKLCConfigData.so-carync-a.sh 100% 1741 1.7KB/s 00:00` `[root@no-mrsvnc-a filemgmt]$` "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
6. ☐	**NOAMP Server A:** Connect to the target server which has received a configuration file copy in the previous step	`[admusr@pc9040833-no-a ~]$ ssh <Associated_Server_XMI_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
7. ☐	**Target 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.	***Example:*** TKLCConfigData<.server_hostname>.sh ➔ will translate to ➔TKLCConfigData.sh `[admusr@hostname1326744539 ~]$ sudo cp -p /tmp/TKLCConfigData.NO-B.sh /var/tmp/TKLCConfigData.sh` `[admusr@hostname1326744539 ~]$` **NOTE:** *The server will poll the **/var/tmp** directory for the presence of the configuration file and automatically execute it when found.* "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

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

Procedure 6: Apply Configuration to Remaining Servers

Step	Procedure	Result
8. ☐	**Target 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>** `[admusr@hostname1326744539 ~]$` "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
9. ☐	**Target Server:** Initiate a reboot of the **UDR Server**.	`[admusr@hostname1326744539 ~]$` **`sudo reboot`** "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:** The SSH session for the target 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 NOAMP 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.` `$` "Check off" the associated Check Box as addition is completed for each Server. ☐ NOAMP-A ☐ NOAMP-B ☐ SOAM-A ☐ SOAM-B ☐ MP-1 ☐ MP-2 ☐ MP-3 ☐ MP-4
11. ☐	**NOAMP Server A:** Wait until server reboot is done. Then, SSH into the target server using its XMI address. Output similar to that shown on the right may be observed	Wait about 9 minutes until the server reboot is done. Using an SSH client such as putty, ssh to the target server using admusr credentials and the <XMI IP Address>**.** `[admusr@pc9040833-no-a ~]$ ssh 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

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

Procedure 6: Apply Configuration to Remaining Servers

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>12.

☐</td><td>Target Server:

Verify that the XMI and IMI IP addresses entered in Section 5.2 Step 16 have been applied</td><td>
<pre>$ 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>
NOTE: The server's XMI and IMI addresses can be verified by reviewing the server configuration through the UDR GUI.

<u>Main Menu</u>
→ Configuration
→ Servers
Scroll to line entry containing the server's hostname.

"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>13.

☐</td><td>Target Server:
Use the "ntpq" command to verify that the server has connectivity to the assigned Primary and Secondary NTP server(s).</td><td>
<pre>$ 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 ~]$</pre>
If offset value is in excess of five seconds, run the commands below to sync time manually:
<pre>$ sudo service ntpd stop
Shutting down ntpd: [OK]
$ sudo ntpdate <Remote_NTP_Server_IP>
$ sudo service ntpd start
Starting ntpd: [OK]</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>
<tr><td>14.

☐</td><td>Target Server:
Execute a "alarmMgr" to verify the current health of the server</td><td>
<pre>$ alarmMgr --alarmStatus</pre>
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
</td></tr>
</table>

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

Procedure 6: Apply Configuration to Remaining Servers

Step	Procedure	Result
15. ☐	**Target Server:** Exit the SSH session for the target 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
16. ☐	**NOAMP Server A:** Exit terminal session	**# exit** logout Connection to 192.168.1.4 closed. #
THIS PROCEDURE HAS BEEN COMPLETED		

5.4 Configure XSI Networks (All SOAM Sites)

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

Requirements:

- **Section 5.3 Apply Configuration To Remaining Servers** has been completed

Note: If deploying two sites use the same name for both XSI networks.

Procedure 7: Configure XSI Networks

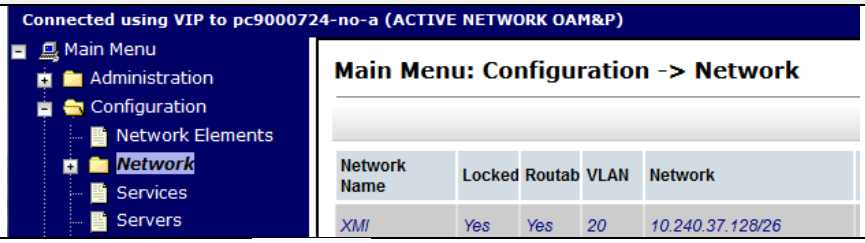
Step	Procedure	Result
1. ☐	**NOAMP Server A:** Launch an approved web browser and connect to the NOAMP Server A IP address **NOTE:** Choose **"Continue to this website (not recommended)"** if presented with the "security certificate" warning. **Login** to the GUI using the default user and password.	

Procedure 7: Configure XSI Networks

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>2.

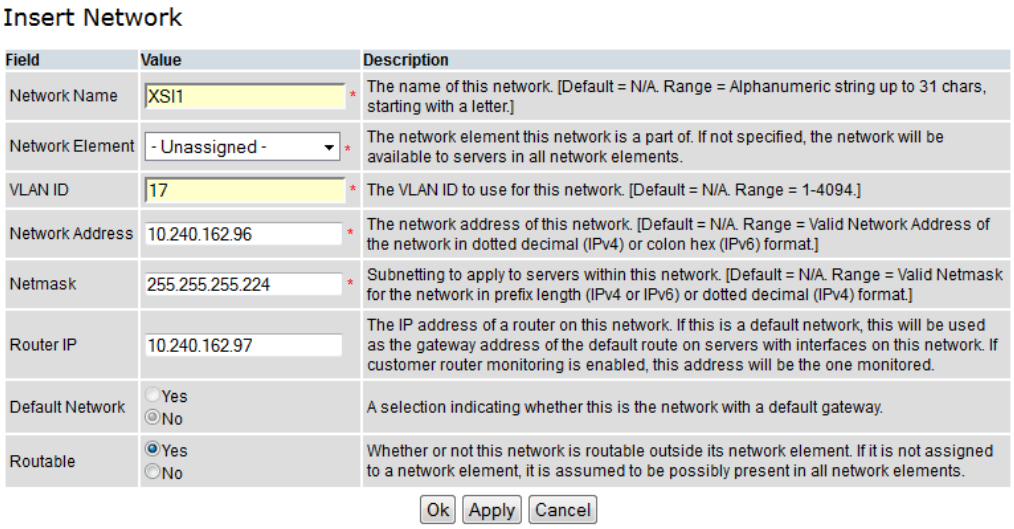
☐</td><td>NOAMP Server A
Select…

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

…as shown on the right.</td><td> 
</td></tr>
<tr><td>3.

☐</td><td>NOAMP Server A
Add the XSI1 network</td><td>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 may be configured to run on XSI1 in Section 7.3. In such case, the XSI1 network shall be used for MP⇔NOAMP ComAgent Traffic.

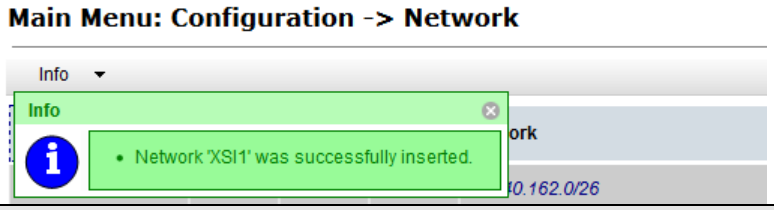
This network may or may not be used for MP Signaling Traffic.

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.

Note: VLANs are not used in the context of this document, though VLAN ID is a required field on this screen. Enter any number in the valid range.</td></tr>
<tr><td>4.

☐</td><td>NOAMP Server A
Repeat as required</td><td>Repeat Step 3 of this procedure to Insertadditional signaling networks(XSI2, etc) if applicable.</td></tr>
</table>

Procedure 7: Configure XSI Networks

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

6.0 OAM PAIRING

6.1 OAM Pairing for 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.

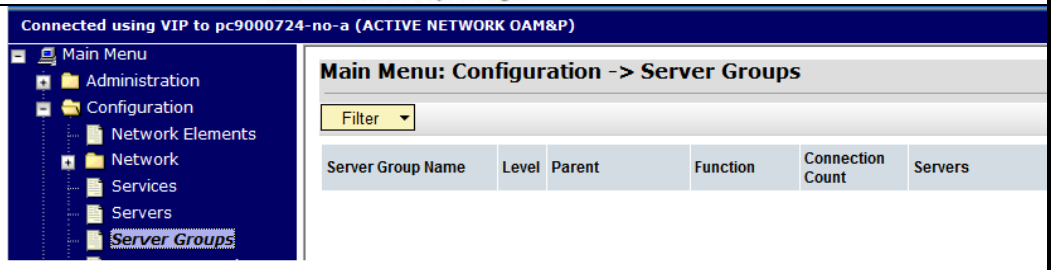
This procedure creates active/standby pair for the NOAMP servers at the Primary Provisioning Site..

Requirements:

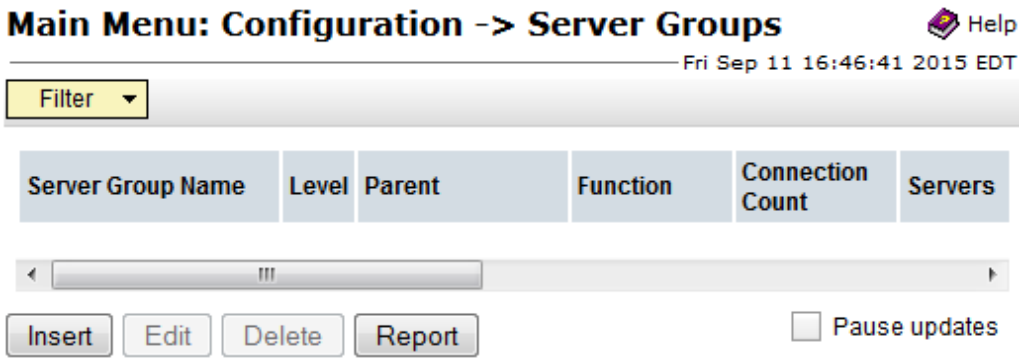
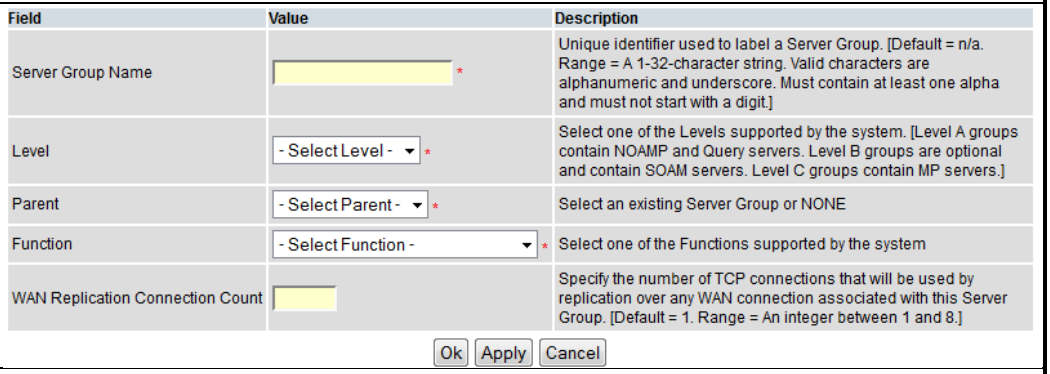
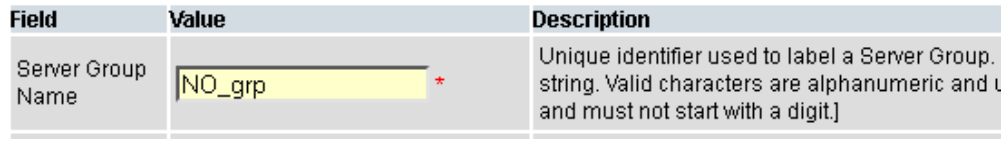
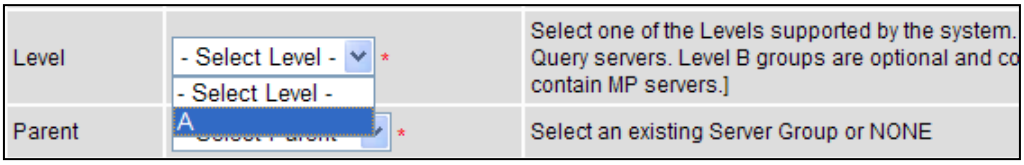
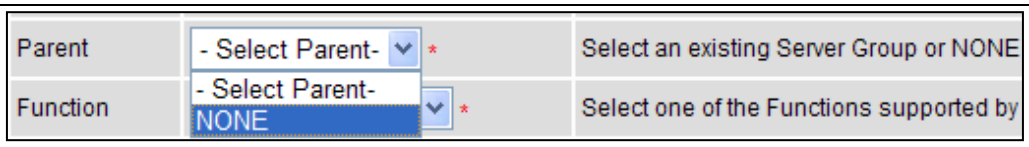
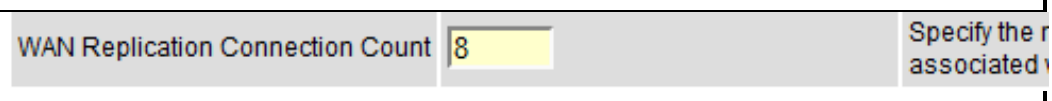
- **Section 5.3 Apply Configuration To Remaining Servers** has been completed

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

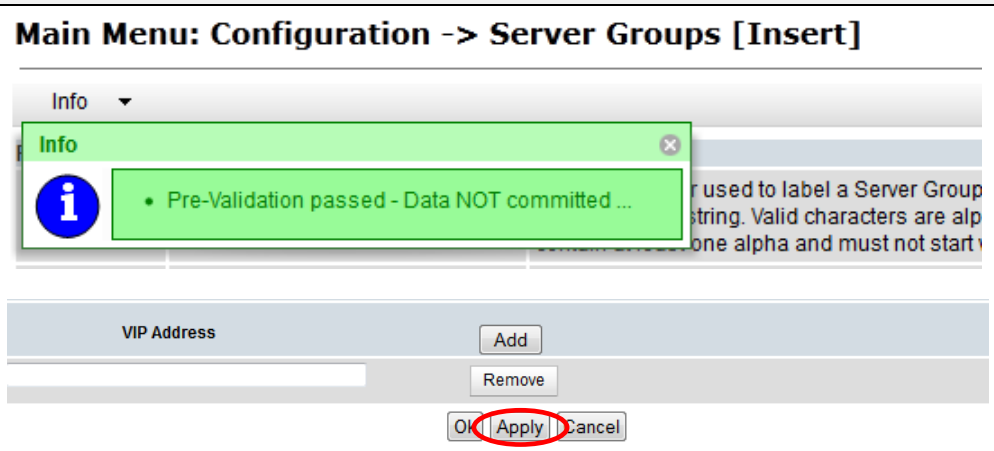
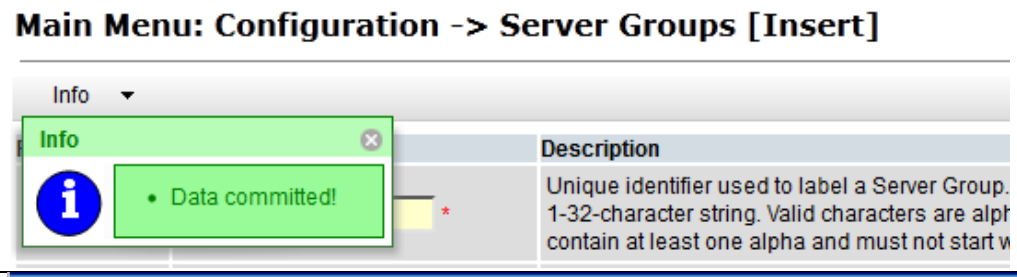
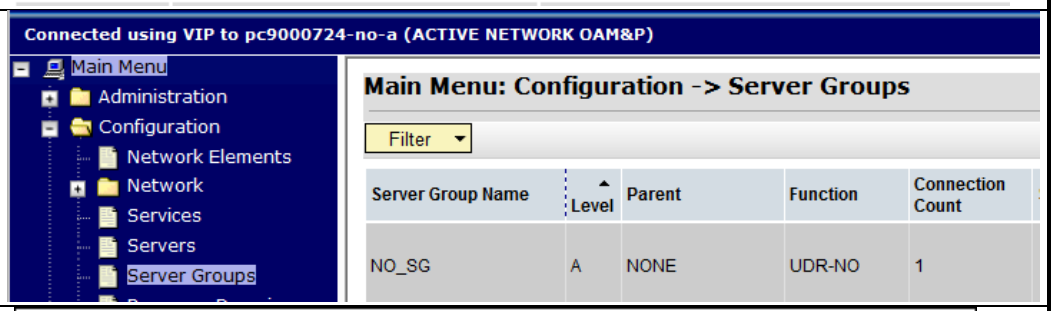
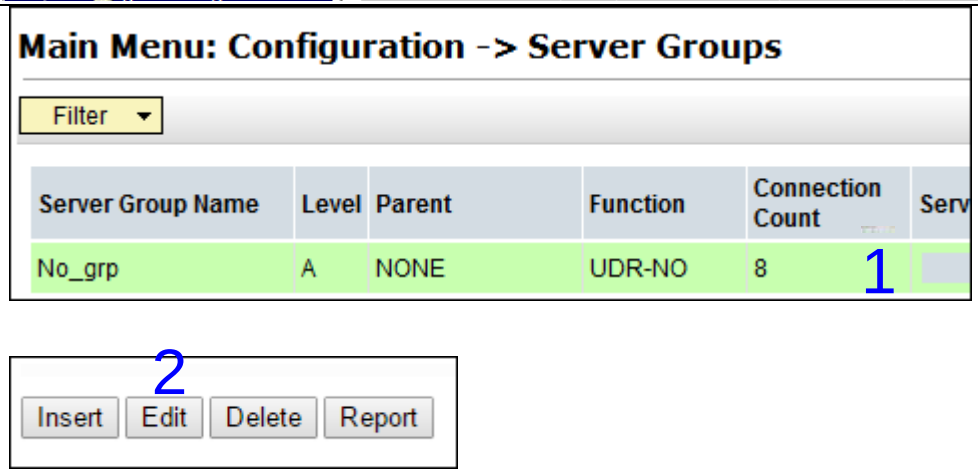
Procedure 8: OAM Pairing for Primary NOAMP Servers (1st NOAMP site only)

Step	Procedure	Result
1. ☐	**NOAMP Server A:** Launch an approved web browser and connect to the NOAMP Server A IP address **NOTE:** Choose **"Continue to this website (not recommended)"** if presented with the "security certificate" warning. **Login** to the GUI using the default user and password.	
2. ☐	**NOAMP Server A:** *Configuring Server Group* Select… **Main Menu** **→ Configuration** **→ *Server Groups*** …as shown on the right.	

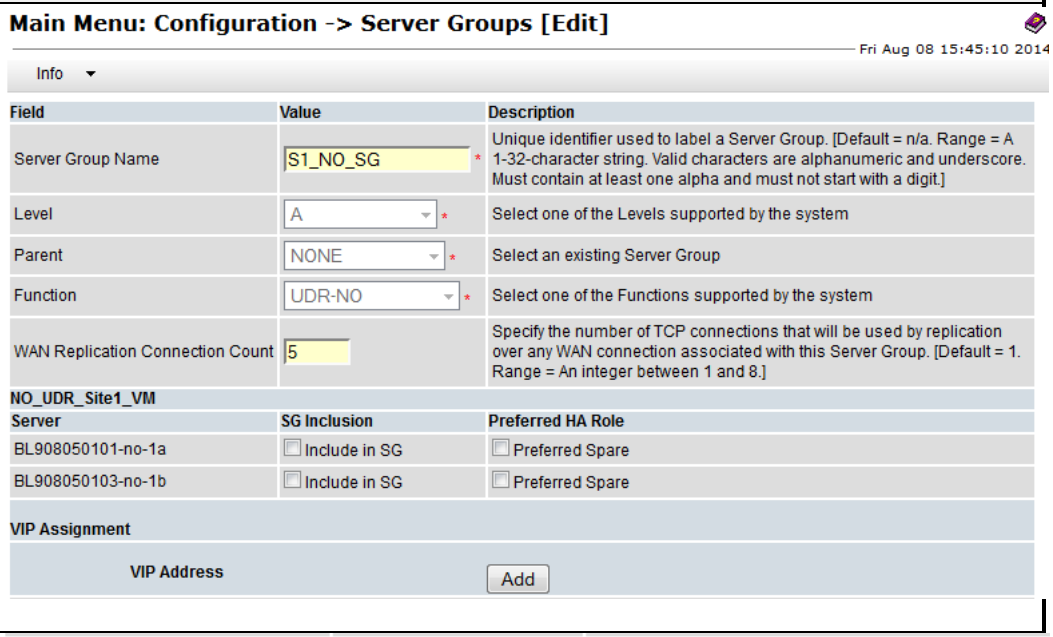
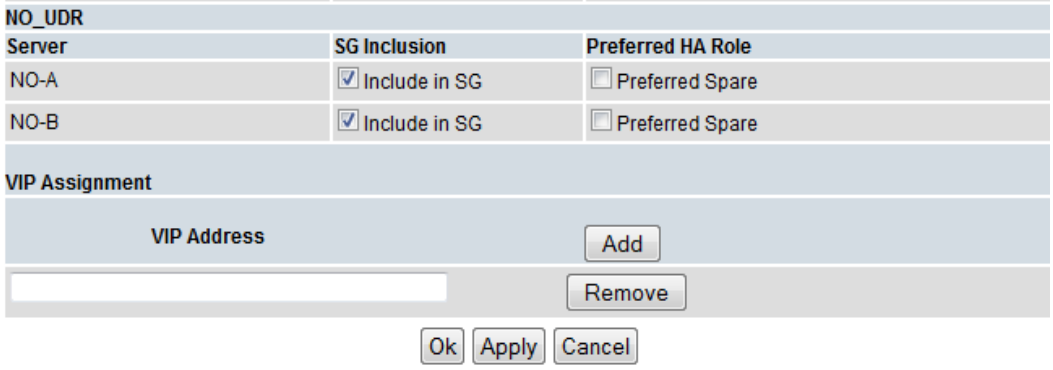
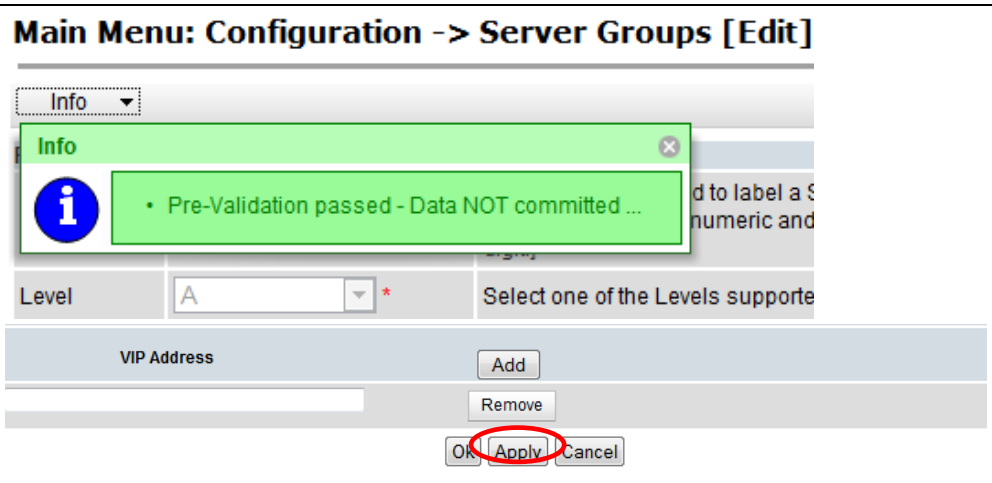
Procedure 8: OAM Pairing for Primary NOAMP Servers (1st NOAMP site only)

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

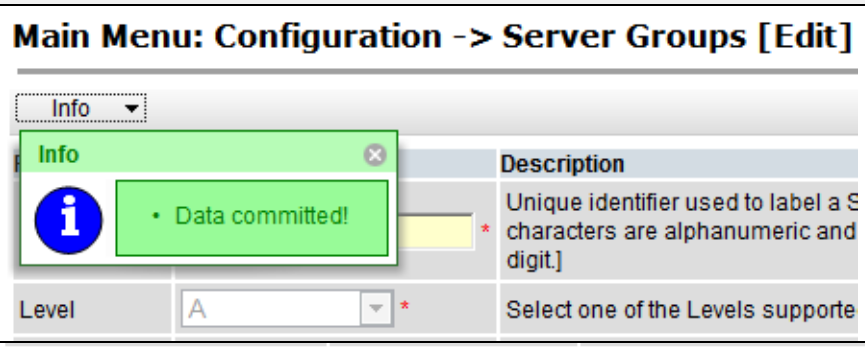
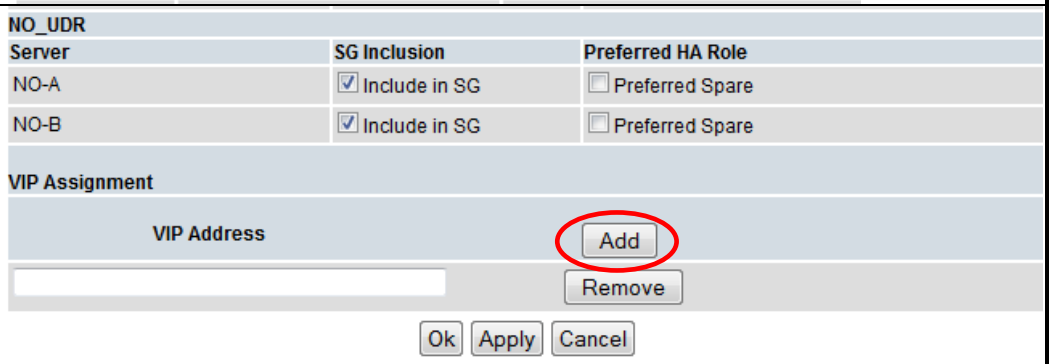
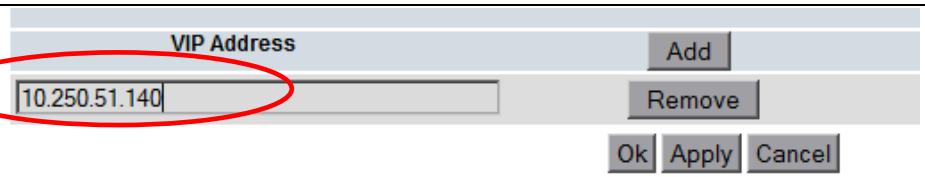
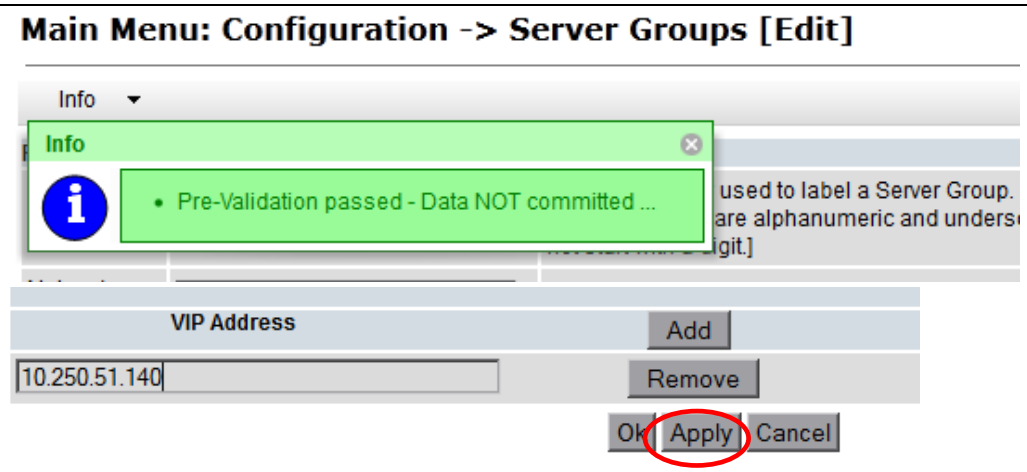
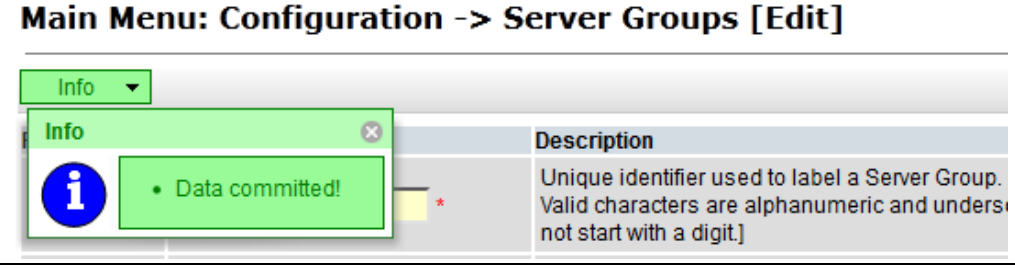
Procedure 8: OAM Pairing for Primary NOAMP Servers (1st NOAMP site only)

Step	Procedure	Result
10. ☐	**NOAMP Server A:** By clicking **Info** the user should be presented with a banner information message stating **"Pre-Validation passed"**. Select the **"Apply"** dialogue button.	
11. ☐	**NOAMP Server A:** The user should be presented with a banner information message stating **"Data committed"**.	
12. ☐	**NOAMP Server A:** Select… **Main Menu** → **Configuration** → ***Server Groups*** …as shown on the right.	
13. ☐	**NOAMP Server A:** **1)** Select the **Server Group** entry just added. 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 8: OAM Pairing for Primary NOAMP Servers (1st NOAMP site only)

Step	Procedure	Result
14. ☐	**NOAMP Server A:** The user will be presented with the **"Server Groups [Edit]"** screen as shown on the right.	
15. ☐	**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.	
16. ☐	**NOAMP Server A:** By clicking **Info** the user should be presented with a banner information message stating **"Pre-Validation passed"**. Select the **"Apply"** dialogue button.	

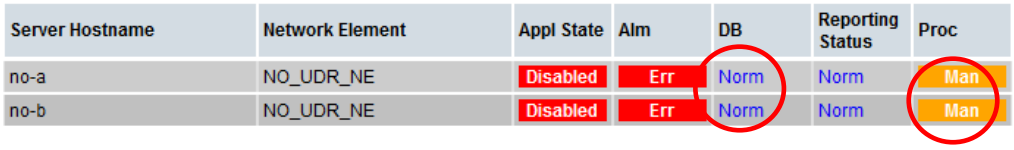
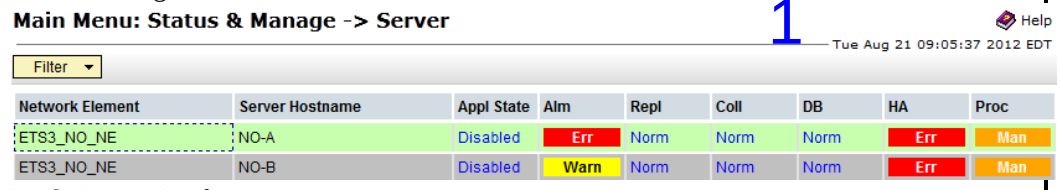
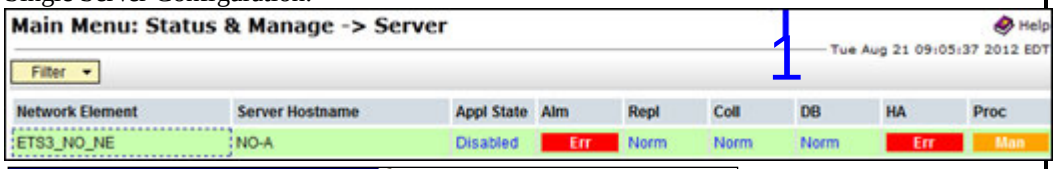
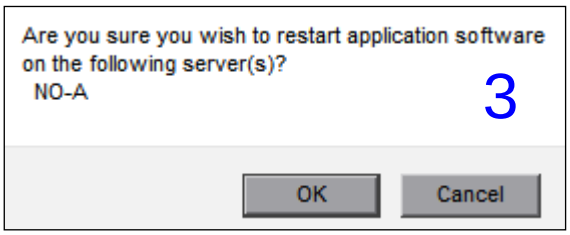
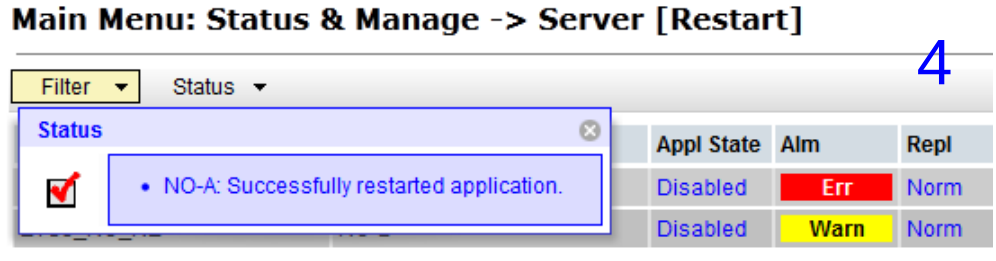
Procedure 8: OAM Pairing for Primary NOAMP Servers (1st NOAMP site only)

Step	Procedure	Result
17. ☐	**NOAMP Server A:** The user should be presented with a banner information message stating **"Data committed"**.	
18. ☐	**NOAMP Server A:** Click the **"Add"** dialogue button for the **VIP Address**. **Note**: VIP Address optional for Single Server Configuration.	
19. ☐	**NOAMP Server A:** Input the **VIP Address**	
20. ☐	**NOAMP Server A:** By clicking **Info** the user should be presented with a banner information message stating **"Pre-Validation passed"**. Select the **"Apply"** dialogue button.	
21. ☐	**NOAMP Server A:** The user should be presented with a banner information message stating **"Data committed"**.	

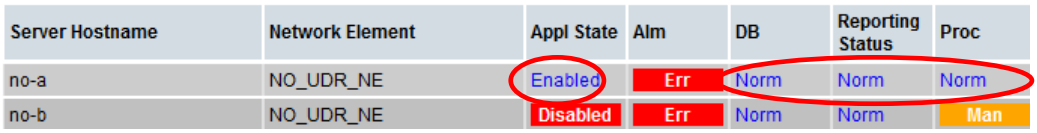
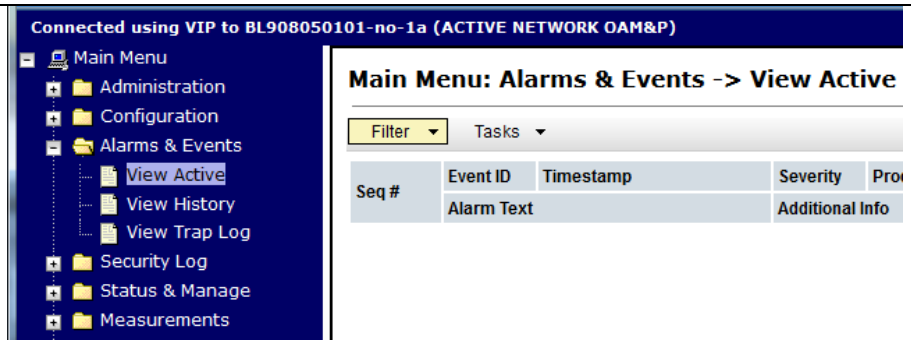
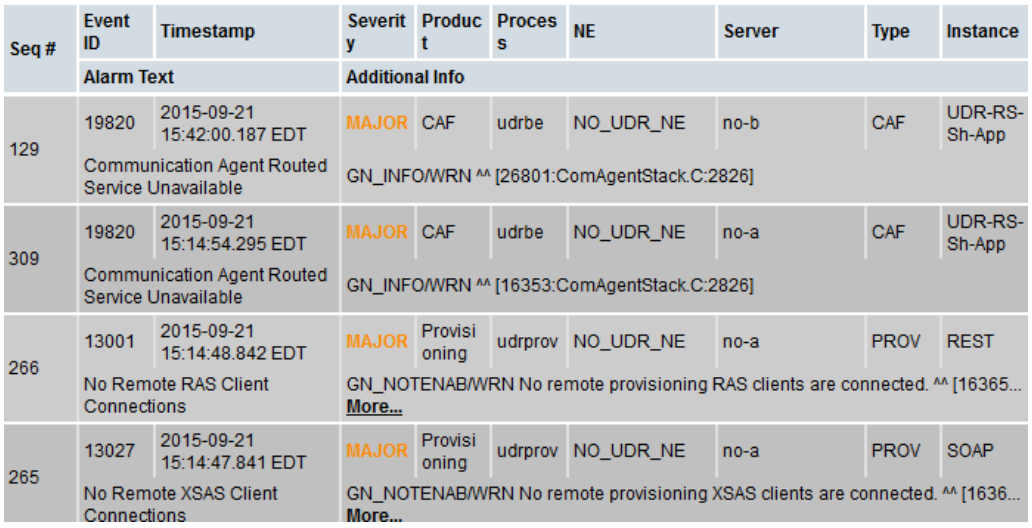
Procedure 8: OAM Pairing for Primary NOAMP Servers (1st NOAMP site only)

Step	Procedure	Result
22. ☐	**NOAMP Server A:** Click the **"Logout"** link on the OAM A server GUI.	
23. ☐	**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.
24. ☐	**Active NOAMP VIP:** Launch an approved web browser and connect to the NOAMP Server A IP address **NOTE:** Choose **"Continue to this website (not recommended)"** if presented with the "security certificate" warning. **Login** to the GUI using the default user and password.	
25. ☐	**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: 

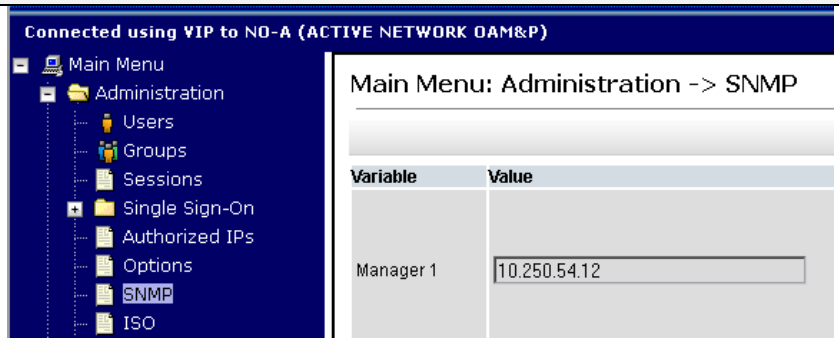
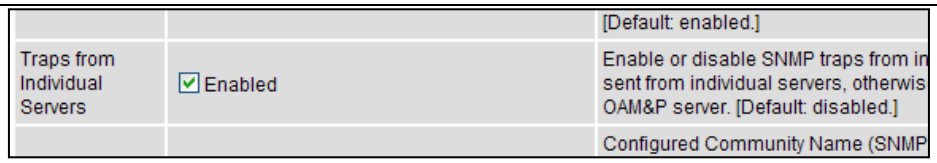
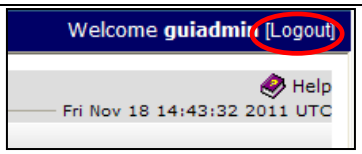
Procedure 8: OAM Pairing for Primary NOAMP Servers (1st NOAMP site only)

Step	Procedure	Result
26. ☐	**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: 
27. ☐	**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 Configuration:  Single Server Configuration:    

Procedure 8: OAM Pairing for Primary NOAMP Servers (1st NOAMP site only)

Step	Procedure	Result
28. ☐	**NOAMP VIP:** Verify that the **"Appl State"** now shows **"Enabled"** and that the **"DB, Reporting Status & 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.
29. ☐	**NOAMP VIP:** Restart **NOAMP Server B**.	`Note: Don't perform this step for single server installations.` `Repeat steps 27 and 28 above to restart NOAMP Server B.`
30. ☐	**NOAMP VIP:** *Verifying the NOAMP Server Alarm status* Select… **Main Menu** **→ Alarms & Events** **→ *View Active*** …as shown on the right.	
31. ☐	**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: - **13075** ("*Provisioning Interfaces Disabled*") - **19820** ("*Communicaton Agent Routed Service Unavailable*") **Note:** *It may take a few minutes for residual process alarms to clear.*

Procedure 8: OAM Pairing for Primary NOAMP Servers (1st NOAMP site only)

Step	Procedure	Result
32. ☐	**NOAMP VIP:** Configuring SNMP for Traps from Individual Servers Select… **Main Menu** **→ Administration** **→Remote Servers** **→ *SNMP Trapping*** …as shown on the right.	
33. ☐	**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.	  
34. ☐	**NOAMP VIP:** Click the **"Logout"** link on the server GUI.	
THIS PROCEDURE HAS BEEN COMPLETED		

6.2 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:

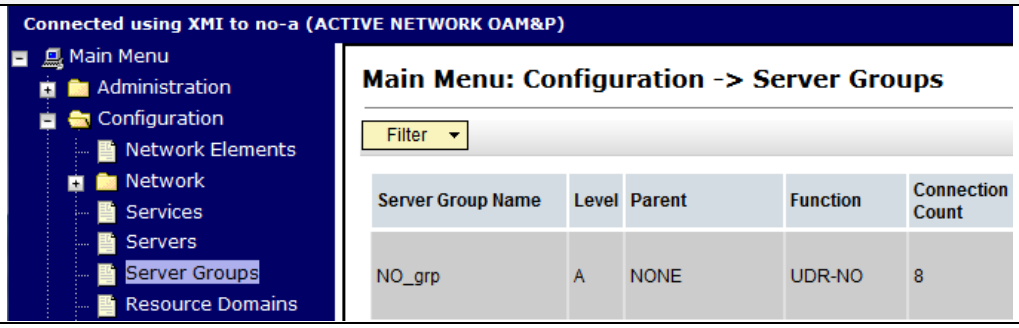
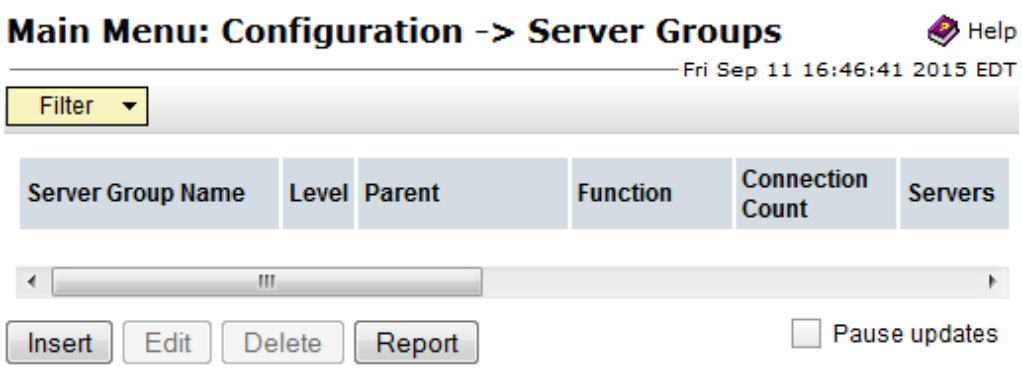
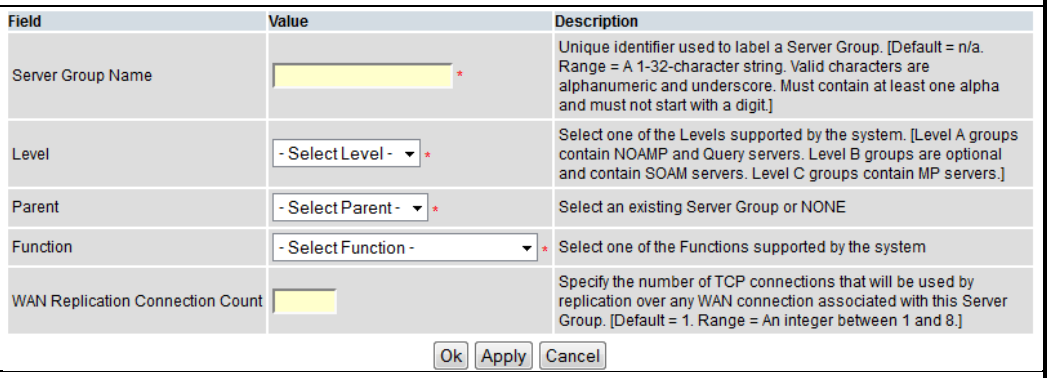
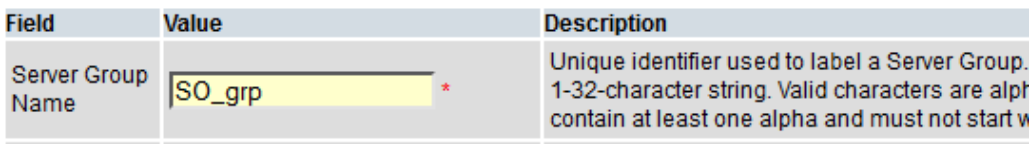
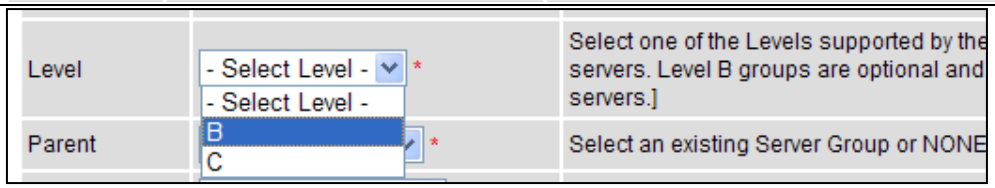
- **Section 5.0 UDR Server Configuration** has been completed
- **Section 6.1 OAM Pairing for Primary NOAMP Servers (1st NOAMP site only)** has been completed

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

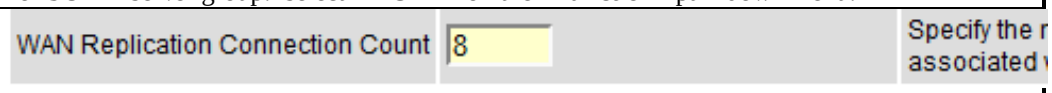
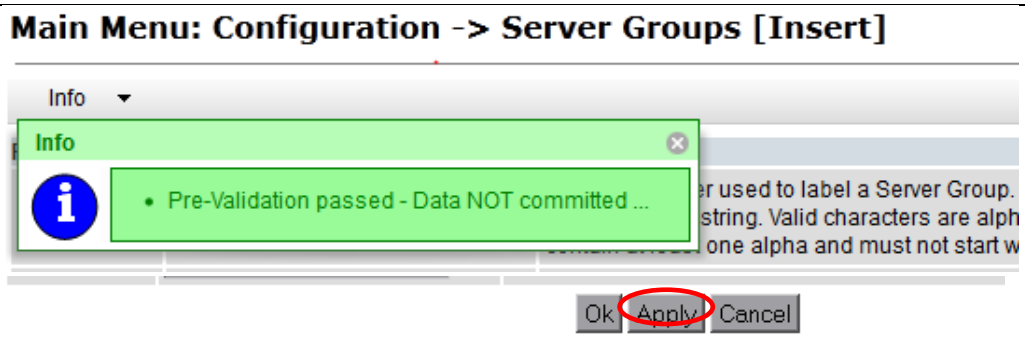
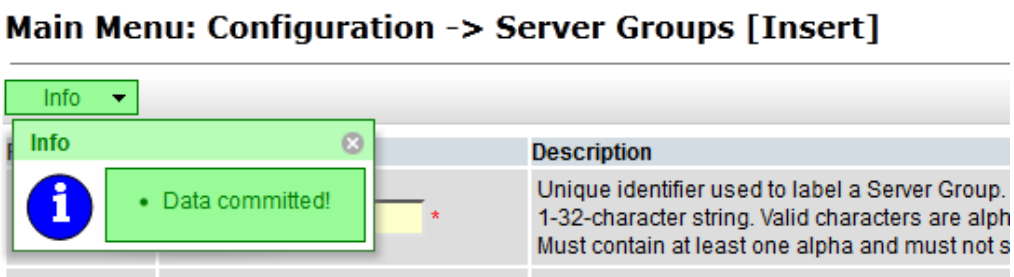
Procedure 9: OAM Pairing for SOAM and DR Sites (All SOAM and DR sites)

Step	Procedure	Result
1. ☐	**Active NOAMP VIP:** Launch an approved web browser and connect to the NOAMP Server A IP address **NOTE:** Choose **"Continue to this website (not recommended)"** if presented with the "security certificate" warning. **Login** to the GUI using the default user and password.	
2. ☐	**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

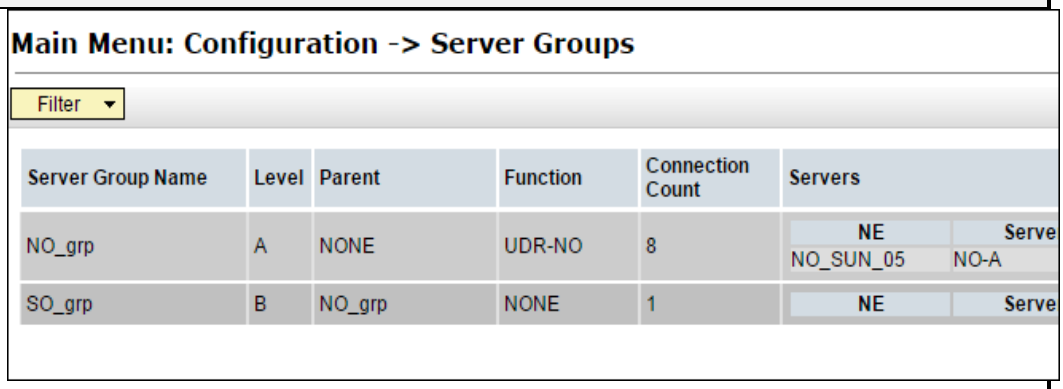
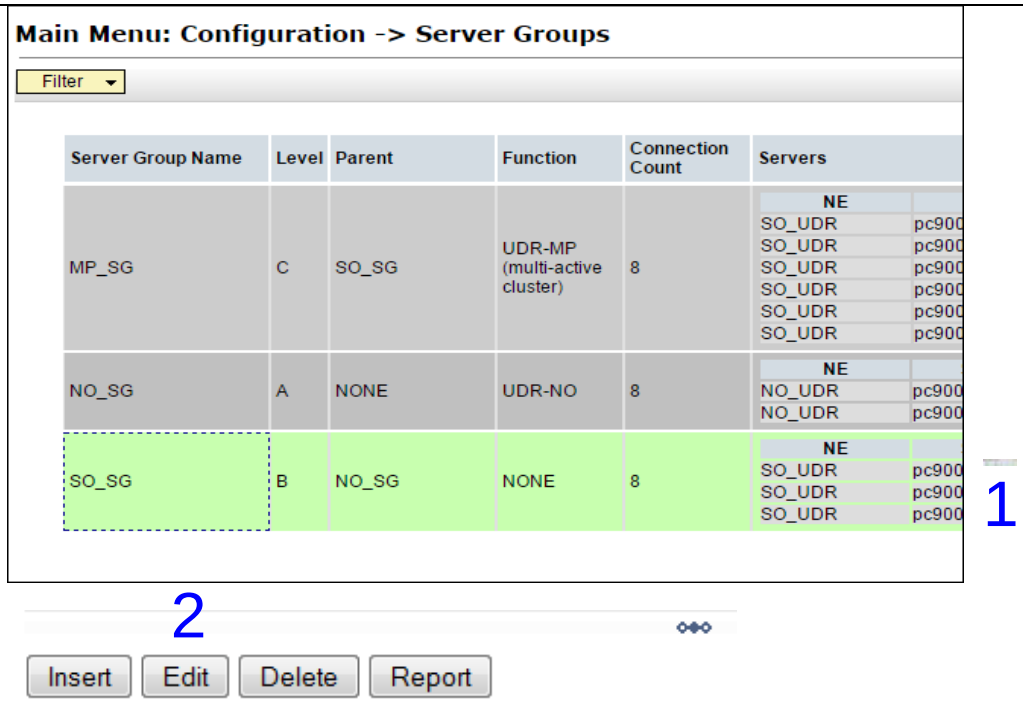
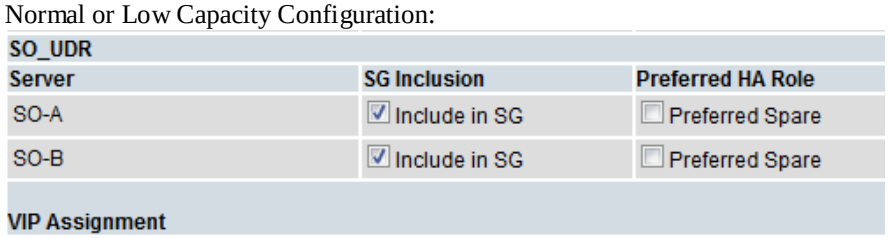
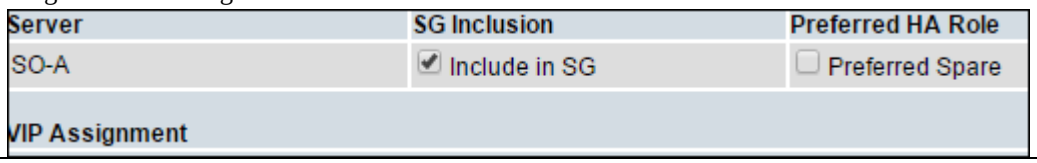
Procedure 9: OAM Pairing for SOAM and DR Sites (All SOAM and DR sites)

Step	Procedure	Result
3. ☐	**Active NOAMP VIP:** Select… **Main Menu** → **Configuration** → ***Server Groups*** …as shown on the right.	
4. ☐	**Active NOAMP VIP:** Click 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.*	
5. ☐	**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.	
6. ☐	**Active NOAMP VIP:** Input the **Server Group Name**.	
7. ☐	**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.

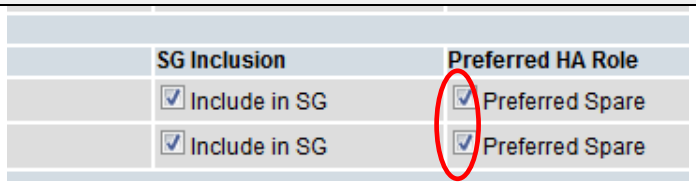
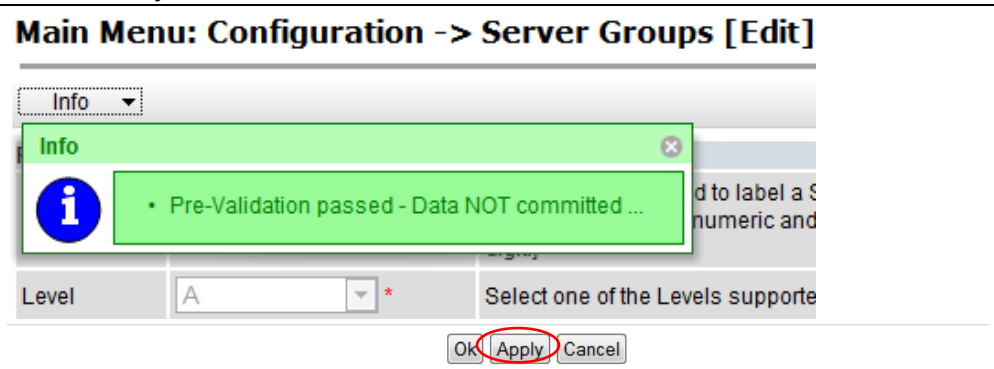
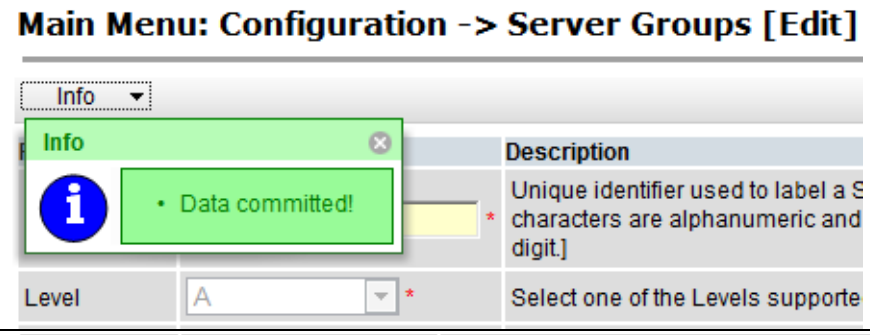
Procedure 9: OAM Pairing for SOAM and DR Sites (All SOAM and DR sites)

Step	Procedure	Result
8. ☐	**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 Section 6.1 step 5 on the **"Parent"** pull-down menu.
9. ☐	**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.
10. ☐	**Active NOAMP VIP:** *For DR NOAMP only:* Input value "**8**" into "**WAN Replication Connection Count**".	
11. ☐	**Active NOAMP VIP:** By clicking **Info** the user should be presented with a banner information message stating **"Pre-Validation passed"**. Select the **"Apply"** dialogue button.	
12. ☐	**Active NOAMP VIP:** The user should be presented with a banner information message stating **"Data committed"**.	

Procedure 9: OAM Pairing for SOAM and DR Sites (All SOAM and DR sites)

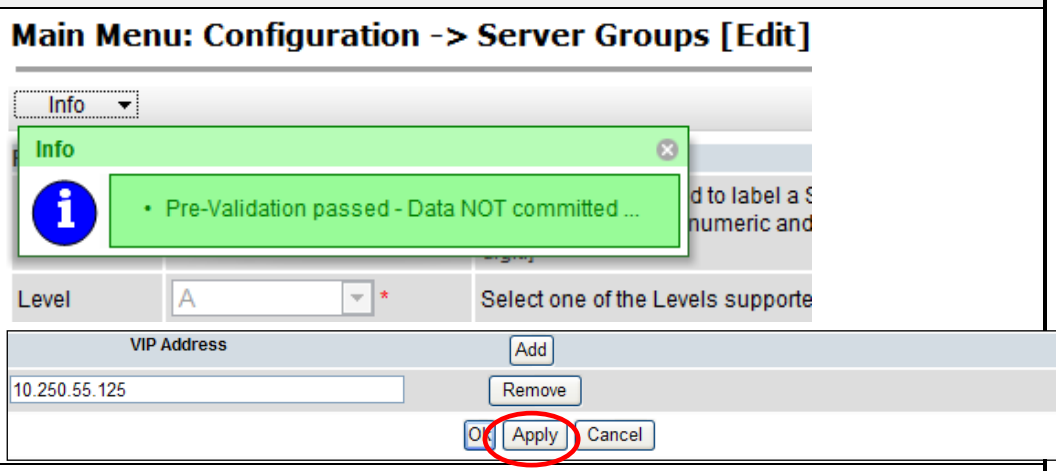
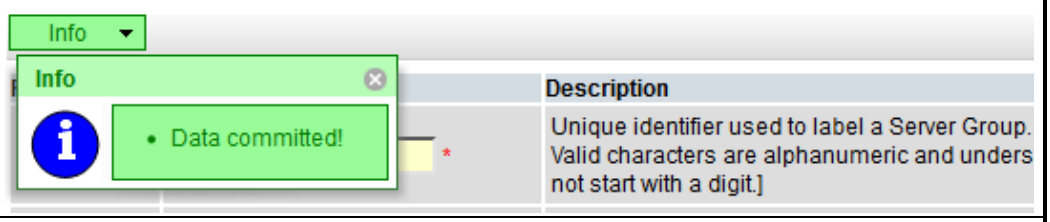
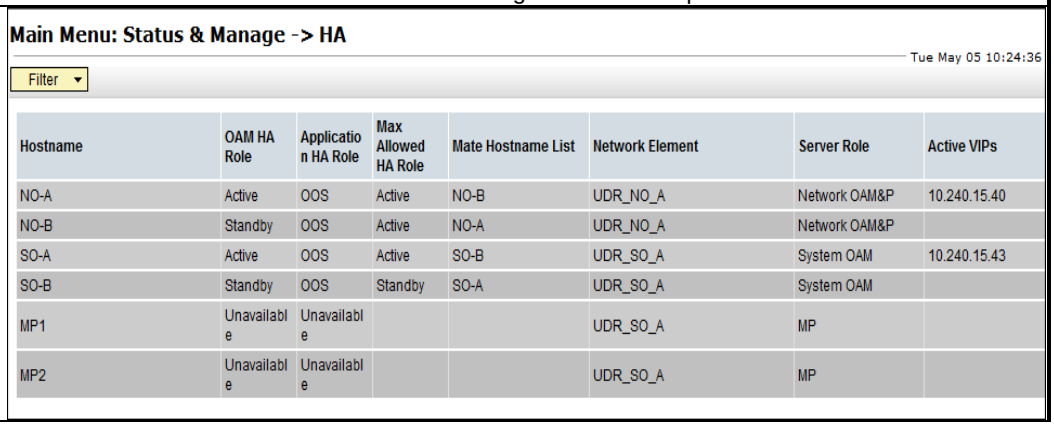
Step	Procedure	Result
13. ☐	**Active NOAMP VIP:** Select… **Main Menu** → **Configuration** → ***Server Groups*** …as shown on the right. Note: **Server Group** entry should be shown on the **"Server Groups"** configuration screen as shown on the right.	
14. ☐	**Active NOAMP VIP:** **1)** Select the **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.*	
15. ☐	**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: 

Procedure 9: OAM Pairing for SOAM and DR Sites (All SOAM and DR sites)

Step	Procedure	Result
16. ☐	**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.
17. ☐	**Active NOAMP VIP:** By clicking **Info** the user should be presented with a banner information message stating **"Pre-Validation passed"**. Select the **"Apply"** dialogue button.	
18. ☐	**Active NOAMP VIP:** The user should be presented with a banner information message stating **"Data committed"**.	
19. ☐	**Active NOAMP VIP:** Click the **"Add"** dialogue button for the **VIP Address**.	
20. ☐	**Active NOAMP VIP:** Input the **VIP Address**	

1

Procedure 9: OAM Pairing for SOAM and DR Sites (All SOAM and DR sites)

Step	Procedure	Result
21. ☐	**Active NOAMP VIP:** By clicking **Info** the user should be presented with a banner information message stating **"Pre-Validation passed"**. Select the **"Apply"** dialogue button.	
22. ☐	**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.]
23. ☐	**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 Configurations do not establish master/slave relationship for High Availability (HA). Allow a minimum of **5 minutes** before continuing to the next Step.
24. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *HA*** …as shown on the right.	 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 | Active | OOS | Active | SO-B | UDR_SO_A | System OAM | 10.240.15.43 SO-B | Standby | OOS | Standby | SO-A | UDR_SO_A | System OAM | MP1 | Unavailable | Unavailable | | | UDR_SO_A | MP | MP2 | Unavailable | Unavailable | | | UDR_SO_A | MP |

Procedure 9: OAM Pairing for SOAM and DR Sites (All SOAM and DR sites)

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>25.

☐</td><td>Active NOAMP VIP:

<u>Note:</u>

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

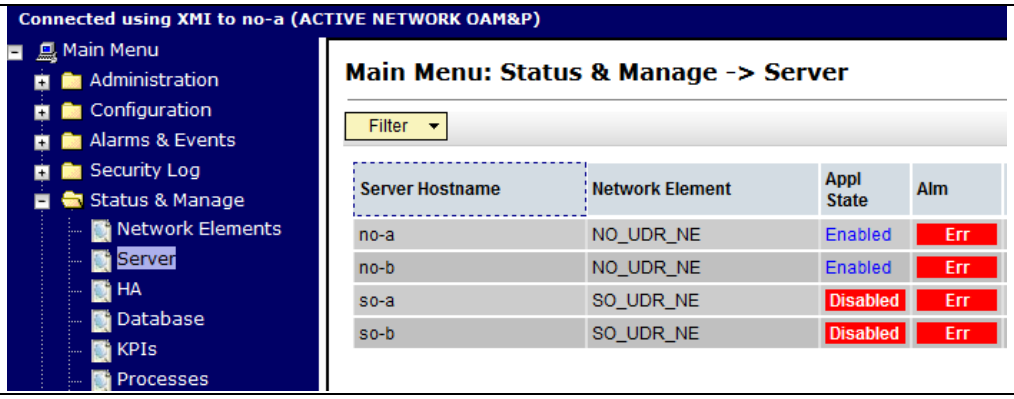
SOAM server(s) will have OAM MAX HA Role of Active or Standby and an Active VIP.</td><td>Normal or Low Capacity Configuration:
<table><tr><th>Hostname</th><th>OAM Max HA Role</th><th>Application Max HA Role</th><th>Max Allowed HA Role</th><th>Mate Hostname List</th><th>Network Element</th><th>Server 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></td></tr>
<tr><td>26.

☐</td><td>Active NOAMP VIP:

Restarting the OAM Server Application

Select…

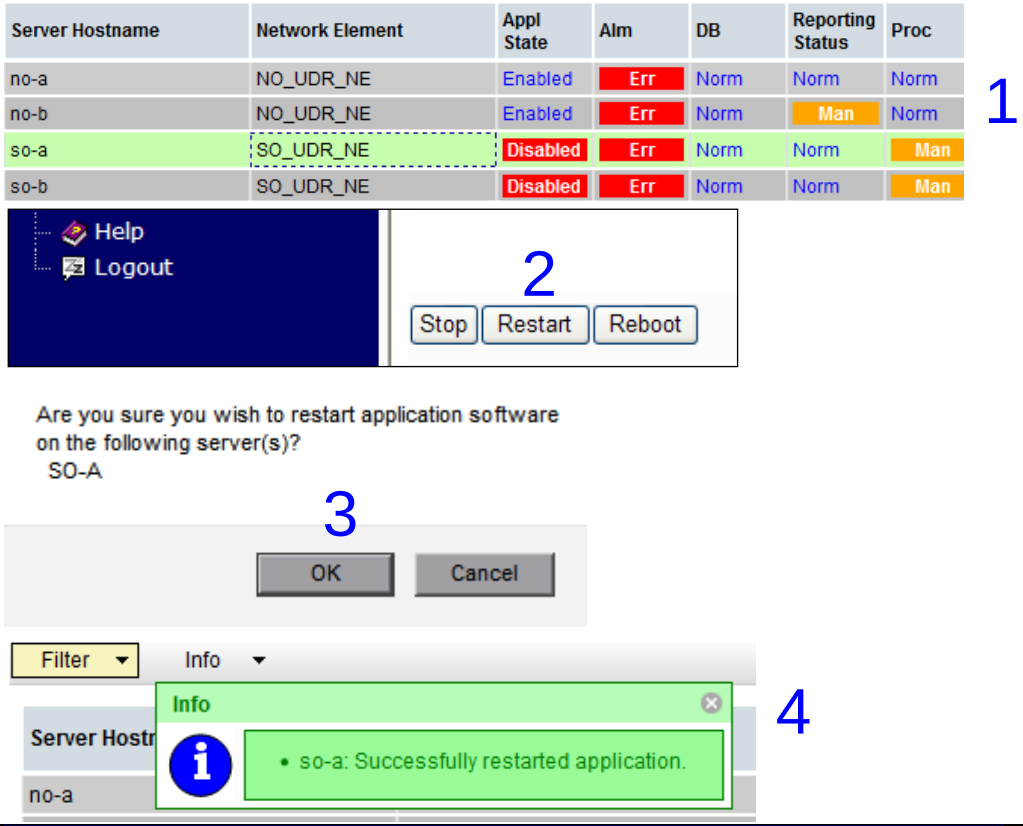
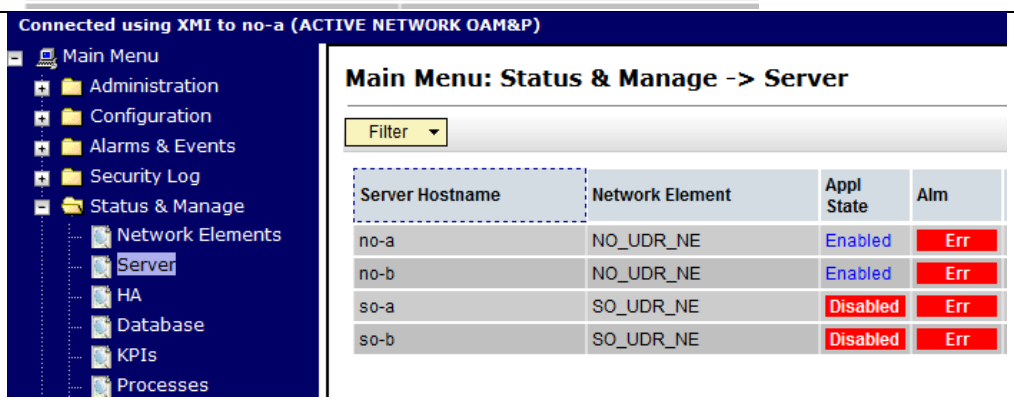
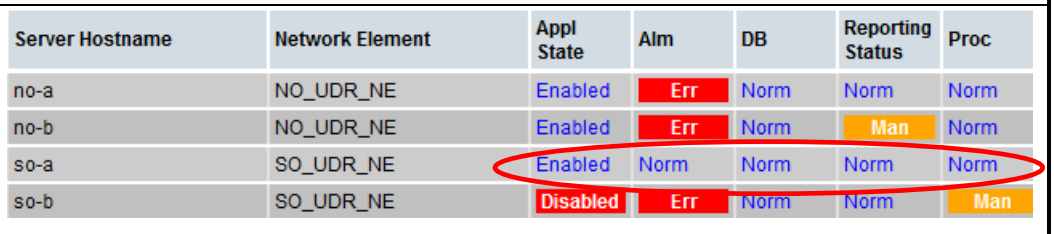
<u>Main Menu</u>
→ Status & Manage
→ Server

…as shown on the right.</td><td> 
</td></tr>
<tr><td>27.

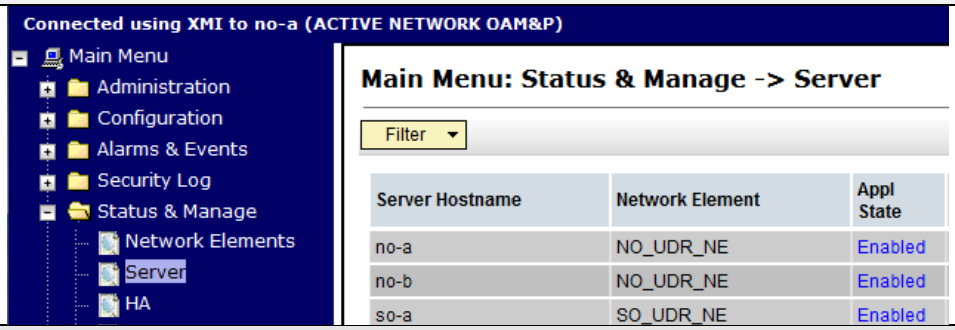
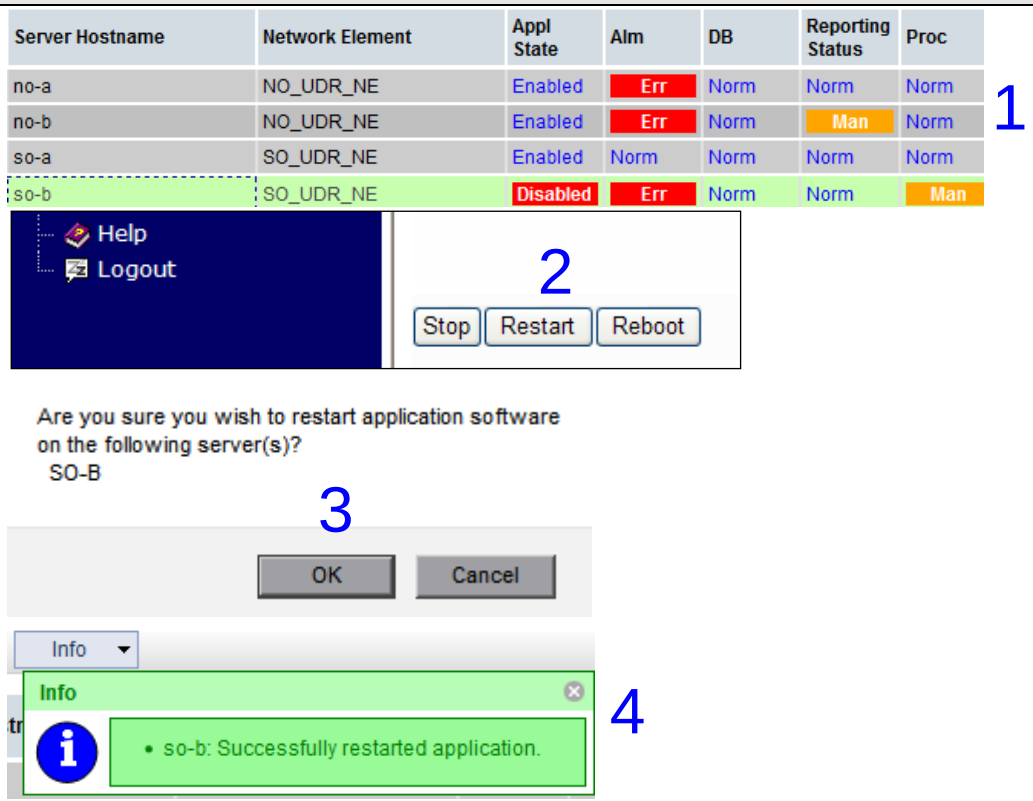
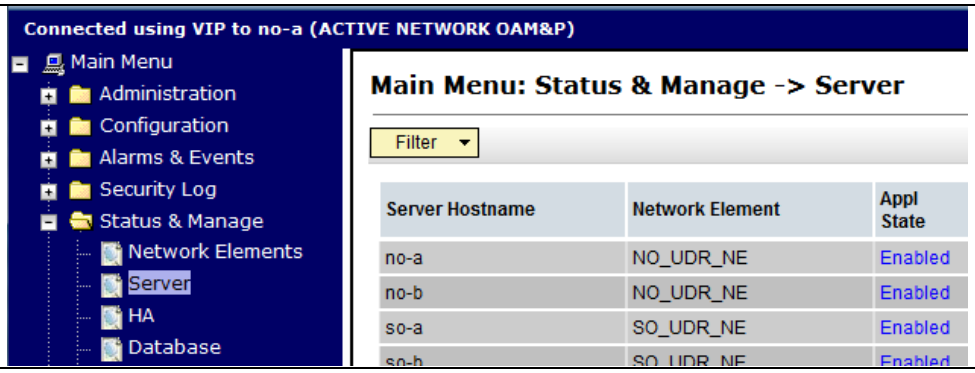
☐</td><td>Active NOAMP VIP:
1) The “A” and “B” servers should now appear in the right panel. (Only “A” for single server installs)

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)</td><td>Normal or Low Capacity Configuration:
<table><tr><th>Network Element</th><th>Server Hostname</th><th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr><tr><td>SO_UDR</td><td>pc9000722-so-b</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr><tr><td>SO_UDR</td><td>pc9000720-so-a</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr></table>
Single Server Configuration:
<table><tr><th>Network Element</th><th>Server Hostname</th><th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr><tr><td>NO_UDR</td><td>pc9000724-no-a</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>SO_UDR</td><td>pc9000720-so-a</td><td>Disabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Man</td></tr></table></td></tr>
</table>

Procedure 9: OAM Pairing for SOAM and DR Sites (All SOAM and DR sites)

Step	Procedure	Result
28. ☐	**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: 
29. ☐	**Active NOAMP VIP:** Select… **<u>Main Menu</u>** **→ Status & Manage** **→ *Server*** …as shown on the right.	
30. ☐	**Active NOAMP VIP:** Verify that the **"Appl State"** now shows **"Enabled"** and that the **"Alm, DB, Reporting Status & Proc"** 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.*

Procedure 9: OAM Pairing for SOAM and DR Sites (All SOAM and DR sites)

Step	Procedure	Result
31. ☐	**Active NOAMP VIP:** Select… **<u>Main Menu</u>** **→ Status & Manage** **→ *Server*** …as shown on the right.	
Perform steps 32 – 35 for multiple server configurations only (not single server).		
32. ☐	**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.*	
33. ☐	**Active NOAMP VIP:** Select… **<u>Main Menu</u>** **→ Status & Manage** **→ *Server*** …as shown on the right.	

Procedure 9: OAM Pairing for SOAM and DR Sites (All SOAM and DR sites)

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>34.

☐</td><td>Active NOAMP VIP:
Verify that the “Appl State” now shows “Enabled” and that the “Alm, DB, Reporting Status & Proc” columns all show “Norm” for Server B before proceeding to the next Step.</td><td>
<table>
<tr><th>Server Hostname</th><th>Network Element</th><th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr>
<tr><td>no-a</td><td>NO_UDR_NE</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr>
<tr><td>no-b</td><td>NO_UDR_NE</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Man</td><td>Norm</td></tr>
<tr><td>so-a</td><td>SO_UDR_NE</td><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr>
<tr><td>so-b</td><td>SO_UDR_NE</td><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr>
</table>
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.
</td></tr>
<tr><td colspan="3">Repeat all steps above for each DR NOAMP and SOAM site being installed.</td></tr>
<tr><td>35.

☐</td><td>Active NOAMP VIP:
For Primary NOAMP Standby server only:
Move the server back to ‘Active’

<u>Main Menu</u>
→ Status & Manage
→ HA[Edit]

Find the row for the Primary NOAMP Standby server and change “Max Allowed HA Role” back to “Active”.</td><td>
Main Menu: Status & Manage -> HA [Edit]
<table>
<tr><th>Hostname</th><th>Max Allowed HA Role</th><th>Description</th></tr>
<tr><td>NO-A</td><td>Active</td><td>The maximum desired HA Role for NO-A</td></tr>
<tr><td>NO-B</td><td>Active</td><td>The maximum desired HA Role for NO-B</td></tr>
<tr><td>SO-A</td><td>Active</td><td>The maximum desired HA Role for SO-A</td></tr>
<tr><td>SO-B</td><td>Active</td><td>The maximum desired HA Role for SO-B</td></tr>
</table>
Ok Cancel
</td></tr>
<tr><td>36.

☐</td><td>Active NOAMP VIP:
Click the “Logout” link on the server GUI.</td><td>
Welcome guiadmin [Logout]
Help
Fri Nov 18 14:43:32 2011 UTC
</td></tr>
<tr><td colspan="3">THIS PROCEDURE HAS BEEN COMPLETED</td></tr>
</table>

6.3 OAM Pairing for 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.

Requirements:

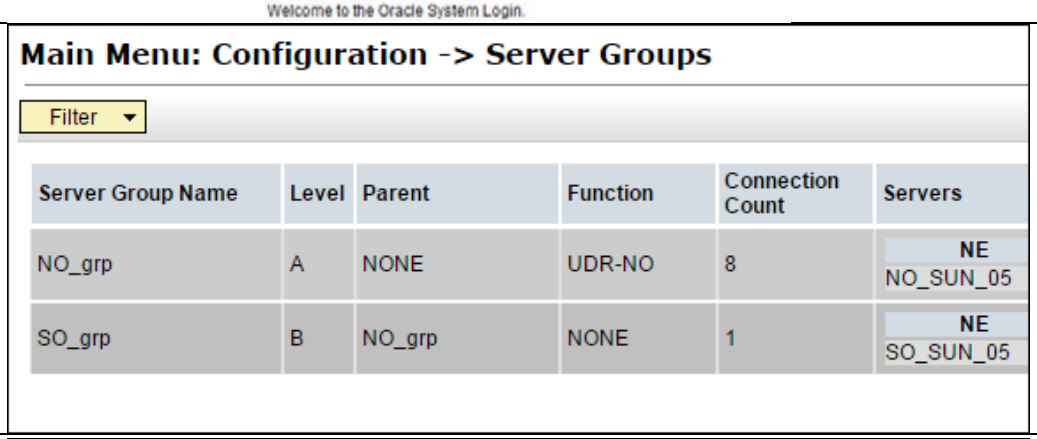
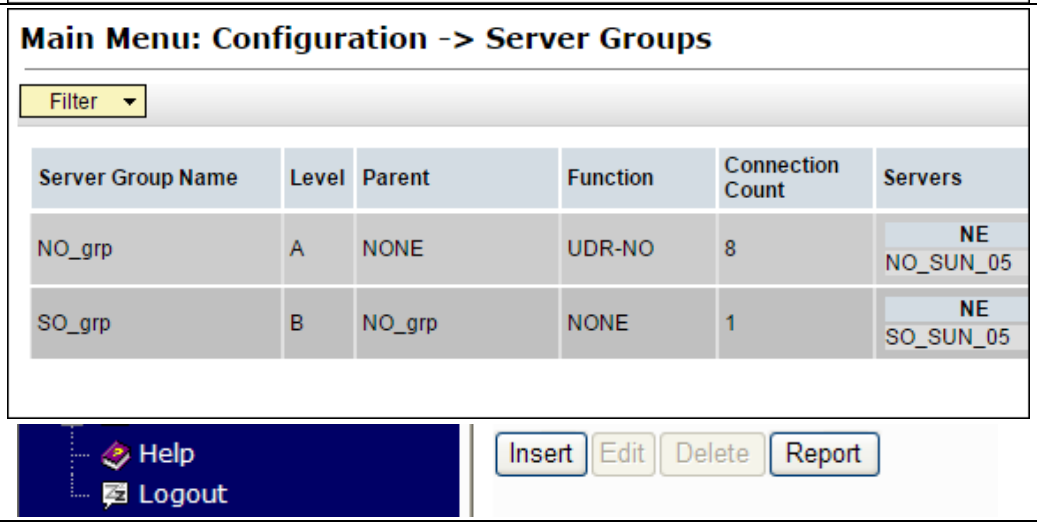
- **Section 6.2 OAM Pairing for SOAM and DR Sites (All SOAM and DR sites)** has been completed

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

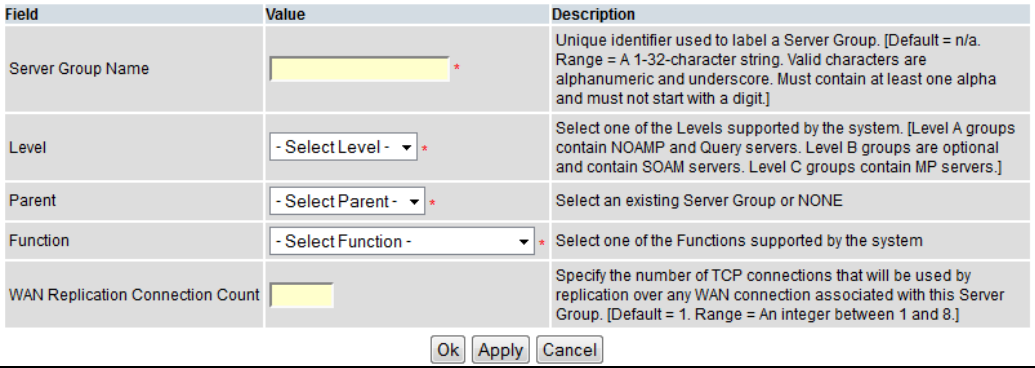
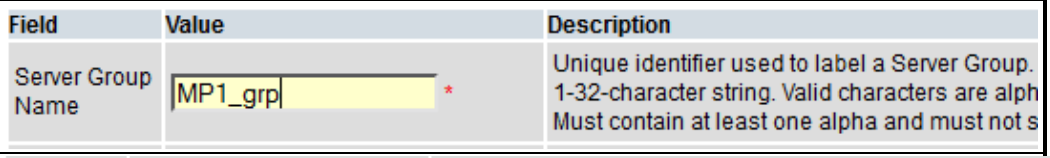
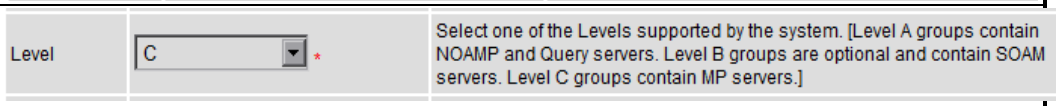
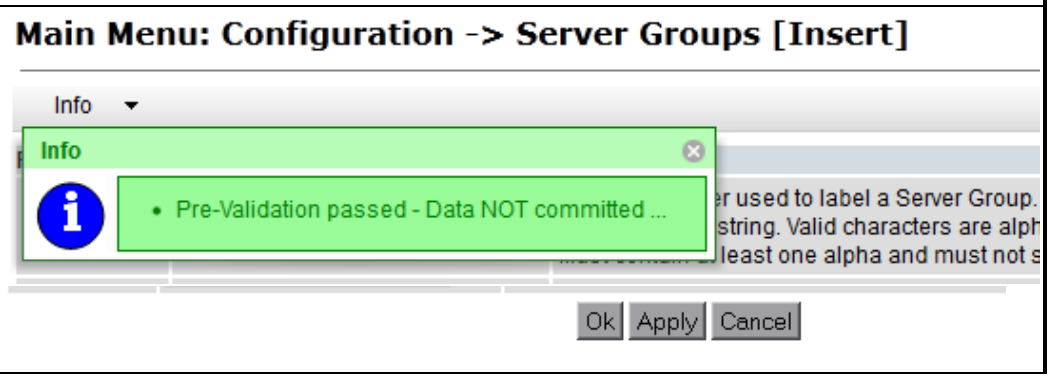
Procedure 10: OAM Pairing for MP Server Groups (All SOAM sites)

Step	Procedure	Result

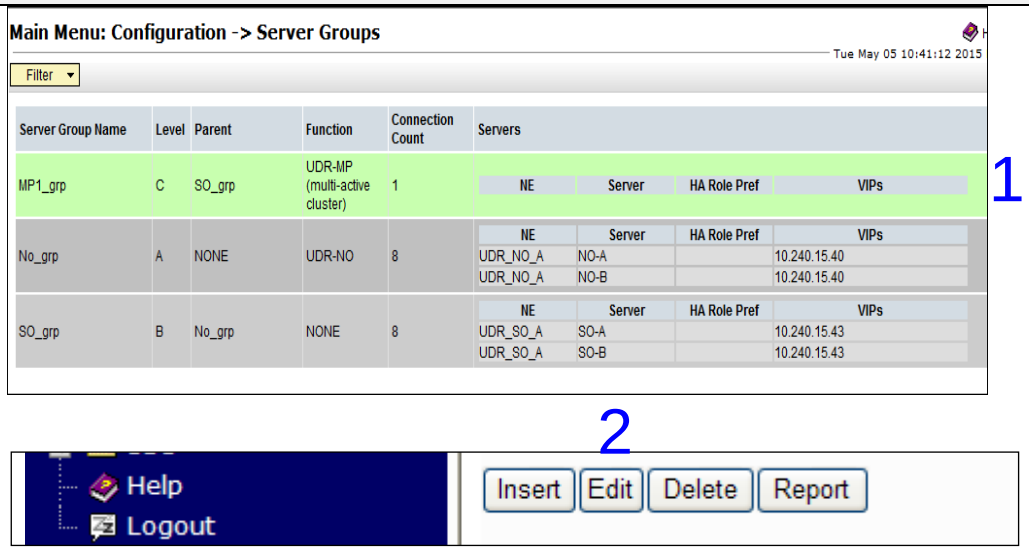
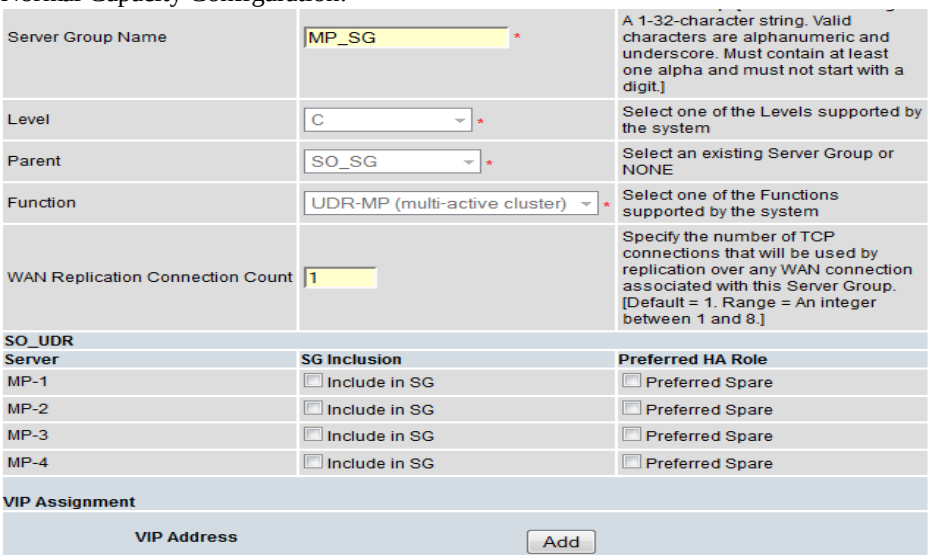
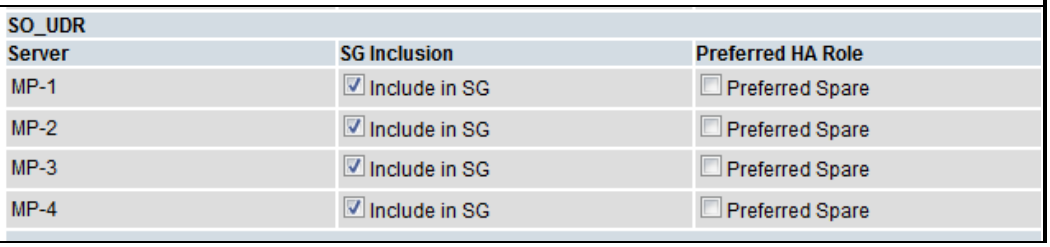
Procedure 10: OAM Pairing for MP Server Groups (All SOAM sites)

Step	Procedure	Result
1. ☐	**Active NOAMP VIP:** Launch an approved web browser and connect to the NOAMP Server A IP address **NOTE:** Choose **"Continue to this website (not recommended)"** if presented with the "security certificate" warning. **Login** to the GUI using the default user and password.	
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** → **Configuration** → ***Server Groups*** …as shown on the right.	
3. ☐	**Active NOAMP VIP:** Click 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.*	

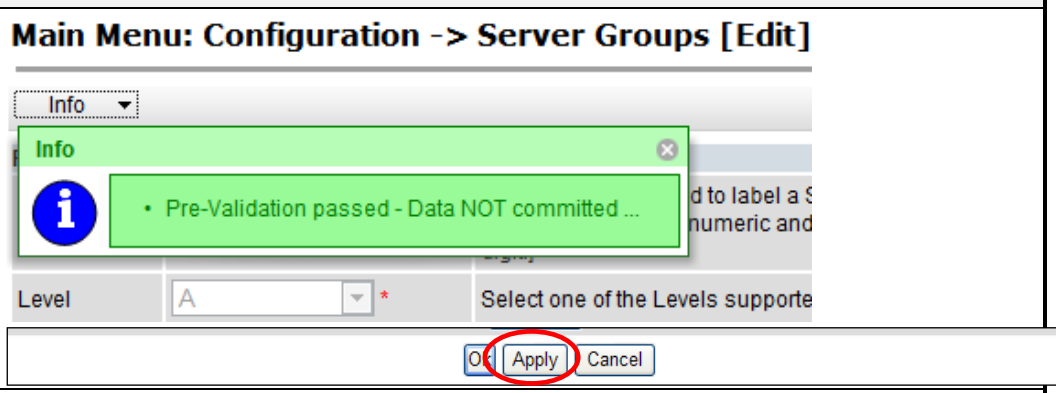
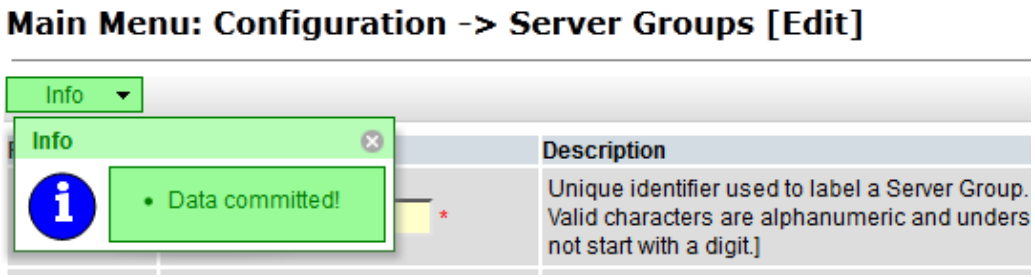
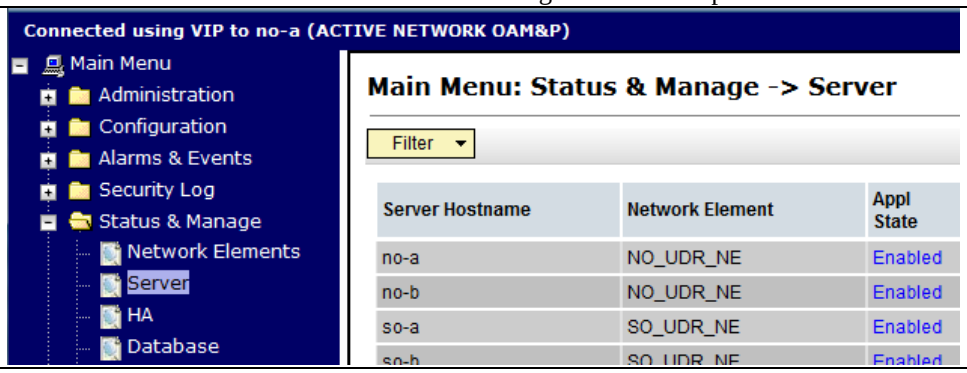
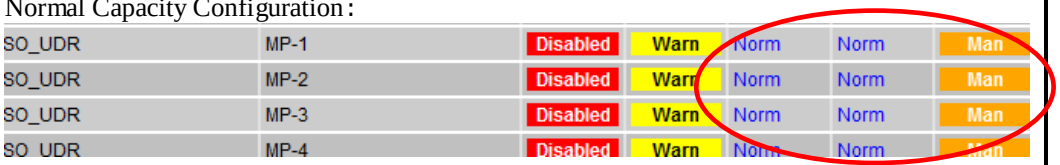
Procedure 10: OAM Pairing for MP Server Groups (All SOAM sites)

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** The user will be presented with the **"Server Groups [Insert]"** screen as shown on the right	
5. ☐	**Active NOAMP VIP:** Input the **Server Group Name**.	
6. ☐	**Active NOAMP VIP:** Select **"C"** on the **"Level"** pull-down menu..	
7. ☐	**Active NOAMP VIP:** Select the desired SOAM server group on the **"Parent"** pull-down menu.	
8. ☐	**Active NOAMP VIP:** Select "**UDR-MP (multi-active cluster)**" on the "**Function**" pull-down menu.	
9. ☐	**Active NOAMP VIP:** By clicking **Info** the user should be presented with a banner information message stating **"Pre-Validation passed"**. Select the **"OK"** dialogue button.	

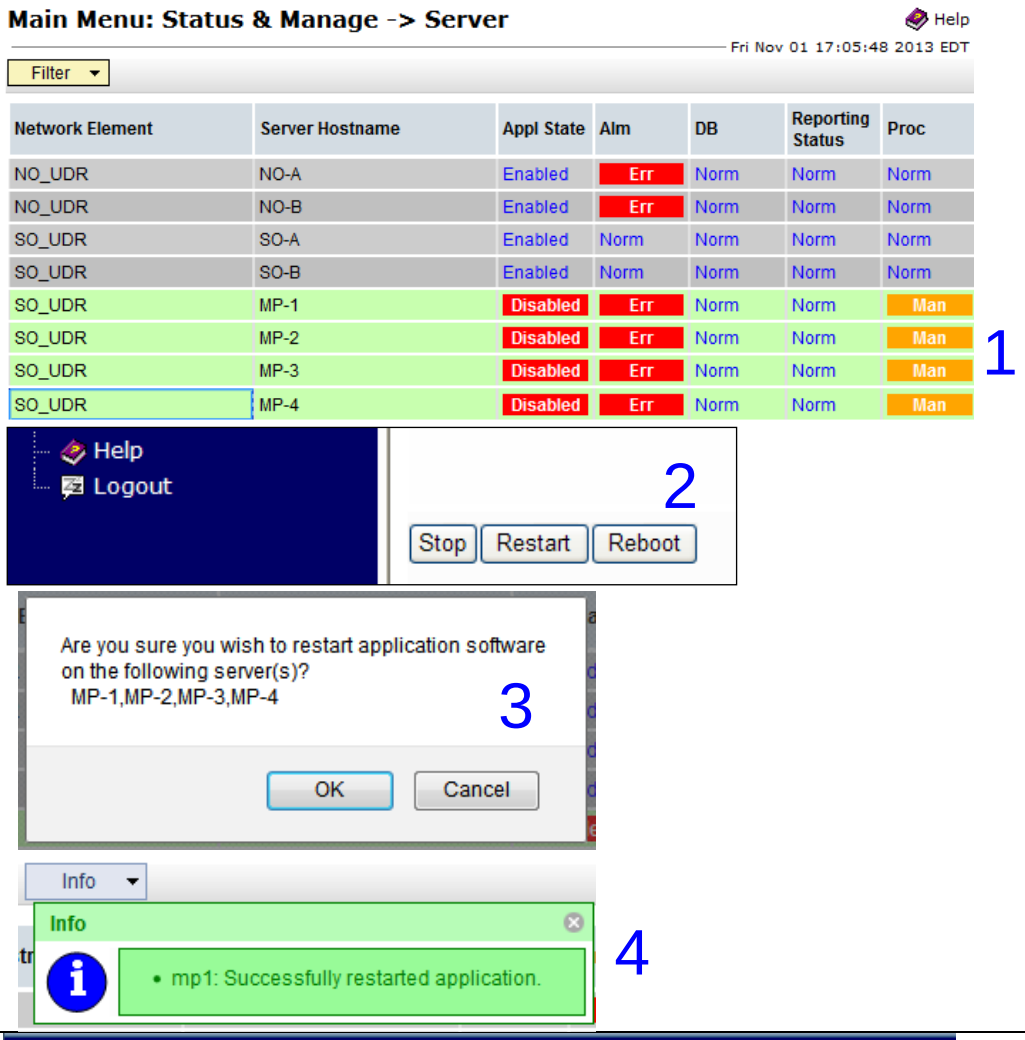
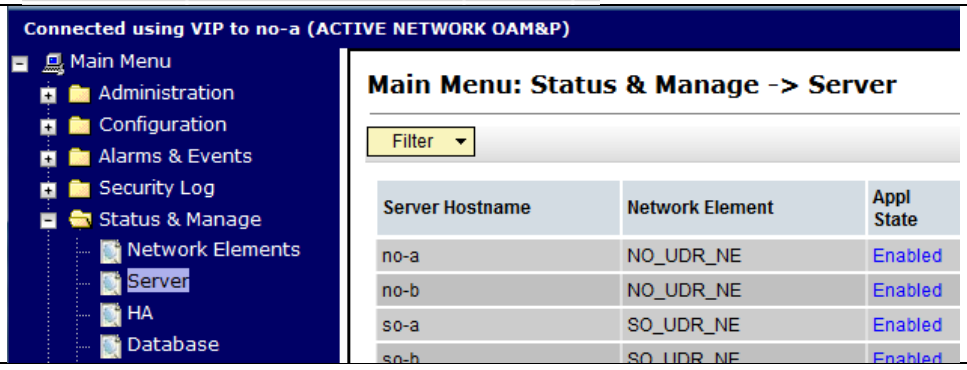
Procedure 10: OAM Pairing for MP Server Groups (All SOAM sites)

Step	Procedure	Result
10. ☐	**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.	
11. ☐	**Active NOAMP VIP:** The user will be presented with the **"Configuration → Server Groups [Edit]"** screen as shown on the right	Normal Capacity Configuration: 
12. ☐	**Active NOAMP VIP:** Put a check mark in the box labeled **"Include in SG"** for each MP to be included in this Server Group.	

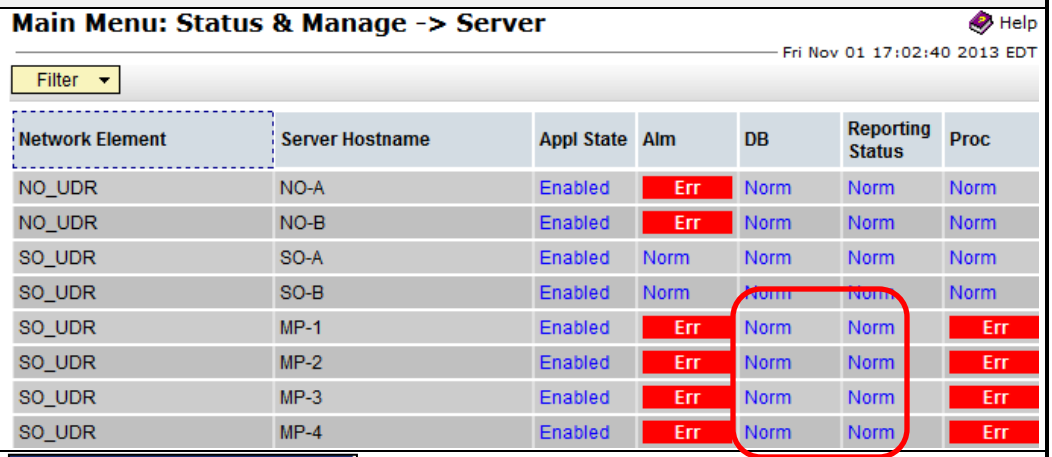
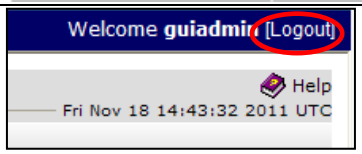
Procedure 10: OAM Pairing for MP Server Groups (All SOAM sites)

Step	Procedure	Result
13. ☐	**Active NOAMP VIP:** By clicking **Info** the user should be presented with a banner information message stating **"Pre-Validation passed"**. Select the **"Apply"** dialogue button.	
14. ☐	**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.]
15. ☐	**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 7.2 Configure SPR Application on MP **(All SOAM Sites)** is completed. Allow a minimum of **5 minutes** before continuing to the next Step.
16. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *Server*** …as shown on the right.	
17. ☐	**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: 

Procedure 10: OAM Pairing for MP Server Groups (All SOAM sites)

Step	Procedure	Result
18. ☐	**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.	
19. ☐	**Active NOAMP VIP:** Select… **<u>Main Menu</u>** **→ Status & Manage** **→ *Server*** …as shown on the right.	

Procedure 10: OAM Pairing for MP Server Groups (All SOAM sites)

Step	Procedure	Result
20. ☐	**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.	
21. ☐	**Active NOAMP VIP:** Click the **"Logout"** link on the server GUI.	
THIS PROCEDURE HAS BEEN COMPLETED		

7.0 APPLICATION CONFIGURATION

7.1 Configure Signaling Routes

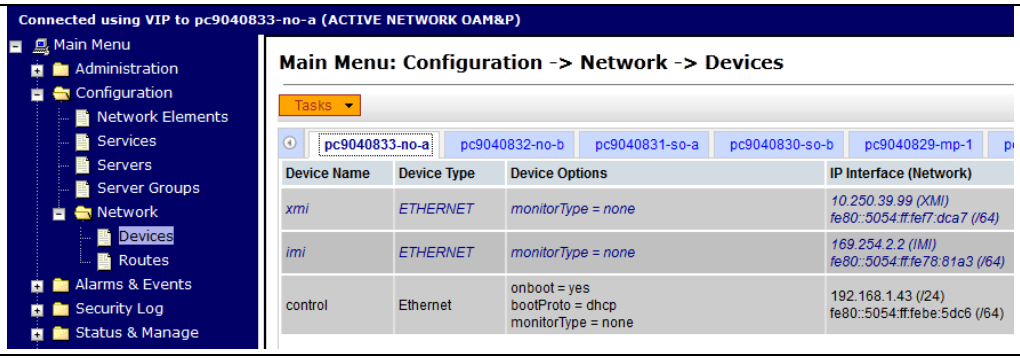
This procedure configures the XSI signaling route for all MP Servers.

Requirements:

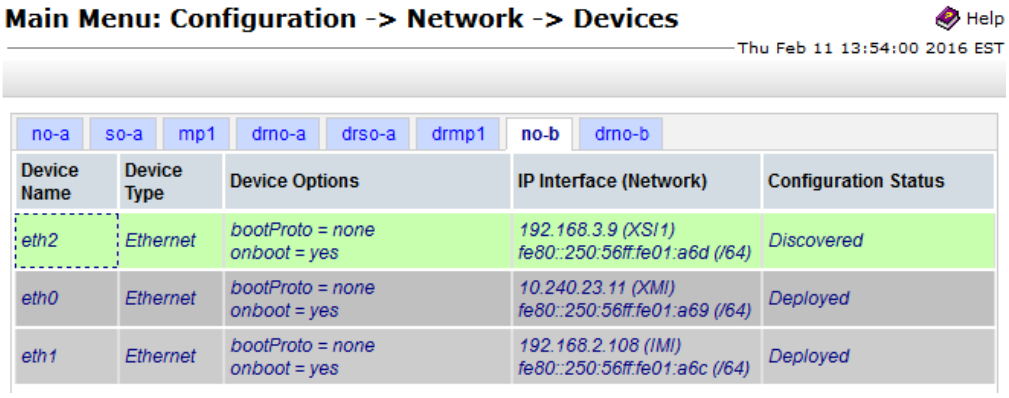
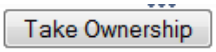
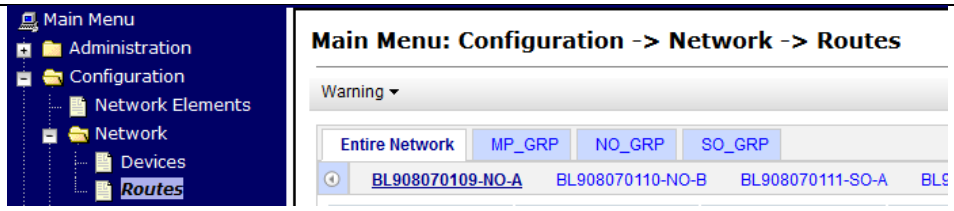
- **Section 6.0 OAM Pairing** has been completed

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

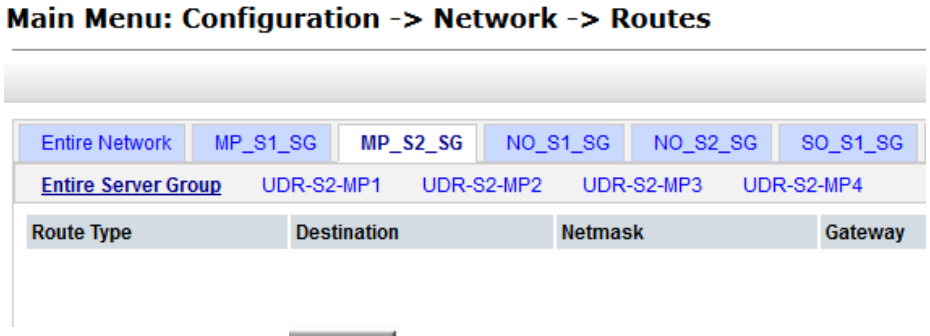
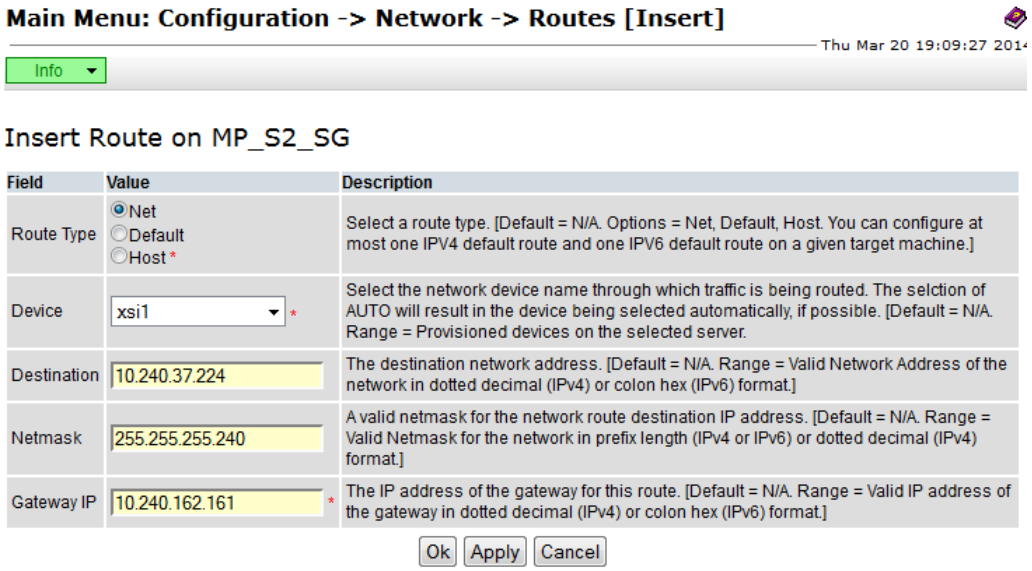
Procedure 11: Configure Signaling Routes

Step	Procedure	Result
1. ☐	**Active NOAMP VIP:** Launch an approved web browser and connect to the NOAMP Server A IP address **NOTE:** Choose **"Continue to this website (not recommended)"** if presented with the "security certificate" warning. **Login** to the GUI using the default user and password.	
2. ☐	**Active NOAMP VIP** Select… **Main Menu** **→ Configuration** ***→Network*** ***→Devices*** …as shown on the right.	

Procedure 11: Configure Signaling Routes

Step	Procedure	Result
3. ☐	**Active NOAMP VIP** Select the xsi device for the desired MP	Click on the desired **MP** tab. Select the **eth2** or **eth3** device. Output similar to that shown below may be observed.  • **"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-1) ☐ MP-2(XSI-1) ☐ MP-3(XSI-2) ☐ MP-4(XSI-2)
4. ☐	**Active NOAMP VIP** Take ownership of the xsi device for the desired MP	Click on the **Take Ownership** 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-1) ☐ MP-2(XSI-1) ☐ MP-3(XSI-2) ☐ MP-4(XSI-2)
5. ☐	**Active NOAMP VIP:** Select… **Main Menu** → **Configuration** → ***Network*** → ***Routes*** …as shown on the right.	

Procedure 11: Configure Signaling Routes

Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** Insert a new route for the MP server group.	Click on the desired **MP 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 ☐ XSI-2
7. ☐	**Active NOAMP VIP:** Add xsi signaling route to MP	Output similar to that shown below may be observed.  Set **Route Type** to desired value Set **Device** to the appropriate signaling device name (**eth2** or **eth3**) Enter **Destination:** This is the network address of the Diameter Sh clients that will connect to UDR on the signaling network. Enter **Netmask** for the Diameter Sh client network. Enter **Gateway IP** : This is the gateway for UDR's signaling network Click **Apply** button **"Check off"** the associated **Check Box** as addition is completed for each **Network**. ☐ XSI-1 (eth2) ☐ XSI-2 (eth3)

Procedure 11: Configure Signaling Routes

Step	Procedure	Result
8. ☐	Repeat the steps above for each signaling network.	
9. ☐	**Active NOAMP VIP:** Click the **"Logout"** link on the server GUI.	
THIS PROCEDURE HAS BEEN COMPLETED		

7.2 Configure SPR Application on MP (All SOAM Sites)

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

Requirements:

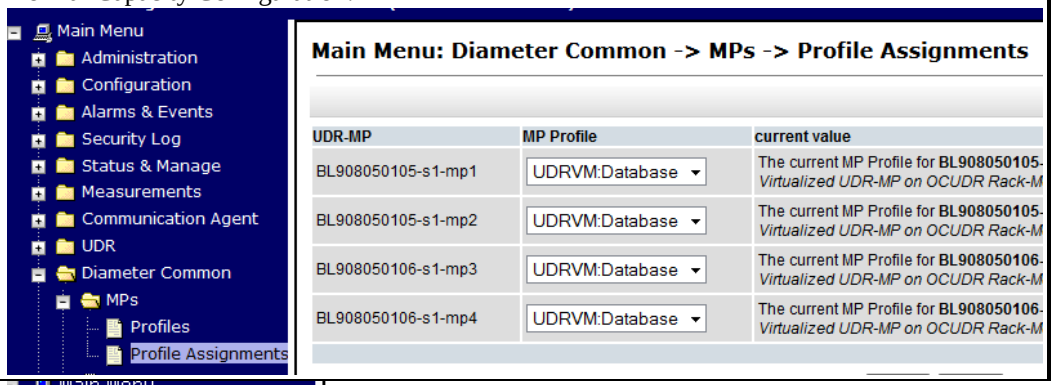
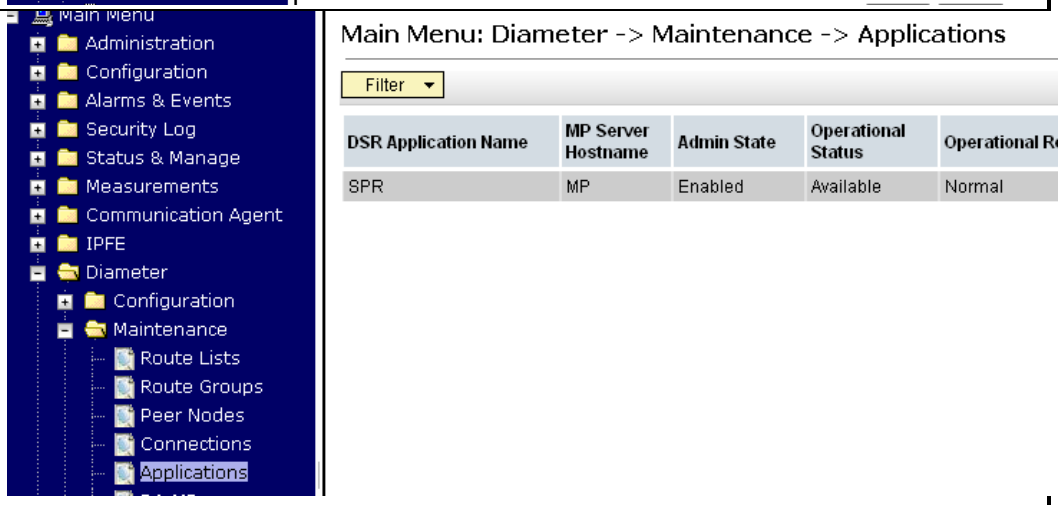
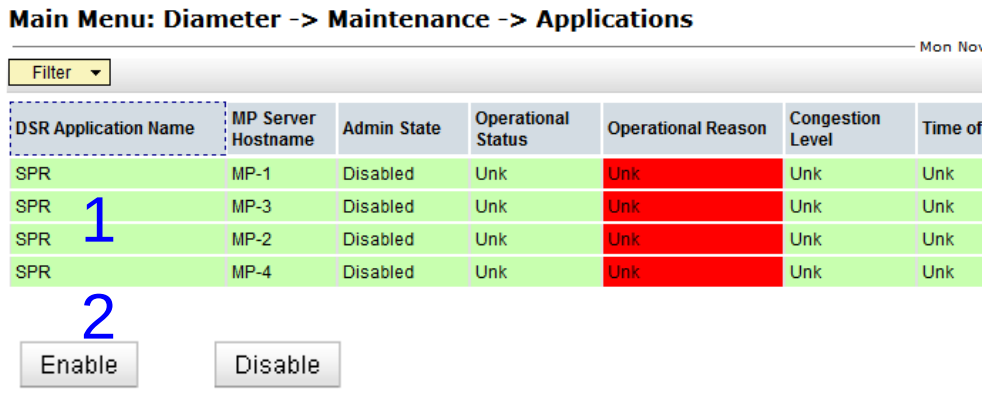
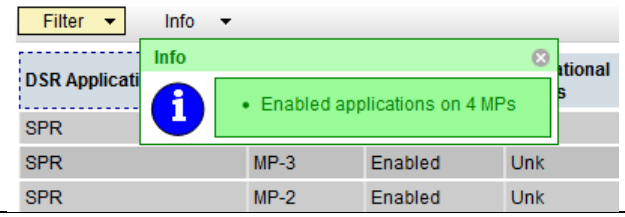
- **Section 7.1 Configure Signaling Routes** has been completed

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

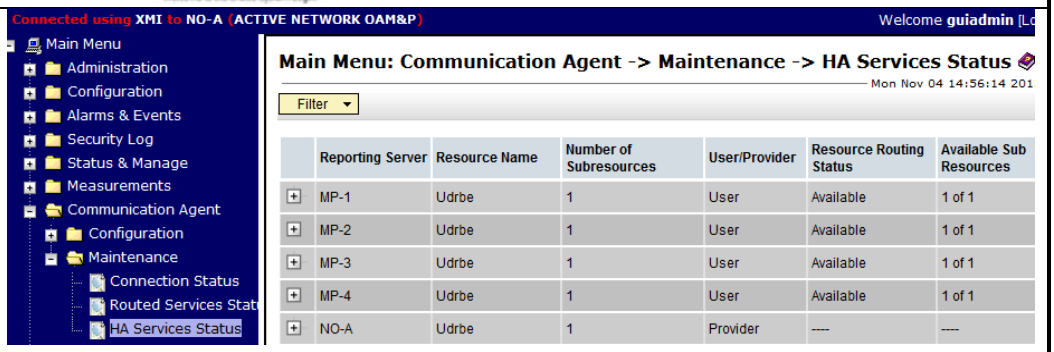
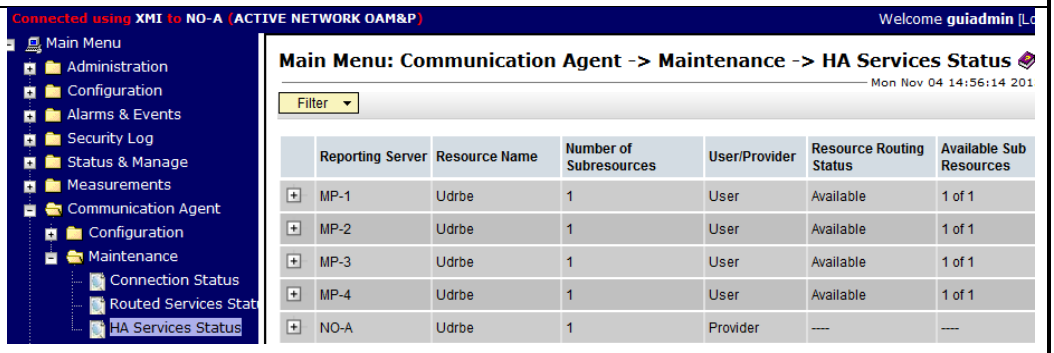
Procedure 12: Configure SPR Application on MP (All SOAM Sites)

Step	Procedure	Result
1. ☐	**SOAM VIP:** Launch an approved web browser and connect to the NOAMP Server A IP address **NOTE:** Choose **"Continue to this website (not recommended)"** if presented with the "security certificate" warning. **Login** to the GUI using the default user and password.	

Procedure 12: Configure SPR Application on MP (All SOAM Sites)

Step	Procedure	Result
2. ☐	**SOAM VIP:** Select… **Main Menu** → ***Diamter Common*** → ***MPs*** → ***Profile Assignments*** Select profile as **UDRVM:Database** and click on **Assign**	Normal Capacity Configuration: 
3. ☐	**SOAM VIP:** Select… **Main Menu** → ***Diameter*** → ***Maintenance*** → ***Applications*** …as shown on the right.	
4. ☐	**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	
5. ☐	**SOAM VIP:** The user should be presented with a banner information message stating **"Enabled application"**.	

Procedure 12: Configure SPR Application on MP (All SOAM Sites)

Step	Procedure	Result
6. ☐	**SOAM VIP:** Click the **"Logout"** link on the server GUI.	
7. ☐	**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.	
8. ☐	**Active NOAMP VIP:** Verify service appears on NOAMP GUI page Select… **Main Menu** → **Communication Agent** → ***Maintenance*** → ***HA Services Status*** …as shown on the right.	
9. ☐	**Active NOAMP VIP:** Verify service appears on NOAMP GUI page Select… **Main Menu** → **Communication Agent** → ***Maintenance*** → ***HA Services Status*** …as shown on the right.	
10. ☐	**Active NOAMP VIP:** Click the **"Logout"** link on the server GUI.	
THIS PROCEDURE HAS BEEN COMPLETED		

7.3 Configure NOAMP Signaling Routes (All NOAM Sites)

This procedure configures the XSI signaling route for the NOAMP and DR NOAMP Server Groups.

Requirements:

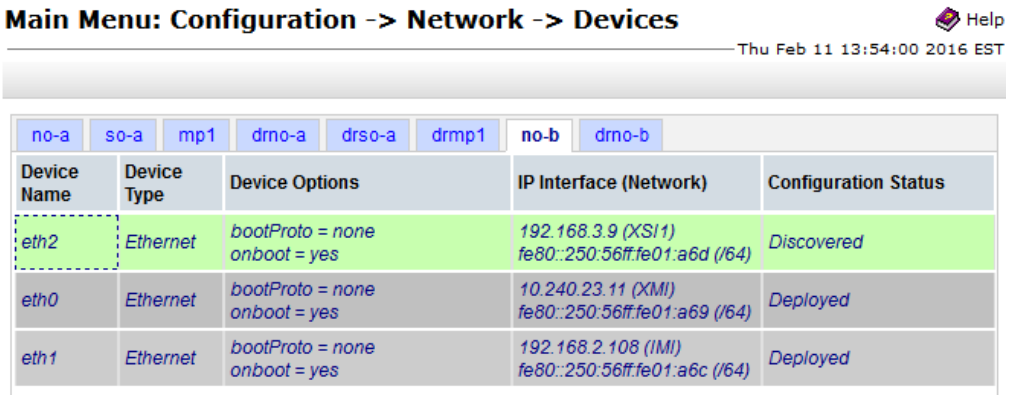
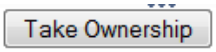
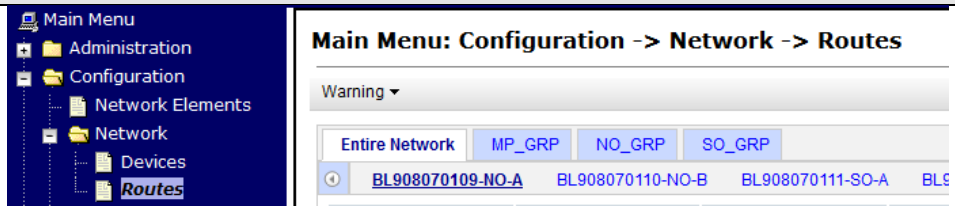
- **Section 7.2 Configure SPR Application on MP (All SOAM Sites)** has been completed

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

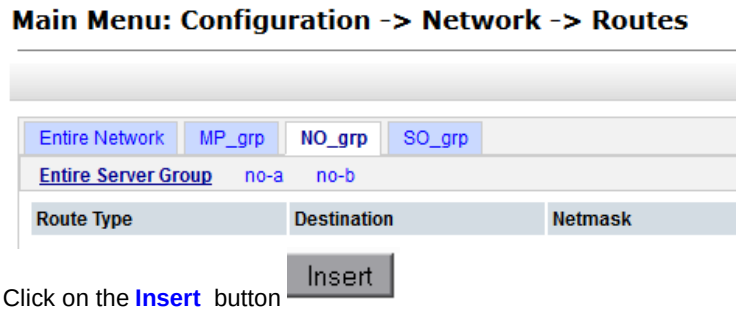
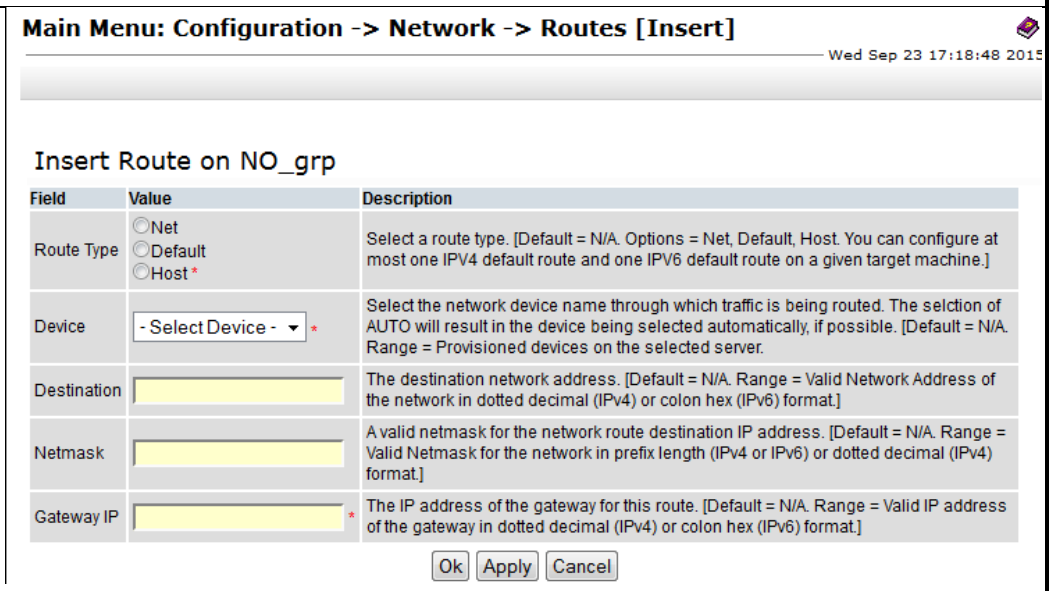
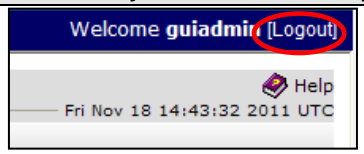
Procedure 13: Configure NOAMP Signaling Routes (All NOAM Sites)

Step	Procedure	Result
1. ☐	**Active NOAMP VIP:** Launch an approved web browser and connect to the NOAMP Server A IP address **NOTE:** Choose **"Continue to this website (not recommended)"** if presented with the "security certificate" warning. **Login** to the GUI using the default user and password.	
2. ☐	**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 13: Configure NOAMP Signaling Routes (All NOAM Sites)

Step	Procedure	Result
3. ☐	**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.  **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A (XSI-1) ☐ NOAMP-B (XSI-1)
4. ☐	**Active NOAMP VIP** Edit the xsi device for the desired NOAMP	Click on the **Take Ownership** button.  **"Check off"** the associated **Check Box** as addition is completed for each **Server**. ☐ NOAMP-A (XSI-1) ☐ NOAMP-B (XSI-1)
5. ☐	**Active NOAMP VIP** Repeat as required.	Repeat **Steps** 3 **-** 4 for each NOAMP and its Signaling network(s). **NOTE:** Steps 6 - 8 are only needed for geo-redundant systems.
6. ☐	**Active NOAMP VIP:** Select… **Main Menu** → **Configuration** → ***Network*** → ***Routes*** …as shown on the right.	

Procedure 13: Configure NOAMP Signaling Routes (All NOAM Sites)

Step	Procedure	Result
7. ☐	**Active NOAMP VIP:** Insert a new route for the **NOAMP** or **DR NOAMP** Server group.	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
8. ☐	**Active NOAMP VIP:** Add signaling route	 Set **Route Type** to **Net** Set **Device** to **eth2** Enter **Destination:** This is the network address of the remote MP server group that will connect to UDR NOAMP for ComAgent service, Enter **Netmask** for the remote network. Enter **Gateway IP**: This is the gateway for UDR's signaling network. Click **Apply** button
9. ☐	Repeat **Steps 6 - 8** if MP ⇔ ComAgent communication is intended to be configured on XSI1 . **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.	
10. ☐	**Active NOAMP VIP:** Click the **"Logout"** link on the server GUI.	
THIS PROCEDURE HAS BEEN COMPLETED		

7.4 Configure Services on Signaling Network

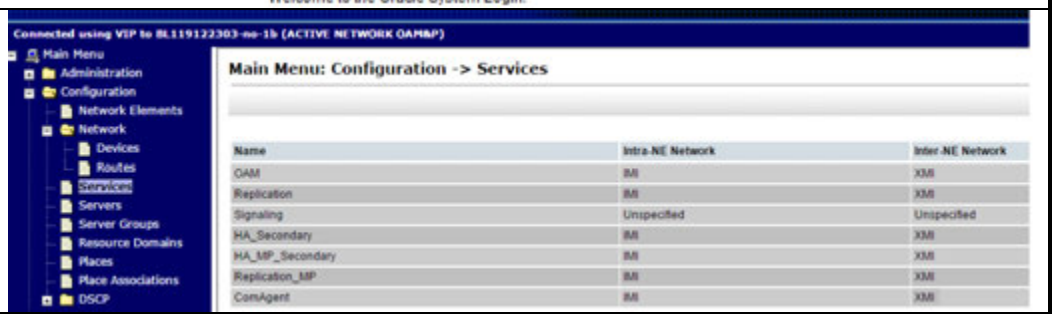
This procedure configures ComAgent communication between NOAMP and MP to use Signaling Network. This procedure also configures dual path HA heartbeat to use the XSI network.

Requirements:

- **Section 7.3 Configure NOAMP Signaling Routes (All NOAM Sites)** has been completed

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

Procedure 14: Configure Services on Signaling Network

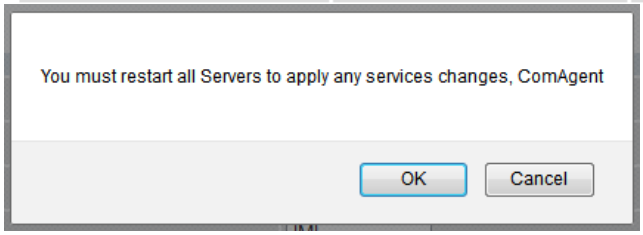
Step	Procedure	Result
1. ☐	**Active NOAMP VIP:** Launch an approved web browser and connect to the NOAMP Server A IP address **NOTE:** Choose **"Continue to this website (not recommended)"** if presented with the "security certificate" warning. **Login** to the GUI using the default user and password.	
2. ☐	**Active NOAMP VIP:** Select… **<u>Main Menu</u>** **→ Configuration** **→ *Services*** …as shown on the right.	

Procedure 14: Configure Services on Signaling Network

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>3.

☐</td><td>Active NOAMP VIP:
1) Set two services values as shown on the right. Inter-NE HA_Secondary → XSI1
Inter-NE ComAgent → XSI1.

2) Select the “Apply” dialogue button.

3) Select the “OK” dialogue button in the popup window.</td><td>
<table>
<tr><th>Name</th><th>Intra-NE Network</th><th>Inter-NE Network</th></tr>
<tr><td>OAM</td><td>IMI</td><td>XMI</td></tr>
<tr><td>Replication</td><td>IMI</td><td>XMI</td></tr>
<tr><td>Signaling</td><td>Unspecified</td><td>Unspecified</td></tr>
<tr><td>HA_Secondary</td><td>IMI</td><td>XSI1</td></tr>
<tr><td>HA_MP_Secondary</td><td>IMI</td><td>XMI</td></tr>
<tr><td>Replication_MP</td><td>IMI</td><td>XMI</td></tr>
<tr><td>ComAgent</td><td>IMI</td><td>XSI1</td></tr>
</table>


NOAMP and MP Servers need to be restarted.</td></tr>
<tr><td>4.

☐</td><td>Active NOAMP VIP:
The user will be presented with the “Services” configuration screen as shown on the right</td><td>
<table>
<tr><th>Name</th><th>Intra-NE Network</th><th>Inter-NE Network</th></tr>
<tr><td>OAM</td><td>IMI</td><td>XMI</td></tr>
<tr><td>Replication</td><td>IMI</td><td>XMI</td></tr>
<tr><td>Signaling</td><td>Unspecified</td><td>Unspecified</td></tr>
<tr><td>HA_Secondary</td><td>IMI</td><td>XSI1</td></tr>
<tr><td>HA_MP_Secondary</td><td>IMI</td><td>XMI</td></tr>
<tr><td>Replication_MP</td><td>IMI</td><td>XMI</td></tr>
<tr><td>ComAgent</td><td>IMI</td><td>XSI1</td></tr>
</table>
</td></tr>
<tr><td>5.

☐</td><td>Restart all NOAMP and MP Servers</td><td># reboot

Note: This should be executed on all NOAMPs and MPs.</td></tr>
<tr><td colspan="3">THIS PROCEDURE HAS BEEN COMPLETED</td></tr>
</table>

7.5 Accept Installation

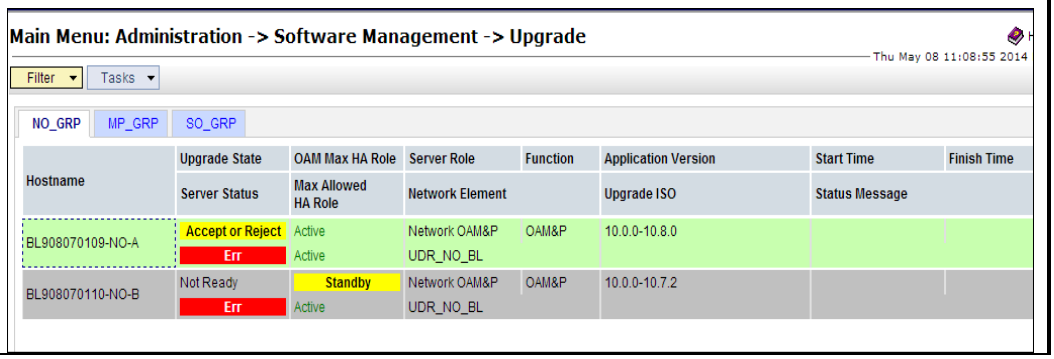
The upgrade needs either to be accepted or rejected before any subsequent upgrades are performed in the future.

The Alarm 32532 (Server Upgrade Pending Accept/Reject) will be displayed for each server until one of these two actions (accept or reject) is performed.

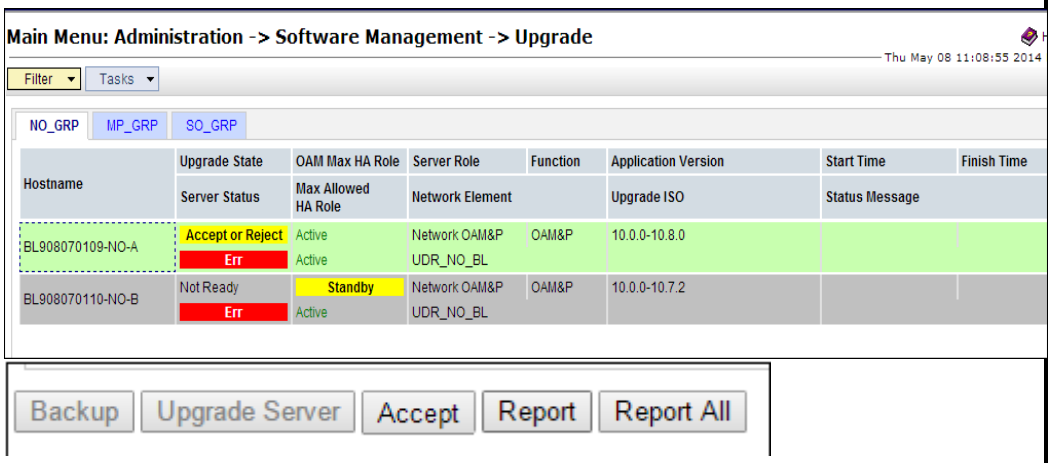
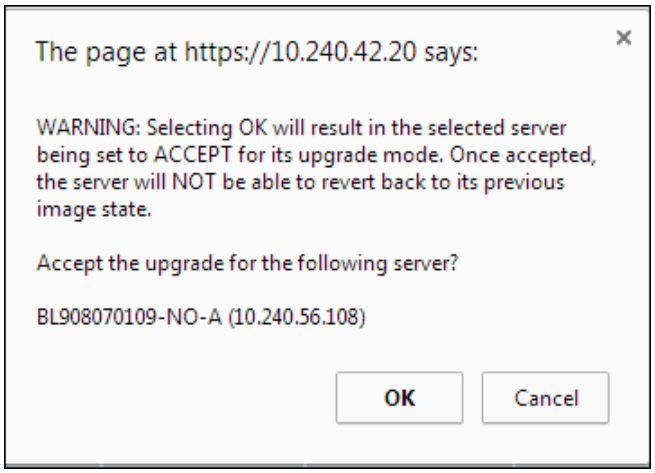
An upgrade should be accepted only after it was determined to be successful as the accept is final. This frees up file storage but prevents a backout from the previous upgrade.

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

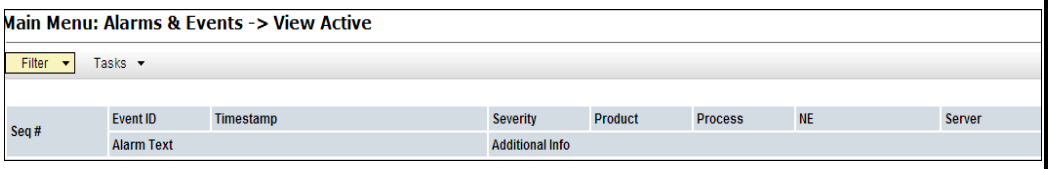
Procedure 15: Accept Installation

Step	Procedure	Result
1. ☐	**Active NOAMP VIP:** Launch an approved web browser and connect to the NOAMP Server A IP address **NOTE:** Choose **"Continue to this website (not recommended)"** if presented with the "security certificate" warning. **Login** to the GUI using the default user and password.	
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** → **Administration** → ***Software Management*** → ***Upgrade*** …as shown on the right.	

Procedure 15: Accept Installation

Step	Procedure	Result
3. ☐	**Active NOAMP VIP (GUI):** Accept upgrade for selected server(s)	Accept upgrade of selected server(s) Select the server on which upgrade is to be accepted. Click the "**Accept**" button  A confirmation dialog will warn that once upgrade is accepted, the servers will not be able to revert back to their previous image states.  Click "**OK**" The Upgrade Administration screen re-displays. A pull-down Info message will indicate the server(s) on which upgrade was accepted.
4. ☐	**Active NOAMP VIP:** Accept upgrade of the rest of the system	Accept Upgrade on all remaining servers in the system: Repeat all sub-steps of step 3 of this procedure on remaining servers until the upgrade of all servers in the User Data Repository system has been accepted. Note: As upgrade is accepted on each server the corresponding Alarm ID **32532** (**Server Upgrade Pending Accept/Reject)** should be removed.

Procedure 15: Accept Installation

Step	Procedure	Result
5. ☐	**Active NOAMP VIP:** Verify accept	Check that alarms are removed: Navigate to this GUI page Alarms & Events > View Active  Verify that Alarm ID **32532** (**Server Upgrade Pending Accept/Reject)** is not displayed under active alarms on User Data Repository system
THIS PROCEDURE HAS BEEN COMPLETED		

8.0 APPENDIXES

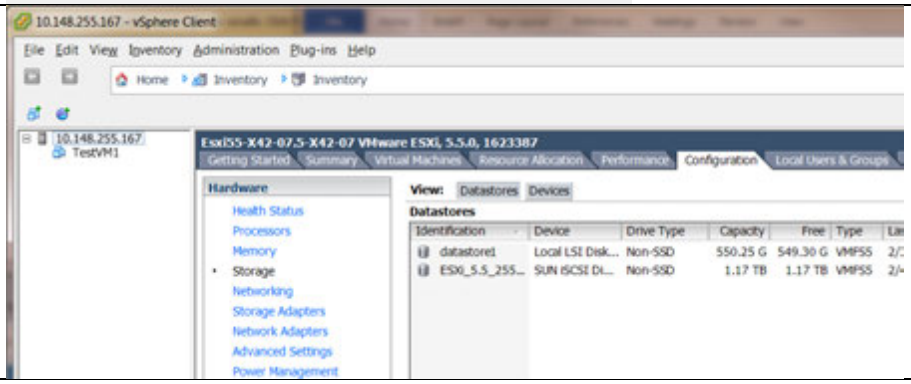
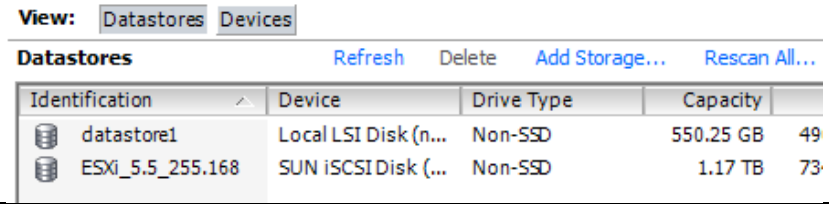
Appendix A. VMWARE VSPHERE ENVIRONMENT SETUP

Important Note: The content of this appendix is for informational purposes only. Please consult the latest documents from the vendor (VMware).

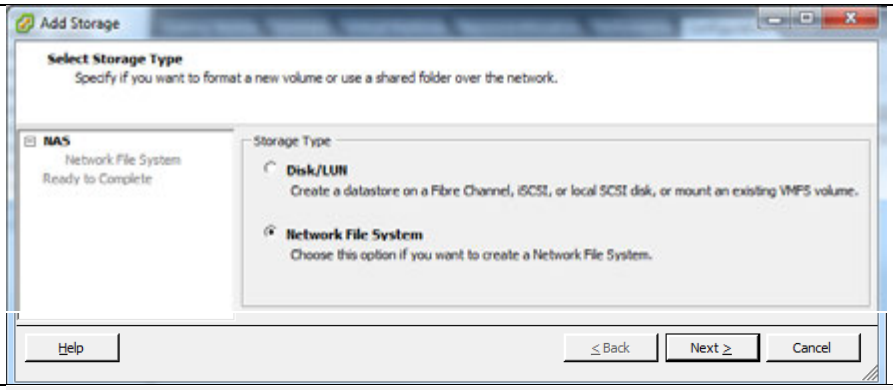
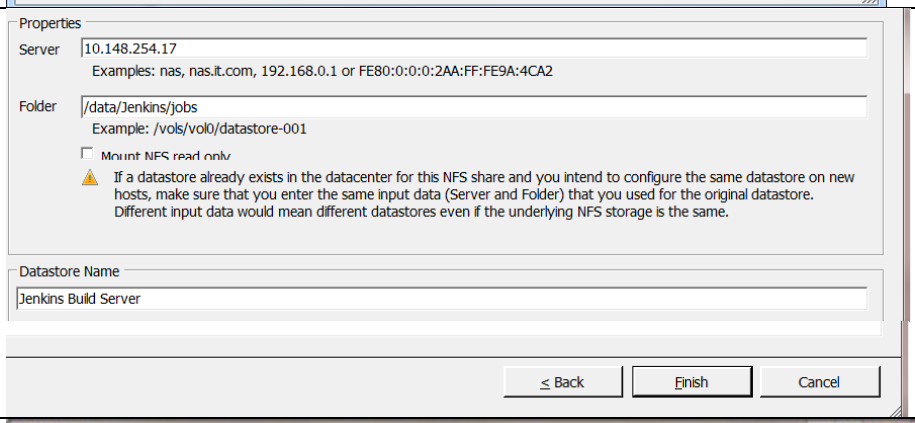
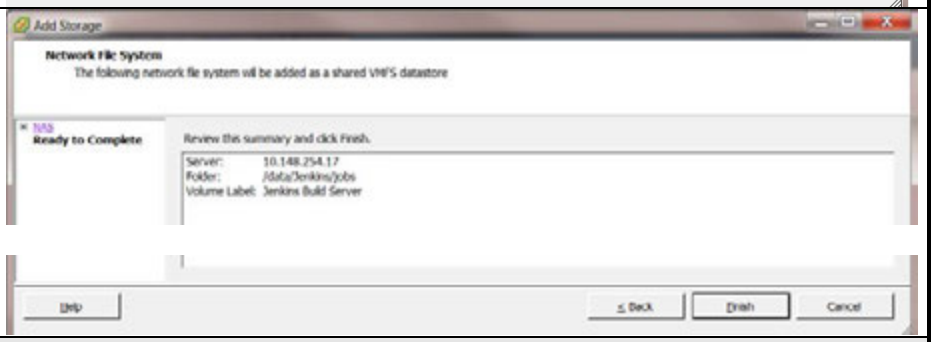
A-1 Host Datastore configuration using vsphere

The following procedure is executed to properly configure a datastore on the Host so that the appropriate storage is available for UDR component VMs. Steps and screenshots are taken from vSphere Client.

Procedure 16: Host Datastore Configuration with vSphere

S T E P #	This procedure configures host networking. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.	
1. ☐	Log into the Vmware client	
2. ☐	**VMware client:** **1)** Select the **Host** on the left tree menu **2)** Click the **Configuration** tab on right **3)** Click **Storage** under Hardware menu	
3. ☐	**VMware client:** Click **"Add Storage…"**	

Procedure 16: Host Datastore Configuration with vSphere

4. ☐	**VMware client:** **1)** Select **Network File System** storage type **2)** Click **Next**	
5. ☐	**VMware client:** **1)** Enter a **Server IP**, **Folder**, and **Datastore Name** in the provided fields according to the resource availability in your VMware host environment **2)** Click **Next**	
6. ☐	**VMware client:** **1)** Review the Datastore summary **2)** Click **Finish**	
THIS PROCEDURE HAS BEEN COMPLETED		

A-2 Host networking configuration using vsphere

The following procedure is executed to properly configure the recommended Networking on the Host so that the appropriate vNICs are available for UDR component VMs. Steps and screenshots are taken from vSphere Client.

To view the currently available Networks on the Host, select the **Summary** tab. In the example below several OAM and Signaling Networks have been configured. Each of these is associated with vSwitch on the Host and physical eth.
UDR VMs can be associated with up to 5 vLAN Networks. All 5 vNICs should be created and configured in order to be available for the Guest. The expected vNICs correspond the the following dedicated interfaces of the UDR and so the recommendation is the label them similarly:

XMI – OAM Management Interface for the application

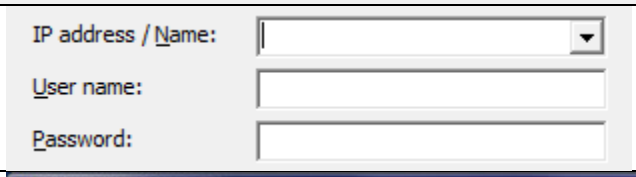
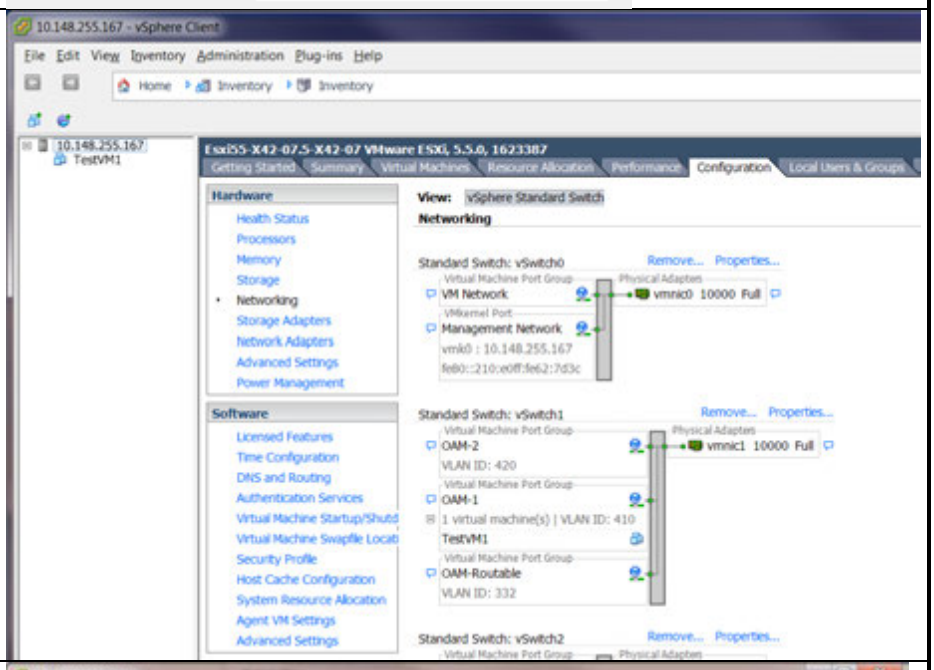
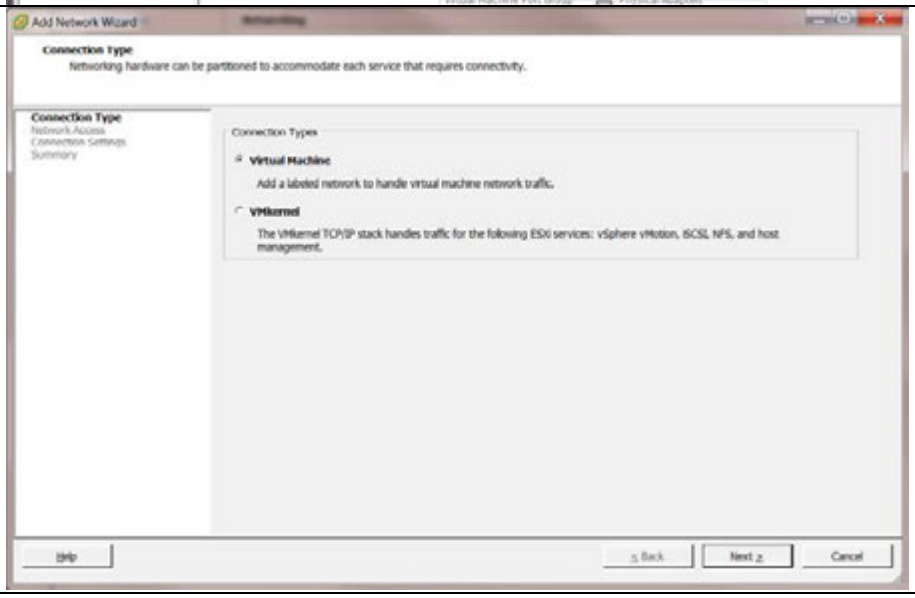
XSI1 – Signaling Interface

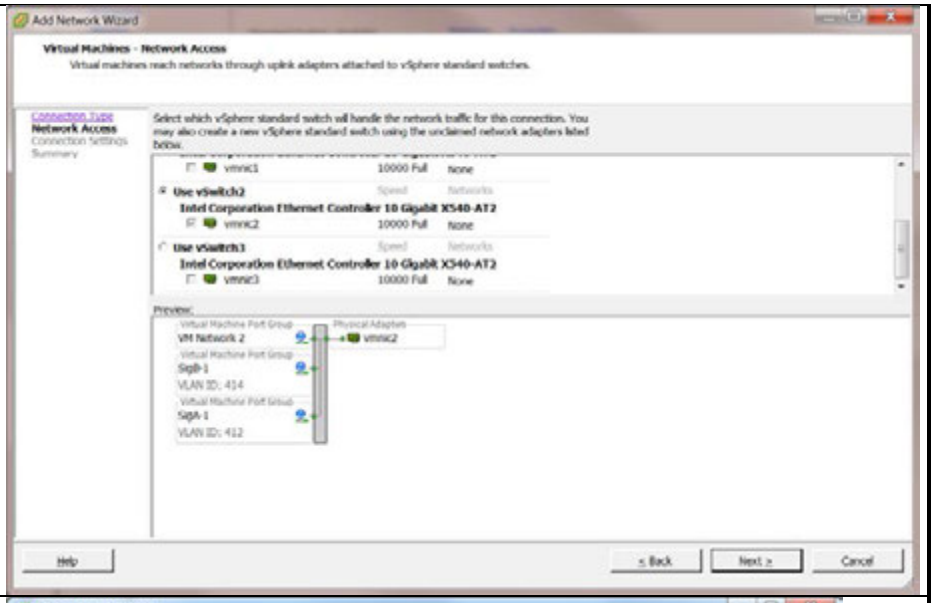
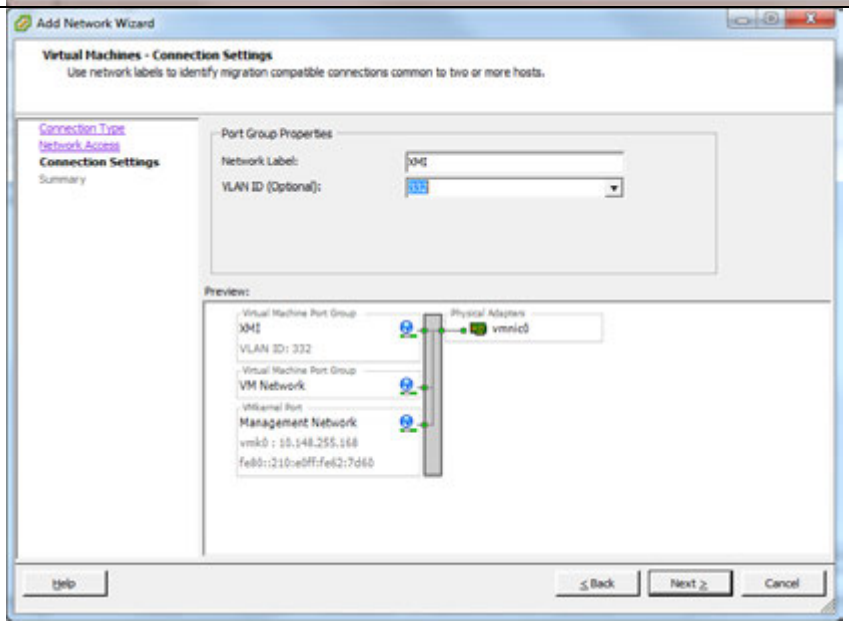
XSI2 – Signaling Interface

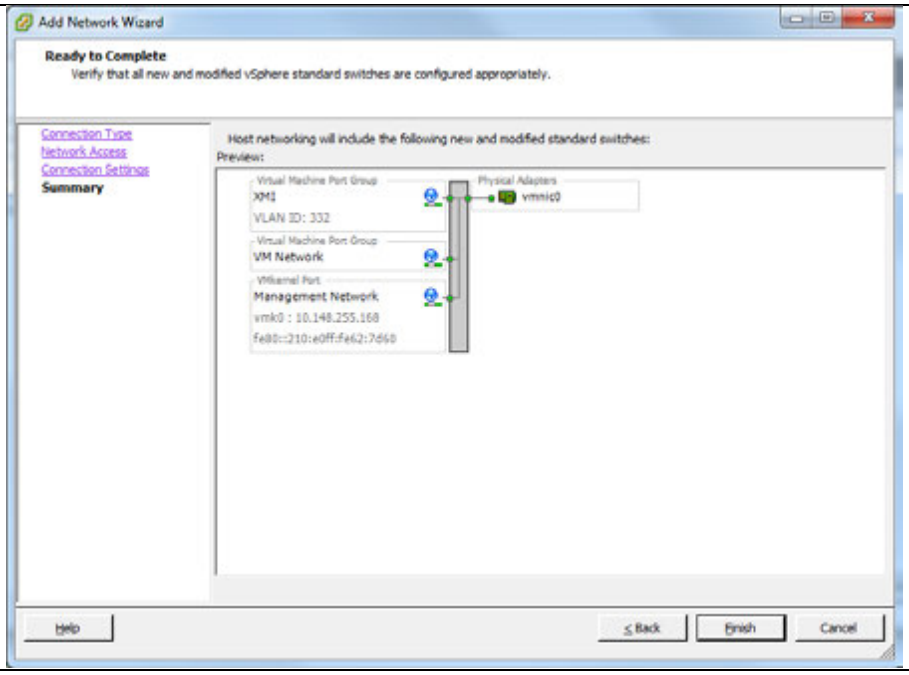
IMI – Replication Interface

Guest Management – Reserved for Guest management activities.

Procedure 17: **Host Networking Configuration with vSphere**

S T E P #	This procedure configures host networking. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.	
1. ☐	Log into the Vmware client	
2. ☐	**VMware client:** **1)** Select the **Host** on the left tree menu **2)** Click the **Configuration** tab on right **3)** Click **Networking** under Hardware menu	
3. ☐	**VMware client:** **1)** Select **Add Networking** from top **2)** Chose connection type **Virtual Machine** and click **Next**	

4. ☐	**VMware client:** Select appropriate **vSwitch type** based on the Host hardware and click Next	
5. ☐	**VMware client:** Label the **Network**, enter its **VLAN ID**, click **Next**	 Note: It is recommended that the name reflect how the Network will be used or referenced from within the Guest, ie XMI, IMI, XSI1, etc.

6. ☐	**VMware client:** Review input and click **Finish**	
7. ☐	Repeat this procedure for each network	Repeat this procedure for each network type that will be supported by this VMWare host: ☐ XMI ☐ IMI ☐ XSI-1 ☐ XSI-2 (optional)
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix B. VMWARE VSPHERE UDR DEPLOYMENT

Important Note: The content of this appendix is for informational purposes only. Please consult the latest documents from the vendor (VMware).

B-1 Create Guests from OVA

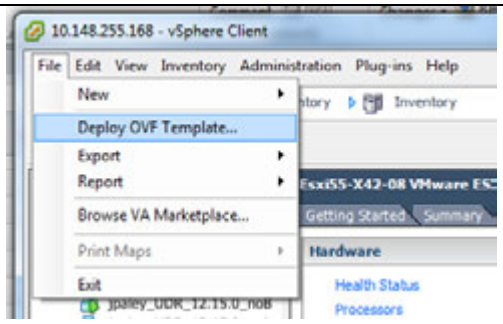
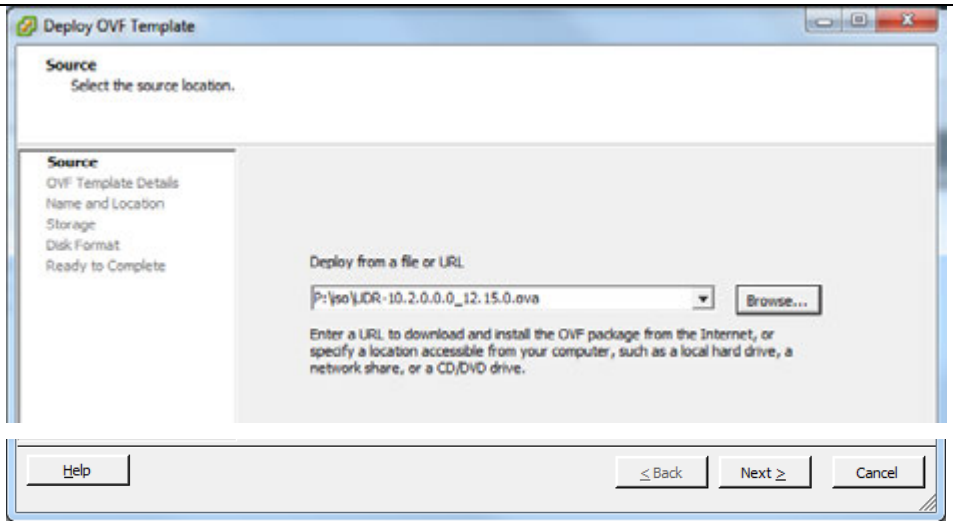
This procedure will create UDR virtual machines (guests) from OVA.

Needed material:

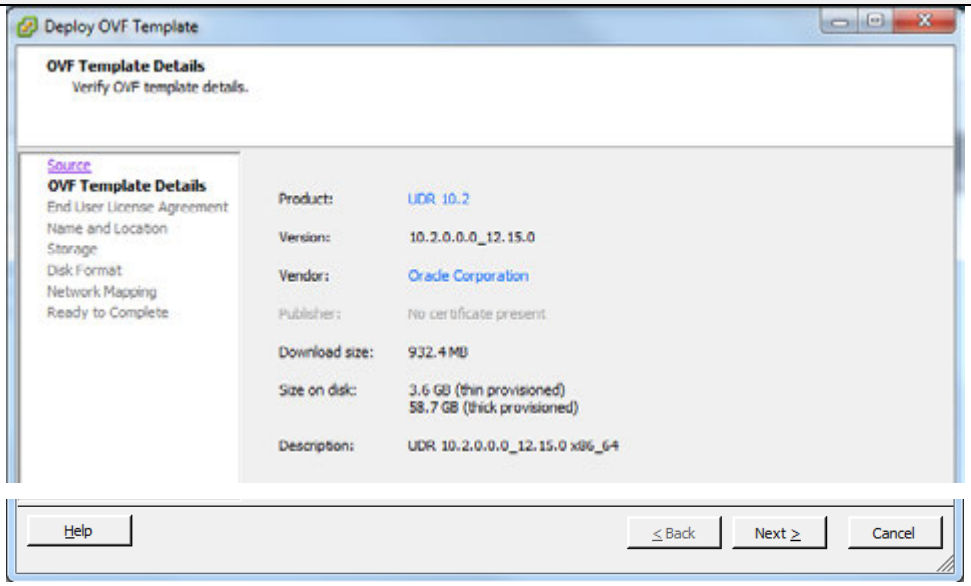
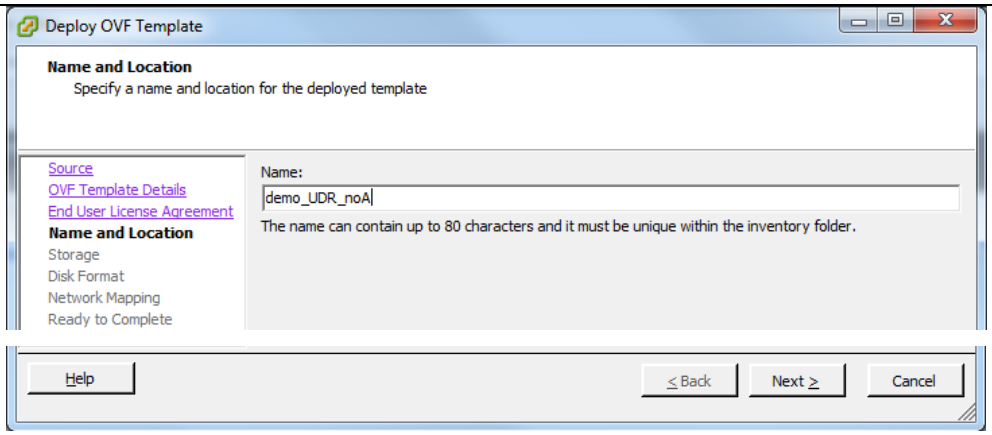
- UDR OVA

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

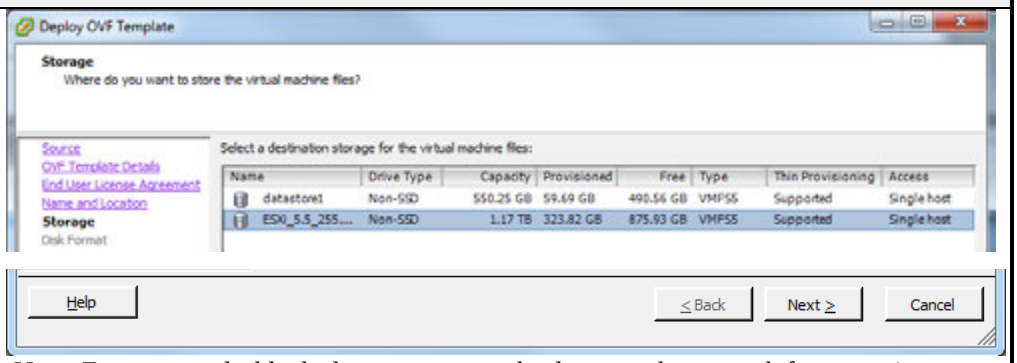
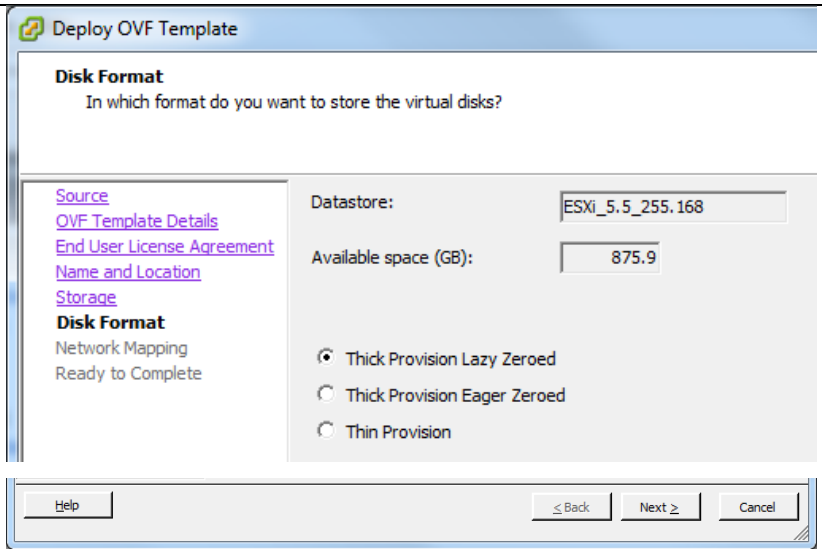
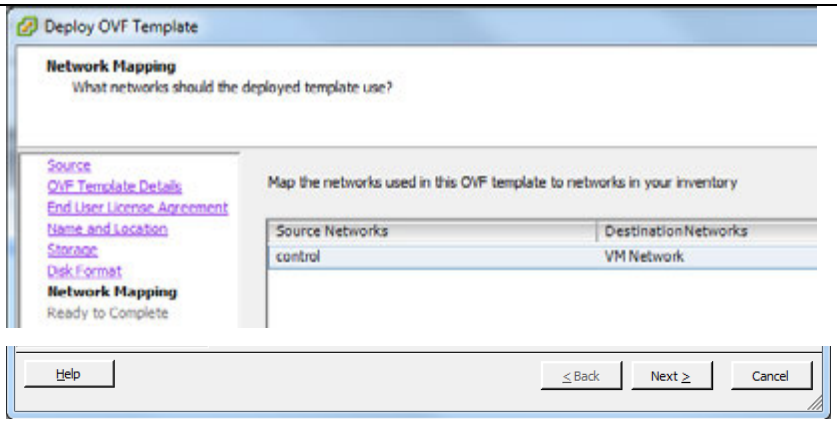
Procedure 18: Deploy UDR OVA

Step	Procedure	Result
1. ☐	Log into the VMware client	
2. ☐	**VMware client:** Select… **→ File** ***→ Deploy OVF Template***	
3. ☐	**VMware client:** **1)** Click **Browse** button and select the UDR OVA file **2)** Click **Next**	

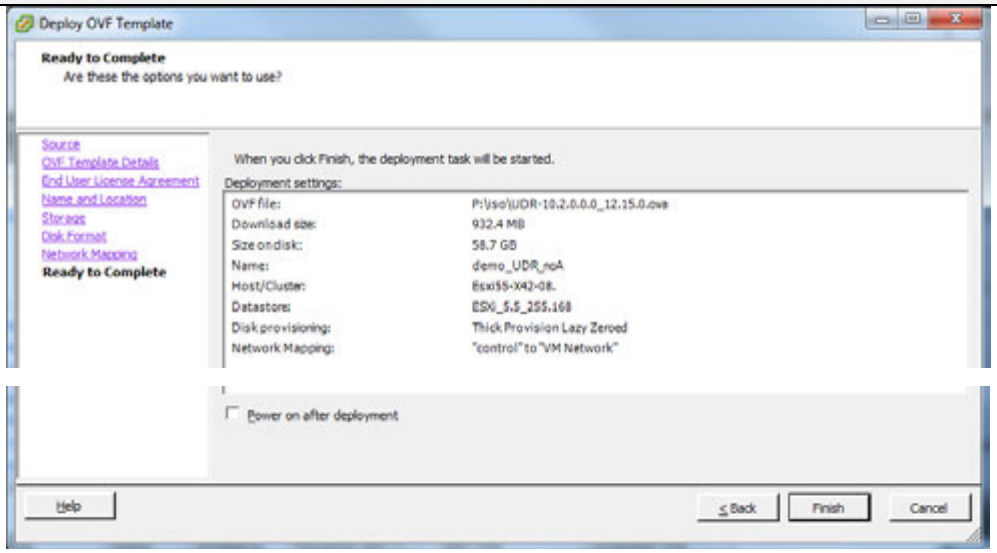
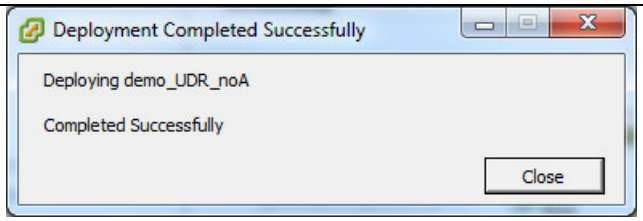
Procedure 18: Deploy UDR OVA

Step	Procedure	Result
4. ☐	**VMware client:** Details screen displays, click **Next**	
5. ☐	**VMware client:** Accept **End User License Agreement** by clicking **Accept** button then click **Next**	
6. ☐	**VMware client:** **Name** the virtual machine and click **Next**	

Procedure 18: Deploy UDR OVA

Step	Procedure	Result
7. ☐	**VMware client:** Select **destination storage** for the virtual machine from the list of available data stores then click **Next**.	 **Note:** For an upgradeable deployment, ensure the data store has enough free capacity to support the type of VM according to the profile selected from [1].
8. ☐	**VMware client:** Choose **Thick Provision Lazy Zeroed** and click **Next**	
9. ☐	**VMware client:** Click **Next**	

Procedure 18: Deploy UDR OVA

Step	Procedure	Result
10. ☐	**VMware client:** Review deployment settings and click **Finish**	
11. ☐	**VMware client:** After a wait a deployment status message is displayed. Click **Close**.	
THIS PROCEDURE HAS BEEN COMPLETED		

B-2 Configure Guest Resources

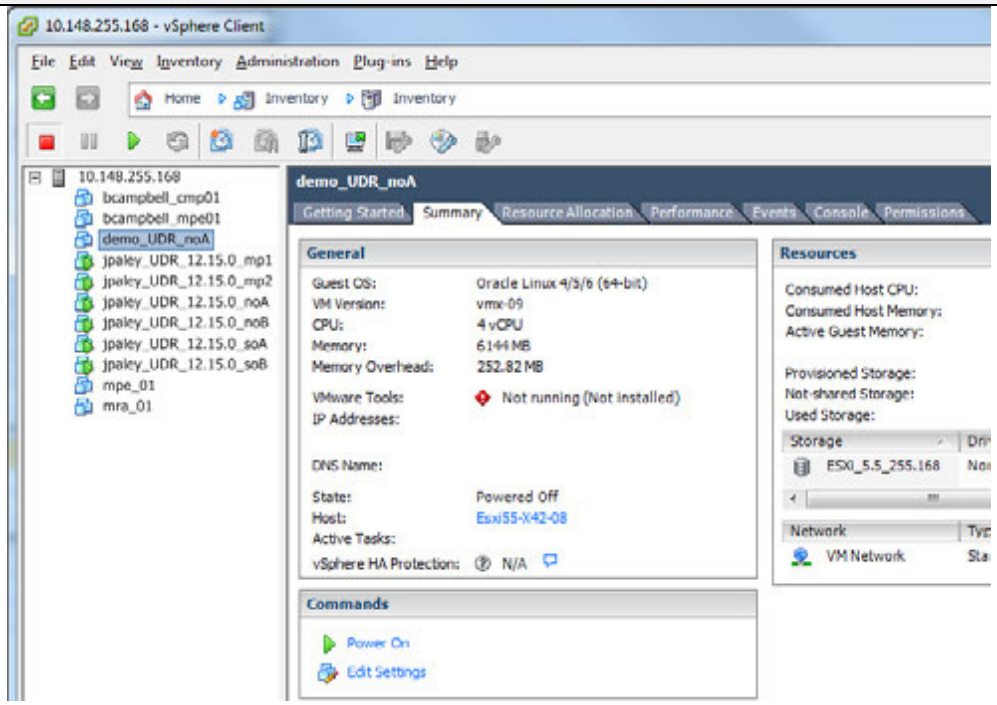
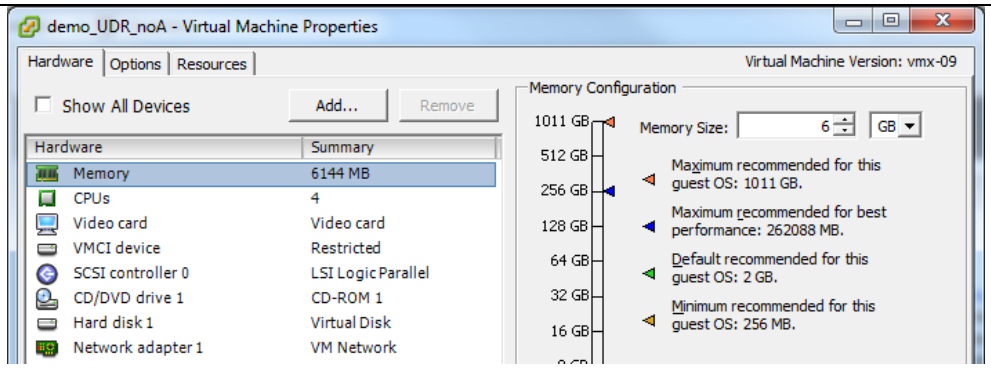
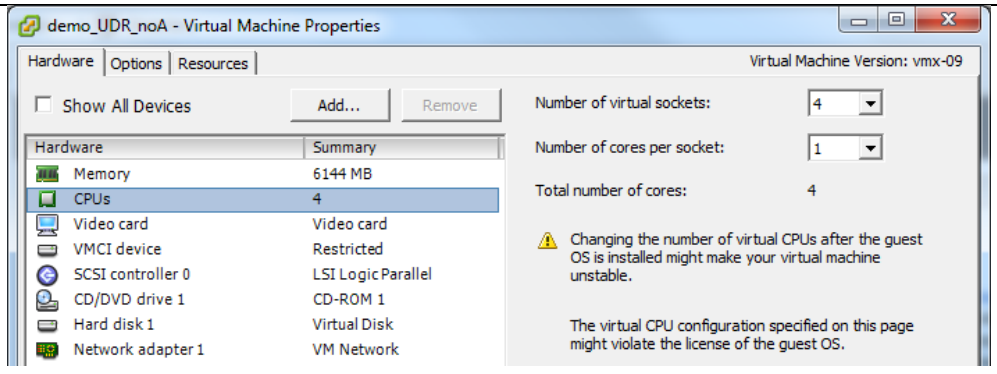
This procedure will configure the required resource allocations and associations for UDR virtual machines (guests) and power them on.

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

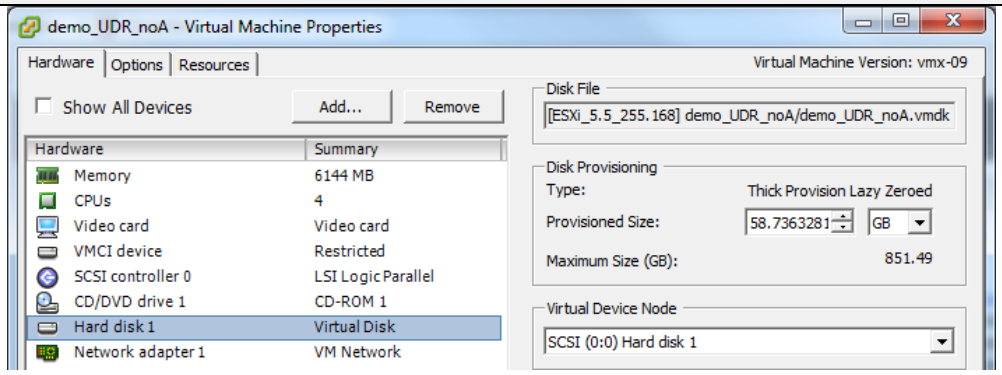
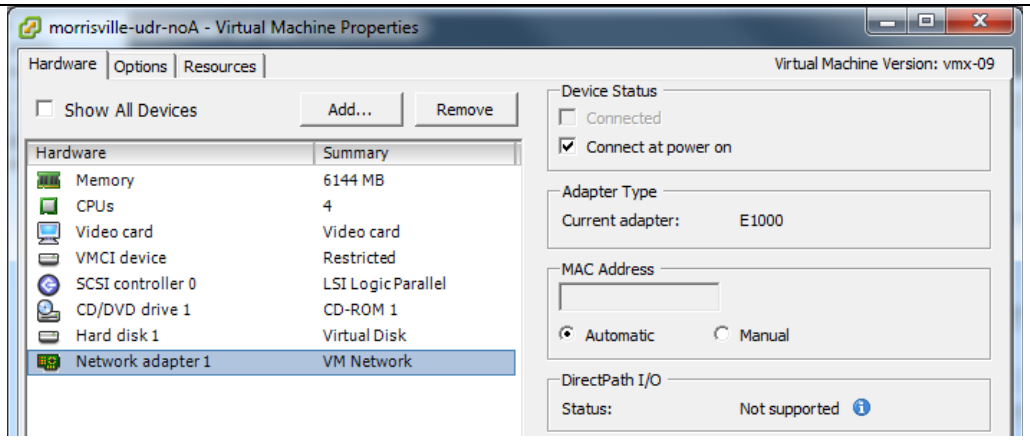
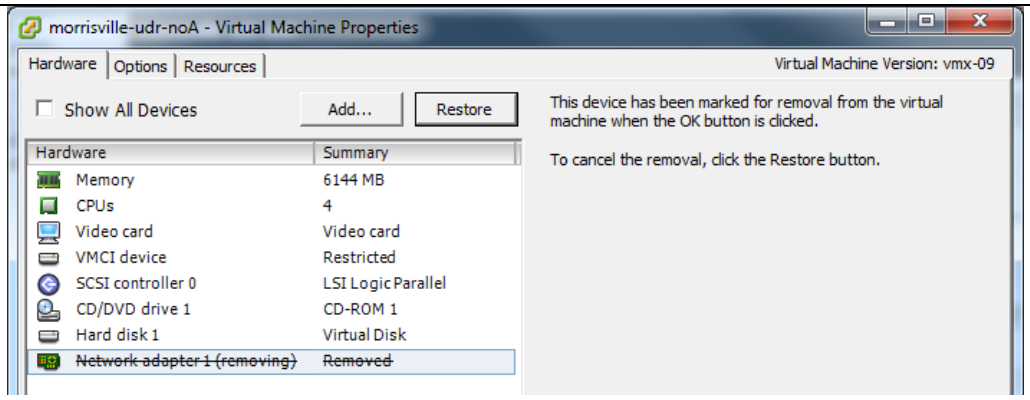
Procedure 19: Configure Guest Resources

Step	Procedure	Result
1. ☐	**VMware client:** Log into the Vmware client	

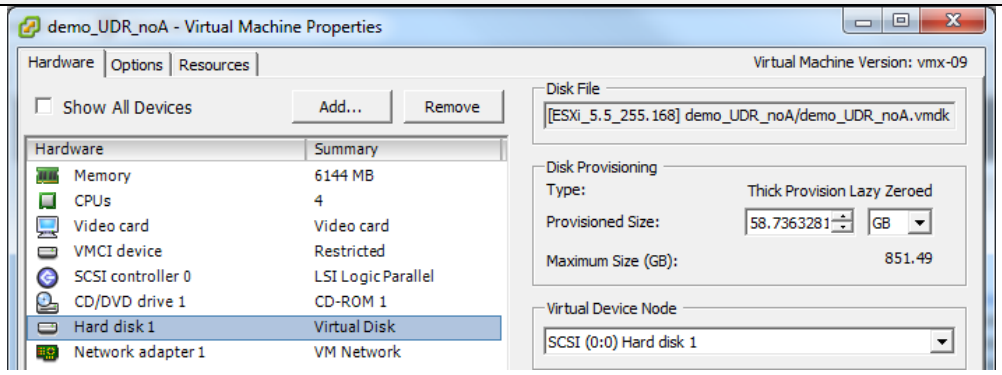
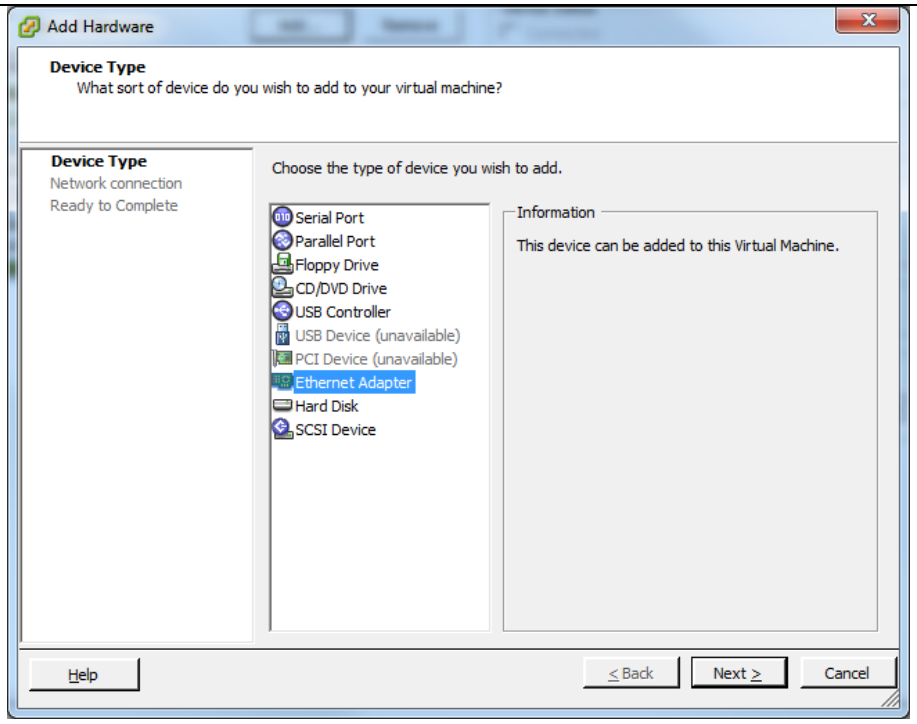
Procedure 19: Configure Guest Resources

Step	Procedure	Result
2. ☐	**VMware client:** **1)** Select the UDR virtual machine from the left tree menu **2)** Click the **Summary** tab **3)** Click **Edit Settings** under Commands	
3. ☐	**VMware client:** Select **Memory** from the Hardware menu and adjust **Memory Size** to suit the server's role **NOAMP: 48 GB** **SOAM: 4 GB** **MP: 16 GB**	
4. ☐	**VMware client:** Select **CPUs** from the Hardware menu and adjust the **Number of virtual sockets** according to [1].	

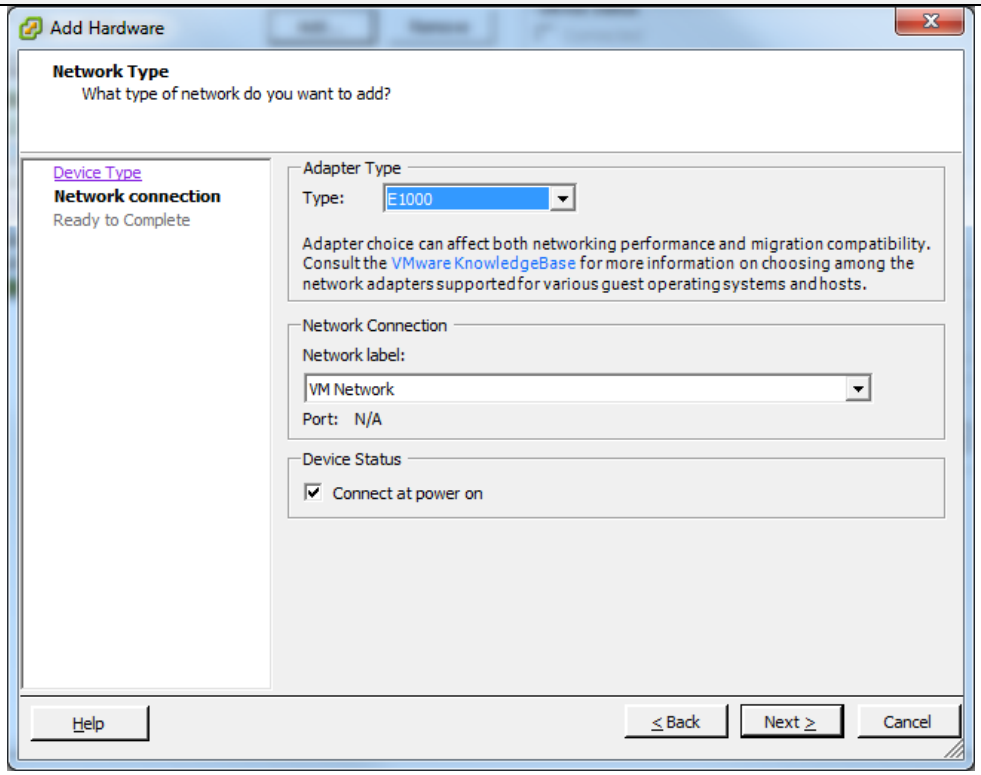
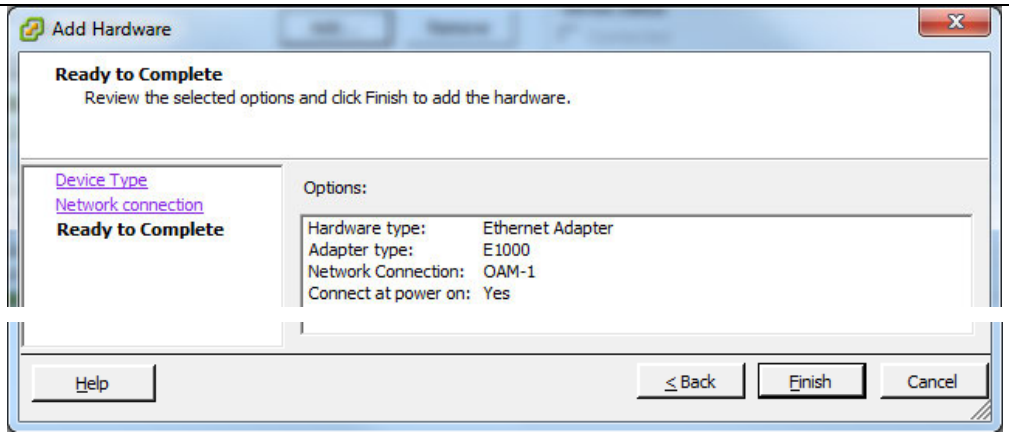
Procedure 19: Configure Guest Resources

Step	Procedure	Result
5. ☐	**VMware client:** Select **Hard disk 1** from the Hardware menu and adjust the **Provisioned Size** according to [1].	
6. ☐	**VMware client:** **1)** Select any **Network adapter** that may exist by default **2)** Click the **Remove** tab	
7. ☐	**VMware client:** The network adapter will be crossed out and a removal message displayed	
8. ☐	**VMware client:** Take note of the order in which networks are added.	Note: The order in which networks are added by the following steps affects their device order within the virtual machine. Care should be taken to add them in the order they appear for each server: **NOAMP** 1. ☐ XMI 2. ☐ IMI 3. ☐ XSI-1 (optional) **SOAM** 1. ☐ XMI 2. ☐ IMI **MP** 1. ☐ XMI 2. ☐ IMI 3. ☐ XSI-1 4. ☐ XSI-2 (optional)

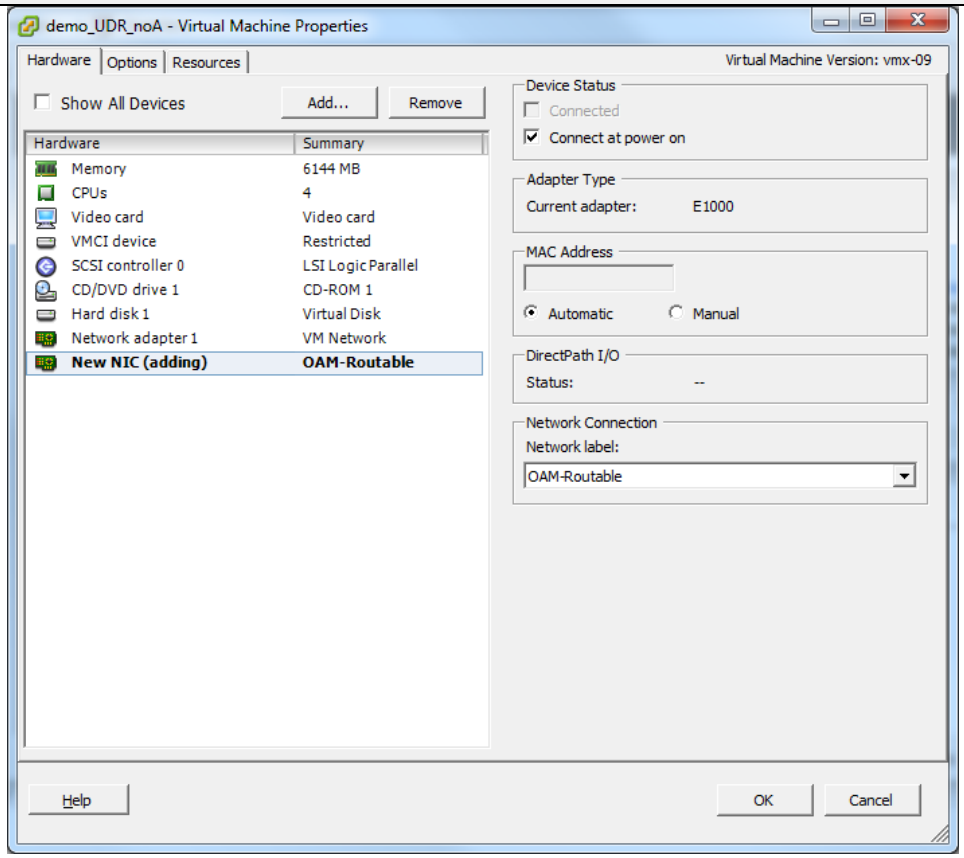
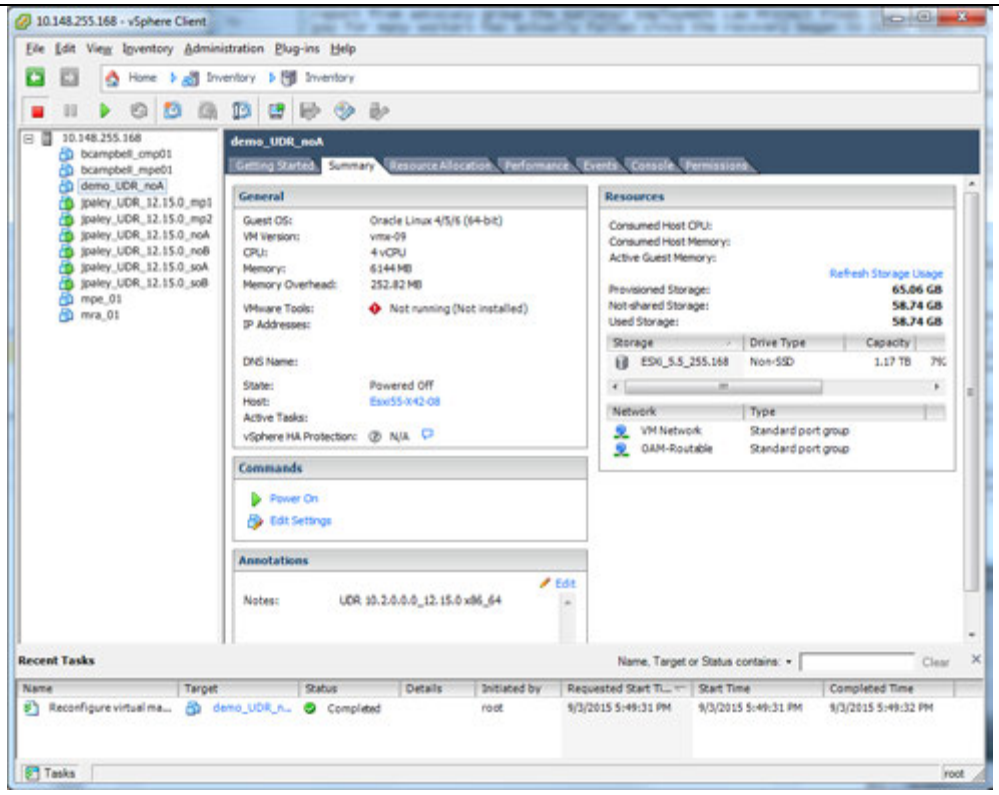
Procedure 19: Configure Guest Resources

Step	Procedure	Result
9. ☐	**VMware client:** Click '**Add…**" button from Hardware tab	
10. ☐	**VMware client:** Select **Eathernet Adapter** from the list of devices and click **Next**	

Procedure 19: Configure Guest Resources

Step	Procedure	Result
11. ☐	**VMware client:** **1)** Select **Adapter Type** to conform to your virtual host **2)** Select the **Network Label** to match the desired network type **3)** Click **Next**	
12. ☐	**VMware client:** Confirm Option settings and click **Finish**	
13. ☐	**VMware client:** **Repeat** as required	**Repeat Steps 9 - 12** to add every network appropriate for the server's role.

Procedure 19: Configure Guest Resources

Step	Procedure	Result
14. ☐	**VMware client:** After all networks are added, confirm their correct entry in the left Hardware menu then click **OK**.	
15. ☐	**VMware client:** New devices and networks are shown on the **Summary** tab and Reconfigure task shows status Completed under **Recent Tasks**. Click **Power On** under Commands.	

Procedure 19: Configure Guest Resources

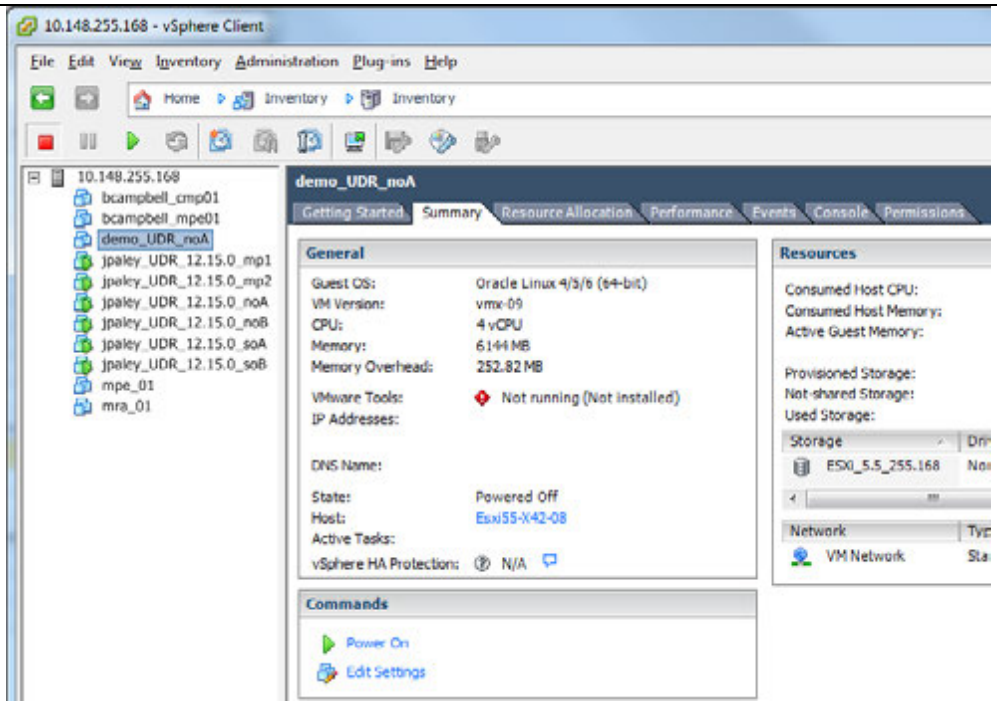
Step	Procedure	Result
THIS PROCEDURE HAS BEEN COMPLETED		

B-3 Configure Guest OAM Network

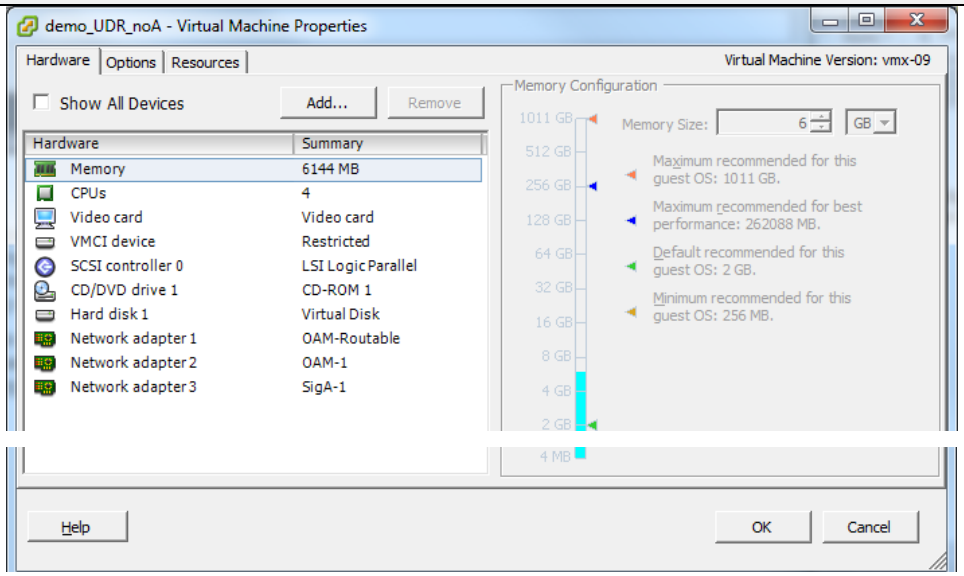
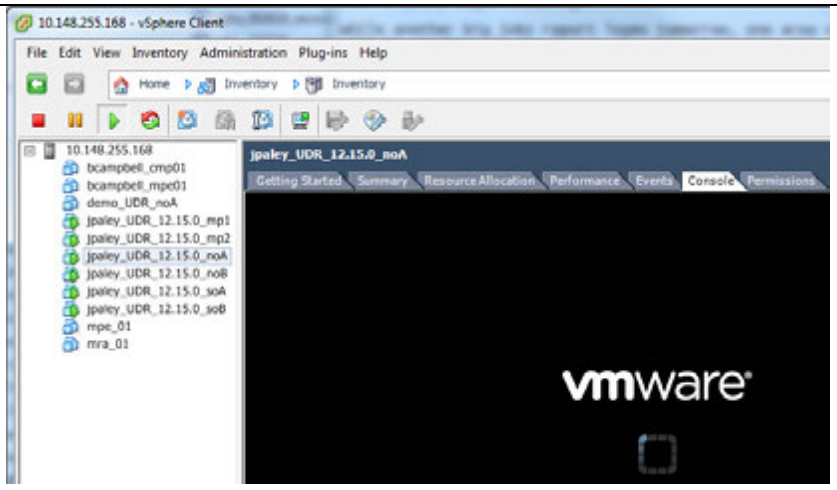
This procedure will configure the OAM network on UDR virtual machines (guests).

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

Procedure 20: Configure Guest OAM Network

Step	Procedure	Result
1. ☐	Log into the Vmware client	
2. ☐	**VMware client:** **1)** Select the UDR virtual machine from the left tree menu **2)** Click the **Summary** tab **3)** Click **Edit Settings** under Commands	

Procedure 20: Configure Guest OAM Network

Step	Procedure	Result
3. ☐	**VMware client:** **1)** Take note of the **Network adapter** assigment under **Hardware** tab **2)** Click **Cancel**	 **Network adapters** are enumerated under the Hardware tab. Their adapter number in the Hardware column corresponds to their *zero-based* device name assignment within a running guest. For instance, in the example capture above: • OAM (**XMI**) is on **eth0** device • OAM-1 (**IMI**) is on **eth1** device • Sig-A (**XSI-1**) is on **eth2** device
4. ☐	**VMware client:** **1)** Click the **Console** tab **2)** Click inside the console window to bring focus there **Note:** Press **Ctrl-Alt** keys to escape from console.	
5. ☐	**UDR Console:** Login to console as admusr	`login as: admusr` `Password:`

Procedure 20: Configure Guest OAM Network

Step	Procedure	Result
6. ☐	**UDR Console:** Configure **XMI** network	1. Set the XMI device for routable OAM access: Note: Where ethX is the interface associated with the XMI network $ **sudo netAdm add --device=eth0 --address=<Guest_XMI_IP_Address> --netmask=<XMI_Netmask> --onboot=yes --bootproto=none** 2. Add the default route for XMI: $ **sudo netAdm add --route=default** **--gateway=<Gateway_XMI_IP_Address> --device=eth0** **Note:** The network device may be different than shown here (eth0) if the order of network adapter insertion was other than shown. Refer to **Step 3** for this assignment.
7. ☐	**UDR Console:** Configure **XSI** network **(NO and MP Server Only)**	Set the XSI device for routable signaling network access (Only for **NO** & **MP Servers**): Note: Where ethX is the interface associated with the XSI network $ **sudo netAdm add --device=eth2 --address=<Guest_XSI_IP_Address> --netmask=<XSI_Netmask> --onboot=yes --bootproto=none** **Note:** The network device may be different than shown here (eth2) if the order of network adapter insertion was other than shown. Refer to **Step 3** for this assignment.
8. ☐	**UDR Console:** **Repeat** as required **(MP Server Only)**	**Repeat Step 7** to add **XS1-2 (eth3)** if a second signaling network is in use (Only for **MP Servers**). Adjust input parameter values accordingly.
9. ☐	**UDR Console:** Exit console	$ **exit** **Note:** Press **Ctrl-Alt** keys to escape from console.
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix C. VMWARE VCLOUD DIRECTOR UDR DEPLOYMENT

Important Note: The content of this appendix is for informational purposes only. Please consult the latest documents from the vendor (VMware).

C-1 vCloud Director UDR Media Upload

This procedure will upload UDR media (ISO or OVA) into vCloud Director Catalogs.

Needed material:

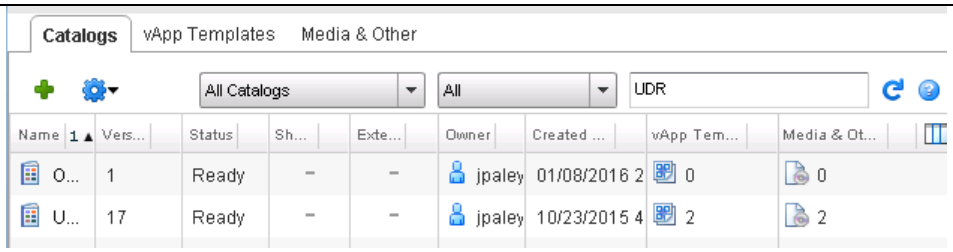
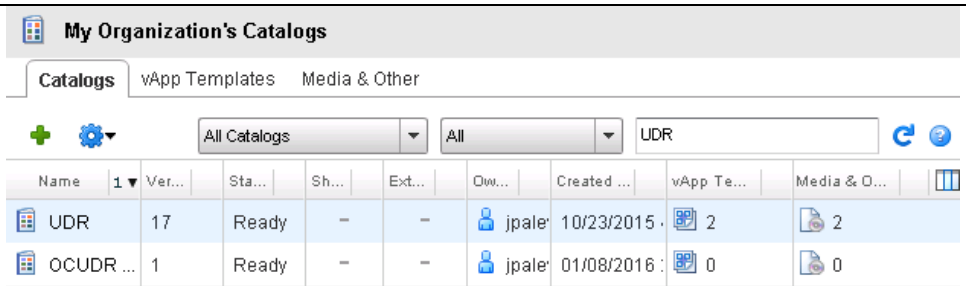
- UDR OVA

Optional material (*required for ISO install only*):

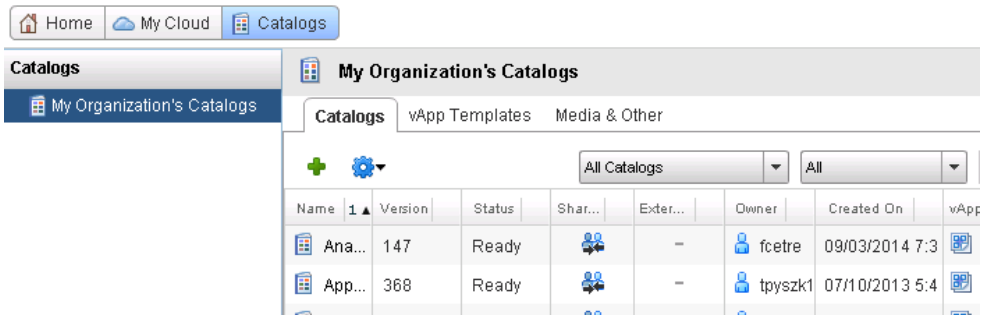
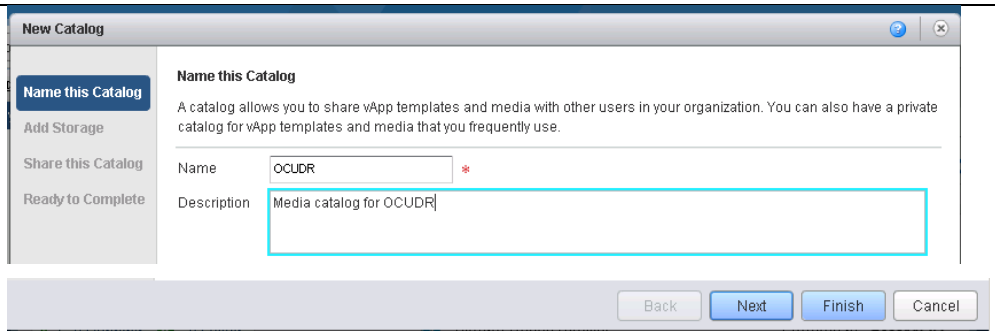
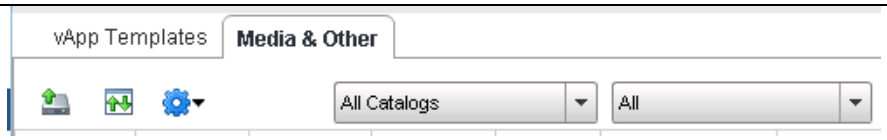
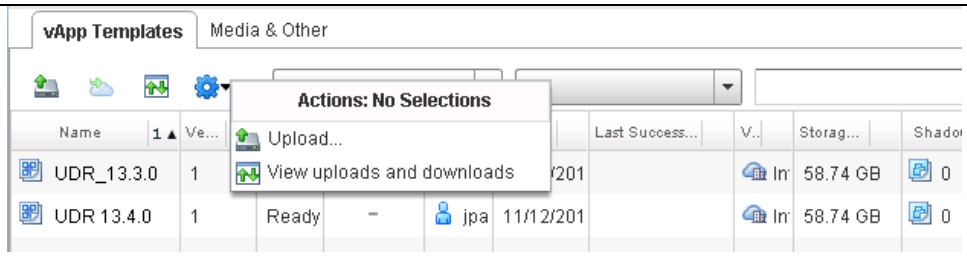
- UDR ISO
- TPD Platform ISO

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

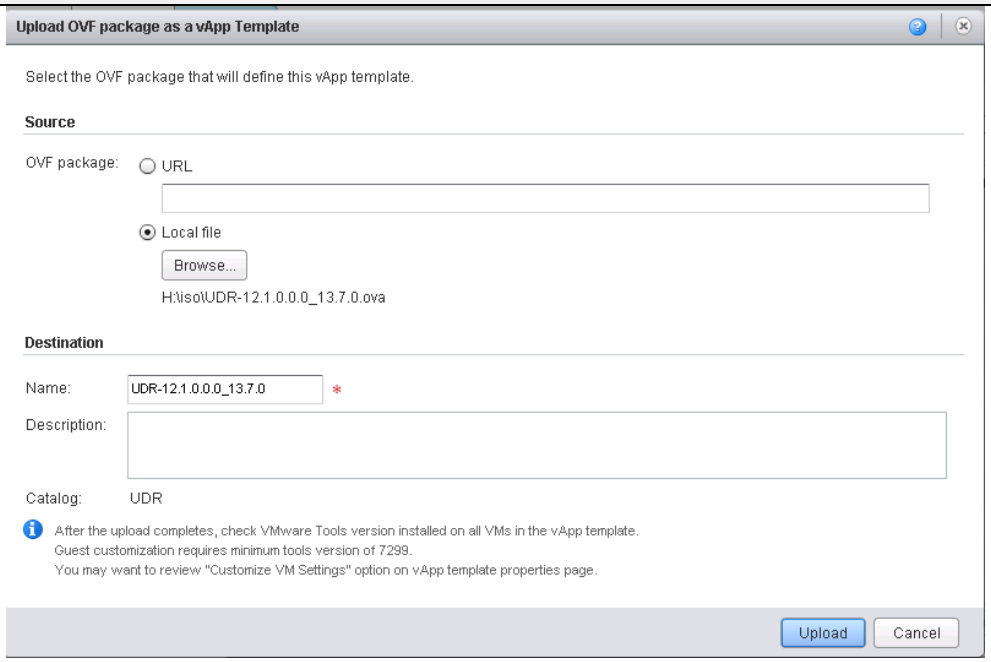
Procedure 21: vCloud Director UDR Media Upload

Step	Procedure	Result
1. ☐	Log into the VMware vCloud Director	
2. ☐	**vCloud Director:** Enter UDR catalog name in the search field and hit Enter.	
3. ☐	**vCloud Director:** Click on the name hyperlink for the appropriate catalog and proceed to **Step 6**	 Note: If a catalog for UDR does not yet exist, create one with the following two steps.

Procedure 21: vCloud Director UDR Media Upload

Step	Procedure	Result
4. ☐	**vCloud Director:** Select… → **Catalogs** → ***Green Plus*** +	
5. ☐	**vCloud Director:** 1. Input catalog **name** and **description**. 2. Unless this catalog requires special storage or sharing, click **Finish**.	 Note: After clicking Finish, return to **Step 2** of this procedure to access the new catalog.
6. ☐	**vCloud Director:** Select.. **vApp Templates** for OVA upload or **Media & Other** for ISO upload	
7. ☐	**vCloud Director:** Select… → **Blue Gear Symbol** → ***Upload…***	

Procedure 21: vCloud Director UDR Media Upload

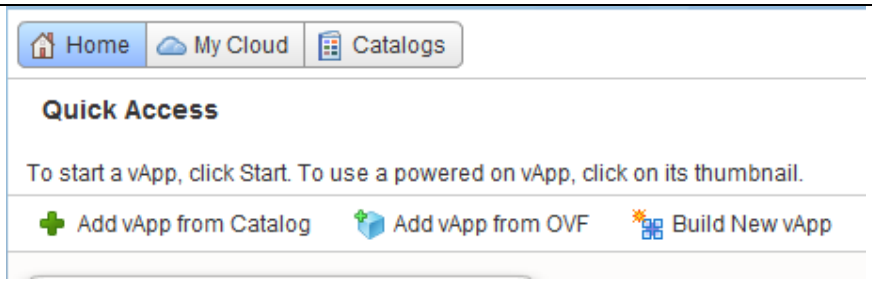
Step	Procedure	Result
8. ☐	**vCloud Director:** Select **Source** as either URL or local file then input a **Name**. Click **Upload.**	
THIS PROCEDURE HAS BEEN COMPLETED		

C-2 Create vApp

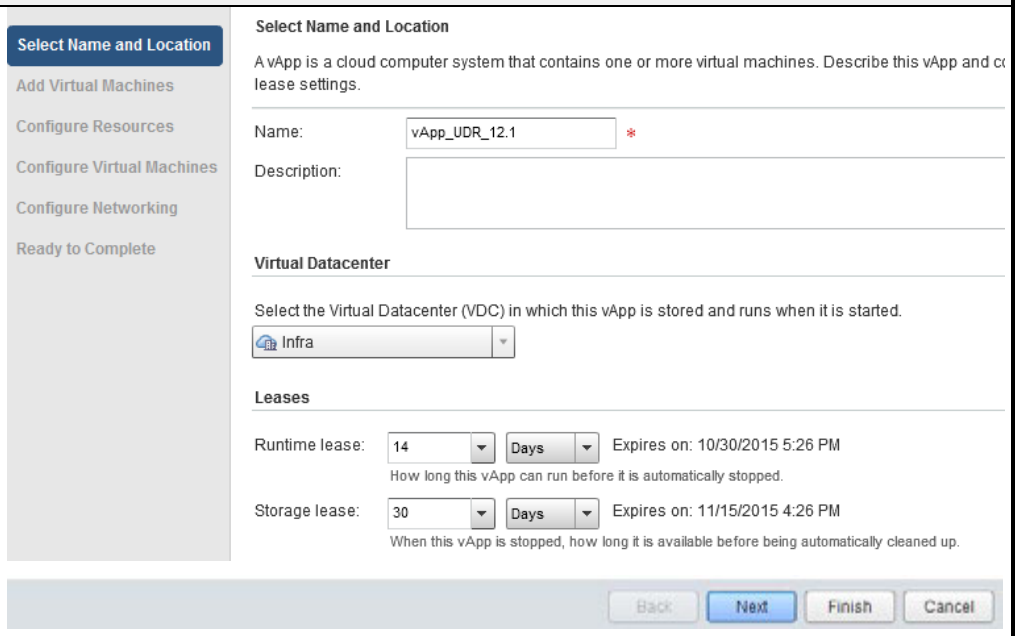
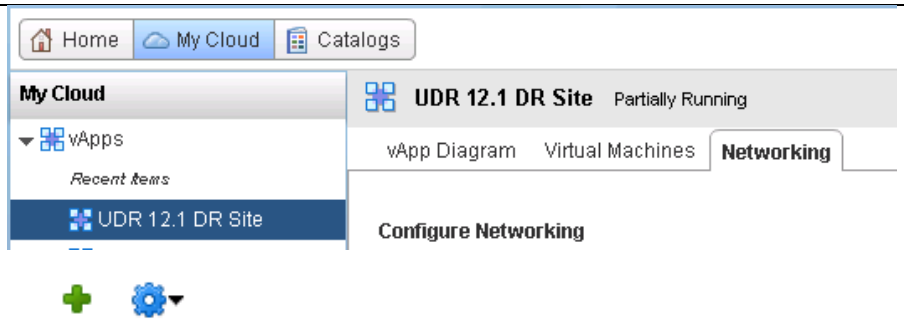
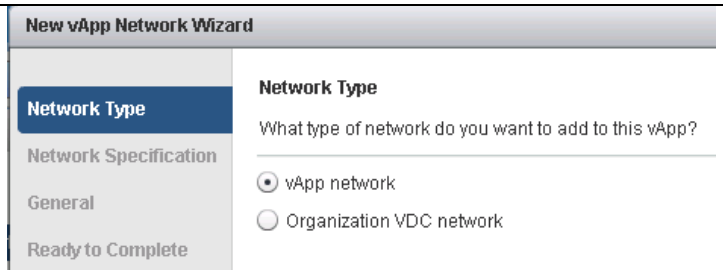
This procedure will create and configure a new vApp virtual appliance.

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

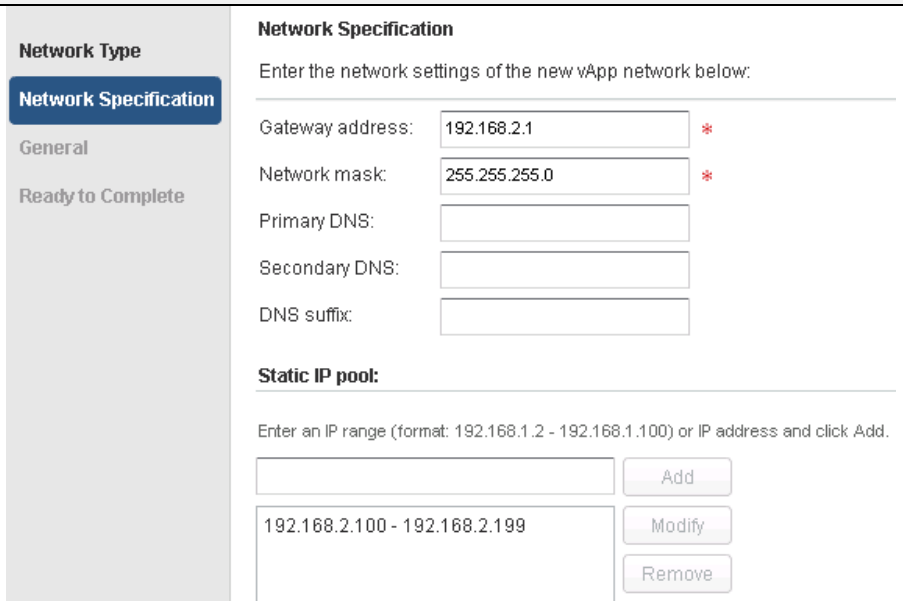
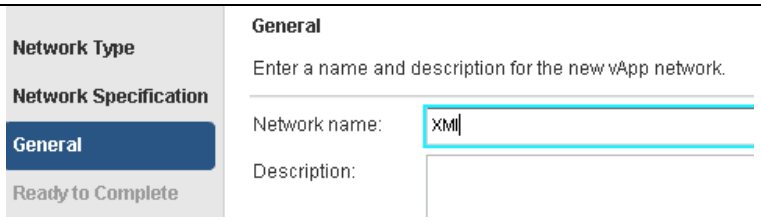
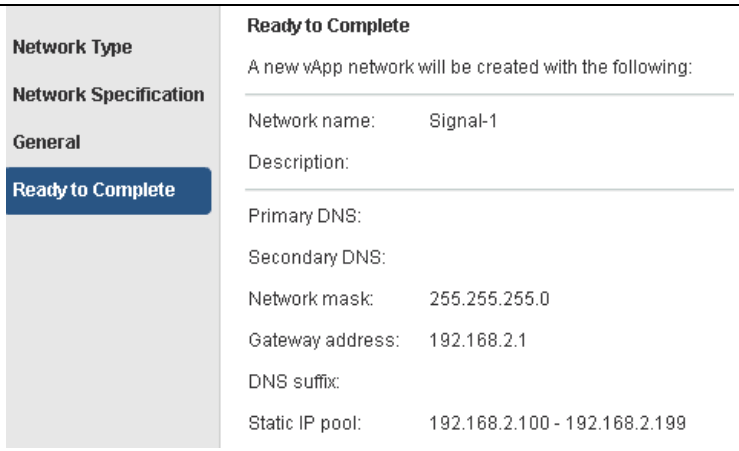
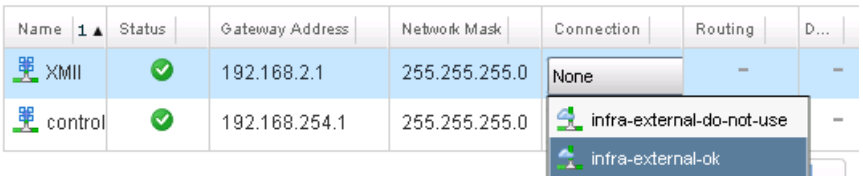
Procedure 22: Create vApp

Step	Procedure	Result
1. ☐	Log into the VMware vCloud Director	
2. ☐	**vCloud Director:** Select **Home** tab ***Build New vApp***	

Procedure 22: Create vApp

Step	Procedure	Result
3. ☐	**vCloud Director:** 1. Enter **Name** for the vApp and other parameters as required. 2. Click **Finish**.	
4. ☐	**vCloud Director:** Select… → **My Cloud** → ***<vApp Name>*** → ***Networking*** **Then click the + icon to add a network**	
5. ☐	**vCloud Director:** Select the **vApp network**. Click **Next**.	

Procedure 22: Create vApp

Step	Procedure	Result
6. ☐	**vCloud Director:** Enter desired parameters for your internal network. Be sure to have sufficient address space for the number of servers you expect to deploy. Click **Next**.	
7. ☐	**vCloud Director:** Enter a **Name** for your network using [1] as a guide. Click **Next**.	
8. ☐	**vCloud Director:** Review the network data Click **Finish**.	
9. ☐	**vCloud Director:** Back on the Networking tab.	 **If the network is to be addressable** outside the Cloud (such as XMI for administration), select an external network from the **Connection** drop box. Otherwise, leave **Connection** setting as **None**.

Procedure 22: Create vApp

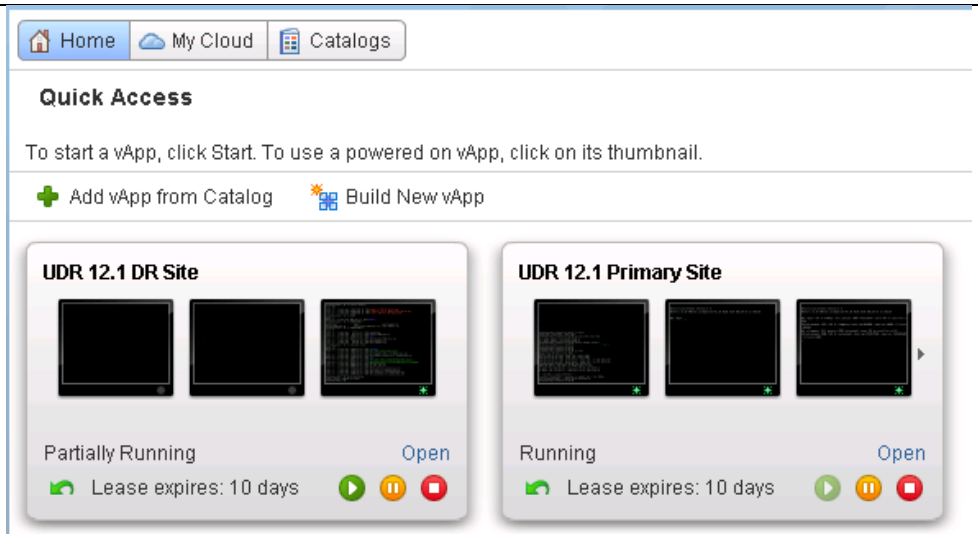
Step	Procedure	Result
10. ☐	**vCloud Director:** Click **Apply**.	
THIS PROCEDURE HAS BEEN COMPLETED		

C-3 Create Guests from OVA

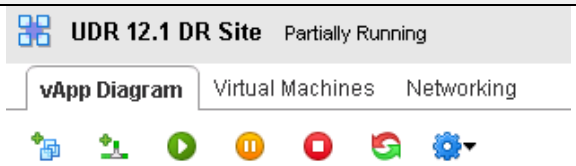
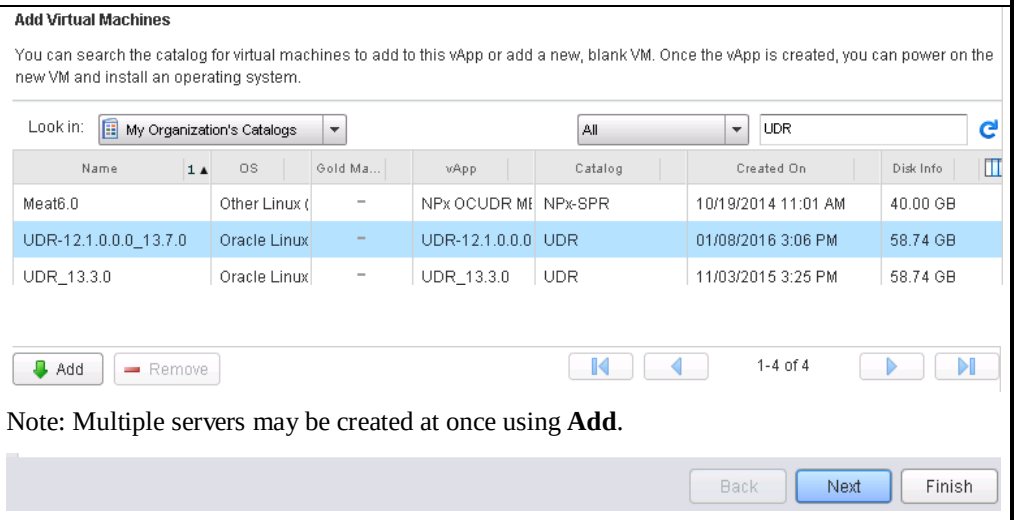
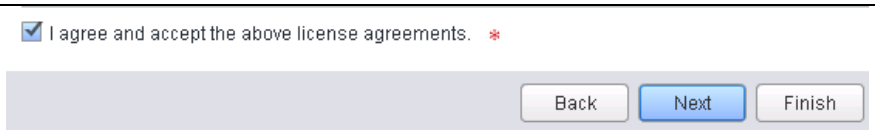
This procedure will create UDR virtual machines (guests) from OVA.

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

Procedure 23: Create Guests from OVA with vCloud Director

Step	Procedure	Result
1. ☐	Log into the VMware vCloud Director	
2. ☐	**vCloud Director:** Select **Open** hyperlink for the UDR vApp	 Note: Current vApps are listed on the Home Page. If a new vApp is required continue with the next step to create it.

Procedure 23: Create Guests from OVA with vCloud Director

Step	Procedure	Result
3. ☐	**vCloud Director:** Select icon on left to **Add VM**	
4. ☐	**vCloud Director:** 1. Enter name in the **search field** and press Enter 2. Select UDR media name 3. Click **Add** 3. Click **Next**	 Note: Multiple servers may be created at once using **Add**.
5. ☐	**vCloud Director:** 1. **Check box** to agree with license 2. Click **Next**	
6. ☐	**vCloud Director:** 1. **Rename** virtual machine(s) to suit its location and role 2. Click **Finish**	
THIS PROCEDURE HAS BEEN COMPLETED		

C-4 Configure Guest Resources

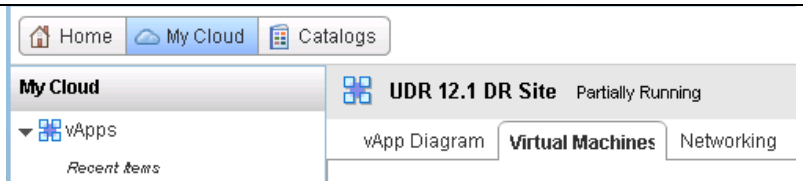
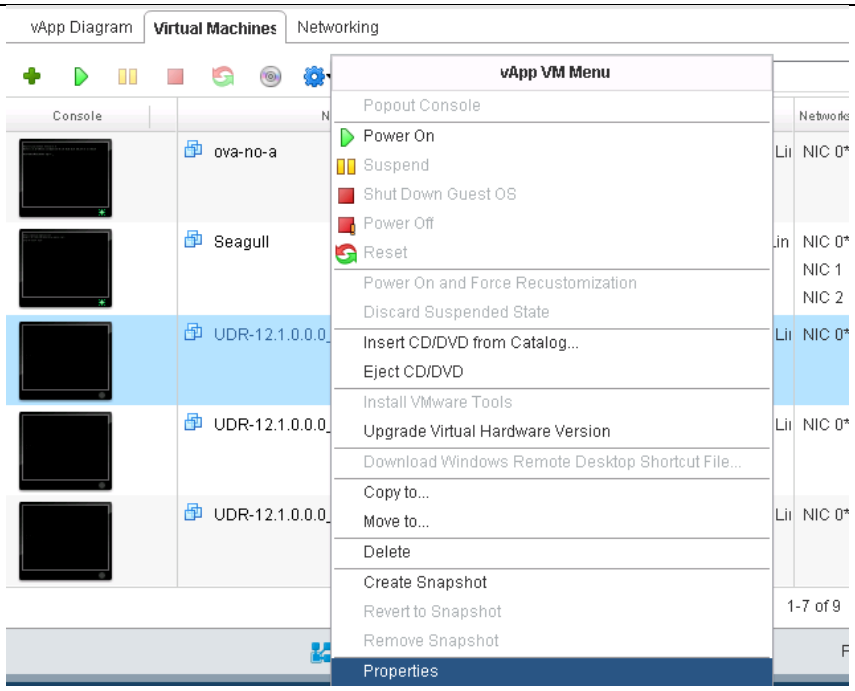
This procedure will configure UDR virtual machines (guests) which have been created from OVA.

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

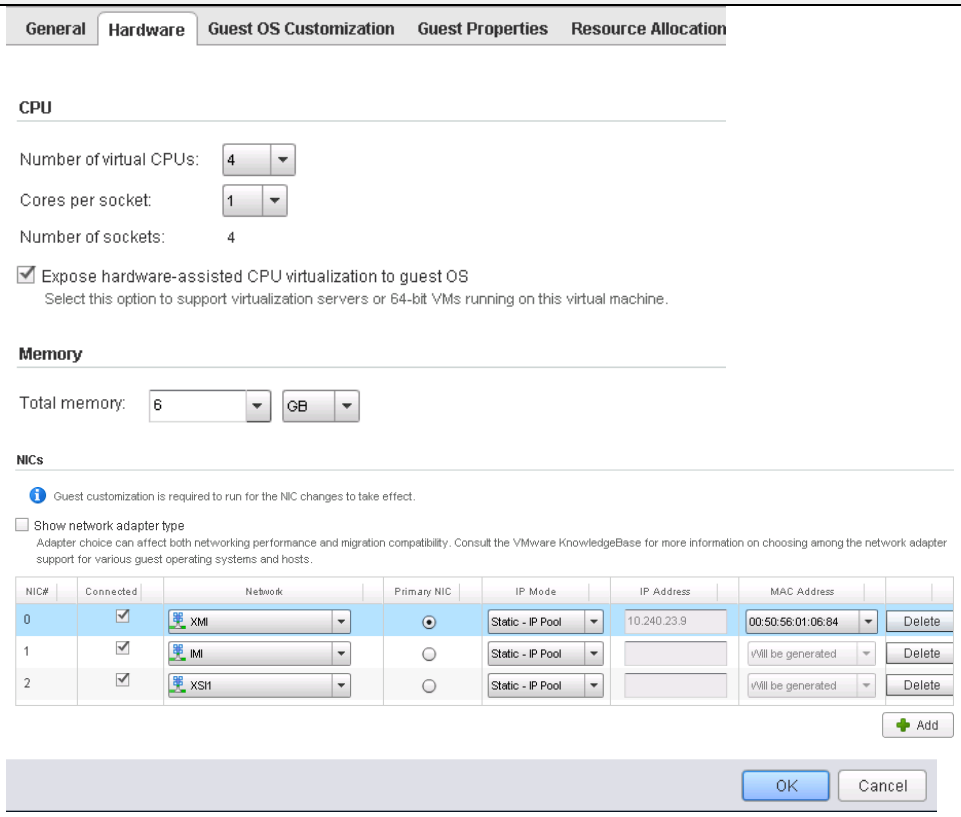
Procedure 24: Configure Guests from OVA with vCloud Director

Step	Procedure	Result

Procedure 24: Configure Guests from OVA with vCloud Director

Step	Procedure	Result
1. ☐	Log into the VMware vCloud Director	
2. ☐	**vCloud Director:** Select… → **My Cloud** → ***Virtual Machines***	
3. ☐	**vCloud Director:** 1. Select the VM. 2. Click the **Blue Gear** icon. 3. Select **Properties**.	
4. ☐	**vCloud Director:** Under the **General** tab… Adjust **Virtual Machine** and **Computer** names to suit preference.	

Procedure 24: Configure Guests from OVA with vCloud Director

Step	Procedure	Result
5.	**vCloud Director:** Under the **Hardware** tab… **1)** Adjust the number of Virtual CPUs and Total Memory to match the server's role in [1]. **2)** Check **Expose hardware-assisted CPU virtualization** box. **3)** Adjust **NICs** to match the server's role in [1]. **4)** Click **OK.**	
	THIS PROCEDURE HAS BEEN COMPLETED	

C-5 Create Guests from ISO

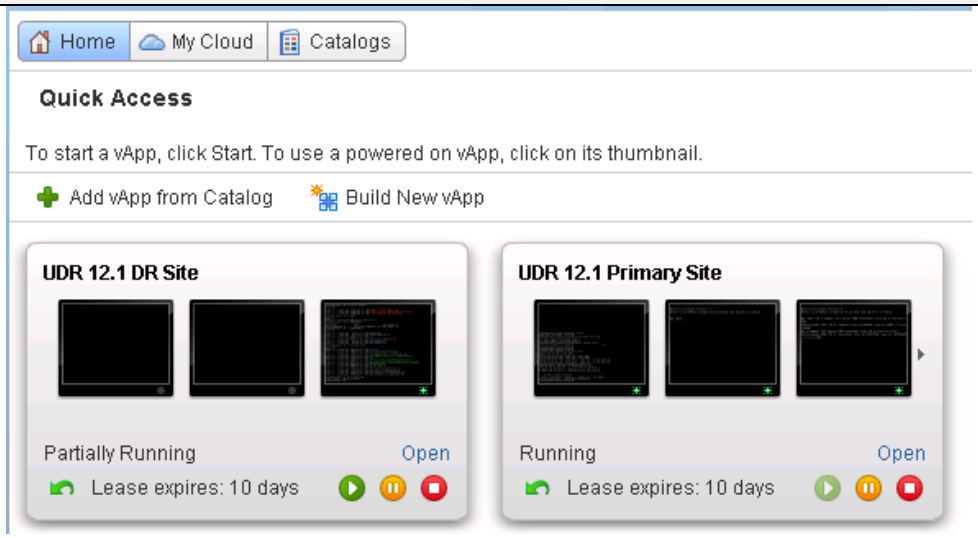
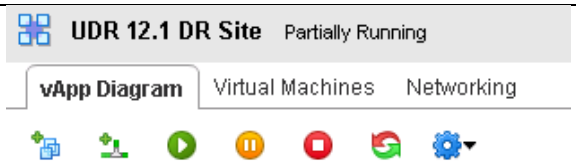
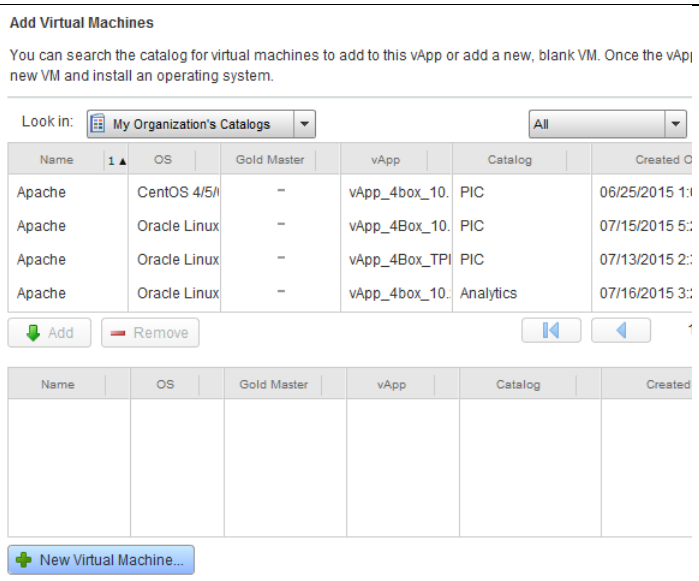
This procedure will create UDR virtual machines (guests) from ISO.

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

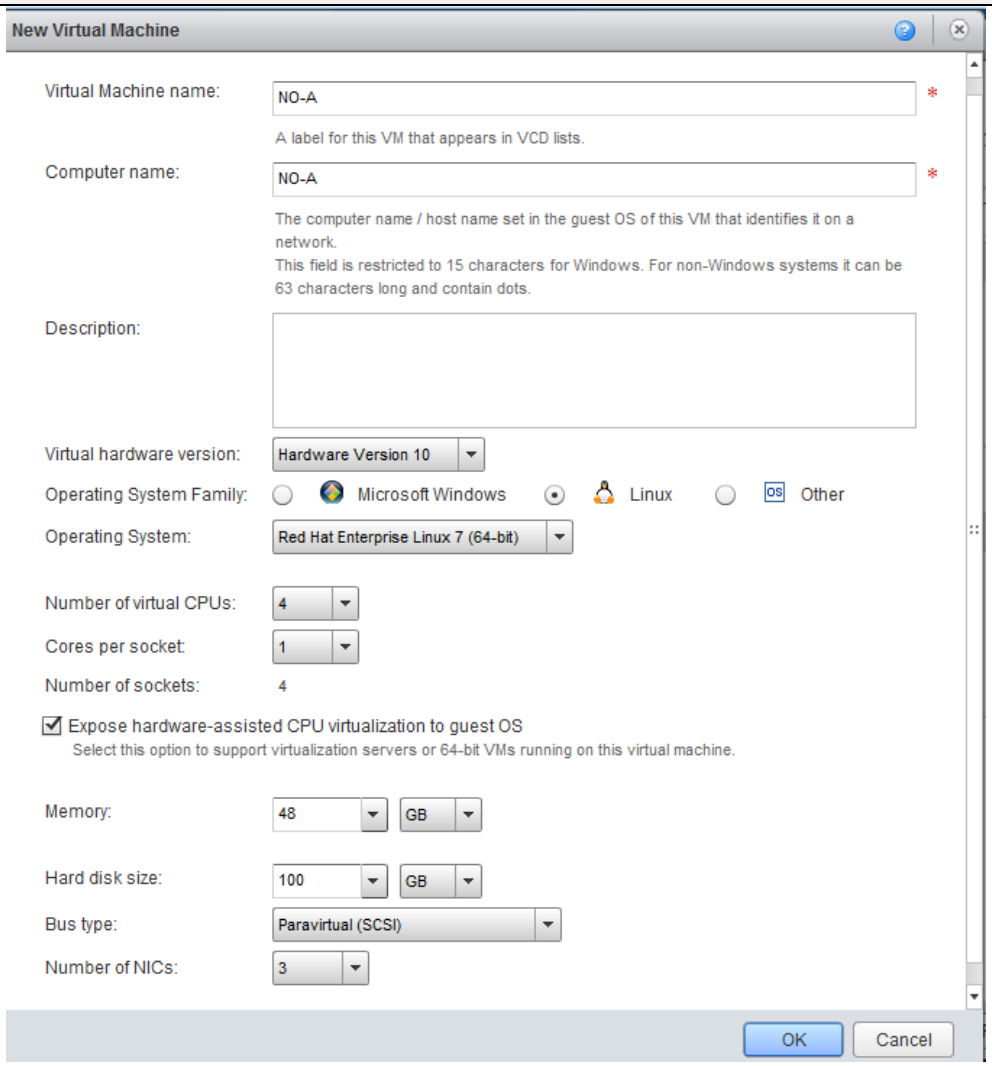
Procedure 25: Create Guests from ISO with vCloud Director

Step	Procedure	Result
1. ☐	Log into the VMware vCloud Director	

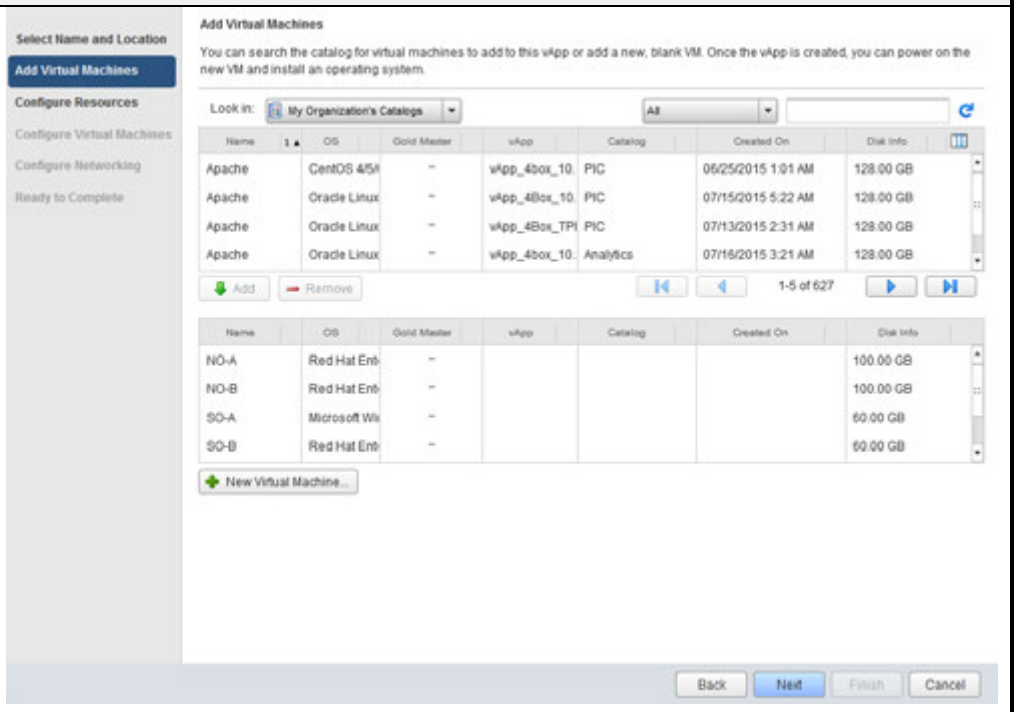
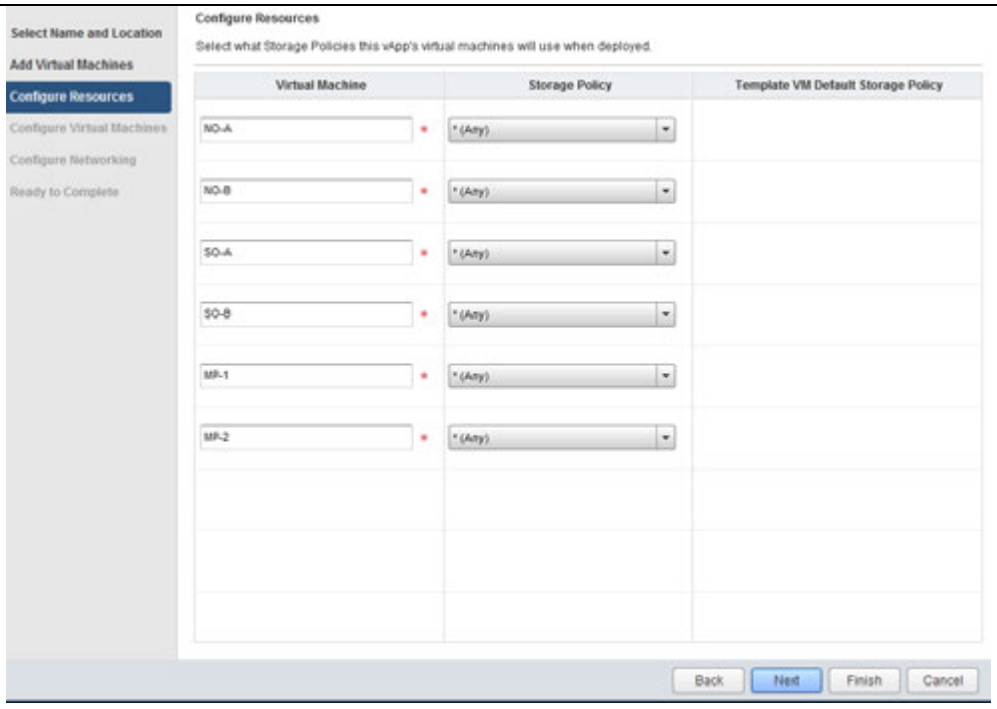
Procedure 25: Create Guests from ISO with vCloud Director

Step	Procedure	Result
2. ☐	**vCloud Director:** Select **Open** hyperlink for the UDR vApp	 Note: Current vApps are listed on the Home Page. If a new vApp is required continue with the next step to create it.
3. ☐	**vCloud Director:** Select icon on left to **Add VM**	
4. ☐	**vCloud Director:** Click **New Virtual Machine** button.	

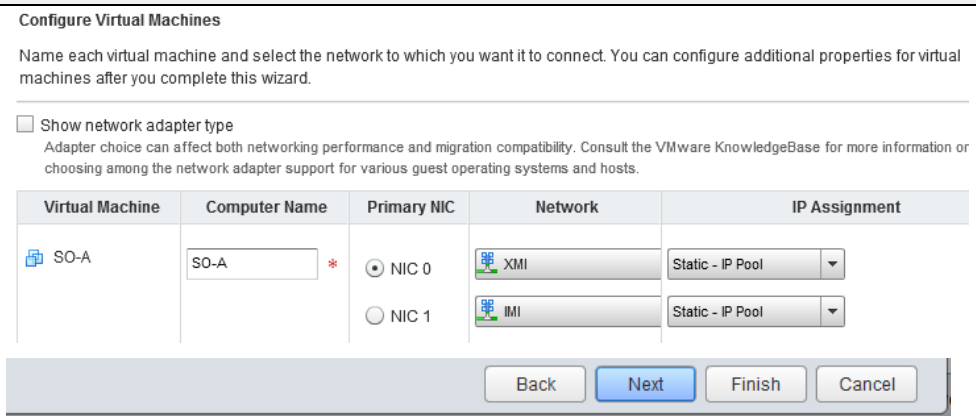
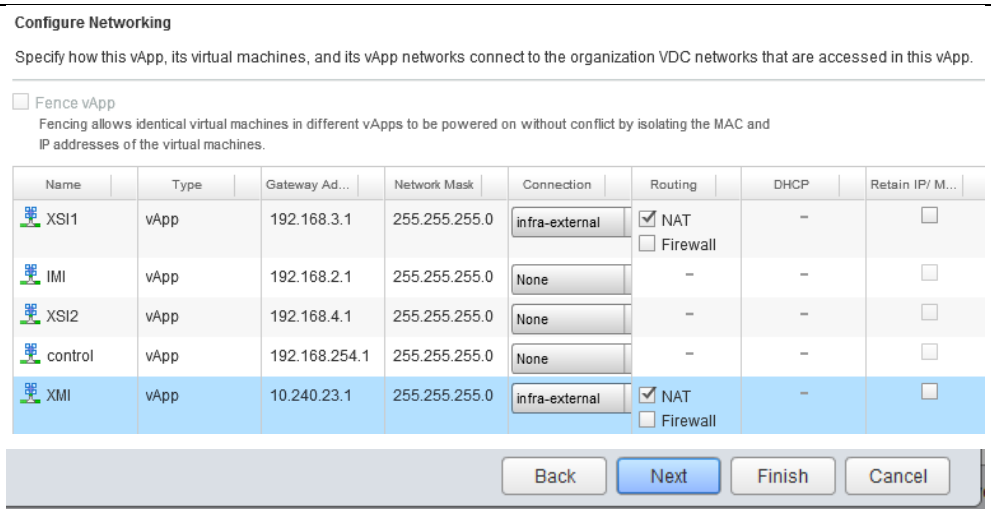
Procedure 25: Create Guests from ISO with vCloud Director

Step	Procedure	Result
5. ☐	**vCloud Director:** **1.** Enter **Name** and **Computer Name** for VM. **2.** Set Operating System Family = **Linux**. **3. Check** 'Expose hardware-assisted CPU…" box. **4.** Enter all **resource parameters** according to the role given in OCCUR Resource Profile [1]. **5.** Click **OK**.	

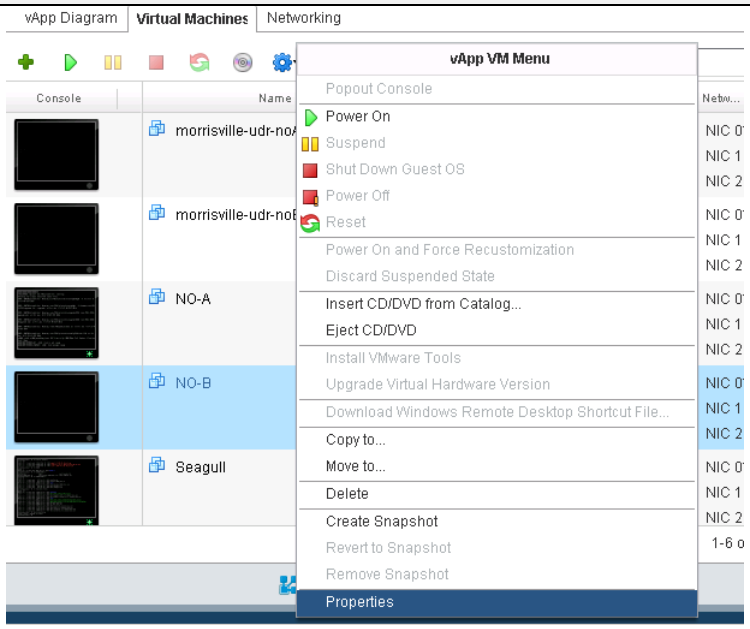
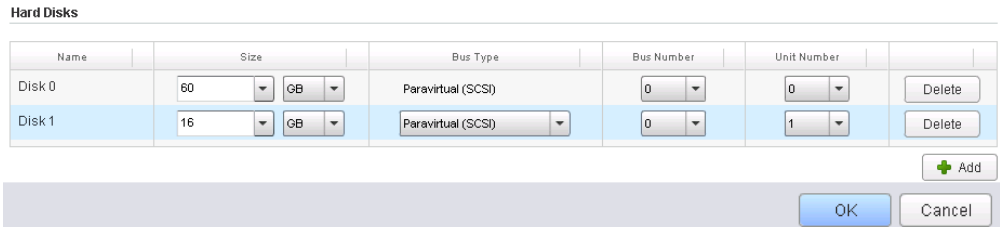
Procedure 25: Create Guests from ISO with vCloud Director

Step	Procedure	Result
6. ☐	**vCloud Director:** Click **Next**.	
7. ☐	**vCloud Director:** Click **Next**.	

Procedure 25: Create Guests from ISO with vCloud Director

Step	Procedure	Result
8. ☐	**vCloud Director:** **1.** Select **Networks** and **IP Assignments** for VM according to the role given in Resource Profile [1]. **2.** Click **Next**.	
9. ☐	**vCloud Director:** **1.** For each external network (**XMI**, **XSI**): Set **Connection** to the network a cloud administer has granted for external communication. **2.** For each external network (**XMI**, **XSI**): **Check NAT** and **Uncheck Firewall**. **3.** Click **Next**.	
10. ☐	**vCloud Director:** **1.** Review the settings. **2.** Click **Finish**.	

Procedure 25: Create Guests from ISO with vCloud Director

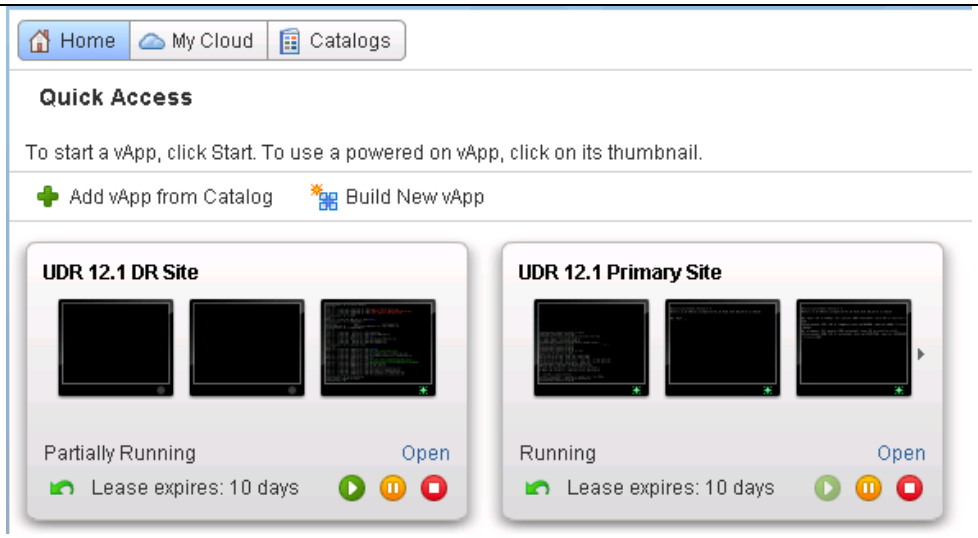
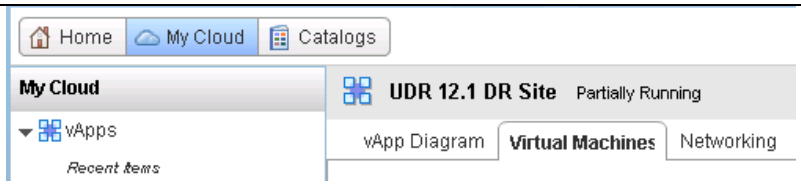
Step	Procedure	Result
11. ☐	**vCloud Director:** 1. Select the VM. 2. Click the **Blue Gear** icon. 3. Select **Properties.**	
12.	**vCloud Director:** 1. Select the **Hardware** tab. **2.** Adjust size of **Disk 0** to match **VM profile [1].**	
13.	**vCloud Director:** **Only If** the VM uses a second disk by [1]: 1. Click **Add** 2. Adjust size of **Disk 1** to match VM profile [1]. 3. Click **OK**	
THIS PROCEDURE HAS BEEN COMPLETED		

C-6 Install Guests from ISO

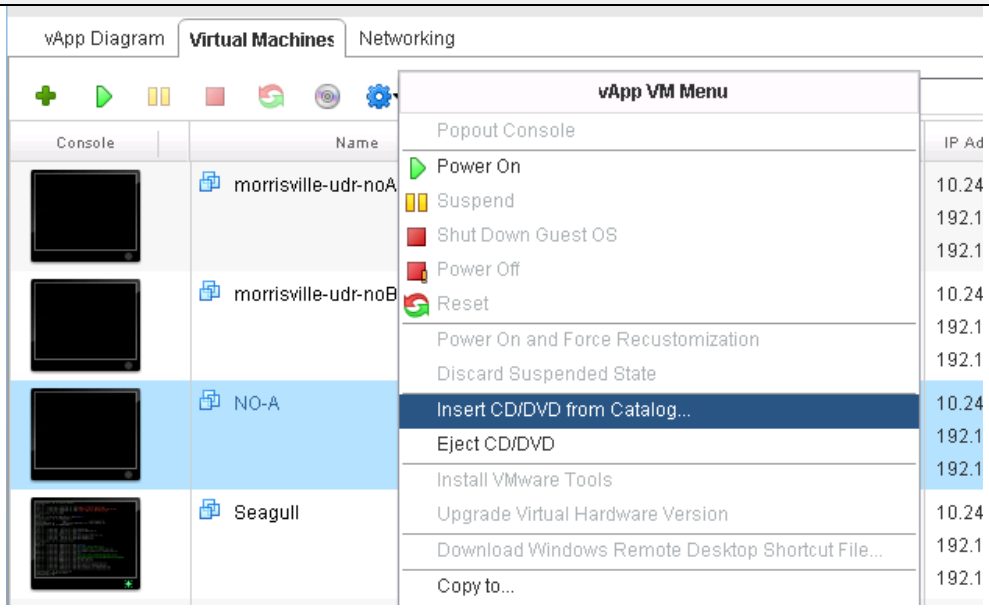
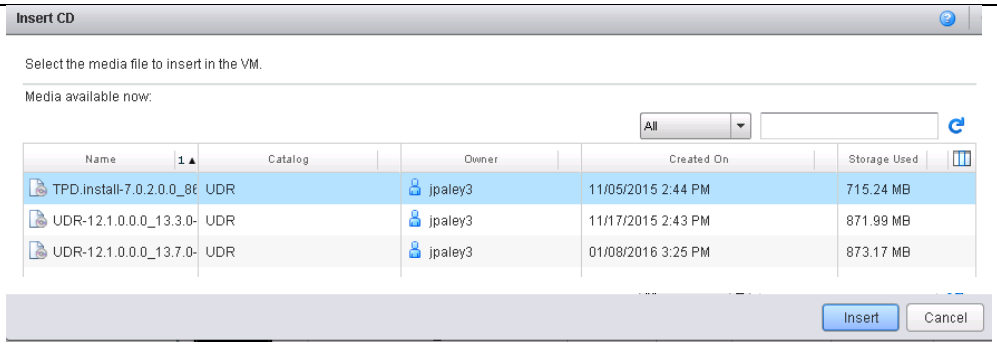
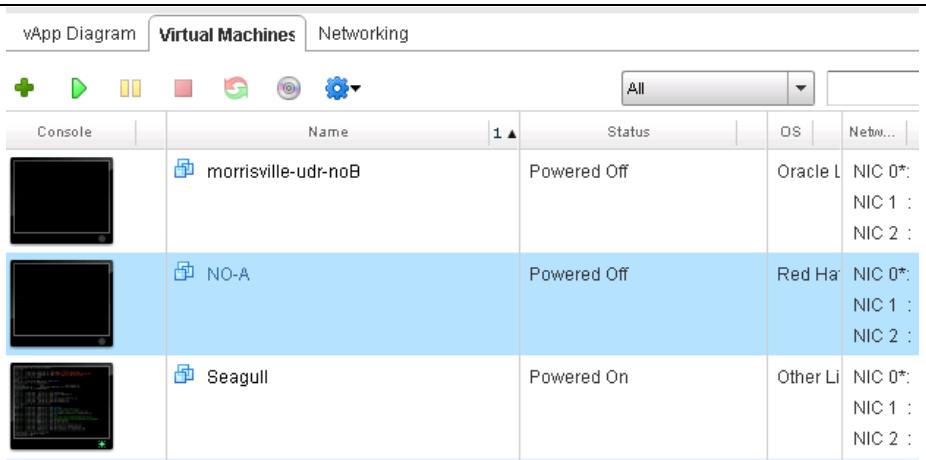
This procedure will create UDR virtual machines (guests) from ISO.

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

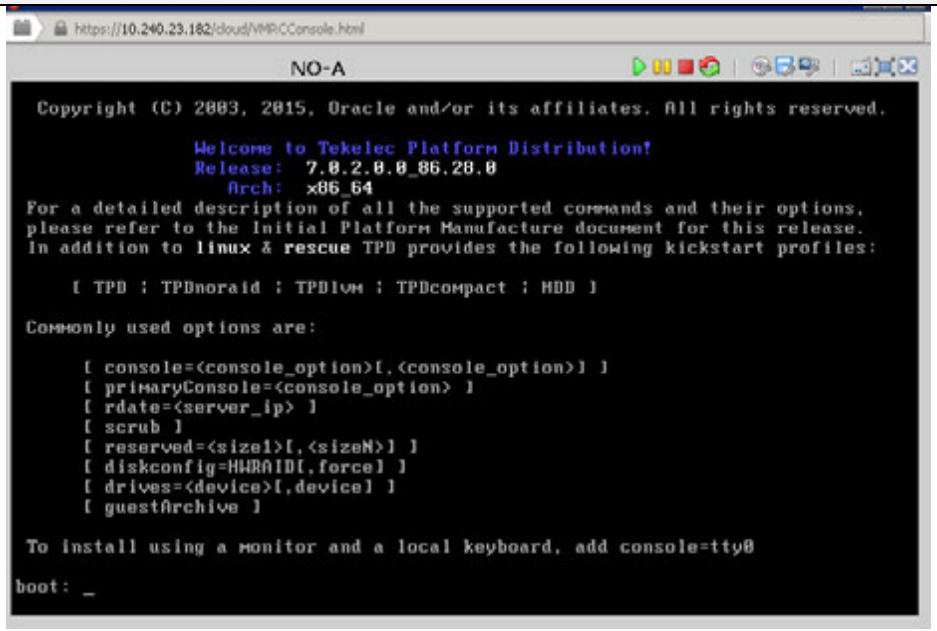
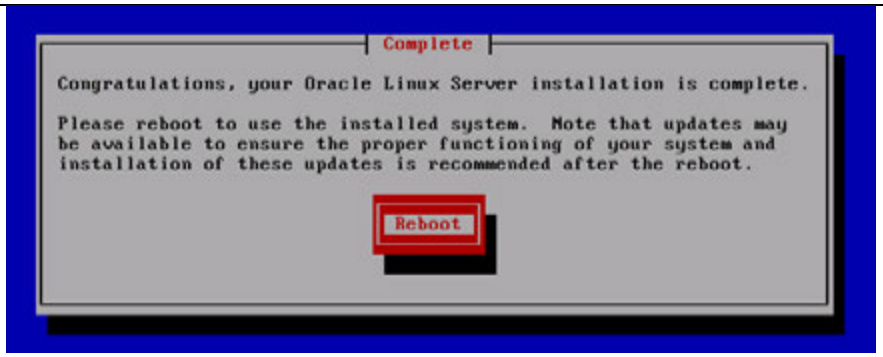
Procedure 26: Install Guests from ISO with vCloud Director

Step	Procedure	Result
1. ☐	Log into the VMware vCloud Director	
2. ☐	**vCloud Director:** Select **Open** hyperlink for the UDR vApp then procede to **Step 5.**	 Note: Current vApps are listed on the Home Page. If a new vApp is required continue with the next step to create it.
3. ☐	**vCloud Director:** Select… → **My Cloud** → ***Virtual Machines***	

Procedure 26: Install Guests from ISO with vCloud Director

Step	Procedure	Result
4. ☐	**vCloud Director:** 1. Select the VM. 2. Click the **Blue Gear** icon. 3. Select **Insert CD/DVD from Catalog**.	
5. ☐	**vCloud Director:** 1. Select **TPD ISO**. 2. Click **Insert**	
6. ☐	**vCloud Director:** 1. Click on the **Green Play icon** to start the VM 2. Click the **Console** raise console window	

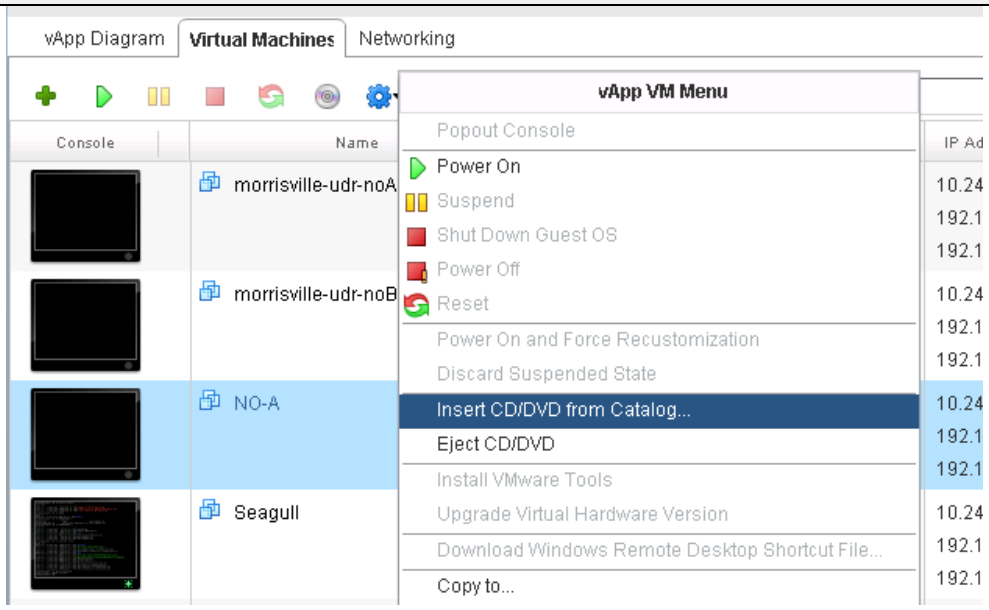
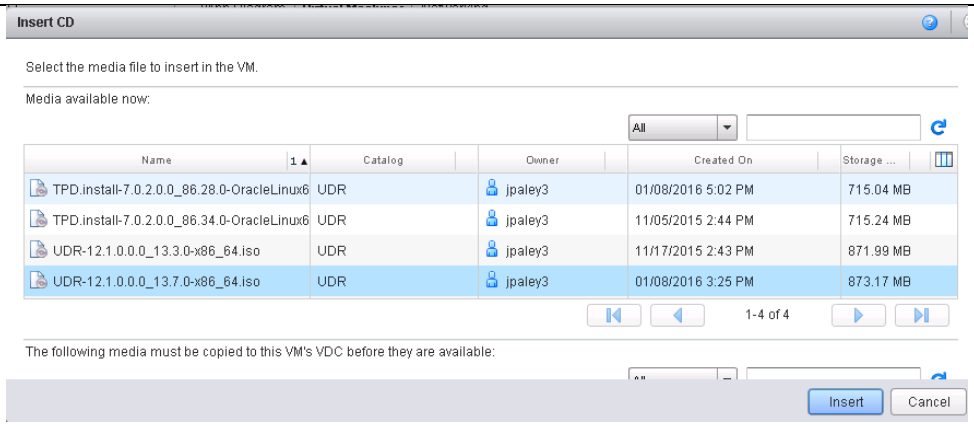
Procedure 26: Install Guests from ISO with vCloud Director

Step	Procedure	Result
7. ☐	**vCloud Director:** Initiate operating system install by entering the given text into console boot prompt	 **boot:** **TPDnoraid console=tty0**
8. ☐	When installation completes, press **Enter** to reboot	 Note: Escape the console session with keyboard combination **Ctrl – Alt**
9. ☐	After reboot, log into console	Hostnameb6092a316785 login: **root** password:
10. ☐	*Verify that the TPD release is **7.0.2.x***	`# getPlatRev` `7.0.2.0.0-86.34.0`
11. ☐	*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.*

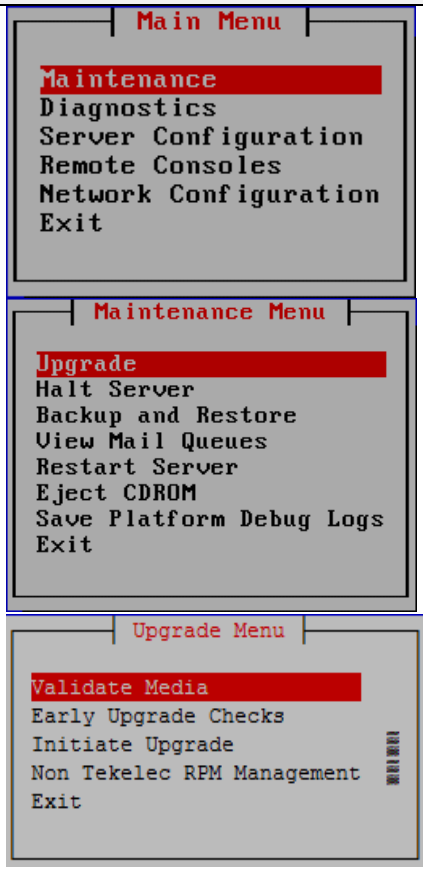
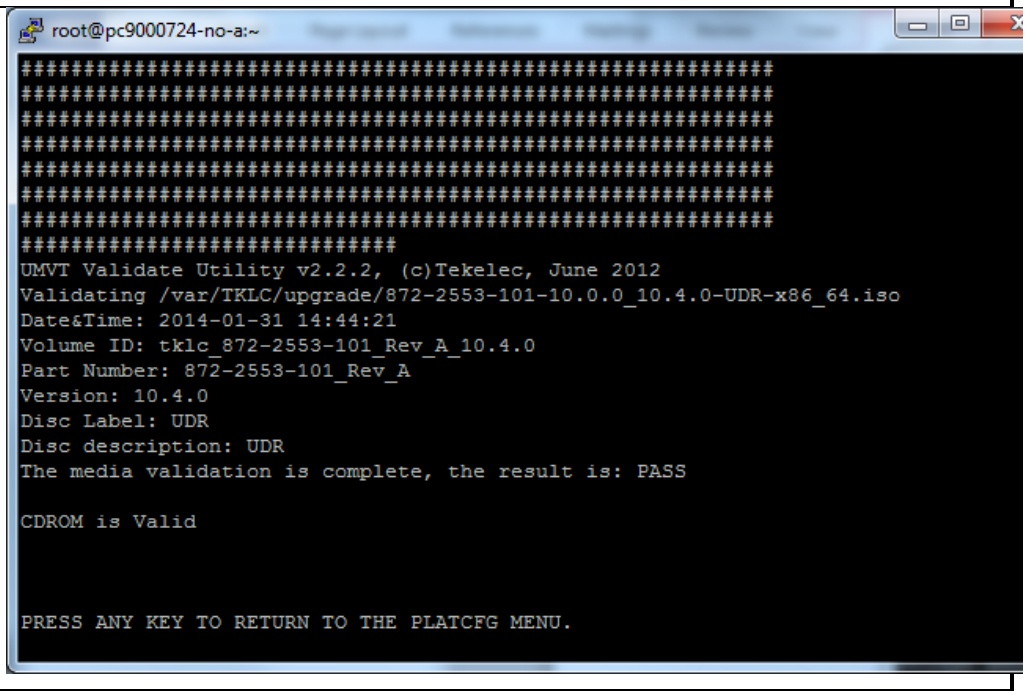
Procedure 26: Install Guests from ISO with vCloud Director

Step	Procedure	Result
12. ☐	*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.*
13. ☐	*Create physical volume **sdb***	`# pvcreate /dev/sdb` `Physical volume "/dev/sdb" successfully created`
14. ☐	*Create volume group **stripe_vg***	`# vgcreate stripe_vg /dev/sdb` `Volume group "stripe_vg" successfully created`
15. ☐	*Create logical volume **rundb***	`# lvcreate -L <SIZE>G --alloc anywhere --name rundb stripe_vg` `Replace <SIZE> size tag with a number in gigabytes half the size of the second disk according to [1].` `ISO lab second disk is 120: <SIZE> = 60` `ISO production second disk is 720: <SIZE> = 360`
16. ☐	*Make filesystem on **rundb***	`# 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.`
17. ☐	*Execute the following syscheck/restart steps in order*	`# syscheck --reconfig disk`
18. ☐	*Escape console*	Escape the console session with keyboard combination **Ctrl – Alt**

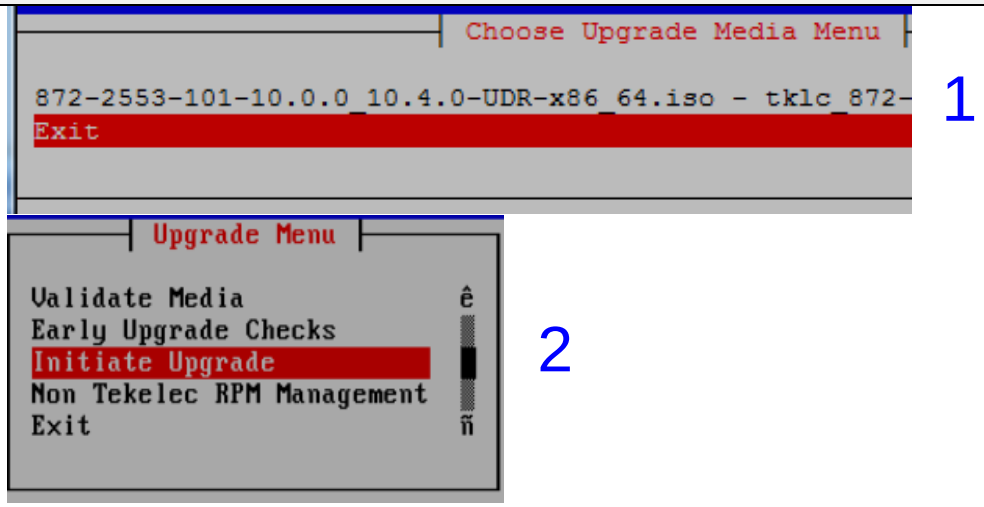
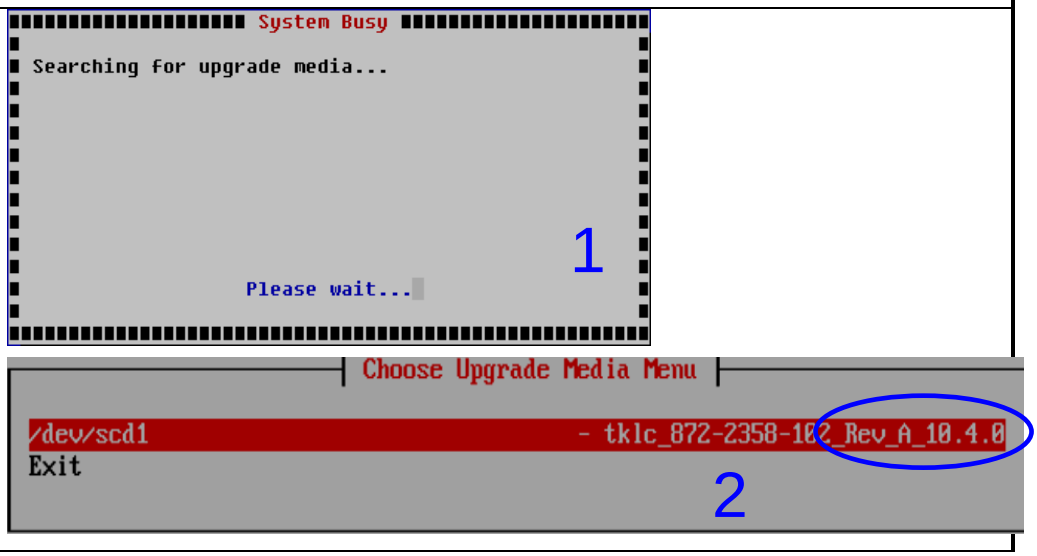
Procedure 26: Install Guests from ISO with vCloud Director

Step	Procedure	Result
19. ☐	**vCloud Director:** 1. Select the VM. 2. Click the **Blue Gear** icon. 3. Select **Insert CD/DVD from Catalog**.	
20. ☐	**vCloud Director:** 1. Select **UDR ISO**. 2. Click **Insert**	
21. ☐	**UDR Console:** 1. Re-enter the console window 2. Login to the **"platcfg"** utility.	`[root@hostname1260476221 ~]# su - platcfg`

Procedure 26: Install Guests from ISO with vCloud Director

Step	Procedure	Result
22. ☐	**UDR Console:** From the **"platcfg"** Main Menu… Select each option as shown on the right, pressing the **Enter** key after each selection. 1. Maintenance 2. Upgrade 3. Validate Meida	
23. ☐	**UDR Console:** From the **"platcfg"** Main Menu… Verify "CDROM is Valid." …… then press any key to return to platcfg menu.	

Procedure 26: Install Guests from ISO with vCloud Director

Step	Procedure	Result
24. ☐	**UDR Console:** From the **"platcfg"** Main Menu… Select each option as shown on the right, pressing the **Enter** key after each selection.	
25. ☐	**UDR Console:** Verify that the Application release level shown matches the target release. Press **Enter**.	

Procedure 26: Install Guests from ISO with vCloud Director

Step	Procedure	Result
26. ☐	**UDR Console:** Output similar to that shown on the right may be observed as the Application install progresses.	Determining if we should upgrade... Install product is TPD Install product record exists in /etc/tekelec.cfg Install products match Stopping cron service... Checking for stale RPM DB locks... Installing public key /mnt/upgrade/upgrade/pub_keys/MySQL_public_key.asc... Installing public key /mnt/upgrade/upgrade/pub_keys/RPM-GPG-KEY-redhat-beta... Installing public key /mnt/upgrade/upgrade/pub_keys/RPM-GPG-KEY-redhat-release.. . Checking for any missing packages or files Checking for missing files... No missing files found. Checking if upgrade is supported Current platform version: 5.0.0-72.28.0 Target platform version: 5.0.0-72.28.0 Minimum supported version: 4.2.0-70.60.0 Upgrade from same release as current is supported Evaluate if there are any packages to upgrade Evaluating if there are packages to upgrade...
27. ☐	**UDR 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-0000:00:1d.3-1 input: Intel(R) Multidevice as /class/input/input4 input: USB HID v1.01 Keyboard [Intel(R) Multidevice] on usb-0000:00:1d.3 Restarting system. . machine restart ▮
28. ☐	**UDR Console:** After the server has completed reboot… Log into the server as “**admusr**”.	CentOS release 5.6 (Final) Kernel 2.6.18-238.19.1.el5prerel5.0.0_72.22.0 on an x86_64 hostname1260476221 login:**admusr** Password: ***<admusr_password>***

Procedure 26: Install Guests from ISO with vCloud Director

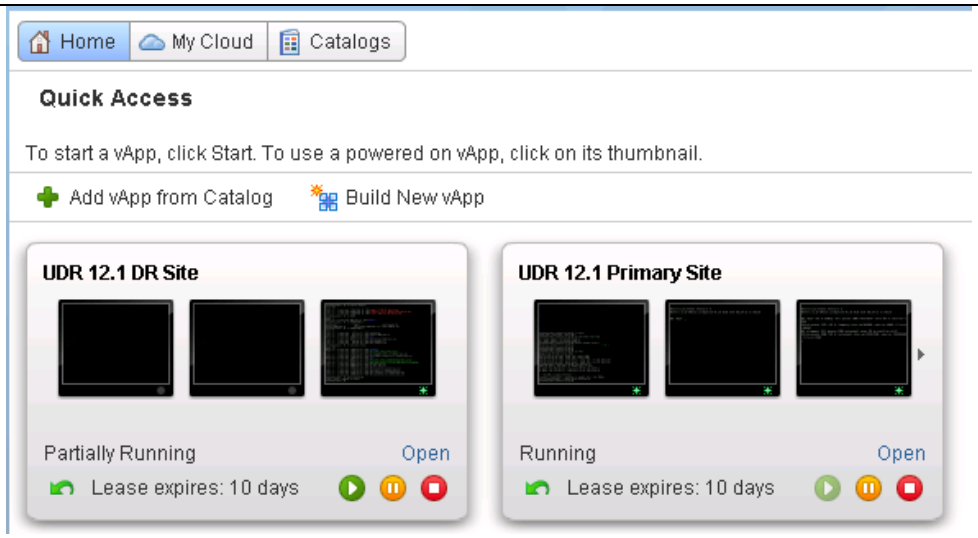
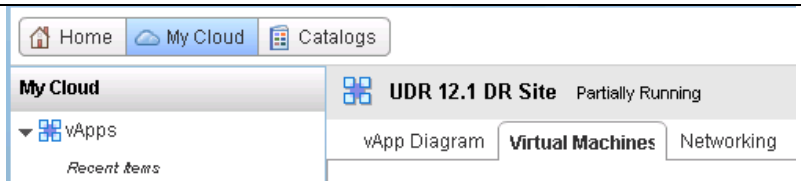
Step	Procedure	Result
29. ☐	**UDR Console:** Output similar to that shown on the right will appear as the server returns to a command prompt.	***** TRUNCATED OUTPUT ***** `|============================================================|` `| This system has been upgraded but the upgrade has not yet |` `| 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` `[admusr@hostname1260476221 ~]$`
30. ☐	**UDR Console:** *Verify successful upgrade.*	`$ verifyUpgrade` ***NOTE**: This command should return no output on a healthy system.*
31. ☐	**UDR Console:** Verify that the Application release level shown matches the target release.	`[admusr@pc9000724-no-a ~]$ appRev` `Install Time: Tue Dec 8 06:16:58 2015` `Product Name: UDR` `Product Release: 12.1.0.0.0_13.5.0` `Base Distro Product: TPD` `Base Distro Release: 7.0.2.0.0_86.36.0` `Base Distro ISO: TPD.install-7.0.2.0.0_86.36.0-OracleLinux6.6-x86_64.iso` `ISO name: UDR-12.1.0.0.0_13.5.0-x86_64.iso` `OS: OracleLinux 6.6`
32. ☐	*Change directory*	`$ cd /var/TKLC/backout`
33. ☐	*Perform upgrade acceptance.*	`$ sudo ./accept`
34. ☐	**UDR Console:** *Reboot the server*	Reboot the server: `$ sudo reboot` Wait until the reboot completes and re-login with admusr credentials.
35. ☐	**UDR Console:** *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		

C-7 Configure Guests OAM Network

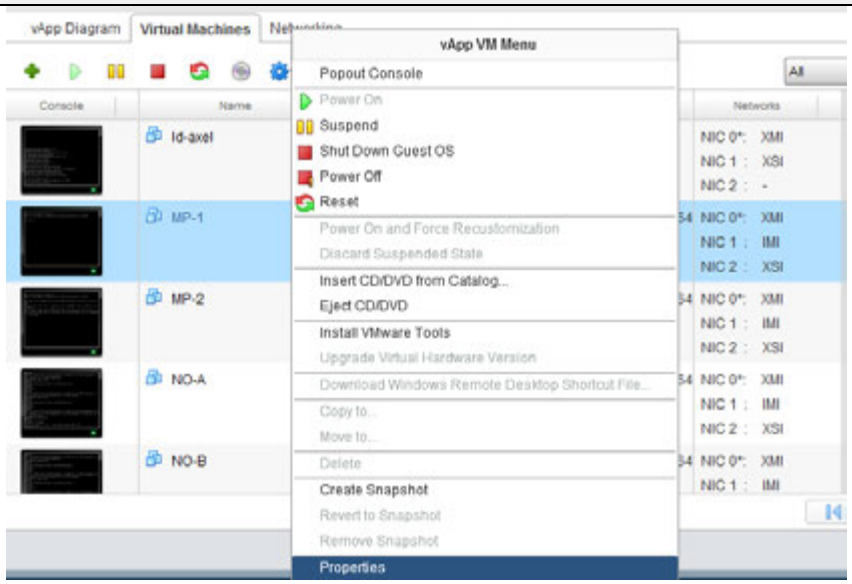
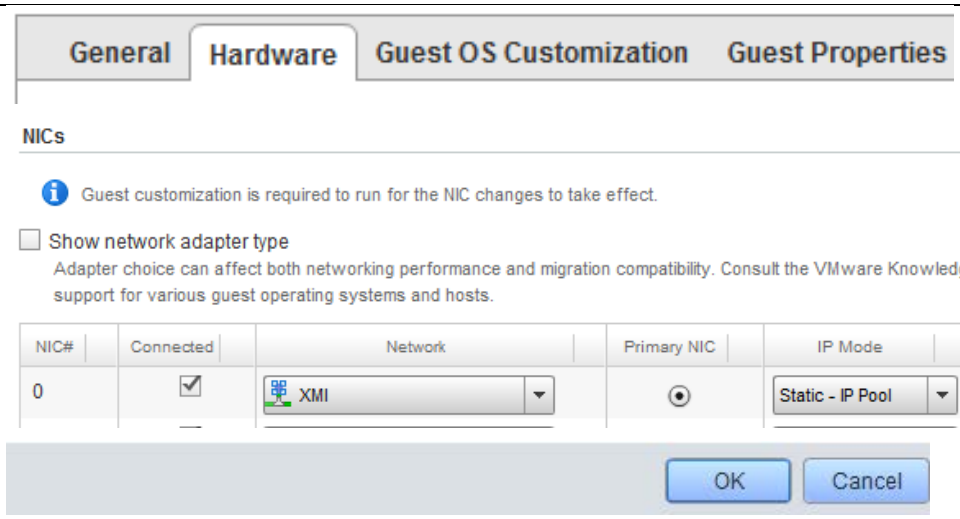
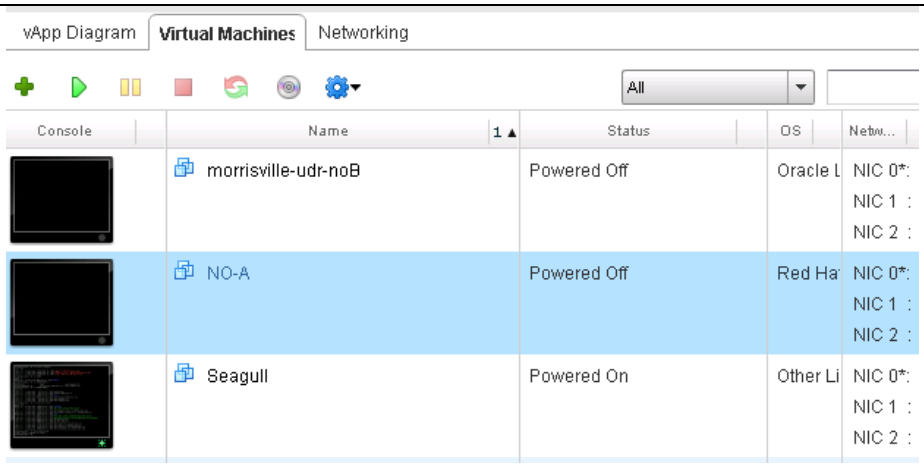
This procedure will create UDR virtual machines (guests) from ISO.

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

Procedure 27: Configure Guest OAM Network

Step	Procedure	Result
1. ☐	Log into the VMware vCloud Director	
2. ☐	**vCloud Director:** Select **Open** hyperlink for the UDR vApp then procede to **Step 5.**	 Note: Current vApps are listed on the Home Page. If a new vApp is required continue with the next step to create it.
3. ☐	**vCloud Director:** Select… → **My Cloud** → ***Virtual Machines***	

Procedure 27: Configure Guest OAM Network

Step	Procedure	Result
4. ☐	**vCloud Director:** 1. Select the VM. 2. Click the **Blue Gear** icon. 3. Select **Properties**	
5. ☐	**vCloud Director:** 1. Select **Hardware** tab. 2. Note the **NIC#** assigment of OAM/XMI network 3. Click **Cancel**	
6. ☐	**vCloud Director:** Click the console to raise console window	

Procedure 27: Configure Guest OAM Network

Step	Procedure	Result
7. ☐	**UDR Console:** Login to console as admusr	`login as: admusr` `Password:`
8. ☐	**UDR Console:** Configure **XMI** network	1. View a list of netAdm devices `$ sudo netAdm show` 2. Set the XMI device for routable OAM access: Note: Use '**add**' if the show command did not list device eth0. Use '**set**' otherwise. `$ sudo netAdm add --device=eth0 --address=<Guest_XMI_IP_Address> --netmask=<XMI_Netmask> --onboot=yes --bootproto=none` 3. Add the default route for XMI: `$ sudo netAdm add --route=default` `--gateway=<Gateway_XMI_IP_Address> --device=eth0` **Note:** The network device may be different than shown here (eth0) if the order of network adapter insertion was other than shown. Refer to **Step 5** for this assignment.
9. ☐	**UDR Console:** Configure **XSI** network **(NO and MP Server Only)**	Set the XSI device for routable signaling network access (Only for **NO** & **MP Servers**): Note: Where ethX is the interface associated with the signaling network `$ sudo netAdm add --device=eth2 --address=<Guest_XSI_IP_Address> --netmask=<XSI_Netmask> --onboot=yes --bootproto=none` **Note:** The network device may be different than shown here (eth2) if the order of network adapter insertion was other than shown. Refer to **Step 5** for this assignment.
10. ☐	**UDR Console:** **Repeat** as required **(MP Server Only)**	**Repeat Step 7** to add **XS1-2 (eth3)** if a second signaling network is in use (Only for **MP Servers**). Adjust input parameter values accordingly
11. ☐	**UDR Console:** Exit console	`$ exit` **Note:** Press **Ctrl-Alt** keys to escape from console.
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix D. SAMPLE NETWORK ELEMENT AND HARDWARE PROFILES

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

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

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

Example Network Element XML file:

Example NOAMP Network Element XML

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

Example SOAM Network Element XML

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

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

Example Server Hardware Profile XML – Virtual Guest:

```
<profile>
    <serverType>UDR VMware</serverType>
    <available>
        <device>eth0</device>
        <device>eth1</device>
        <device>eth2</device>
        <device>eth3</device>
    </available>
    <devices>
```

```
        <device>
            <name>eth0</name>
            <type>ETHERNET</type>
        </device>
        <device>
            <name>eth1</name>
            <type>ETHERNET</type>
        </device>
        <device>
            <name>eth2</name>
            <type>ETHERNET</type>
        </device>
        <device>
            <name>eth3</name>
            <type>ETHERNET</type>
        </device>
    </devices>
</profile>
```

Appendix E. RESOURCE PROFILE

VM Name	VM Purpose	vCPUs		RAM (GB)		Storage (GB)	
		2K Sh Profile	7K Sh Profile	2K Sh Profile	7K Sh Profile	2K Sh Profile	7K Sh Profile
NOAMP	Network Opertation, Administration, Maintenace, and Provisioning	4	14	48	128	OVA: 60 ISO: 100 (+120GB DB)	ISO: 400 (+720GB DB)
SOAM	Site (node) Opertation, Adminstration, Maintenace	4*	4*	4	8	60	60
MP	Message Processor	4	10	16	32	60	60

*- SOAM can run with only 2 CPU. This will not create a performance degradation though Server Hardware Configuration Error alarm will be raised and remain on the system.

Notes:

• Storage profile for NOAMP is determined by installation media. OVA installation will yield a NOAMP with a single 60GB storage. Higher capacity
installations can be achieved by ISO media installation of NOAMP with a larger primary storage and additional secondary storage for database.

• Lab numbers are for demonstration of functionality only and can only support 100/s SOAP provisioning with 2k/s SH traffic.

• Performance numbers were gathered from an ISO based lab deployment to enable the use of larger datasets than supported by an OVA based deployment, though the performance of ISO and OVA should be equivalent due to the equality of their processing and memory resource.

Appendix F. NETWORK DEVICE ASSIGNMENTS

		Interface Assignment						
Product	**Role**	Control	Platform Management	OAMP (XMI)	Local (IMI)	Signaling A (XSI1)	Signaling B (XSI2)	NetBackup
Platform	**TVOE**							
	PMAC							
UDR	**NOAMP**			eth0	eth1	eth2		
	SOAM			eth0	eth1			
	MP			eth0	eth1	eth2	eth3	

Legend				
Mandatory	Not Applicable	Unsupported	Optional	Suggested

Appendix G. OPENSTACK CLOUD ORACLE COMMUNICATIONS USER DATA REPOSITORY

This appendix contains procedures for deploying User Data Repository on the Openstack platform. The steps here contain references to third party interfaces, the accuracy of which cannot be guaranteed. Appearance and function may differ between versions of Openstack software and deployments of Openstack cloud computing.

Important Note: The content of this appendix is for informational purposes only. Please consult the latest documents from the vendor of your OpenStack distrobution.

G-1 OpenStack Image Creation from OVA

This procedure will convert application media (OVA) to qcow2 format and upload it into OpenStack.

Needed material:

- Oracle Communications User Data Repository OVAs

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

Procedure 28: OpenStack Image Creation from OVA

Step	Procedure	Result
1. ☐	1. Login to OpenStack Controller Node using root user 2. Create /home/ova dir	login as: root root@100.65.218.136's password: **<root_password>** Last login: Thu Mar 31 21:10:59 2016 from 10.182.167.73 [root@pc12107008 ~]# **mkdir -p /home/ova** [root@pc12107008 ~]# **cd /home/ova**
2. ☐	Transfer OVA file this dir using sftp tool	[root@pc12107008 ova]# **ll** total 12322888 -rw-r--r-- 1 root root 1044500480 Mar 14 02:57 UDR-12.2.0.0.0_14.3.1.ova
3. ☐	Untar this ova file	[root@pc12107008 ova]# **tar xvf UDR-12.2.0.0.0_14.3.1.ova** UDR-14_3_1.ovf UDR-14_3_1.mf UDR-14_3_1.vmdk
4. ☐	Convert this vmdk file to qcow2 file	[root@pc12107008 ova]# **qemu-img convert -O qcow2 UDR-14_3_1.vmdk UDR-14_3_1.qcow2**

Procedure 28: OpenStack Image Creation from OVA

Step	Procedure	Result
5. ☐	Import converted qcow2 file into OpenStack	`[root@pc12107008 ova]# source /root/keystonerc_admin` `[root@pc12107008 ova(keystone_admin)]# time glance image-create --name UDR-14_3_1 --disk-format=qcow2 --container-format=bare --is-public=true --file=UDR-14_3_1.qcow2` `+------------------+--------------------------------------+` `| Property | Value |` `+------------------+--------------------------------------+` `| checksum | 81e7f682231b108e29053e9516ff91ac |` `| container_format | bare |` `| created_at | 2016-03-29T06:56:51 |` `| deleted | False |` `| deleted_at | None |` `| disk_format | qcow2 |` `| id | ee0ffa59-356b-4b32-aea2-b0cdf9063653 |` `| is_public | True |` `| min_disk | 0 |` `| min_ram | 0 |` `| name | UDR-14_3_1 |` `| owner | 63efbafd70864562aa6440abfca60ca5 |` `| protected | False |` `| size | 3615227904 |` `| status | active |` `| updated_at | 2016-03-29T06:57:16 |` `| virtual_size | None |` `+------------------+--------------------------------------+` `real 0m26.267s` `user 0m2.435s` `sys 0m2.691s`
6. ☐	After image-create, this image could be seen from OpenStack GUI under → **Project** → **Images**	
THIS PROCEDURE HAS BEEN COMPLETED		

G-2 OpenStack Image Creation from ISO

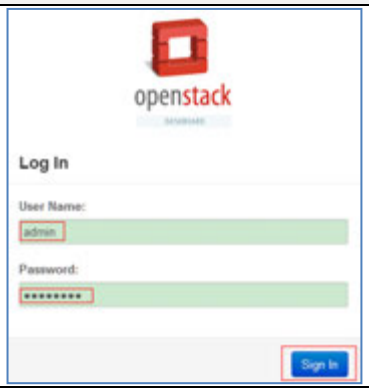
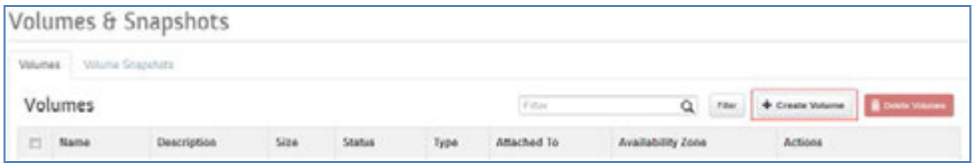
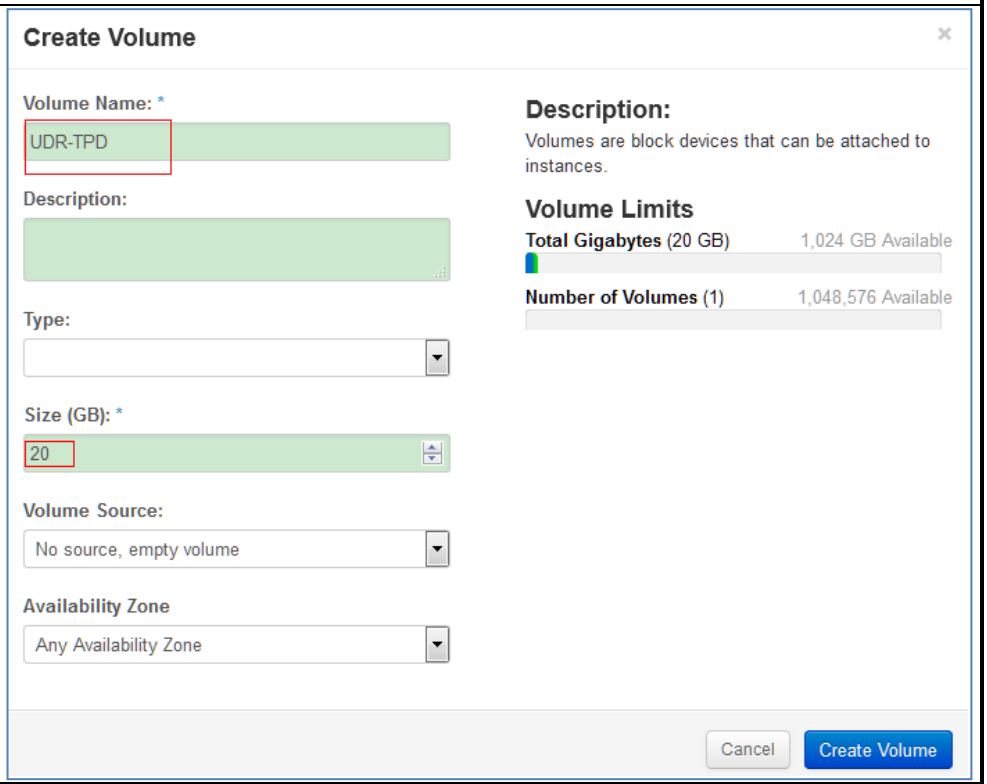
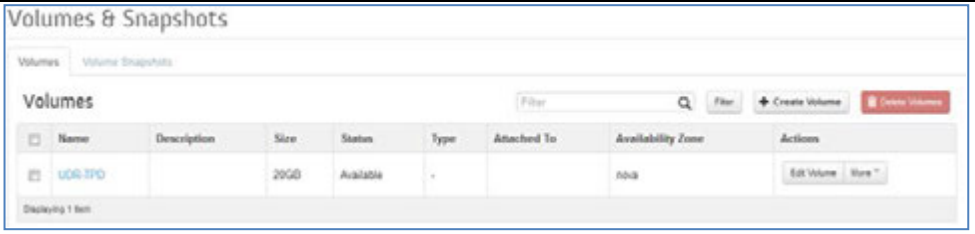
This procedure will create an OpenStack qcow2 image based on ISO media. This procedure is based on the OpenStack IceHouse release and serves only as an example. It requires administrative access to the OpenStack controller node.

Needed material:

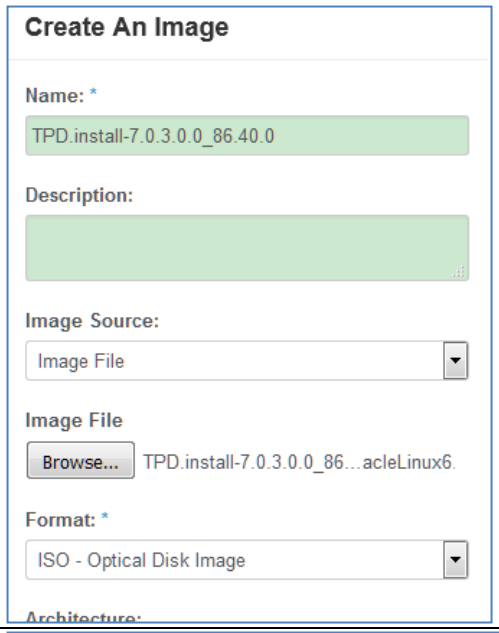
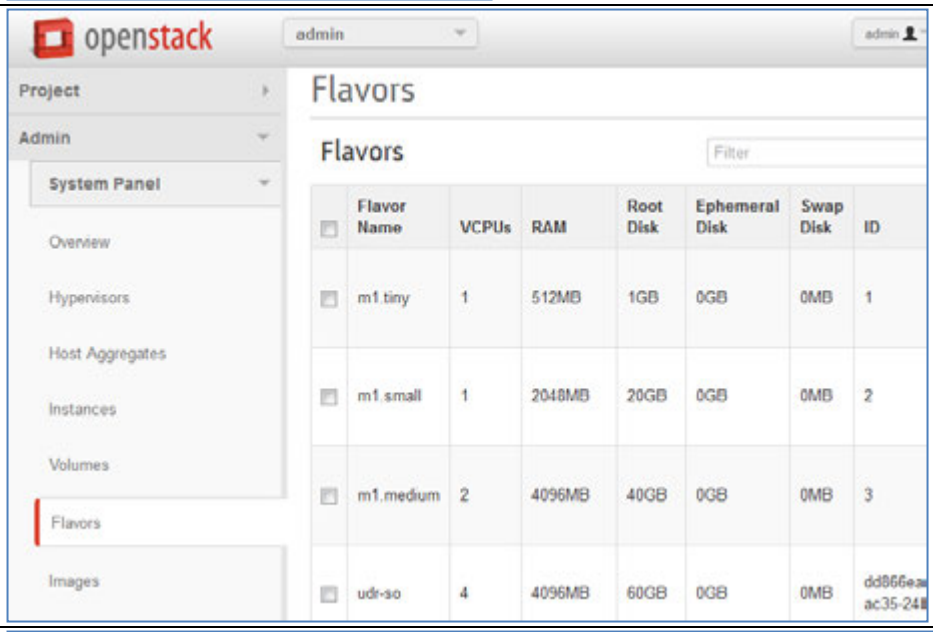
- Oracle Communications Tekelec Platform Distribution ISO

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

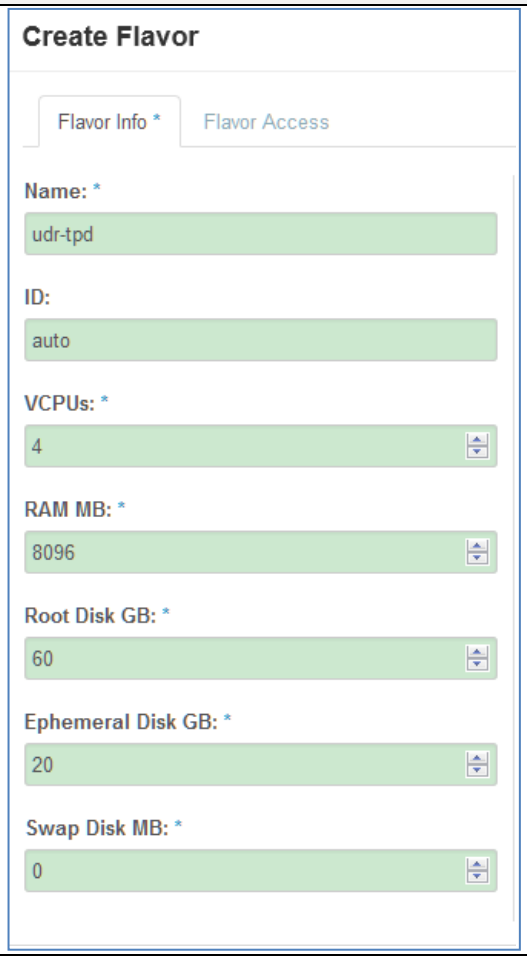
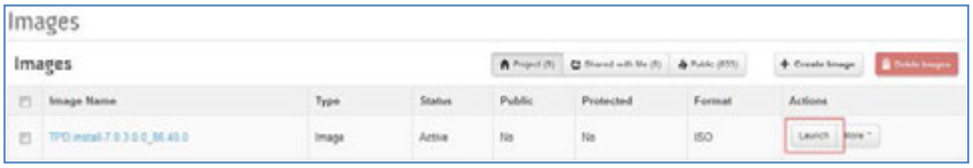
Procedure 29: OpenStack Image Creation from ISO

Step	Procedure	Result
1. ☐	Login to the OpenStack GUI with user who has admin privilege	
2. ☐	Select… **Main Menu** **→ Project** **→Volumes** …as shown on the right.	
3. ☐	Click the "+ **Create Volume**" button **Volume Name**: UDR-TPD **Size (BG)**: 20	
4. ☐	After create successfully, Volume status should be Available as shown on the right:	

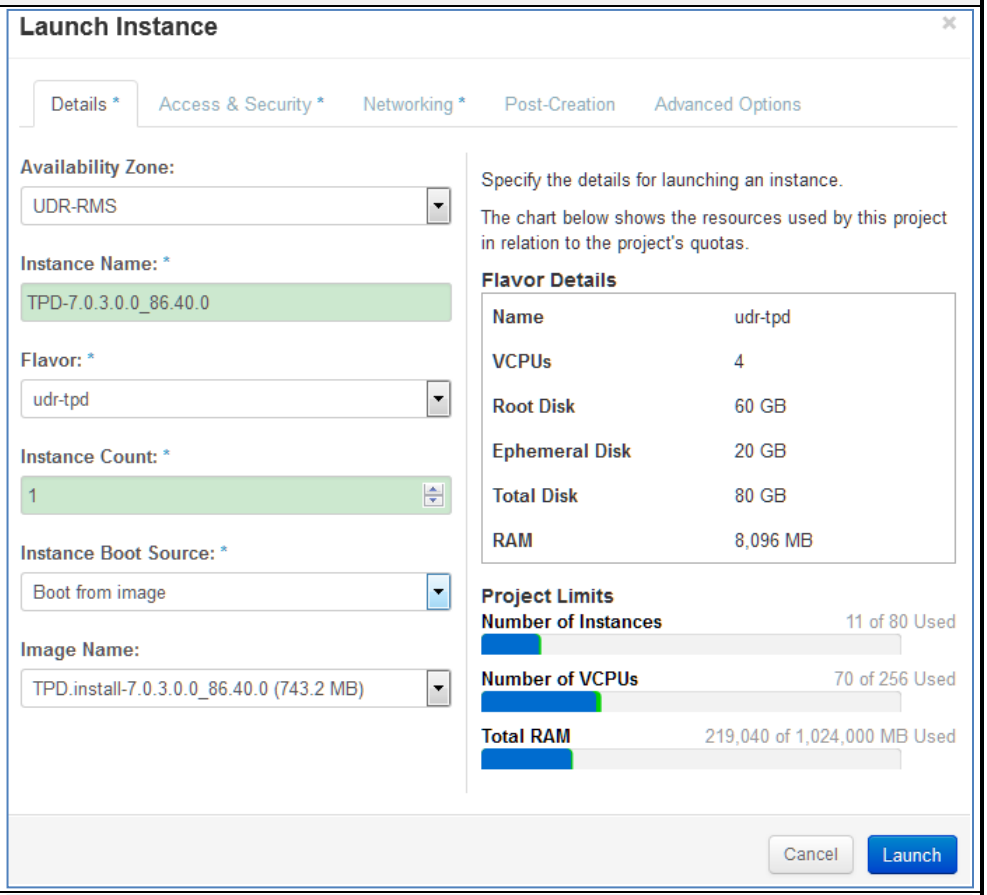
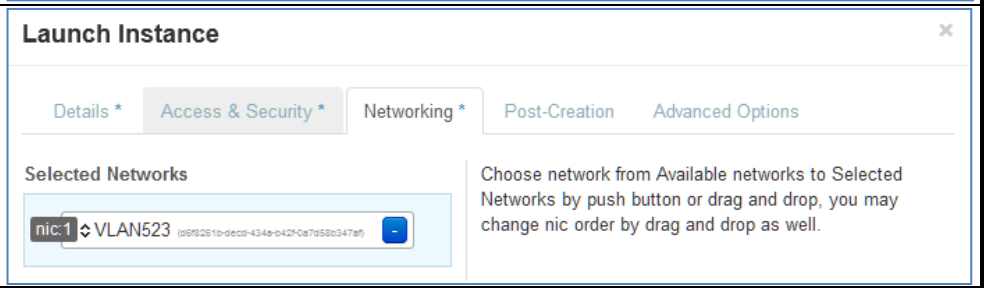
Procedure 29: OpenStack Image Creation from ISO

Step	Procedure	Result
5. ☐	Download corresponding version of TPD iso to your local server Select… **Main Menu** **→ Project** **→Images** Click the "+ **Create Image**" button **Format**: ISO	 
6. ☐	Select… **Main Menu** **→ Admin** **→*System Panel*** **→*Flavors*** …as shown on the right.	
7. ☐	Click the "+ **Create Flavor**" button	

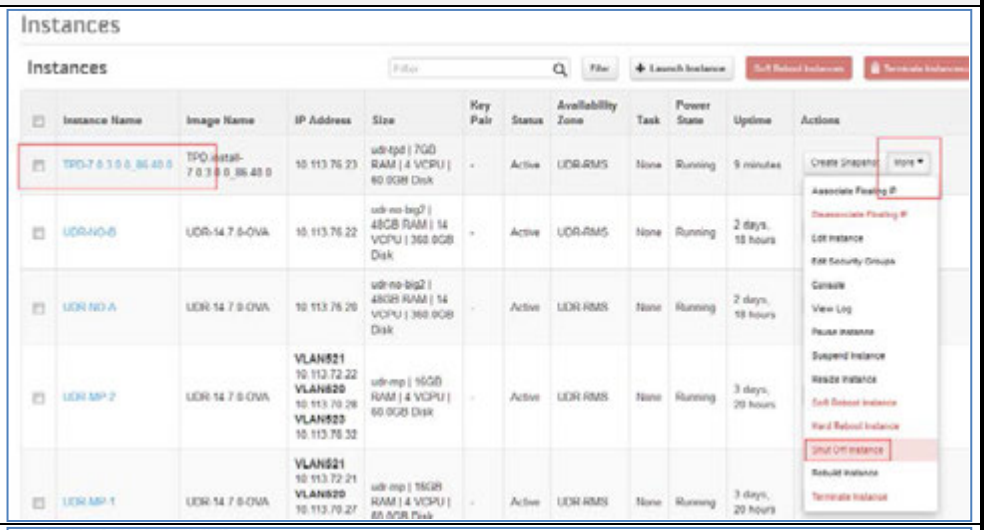
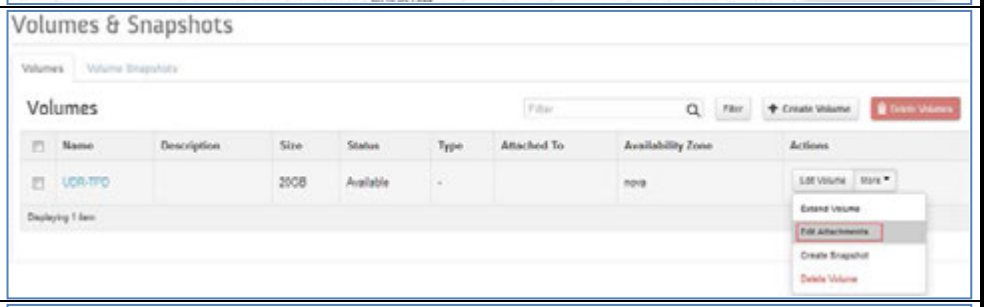
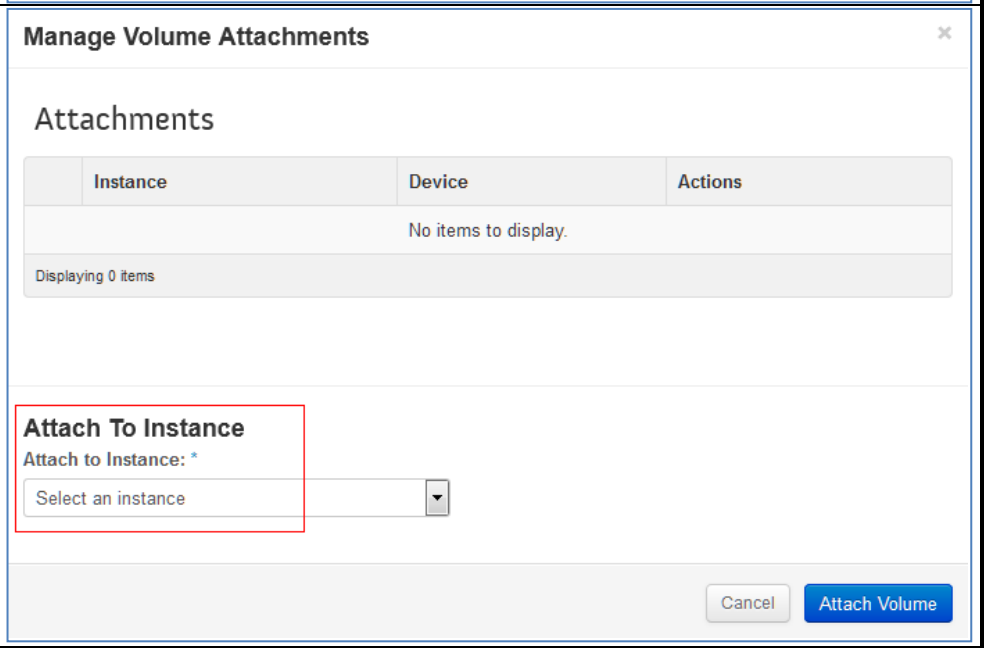
Procedure 29: OpenStack Image Creation from ISO

Step	Procedure	Result
8. ☐	Enter Flavor Details as shown on the right: **Name**: udr-tpd **VCPUS**: 4 **RAM BM**: 8096 **Root Disk GB**: 60 **Ephemeral**: 20G **Swap Disk MP**: 0	
9. ☐	Select… **Main Menu** **→ Project** **→Images** Click the “Lanch” button shown on the TPD instance just created	

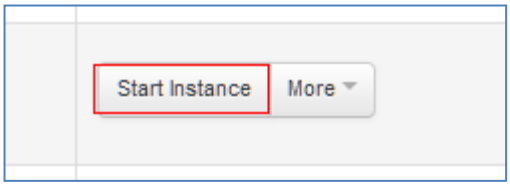
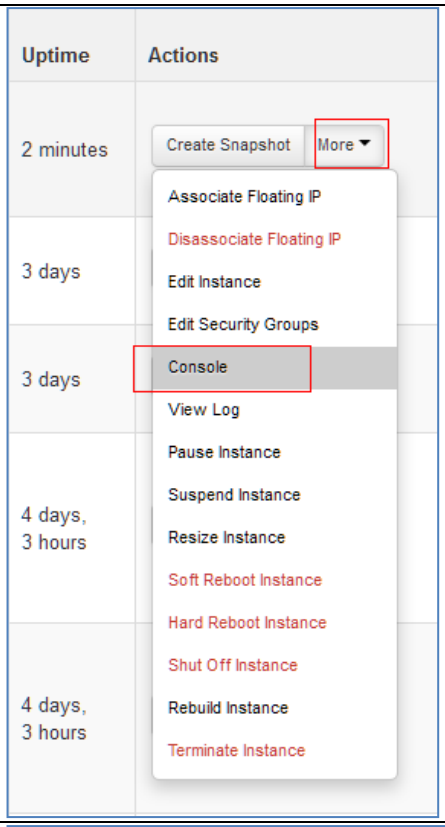
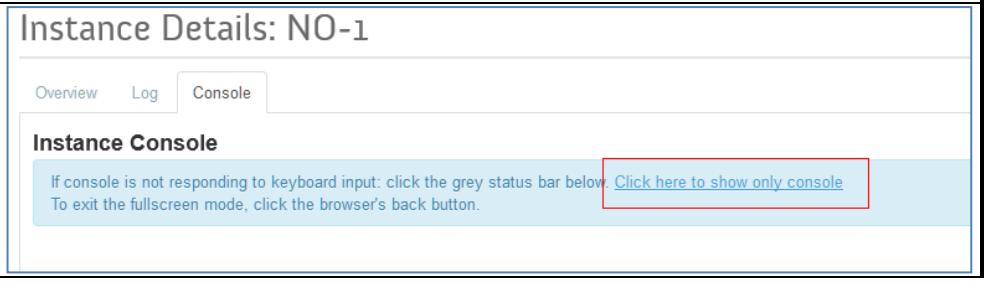
Procedure 29: OpenStack Image Creation from ISO

Step	Procedure	Result
10. ☐	Enter Instance Details as shown on the right: Chose an availability Zone. Enter an Instance name. **Flavor**: udr-tpd	
11. ☐	Click the "Networking" tag on the top Selete and add atleast one Network.	

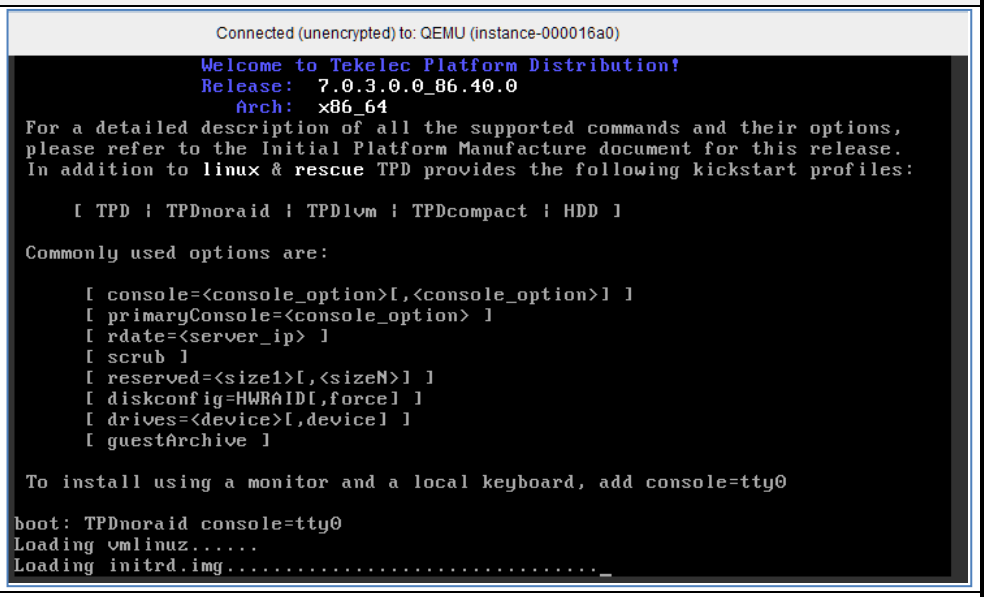
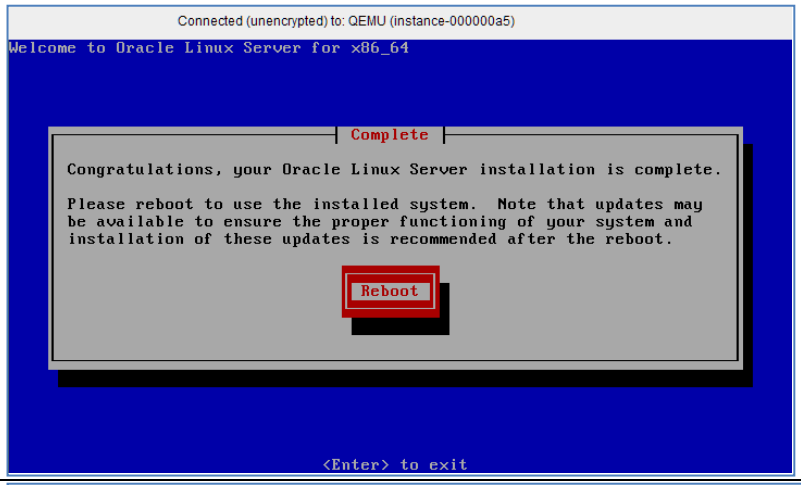
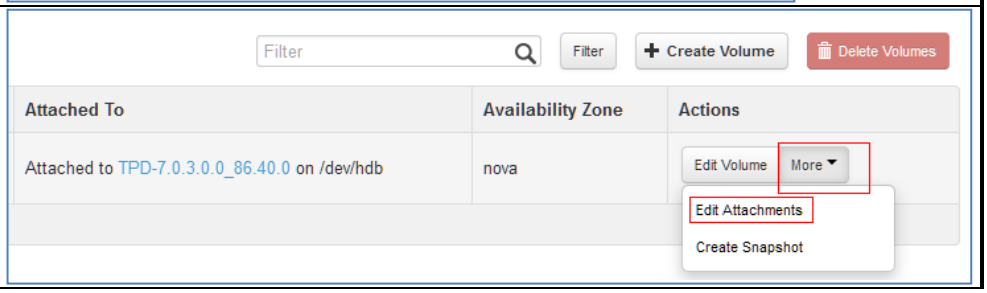
Procedure 29: OpenStack Image Creation from ISO

Step	Procedure	Result
12. ☐	Select… **Main Menu → Project →Instances** Click the "More->Shut off Instance"	
13. ☐	Select… **Main Menu → Project →Volumes** Click "**More->Edit Attachments**"	
14. ☐	Select the TPD instance created in Step 10 and click "**Attach Volume**"	

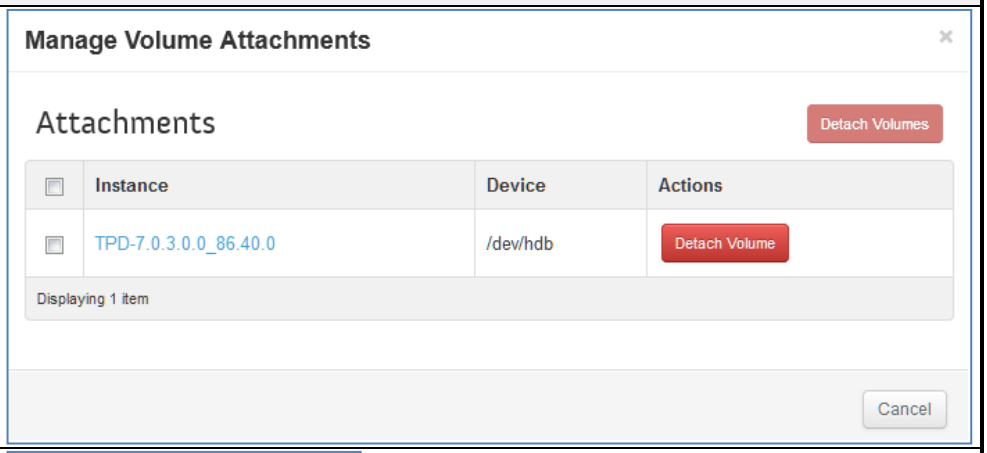
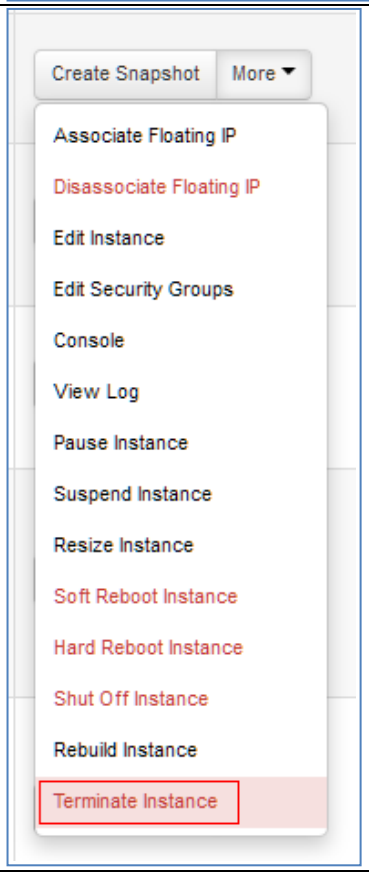
Procedure 29: OpenStack Image Creation from ISO

Step	Procedure	Result
15. ☐	Volume status should be “In Use”, and “Attached To” should show the attachment information as shown on right.	
16. ☐	Select… **Main Menu → Project →Instances** Click “**Start Instance**” button on the instance we just created	
17. ☐	Select… **Main Menu → Project →Instances** Click “**More->Console**” button	
18. ☐	Click “**Click here to show only console**”	

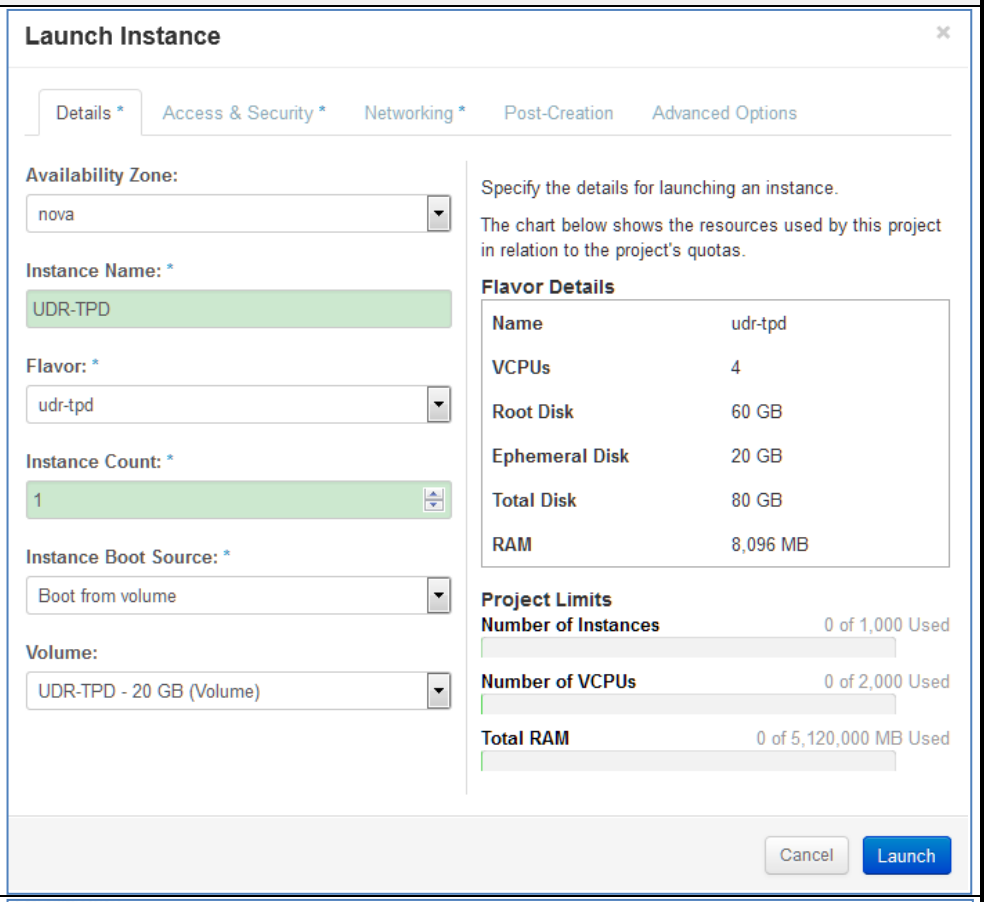
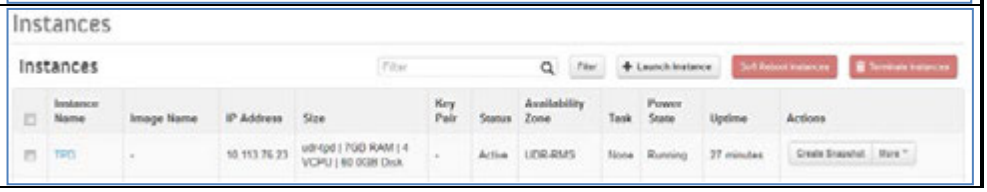
Procedure 29: OpenStack Image Creation from ISO

Step	Procedure	Result
19. ☐	Enter "**TPDnoraid console=tty0**" to install TPD Wait for installation finish.	
20. ☐	When installation finished , **do not press Enter button.**	**Do not reboot.** 
21. ☐	Select… **Main Menu → Project →Volumes** Click "**More->Edit Attachments**"	

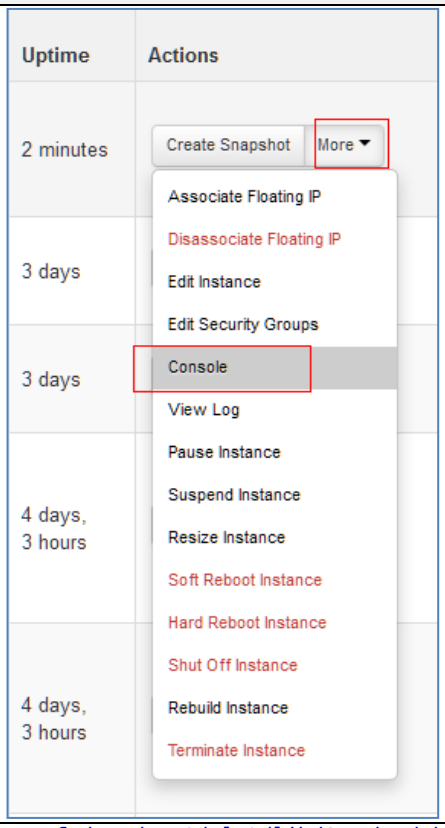
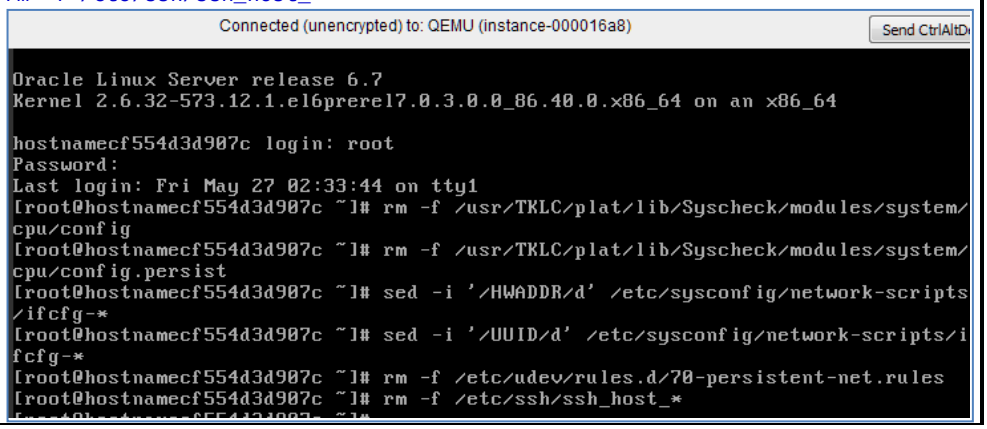
Procedure 29: OpenStack Image Creation from ISO

Step	Procedure	Result
22. ☐	Click "**Detach Volume**" button	
23. ☐	Select… **Main Menu → Project →Instances** Click "**More->Terminate Instance**" button on the instance we created	
24. ☐	Select… **Main Menu → Project →Instances** Click the "**+ Launch Instance**" button	

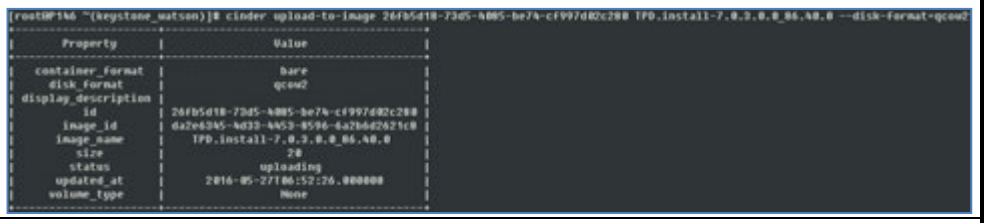
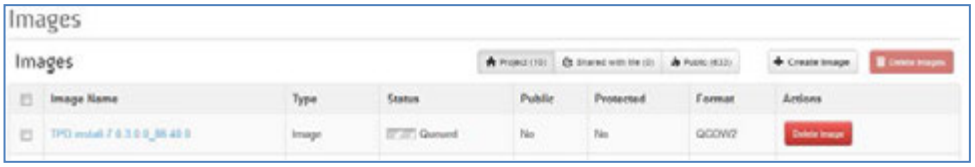
Procedure 29: OpenStack Image Creation from ISO

Step	Procedure	Result
25. ☐	Enter Instance Details as shown on the right: Chose an availability Zone. Enter an Instance name. **Flavor**: udr-tpd Use "Boot from volume" as Instance Boot Source Chose the volume create in Step 3	
26. ☐	Wait for instance launch	

Procedure 29: OpenStack Image Creation from ISO

Step	Procedure	Result
27. ☐	Select… **Main Menu → Project →Instances** Click "**More->Console**" button on the instance	
28. ☐	Execute these commands on the console	`rm -f /usr/TKLC/plat/lib/Syscheck/modules/system/cpu/config` `rm -f /usr/TKLC/plat/lib/Syscheck/modules/system/cpu/config.persist` `sed -i '/HWADDR/d' /etc/sysconfig/network-scripts/ifcfg-*` `sed -i '/UUID/d' /etc/sysconfig/network-scripts/ifcfg-*` `rm -f /etc/udev/rules.d/70-persistent-net.rules` `rm -f /etc/ssh/ssh_host_*` 

Procedure 29: OpenStack Image Creation from ISO

Step	Procedure	Result
29. ☐	Select… **Main Menu → Project →Instances** Click "**More->Terminate Instance**" on the instance	
30. ☐	Login to OpenStack Controller Node using root user	`login as: root` `root@100.65.218.136's password: <root_password>` `Last login: Thu Mar 31 21:10:59 2016 from 10.182.167.73` `[root@pc12107008 ova]# source /root/keystonerc_admin`
31. ☐	Find the volume id using cinder command "**cinder list**" Record the **Volume ID**	
32. ☐	Use cinder command to upload image. Use the Volume ID we got in last step here	`[root@P146 ~(keystone_watson)]# cinder upload-to-image <volume_ID> TPD.install-7.0.3.0.0_86.40.0 --disk-format=qcow2` 
33. ☐	Select… **Main Menu → Project →Images** Check upload status on this page, wait until it finished	
THIS PROCEDURE HAS BEEN COMPLETED		

G-3 Create VM from ISO-Based Image

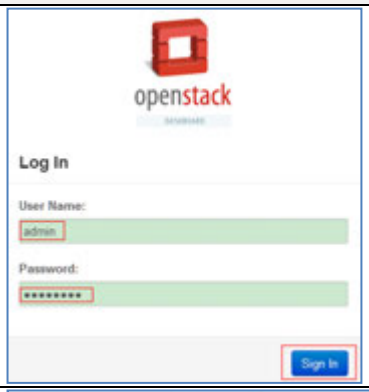
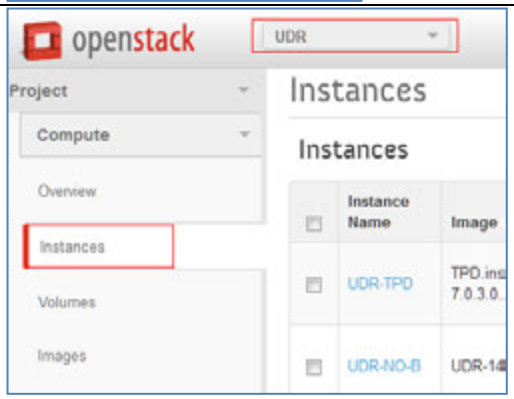
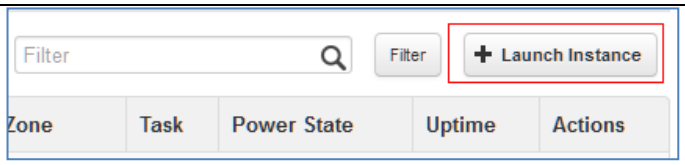
This procedure will create and configure a new VM instance based on the Tekelec Platform Distribution ISO file and install Oracle Communications User Data Repository ISO on it.

Requirements:

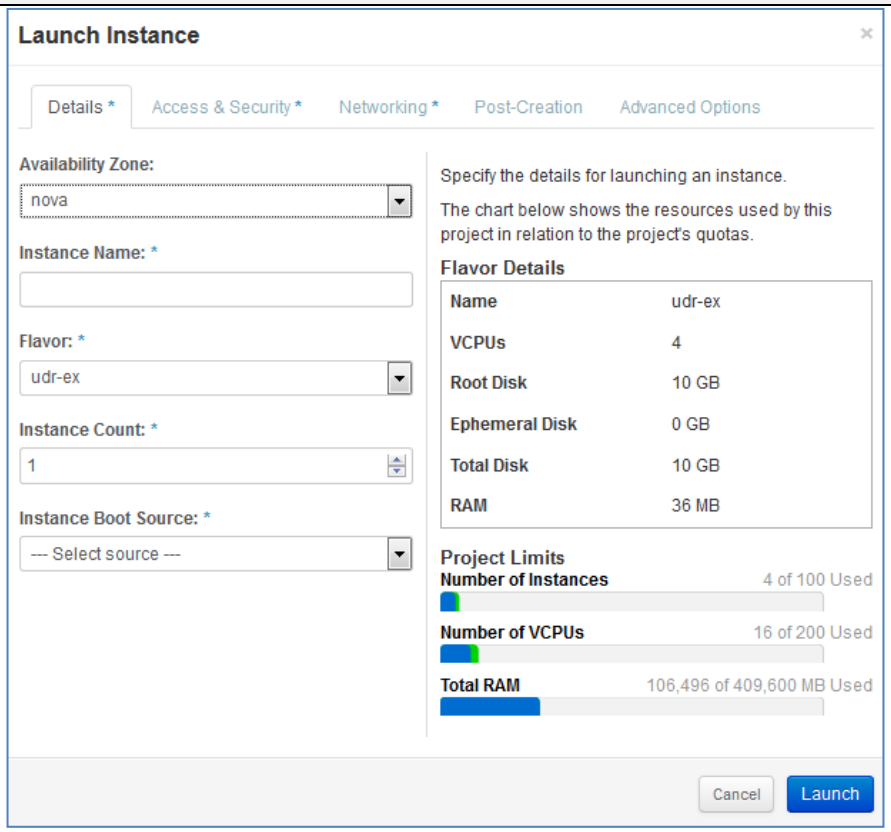
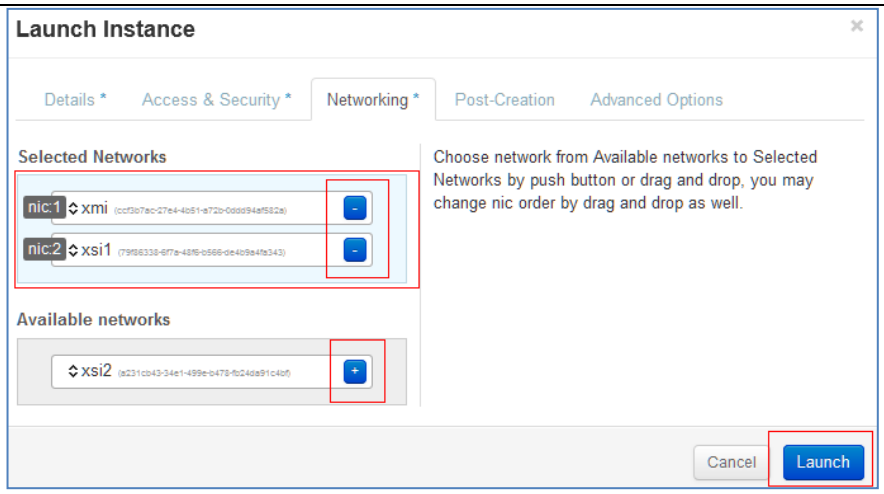
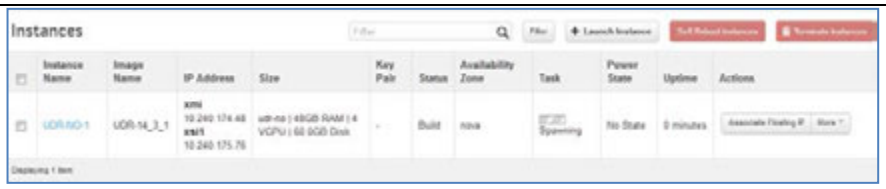
- **Appendix G-2 OpenStack Image Creation from ISO** is completed

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

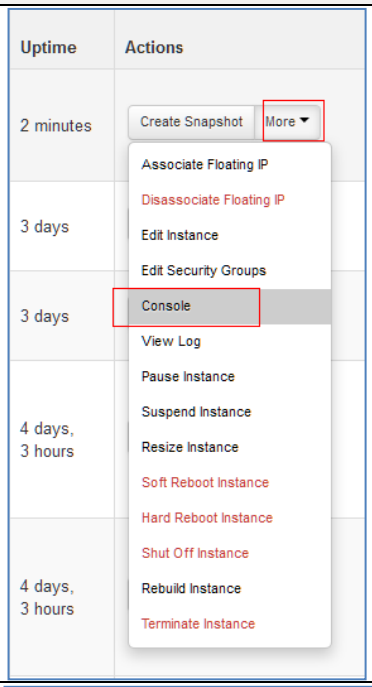
Procedure 30: Create VM from ISO-Based Image

Step	Procedure	Result
1. ☐	Login to the OpenStack GUI	
2. ☐	1. Select project, (ex: "UDR"). 2. Click →**Project** →**Instances** to show all Instances created under this project:	
3. ☐	Click **Launch Instance**	

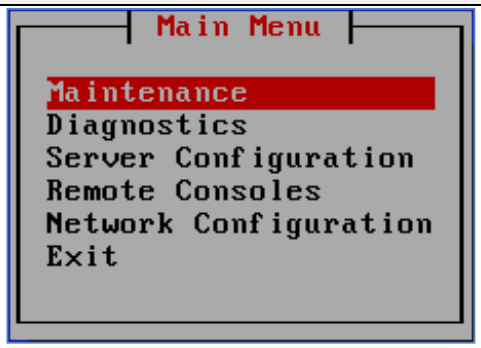
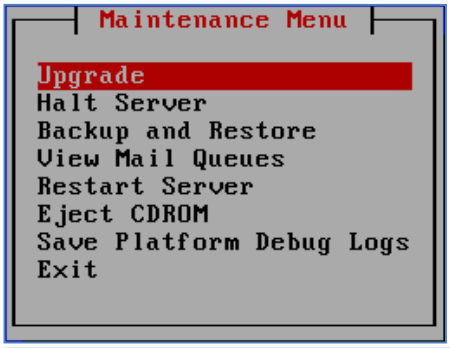
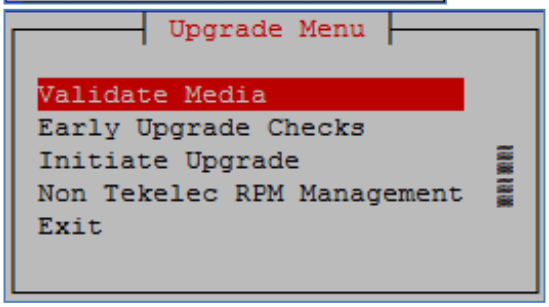
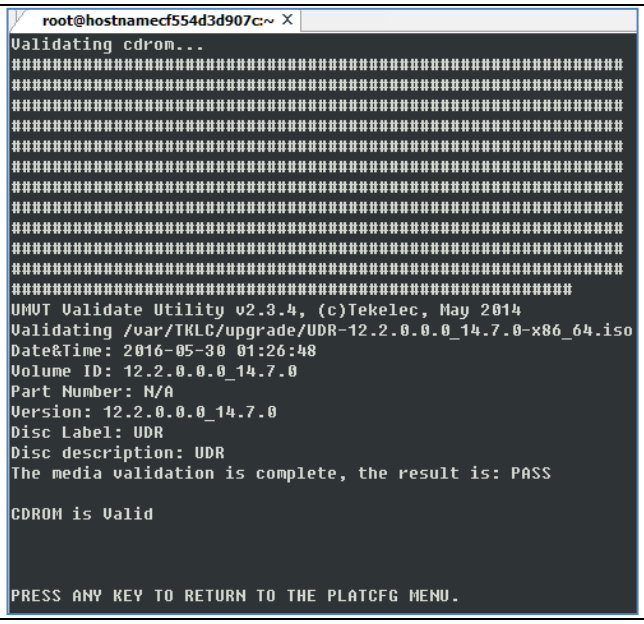
Procedure 30: Create VM from ISO-Based Image

Step	Procedure	Result
4. ☐	1. Select an **→Availability Zone** 2. Enter a unique **Instance Name** 3. Select **Flavor** to suit the server's role 4. Select **→Boot from image** image created in Appendix G-2	
5. ☐	1. Click **Networking tab** Add networks to suit the server's role 2. Click **Launch** to create instance	
6. ☐	Wait for instance creation finish, you will see IP Addresses allocated for this instance	

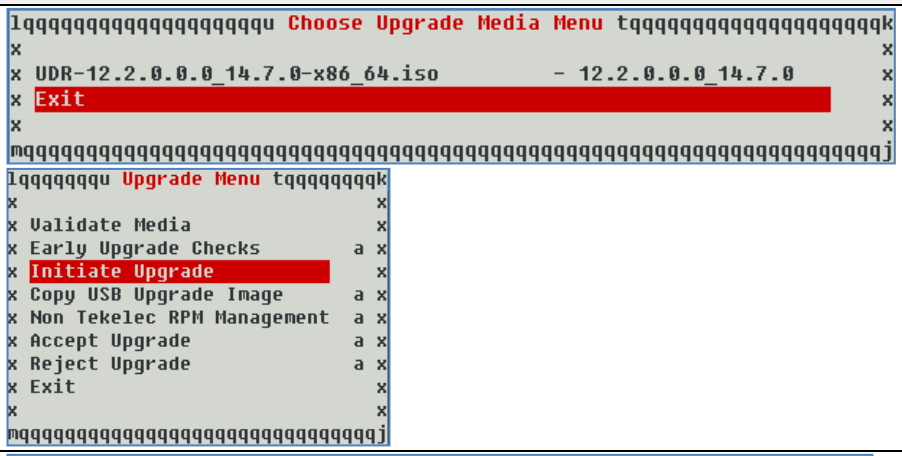
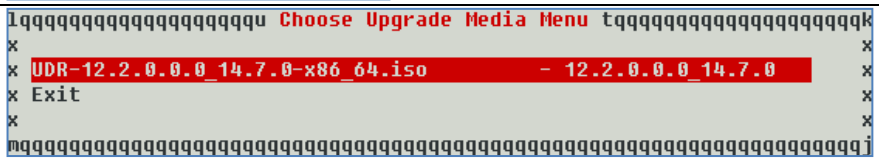
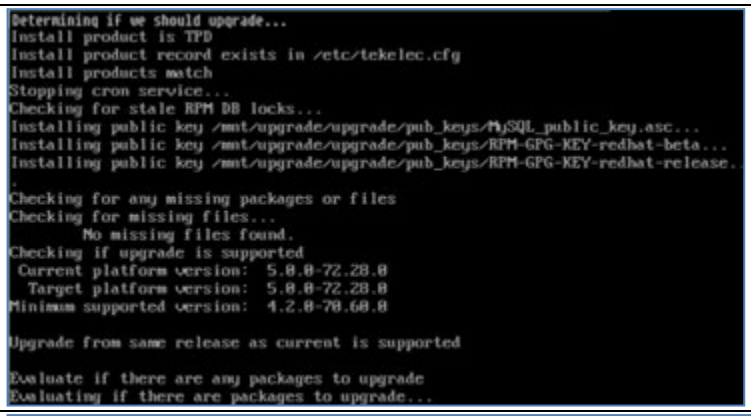
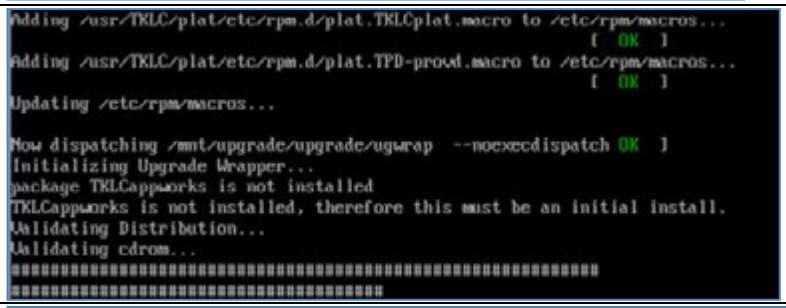
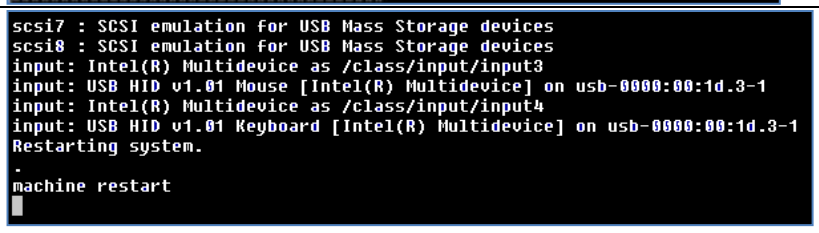
Procedure 30: Create VM from ISO-Based Image

Step	Procedure	Result
7. ☐	Select… **Main Menu → Project →Instances** Click "**More->Console**" button on the instance we just started	
8. ☐	Click "**Click here to show only console**"	
9. ☐	Extend Volume Group Size	Follow **Appendix G-6 Extend VM** to extend Volume Group vgroot size.
10. ☐	Configure Network Interface for VM instance just created	Follow **Appendix G-7 VM Instance Network Configuration** to configure network interfaces for vm instance.
11. ☐	Upload Oracle Communications User Data Repository ISO to **/var/TKLC/upgrade** directory using sftp command	`[admusr@hostnamecf554d3d907c upgrade]$ pwd` `/var/TKLC/upgrade` `[admusr@hostnamecf554d3d907c upgrade]$ ll` `total 939120` `-rw------- 1 admusr admgrp 961654784 May 27 05:29 UDR-12.2.0.0.0_14.7.0-x86_64.iso`
12. ☐	Login to the "**platcfg**" utility	`[root@hostnamecf554d3d907c ~]# su - platcfg`

Procedure 30: Create VM from ISO-Based Image

Step	Procedure	Result
13. ☐	From the "**platcfg**" Main Menu… Select each option as shown on the right, pressing the <**ENTER**> key after each selection. 1. Maintenance 2. Upgrade 3. Validate Media	  
14. ☐	From the "**platcfg**" Main Menu… Verify "CDROM is Valid." …… then press any key to return to platcfg menu.	

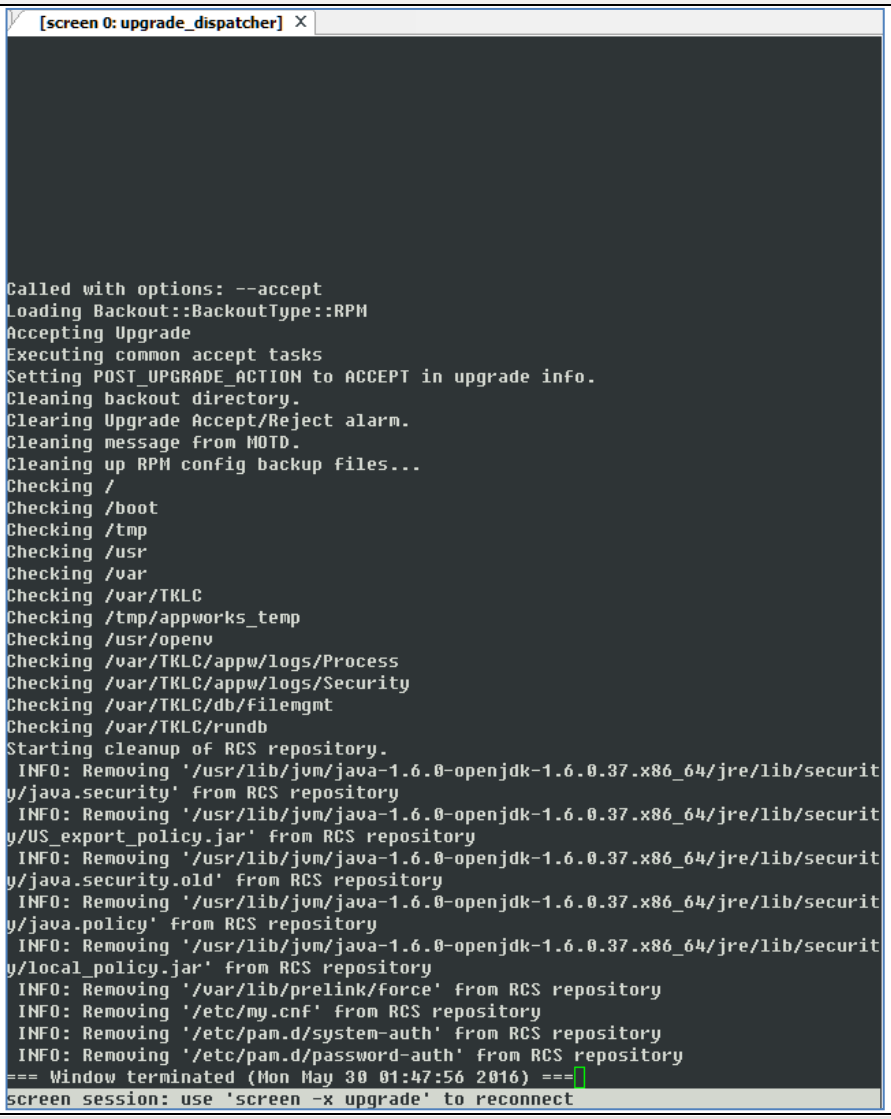
Procedure 30: Create VM from ISO-Based Image

Step	Procedure	Result
15. ☐	From the "**platcfg**" Main Menu… Select each option as shown on the right, pressing the <**ENTER**> key after each selection.	
16. ☐	Verify that the Application release level shown matches the target release.	
17. ☐	Output similar to that shown on the right may be observed as the Application install progresses.	
18. ☐	Output similar to that shown on the right may be observed as the Application install progresses.	
19. ☐	Output similar to that shown on the right may be observed as the server initiates a post-install reboot.	

Procedure 30: Create VM from ISO-Based Image

Step	Procedure	Result
20. ☐	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>
21. ☐	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@ hostnamecf554d3d907c ~]#
22. ☐	Verify successful upgrade.	# verifyUpgrade ***NOTE**: This command should return no output on a healthy system.*
23. ☐	Verify that the Application release level shown matches the target release.	[root@hostnamecf554d3d907c ~]# appRev Install Time: Sun May 29 21:57:03 2016 Product Name: UDR Product Release: 12.2.0.0.0_14.7.0 Base Distro Product: TPD Base Distro Release: 7.0.3.0.0_86.44.0 Base Distro ISO: TPD.install-7.0.3.0.0_86.44.0-OracleLinux6.7-x86_64.iso ISO name: UDR-12.2.0.0.0_14.7.0-x86_64.iso OS: OracleLinux 6.7
24. ☐	Reboot the server.	# init 6 ***NOTE:** Wait until the reboot completes and re-login with root credentials.*
25. ☐	Verify server health	Verify server health: # alarmMgr --alarmStatus ***NOTE**: This command should return only one alarm related to pending upgrade acceptance.*
26. ☐	Change directory	# cd /var/TKLC/backout
27. ☐	Perform upgrade acceptance.	# ./accept

Procedure 30: Create VM from ISO-Based Image

Step	Procedure	Result
28. ☐	Press the '**q**' key to quit screen session wrapper from upgrade acceptance.	
THIS PROCEDURE HAS BEEN COMPLETED		

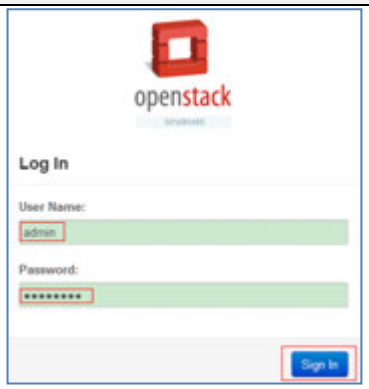
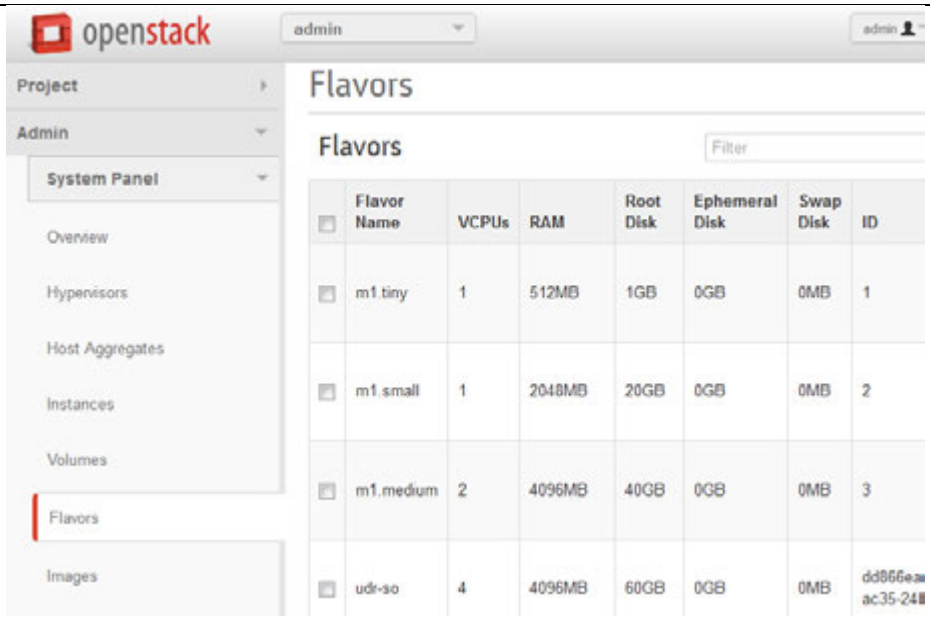
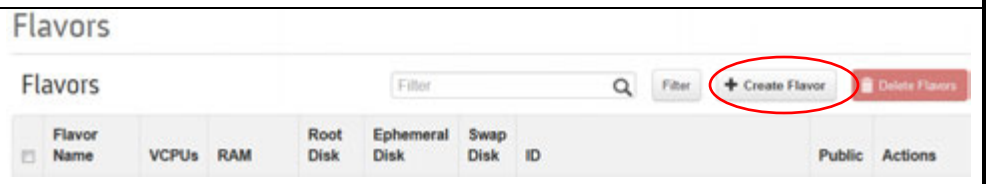
G-4 Create Resource Profiles (Flavors)

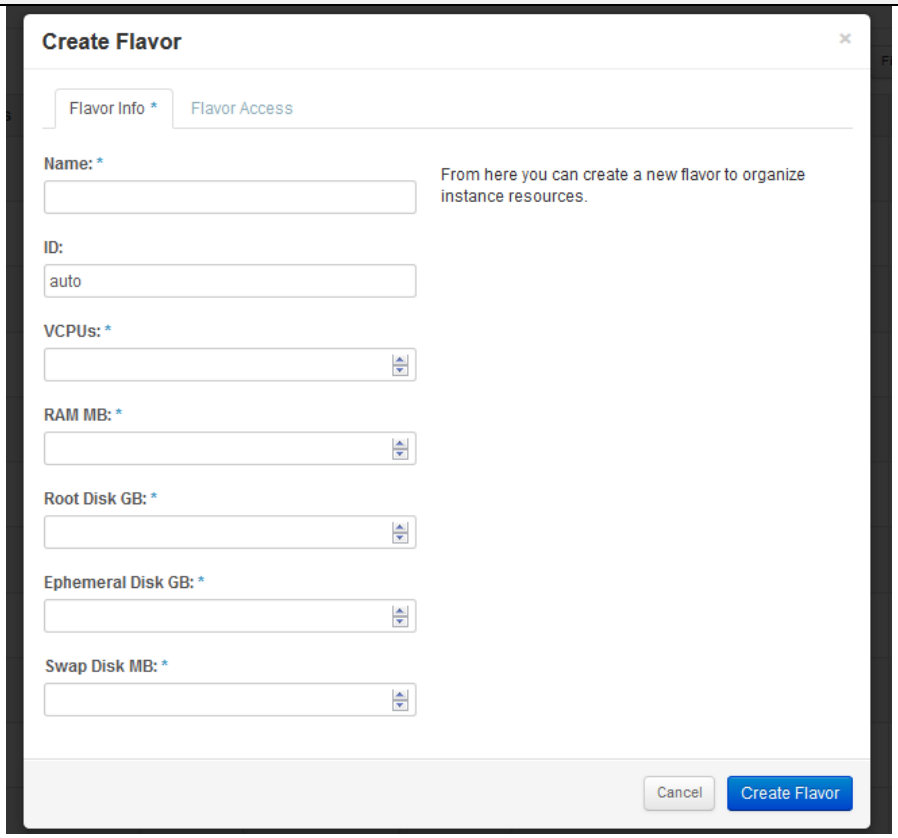
This procedure creates resource profiles called flavors to aid in VM creation.

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

Procedure 31: Create Resource Profiles (Flavors)

Step	Procedure	Result

Step	Procedure	Result
1. ☐	Login to the OpenStack GUI **Note:** Flavor Profile creation may require administrative privilige.	
2. ☐	Select… **Main Menu** **→ Admin** ***→System Panel*** ***→Flavors*** …as shown on the right.	
3. ☐	Click the "+ **Create Flavor**" button	

Step	Procedure	Result
4. ☐	Enter Flavor Details using **Appendix A** Error! Not a valid result for table. as a guide * **Name:** - udr-no - udr-so - udr-mp **ID:** auto **VCPUs**: vCPUs* **RAM**: RAM* **Root Disk**: Storage* **Ephemeral Disk:** 0 **Swap Disk:** 0 Note: UDR does not require Ephemeral or Swap Disk. Then click **Create Flavor.**	
5. ☐	Repeat for each server type	Repeat **Steps** 3 and 4 above for each additional server type: **udr-so**, **udr-mp**.
THIS PROCEDURE HAS BEEN COMPLETED		

G-5 Create VM Instances Using qcow2 Image

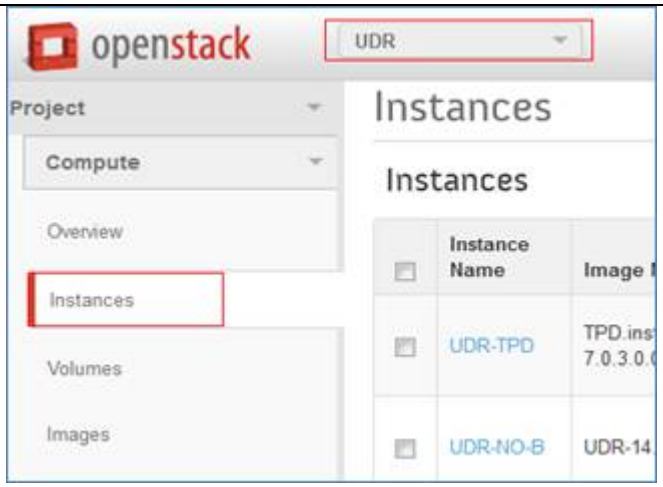
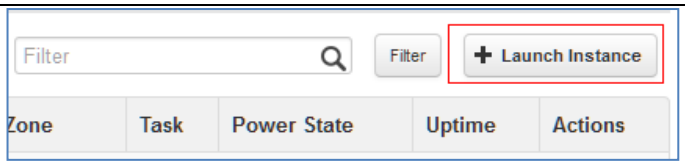
This procedure will create and configure a new vm instance.

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

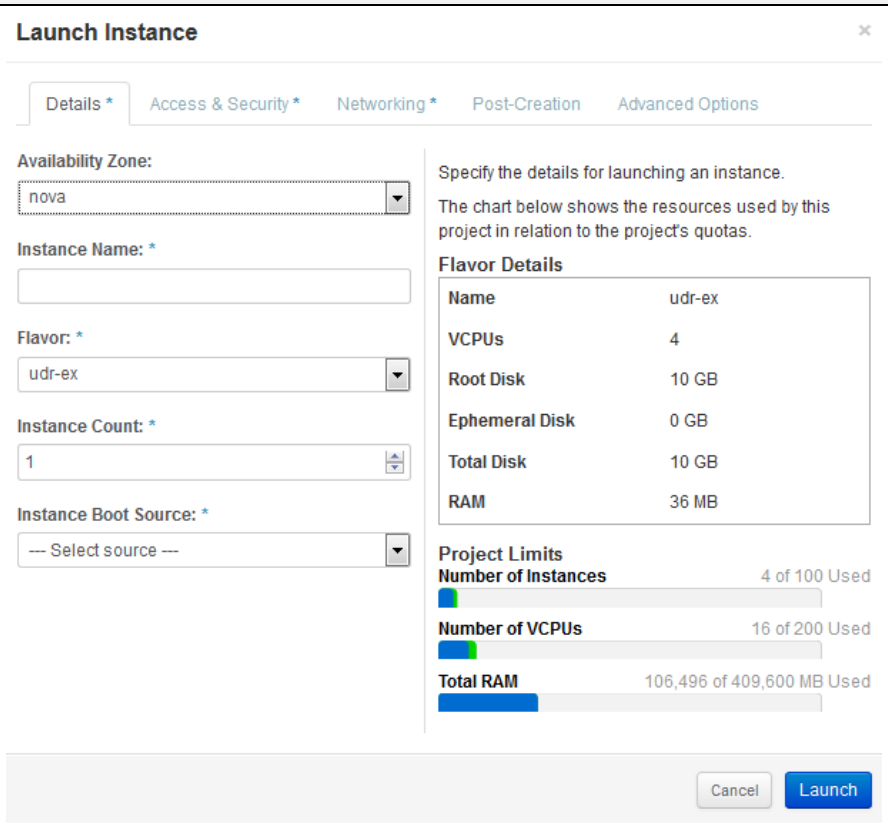
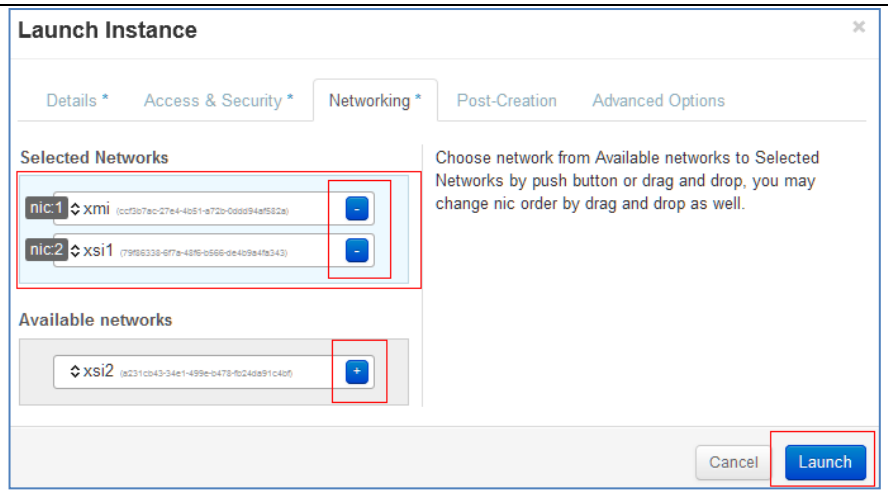
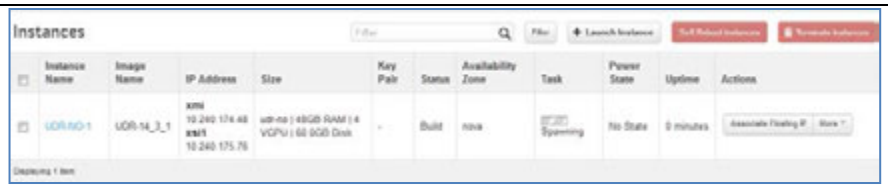
Procedure 32: Create VM Instances Using qcow2 Image

Step	Procedure	Result

Procedure 32: Create VM Instances Using qcow2 Image

Step	Procedure	Result
1. ☐	Login to the OpenStack GUI	
2. ☐	1. Select project, (ex: "UDR"). 2. Click →**Project** →**Compute** →**Instances** to show all Instances created under this project:	
3. ☐	Click **Launch Instance**	

Procedure 32: Create VM Instances Using qcow2 Image

Step	Procedure	Result
4. ☐	1. Select an **→Availability Zone** 2. Enter a unique **Instance Name** 3. Select **Flavor** to suit the server's role (created in Appendix G-4). 4. Select **→Boot from image** image created in Appendix G-4	
5. ☐	1. Click **Networking tab** Add networks to suit the server's role (see 1.1.1.1Appendix A) 2. Click **Launch** to create instance	
6. ☐	Wait for instance creation finish, you will see IP Addresses allocated for this instance	

Procedure 32: Create VM Instances Using qcow2 Image

Step	Procedure	Result
7. ☐	Login to the VM with root user	hostnamea0c2d9aa8bce login: root password: <root_password>
8. ☐	Run prod.clobber on newly created instances	[root@hostname2c6772f9819e ~]# prod.clobber ...prod.clobber (RUNID=00)... ...getting current state... Current state: X (product under procmgr) WARNING: ABOUT TO DESTROY ALL PRODUCT DISK FILES !!!! Are you sure? [enter Y or N] y ...setting state 0... ...waiting for state 0... Current state is 0 ...taking down processes... processes down ...removing existing IPC resources... * md_ipcrm ... 852 resources ...clobbering runenv files... * rm -rf /var/TKLC/rundb/run
9. ☐	Run prod.start on instance After start, use "pl" to check process status, after first start, only afew process will start	[root@hostname2c6772f9819e ~]# prod.start_ * iqt -IiddToXML -DataDictPart > /var/TKLC/rundb/run/db/DataDictPart/20160527.055813.5460.DataDictPart.tmp * edd.op --install --must-eq-current /var/TKLC/rundb/run/db/DataDictPart/20160527.055813.5460.DataDictPart.tmp created: 20160527.055813.5460.DataDictPart.xml ...starting procmgr ... [root@hostname2c6772f9819e ~]# pl S pid procTag $1 stat spawnTime N cmd Z 29470 cmha Up 05/27 01:59:29 1 cmha Z 29471 cmsoapa Up 05/27 01:59:29 1 cmsoapa Z 29473 idbsvc Up 05/27 01:59:29 1 idbsvc -M10 -ME204 -D40 -DE820 -V1 -S2 -L1 Z 29475 inetmerge Up 05/27 01:59:29 1 inetmerge Z 29477 raclerk Up 05/27 01:59:29 1 raclerk -r 3000 Z 29478 re.portmap Up 05/27 01:59:29 1 re.portmap -c100
10. ☐	Run prod.start again on instance, this time, all process will be started	[root@hostname2c6772f9819e ~]# prod.start ...prod.start (RUNID=00)... ...getting current state... Current state: Z (product under procmgr) ...setting state X... ...waiting for state [XDA]... Current state is X [root@hostname2c6772f9819e ~]# pl S pid procTag $1 stat spawnTime N cmd X 29586 Imysqld Up 05/27 02:00:25 1 Imysqld.start -force X 29587 ProcWatch Up 05/27 02:00:25 1 ProcWatch -L X 29589 apwSoapServer Up 05/27 02:00:25 1 !CMNOSIGCHK=1 apwSoapServer X 29470 cmha Up 05/27 01:59:29 1 cmha X 29591 cmplatalarm Up 05/27 02:00:25 1 cmplatalarm X 29593 cmsnmpsa Up 05/27 02:00:25 1 cmsnmpsa -R 1.3.6.1.4.1.323.5.3.32.1 X 29471 cmsoapa Up 05/27 01:59:29 1 cmsoapa X 29608 eclipseHelp Up 05/27 02:00:25 1 eclipseHelp X 29594 guiReqMapLoad Up 05/27 02:00:25 1 guiReqMapLoad X 29473 idbsvc Up 05/27 01:59:29 1 idbsvc -M10 -ME204 -D40 -DE820 -V1 -S2 -L1 X 29475 inetmerge Up 05/27 01:59:29 1 inetmerge X 29596 inetrep Up 05/27 02:00:25 1 inetrep X 29598 mkdbhooks Up 05/27 02:00:25 1 mkdbhooks X 29601 oampAgent Up 05/27 02:00:25 1 oampAgent X 29603 pm.watchdog Up 05/27 02:00:25 1 pm.watchdog X 29477 raclerk Up 05/27 01:59:29 1 raclerk -r 3000 X 29478 re.portmap Up 05/27 01:59:29 1 re.portmap -c100 X 29605 statclerk Up 05/27 02:00:25 1 statclerk -s -0 X 29607 vipmgr Up 05/27 02:00:25 1 vipmgr
THIS PROCEDURE HAS BEEN COMPLETED		

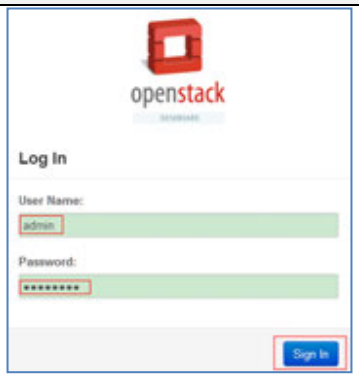
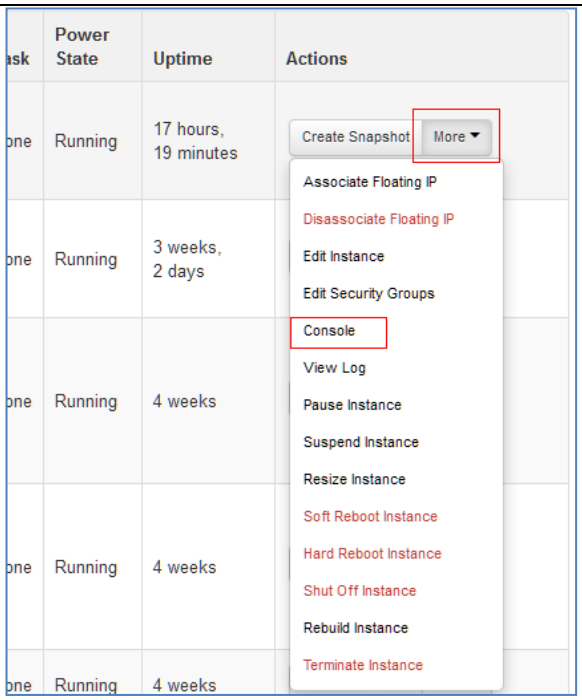
G-6 Extend VM Instance Volume Size

This procedure will extend a VM instance's storage capacity using filesystem utilities. It is used for NOAMP servers that require more storage capacity than the default image size provides. Virtual machines must have been installed by ISO.

Important Note: The steps here only apply to NOAMP servers where storage demands exceed the server's default size. The numbers here will vary depending on the unique needs of such deployments and specific hardware resource availability. This is to be taken as an example only. The suitability of these steps cannot be guarenteed across all deployment scenarios.

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

Procedure 33: Extend VM Instance Volume Size

Step	Procedure	Result
1. ☐	Login to the OpenStack GUI	
2. ☐	Login VM instance from →**Project** →**Instances** →**More** →**Console**	
3. ☐	After reboot, Login to the VM with root user	`hostnameb267a6968148 login: root` `password: <root_password>`

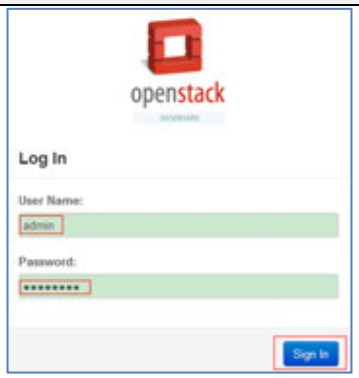
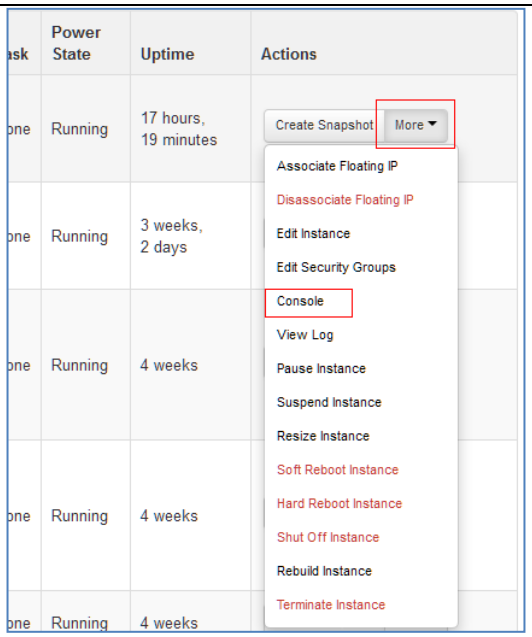
Step	Procedure	Result
4. ☐	Use fdisk to create new partition on /dev/vda NOTE: **First cylinder** of /dev/vda3 is calculated from **End cylinder** of /dev/vda2, say 124810 is the next of the End Cylinder of /dev/vda2	[root@hostnameb267a6968148 ~]#**fdisk /dev/vda** Command (m for help): **p** Disk /dev/vda: 171.8 GB, 171798691840 bytes 16 heads, 63 sectors/track, 332881 cylinders Units = cylinders of 1008 * 512 = 516096 bytes Sector size (logical/physical): 512 bytes / 512 bytes I/O size (minimum/optimal): 512 bytes / 512 bytes Disk identifier: 0x0008a531 Device Boot Start End Blocks Id System /dev/vda1 * 3 523 262144 83 Linux Partition 1 does not end on cylinder boundary. /dev/vda2 523 **124809** 62640128 8e Linux LVM Partition 2 does not end on cylinder boundary. Command (m for help): **n** Command action e extended p primary partition (1-4) **p** Partition number (1-4): **3** First cylinder (1-332881, default 1): **124810** Last cylinder, +cylinders or +size{K,M,G} (124810-332881, default 332881): Using default value 332881 Command (m for help): **w** The partition table has been altered! Calling ioctl() to re-read partition table. WARNING: Re-reading the partition table failed with error 16: Device or resource busy. The kernel still uses the old table. The new table will be used at the next reboot or after you run partprobe(8) or kpartx(8) Syncing disks.
5. ☐	Reboot instance	[root@hostnameb267a6968148 ~]# **init 6**
6. ☐	After reboot, Login to the VM with root user	hostnameb267a6968148 login: **root** password: **<root_password>**
7. ☐	Create pv /dev/vda3	[root@hostnameb267a6968148 ~]# **pvcreate /dev/vda3** Physical volume "/dev/vda3" successfully created
8. ☐	Extend vg vgroot on /dev/vda3	[root@hostnameb267a6968148 ~]# **vgextend vgroot /dev/vda3** Volume group "vgroot" successfully extended
THIS PROCEDURE HAS BEEN COMPLETED		

G-7 VM Instance Network Configuration

This procedure will configure network interfaces for vm instance.

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

Procedure 34: VM Instance Network Configuration

Step	Procedure	Result
1. ☐	Login to the OpenStack GUI	
2. ☐	Login VM instance from →**Project** →**Instances** →**More** →**Console**	
3. ☐	Login to the VM with root user	`hostnamea0c2d9aa8bce login: root` `password: <root_password>`
4. ☐	Use netAdm to add device and set ip address	`[root@ hostnamea0c2d9aa8bce ~]# netAdm add --device=eth0` `Interface eth0 added`
5. ☐	Set ip address for this interface	`[root@ hostnamea0c2d9aa8bce ~]# netAdm set --device=eth0 --onboot=yes \` `--netmask=<netmask> --address=<ip_address>` `Interface eth0 updated`

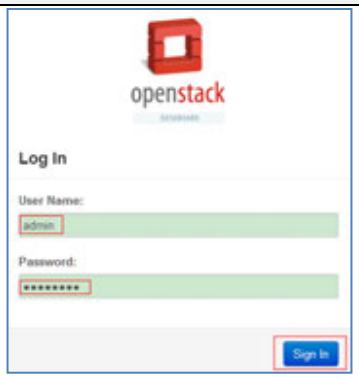
Step	Procedure	Result
6. ☐	Add default router	[root@ hostnamea0c2d9aa8bce ~]# **netAdm add --route=default --device=eth0 \ --gateway=10.240.174.1** Route to eth0 added
7. ☐	Add eth1 interface	[root@ hostnamea0c2d9aa8bce ~]# **netAdm add --device=eth1** Interface eth1 added
8. ☐	Add eth2 interface ***NOAMP & MP only***	*Note: Execute this step only for NOAMP and MP virtual machines:* [root@hostnameb6092a316785 ~]# **netAdm add --device=eth2** Interface eth2 added
9. ☐	Add eth3 interface ***MP only***	*Note: Execute this step only for MP virtual machines for deployments that use a second signaling network (XSI2):* [root@hostnameb6092a316785 ~]# **netAdm add --device=eth3** Interface eth3 added
THIS PROCEDURE HAS BEEN COMPLETED		

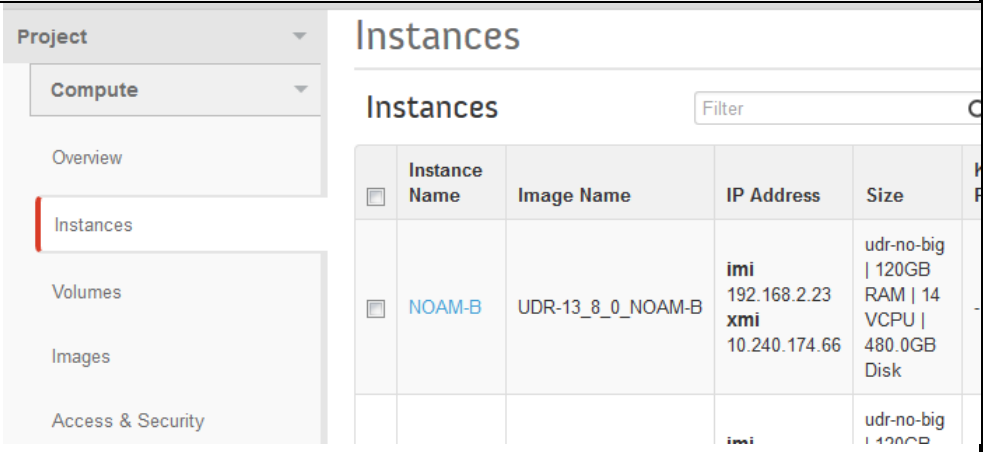
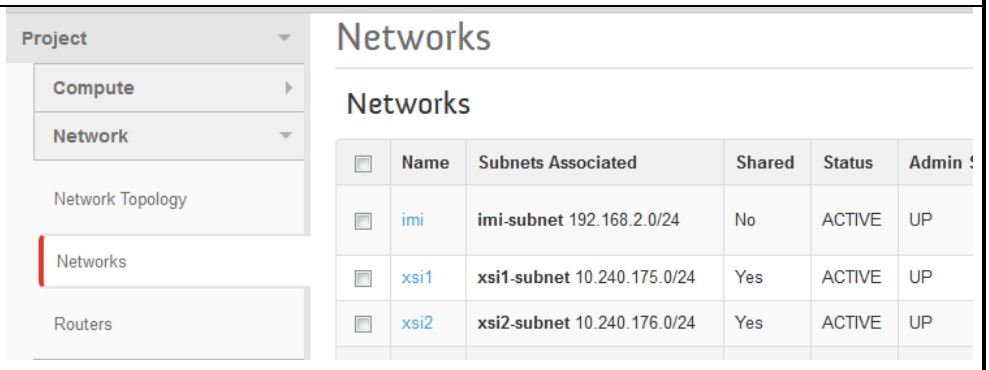
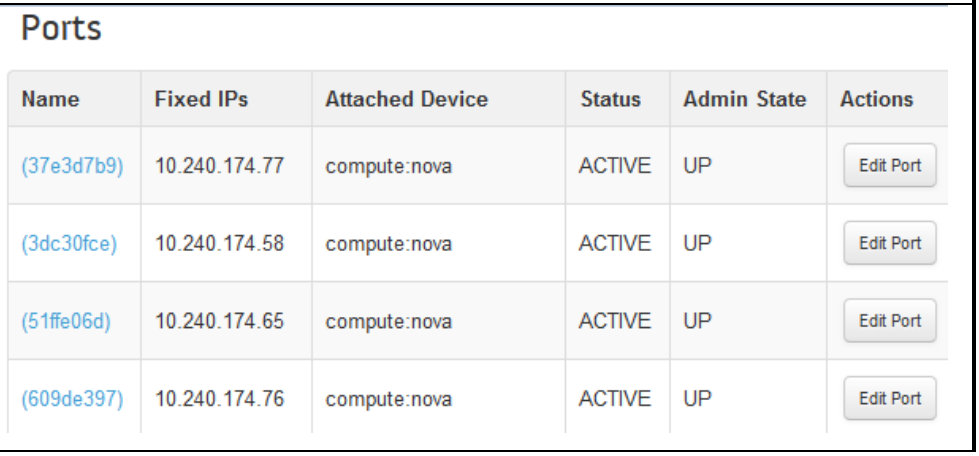
G-8 Virtual IP Address Assignment

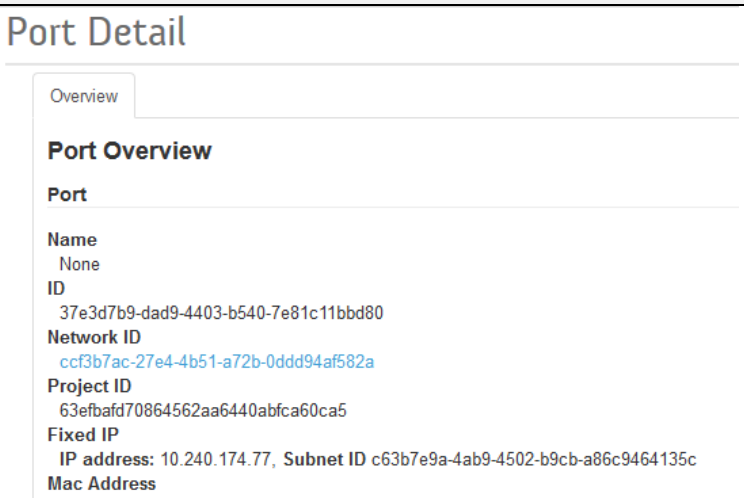
This procedure will configure a VIP for a virtual machine. Administrative access to the OpenStack controller node is required.

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

Procedure 35: Virtual IP Address Assignment

Step	Procedure	Result
1. ☐	Login to the OpenStack GUI	

Step	Procedure	Result
2. ☐	1. Select project, (ex: "UDR"). 2. Click →**Project** →**Compute** →**Instances** to show all Instances created under this project:	
3. ☐	Find the NOAMP instances	Record the IP addresses of the NOAMP and/or SOAM instances primary **XMI network**. NOAMP A: _____ SOAM A: _____ NOAMP B: _____ SOAM B: _____
4. ☐	1. Select… →**Project** →**Network** →**Networks** 2. Click the **XMI** network for expanded detail	
5. ☐	1. Under the **Ports** section, find the Fixed IP associated with the address(es) recorded in **Step 3.** 2. Click on the associated Port **Name**.	

Step	Procedure	Result
6. ☐	Copy or record the Port ID	
7. ☐	Copy or record all required Port IDs.	**Repeat Step 5 and Step 6** to copy or record the **Port ID** of each server from **Step 3**. NOAMP A: _____ SOAM A: _____ NOAMP B: _____ SOAM B: _____
8. ☐	**OpenStack Controller node:** **1)** Access the command prompt. **2)** Log into the controller node as a privilidged user.	`login as: <usr_name>` `root@10.250.xx.yy's password: <usr_password>` `Last login: Mon Jul 30 10:33:19 2012 from 10.25.80.199` `[root@control01]#`
9. ☐	**OpenStack Controller node:** Initialize environment variables	`controller ~]# source keystonerc_admin`
10. ☐	**OpenStack Controller node:** Assign VIP by Port IDs	Assign the desired VIP address to both A and B servers sharing the VIP: `[root@control01 ~(keystone_admin)]# neutron port-update <A_server_port_id> --allowed-address-pairs type-dict list=true ip_address=<vip>` `[root@control01 ~(keystone_admin)]# neutron port-update <B_server_port_id> --allowed-address-pairs type-dict list=true ip_address=<vip>`
11. ☐	**OpenStack Controller node:** Repeat if needed	Repeat **Step 10** as required for any other server pairs requiring a VIP.

Step	Procedure	Result
12. ☐	**OpenStack Controller node:** Confirm VIP association	VIP associations may be confirmed with the following command by Port ID: `[root@control01 ~(keystone_admin)]# neutron port-show <port_id>` `+-----------------------+-----------------------------------------------------------------------------------+` `| Field | Value |` `+-----------------------+-----------------------------------------------------------------------------------+` `| admin_state_up | True |` `| allowed_address_pairs | {"ip_address": "10.240.221.36", "mac_address": "fa:16:3e:ce:18:2a"} |` `| binding:host_id | compute05.labafrica |` `| binding:profile | {} |` `| binding:vif_details | {"port_filter": true, "ovs_hybrid_plug": true} |` `| binding:vif_type | ovs |` `| binding:vnic_type | normal |` `| device_id | 947457b4-46e8-43e7-8f14-79c816388e3d |` `| device_owner | compute:Odds |` `| extra_dhcp_opts | |` `| fixed_ips | {"subnet_id": "23f28095-bdb6-4fab-b13e-281d726ef3eb", "ip_address": "10.240.221.38"} |` `| id | aa14b554-d0a6-413d-b77c-63e11a3c9895 |` `| mac_address | fa:16:3e:ce:18:2a |` `| name | |` `| network_id | 62027e77-7556-42b2-8070-ffbd61933877 |` `| port_security_enabled | True |` `| security_groups | 1e4bd44c-9ac2-4cd0-a56b-c094a52830c2 |` `| status | ACTIVE |` `| tenant_id | d2fda814485247f795c23b9af2bc2e1c |` `+-----------------------+-----------------------------------------------------------------------------------+`
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix H. INSTALL UDR ON ORACLE LINUX OS VIA KVM

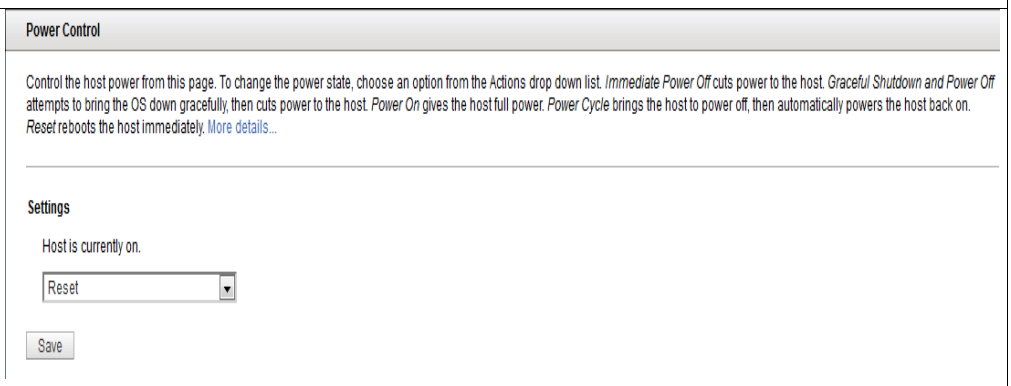
Important Note: The content of this appendix is for informational purposes only.

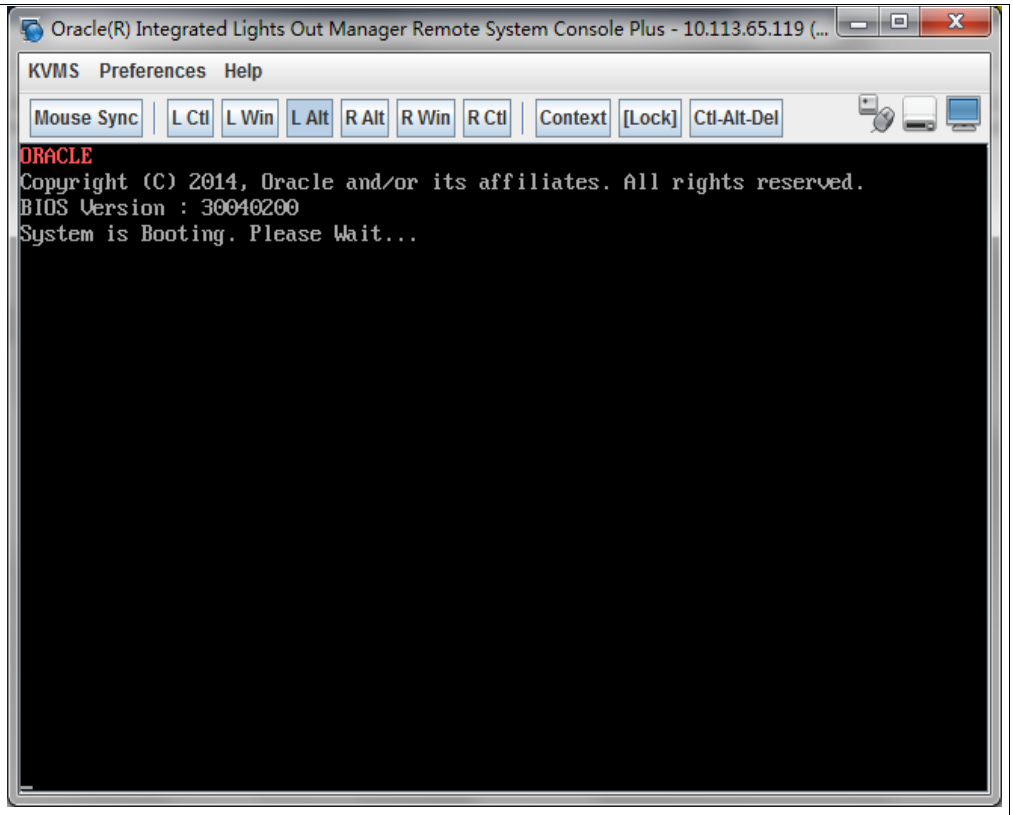
This procedure will install UDR configuration on Oracle Linux OS with direct KVM as hypervisor.

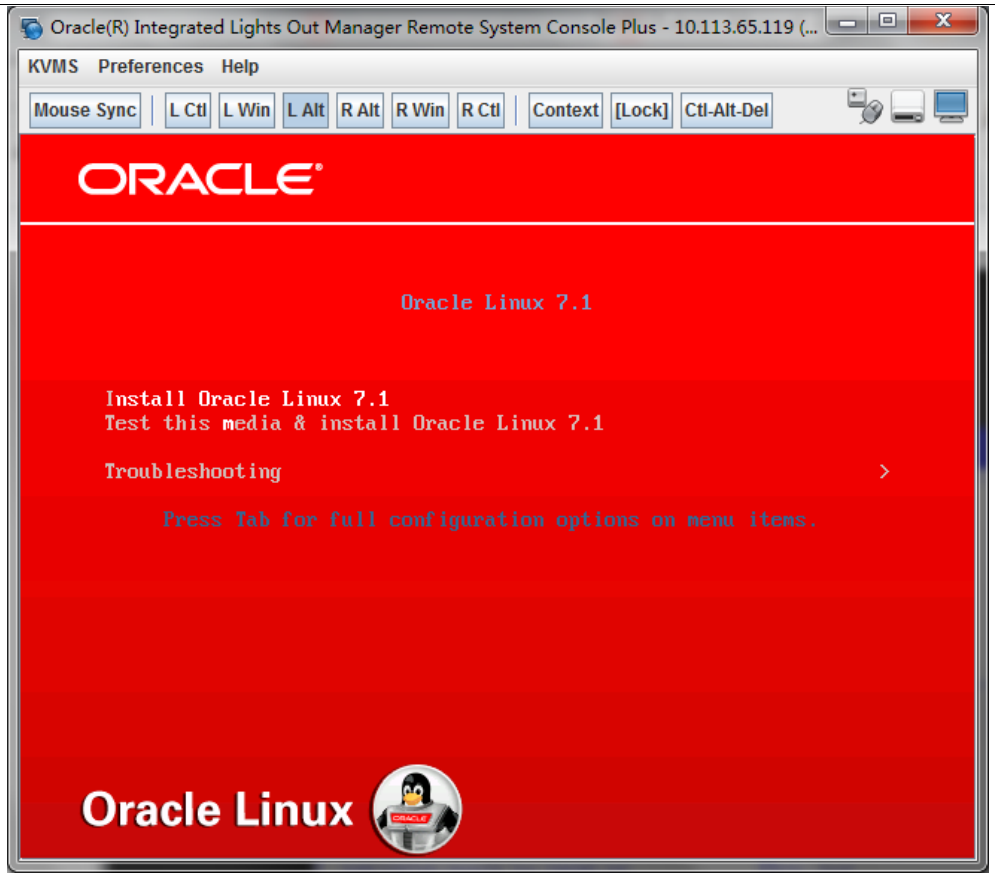
Note:

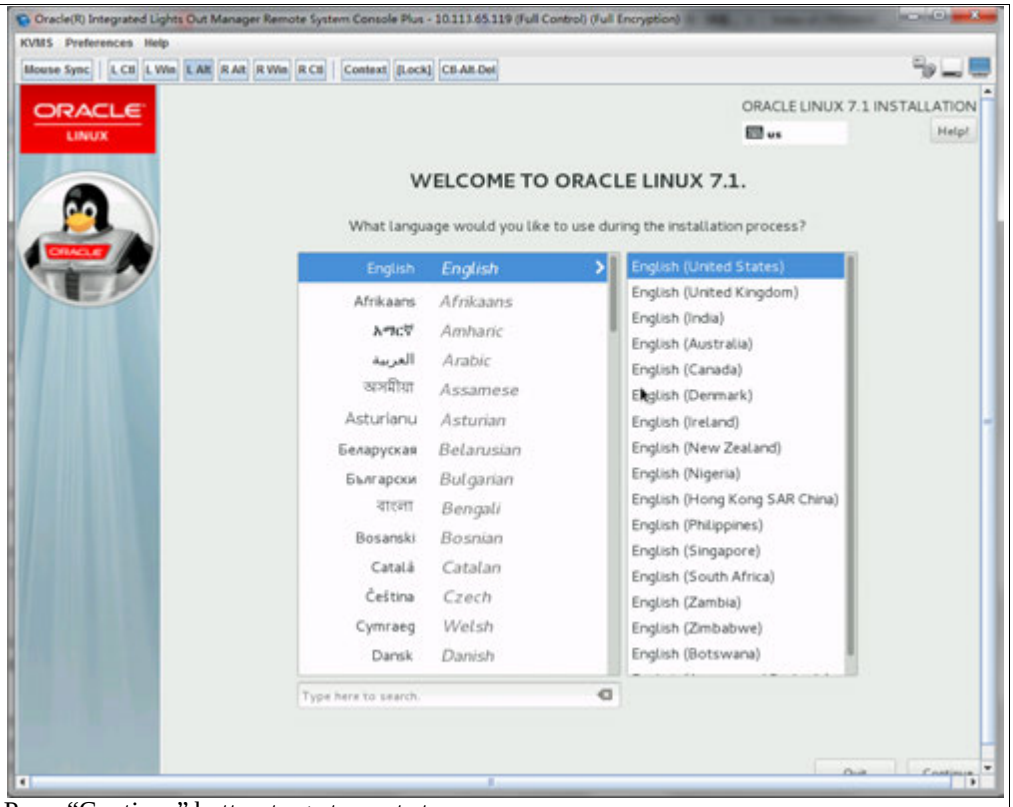
- This installation procedure only applies when installing UDR on Oracle Linux OS via direct KVM
- For the Oracle Linux OS, Oracle Linux 7.2 GA release is used and verified OK.

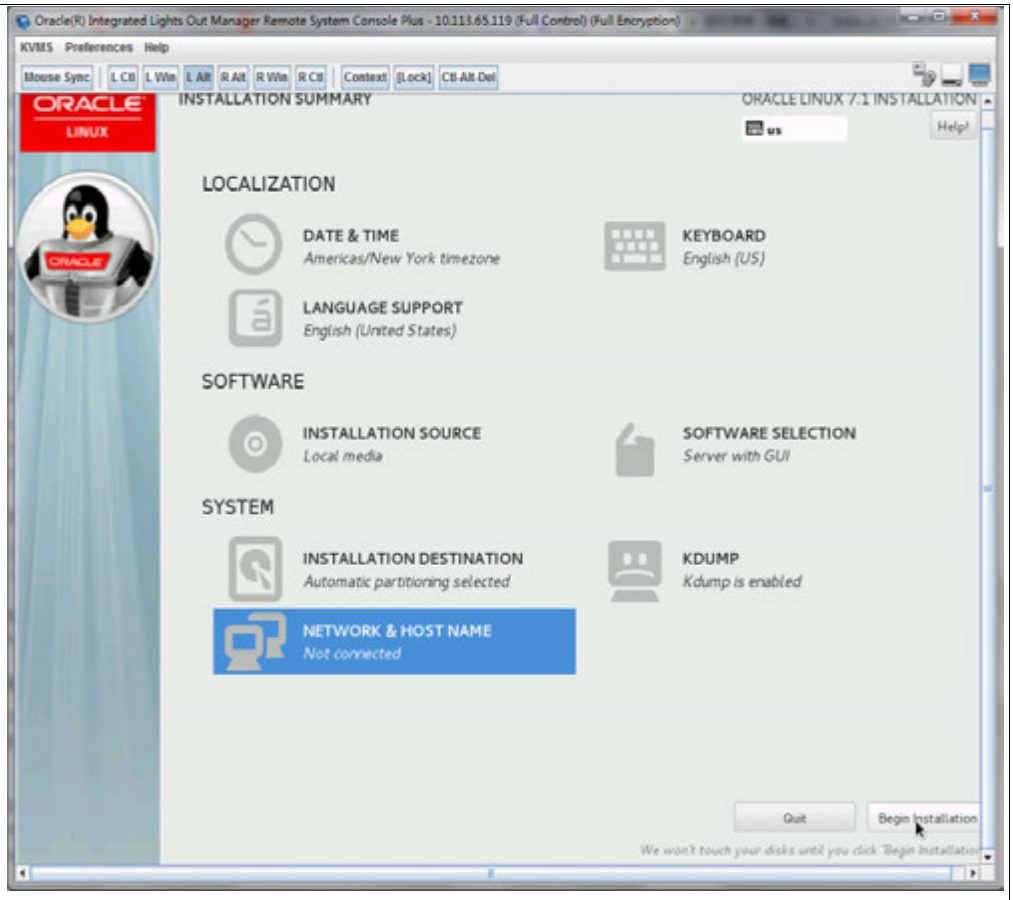
Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.

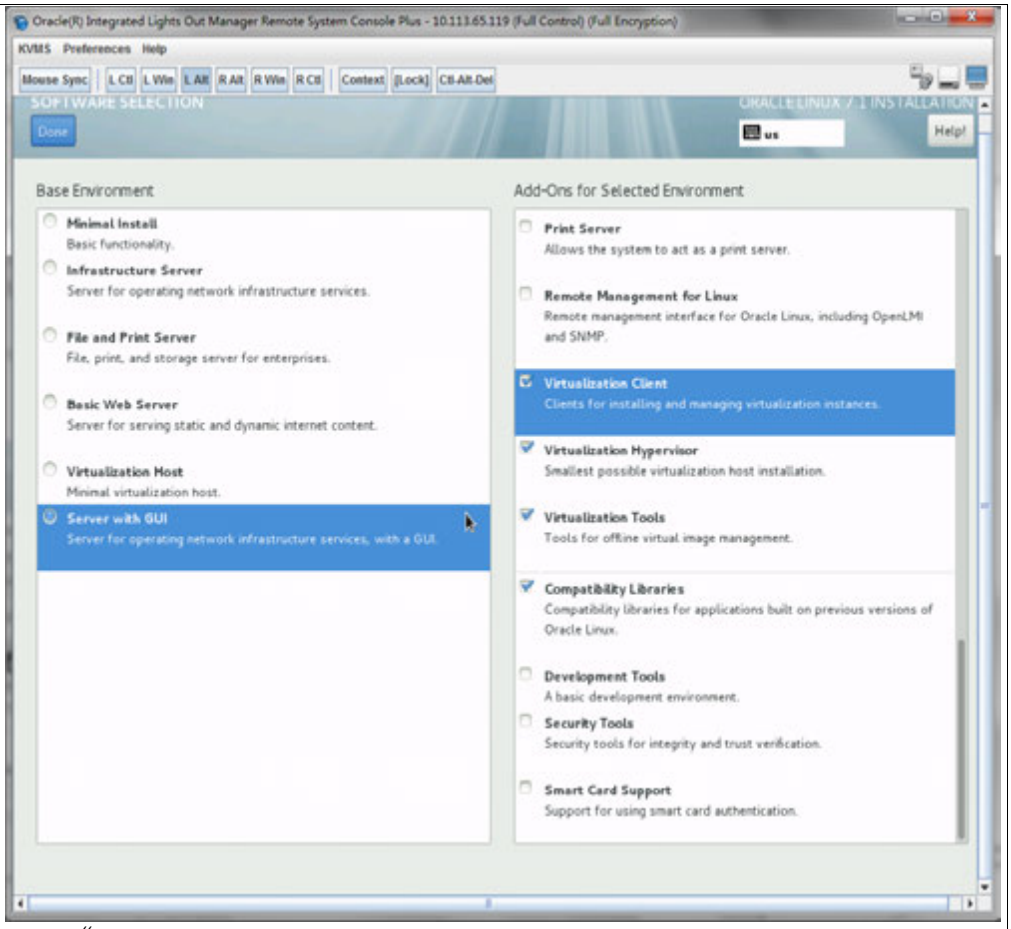
Step	Procedure	Result
1. ☐	For each **Oracle X5-2 RMS:** Mount virtual media contains Oracle Linux OS software	Follow steps defined in … Appendix C.3 Mounting Virtual Media on Oracle RMS Server of [2] … to mount the Oracle Linux OS software ISO.
2. ☐	For each **Oracle X5-2 RMS:** Reboot host Login to X5-2 iLo GUI browser page and launch remote console In ILO GUI, navigate to "**Host Management**" -> "**Power Control**" menu, select "**Reset**" in dropdown menu and click "**Save**" to reboot host.	 In remote console window you'll see host is rebooting.

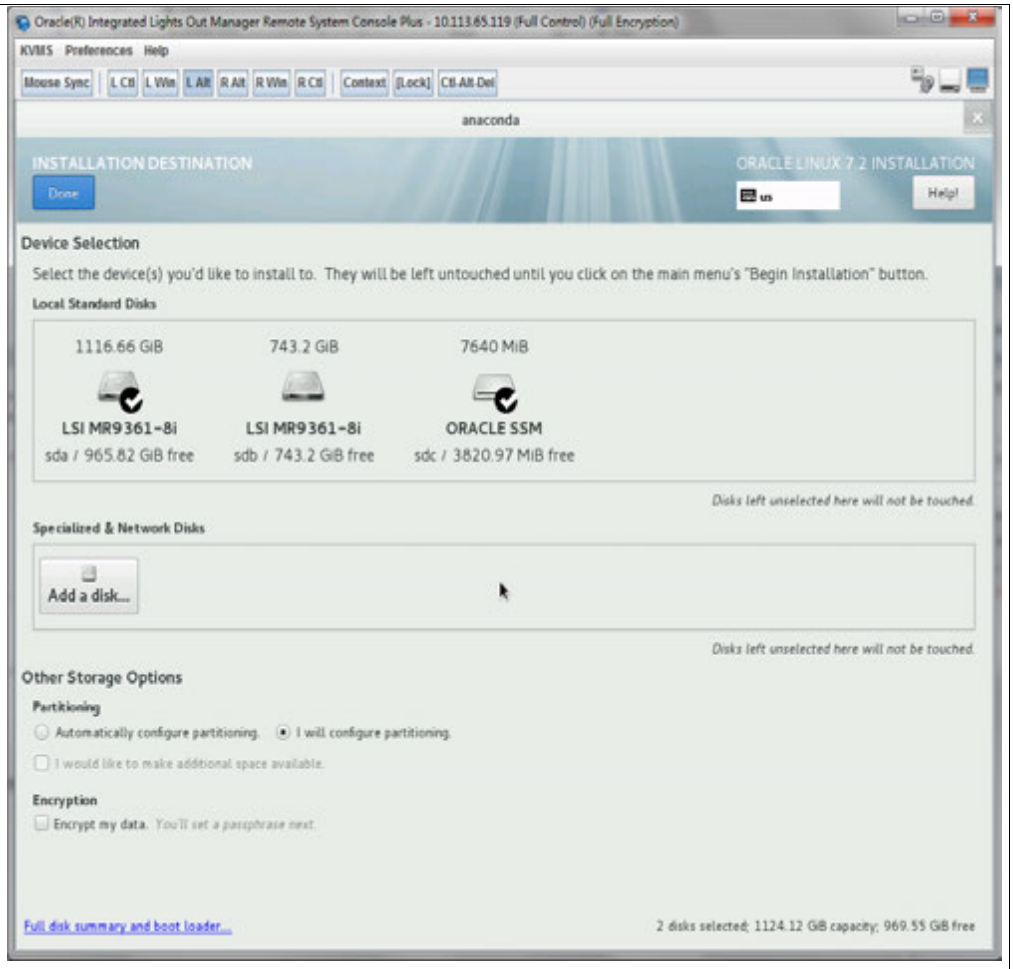
		 Wait for a couple of minutes for reboot to complete.
3. ☐	For each **Oracle X5-2 RMS:** Initiate Oracle Linux Platform installation	Once reboot completed, host will boot with Oracle Linux installation ISO and GUI screen will be prompted for installation option.

		 Choose option of “Install Oracle Linux 7.x” to continue.
4. ☐	For each **Oracle X5-2 RMS:** Choose Oracle Linux OS language	When prompted, choose “English” as Oracle Linux OS language:

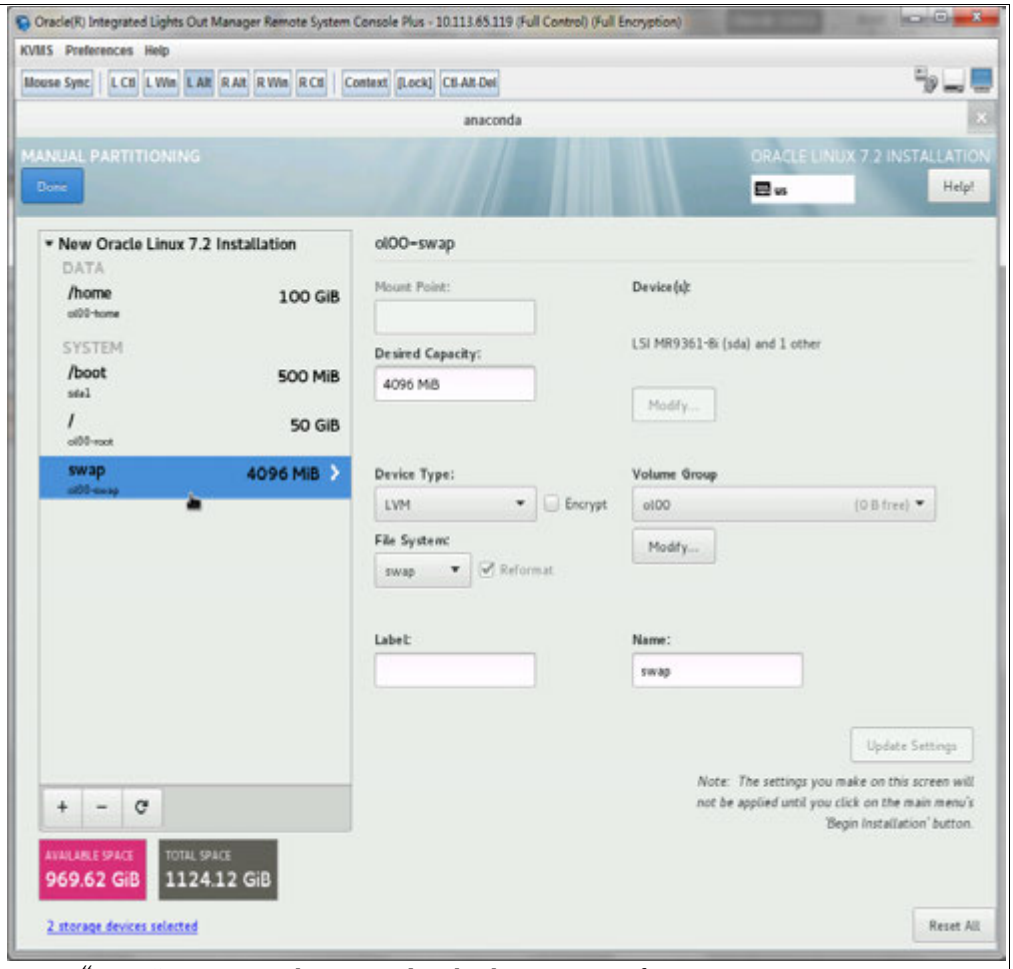
		 Press “Continue” button to go to next step.
5. ☐	For each **Oracle X5-2 RMS:** Setup time zone	The next page will prompt for Oracle Linux OS installation required information to start installation.

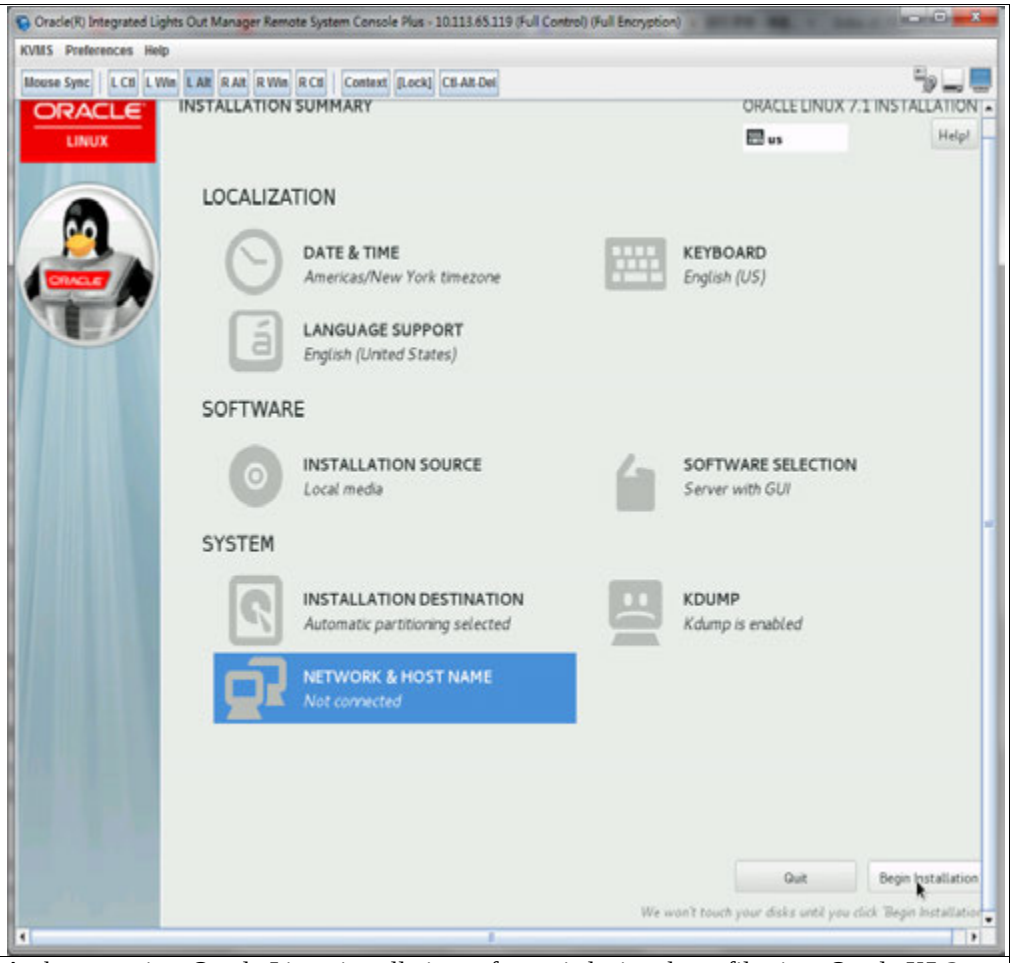
		 Click into **LOCALIZATION -> DATE & TIME** menu: Set time zone as Americas/New York. Click "Done" to save up changes and goes back to main configuration page.
6. ☐	For each **Oracle X5-2 RMS:** Setup installation base environment	Click into **SOFTWARE -> SOFTWARE SELECTION** menu. Choose "Server with GUI" group, and make sure following add-ons are selected: ➢ Virtualization Client ➢ Virtualization Hypervisor ➢ Virtualization Tools ➢ Compatibility Libraries

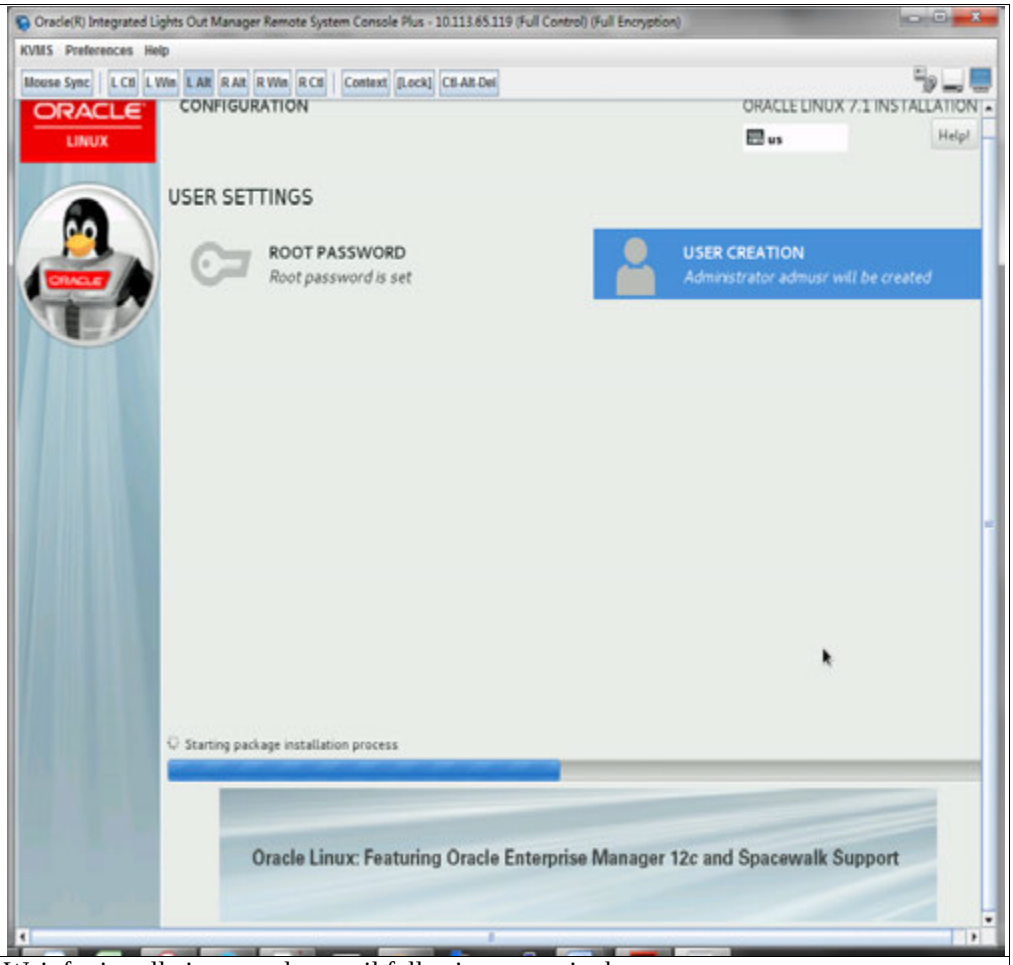
		 Click "Done" to save up changes and goes back to main configuration page.
7. ☐	For each **Oracle X5-2 RMS:** Setup installation destination	Click into **SYSTEM -> INSTALLATION DESTINATION** menu. Select 'sda' and 'sdc' to use, and check "I will configure partitioning", click 'Done' to continue.

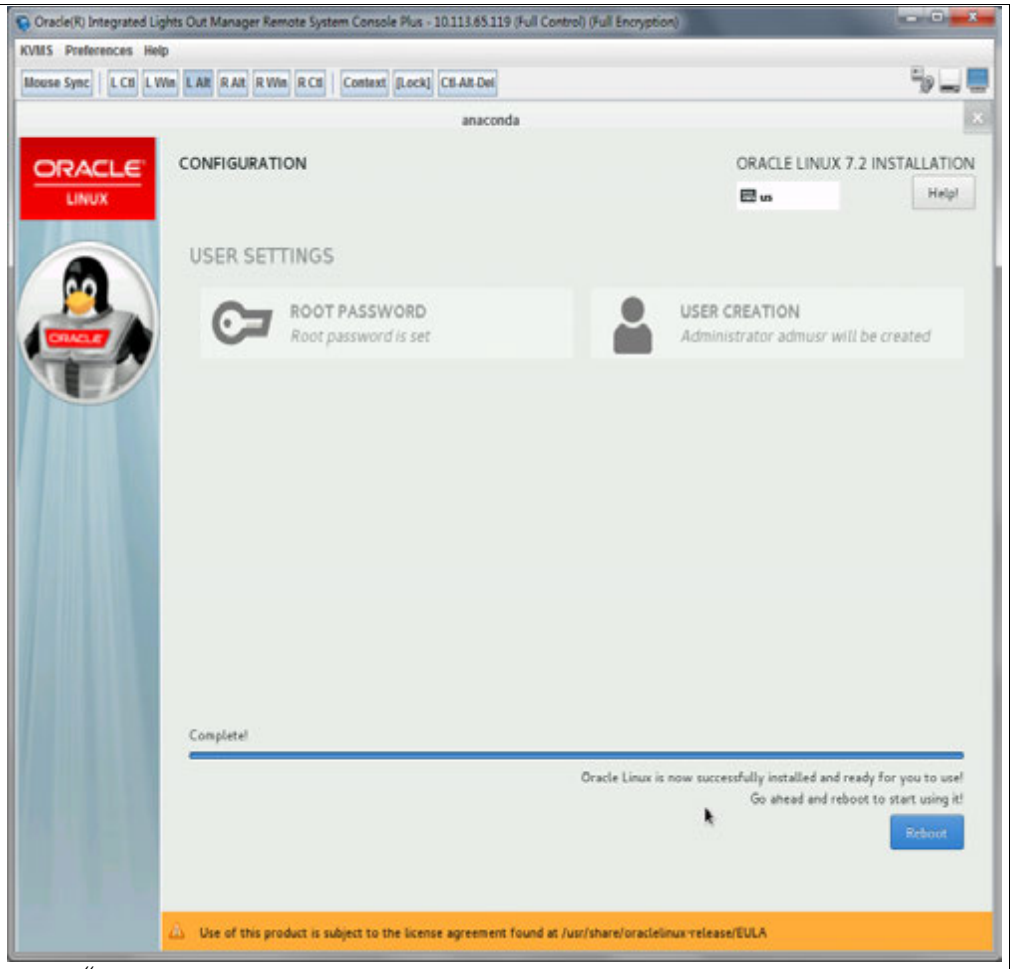


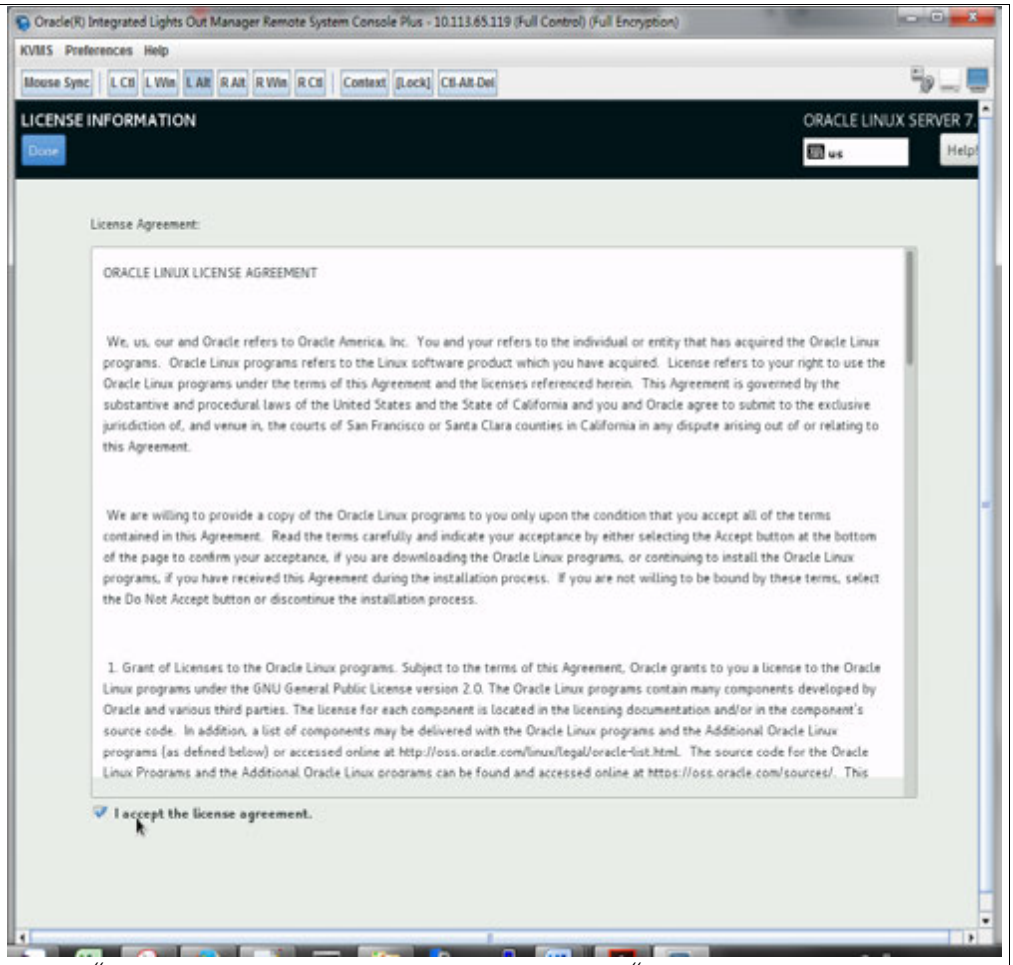
Manually configure disk partition like following (remove any existing mount points if any):

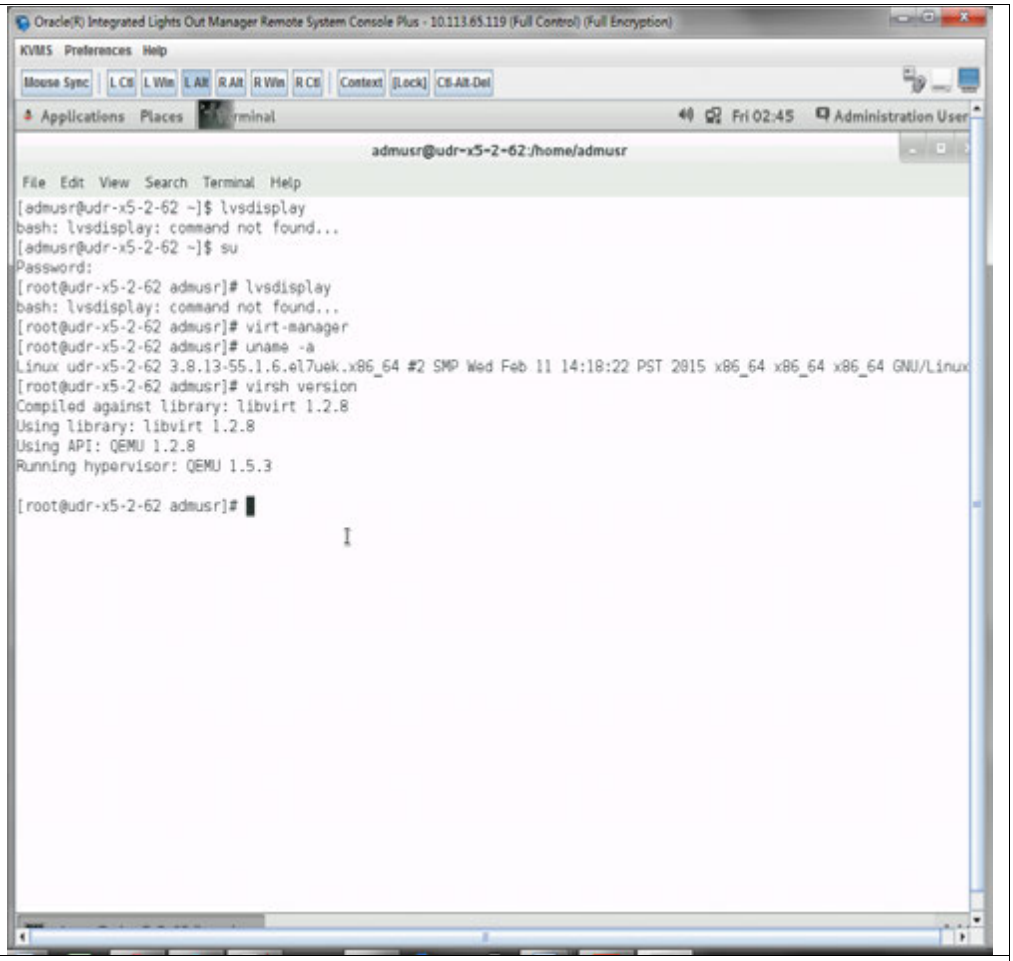
		 Press "Done" to save up changes and go back to main configuration page.
8. ☐	For each **Oracle X5-2 RMS:** Review configuration and start to install	Review all information before clicking "Begin Installation" button: (You don't need to configure network right now, we'll leave that part after Oracle Linux OS is installed.)

		
9. ☐	For each **Oracle X5-2 RMS:** Create login credential	At the same time Oracle Linux installation software is laying down files into Oracle X5-2 local hard disk, you may configure root credential or any other login credentials per your needs:

		
10. ☐	For each **Oracle X5-2 RMS**: Reboot host after installation completed	Wait for installation complete until following screen is shown:

		 Click "Reboot" button to reboot.
11. ☐	For each **Oracle X5-2 RMS**: Accept license agreement	After reboot is done, license agreement page with be prompted:

		 Check “I accept the license agreement”, following with “Finish Configuration” to continue. Later you’ll be prompted for ULN setting, skip that step.
12. ☐	For each **Oracle X5-2 RMS**: Verify kernel version and KVM version	Open SSH console window and check following:

<table>
<tr><td></td><td></td><td> 
</td></tr>
<tr><td>13. ☐</td><td>For each Oracle X5-2 RMS:

Change network interface name pattern to ‘ethx’</td><td>Edit /etc/default/grub to append ‘net.ifnames=0’ to option GRUB_CMDLINE_LINUX:

<pre>[root@udr-x5-2-62-ol7 admusr]# cat /etc/default/grub
GRUB_TIMEOUT=5
GRUB_DISTRIBUTOR="$(sed 's, release .*$,,g' /etc/system-release)"
GRUB_DEFAULT=saved
GRUB_DISABLE_SUBMENU=true
GRUB_TERMINAL_OUTPUT="console"
GRUB_CMDLINE_LINUX="crashkernel=auto rd.lvm.lv=ol00/root
rd.lvm.lv=ol00/swap rhgb quiet net.ifnames=0"
GRUB_DISABLE_RECOVERY="true"</pre>

Recreate the grub2 config file with following command:
<pre># grub2-mkconfig -o /boot/grub2/grub.cfg</pre>

Restart host with ‘shutdown -r’ command and verify that network interface are with ‘ethx’ name pattern now.</td></tr>
<tr><td>14. ☐</td><td>For each Oracle X5-2 RMS:

Create bond0 device</td><td>Create device bond0 configuration file:
<pre># vim /etc/sysconfig/network-scripts/ifcfg-bond0
DEVICE=bond0
TYPE=Bonding
BOND_INTERFACES=eth0,eth1
ONBOOT=yes
NM_CONTROLLED=no
BOOTPROTO=none
BONDING_OPTS="mode=active-backup primary=eth0 miimon=100"</pre></td></tr>
</table>

		Save up file and exit. Create device eth0 configuration file: **# vim /etc/sysconfig/network-scripts/ifcfg-eth0** DEVICE=eth0 TYPE=Ethernet ONBOOT=yes NM_CONTROLLED=no BOOTPROTO=none MASTER=bond0 SLAVE=yes Save up file and exit. Create device eth1 configuration file: **# vim /etc/sysconfig/network-scripts/ifcfg-eth1** DEVICE=eth1 TYPE=Ethernet ONBOOT=yes NM_CONTROLLED=no BOOTPROTO=none MASTER=bond0 SLAVE=yes Save up file and exit. Bring up devices into services: **# ifup eth0** **# ifup eth1** **# ifup bond0**
15. ☐	For each **Oracle X5-2 RMS**: Create IMI bridge	Create bond0.<imi_vlan> configuration file: **# vim /etc/sysconfig/network-scripts/ifcfg-bond0.<imi_vlan>** DEVICE=bond0.<imi_vlan> TYPE=Ethernet BOOTPROTO=none ONBOOT=yes NM_CONTROLLED=no BRIDGE=imi Create imi device configuration file: **# vim /etc/sysconfig/network-scripts/ifcfg-imi** DEVICE=imi TYPE=Bridge BOOTPROTO=none ONBOOT=yes NM_CONTROLLED=no BRIDGE_INTERFACES=bond0.<imi_vlan> Bring up devices into services: **# ifup bond0.<imi_vlan>** **# ifup imi**
16. ☐	For each **Oracle X5-2 RMS**: Create XMI bridge	Create bond0.<xmi_vlan> configuration file: **# vim /etc/sysconfig/network-scripts/ifcfg-bond0.<xmi_vlan>** DEVICE=bond0.<xmi_vlan> TYPE=Ethernet BOOTPROTO=none ONBOOT=yes NM_CONTROLLED=no

		BRIDGE=xmi Create xmi device configuration file: # **vim /etc/sysconfig/network-scripts/ifcfg-xmi:** DEVICE=xmi TYPE=Bridge BOOTPROTO=none ONBOOT=yes NM_CONTROLLED=no IPADDR=<xmi_ip_addr> NETMASK=<xmi_netmask> NETWORK=<xmi_network> BRIDGE_INTERFACES=bond0.<xmi_vlan> Set default route for xmi network: # **vim /etc/sysconfig/network-scripts/route-xmi** default via <xmi_gateway> table main Bring up devices into services: # **ifup bond0.<xmi_vlan>** # **ifup xmi**
17. ☐	For each **Oracle X5-2 RMS**: Create bond1 device	Create device bond1 configuration file: # **vim /etc/sysconfig/network-scripts/ifcfg-bond1** DEVICE=bond1 TYPE=Bonding BOND_INTERFACES=eth4,eth5 ONBOOT=yes NM_CONTROLLED=no BOOTPROTO=none BONDING_OPTS="mode=active-backup primary=eth4 miimon=100" Create device eth4 configuration file: # **vim /etc/sysconfig/network-scripts/ifcfg-eth4** DEVICE=eth4 TYPE=Ethernet ONBOOT=yes NM_CONTROLLED=no BOOTPROTO=none MASTER=bond1 SLAVE=yes Create device eth5 configuration file: # **vim /etc/sysconfig/network-scripts/ifcfg-eth5** DEVICE=eth5 TYPE=Ethernet ONBOOT=yes NM_CONTROLLED=no BOOTPROTO=none MASTER=bond1 SLAVE=yes Bring up devices into services: # **ifup eth4** # **ifup eth5** # **ifup bond1**
18. ☐	For each **Oracle X5-2 RMS**:	Create device bond1.<xsi1_vlan> configuration file: # **vim /etc/sysconfig/network-scripts/ifcfg-bond1.<xsi1_vlan>** BOOTPROTO=none

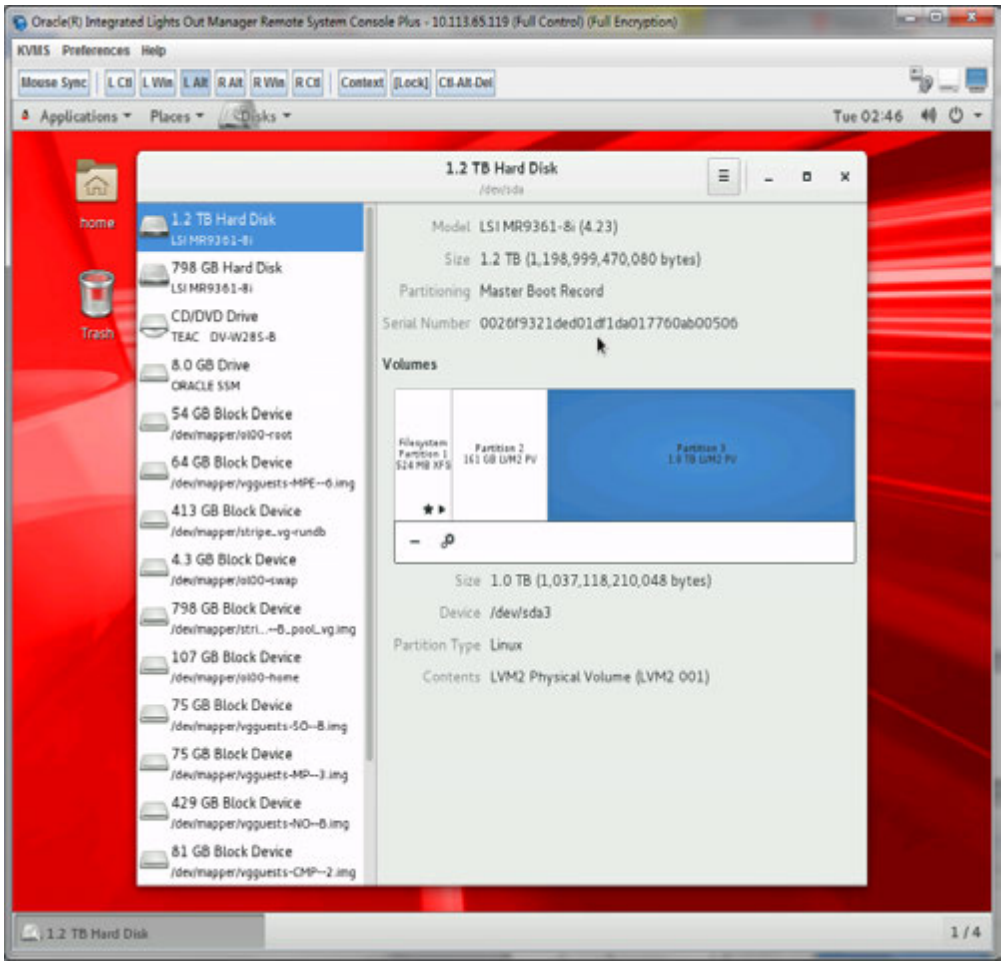
	Create xsi1/xsi2 bridge	VLAN=yes ONBOOT=yes TYPE=Ethernet DEVICE=bond1.<xsi1_vlan> BRIDGE=xsi1 NM_CONTROLLED=no Create device xsi1 configuration file: # **vim /etc/sysconfig/network-scripts/ifcfg-xsi1** DEVICE=xsi1 TYPE=Bridge BOOTPROTO=none ONBOOT=yes NM_CONTROLLED=no BRIDGE_INTERFACES=bond1.<xsi1_vlan> Bring up devices into services: # **ifup xsi1** # **ifup bond1.<xsi1_vlan>** Perform similar operations to create network devices for xsi2.
19. ☐	For each **Oracle X5-2 RMS**: Set host name	Rename host by modifying /etc/hostname file: [root@localhost network-scripts]# **cat /etc/hostname** udr-x5-2-62-ol7 Review host name change with following command: [root@localhost network-scripts]# **hostnamectl status** Static hostname: udr-x5-2-62-ol7 Icon name: computer-server Chassis: server Machine ID: 17980a78ef7d440ca5a6900768903795 Boot ID: a2a5a649eea14d8ab7534aec962c6782 Operating System: Oracle Linux Server 7.2 CPE OS Name: cpe:/o:oracle:linux:7:2:server Kernel: Linux 3.8.13-98.7.1.el7uek.x86_64 Architecture: x86-64
20. ☐	For each **Oracle X5-2 RMS**: Set NTP service	Modify /etc/chrony.conf, comment out all server * entries and append your NTP server IP to the list with prepending ‘server ‘ text: # Use public servers from the pool.ntp.org project. # Please consider joining the pool (http://www.pool.ntp.org/join.html). #server 0.rhel.pool.ntp.org iburst #server 1.rhel.pool.ntp.org iburst #server 2.rhel.pool.ntp.org iburst #server 3.rhel.pool.ntp.org iburst server 144.25.255.140 Force ntp to sync with newly added server: # **ntpdate 144.25.255.140** Verify time synced: [root@udr-x5-2-62 log]# **chronyc tracking** Reference ID : 144.25.255.140 (144.25.255.140) Stratum : 3 Ref time (UTC) : Mon Feb 29 06:06:44 2016 System time : 1.692247748 seconds slow of NTP time Last offset : -3.862722397 seconds RMS offset : 3.862722397 seconds Frequency : 0.000 ppm fast

```
Residual freq   : -93.109 ppm
Skew            : 1000000.000 ppm
Root delay      : 0.178002 seconds
Root dispersion : 30.041723 seconds
Update interval : 0.0 seconds
Leap status     : Normal
```

21. ☐ For each **Oracle X5-2 RMS**:

Create VG of 'vgguests'

Navigate to '***Applications*** -> ***Utilities*** -> ***Disk***' menu, select '1.2 TB Hard Disk', create a new partition using the rest of the free disk space on that disk, like following:



Open SSH window and type in following command to create PV on the newly created partition:

```
# pvcreate /dev/sda3
WARNING: ext4 signature detected on /dev/sda3 at offset 1080. Wipe
it? [y/n]: y
  Wiping ext4 signature on /dev/sda3.
  Physical volume "/dev/sda3" successfully created
```

Create VG of 'vgguests' on this newly created PV:

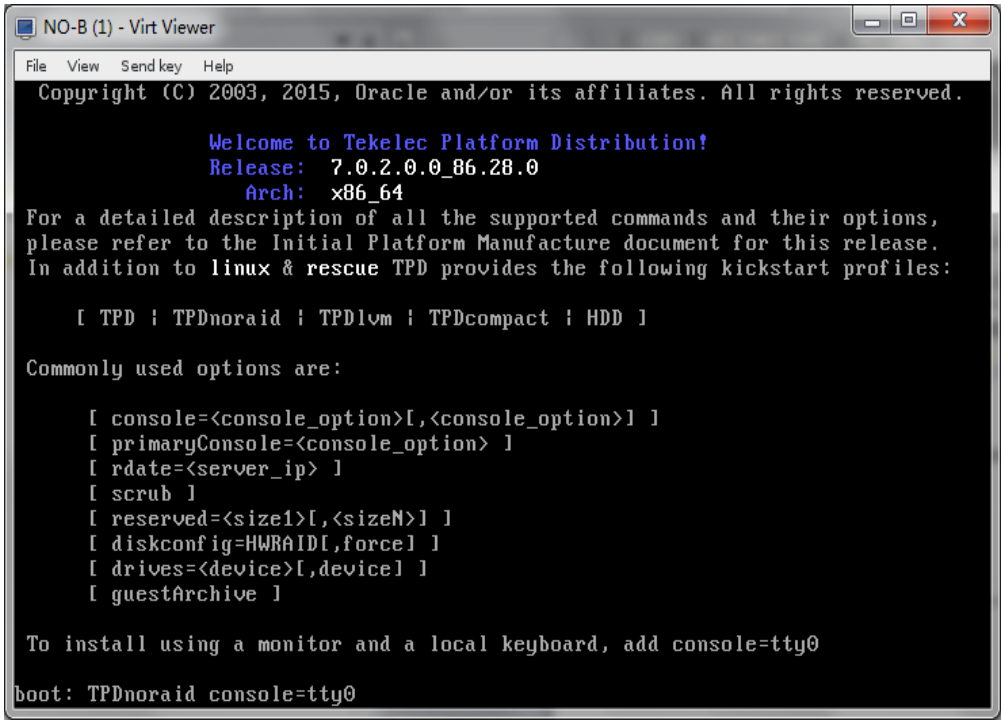
```
# vgcreate vgguests /dev/sda3
 Volume group "vgguests" successfully created
```

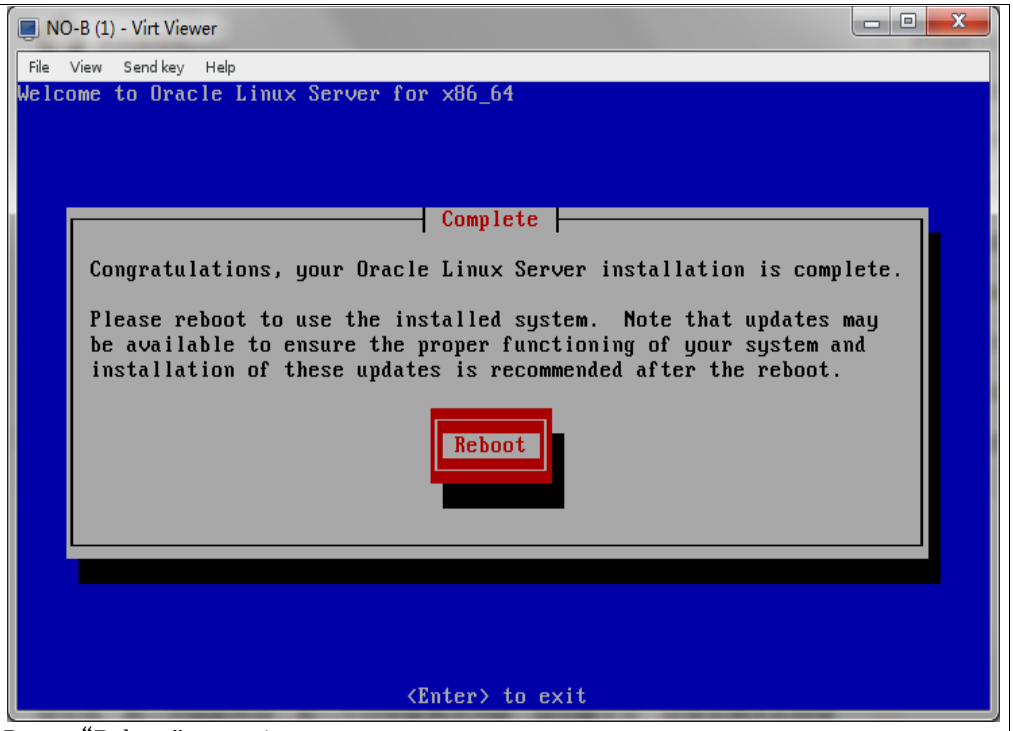
Verify that 'vgguests' created successfully:

```
# vgdisplay vgguests
 --- Volume group ---
  VG Name               vgguests
```

		System ID Format lvm2 Metadata Areas 1 Metadata Sequence No 14 VG Access read/write VG Status resizable MAX LV 0 Cur LV 7 Open LV 7 Max PV 0 Cur PV 1 Act PV 1 VG Size 965.89 GiB PE Size 4.00 MiB Total PE 247268 Alloc PE / Size 207360 / 810.00 GiB Free PE / Size 39908 / 155.89 GiB VG UUID gceZRh-QR7y-w5dP-wj8l-0e6i-dC2q-rkwl57
22. ☐	For each **Oracle X5-2 RMS**: Create PV upon SSD disk array	Create PV upon SSD disk array (mounted as /dev/sdb device): # **pvcreate /dev/sdb** Physical volume "/dev/sdb" successfully created Verify PV is created successfully: # **pvdisplay /dev/sdb** "/dev/sdb" is a new physical volume of "743.20 GiB" --- NEW Physical volume --- PV Name /dev/sdb VG Name PV Size 743.20 GiB Allocatable NO PE Size 0 Total PE 0 Free PE 0 Allocated PE 0 PV UUID 2nMzSt-44Sr-K8sq-eMdf-cAc7-003R-AQCIiO
23. ☐	For each **UDR VMs**: Create hard disk image Login to SSH console of X5-2 host	Using lvcreate command create logic volume for UDR VM on Oracle X5-2 host: # **lvcreate -n <UDR_VM_name>.img -L <UDR_VM_HardDisk_sizeGB>G vgguests** Logical volume "<UDR_VM_name>.img" created. -if creating VM for NOAMP, set hard disk size to 400G -if creating VM for SOAM/MP, set hard disk size to 70G Verify logic volume created successfully: # [root@udr-x5-2-62-ol7 ~]# **lvdisplay /dev/vgguests/<UDR_VM_name>.img** --- Logical volume --- LV Path /dev/vgguests/NO-B.img LV Name NO-B.img VG Name vgguests LV UUID QcfD8S-61cP-P3Ws-H8Ai-I1xx-reDC-2cT9Aw LV Write Access read/write LV Creation host, time udr-x5-2-62-ol7, 2016-03-02 00:30:04 -0500 LV Status available # open 1 LV Size 400.00 GiB Current LE 102400 Segments 1 Allocation inherit Read ahead sectors auto - currently set to 8192 Block device 252:6
24.	For **NOAMP**	**Note: this step is for NOAMP VM only.**

☐	**VM only**: Create LV for subscriber storage	Allocate all space on stripePool_vg to NOAMP VM: # **lvcreate -n <NOAMP_name>_pool_vg.img -L 743G stripePool_vg** WARNING: LVM2_member signature detected on /dev/stripePool_vg/NO-B_pool_vg.img at offset 536. Wipe it? [y/n]: y Wiping LVM2_member signature on /dev/stripePool_vg/NO-B_pool_vg.img. Logical volume "NO-B_pool_vg.img" created. Verify that LV is created successfully: # **lvdisplay /dev/stripePool_vg/<NOAMP_name>_pool_vg.img** --- Logical volume --- LV Path /dev/stripePool_vg/NO-B_pool_vg.img LV Name NO-B_pool_vg.img VG Name stripePool_vg LV UUID gXaYz2-FrXJ-5liq-iUyB-0kDN-e1Pw-0KeRel LV Write Access read/write LV Creation host, time udr-x5-2-62-ol7, 2016-03-02 00:30:11 -0500 LV Status available # open 2 LV Size 743.00 GiB Current LE 190208 Segments 1 Allocation inherit Read ahead sectors auto - currently set to 8192 Block device 252:2
25. ☐	For each **UDR VMs**: Create VM and install TPD	**Note: require X-window enabled so that virt-viewer GUI could pop up to perform installation operation.** -if creating NOAMP VM, using following command: # **virt-install --name=<NOAMP_name> ** **--connect qemu:///system --virt-type kvm ** **--vcpus=8 ** **--cpu Haswell-noTSX ** **--ram=104448 ** **--hvm ** **--arch=x86_64 --os-type=linux --os-variant=ol6.5 ** **--disk path=/dev/vgguests/<NOAMP_name>.img,sparse=false ** **--disk path=/dev/stripePool_vg/<NOAMP_name>_pool_vg.img,sparse=false ** **--cdrom <TPD_ISO_location> ** **--network=bridge:imi,model=virtio ** **--network=bridge:xmi,model=virtio ** **--network=bridge:xsi1,model=virtio ** **--accelerate** -if creating SOAM VM, using following command: # **virt-install --name=<SOAM_name> ** **--connect qemu:///system --virt-type kvm ** **--vcpus=2 ** **--cpu Haswell-noTSX ** **--ram=12288 ** **--hvm ** **--arch=x86_64 --os-type=linux --os-variant=ol6.5 ** **--disk path=/dev/vgguests/<SOAM_name>.img,sparse=false ** **--cdrom <TPD_ISO_location> ** **--network=bridge:imi,model=virtio **

		--network=bridge:xmi,model=virtio \ --accelerate -if creating MP VM, using following command: # virt-install --name=<MP_name> \ --connect qemu:///system --virt-type kvm \ --vcpus=6 \ --cpu Haswell-noTSX \ --ram=32768 \ --hvm \ --arch=x86_64 --os-type=linux --os-variant=ol6.5 \ --disk path=/dev/vgguests/<MP_name>.img,sparse=false \ --cdrom <TPD_ISO_location> \ --network=bridge:imi,model=virtio \ --network=bridge:xmi,model=virtio \ --network=bridge:xsi1,model=virtio \ --network=bridge:xsi2,model=virtio \ --accelerate Wait for virt-viewer GUI pop up:  Type in following to start TPD installation: # TPDnoraid console=tty0
26. ☐	For each **UDR VMs**: Reboot after TPD installation complete	Wait for TPD installation to complete until following screen shown:



Press "Reboot" to continue.

27. ☐ For each **UDR VMs**:

Modify network interface name

Note: by default the network interface name on VM guest created by Oracle Linux KVM are of pattern 'ethx', UDR VMs requires network interface name as in xmi/imi/xsi1/xsi2, following is a workaround to meet with this requirement.

First stop network service:

```
# service network stop
```

Modify /etc/udev/rules.d/70-persistent-net.rules as following (take NOAMP for example):
Note: check the MAC address before modifying to guarantee the network interface name to be changed to.

```
# # cat /etc/udev/rules.d/70-persistent-net.rules
# This file was automatically generated by the /lib/udev/write_net_rules
# program, run by the persistent-net-generator.rules rules file.
#
# You can modify it, as long as you keep each rule on a single
# line, and change only the value of the NAME= key.


# PCI device 0x1af4:0x1000 (virtio-pci) (custom name provided by external tool)
SUBSYSTEM=="net", ACTION=="add", DRIVERS=="?*",
ATTR{address}=="52:54:00:50:dc:80", ATTR{type}=="1", KERNEL=="eth*",
NAME="imi"

# PCI device 0x1af4:0x1000 (virtio-pci)
SUBSYSTEM=="net", ACTION=="add", DRIVERS=="?*",
ATTR{address}=="52:54:00:dc:7e:d1", ATTR{type}=="1", KERNEL=="eth*",
NAME="xmi"

# PCI device 0x1af4:0x1000 (virtio-pci)
SUBSYSTEM=="net", ACTION=="add", DRIVERS=="?*",
ATTR{address}=="52:54:00:08:72:06", ATTR{type}=="1", KERNEL=="eth*",
```

		NAME="xsi1" Restart udev service: # **start_udev** Rename network interface configuration file name correspondingly: # **mv ifcfg-eth0 ifcfg-imi** Modify DEVICE name option in configuration file: [root@NO-B network-scripts]# **cat ifcfg-imi** BOOTPROTO=none TYPE=Ethernet DEVICE=imi NETMASK=255.255.254.0 BROADCAST=192.168.3.255 IPADDR=192.168.2.35 NETWORK=192.168.2.0 ONBOOT=yes Start network service again: # **service network start** Verify that network interfaces are renamed correctly: # **ip link** 1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00 2: imi: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP qlen 1000 link/ether 52:54:00:50:dc:80 brd ff:ff:ff:ff:ff:ff 3: xmi: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN qlen 1000 link/ether 52:54:00:dc:7e:d1 brd ff:ff:ff:ff:ff:ff 4: xsi1: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN qlen 1000 link/ether 52:54:00:08:72:06 brd ff:ff:ff:ff:ff:ff
28. ☐	For each **UDR VMs**: Configure XMI network address	Set XMI network address for UDR VM: # **netAdm set --device=xmi --onboot=yes --netmask=<XMI_netmask> --address=<XMI_network_address>** # **netAdm add --device=xmi --route=default --gateway=<XMI_gateway>**
29. ☐	For each **UDR VMs**: Configure NTP service	Follow instructions in... Step 5 - 6 of Appendix L.6 Configure TVOE Server (Hostname, Time Zone, SNMP, NTP, etc) in [2] … to configure NTP service for each VM.
30. ☐	For **NOAMP VM only**: Create rundb logic volume	**Note: this step applies on NOAMP VM only.** Create volume group stripe_vg: # **vgcreate stripe_vg /dev/sdb** Physical volume "/dev/sdb" successfully created Volume group "stripe_vg" successfully created Verify VG created successfully: # **vgdisplay** --- Volume group --- VG Name stripe_vg

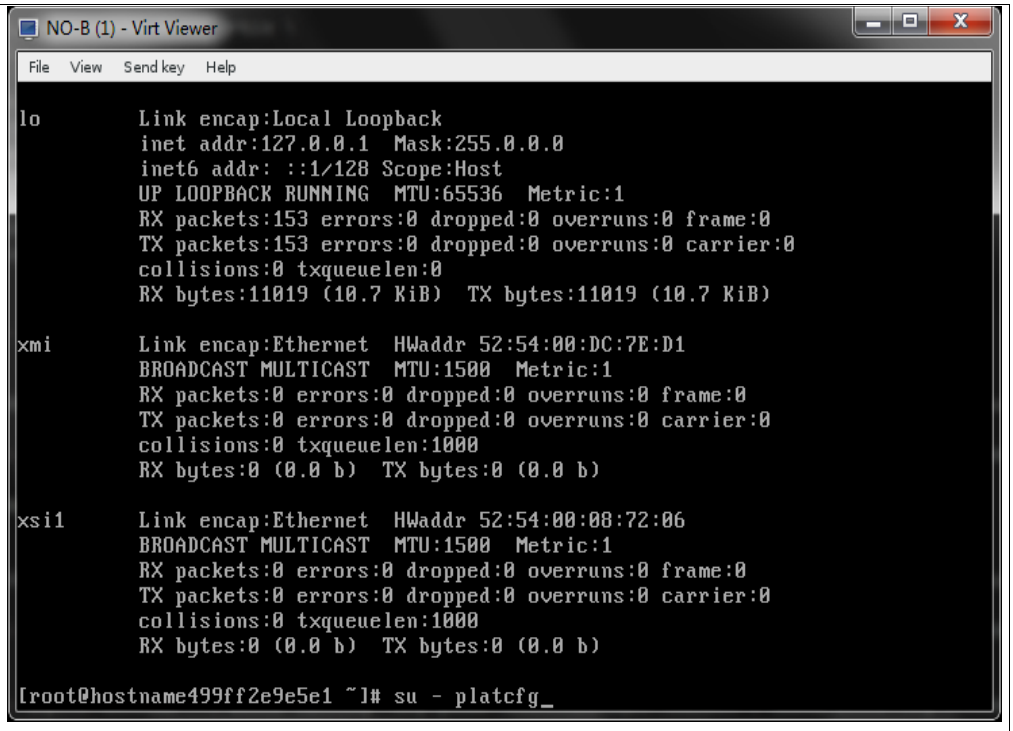
```
  System ID
  Format                lvm2
  Metadata Areas        1
  Metadata Sequence No  1
  VG Access             read/write
  VG Status             resizable
  MAX LV                0
  Cur LV                0
  Open LV               0
  Max PV                0
  Cur PV                1
  Act PV                1
  VG Size               743.00 GiB
  PE Size               4.00 MiB
  Total PE              190207
  Alloc PE / Size       0 / 0
  Free  PE / Size       190207 / 743.00 GiB
  VG UUID               3QjoX9-154F-1Xk5-Hnrw-PId9-dbK0-azk4te

  --- Volume group ---
  VG Name               vgroot
  System ID
  Format                lvm2
  Metadata Areas        1
  Metadata Sequence No  6
  VG Access             read/write
  VG Status             resizable
  MAX LV                0
  Cur LV                5
  Open LV               5
  Max PV                0
  Cur PV                1
  Act PV                1
  VG Size               399.72 GiB
  PE Size               32.00 MiB
  Total PE              12791
  Alloc PE / Size       352 / 11.00 GiB
  Free  PE / Size       12439 / 388.72 GiB
  VG UUID               9AejnG-F3yM-0EUl-hDXY-lNF5-6mVg-cNC0dC
```

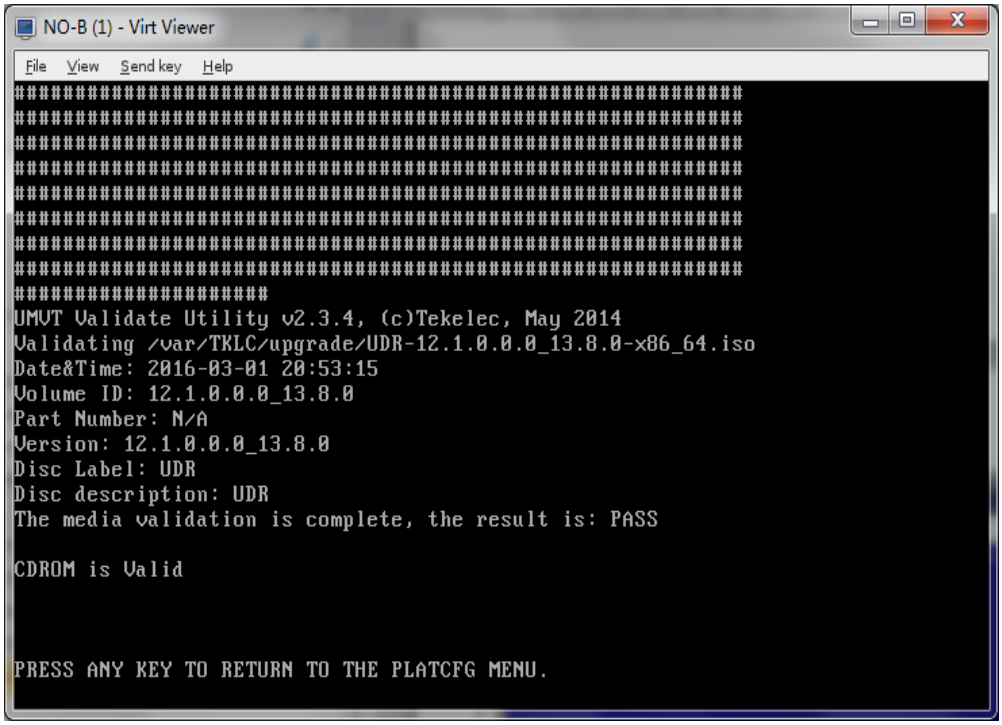
Create LV for rundb:

```
# lvcreate -L 385G --alloc anywhere --name rundb stripe_vg
  Logical volume "rundb" created
# mkfs -t ext4 /dev/stripe_vg/rundb
mke2fs 1.43-WIP (20-Jun-2013)
Discarding device blocks: done
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
```

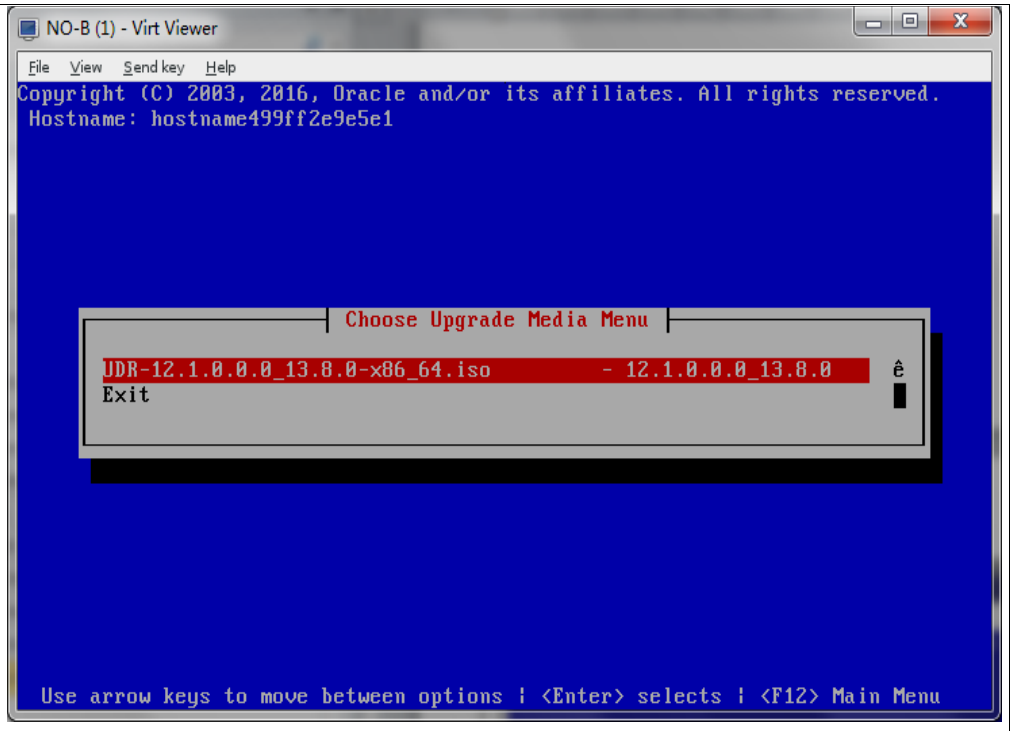
		Allocating group tables: done Writing inode tables: done Creating journal (32768 blocks): done Writing superblocks and filesystem accounting information: done # **lvs stripe_vg** LV VG Attr LSize Pool Origin Data% Meta% Move Log Cpy%Sync Convert rundb stripe_vg -wa-a----- 385.00g
31. ☐	For each **UDR VMs**: Reboot VM guest	Reboot the server: # **init 6** Wait until the reboot completes and re-login with root credentials.
32. ☐	For each **UDR VMs**: Copy UDR ISO to upgrade directory	Remote copy UDR ISO to /var/TKLC/upgrade directory on each UDR VM: # **scp <UDR_ISO_location> admusr@<UDR_VM_XMI_address>:/var/TKLC/upgrade/** The authenticity of host '10.113.78.35 (10.113.78.35)' can't be established. RSA key fingerprint is SHA256:9dIP5VmF6p95q6XU55E6VjN/zdTvFFrA4GIMkdZ8JYE. Are you sure you want to continue connecting (yes/no)? yes Warning: Permanently added '10.113.78.35' (RSA) to the list of known hosts. Password: UDR-12.1.0.0.0_13.8.0-x86_64.iso 100% 873MB 43.7MB/s 00:20 Check that ISO has been uploaded to /var/TKLC/upgrade folder on target VM guest correctly.
33. ☐	For each **UDR VMs**: Install UDR	Start UDR VM management console via virt-viewer utility (require X-window support): # **virt-viewer <UDR_VM_name>** Wait for virt-viewer window pop up, type in following command to enter upgrade window: # **su - platcfg**

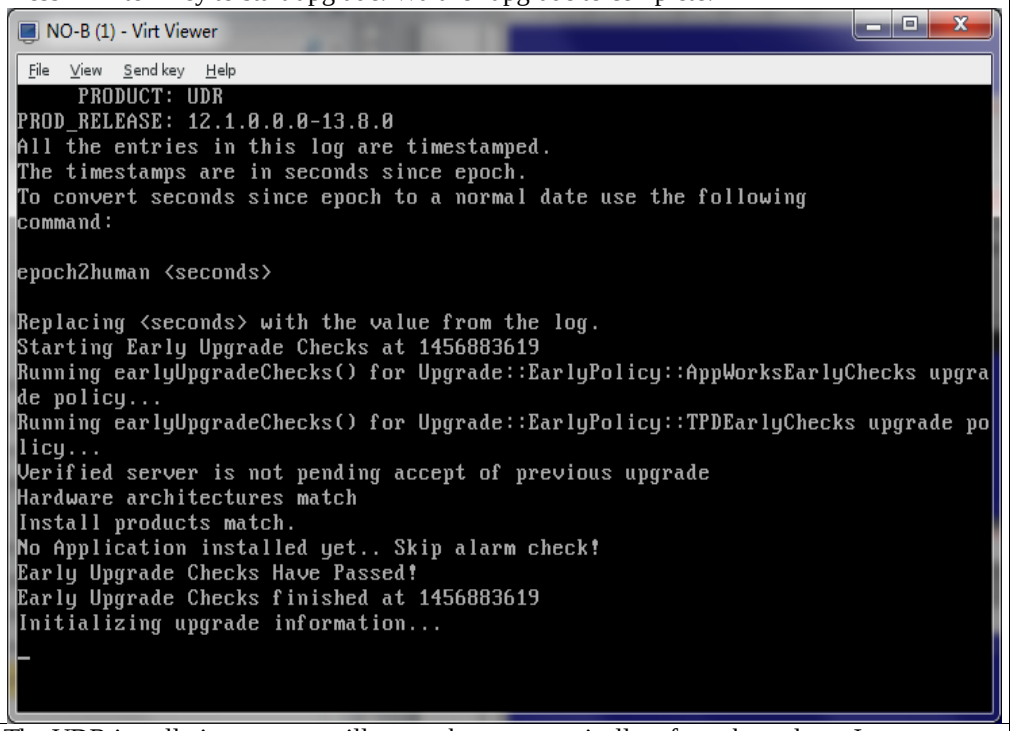


Navigate into menu of “Maintenance -> Upgrade -> Validate Media”, choose the ISO just uploaded to verify:



Verified that validation is success and press any key to go back. Navigate into ‘Initiate Upgrade’ menu and select the ISO to upgrade:

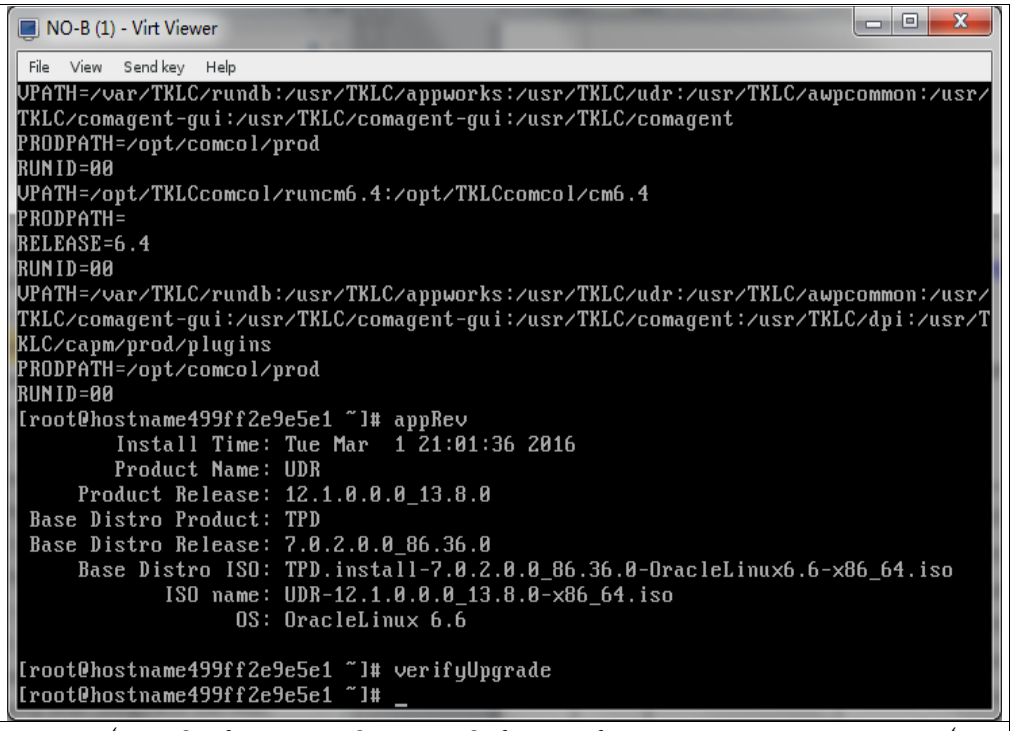
<table>
<tr>
<td></td>
<td></td>
<td>


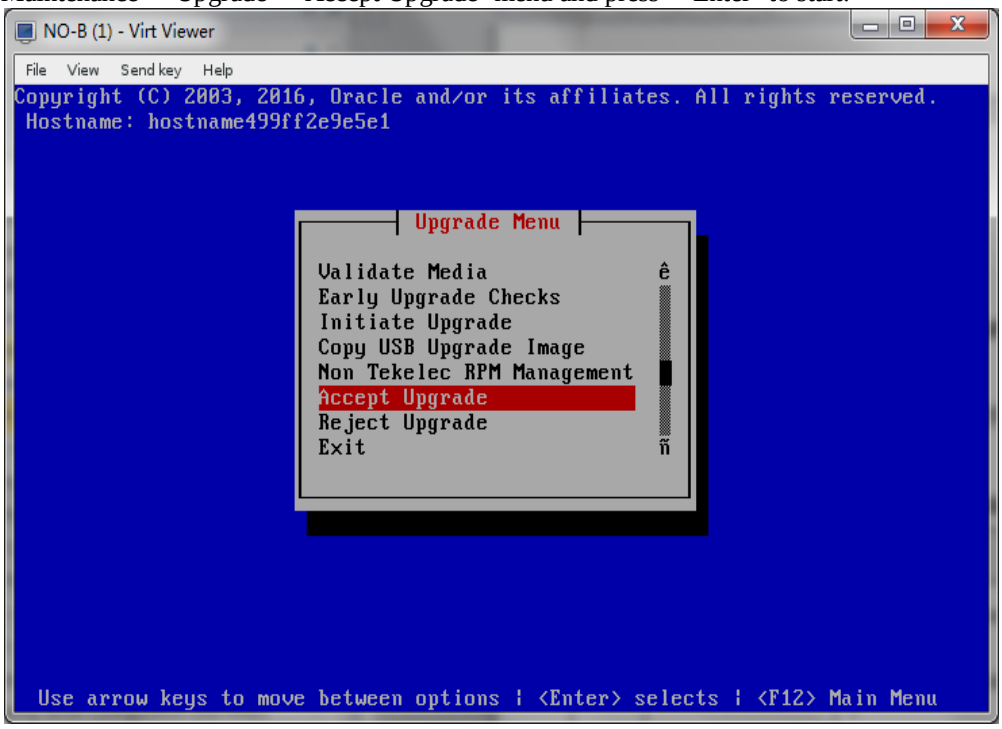
Press “Enter” key to start upgrade. Wait for upgrade to complete:


</td>
</tr>
<tr>
<td>34.
☐</td>
<td>For each UDR VMs:

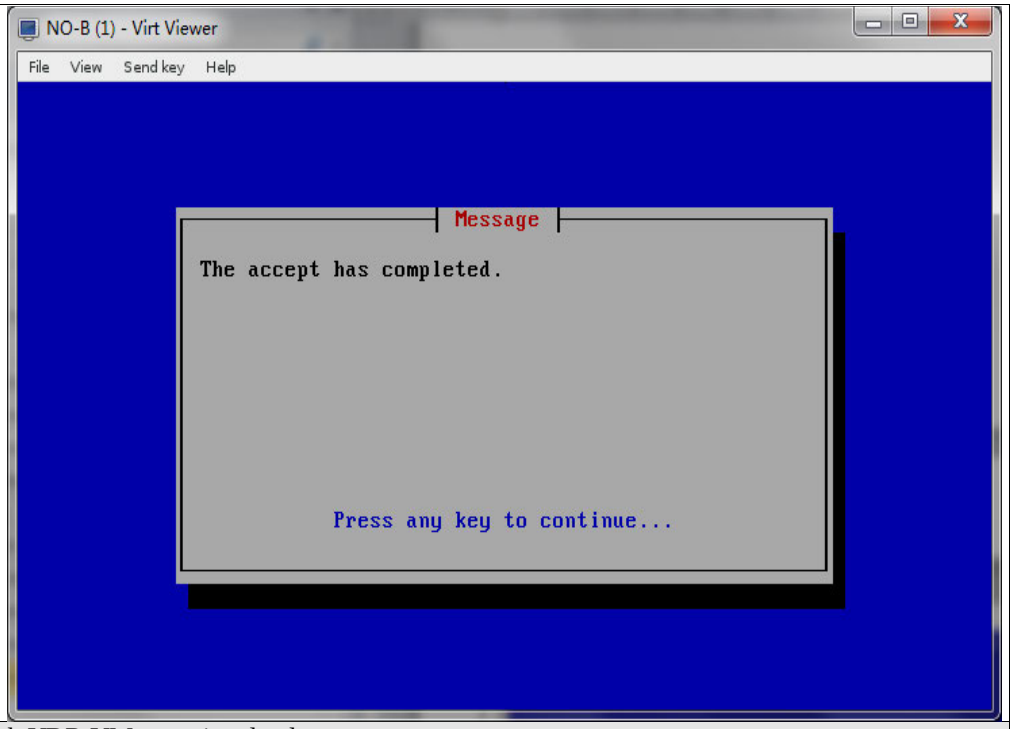
Verify UDR installation success</td>
<td>The UDR installation process will restart host automatically, after reboot done. Issue following command to verify upgrade success:
verifyUpgrade

This command shall give no output.</td>
</tr>
</table>

<table>
<tr>
<td></td>
<td></td>
<td> 
</td>
</tr>
<tr>
<td>35. ☐</td>
<td>For each UDR VMs:

Accept upgrade</td>
<td>Type in ‘su - platcfg’ command to enter platform configuration menu. Navigate into ‘Maintenance -> Upgrade -> Accept Upgrade’ menu and press “Enter” to start:
 

Wait for Accept upgrade operation to complete:</td>
</tr>
</table>

		
Repeat **step 23 ~ 35** for each UDR VM guest involved.		

Appendix I. MY ORACLE SUPPORT (MOS)

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

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

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

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