

**Diameter Signal Routing
User Data Repository (DB Only)
Cloud Installation and Configuration Guide for
Release 8.3**

F10009-01

September 2018



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Chapter 1. Introduction

1.1 Purpose and Scope

This document describes the application-related installation procedures for an VMware User Data Repository system for Diameter Signal Router 8.3.

This document assumes that platform-related configuration has been completed.

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

1.2 References

- [1] Oracle Communications User Data Repository Cloud Resource Profile, E67495, latest revision
- [2] Oracle Communications User Data Repository Installation and Configuration Guide, E72453, latest revision
- [3] Oracle Communications User Data Repository Cloud Disaster Recovery Guide, E72458, latest revision

1.3 Acronyms

An alphabetized list of acronyms used in this document.

Table 1. Acronyms

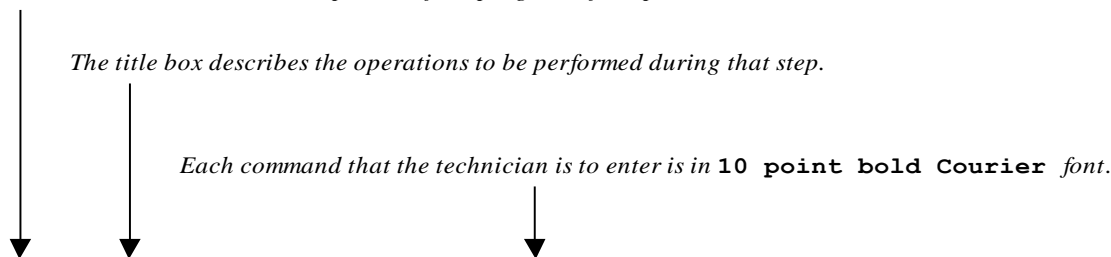
Acronym	Definition
BIOS	Basic Input Output System
CD	Compact Disk
UDR	User Data Repository
ESXi	Elastic Sky X Integrated
FABR	Full Address Based Resolution
iDIH	Integrated Diameter Intelligence Hub
IPFE	IP Front End
IPM	Initial Product Manufacture – the process of installing TPD
IWF	Inter Working Function
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

Acronym	Definition
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.



1. <input type="checkbox"/>	ServerX: Connect to the console of the server	Establish a connection to the server using cu on the terminal server/console. <pre>\$ cu -l /dev/ttyS7</pre>
-----------------------------	---	---

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

1.5 Assumptions

This procedure assumes that:

- The user has taken assigned values from the Customer network and used them to compile XML files (see Appendix C for each NOAMP 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.

1.6 XML Files (for installing NE)

The XML files compiled for installation of the each of the NOAMP 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 Oracle Communications User Data Repository Cloud Disaster Recovery Guide.

1.7 How to use this Document

Although this document is primarily to be used as an initial installation guide, its secondary purpose is to be used as a reference for Disaster Recovery procedures Oracle Communications User Data Repository Cloud Disaster Recovery Guide. 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.

Chapter 2. General Description

This document defines the steps to execute the initial installation of the Oracle Communications User Data Repository application on a VMware hypervisor.

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

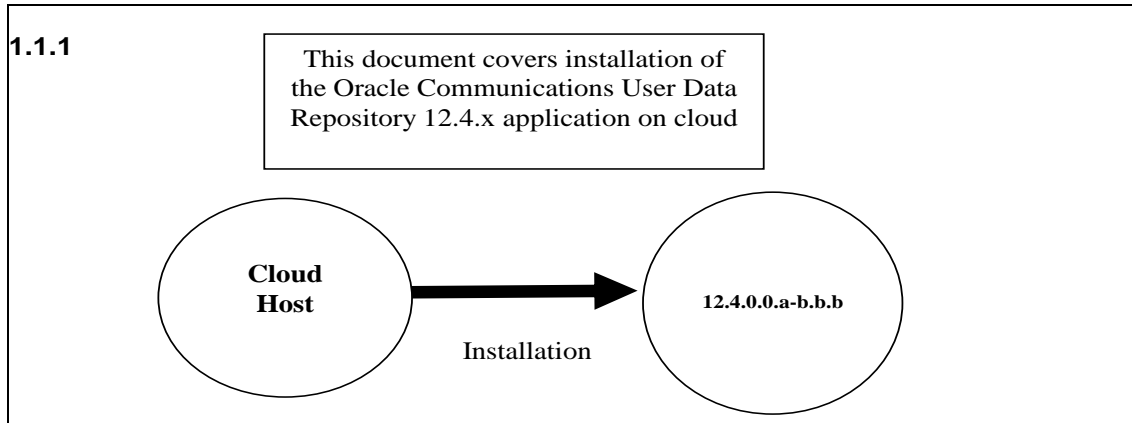


Figure 2. Example of Initial Application Installation Path

2.1 Required Materials

The following materials are required to complete Oracle Communications User Data Repository installation:

1. Target release Oracle Communications User Data Repository OVA Media
2. Target release Oracle Communications User Data Repository 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 <http://docs.oracle.com/en/industries/communications/user-data-repository/index.html>

2.2 Installation Overview

This section describes the overall strategy to be employed for a single or multi-site installation. It also lists the procedures required for installation with estimated times. Section 3.2.3 lists the steps required to install a Oracle Communications User Data Repository system. These latter sections expand on the information from the matrix and provide a general timeline for the installation.

2.3 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 Oracle Communications User Data Repository Virtual Machines on VMware	20	25
Procedure 3	Deploy Oracle User Data Repository Virtual Machines on OpenStack (Only for OpenStack deployments)	20	25
Procedure 4	Deploy Oracle User Data Repository Virtual Machines on Oracle Linux/KVM	20	25
Procedure 5	Configure UDR-A Server (1st NOAMP only)	25	50
Procedure 6	Create Configuration for Remaining Servers	15	65
Procedure 7	Apply Configuration To Remaining Servers	15	80
Procedure 8	Configure XSI Networks	10	90
Procedure 9	OAM Pairing for Primary UDR Servers (1st NOAMP site only)	10	100
Procedure 10	OAM Pairing for DR Sites	15	115
Procedure 11	Configure UDR Signaling Routes (All NOAM Sites)	10	145
Procedure 12	Configure Services on Signaling Network	5	150
Procedure 13	Accept Installation	5	155

Chapter 3. 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. <input type="checkbox"/>	Decide which profile to deploy	<p>The first step in deploying Oracle Communications User Data Repository for cloud is to review the Resource Profiles stated in Oracle Communications User Data Repository Cloud Resource Profile. A choice of HA configuration and resource profile must be driven by the available resources and expected use of the Oracle Communications User Data Repository deployment.</p> <ul style="list-style-type: none"> For demo purposes a OVA lab profile is the best option. For support of larger datasets, ISO installation may be required.
2. <input type="checkbox"/>	Ensure availability of cloud resources	<p>If you are using vCloud Director or vSphere as a non-privileged user, contact your cloud administrator to ensure the availability of sufficient process, memory, storage and network resources to meet the requirements of your chosen configuration and profile in Step 1</p> <p>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 Oracle Communications User Data Repository.</p>
THIS PROCEDURE HAS BEEN COMPLETED		

Chapter 4. Cloud Creation

4.1 Deploy Oracle Communications User Data Repository Virtual Machines on VMware

This procedure creates Oracle Communications User Data Repository virtual machines (guests) on VMware infrastructure.

Requirements:

- 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 Oracle Communications User Data Repository Virtual Machines on VMware

Step	Procedure	Result
1. <input type="checkbox"/>	Ready Installation media	<ul style="list-style-type: none"> • 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 Oracle Communications User Data Repository Media Upload
2. <input type="checkbox"/>	Create vApp	<ul style="list-style-type: none"> • If using vCloud Director, follow: Appendix C.2: Create vApp • If using vSphere client proceed to the next step.
3. <input type="checkbox"/>	Create Oracle Communications User Data Repository guests	<ul style="list-style-type: none"> • If using vSphere client, follow: Appendix Appendix B: Create Guests from OVA • If using vCloud Director, follow: Appendix C.5: Create Guests from ISO or Appendix C.3: Create Guests from OVA <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
4. <input type="checkbox"/>	Configure guest resources Only OVA installs	<ul style="list-style-type: none"> • 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. <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
5. <input type="checkbox"/>	Install guest OS Only ISO installs	<p>Only for ISO installs using vCloud Director, follow Appendix C.6: Install Guests from ISO</p> <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>

Step	Procedure	Result
6. <input type="checkbox"/>	Configure guest OAM network	<p>If using vSphere client, follow:</p> <ul style="list-style-type: none"> Appendix B.3: Configure Guest Network <p>If using vCloud Director, follow:</p> <ul style="list-style-type: none"> Appendix C.7: Configure Guests Network <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B <input type="checkbox"/></p>
THIS PROCEDURE HAS BEEN COMPLETED		

4.2 Deploy Oracle User Data Repository Virtual Machines on OpenStack

This procedure creates User Data Repository virtual machines (guests) on OpenStack.

Requirements:

- Section 3.1 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 User Data Repository Virtual Machines on OpenStack

Step	Procedure	Result
1. <input type="checkbox"/>	Ready Installation media	Create and import OVA image file to OpenStack using Appendix D.1: OpenStack Image Creation from OVA
2. <input type="checkbox"/>	Create Resource Profile	Create Resource Profile (Flavor) on OpenStack following: Appendix D.2: Create Resource Profiles (Flavors)
3. <input type="checkbox"/>	Create Key Pair	Create Key Pair on OpenStack following: Appendix D.3: Create Key Pair
4. <input type="checkbox"/>	Update the Yaml File	Update the UDR Stack Yaml file following: Appendix D.4: Update UDR Stack Yaml File
5. <input type="checkbox"/>	Create VM Instances	On OpenStack, please follow this to create vm instances: Appendix D.5: Create VM Instances Using Yaml File
6. <input type="checkbox"/>	Configure guest OAM network	<p>Follow this step to configure OAM network for vm instances: Appendix D.7: VM Instance Network Configuration</p> <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
7. <input type="checkbox"/>	Associate Floating IP	<p>Associate Floating IPs to the VM Instances if Floating IPs are available in cloud following: Appendix D.12: Associating Floating IPs</p> <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p> <p>NOTE: This step is only needed if none of the networks assigned to VM Instances is a Public Network.</p>

Step	Procedure	Result
8. <input type="checkbox"/>	Create Virtual IPs	Assigning floating IP address to VIP, see Appendix D.8 Virtual IP Address Assignment NOTE: This step is only needed if none of the networks assigned to VM Instances is a Public Network.
THIS PROCEDURE HAS BEEN COMPLETED		

4.3 Deploy Oracle User Data Repository Virtual Machines on Oracle Linux/KVM

This procedure creates User Data Repository virtual machines (guests) on Oracle Linux/KVM.

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

Procedure 4: Deploy User Data Repository Virtual Machines on Oracle Linux/KVM

Step	Procedure	Result
9. <input type="checkbox"/>	Install Oracle Linux/KVM and create VMs	Install Oracle Linux/KVM on the host and create VMs using Virtual Machine Manager by following the below procedure: Appendix J Install UDR on Oracle Linux OS via KVM
THIS PROCEDURE HAS BEEN COMPLETED		

Chapter 5. Oracle Communications User Data Repository Server Configuration

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

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

Requirements:

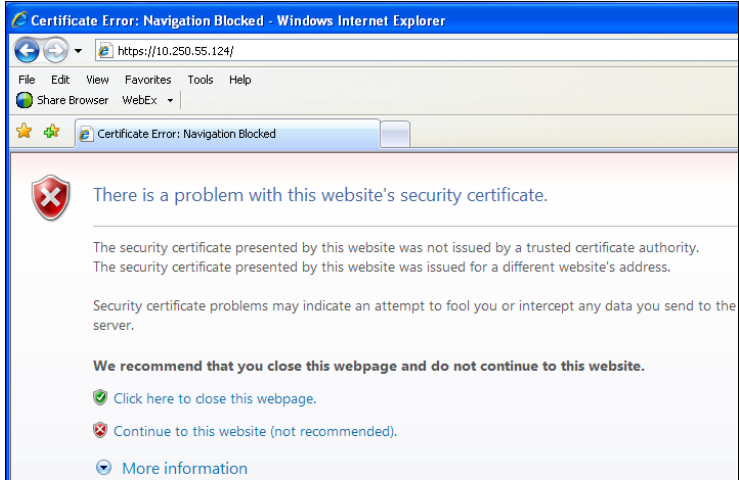
- Section Error! Reference source not found. Cloud Creation has been completed


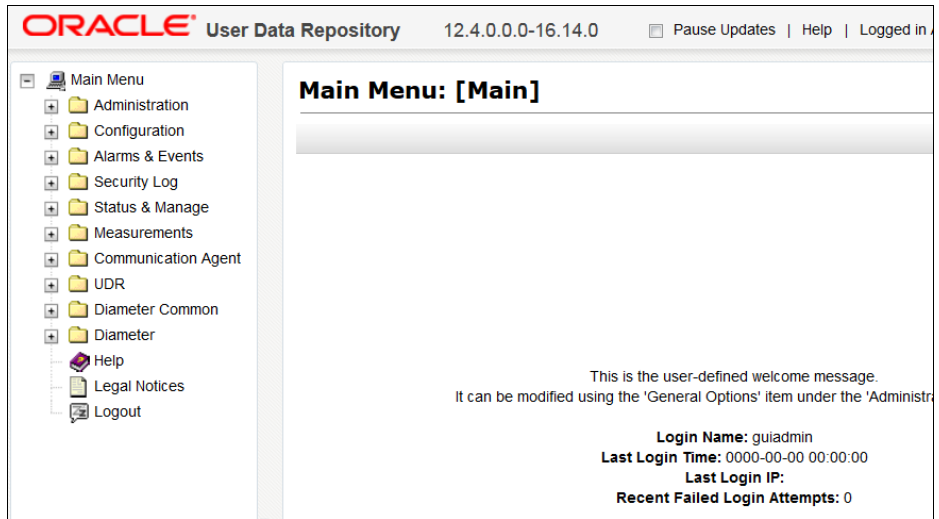
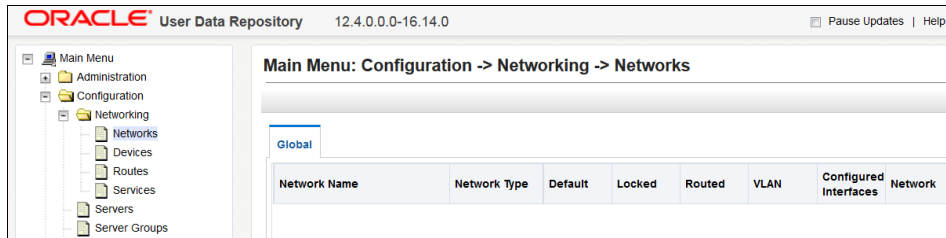
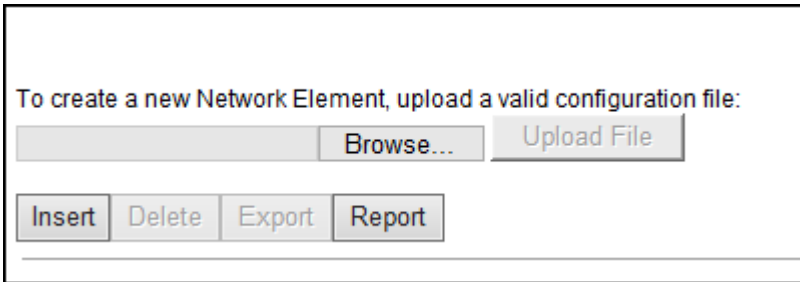
Assumptions:

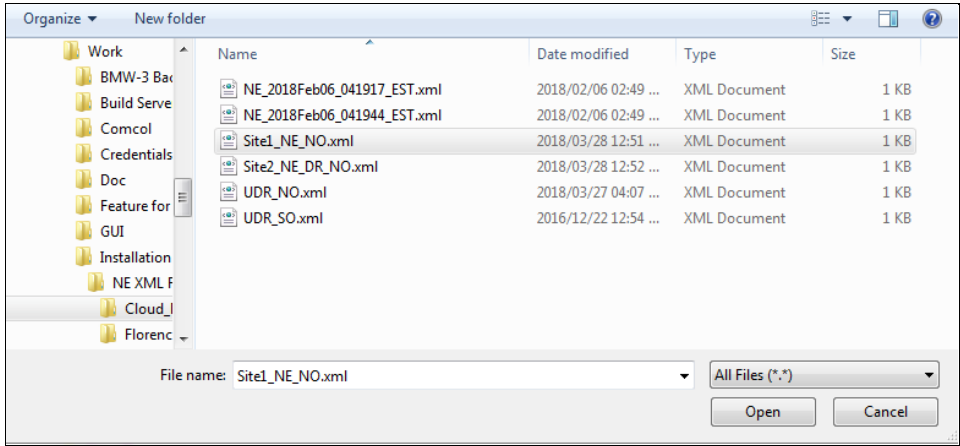
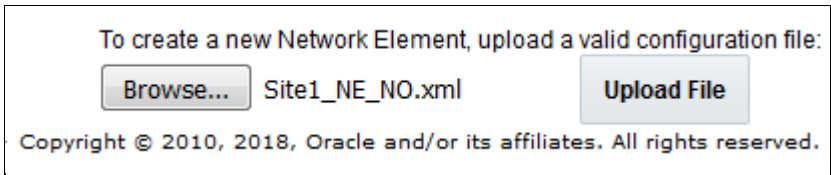
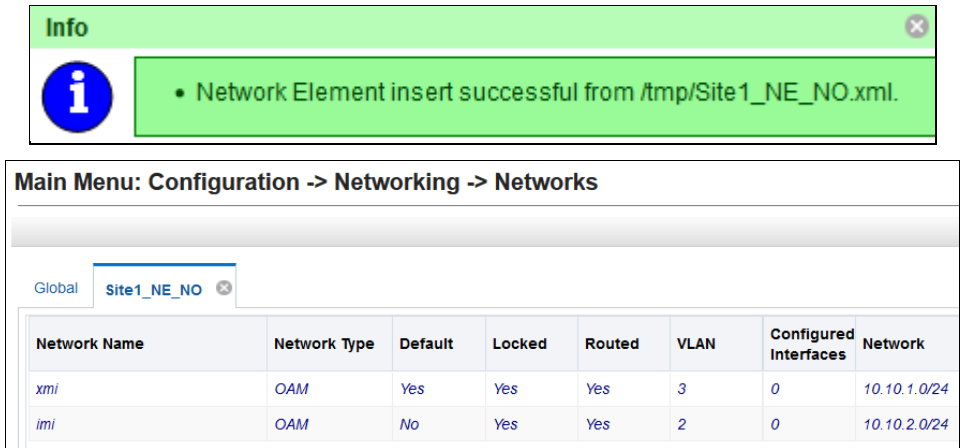
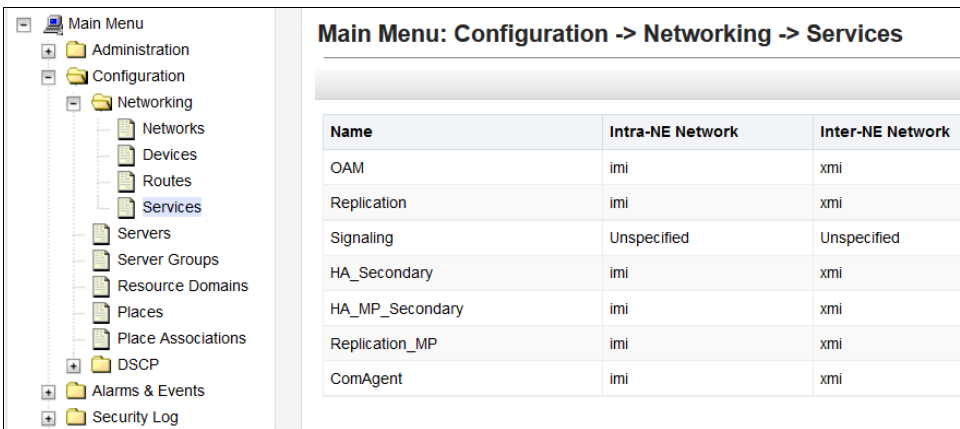
- This procedure assumes that the Oracle Communications User Data Repository Network Element XML file for the Primary Provisioning NOAMP site has previously been created, as described in Appendix E.
- This procedure assumes that the Network Element XML files are either on a USB flash drive or the laptop's 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 5: Configure UDR-A Server (1st NOAMP only)

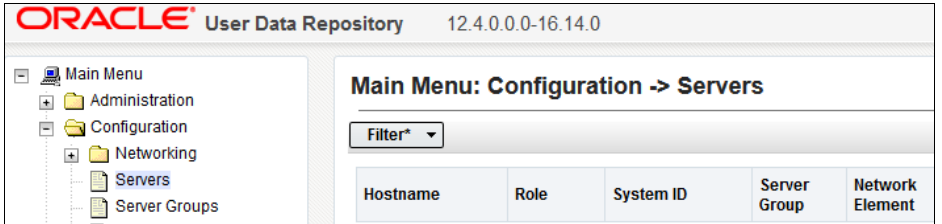
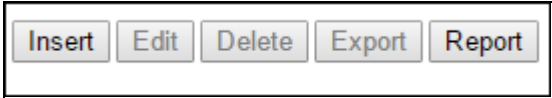
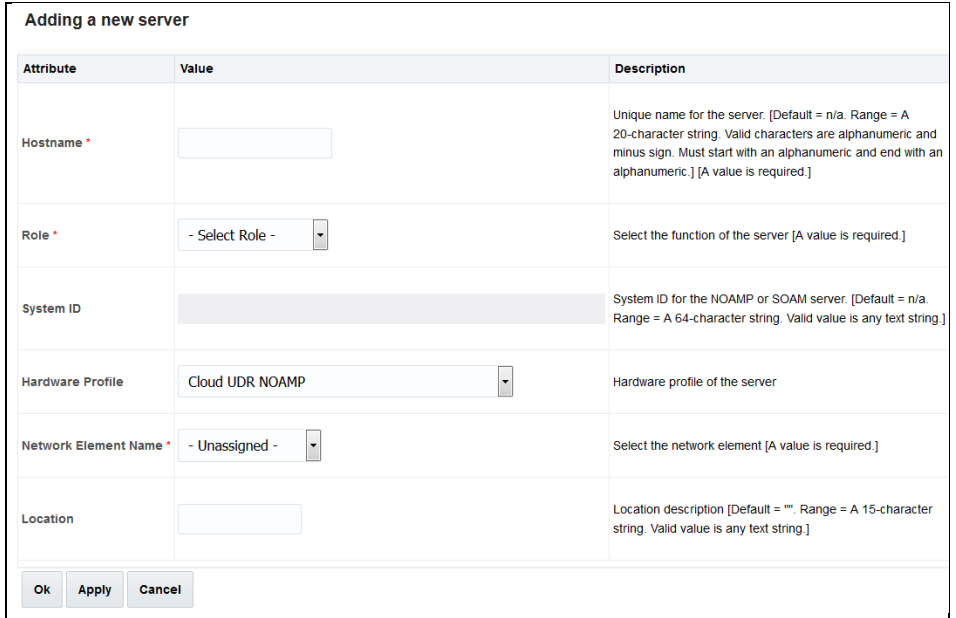
Step	Procedure	Result
1. <input type="checkbox"/>	UDR Server A: Launch an approved web browser and connect to the UDR Server A IP address NOTE: If presented with the security certificate warning screen, select the Continue to this website (not recommended)	

Step	Procedure	Result
2. <input type="checkbox"/>	UDR Server A: The login screen opens. Login to the GUI using the default user and password.	 <p>The screenshot shows the Oracle System Login page. At the top is the Oracle logo. Below it, the text 'Oracle System Login' is followed by a timestamp 'Wed Sep 23 15:26:39 2015 EDT'. A central box contains a 'Log In' section with the instruction 'Enter your username and password to log in'. Below this, it says 'Session was logged out at 3:26:39 pm.' There are input fields for 'Username: guiadmin' and 'Password: ••••••'. A checkbox for 'Change password' is present. A 'Log In' button is at the bottom of the box. At the very bottom of the page, it says 'Welcome to the Oracle System Login.'</p>
3. <input type="checkbox"/>	UDR Server A: The Oracle Communications User Data Repository Main Menu displays.	 <p>The screenshot shows the Oracle User Data Repository main menu. The top bar includes the Oracle logo, 'User Data Repository', version '12.4.0.0.0-16.14.0', and links for 'Pause Updates', 'Help', and 'Logged in'. A left sidebar lists the 'Main Menu' with expandable folders: Administration, Configuration, Alarms & Events, Security Log, Status & Manage, Measurements, Communication Agent, UDR, Diameter Common, Diameter, Help, Legal Notices, and Logout. The main content area is titled 'Main Menu: [Main]' and contains a welcome message: 'This is the user-defined welcome message. It can be modified using the 'General Options' item under the 'Administration' menu item.' Below this, it displays login information: 'Login Name: guiadmin', 'Last Login Time: 0000-00-00 00:00:00', 'Last Login IP:', and 'Recent Failed Login Attempts: 0'.</p>
4. <input type="checkbox"/>	UDR Server A: Configuring Network Element Navigate to Main Menu → Configuration → Networking → Networks	 <p>The screenshot shows the 'Main Menu: Configuration -> Networking -> Networks' screen. The top bar is identical to the previous screenshot. The left sidebar shows the 'Configuration' folder expanded, with 'Networking' selected. The main content area has a title bar 'Main Menu: Configuration -> Networking -> Networks' and a 'Global' tab. Below the tab is a table with columns: 'Network Name', 'Network Type', 'Default', 'Locked', 'Routed', 'VLAN', 'Configured Interfaces', and 'Network'.</p>
5. <input type="checkbox"/>	UDR Server A: Go to the Configuration / Networking / Networks screen. Click Browse (scroll to bottom left corner of screen).	 <p>The screenshot shows a screen for creating a new Network Element. It contains the text 'To create a new Network Element, upload a valid configuration file:'. Below this text are two buttons: 'Browse...' and 'Upload File'. At the bottom of the screen, there are four buttons: 'Insert', 'Delete', 'Export', and 'Report'.</p>

Step	Procedure	Result
6. <input type="checkbox"/>	UDR 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 .	
7. <input type="checkbox"/>	UDR Server A: Click Upload File (bottom left corner of screen).	
8. <input type="checkbox"/>	UDR Server A: If the values in the XML file pass validation rules, a banner message displays showing that the data has been successfully committed to the DB. NOTE You may have to left mouse click the Info banner option to see the message.	
9. <input type="checkbox"/>	Navigate to Main Menu → Configuration → Networking → Services	

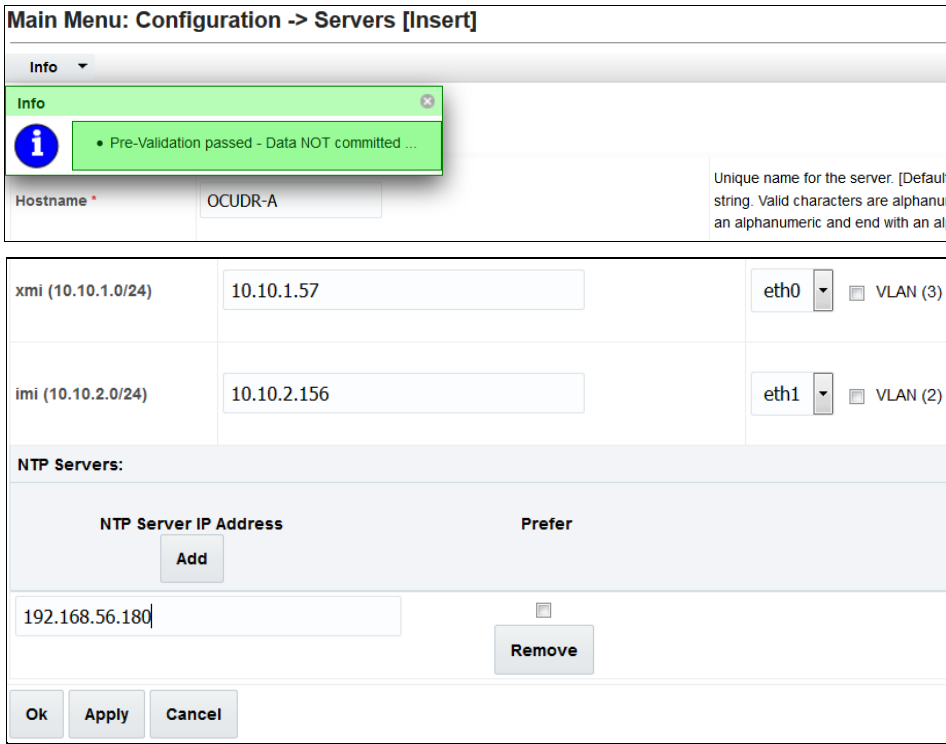

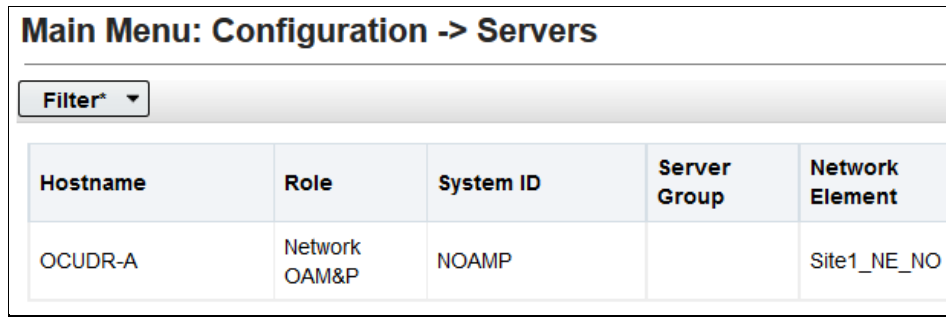
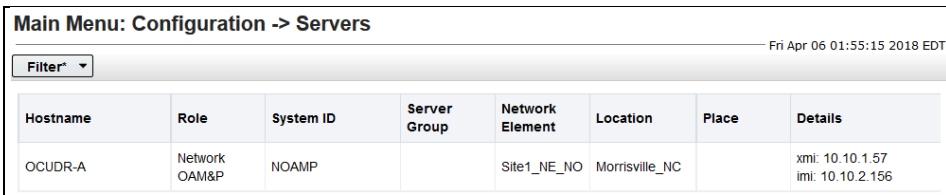
Step	Procedure	Result																								
10. <input type="checkbox"/>	UDR Server A: Click Edit (located at the bottom left corner of the page).	<div> <div> Main Menu: Configuration -> Networking -> Services Wed Feb 07 </div> <table> <tr> <th>Name</th><th>Intra-NE Network</th><th>Inter-NE Network</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>xmi</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>xmi</td></tr> </table> <div> Edit Report </div> </div>	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
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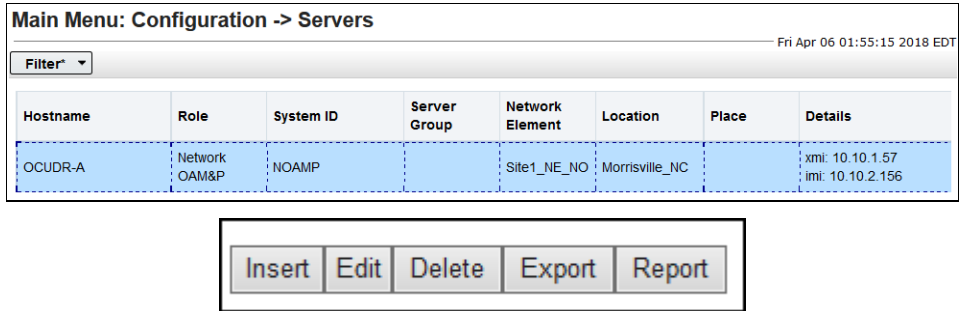
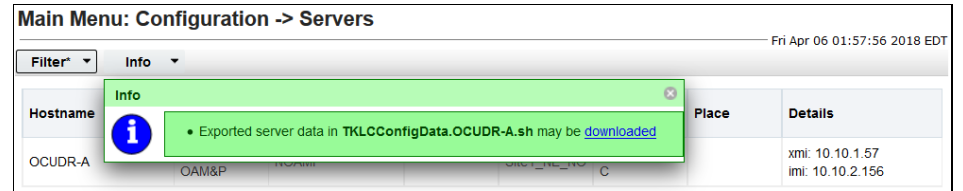
Step	Procedure	Result																								
11. <input type="checkbox"/>	UDR Server A: 1. Set the services values (see Note section). 2. Click Apply . 3. Click OK .	<div data-bbox="678 174 1383 1465"> <h3>Services</h3> <table> <thead> <tr> <th>Name</th><th>Intra-NE Network</th><th>Inter-NE Network</th></tr> </thead> <tbody> <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>XMI ▼</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>XMI ▼</td></tr> </tbody> </table> <div> <input type="button" value="Ok"/> <input type="button" value="Apply"/> <input type="button" value="Cancel"/> </div> </div> <p>NOTE: Servers do not need to be restarted if this is a fresh installation.</p>	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 ▼
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ComAgent	IMI ▼	XMI ▼																								

Step	Procedure	Result																								
12. <input type="checkbox"/>	UDR Server A: The Services configuration screen opens.	<table border="1"> <thead> <tr> <th>Name</th><th>Intra-NE Network</th><th>Inter-NE Network</th></tr> </thead> <tbody> <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>XMI</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>XMI</td></tr> </tbody> </table>	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
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13. <input type="checkbox"/>	UDR Server A: Configuring Oracle Communications User Data Repository Server Navigate to Main Menu → Configuration → Servers																									
14. <input type="checkbox"/>	UDR Server A: Click Insert at the bottom left.																									
15. <input type="checkbox"/>	UDR Server A: The Adding a new server configuration screen opens.																									


Step	Procedure	Result									
16. <input type="checkbox"/>	UDR Server A: Enter the assigned hostname for the UDR-A Server.	<table border="1"> <thead> <tr> <th>Attribute</th><th>Value</th><th>Description</th></tr> </thead> <tbody> <tr> <td>Hostname *</td><td>OCUDR-A</td><td>Unique name for the server. string. Valid characters are an alphanumeric and end with</td></tr> </tbody> </table>	Attribute	Value	Description	Hostname *	OCUDR-A	Unique name for the server. string. Valid characters are an alphanumeric and end with			
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Hostname *	OCUDR-A	Unique name for the server. string. Valid characters are an alphanumeric and end with									
17. <input type="checkbox"/>	UDR Server A: Select NETWORK OAM&P for the server Role from the menu.	<table border="1"> <tbody> <tr> <td>Role *</td><td> <div> <div>NETWORK OAM&P ▼</div> <div> <div>- Select Role -</div> <div>NETWORK OAM&P</div> <div>SYSTEM OAM</div> <div>MP</div> <div>QUERY SERVER</div> </div> </div> </td><td></td></tr> <tr> <td>System ID</td><td></td><td></td></tr> <tr> <td>Hardware Profile</td><td>Cloud UDR NOAMP ▼</td><td></td></tr> </tbody> </table>	Role *	<div> <div>NETWORK OAM&P ▼</div> <div> <div>- Select Role -</div> <div>NETWORK OAM&P</div> <div>SYSTEM OAM</div> <div>MP</div> <div>QUERY SERVER</div> </div> </div>		System ID			Hardware Profile	Cloud UDR NOAMP ▼	
Role *	<div> <div>NETWORK OAM&P ▼</div> <div> <div>- Select Role -</div> <div>NETWORK OAM&P</div> <div>SYSTEM OAM</div> <div>MP</div> <div>QUERY SERVER</div> </div> </div>										
System ID											
Hardware Profile	Cloud UDR NOAMP ▼										
18. <input type="checkbox"/>	UDR Server A: Enter the System ID for the NOAMP Server.	<table border="1"> <tbody> <tr> <td>System ID</td><td>NOAMP</td><td>System ID for the NOAMP or SOAM server. [Default = n/a. Range = A 64-character string. Valid value is any text string.]</td></tr> </tbody> </table>	System ID	NOAMP	System ID for the NOAMP or SOAM server. [Default = n/a. Range = A 64-character string. Valid value is any text string.]						
System ID	NOAMP	System ID for the NOAMP or SOAM server. [Default = n/a. Range = A 64-character string. Valid value is any text string.]									
19. <input type="checkbox"/>	UDR Server A: Select the Hardware Profile from the menu.	Select Hardware Profile: Cloud UDR NOAMP <table border="1"> <tbody> <tr> <td>Hardware Profile</td><td>Cloud UDR NOAMP ▼</td><td>Hardware profile of the server</td></tr> </tbody> </table>	Hardware Profile	Cloud UDR NOAMP ▼	Hardware profile of the server						
Hardware Profile	Cloud UDR NOAMP ▼	Hardware profile of the server									
20. <input type="checkbox"/>	UDR Server A: Select the Network Element Name from the menu. NOTE: After the Network Element Name is selected, the Interfaces fields will be displayed.	<table border="1"> <tbody> <tr> <td>Network Element Name *</td><td>Site1_NE_NO ▼</td><td>Select the network element [A value is required.]</td></tr> </tbody> </table>	Network Element Name *	Site1_NE_NO ▼	Select the network element [A value is required.]						
Network Element Name *	Site1_NE_NO ▼	Select the network element [A value is required.]									
21. <input type="checkbox"/>	UDR Server A: Enter the site location. NOTE: Location is an optional field.	<table border="1"> <tbody> <tr> <td>Location</td><td>Morrisville_NC</td><td>Location description [Default = ""]. Range = A 15-character string. Valid value is any text string.]</td></tr> </tbody> </table>	Location	Morrisville_NC	Location description [Default = ""]. Range = A 15-character string. Valid value is any text string.]						
Location	Morrisville_NC	Location description [Default = ""]. Range = A 15-character string. Valid value is any text string.]									

Step	Procedure	Result																					
22. <input type="checkbox"/>	UDR Server A: 1. Enter the IP Addresses for the Server. 2. Set the Interface parameters according to deployment type.	<div>OAM Interfaces [At least one interface is required.]:</div> <table><thead><tr><th>Network</th><th>IP Address</th><th>Interface</th></tr></thead><tbody><tr><td>xmi (10.10.1.0/24)</td><td><input type="text" value="10.10.1.57"/></td><td>eth0 <input type="checkbox"/> VLAN (3)</td></tr><tr><td>imi (10.10.2.0/24)</td><td><input type="text" value="10.10.2.156"/></td><td>eth1 <input type="checkbox"/> VLAN (2)</td></tr></tbody></table> <p>Enter the IP Addresses for XMI and IMI networks.</p> <p>Set the Interface device for XMI and IMI networks according to this VM guest’s network adapter assignment as viewable in B.3 Step 3Error! Reference source not found. or C.7 Step 5.</p> <p>Leave the VLAN boxes unchecked.</p>	Network	IP Address	Interface	xmi (10.10.1.0/24)	<input type="text" value="10.10.1.57"/>	eth0 <input type="checkbox"/> VLAN (3)	imi (10.10.2.0/24)	<input type="text" value="10.10.2.156"/>	eth1 <input type="checkbox"/> VLAN (2)												
Network	IP Address	Interface																					
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imi (10.10.2.0/24)	<input type="text" value="10.10.2.156"/>	eth1 <input type="checkbox"/> VLAN (2)																					
23. <input type="checkbox"/>	UDR Server A: Click Add under NTP Servers and enter the address of the customer supplied NTP server.	<table><thead><tr><th>NTP Server IP Address</th><th>Prefer</th><th></th></tr></thead><tbody><tr><td><input type="text" value="10.240.15.7"/></td><td><input type="checkbox"/></td><td><input type="button" value="Add"/> <input type="button" value="Remove"/></td></tr><tr><td><input type="text" value="10.240.15.8"/></td><td><input type="checkbox"/></td><td><input type="button" value="Remove"/></td></tr><tr><td><input type="text" value="10.240.15.9"/></td><td><input type="checkbox"/></td><td><input type="button" value="Remove"/></td></tr><tr><td><input type="text" value="10.240.15.11"/></td><td><input type="checkbox"/></td><td><input type="button" value="Remove"/></td></tr></tbody></table> <p>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.</p> <div>NTP Servers:</div> <table><thead><tr><th>NTP Server IP Address</th><th>Prefer</th></tr></thead><tbody><tr><td><input type="text"/></td><td><input type="checkbox"/> <input type="button" value="Add"/></td></tr><tr><td colspan="2"><input type="button" value="Remove"/></td></tr></tbody></table>	NTP Server IP Address	Prefer		<input type="text" value="10.240.15.7"/>	<input type="checkbox"/>	<input type="button" value="Add"/> <input type="button" value="Remove"/>	<input type="text" value="10.240.15.8"/>	<input type="checkbox"/>	<input type="button" value="Remove"/>	<input type="text" value="10.240.15.9"/>	<input type="checkbox"/>	<input type="button" value="Remove"/>	<input type="text" value="10.240.15.11"/>	<input type="checkbox"/>	<input type="button" value="Remove"/>	NTP Server IP Address	Prefer	<input type="text"/>	<input type="checkbox"/> <input type="button" value="Add"/>	<input type="button" value="Remove"/>	
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<input type="button" value="Remove"/>																							

Step	Procedure	Result																
24. <input type="checkbox"/>	UDR Server A: Click Info to see a banner message stating Pre-Validation passed. Click Apply .																	
25. <input type="checkbox"/>	UDR Server A: If the values provided match the network ranges assigned to the NOAMP NE, the banner message shows that the data has been validated and committed to the DB.																	
26. <input type="checkbox"/>	UDR Server A: Applying the Server Configuration File Navigate to Main Menu → Configuration → Servers	 <table><thead><tr><th>Hostname</th><th>Role</th><th>System ID</th><th>Server Group</th><th>Network Element</th></tr></thead><tbody><tr><td>OCUDR-A</td><td>Network OAM&P</td><td>NOAMP</td><td></td><td>Site1_NE_NO</td></tr></tbody></table>	Hostname	Role	System ID	Server Group	Network Element	OCUDR-A	Network OAM&P	NOAMP		Site1_NE_NO						
Hostname	Role	System ID	Server Group	Network Element														
OCUDR-A	Network OAM&P	NOAMP		Site1_NE_NO														
27. <input type="checkbox"/>	UDR Server A: The Configuration → Servers screen lists the added Server.	 <table><thead><tr><th>Hostname</th><th>Role</th><th>System ID</th><th>Server Group</th><th>Network Element</th><th>Location</th><th>Place</th><th>Details</th></tr></thead><tbody><tr><td>OCUDR-A</td><td>Network OAM&P</td><td>NOAMP</td><td></td><td>Site1_NE_NO</td><td>Morrisville_NC</td><td></td><td>xmi: 10.10.1.57 imi: 10.10.2.156</td></tr></tbody></table>	Hostname	Role	System ID	Server Group	Network Element	Location	Place	Details	OCUDR-A	Network OAM&P	NOAMP		Site1_NE_NO	Morrisville_NC		xmi: 10.10.1.57 imi: 10.10.2.156
Hostname	Role	System ID	Server Group	Network Element	Location	Place	Details											
OCUDR-A	Network OAM&P	NOAMP		Site1_NE_NO	Morrisville_NC		xmi: 10.10.1.57 imi: 10.10.2.156											

Step	Procedure	Result
28. <input type="checkbox"/>	UDR Server A: 1. Use the cursor to select the added Server. 2. The row containing the Server is highlighted in SKY BLUE. 3. Click Export .	
29. <input type="checkbox"/>	UDR Server A: The user will receive a banner information message showing a download link for the Server configuration data.	 <p>The configuration file was created and stored in the <code>/var/TKLC/db/filemgmt</code> directory. The configuration file has a file name similar to <code>TKLCConfigData.<hostname>.sh</code>.</p>
30. <input type="checkbox"/>	UDR Server A: 4. Access the command prompt. 5. Log into the UDR-A server as the <code>admusr</code> user.	<pre>login as: admusr admusr@10.250.xx.yy's password: <admusr_password> Last login: Wed Mar 28 05:03:47 2018 from 10.178.25.81 [root@NO-A ~]#</pre>
31. <input type="checkbox"/>	UDR Server A: Switch to root user.	<pre>[admusr@ UDR-A ~]\$ su - password: <root_password></pre>
32. <input type="checkbox"/>	UDR Server A: Copy the server configuration file to the <code>/var/tmp</code> directory on the server, making sure to rename the file by omitting the server hostname from the file name.	<p>Example:</p> <p>TKLCConfigData<.server_hostname>.sh translates to TKLCConfigData.sh</p> <pre># cp -p /var/TKLC/db/filemgmt/TKLCConfigData.UDR-A.sh /var/tmp/TKLCConfigData.sh</pre> <p>NOTE: The server polls the <code>/var/tmp</code> directory for the presence of the configuration file and automatically execute it when found.</p>

Step	Procedure	Result
33. <input type="checkbox"/>	<p>UDR Server A:</p> <p>After the script completes, a broadcast message will be sent to the terminal.</p> <p>Ignore the output shown and press the ENTER key to return to the command prompt.</p> <p>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.</p>	<p>*** NO OUTPUT FOR approximately 3 to 20 MINUTES ***</p> <pre>Broadcast message from root (Fri Mar 30 01:47:58 2018): 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></pre>
34. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Configure the time zone.</p>	<pre># set_ini_tz.pl <time zone></pre> <p>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.</p> <pre># set_ini_tz.pl "America/New_York"</pre>
35. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Initiate a reboot of the UDR Server.</p>	<pre># reboot</pre>
36. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Wait until server reboot is done. Then, SSH into the UDR-A server.</p> <p>Output similar to that shown on the right may be observed</p>	<p>Wait about 9 minutes until the server reboot is done.</p> <p>Using an SSH client such as putty, ssh to the UDR-A server.</p> <pre>login as: admusr admusr@10.250.xx.yy's password: <admusr_password> Last login: Wed Mar 28 05:03:47 2018 from 10.178.25.81</pre> <p>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.</p>
37. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Verify that the XMI and IMI IP addresses entered in Step 22 have been applied</p>	<pre>\$ ifconfig grep in grep -v inet6</pre> <p>Example:</p> <pre>eth0 Link encap:Ethernet HWaddr FA:16:3E:3C:8D:DE inet addr:10.10.1.57 Bcast:10.10.1.255 Mask:255.255.255.0 eth1 Link encap:Ethernet HWaddr FA:16:3E:EF:4D:EF inet addr:10.10.2.156 Bcast:10.10.2.255 Mask:255.255.255.0</pre> <p>NOTE: The XMI and IMI addresses for the server are verified by reviewing the server configuration using the Oracle Communications User Data Repository GUI.</p> <ol style="list-style-type: none"> 1. Navigate to Main Menu → Configuration → Servers 2. Scroll to line entry containing the hostname for the servers.

Step	Procedure	Result
38. <input type="checkbox"/>	UDR Server A: Use the ntpq command to verify that the server has connectivity to the assigned Primary (and Secondary if one was provided) NTP servers.	<pre>\$ ntpq -np</pre> <pre>remote refid st t when poll reach delay offset jitter =====</pre> <pre>*192.168.56.180 192.168.56.247 4 u 37 64 177 0.574 1.165 21.346</pre>
<div>  <p>IF CONNECTIVITY TO THE NTP SERVER(S) CANNOT BE ESTABLISHED, STOP AND EXECUTE THE FOLLOWING STEPS:</p> <p>Have the IT group provide a network path from the OAM server IP to the assigned NTP IP addresses.</p> <p>AFTER NETWORK CONNECTIVITY IS ESTABLISHED TO THE ASSIGNED NTP IP ADDRESSES, THEN RESTART THIS PROCEDURE BEGINNING WITH STEP35.</p> </div>		
39. <input type="checkbox"/>	UDR Server A: Run the alarmMgr to verify the current health of the server	<pre>\$ alarmMgr --alarmStatus</pre> <p>NOTE: This command should return no output on a healthy system.</p>
40. <input type="checkbox"/>	UDR Server A: Exit the SSH session for the UDR-A server	<pre>\$ exit</pre>
THIS PROCEDURE HAS BEEN COMPLETED		

5.2 Create Configuration for Remaining Servers

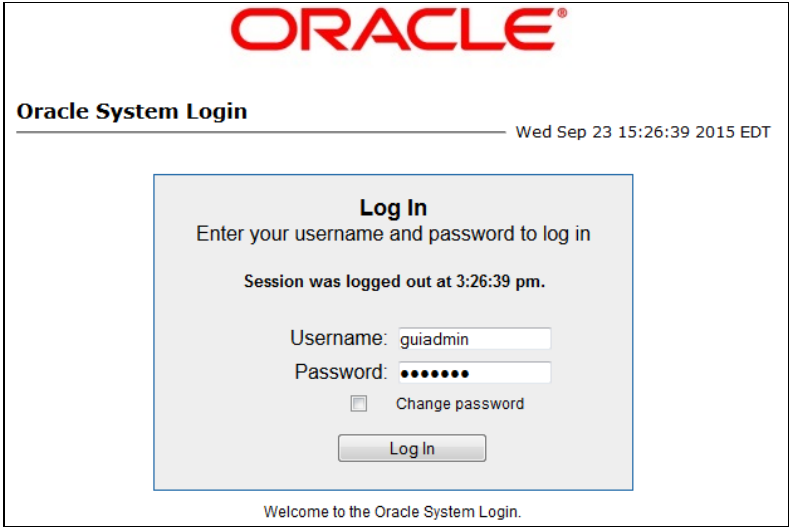
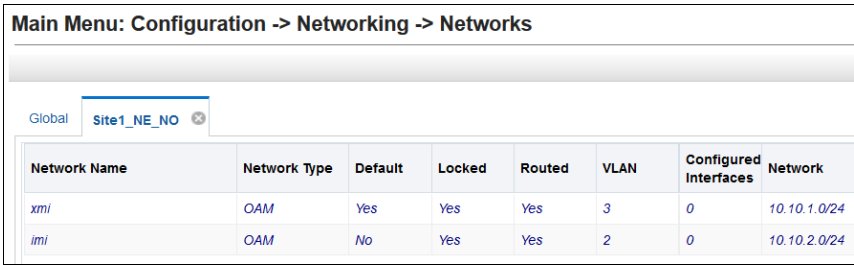
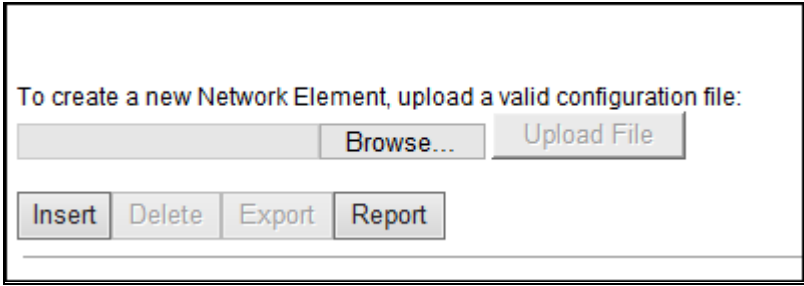
This procedure is used to create and configure all Oracle Communications User Data Repository Servers (Primary and DR Servers) except the first UDR-A server.

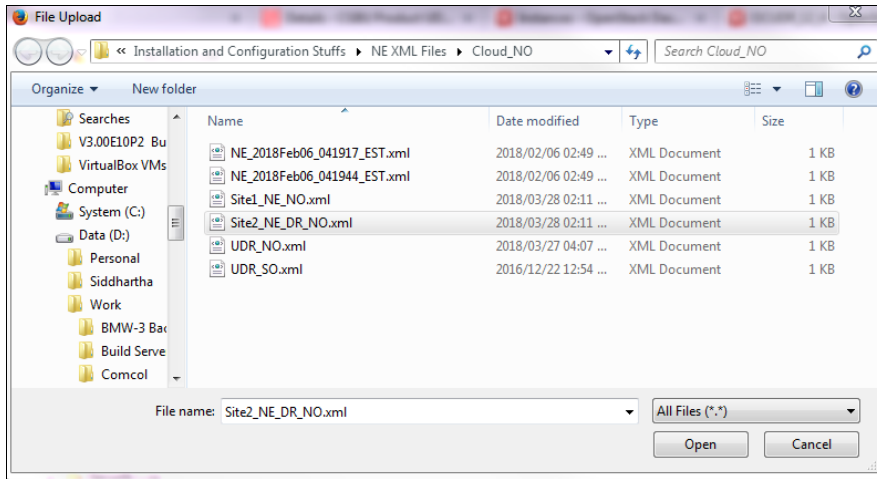
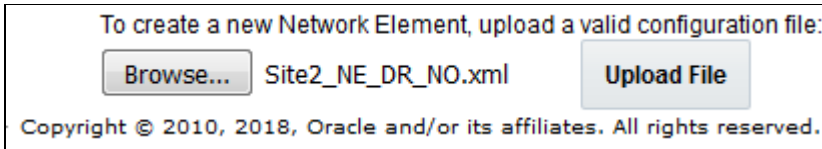
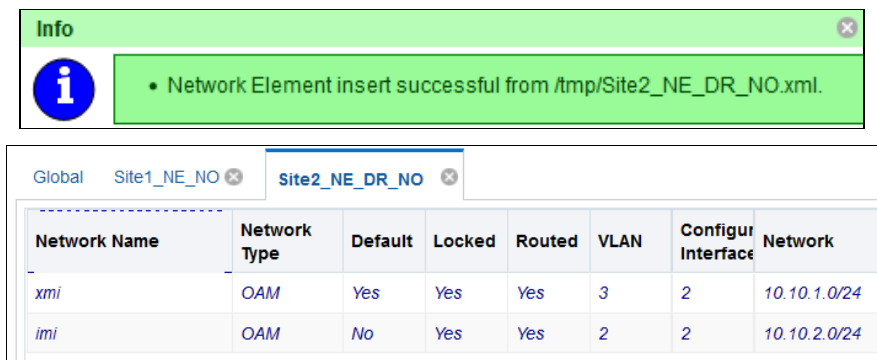
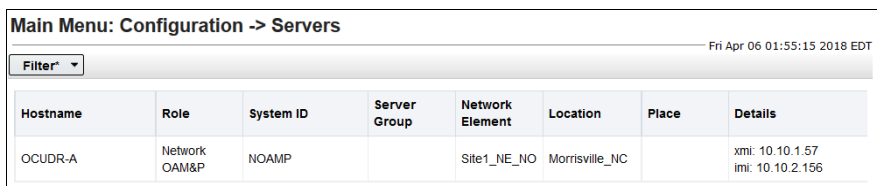
Requirements:

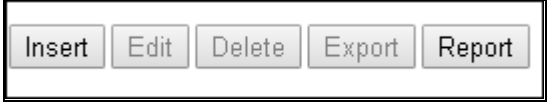
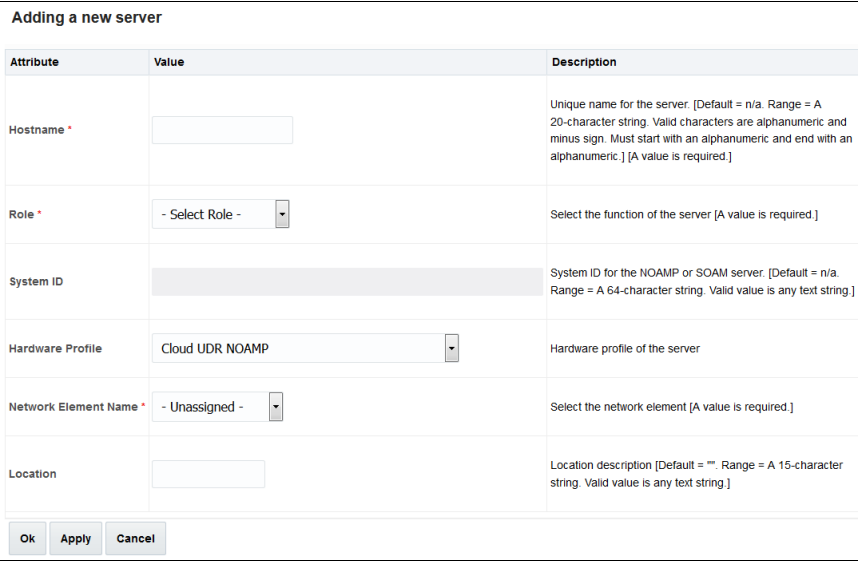
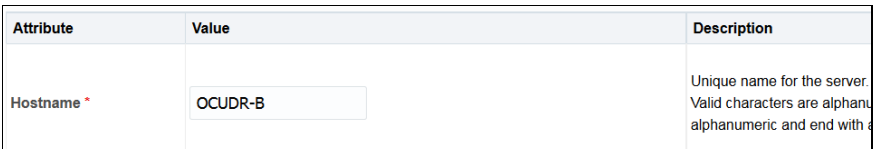
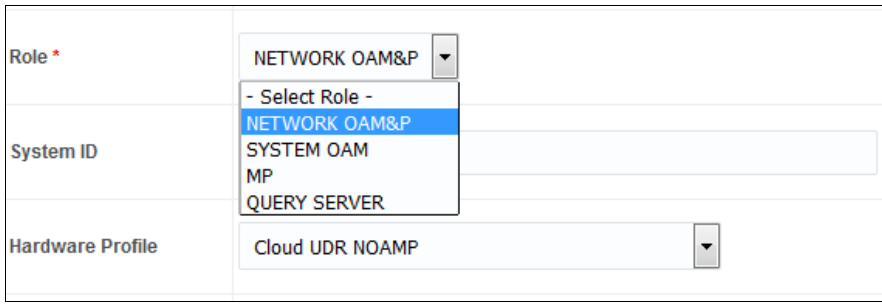
- Section 5.1 Configure UDR-A Server (1st NOAMP only) has been completed

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

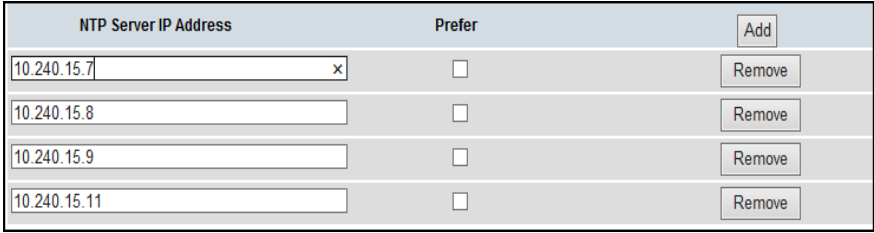
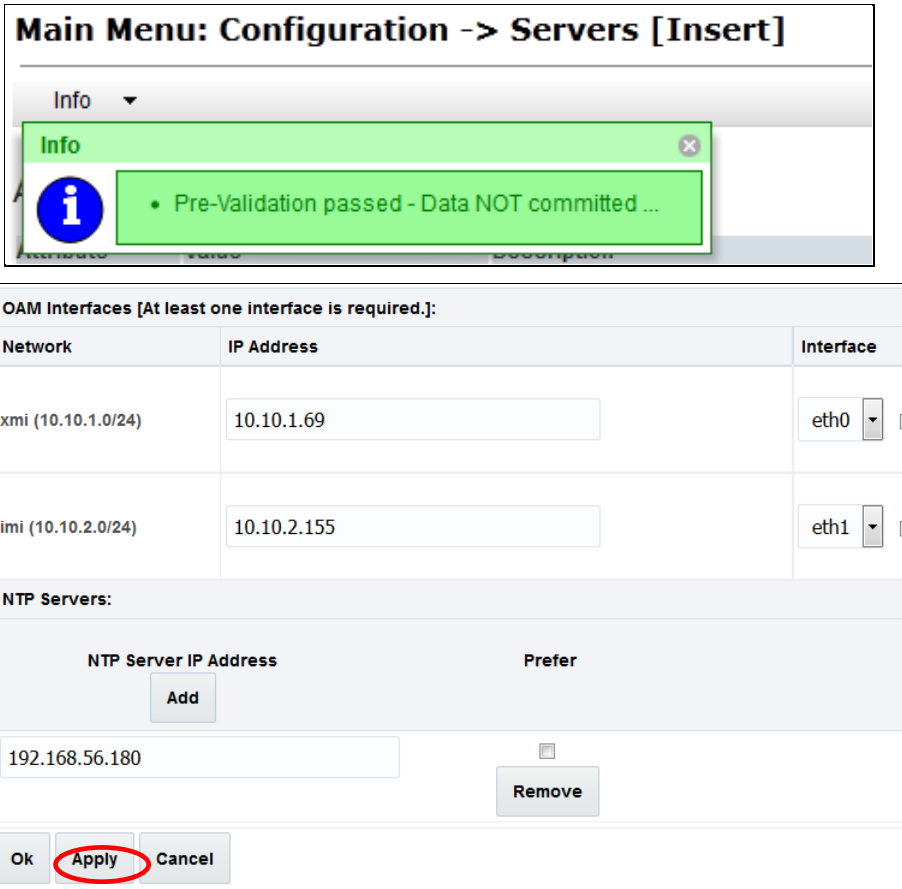
Procedure 6: Create Configuration for Remaining Servers

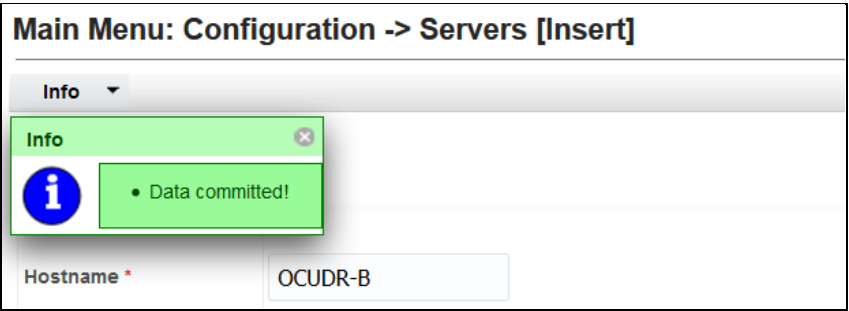
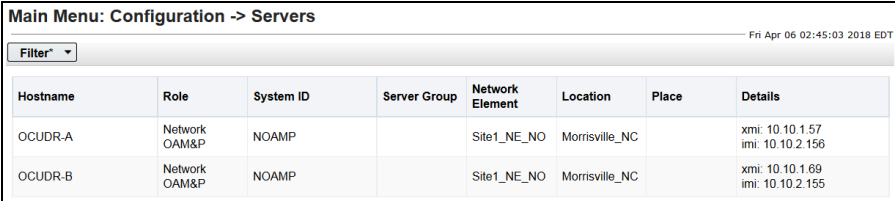
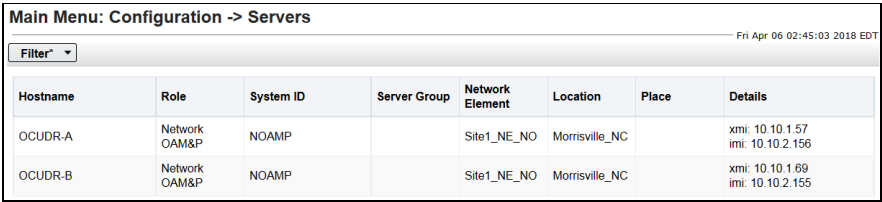
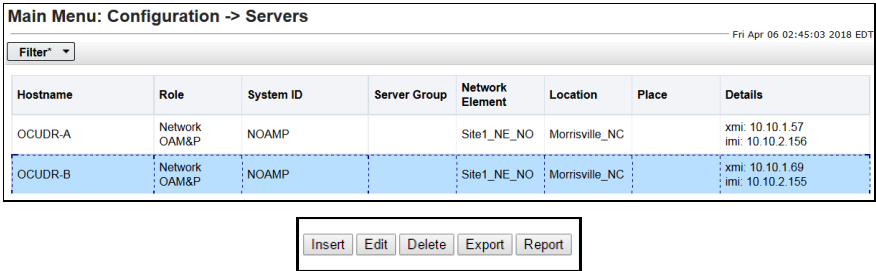
Step	Procedure	Result
1. <input type="checkbox"/>	UDR Server A: Launch an approved web browser and connect to the UDR Server A IP address NOTE: Click Continue to this website (not recommended) if presented with the security certificate warning. Login to the GUI using the default user and password.	
For steps 4 – 8 add the remaining Network Elements one at a time. This includes the NO network Element for the DR elements (NO) if present. (DR elements can be uploaded during DR install)		
2. <input type="checkbox"/>	UDR Server A: Configuring Network Element Navigate to Main Menu → Configuration → Network Elements	
3. <input type="checkbox"/>	UDR Server A: From the Configuration / Network Elements screen... Click Browse (scroll to bottom left corner of screen).	

Step	Procedure	Result																								
4. <input type="checkbox"/>	UDR 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 .																									
5. <input type="checkbox"/>	UDR Server A: Click Upload File (bottom left corner of screen).																									
6. <input type="checkbox"/>	UDR Server A: If the values in the XML file pass validation rules, a banner message displays showing that the data has been successfully committed to the DB. NOTE: You may have to left mouse click the Info banner option to see the banner message.	 <table><tr><th>Network Name</th><th>Network Type</th><th>Default</th><th>Locked</th><th>Routed</th><th>VLAN</th><th>Configur Interface</th><th>Network</th></tr><tr><td>xmi</td><td>OAM</td><td>Yes</td><td>Yes</td><td>Yes</td><td>3</td><td>2</td><td>10.10.1.0/24</td></tr><tr><td>imi</td><td>OAM</td><td>No</td><td>Yes</td><td>Yes</td><td>2</td><td>2</td><td>10.10.2.0/24</td></tr></table>	Network Name	Network Type	Default	Locked	Routed	VLAN	Configur Interface	Network	xmi	OAM	Yes	Yes	Yes	3	2	10.10.1.0/24	imi	OAM	No	Yes	Yes	2	2	10.10.2.0/24
Network Name	Network Type	Default	Locked	Routed	VLAN	Configur Interface	Network																			
xmi	OAM	Yes	Yes	Yes	3	2	10.10.1.0/24																			
imi	OAM	No	Yes	Yes	2	2	10.10.2.0/24																			
NOTE: The following steps need to run for all servers EXCEPT the first UDR-A server. These steps include a check box for UDR-A server. That check box is only referring to UDR-A servers that are not at the primary provisioning site, such as the UDR-A server at the Disaster Recovery (DR) site.																										
7. <input type="checkbox"/>	UDR Server A: Navigate to Main Menu → Configuration → Servers	 <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>																								

Step	Procedure	Result
8. <input type="checkbox"/>	UDR Server A: Click Insert at the bottom left.	 <p>Mark the Check Box as addition is completed for each Server.</p> <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
9. <input type="checkbox"/>	UDR Server A: The Adding a new server configuration screen opens.	 <p>Mark the Check Box as addition is completed for each Server.</p> <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
10. <input type="checkbox"/>	UDR Server A: Enter the assigned Hostname for the server.	 <p>Mark the Check Box as addition is completed for each Server.</p> <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
11. <input type="checkbox"/>	UDR Server A: Select the appropriate server Role from the menu.	 <p>Mark the Check Box as addition is completed for each Server.</p> <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B

Step	Procedure	Result									
12. <input type="checkbox"/>	UDR Server A: Enter the System ID for the server. NOTE: System ID is not required for MP.	<div> <div>System ID</div> <div>NOAMP</div> <div>System ID for the NOAMP or SOAM server. [Default = n/a. Range = A 64-character string. Valid value is any text string.]</div> </div> <p>Mark the Check Box as addition is completed for each Server.</p> <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B									
13. <input type="checkbox"/>	UDR Server A: Select the correct Hardware Profile from the pull-down menu.	NOAM Select Hardware Profile: Cloud UDR NOAM <div> <div>Hardware Profile</div> <div>Cloud UDR NOAMP</div> <div>Hardware profile of the server</div> </div> <p>Mark the Check Box as addition is completed for each Server.</p> <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B									
14. <input type="checkbox"/>	UDR Server A: Select the Network Element Name from the menu. NOTE: After the Network Element Name is selected, the Interfaces fields are displayed.	<div> <div>Network Element Name *</div> <div>Site1_NE_NO</div> <div>Select the network element [A value is required.]</div> </div> <p>NOTE: NO and DR pairs have their own Network element.</p> <p>Mark the Check Box as addition is completed for each Server.</p> <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B									
15. <input type="checkbox"/>	UDR Server A: Enter the site location. NOTE: Location is an optional field.	<div> <div>Location</div> <div>Morrisville_NC</div> <div>Location description [Default = ""]. Range = A 15-character string. Valid value is any text string.]</div> </div> <p>Mark the Check Box as addition is completed for each Server.</p> <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B									
16. <input type="checkbox"/>	UDR Server A: 1. Enter the IP Addresses for the Server. 2. Set the Interface parameters according to to deployment type.	<div> <div>OAM Interfaces [At least one interface is required.]:</div> <table> <thead> <tr> <th>Network</th><th>IP Address</th><th>Interface</th></tr> </thead> <tbody> <tr> <td>xmi (10.10.1.0/24)</td><td>10.10.1.69</td><td>eth0 <input type="checkbox"/> VLAN (3)</td></tr> <tr> <td>imi (10.10.2.0/24)</td><td>10.10.2.155</td><td>eth1 <input type="checkbox"/> VLAN (2)</td></tr> </tbody> </table> </div> <p>Enter the IP Addresses for XMI and IMI networks.</p> <p>Set the Interface device for XMI and IMI networks according to this VM guest's network adapter assignment as viewable in B.3 Step 3Error! Reference source not ound. or C.7 Step 5.</p> <p>Leave the VLAN boxes unchecked.</p> <p>Mark the Check Box as addition is completed for each Server.</p> <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B	Network	IP Address	Interface	xmi (10.10.1.0/24)	10.10.1.69	eth0 <input type="checkbox"/> VLAN (3)	imi (10.10.2.0/24)	10.10.2.155	eth1 <input type="checkbox"/> VLAN (2)
Network	IP Address	Interface									
xmi (10.10.1.0/24)	10.10.1.69	eth0 <input type="checkbox"/> VLAN (3)									
imi (10.10.2.0/24)	10.10.2.155	eth1 <input type="checkbox"/> VLAN (2)									

Step	Procedure	Result
17. <input type="checkbox"/>	UDR Server A: Click Add under NTP Servers and enter the addresses of the NTP servers.	 <p>Set one or more NTP Server IP Addresses to customer supplied NTP servers. It is recommended to have minimum of 3 and up to 4 external NTP servers for reliable functioning of NTP service.</p> <p>Mark the Check Box as addition is completed for each Server.</p> <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
18. <input type="checkbox"/>	UDR Server A: Click Info to see a banner with a message stating Pre-Validation passed. Click Apply .	 <p>Mark the Check Box as addition is completed for each Server.</p> <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B

Step	Procedure	Result
19. <input type="checkbox"/>	UDR Server A: If the values provided match the network ranges assigned to the NE, click Info to see a banner message stating that the data has been validated and committed to the DB.	 <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
20. <input type="checkbox"/>	UDR Server A: Applying the Server Configuration File Select Main Menu → Configuration → Servers	 <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
21. <input type="checkbox"/>	UDR Server A: The Configuration → Servers screen shows the added Server in the list.	 <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
22. <input type="checkbox"/>	UDR Server A: 1. Use the cursor to select the added Server. 2. The row containing the Server is now be highlighted in SKY BLUE. 3. Click Export .	 <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
23. <input type="checkbox"/>	VMware client: Repeat this procedure to create configuration	Repeat this procedure to create configuration for each remaining server: <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
THIS PROCEDURE HAS BEEN COMPLETED		

5.3 Apply Configuration To Remaining Servers

This procedure is used to apply configuration to all Oracle Communications User Data Repository Servers (Primary and DR Servers) except the first UDR-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 7: Apply Configuration to Remaining Servers

Step	Procedure	Result
1. <input type="checkbox"/>	UDR Server A: Connect to the UDR-A Server terminal at the Primary UDR site	SSH to the Primary UDR-A XMI IP_address. Mark the Check Box as addition is completed for each Server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
2. <input type="checkbox"/>	UDR Server A: 1. Access the command prompt. 2. Log into the Primary UDR-A server as the admusr user.	<pre>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 \$</pre> Mark the Check Box as addition is completed for each Server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
3. <input type="checkbox"/>	UDR Server A: Change directory into the file management space	<pre>[admusr@pc9040833-no-a ~]\$ cd /var/TKLC/db/filemgmt</pre> Mark the Check Box as addition is completed for each Server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
4. <input type="checkbox"/>	UDR Server A: Get a directory listing and find the desired servers configuration files .	<pre>[admusr@pc9040833-no-a ~]\$ ls -ltr TKLCCConfigData*.sh *** TRUNCATED OUTPUT *** -rw-rw-rw- 1 root root 1257 Aug 17 14:01 TKLCCConfigData.UDR-A .sh -rw-rw-rw- 1 root root 1311 Aug 17 14:30 TKLCCConfigData.NO-B.sh</pre> Mark the Check Box as addition is completed for each Server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
5. <input type="checkbox"/>	UDR Server A: Copy the configuration files found in the previous step to the appropriate target server based on the configuration file's server name.	<pre>[admusr@pc9040833-no-a ~]\$ scp -p <configuration_file-a> <Associated_Server_XMI_IP>:/tmp admusr@10.240.39.4's password: <admusr_password> TKLCCConfigData.so-carync-a.sh 100% 1741 1.7KB/s 00:00 [root@no-mrsvnc-a filemgmt]\$</pre> Mark the Check Box as addition is completed for each Server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B

Step	Procedure	Result
6. <input type="checkbox"/>	UDR Server A: Connect to the target server which has received a configuration file copy in the previous step	<pre>[admusr@pc9040833-no-a ~]\$ ssh <Associated_Server_XMI_IP > admusr@192.168.1.10's password: <admusr_password></pre> <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
7. <input type="checkbox"/>	Target Server: Copy the configuration file to the tmp directory.	<p>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.</p> <p>Example:</p> <pre>TKLCConfigData<.server_hostname>.sh translates to TKLCConfigData.sh</pre> <pre>[admusr@hostname1326744539 ~]\$ sudo cp -p /tmp/TKLCConfigData.NO-B.sh /var/tmp/TKLCConfigData.sh [admusr@hostname1326744539 ~]\$</pre> <p>NOTE: The server polls the /var/tmp directory for the presence of the configuration file and automatically execute it when found.</p> <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
8. <input type="checkbox"/>	Target Server: After the script completes, a broadcast message is sent to the terminal. Ignore the output shown and press ENTER 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.	<p>*** NO OUTPUT FOR APPROXIMATELY 20 MINUTES ***</p> <pre>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></pre> <pre>[admusr@hostname1326744539 ~]\$</pre> <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
9. <input type="checkbox"/>	Target Server: Initiate a reboot of the Server.	<pre>[admusr@hostname1326744539 ~]\$ sudo reboot</pre> <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>

Step	Procedure	Result
10. <input type="checkbox"/>	UDR Server A: The SSH session for the target server was terminated by previous step.	The previous step causes the ssh session for the server to close and you are returned to the UDR server console prompt. <pre>Connection to 192.168.1.16 closed by remote host. Connection to 192.168.1.16 closed. \$</pre> Mark the Check Box as addition is completed for each Server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
11. <input type="checkbox"/>	UDR 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 approximately 10 minutes until the server reboot is complete. Using an SSH client such as putty, ssh to the target server using admusr credentials and the <XMI IP Address>. <pre>[admusr@pc9040833-no-a ~]\$ ssh 192.168.1.xx admusr@192.168.1.20's password: <admusr_password></pre> 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. Mark the Check Box as addition is completed for each Server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
12. <input type="checkbox"/>	Target Server: Verify that the XMI and IMI IP addresses entered in Section 5.2 Step 16 have been applied	<pre>\$ ifconfig grep in grep -v inet6 eth0 Link encap:Ethernet HWaddr FA:16:3E:BB:3D:AC inet addr:10.10.1.57 Bcast:10.10.1.255 Mask:255.255.255.0 eth1 Link encap:Ethernet HWaddr FA:16:3E:56:C1:F9 inet addr:10.10.2.156 Bcast:10.10.2.255 Mask:255.255.255.0 eth2 Link encap:Ethernet HWaddr FA:16:3E:B4:BD:0A lo Link encap:Local Loopback inet addr:127.0.0.1 Mask:255.0.0.0</pre> NOTE: The XMI and IMI addresses for the server can be verified by reviewing the server configuration through the Oracle Communications User Data Repository GUI. Navigate to Main Menu → Configuration → Servers . Scroll to line containing the hostname for the server. Mark the Check Box as addition is completed for each Server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B

Step	Procedure	Result																														
13. <input type="checkbox"/>	Target Server: Use the ntpq command to verify that the server has connectivity to the assigned Primary and Secondary NTP servers.	<pre>\$ ntpq -np</pre> <table><tr><td>remote</td><td>refid</td><td>st</td><td>t</td><td>when</td><td>poll</td><td>reach</td><td>delay</td><td>offset</td><td>jitter</td></tr><tr><td colspan="10">=====</td></tr><tr><td>*192.168.56.180</td><td>192.168.56.247</td><td>4</td><td>u</td><td>62</td><td>64</td><td>377</td><td>0.641</td><td>37.694</td><td>18.375</td></tr></table> <pre>[root@pc9040725-no-a ~]\$</pre> <p>If offset value is in excess of five seconds, run the commands below to sync time manually:</p> <pre>\$ sudo service ntpd stop</pre> <p>Shutting down ntpd: [OK]</p> <pre>\$ sudo ntpdate <Remote_NTP_Server_IP></pre> <pre>\$ sudo service ntpd start</pre> <p>Starting ntpd: [OK]</p> <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>	remote	refid	st	t	when	poll	reach	delay	offset	jitter	=====										*192.168.56.180	192.168.56.247	4	u	62	64	377	0.641	37.694	18.375
remote	refid	st	t	when	poll	reach	delay	offset	jitter																							
=====																																
*192.168.56.180	192.168.56.247	4	u	62	64	377	0.641	37.694	18.375																							
		IF CONNECTIVITY TO THE NTP SERVERS CANNOT BE ESTABLISHED, STOP AND EXECUTE THE FOLLOWING STEPS:																														
14. <input type="checkbox"/>	Target Server: Run the alarmMgr command to verify the current health of the server	<pre>\$ alarmMgr --alarmStatus</pre> <p>NOTE: This command should return no output on a healthy system.</p> <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>																														
15. <input type="checkbox"/>	Target Server: Exit the SSH session for the target server	<pre>\$ exit</pre> <p>logout</p> <p>Connection to 192.168.1.16 closed.</p> <p>#</p> <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>																														
16. <input type="checkbox"/>	UDR Server A: Exit terminal session	<pre># exit</pre> <p>logout</p> <p>Connection to 192.168.1.4 closed.</p> <p>#</p>																														
THIS PROCEDURE HAS BEEN COMPLETED																																

5.4 Configure XSI Networks


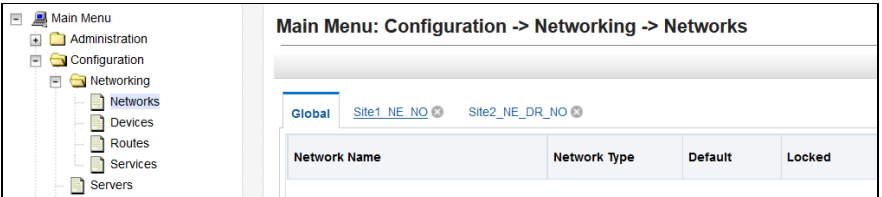
This procedure configures the XSI networks used on UDR to support signaling traffic.

Requirements:

- Section 5.3 Apply Configuration To Remaining Servers has been completed
- Section 5.1 Configure UDR-A Server (1st NOAMP only) has been completed

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

Procedure 8: Configure XSI Networks

Step	Procedure	Result
1. <input type="checkbox"/>	UDR Server A: Launch an approved web browser and connect to the UDR Server A IP address NOTE: Select Continue to this website (not recommended) if presented with the security certificate warning. Login to the GUI using the default user and password.	
2. <input type="checkbox"/>	UDR Server A Navigate to Main Menu → Configuration → Networking → Networks	

Step	Procedure	Result																														
3. <input type="checkbox"/>	<div>UDR Server A</div> <div>Add the XSI1 network</div>	<div><div>Insert</div><div>Click Insert.</div><div>Output similar to that shown below may be observed.</div><div><div><div>Main Menu: Configuration -> Networking -> Networks [Insert]</div><div><div>Info*</div><div>Insert Network</div><table><thead><tr><th>Field</th><th>Value</th><th>Description</th></tr></thead><tbody><tr><td>Network Name *</td><td>XSI1</td><td>The name of this network. [Default = N/A. Range = Alphanumeric string up to 31 c</td></tr><tr><td>Network Type</td><td>Signaling</td><td>The type of this network.</td></tr><tr><td>VLAN ID</td><td>4</td><td>The VLAN ID to use for this network. If not set or set to 0, no VLAN ID is associate</td></tr><tr><td>Network Address *</td><td>10.10.3.0</td><td>The network address of this network. [Default = N/A. Range = Valid Network Addre</td></tr><tr><td>Netmask *</td><td>255.255.255.0</td><td>Subnetting to apply to servers within this network. [Default = N/A. Range = Valid N</td></tr><tr><td>Router IP</td><td></td><td>The IP address of a router on this network. If this is a default network, this will be router monitoring is enabled, this address will be the one monitored.</td></tr><tr><td>Default Network</td><td><div><div>Yes</div><div>No</div></div></td><td>A selection indicating whether this is the network with a default gateway.</td></tr><tr><td>Routed</td><td><div><div>Yes</div><div>No</div></div></td><td>Whether or not this network is routed outside its network element. If it is not assign</td></tr><tr><td colspan="3"><div>OkApplyCancel</div></td></tr></tbody></table></div></div></div><div>Enter all of the above fields for the XSI1 network according to the customer’s network parameters. The default values for Network Element (Signalling), Default Network (No) and Routable (Yes) should be retained.</div><div>ComAgent Service may be configured to run on XSI1. In such case, the XSI1 network shall be used for MP↔NOAMP ComAgent Traffic.</div><div>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.</div><div>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.</div></div>	Field	Value	Description	Network Name *	XSI1	The name of this network. [Default = N/A. Range = Alphanumeric string up to 31 c	Network Type	Signaling	The type of this network.	VLAN ID	4	The VLAN ID to use for this network. If not set or set to 0, no VLAN ID is associate	Network Address *	10.10.3.0	The network address of this network. [Default = N/A. Range = Valid Network Addre	Netmask *	255.255.255.0	Subnetting to apply to servers within this network. [Default = N/A. Range = Valid N	Router IP		The IP address of a router on this network. If this is a default network, this will be router monitoring is enabled, this address will be the one monitored.	Default Network	<div><div>Yes</div><div>No</div></div>	A selection indicating whether this is the network with a default gateway.	Routed	<div><div>Yes</div><div>No</div></div>	Whether or not this network is routed outside its network element. If it is not assign	<div>OkApplyCancel</div>		
Field	Value	Description																														
Network Name *	XSI1	The name of this network. [Default = N/A. Range = Alphanumeric string up to 31 c																														
Network Type	Signaling	The type of this network.																														
VLAN ID	4	The VLAN ID to use for this network. If not set or set to 0, no VLAN ID is associate																														
Network Address *	10.10.3.0	The network address of this network. [Default = N/A. Range = Valid Network Addre																														
Netmask *	255.255.255.0	Subnetting to apply to servers within this network. [Default = N/A. Range = Valid N																														
Router IP		The IP address of a router on this network. If this is a default network, this will be router monitoring is enabled, this address will be the one monitored.																														
Default Network	<div><div>Yes</div><div>No</div></div>	A selection indicating whether this is the network with a default gateway.																														
Routed	<div><div>Yes</div><div>No</div></div>	Whether or not this network is routed outside its network element. If it is not assign																														
<div>OkApplyCancel</div>																																
4. <input type="checkbox"/>	<div>UDR Server A</div> <div>Repeat as required</div>	<div>Repeat Step 3 of this procedure to Insert additional signaling networks(XSI2, etc) if applicable.</div>																														
5. <input type="checkbox"/>	<div>UDR Server A</div> <div>New XSI network is displayed along with a success message.</div>	<div><div><div>Main Menu: Configuration -> Networking -> Networks</div><div><div>Info</div><div><div>Info</div><div><div>• Network 'XSI1' was successfully inserted.</div></div></div></div><table><thead><tr><th>Network Name</th><th>Network Type</th><th>Default</th><th>Locked</th><th>Routed</th><th>VLAN</th><th>Configured Interfaces</th><th>Network</th></tr></thead><tbody><tr><td>XSI1</td><td>Signaling</td><td>No</td><td>No</td><td>Yes</td><td>4</td><td>0</td><td>10.10.3.0/24</td></tr></tbody></table></div></div>	Network Name	Network Type	Default	Locked	Routed	VLAN	Configured Interfaces	Network	XSI1	Signaling	No	No	Yes	4	0	10.10.3.0/24														
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XSI1	Signaling	No	No	Yes	4	0	10.10.3.0/24																									
THIS PROCEDURE HAS BEEN COMPLETED																																

Chapter 6. OAM Pairing

6.1 OAM Pairing for Primary UDR 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.

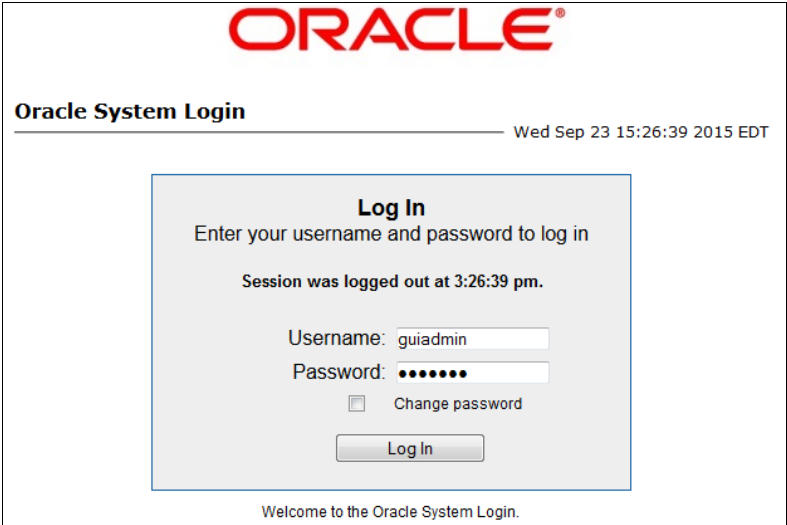
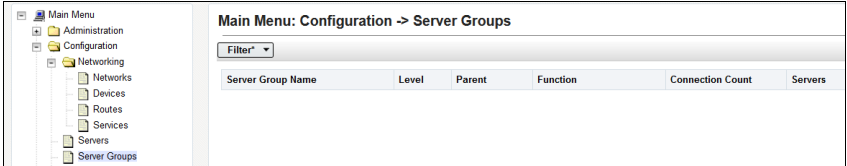
This procedure creates active/standby pair for the UDR servers at the Primary Provisioning Site..

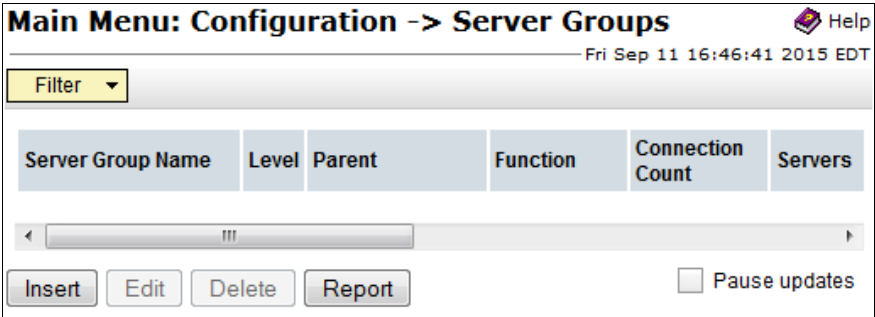
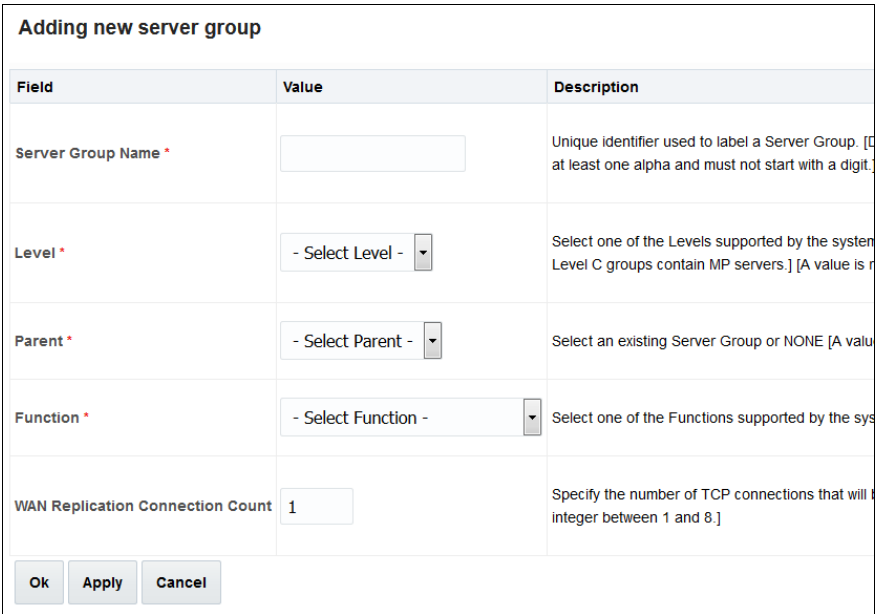
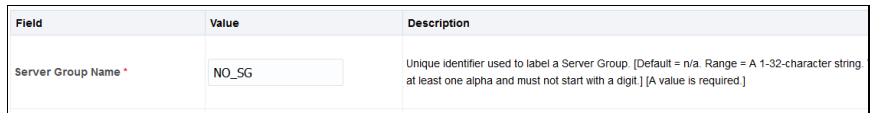
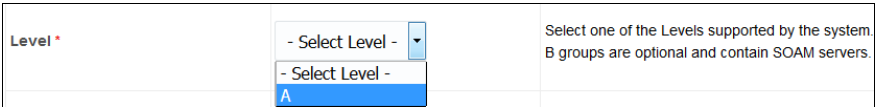
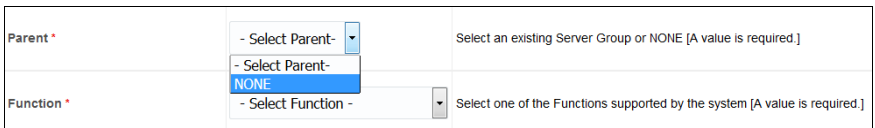
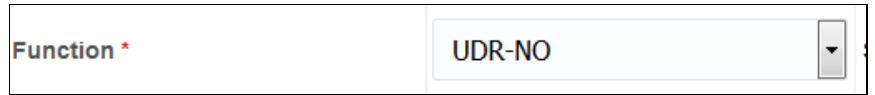

Requirements:

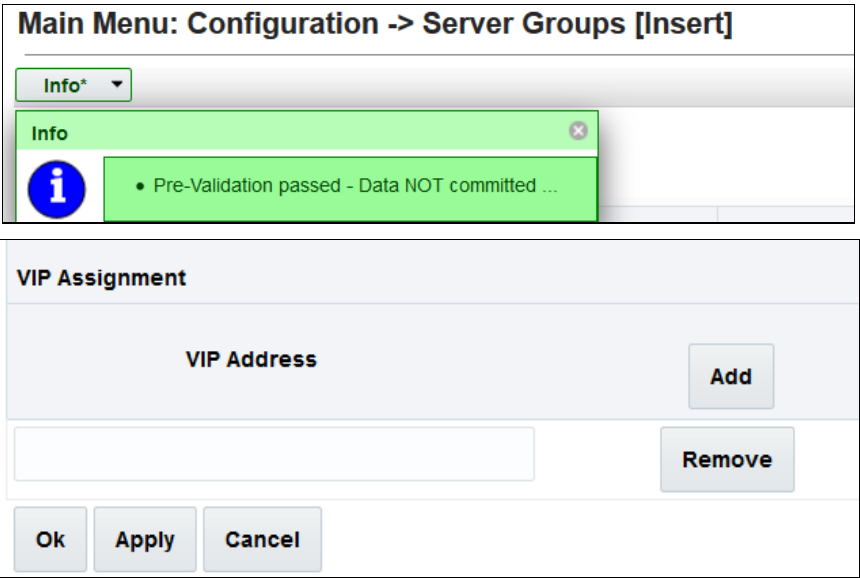
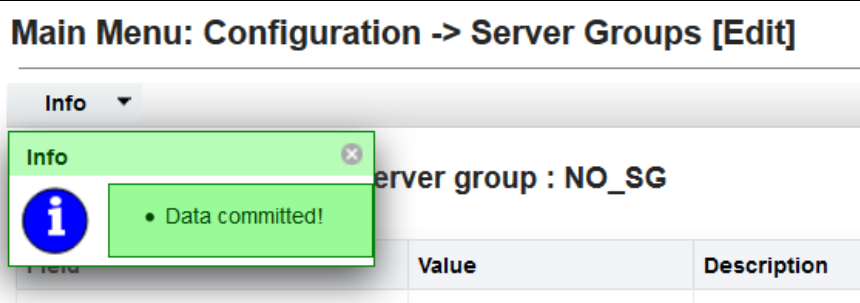
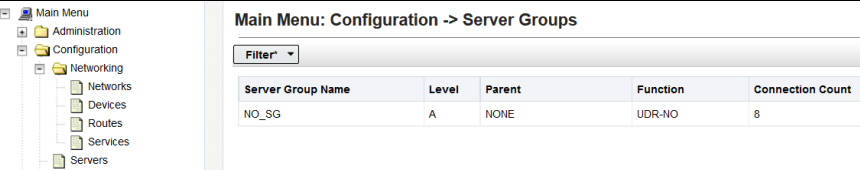
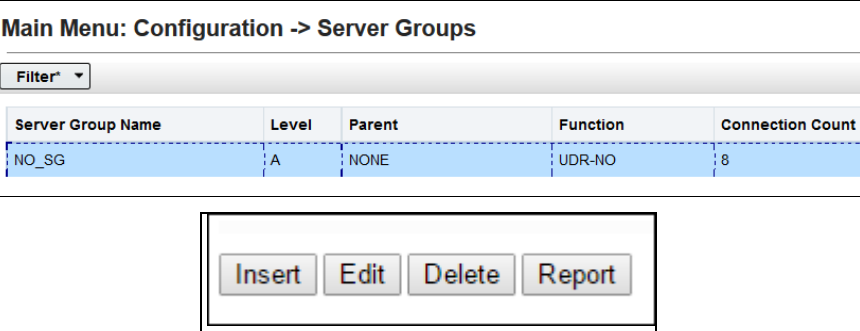
- Section 5.3 Apply Configuration To Remaining Servers has been completed

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

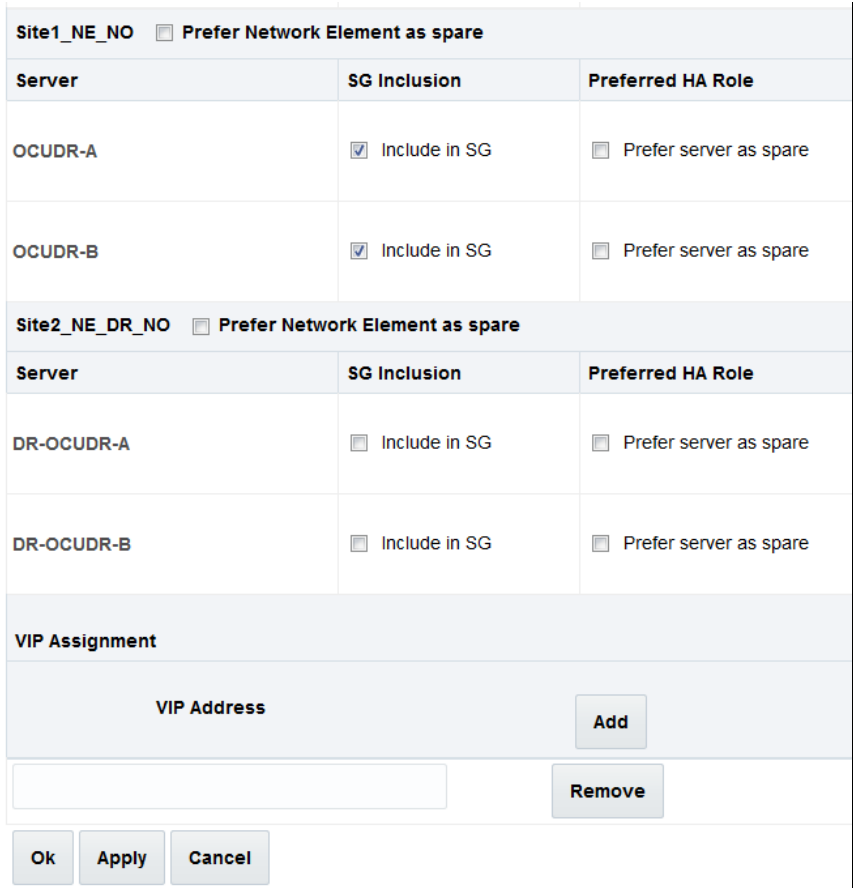
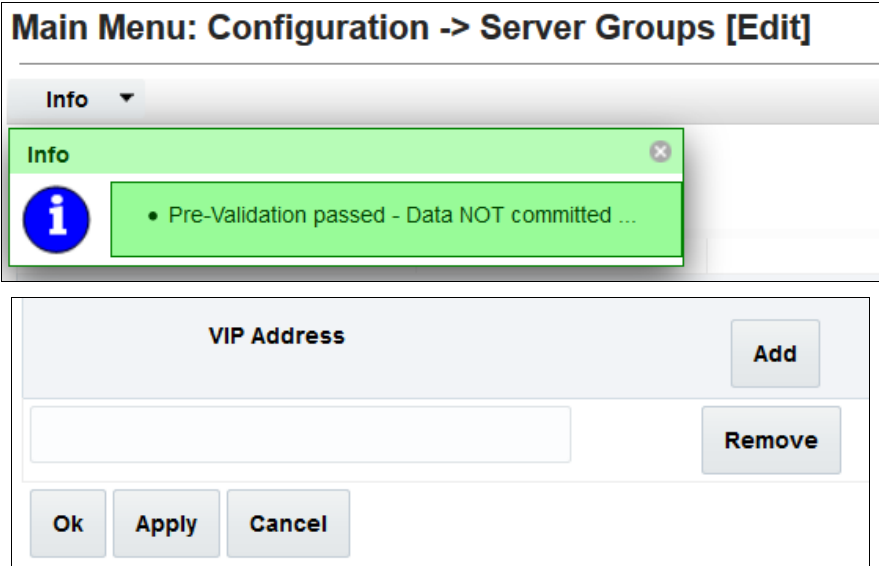
Procedure 9: OAM Pairing for Primary UDR Servers (1st NOAMP site only)

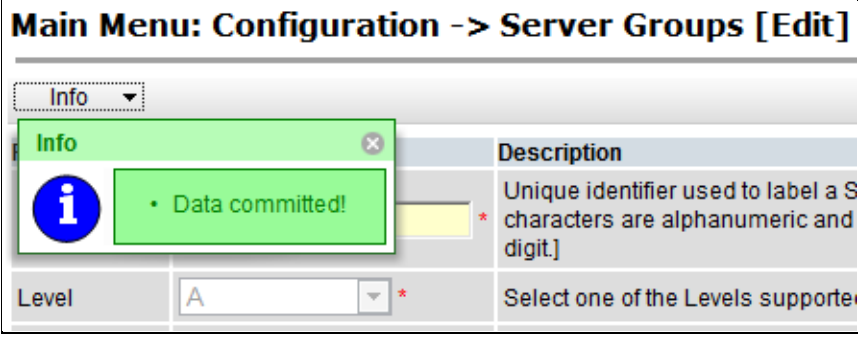
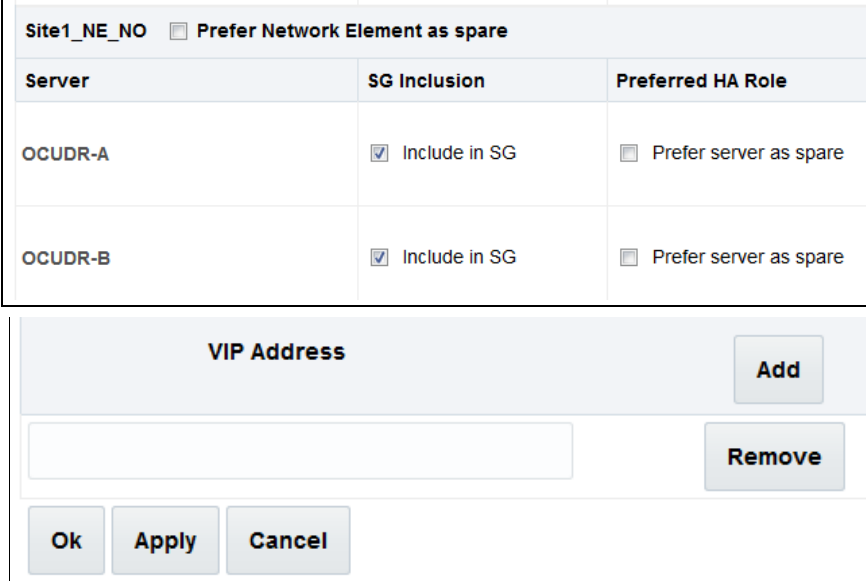
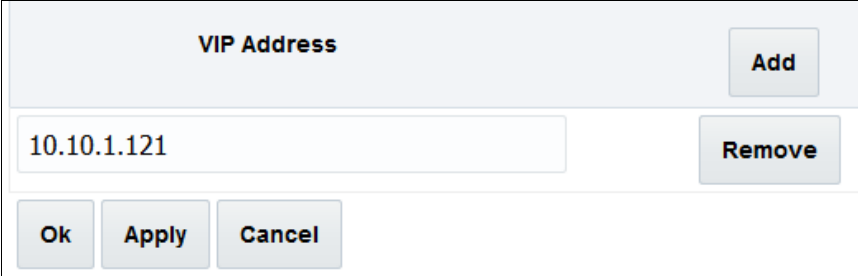
Step	Procedure	Result
1. <input type="checkbox"/>	UDR Server A: Launch an approved web browser and connect to the UDR Server A IP address	<p>NOTE: Select Continue to this website (not recommended) if presented with the “security certificate” warning.</p> <p>Login to the GUI using the default user and password.</p> 
2. <input type="checkbox"/>	UDR Server A: Configuring Server Group	<p>Navigate to Main Menu → Configuration → Server Groups</p> 

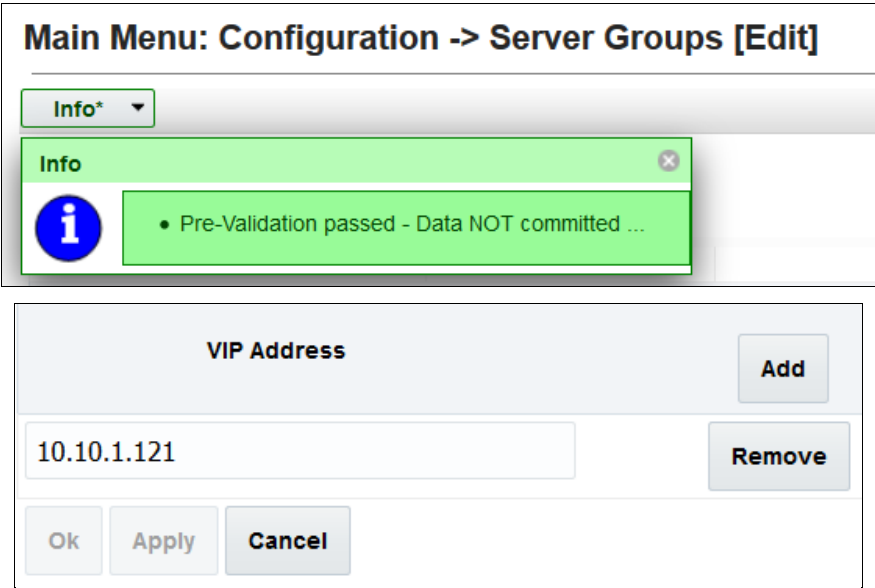
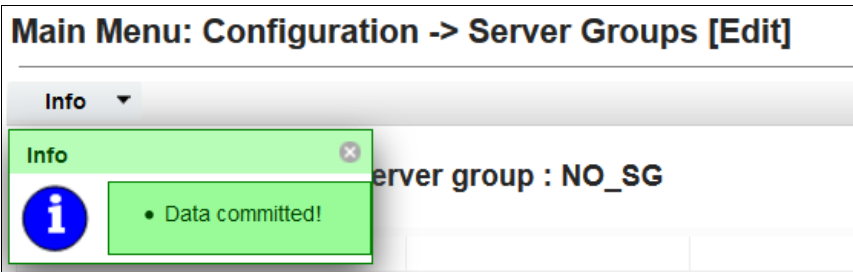
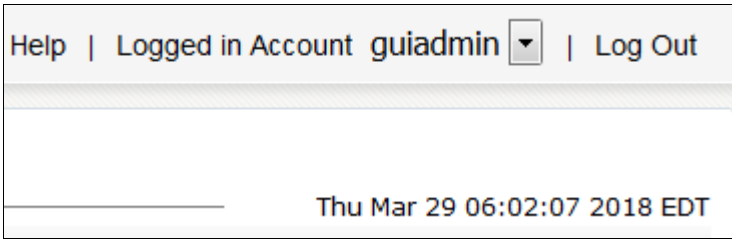
Step	Procedure	Result
3. <input type="checkbox"/>	UDR Server A: Click Insert located at the bottom left corner of the page. NOTE: Use the vertical scroll-bar to see the Insert button.	
4. <input type="checkbox"/>	UDR Server A: The Server Groups [Insert] screen opens.	
5. <input type="checkbox"/>	UDR Server A: Enter the Server Group Name.	
6. <input type="checkbox"/>	UDR Server A: Select A on the Level menu.	
7. <input type="checkbox"/>	UDR Server A: Select None on the Parent menu.	
8. <input type="checkbox"/>	UDR Server A: Select UDR-NO on the Function menu.	
9. <input type="checkbox"/>	UDR Server A: Enter 8 for WAN Replication Connection Count.	

Step	Procedure	Result
10. <input type="checkbox"/>	UDR Server A: Click Info to see a banner message stating Pre-Validation passed. Click Apply .	
11. <input type="checkbox"/>	UDR Server A: Click Info to see a banner message stating Data committed.	
12. <input type="checkbox"/>	UDR Server A: Navigate to Main Menu → Configuration → Server Groups	
13. <input type="checkbox"/>	UDR Server A: 1. Select the Server Group entry just added. The line entry should now be highlighted in SKY BLUE. 2. Click Edit (located at the bottom left corner of the page). NOTE: The user may need to use the vertical scroll-bar in order to make the "Edit" dialogue button visible.	

Step	Procedure	Result																																				
14. <input type="checkbox"/>	UDR Server A: The Server Groups [Edit] screen opens.	<p>Main Menu: Configuration -> Server Groups [Edit]</p> <p>Modifying attributes of server group : NO_SG</p> <table border="1"> <thead> <tr> <th>Field</th><th>Value</th><th>Description</th></tr> </thead> <tbody> <tr> <td>Server Group Name *</td><td>NO_SG</td><td>Unique identifier used to label a Server Group. [Default = n/a.]</td></tr> <tr> <td>Level *</td><td>A</td><td>Select one of the Levels supported by the system [A value is required.]</td></tr> <tr> <td>Parent *</td><td>NONE</td><td>Select an existing Server Group [A value is required.]</td></tr> <tr> <td>Function *</td><td>UDR-NO</td><td>Select one of the Functions supported by the system [A value is required.]</td></tr> <tr> <td>WAN Replication Connection Count</td><td>8</td><td>Specify the number of TCP connections that will be used by the system.</td></tr> </tbody> </table> <p>Site1_NE_NO <input type="checkbox"/> Prefer Network Element as spare</p> <table border="1"> <thead> <tr> <th>Server</th><th>SG Inclusion</th><th>Preferred HA Role</th></tr> </thead> <tbody> <tr> <td>OCUDR-A</td><td><input type="checkbox"/> Include in SG</td><td><input type="checkbox"/> Prefer server as spare</td></tr> <tr> <td>OCUDR-B</td><td><input type="checkbox"/> Include in SG</td><td><input type="checkbox"/> Prefer server as spare</td></tr> </tbody> </table> <p>Site2_NE_DR_NO <input type="checkbox"/> Prefer Network Element as spare</p> <table border="1"> <thead> <tr> <th>Server</th><th>SG Inclusion</th><th>Preferred HA Role</th></tr> </thead> <tbody> <tr> <td>DR-OCUDR-A</td><td><input type="checkbox"/> Include in SG</td><td><input type="checkbox"/> Prefer server as spare</td></tr> <tr> <td>DR-OCUDR-B</td><td><input type="checkbox"/> Include in SG</td><td><input type="checkbox"/> Prefer server as spare</td></tr> </tbody> </table> <p>VIP Assignment</p> <p>VIP Address <input type="text"/> <input type="button" value="Add"/></p> <p><input type="button" value="Ok"/> <input type="button" value="Apply"/> <input type="button" value="Cancel"/></p>	Field	Value	Description	Server Group Name *	NO_SG	Unique identifier used to label a Server Group. [Default = n/a.]	Level *	A	Select one of the Levels supported by the system [A value is required.]	Parent *	NONE	Select an existing Server Group [A value is required.]	Function *	UDR-NO	Select one of the Functions supported by the system [A value is required.]	WAN Replication Connection Count	8	Specify the number of TCP connections that will be used by the system.	Server	SG Inclusion	Preferred HA Role	OCUDR-A	<input type="checkbox"/> Include in SG	<input type="checkbox"/> Prefer server as spare	OCUDR-B	<input type="checkbox"/> Include in SG	<input type="checkbox"/> Prefer server as spare	Server	SG Inclusion	Preferred HA Role	DR-OCUDR-A	<input type="checkbox"/> Include in SG	<input type="checkbox"/> Prefer server as spare	DR-OCUDR-B	<input type="checkbox"/> Include in SG	<input type="checkbox"/> Prefer server as spare
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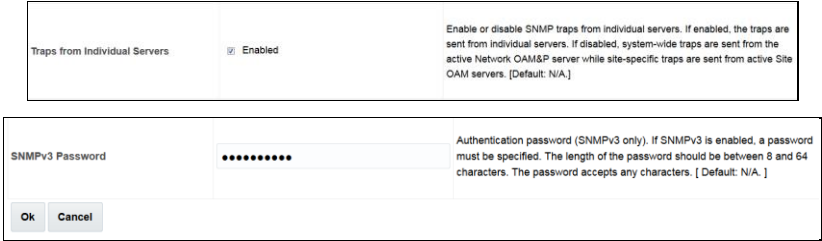

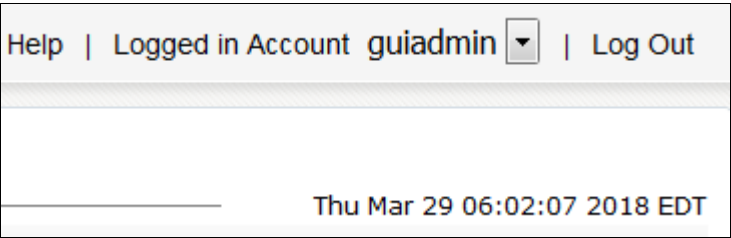
Step	Procedure	Result
15. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Check the boxes to include the “A” server and the “B” server into the UDR Server Group.</p> <p>NOTE: For Single Server Installation, only NO-A will be displayed; therefore only one box will be selected.</p> <p>If this is a Primary Site (Single site), then the DR Site does not appear here.</p>	
16. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Click Info to see a banner message stating Pre-Validation passed.</p> <p>Click Apply.</p>	

Step	Procedure	Result									
17. <input type="checkbox"/>	UDR Server A: Click Info to see a banner message stating Data committed.	 <p>The screenshot shows the 'Main Menu: Configuration -> Server Groups [Edit]' interface. An 'Info' dialog box is open, displaying a green message: 'Data committed!'. The background interface includes a 'Level' dropdown menu set to 'A' and a 'Description' field with the text: 'Unique identifier used to label a S characters are alphanumeric and digit.]'. There is also a red asterisk indicating a required field.</p>									
18. <input type="checkbox"/>	UDR Server A: Click Add for the VIP Address. NOTE: VIP Address optional for Single Server Configuration.	 <p>The screenshot shows the 'VIP Address' configuration dialog box. At the top, there is a checkbox for 'Site1_NE_NO' and a label 'Prefer Network Element as spare'. Below this is a table with three columns: 'Server', 'SG Inclusion', and 'Preferred HA Role'.</p> <table border="1"> <thead> <tr> <th>Server</th><th>SG Inclusion</th><th>Preferred HA Role</th></tr> </thead> <tbody> <tr> <td>OCUDR-A</td><td><input checked="" type="checkbox"/> Include in SG</td><td><input type="checkbox"/> Prefer server as spare</td></tr> <tr> <td>OCUDR-B</td><td><input checked="" type="checkbox"/> Include in SG</td><td><input type="checkbox"/> Prefer server as spare</td></tr> </tbody> </table> <p>Below the table, there is an input field for the VIP Address, an 'Add' button, and a 'Remove' button. At the bottom, there are 'Ok', 'Apply', and 'Cancel' buttons.</p>	Server	SG Inclusion	Preferred HA Role	OCUDR-A	<input checked="" type="checkbox"/> Include in SG	<input type="checkbox"/> Prefer server as spare	OCUDR-B	<input checked="" type="checkbox"/> Include in SG	<input type="checkbox"/> Prefer server as spare
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19. <input type="checkbox"/>	UDR Server A: Enter the VIP Address	 <p>The screenshot shows the 'VIP Address' configuration dialog box with the address '10.10.1.121' entered in the input field. The 'Add' button is highlighted. The 'Remove' button is also visible. At the bottom, there are 'Ok', 'Apply', and 'Cancel' buttons.</p>									

Step	Procedure	Result
20. <input type="checkbox"/>	UDR Server A: Click Info to see a banner message stating Pre-Validation passed. Click Apply .	
21. <input type="checkbox"/>	UDR Server A: Click Info to see a banner message stating Data committed.	
22. <input type="checkbox"/>	UDR Server A: Click the “Logout” link on the OAM A server GUI.	
23. <input type="checkbox"/>	IMPORTANT: Wait at least 5 minutes before proceeding on to the next step.	<p>Now that the servers 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.</p> <p>Note: Single Server Configuration will not need to establish the master/slave relationship for High Availability (HA).</p> <p>Allow a minimum of 5 minutes before continuing to the next Step.</p>

Step	Procedure	Result																																																								
27. <input type="checkbox"/>	<p>UDR VIP:</p> <ol style="list-style-type: none">Using the mouse, select UDR Server A. The line entry should now be highlighted in SKY BLUE.Click Restart (located at the bottom of the page).Click OK on the confirmation dialogue box. <p>You are presented with a confirmation message (in the banner area) for UDR Server A stating: Successfully restarted application.</p> <p>NOTE: You may have to use the vertical scroll-bar in order to see the Restart button.</p>	<p>Normal Configuration:</p> <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>OCUDR-A</td><td>Site1_NE_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr><tr><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr></table> <p>Single Server Configuration:</p> <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>OCUDR-A</td><td>Site1_NE_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr></table> <div><div>Help Logout</div><div>StopRestartReboot</div></div> <div>Are you sure you wish to restart application software on the following server(s)? OCUDR-A</div> <div>OKCancel</div> <div>Main Menu: Status & Manage -> Server</div> <div><div>Filter*Info</div><div><div>Info</div><div>OCUDR-A: Successfully restarted application.</div></div><table><tr><th>Server Host</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>OCUDR-A</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr></table></div>	Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc	OCUDR-A	Site1_NE_NO	Disabled	Err	Norm	Norm	Man	OCUDR-B	Site1_NE_NO	Disabled	Err	Norm	Norm	Man	Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc	OCUDR-A	Site1_NE_NO	Disabled	Err	Norm	Norm	Man	Server Host	Network Element	Appl State	Alm	DB	Reporting Status	Proc	OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm	OCUDR-B	Site1_NE_NO	Disabled	Err	Norm	Norm	Man
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28. <input type="checkbox"/>	<p>UDR VIP:</p> <p>Verify that the Appl State shows Enabled and that the DB, Reporting Status & Proc status columns all show Norm for UDR Server A before proceeding to the next Step.</p>	<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>OCUDR-A</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr></table> <p>NOTE: If you want to refresh the Server status screen before the default setting (15 to 30 seconds), this can be done by reselecting the Status & Manage → Server option from the Main menu.</p>	Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc	OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm	OCUDR-B	Site1_NE_NO	Disabled	Err	Norm	Norm	Man																																			
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29. <input type="checkbox"/>	<p>UDR VIP:</p> <p>Restart UDR Server B.</p>	<p>NOTE: Do not perform this step for single server installations.</p> <p>Repeat steps 27 and Error! Reference source not found. to restart UDR Server B.</p>																																																								
30. <input type="checkbox"/>	<p>UDR VIP:</p> <p>Verifying the UDR Server Alarm status</p>	<p>Navigate to Main Menu → Alarms & Events → View Active</p> <div><div><div>Main Menu</div><div>Administration</div><div>Configuration</div><div>Alarms & Events</div><div>View Active</div><div>View History</div><div>View Trap Log</div><div>Security Log</div><div>Status & Manage</div><div>Measurements</div></div><div><div>Main Menu: Alarms & Events -> View Active</div><div>Filter*TasksGraph*</div></div></div>																																																								

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31. <input type="checkbox"/>	<p>UDR VIP:</p> <p>Verify that the Event IDs are the only alarms present on the system.</p>	<table><thead><tr><th>Seq #</th><th>Event ID</th><th>Timestamp</th><th>Severity</th><th>Product</th><th>Processes</th><th>NE</th><th>Server</th><th>Type</th><th>Instance</th></tr></thead><tbody><tr><td rowspan="2">129</td><td>19820</td><td>2015-09-21 15:42:00.187 EDT</td><td>MAJOR</td><td>CAF</td><td>udrbe</td><td>NO_UDR_NE</td><td>no-b</td><td>CAF</td><td>UDR-RS-Sh-App</td></tr><tr><td colspan="9">Communication Agent Routed Service Unavailable GN_INFO/WRN ^^ [26801:ComAgentStack.C:2826]</td></tr><tr><td rowspan="2">309</td><td>19820</td><td>2015-09-21 15:14:54.295 EDT</td><td>MAJOR</td><td>CAF</td><td>udrbe</td><td>NO_UDR_NE</td><td>no-a</td><td>CAF</td><td>UDR-RS-Sh-App</td></tr><tr><td colspan="9">Communication Agent Routed Service Unavailable GN_INFO/WRN ^^ [16353:ComAgentStack.C:2826]</td></tr><tr><td rowspan="2">266</td><td>13001</td><td>2015-09-21 15:14:48.842 EDT</td><td>MAJOR</td><td>Provisioning</td><td>udrprov</td><td>NO_UDR_NE</td><td>no-a</td><td>PROV</td><td>REST</td></tr><tr><td colspan="9">No Remote RAS Client Connections GN_NOTENAB/WRN No remote provisioning RAS clients are connected. ^^ [16365:ComAgentStack.C:2826] More...</td></tr><tr><td rowspan="2">265</td><td>13027</td><td>2015-09-21 15:14:47.841 EDT</td><td>MAJOR</td><td>Provisioning</td><td>udrprov</td><td>NO_UDR_NE</td><td>no-a</td><td>PROV</td><td>SOAP</td></tr><tr><td colspan="9">No Remote XSAS Client Connections GN_NOTENAB/WRN No remote provisioning XSAS clients are connected. ^^ [16366:ComAgentStack.C:2826] More...</td></tr></tbody></table> <table><thead><tr><th>Seq #</th><th>Event ID</th><th>Timestamp</th><th>Severity</th><th>Product</th><th>Process</th><th>NE</th><th>Server</th><th>Type</th><th>Instance</th></tr></thead><tbody><tr><td rowspan="2">45</td><td>19820</td><td>2018-04-06 03:22:08.022 EDT</td><td>MAJOR</td><td>CAF</td><td>udrbe</td><td>Site1_NE_NO</td><td>OCUDR-B</td><td>CAF</td><td>UDR-RS-Sh-App</td></tr><tr><td colspan="9">Communication Agent Routed Service Unavailable GN_INFO/WRN ^^ [31511:ComAgentStack.C:3025]</td></tr><tr><td rowspan="2">79</td><td>13075</td><td>2018-04-06 03:20:18.023 EDT</td><td>CRITICAL</td><td>Provisioning</td><td>udrprov</td><td>Site1_NE_NO</td><td>OCUDR-A</td><td>PROV</td><td></td></tr><tr><td colspan="9">Provisioning Interfaces Disabled GN_NOTENAB/WRN SOAP and REST interfaces are disabled ^^ [945:ProvControlle...] More...</td></tr><tr><td rowspan="2">69</td><td>19820</td><td>2018-04-06 03:20:13.117 EDT</td><td>MAJOR</td><td>CAF</td><td>udrbe</td><td>Site1_NE_NO</td><td>OCUDR-A</td><td>CAF</td><td>UDR-RS-Sh-App</td></tr><tr><td colspan="9">Communication Agent Routed Service Unavailable GN_INFO/WRN ^^ [577:ComAgentStack.C:3025]</td></tr></tbody></table> <p>Verify that only the following Event IDs are the only alarms present:</p> <p>13075 Provisioning Interfaces Disabled</p> <p>19820 Communication Agent Routed Service Unavailable</p> <p>NOTE: It may take a few minutes for residual process alarms to clear.</p>	Seq #	Event ID	Timestamp	Severity	Product	Processes	NE	Server	Type	Instance	129	19820	2015-09-21 15:42:00.187 EDT	MAJOR	CAF	udrbe	NO_UDR_NE	no-b	CAF	UDR-RS-Sh-App	Communication Agent Routed Service Unavailable GN_INFO/WRN ^^ [26801:ComAgentStack.C:2826]									309	19820	2015-09-21 15:14:54.295 EDT	MAJOR	CAF	udrbe	NO_UDR_NE	no-a	CAF	UDR-RS-Sh-App	Communication Agent Routed Service Unavailable GN_INFO/WRN ^^ [16353:ComAgentStack.C:2826]									266	13001	2015-09-21 15:14:48.842 EDT	MAJOR	Provisioning	udrprov	NO_UDR_NE	no-a	PROV	REST	No Remote RAS Client Connections GN_NOTENAB/WRN No remote provisioning RAS clients are connected. ^^ [16365:ComAgentStack.C:2826] More...									265	13027	2015-09-21 15:14:47.841 EDT	MAJOR	Provisioning	udrprov	NO_UDR_NE	no-a	PROV	SOAP	No Remote XSAS Client Connections GN_NOTENAB/WRN No remote provisioning XSAS clients are connected. ^^ [16366:ComAgentStack.C:2826] More...									Seq #	Event ID	Timestamp	Severity	Product	Process	NE	Server	Type	Instance	45	19820	2018-04-06 03:22:08.022 EDT	MAJOR	CAF	udrbe	Site1_NE_NO	OCUDR-B	CAF	UDR-RS-Sh-App	Communication Agent Routed Service Unavailable GN_INFO/WRN ^^ [31511:ComAgentStack.C:3025]									79	13075	2018-04-06 03:20:18.023 EDT	CRITICAL	Provisioning	udrprov	Site1_NE_NO	OCUDR-A	PROV		Provisioning Interfaces Disabled GN_NOTENAB/WRN SOAP and REST interfaces are disabled ^^ [945:ProvControlle...] More...									69	19820	2018-04-06 03:20:13.117 EDT	MAJOR	CAF	udrbe	Site1_NE_NO	OCUDR-A	CAF	UDR-RS-Sh-App	Communication Agent Routed Service Unavailable GN_INFO/WRN ^^ [577:ComAgentStack.C:3025]								
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32. <input type="checkbox"/>	<p>UDR VIP:</p> <p>Configuring SNMP for Traps from Individual Servers</p>	<p>Navigate to Main Menu → Administration → Remote Servers → SNMP Trapping</p> <div><div><div><div><div></div><div>Main Menu</div></div><div><div></div><div>Administration</div></div><div><div></div><div>General Options</div></div><div><div></div><div>Access Control</div></div><div><div></div><div>Software Management</div></div><div><div></div><div>Remote Servers</div></div><div><div></div><div>LDAP Authentication</div></div><div><div></div><div>SNMP Trapping</div></div><div><div></div><div>Data Export</div></div><div><div></div><div>DNS Configuration</div></div><div><div></div><div>Configuration</div></div><div><div></div><div>Alarms & Events</div></div><div><div></div><div>Security Log</div></div><div><div></div><div>Status & Manage</div></div><div><div></div><div>Measurements</div></div><div><div></div><div>Communication Agent</div></div></div></div><div><div><div>Main Menu: Administration -> Remote Servers -> SNMP</div><div>Info*</div><div>SNMP Trap Configuration Insert for NO_SG</div><div><div>Configuration Mode *</div><div><div><input checked="" type="radio"/> Global</div><div><input type="radio"/> Per-site</div></div></div><div><div>Manager 1</div><div>10.250.54.12</div></div></div></div></div>																																																																																																																																																									

Step	Procedure	Result
33. <input type="checkbox"/>	UDR VIP: 1. Select Traps from Individual Servers . 2. Click OK located at the bottom in the center of the screen. 3. Verify that a banner message stating Data committed is received.	 
34. <input type="checkbox"/>	UDR VIP: Click Logout on the server GUI.	
THIS PROCEDURE HAS BEEN COMPLETED		

6.2 OAM Pairing for 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 the DR UDR servers.


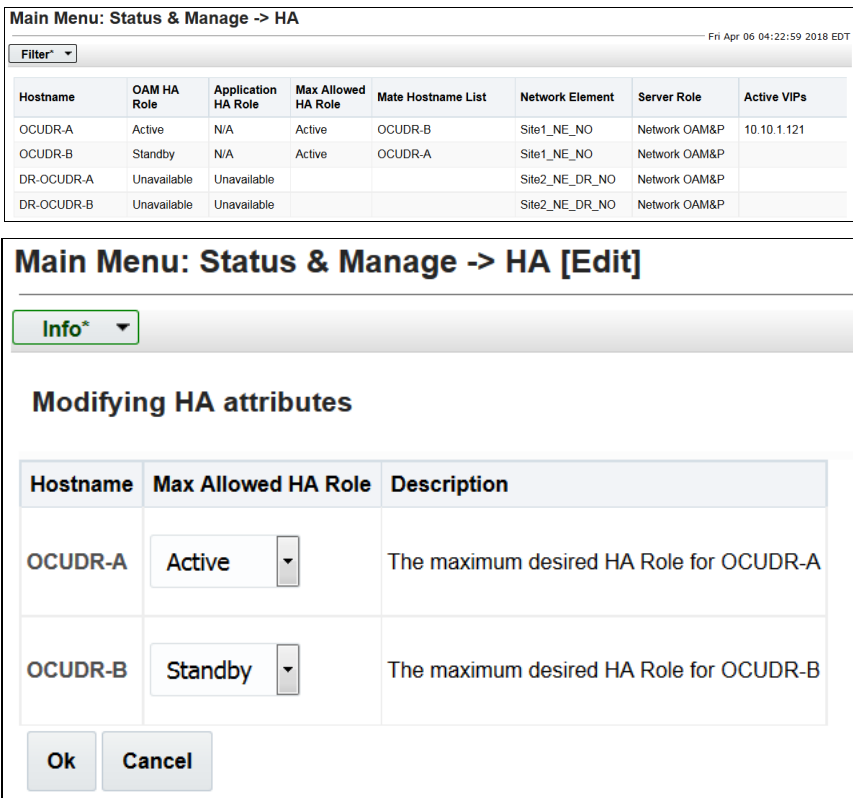
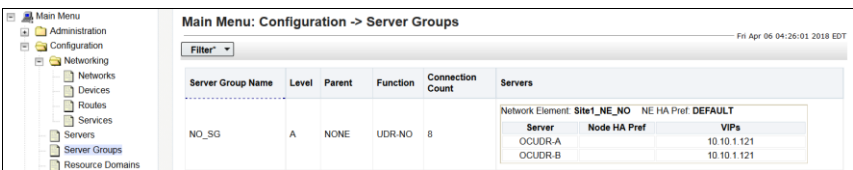
This procedure creates active/standby pair for the DR UDR Servers.

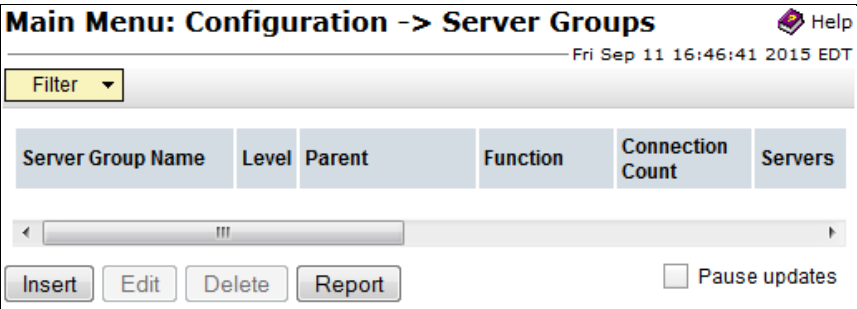
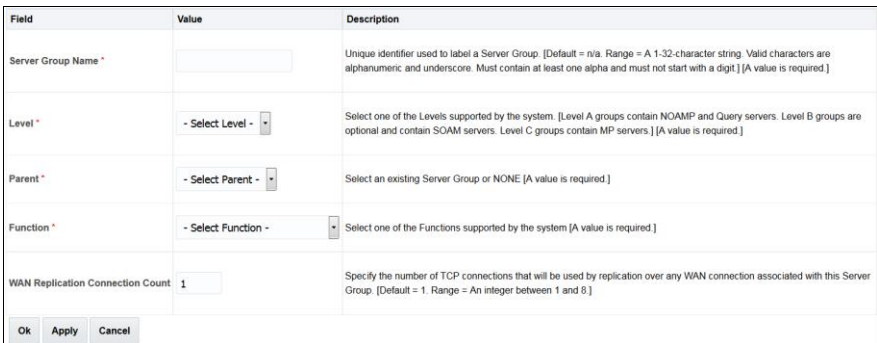
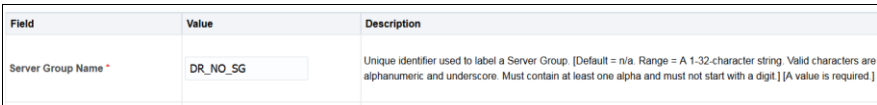
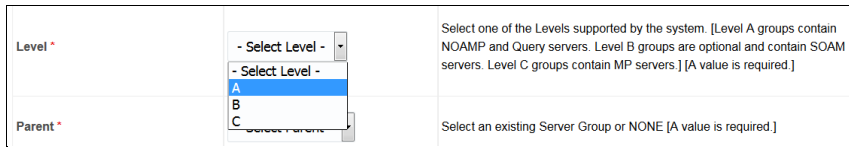
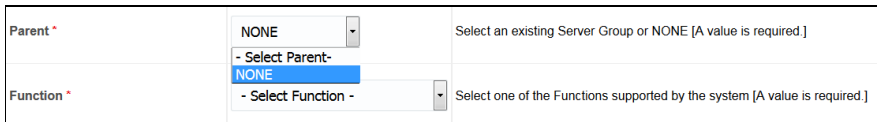
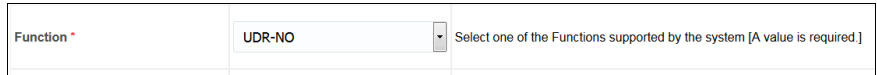
Requirements:


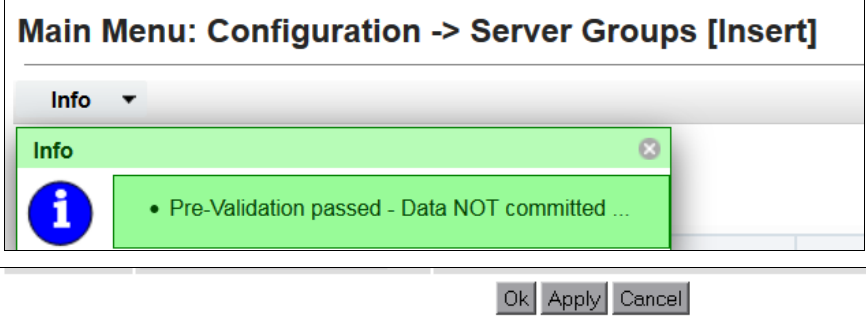
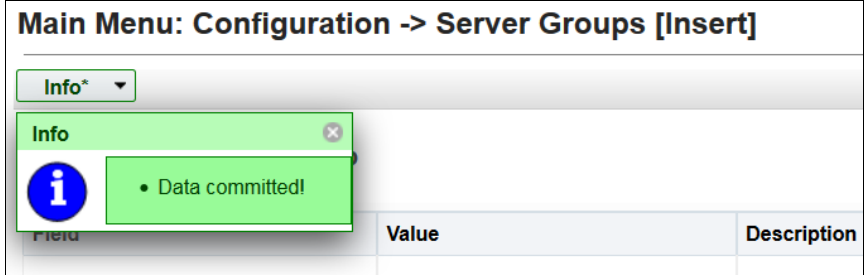
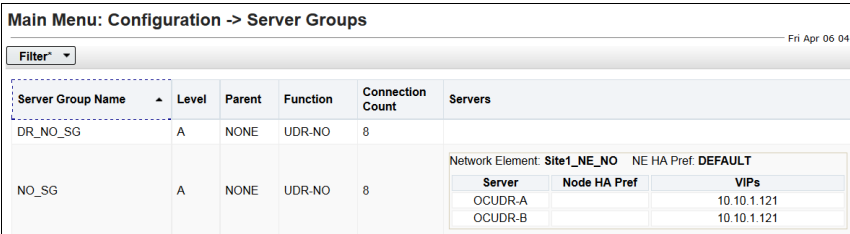
- Chapter 5 Oracle Communications User Data Repository Server Configuration has been completed
- Section 6.1 OAM Pairing for Primary UDR Servers (1st NOAMP site only) has been completed

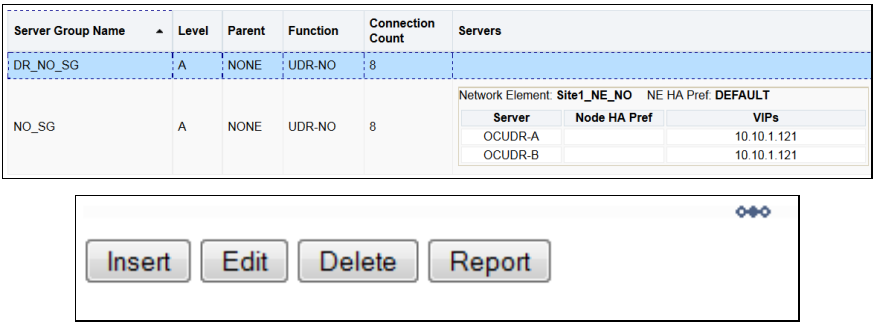
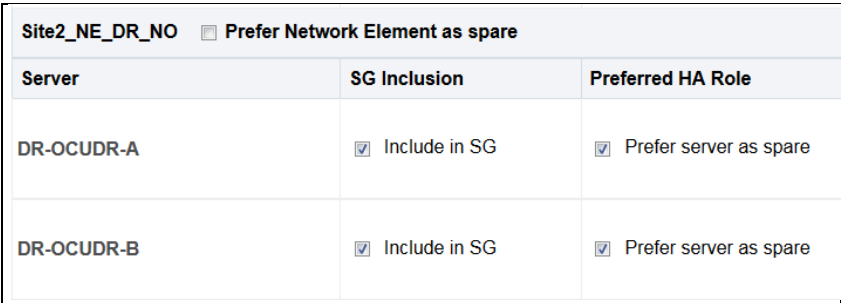
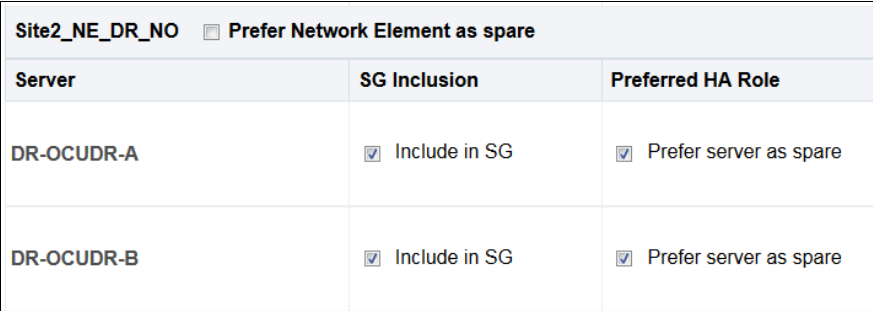
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

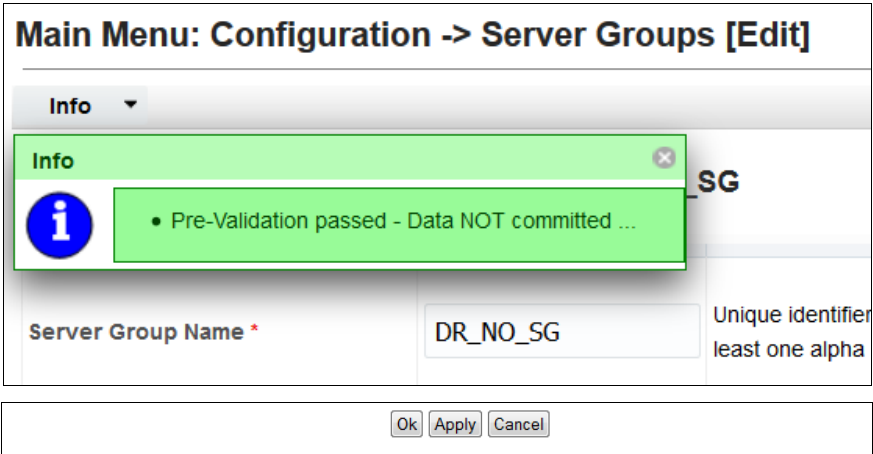
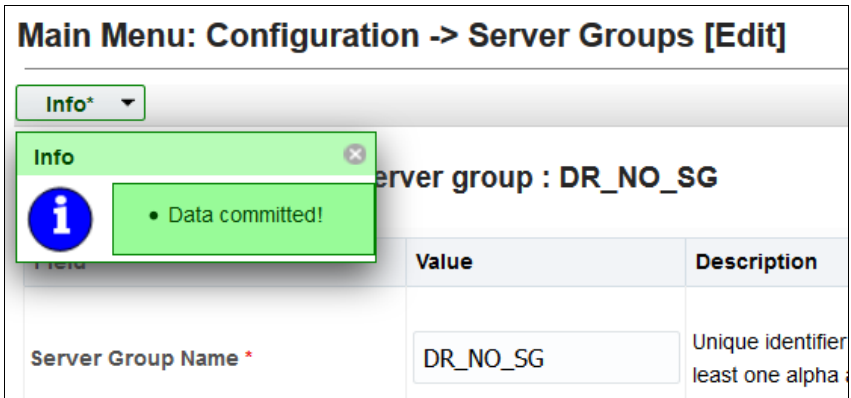
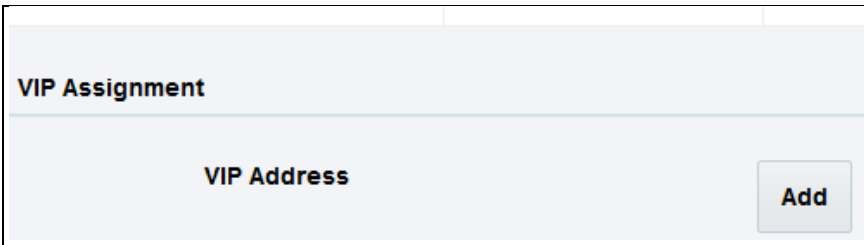
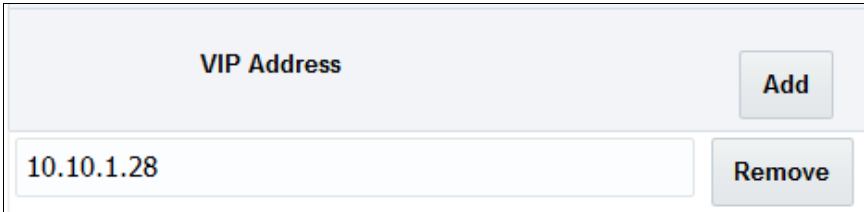
Procedure 10: OAM Pairing for DR Sites

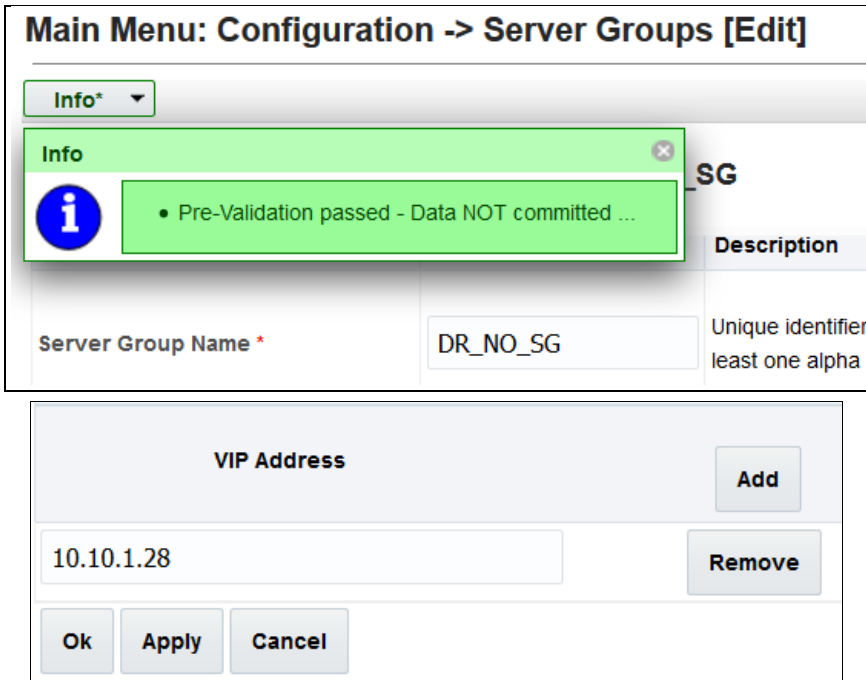
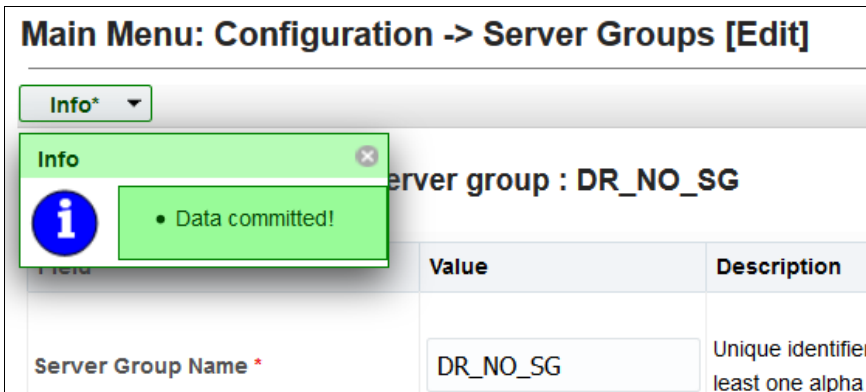
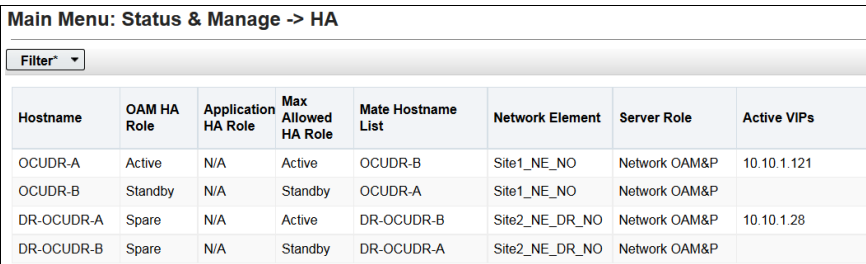
Step	Procedure	Result
1. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Launch an approved web browser and connect to the UDR Server A IP address</p> <p>NOTE: Select Continue to this website (not recommended) if presented with the “security certificate” warning.</p> <p>Login to the GUI using the default user and password.</p>	
2. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>For Primary UDR Standby server only:</p> <p>Mark the server forced standby</p> <p>Navigate to Main Menu → Status & Manage → HA</p> <p>Click Edit on bottom left</p> <p>Find the row for the Primary UDR Standby server and change Max Allowed HA Role to Standby.</p>	<p>NOTE: Do not perform this step for single server installations.</p> 
3. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Navigate to Main Menu → Configuration → Server Groups</p>	

Step	Procedure	Result
4. <input type="checkbox"/>	Active UDR VIP: Click Insert located at the bottom left corner of the page. NOTE: Use the vertical scroll-bar to see the Insert button.	
5. <input type="checkbox"/>	Active UDR VIP: Configuring the DR UDR Server Group The Server Groups [Insert] page opens.	
6. <input type="checkbox"/>	Active UDR VIP: Enter the Server Group Name.	
7. <input type="checkbox"/>	Active UDR VIP: Assign the correct group Level.	 <p>Use this setting for group level:</p> <ul style="list-style-type: none"> For DR UDR server group: select A on the Level menu.
8. <input type="checkbox"/>	Active UDR VIP: Assign the correct Parent.	 <ul style="list-style-type: none"> Use this setting for parent: For DR UDR server group: select NONE on the Parent menu.
9. <input type="checkbox"/>	Active UDR VIP: Assign the correct Function.	 <ul style="list-style-type: none"> Use this setting for function: For DR UDR server group: select UDR-NO on the Function menu.

Step	Procedure	Result
10. <input type="checkbox"/>	Active UDR VIP: For DR UDR only: Enter 8 for the WAN Replication Connection Count.	
11. <input type="checkbox"/>	Active UDR VIP: Click Info to see a banner with a message stating that Pre-Validation passed. Click Apply	
12. <input type="checkbox"/>	Active UDR VIP: You see a banner with a message stating Data committed.	
13. <input type="checkbox"/>	Active UDR VIP: Navigate to Main Menu → Configuration → Server Groups NOTE: Server Group entry is shown on the Server Groups configuration screen.	

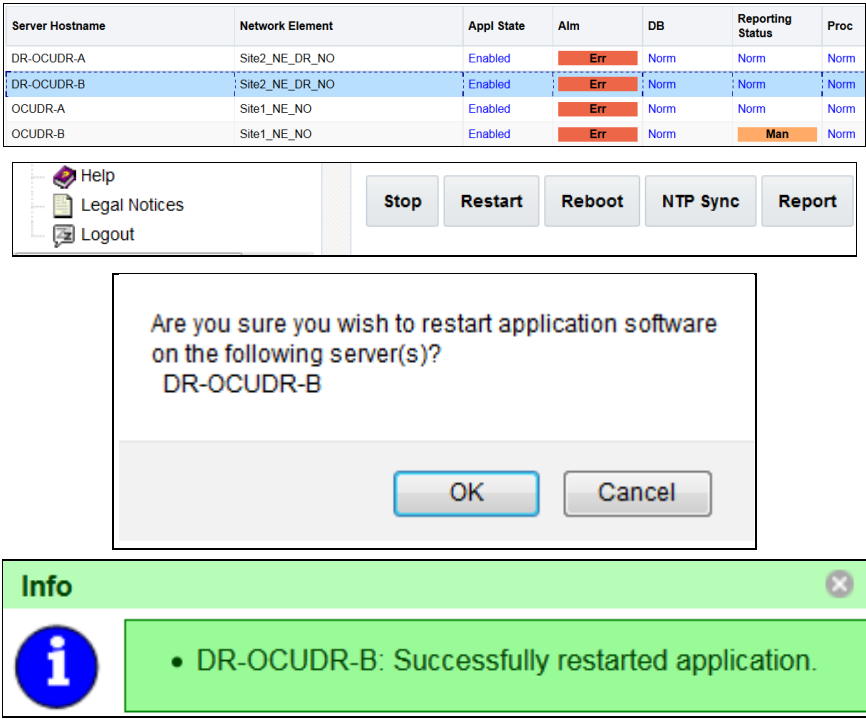
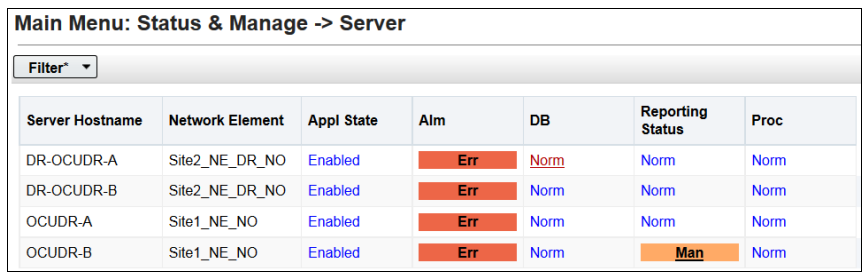
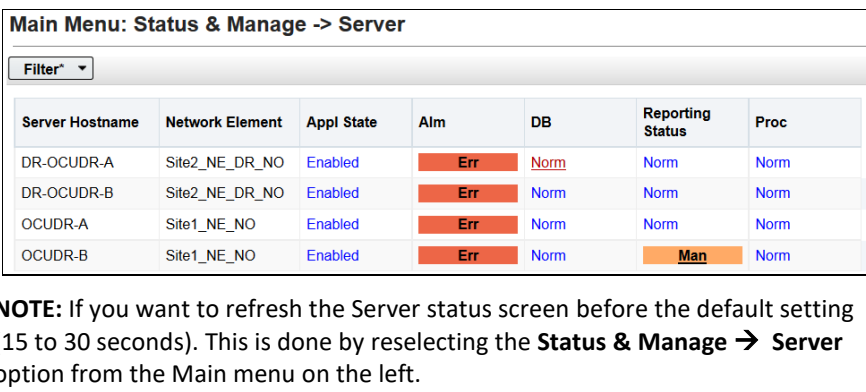
Step	Procedure	Result
14. <input type="checkbox"/>	<p>Active UDR VIP:</p> <ol style="list-style-type: none"> 1. Select the Server Group entry applied in Step 7. The line entry should now be highlighted in SKY BLUE. 2. Click Edit (located at the bottom left corner of the page). <p>NOTE: You may have to use the vertical scroll-bar in order to see the Edit button.</p>	 <p>The screenshot shows a configuration window with a table. The table has columns: Server Group Name, Level, Parent, Function, Connection Count, and Servers. The first row is highlighted in blue and contains: DR_NO_SG, A, NONE, UDR-NO, 8. Below the table, there are buttons: Insert, Edit, Delete, and Report. To the right of the table, there is a section for Network Element: Site1_NE_NO, NE HA Pref: DEFAULT, and a table for Servers with columns: Server, Node HA Pref, and VIPs. The servers listed are OCUDR-A and OCUDR-B, both with Node HA Pref as empty and VIPs as 10.10.1.121.</p>
15. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Select the "A server and the B server from the list of Servers.</p>	<p>Normal or Low Capacity Configuration:</p>  <p>The screenshot shows a configuration window for Site2_NE_DR_NO. It has a checkbox for "Prefer Network Element as spare". Below is a table with columns: Server, SG Inclusion, and Preferred HA Role. The table has two rows: DR-OCUDR-A and DR-OCUDR-B. For DR-OCUDR-A, the SG Inclusion is checked and labeled "Include in SG", and the Preferred HA Role is checked and labeled "Prefer server as spare". For DR-OCUDR-B, the SG Inclusion is checked and labeled "Include in SG", and the Preferred HA Role is checked and labeled "Prefer server as spare".</p>
16. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>For DR UDR servers only</p> <p>Check the Preferred Spare boxes next to the server names</p>	 <p>The screenshot shows a configuration window for Site2_NE_DR_NO. It has a checkbox for "Prefer Network Element as spare". Below is a table with columns: Server, SG Inclusion, and Preferred HA Role. The table has two rows: DR-OCUDR-A and DR-OCUDR-B. For DR-OCUDR-A, the SG Inclusion is checked and labeled "Include in SG", and the Preferred HA Role is checked and labeled "Prefer server as spare". For DR-OCUDR-B, the SG Inclusion is checked and labeled "Include in SG", and the Preferred HA Role is checked and labeled "Prefer server as spare".</p> <p>NOTE: DR UDR is not accessible via their VIP unless they become the Active UDR. Individual servers in the DR UDR server group are always accessible by their XMI addresses.</p>

Step	Procedure	Result
17. <input type="checkbox"/>	Active UDR VIP: Click Info to see a banner message stating Pre-Validation passed. Click Apply .	
18. <input type="checkbox"/>	Active UDR VIP: Click Info to see a banner message stating Data committed.	
19. <input type="checkbox"/>	Active UDR VIP: Click Add for the VIP Address.	
20. <input type="checkbox"/>	Active UDR VIP: Enter the VIP Address	

Step	Procedure	Result																																								
21. <input type="checkbox"/>	Active UDR VIP: Click Info to see a banner message stating Pre-Validation passed. Click Apply .																																									
22. <input type="checkbox"/>	Active UDR VIP: Click Info to see a banner message stating Data committed.																																									
23. <input type="checkbox"/>	IMPORTANT:Wait at least 5 minutes before proceeding on to the next Step.	<p>Now that the servers are paired in 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.</p> <p>NOTE: Single Server Configurations do not establish master/slave relationship for High Availability (HA).</p> <p>Allow a minimum of 5 minutes before continuing to the next Step.</p>																																								
24. <input type="checkbox"/>	Active UDR VIP: Navigate to Main Menu → Status & Manage → HA	 <table><thead><tr><th>Hostname</th><th>OAM HA Role</th><th>Application HA Role</th><th>Max Allowed HA Role</th><th>Mate Hostname List</th><th>Network Element</th><th>Server Role</th><th>Active VIPs</th></tr></thead><tbody><tr><td>OCUDR-A</td><td>Active</td><td>N/A</td><td>Active</td><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Network OAM&P</td><td>10.10.1.121</td></tr><tr><td>OCUDR-B</td><td>Standby</td><td>N/A</td><td>Standby</td><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Network OAM&P</td><td></td></tr><tr><td>DR-OCUDR-A</td><td>Spare</td><td>N/A</td><td>Active</td><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Network OAM&P</td><td>10.10.1.28</td></tr><tr><td>DR-OCUDR-B</td><td>Spare</td><td>N/A</td><td>Standby</td><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Network OAM&P</td><td></td></tr></tbody></table>	Hostname	OAM HA Role	Application HA Role	Max Allowed HA Role	Mate Hostname List	Network Element	Server Role	Active VIPs	OCUDR-A	Active	N/A	Active	OCUDR-B	Site1_NE_NO	Network OAM&P	10.10.1.121	OCUDR-B	Standby	N/A	Standby	OCUDR-A	Site1_NE_NO	Network OAM&P		DR-OCUDR-A	Spare	N/A	Active	DR-OCUDR-B	Site2_NE_DR_NO	Network OAM&P	10.10.1.28	DR-OCUDR-B	Spare	N/A	Standby	DR-OCUDR-A	Site2_NE_DR_NO	Network OAM&P	
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Step	Procedure	Result																																								
25. <input type="checkbox"/>	Active UDR VIP: NOTE: DR UDR servers will have OAM MAX HA Role of Spare and no Active VIPs (shown in red)	Normal or Low Capacity Configuration: <div>Main Menu: Status & Manage -> HA <div>Filter* ▼</div><table><thead><tr><th>Hostname</th><th>OAM HA Role</th><th>Application HA Role</th><th>Max Allowed HA Role</th><th>Mate Hostname List</th><th>Network Element</th><th>Server Role</th><th>Active VIPs</th></tr></thead><tbody><tr><td>OCUDR-A</td><td>Active</td><td>N/A</td><td>Active</td><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Network OAM&P</td><td>10.10.1.121</td></tr><tr><td>OCUDR-B</td><td>Standby</td><td>N/A</td><td>Standby</td><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Network OAM&P</td><td></td></tr><tr><td>DR-OCUDR-A</td><td>Spare</td><td>N/A</td><td>Active</td><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Network OAM&P</td><td>10.10.1.28</td></tr><tr><td>DR-OCUDR-B</td><td>Spare</td><td>N/A</td><td>Standby</td><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Network OAM&P</td><td></td></tr></tbody></table></div>	Hostname	OAM HA Role	Application HA Role	Max Allowed HA Role	Mate Hostname List	Network Element	Server Role	Active VIPs	OCUDR-A	Active	N/A	Active	OCUDR-B	Site1_NE_NO	Network OAM&P	10.10.1.121	OCUDR-B	Standby	N/A	Standby	OCUDR-A	Site1_NE_NO	Network OAM&P		DR-OCUDR-A	Spare	N/A	Active	DR-OCUDR-B	Site2_NE_DR_NO	Network OAM&P	10.10.1.28	DR-OCUDR-B	Spare	N/A	Standby	DR-OCUDR-A	Site2_NE_DR_NO	Network OAM&P	
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26. <input type="checkbox"/>	Active UDR VIP: Restarting the OAM Server Application Navigate to Main Menu → Status & Manage → Server	Main Menu: Status & Manage -> Server <div>Filter* ▼</div> <table><thead><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></thead><tbody><tr><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr><tr><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr><tr><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Man</td><td>Norm</td></tr></tbody></table>	Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc	DR-OCUDR-A	Site2_NE_DR_NO	Disabled	Err	Norm	Norm	Man	DR-OCUDR-B	Site2_NE_DR_NO	Disabled	Err	Norm	Norm	Man	OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm	OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm					
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OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm																																				
27. <input type="checkbox"/>	Active UDR VIP: 1. The A and B servers should now appear in the right panel. (Only A for single server installs) 2. Verify that the DB status shows Norm and the Proc status shows Man for both servers before proceeding to the next Step. (Only A server for single server configuration)	Normal or Low Capacity Configuration: <div><table><thead><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></thead><tbody><tr><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr><tr><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr></tbody></table></div> Single Server Configuration:	Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc	DR-OCUDR-A	Site2_NE_DR_NO	Disabled	Err	Norm	Norm	Man	DR-OCUDR-B	Site2_NE_DR_NO	Disabled	Err	Norm	Norm	Man																			
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Step	Procedure	Result																																			
28. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>3. Using the mouse, select Server A. The line entry should now be highlighted in SKY BLUE.</p> <p>4. Click Restart (located at the bottom of the page).</p> <p>5. Click OK on the confirmation dialogue box.</p> <p>A confirmation message (in the banner area) for Server A stating: Successfully restarted application.</p> <p>NOTE: You may have to use the vertical scroll-bar in order to see the Restart button visible.</p>	<p>Normal or Low Capacity Configuration:</p> <table><thead><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></thead><tbody><tr><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr><tr><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr><tr><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Man</td><td>Norm</td></tr></tbody></table> <div><div> Help Legal Notices Logout</div><div>Stop Restart Reboot NTP Sync Report</div></div> <div>Are you sure you wish to restart application software on the following server(s)? DR-OCUDR-A</div> <div>OK Cancel</div> <div><div>Filter* Info</div><div><div>Server Host DR-OCUDR</div><div> Info • DR-OCUDR-A: Successfully restarted application.</div></div></div>	Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc	DR-OCUDR-A	Site2_NE_DR_NO	Disabled	Err	Norm	Norm	Man	DR-OCUDR-B	Site2_NE_DR_NO	Disabled	Err	Norm	Norm	Man	OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm	OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm
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29. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Navigate to Main Menu → Status & Manage → Server</p>	<div>Main Menu: Status & Manage → Server Fri Apr 06 04:58:03 2018 EDT</div> <table><thead><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></thead><tbody><tr><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Man</td><td>Norm</td></tr></tbody></table>	Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc	DR-OCUDR-A	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm	DR-OCUDR-B	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm	OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm	OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm
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OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm																															
30. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>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.</p>	<div>Main Menu: Status & Manage → Server Fri Apr 06 04:58:03 2018 EDT</div> <table><thead><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></thead><tbody><tr><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Man</td><td>Norm</td></tr></tbody></table> <p>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.</p>	Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc	DR-OCUDR-A	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm	DR-OCUDR-B	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm	OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm	OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm
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OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm																															
31. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Navigate to Main Menu → Status & Manage → Server</p>	<div>Main Menu: Status & Manage → Server Fri Apr 06 04:58:03 2018 EDT</div> <table><thead><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></thead><tbody><tr><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Man</td><td>Norm</td></tr></tbody></table>	Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc	DR-OCUDR-A	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm	DR-OCUDR-B	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm	OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm	OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm
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Step	Procedure	Result
Perform steps Error! Bookmark not defined. to Error! Bookmark not defined. for multiple server configurations only (not single server).		
32. <input type="checkbox"/>	<p>Active UDR VIP:</p> <ol style="list-style-type: none"> Using the mouse, select Server B. The line entry should now be highlighted in SKY BLUE. Click Restart (located at the bottom of the page). Click OK on the confirmation dialogue box. <p>A confirmation message (in the banner area) for Server B stating: "Successfully restarted application".</p> <p>NOTE: You may need to use the vertical scroll-bar in order to see the Restart dialogue button.</p>	 <p>The screenshot shows a table with columns: Server Hostname, Network Element, Appl State, Alm, DB, Reporting Status, and Proc. The rows are DR-OCUDR-A, DR-OCUDR-B, OCUDR-A, and OCUDR-B. DR-OCUDR-B is highlighted in blue. Below the table is a toolbar with buttons: Help, Legal Notices, Logout, Stop, Restart, Reboot, NTP Sync, and Report. A confirmation dialog box asks: "Are you sure you wish to restart application software on the following server(s)? DR-OCUDR-B" with OK and Cancel buttons. Below that is an info banner that says: "• DR-OCUDR-B: Successfully restarted application."</p>
33. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Navigate to Main Menu → Status & Manage → Server</p>	 <p>The screenshot shows the "Main Menu: Status & Manage -> Server" screen. It has a "Filter*" dropdown and a table with the same columns as the previous screenshot. The rows are DR-OCUDR-A, DR-OCUDR-B, OCUDR-A, and OCUDR-B. DR-OCUDR-B is highlighted in blue.</p>
34. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Verify that the Appl State shows Enabled and that the Alm, DB, Reporting Status & Proc columns all show Norm for Server B before proceeding to the next Step.</p>	 <p>The screenshot shows the "Main Menu: Status & Manage -> Server" screen, identical to the previous one. Below the table, a note states: NOTE: If you want to refresh the Server status screen before the default setting (15 to 30 seconds). This is done by reselecting the Status & Manage → Server option from the Main menu on the left.</p>
Repeat all steps for each DR UDR site being installed.		

Step	Procedure	Result															
35. <input type="checkbox"/>	<p>Active UDR VIP: <i>For Primary UDR Standby server only:</i></p> <p>Move the server back to Active</p> <p>Navigate to Main Menu → Status & Manage → HA[Edit]</p> <p>Find the row for the Primary UDR Standby server and change Max Allowed HA Role back to Active.</p>	<div> <p>Modifying HA attributes</p> <table> <tr> <th>Hostname</th><th>Max Allowed HA Role</th><th>Description</th></tr> <tr> <td>OCUDR-A</td><td>Active ▼</td><td>The maximum desired HA Role for OCUDR-A</td></tr> <tr> <td>OCUDR-B</td><td>Active ▼</td><td>The maximum desired HA Role for OCUDR-B</td></tr> <tr> <td>DR-OCUDR-A</td><td>Active ▼</td><td>The maximum desired HA Role for DR-OCUDR-A</td></tr> <tr> <td>DR-OCUDR-B</td><td>Active ▼</td><td>The maximum desired HA Role for DR-OCUDR-B</td></tr> </table> <p>Ok Cancel</p> </div>	Hostname	Max Allowed HA Role	Description	OCUDR-A	Active ▼	The maximum desired HA Role for OCUDR-A	OCUDR-B	Active ▼	The maximum desired HA Role for OCUDR-B	DR-OCUDR-A	Active ▼	The maximum desired HA Role for DR-OCUDR-A	DR-OCUDR-B	Active ▼	The maximum desired HA Role for DR-OCUDR-B
Hostname	Max Allowed HA Role	Description															
OCUDR-A	Active ▼	The maximum desired HA Role for OCUDR-A															
OCUDR-B	Active ▼	The maximum desired HA Role for OCUDR-B															
DR-OCUDR-A	Active ▼	The maximum desired HA Role for DR-OCUDR-A															
DR-OCUDR-B	Active ▼	The maximum desired HA Role for DR-OCUDR-B															
36. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Click Logout on the server GUI.</p>	<div> <p>Help Logged in Account guiadmin ▼ Log Out</p> <hr/> <p>Thu Mar 29 06:02:07 2018 EDT</p> </div>															
THIS PROCEDURE HAS BEEN COMPLETED																	


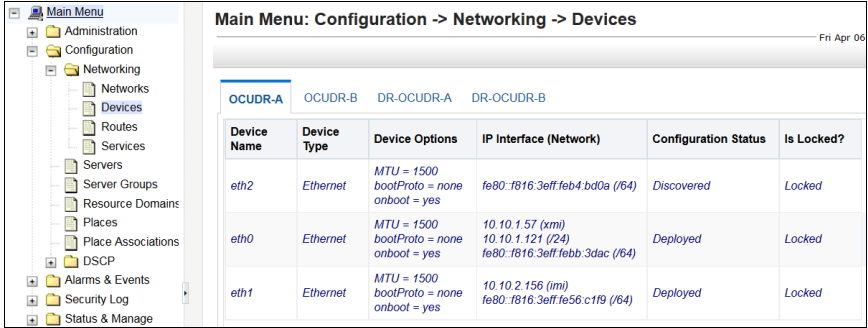
Chapter 7. Application Configuration

7.1 Configure UDR Signaling Routes (All NOAM Sites)

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

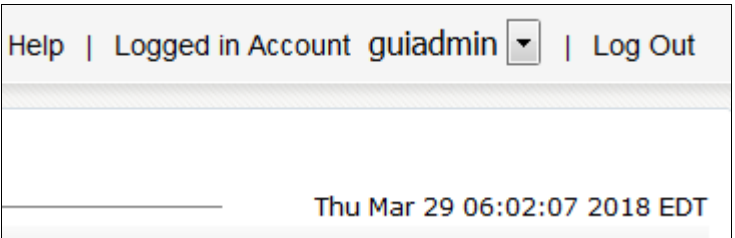
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

Procedure 11: Configure UDR Signaling Routes

Step	Procedure	Result
1. <input type="checkbox"/>	<p>Active UDR VIP: Launch an approved web browser and connect to the UDR Server A IP address</p> <p>NOTE: Click Continue to this website (not recommended) if presented with a security certificate warning.</p> <p>Login to the GUI using the default user and password.</p>	
2. <input type="checkbox"/>	<p>Active UDR VIP</p> <p>Navigate to Main Menu → Configuration → Networking → Devices</p>	 <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A (XSI-1) <input type="checkbox"/> UDR-B (XSI-1)</p>

Step	Procedure	Result																														
3. <input type="checkbox"/>	Active UDR VIP: Select the xsi device for the UDR	Select the UDR tab. Select the XSI-1 device (recorded in B.3 Step 3Error! Reference source not ound. or C.7 Step 5). Output similar to that shown below may be observed. <div><table><tr><th colspan="6">OCUDR-A OCUDR-B DR-OCUDR-A DR-OCUDR-B</th></tr><tr><th>Device Name</th><th>Device Type</th><th>Device Options</th><th>IP Interface (Network)</th><th>Configuration Status</th><th>Is Locked?</th></tr><tr><td>eth2</td><td>Ethernet</td><td>MTU = 1500 bootProto = none onboot = yes</td><td>fe80::f816:3eff:feb4:bd0a (/64)</td><td>Discovered</td><td>Locked</td></tr><tr><td>eth0</td><td>Ethernet</td><td>MTU = 1500 bootProto = none onboot = yes</td><td>10.10.1.57 (xmi) 10.10.1.121 (/24) fe80::f816:3eff:febb:3dac (/64)</td><td>Deployed</td><td>Locked</td></tr><tr><td>eth1</td><td>Ethernet</td><td>MTU = 1500 bootProto = none onboot = yes</td><td>10.10.2.156 (imi) fe80::f816:3eff:fe56:c1f9 (/64)</td><td>Deployed</td><td>Locked</td></tr></table></div> Mark the Check Box as addition is completed for each Server. <input type="checkbox"/> UDR-A (XSI-1) <input type="checkbox"/> UDR-B (XSI-1)	OCUDR-A OCUDR-B DR-OCUDR-A DR-OCUDR-B						Device Name	Device Type	Device Options	IP Interface (Network)	Configuration Status	Is Locked?	eth2	Ethernet	MTU = 1500 bootProto = none onboot = yes	fe80::f816:3eff:feb4:bd0a (/64)	Discovered	Locked	eth0	Ethernet	MTU = 1500 bootProto = none onboot = yes	10.10.1.57 (xmi) 10.10.1.121 (/24) fe80::f816:3eff:febb:3dac (/64)	Deployed	Locked	eth1	Ethernet	MTU = 1500 bootProto = none onboot = yes	10.10.2.156 (imi) fe80::f816:3eff:fe56:c1f9 (/64)	Deployed	Locked
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eth1	Ethernet	MTU = 1500 bootProto = none onboot = yes	10.10.2.156 (imi) fe80::f816:3eff:fe56:c1f9 (/64)	Deployed	Locked																											
4. <input type="checkbox"/>	Active UDR VIP Edit the xsi device for the desired UDR	Click Take Ownership . <div><div>Take Ownership</div></div> Mark the Check Box as addition is completed for each Server. <input type="checkbox"/> UDR-A (XSI-1) <input type="checkbox"/> UDR-B (XSI-1)																														
5. <input type="checkbox"/>	Active UDR VIP Add the xsi device for the desired UDR Select Start On Boot “Enable” Click OK to apply changes.																															
6. <input type="checkbox"/>	Active UDR VIP: Repeat as required.	Repeat Steps 3 throughg 5 for each UDR and its Signaling networks. NOTE: Steps 7 throughg 9 are only needed for geo-redundant systems.																														
7. <input type="checkbox"/>	Active UDR VIP: Navigate to Main Menu → Configuration → Networking → Routes	<div><div><div>Main Menu<ul style="list-style-type: none">AdministrationConfiguration<ul style="list-style-type: none">Networking<ul style="list-style-type: none">NetworksDevicesRoutes</div></div><div>Main Menu: Configuration -> Networking -> Routes<div><div>Entire Network</div><div>DR_NO_SG NO_SG</div><div>OCUDR-A OCUDR-B DR-OCUDR-A DR-OCUDR-B</div></div></div></div>																														

Step	Procedure	Result																		
8. <input type="checkbox"/>	Active UDR VIP: Insert a route for the UDR or DR UDR Server group.	<div>1. Select the Server Group tab on the top line.</div> <div>2. Click Entire Server Group on the line below Server Group line.</div> <div>Output similar to that shown below may be observed.</div> <div><div><div>Main Menu: Configuration -> Networking -> Routes</div><div>Fri Apr 06 05:14:47 2018 EDT</div><div><div>Entire Network</div><div>DR_NO_SG</div><div>NO_SG</div></div><div><div>Entire Server Group</div><div>OCUDR-A</div><div>OCUDR-B</div></div><table><tr><th>Route Type</th><th>Destination</th><th>Netmask</th><th>Gateway</th><th>Scope Status</th><th>Configuration Status</th><th>Is Locked?</th></tr></table></div></div> <div>3. Click Insert</div> <div><div>Insert</div></div>	Route Type	Destination	Netmask	Gateway	Scope Status	Configuration Status	Is Locked?											
Route Type	Destination	Netmask	Gateway	Scope Status	Configuration Status	Is Locked?														
9. <input type="checkbox"/>	Active UDR VIP: Add signaling route	<div><div><div>Main Menu: Configuration -> Networking -> Routes [Insert]</div><div>Fri Mar 30 06:06:44 2018</div><div><div>Insert Route on NO_SG</div><table><tr><th>Field</th><th>Value</th><th>Description</th></tr><tr><td>Route Type *</td><td><div><div><input type="radio"/> Net</div><div><input type="radio"/> Default</div><div><input type="radio"/> Host</div></div></td><td>Select a route type. [Default = N/A. Options = Net, Default, Host. You can configure at most one IPV4 default route and one IPV6 default route on a given target machine.] [A value is required.]</td></tr><tr><td>Device *</td><td><div>- Select Device -</div></td><td>Select the network device name through which traffic is being routed. The selction of AUTO will result in the device being selected automatically, if possible. [Default = N/A. Range = Provisioned devices on the selected server. [A value is required.]</td></tr><tr><td>Destination</td><td><div></div></td><td>The destination network address. [Default = N/A. Range = Valid Network Address of the network in dotted decimal (IPv4) or colon hex (IPv6) format.]</td></tr><tr><td>Netmask</td><td><div></div></td><td>A valid netmask for the network route destination IP address. [Default = N/A. Range = Valid Netmask for the network in prefix length (IPv4 or IPv6) or dotted decimal (IPv4) format.]</td></tr><tr><td>Gateway IP *</td><td><div></div></td><td>The IP address of the gateway for this route. [Default = N/A. Range = Valid IP address of the gateway in dotted decimal (IPv4) or colon hex (IPv6) format.] [A value is required.]</td></tr></table><div><div>Ok</div><div>Apply</div><div>Cancel</div></div></div></div></div> <div><div>1. Set Route Type to Net</div><div>2. Set Device to XSI-1 device (recorded in B.3 Step 3Error! Reference source not ound. or C.7 Step 5).</div><div>3. Enter Destination: This is the network address of the remote MP server group that will connect to Oracle Communications User Data Repository UDR for ComAgent service.</div><div>4. Enter Netmask for the remote network.</div><div>5. Enter Gateway IP: This is the signaling network gateway for Oracle Communications User Data Repository.</div><div>6. Click Apply.</div></div>	Field	Value	Description	Route Type *	<div><div><input type="radio"/> Net</div><div><input type="radio"/> Default</div><div><input type="radio"/> Host</div></div>	Select a route type. [Default = N/A. Options = Net, Default, Host. You can configure at most one IPV4 default route and one IPV6 default route on a given target machine.] [A value is required.]	Device *	<div>- Select Device -</div>	Select the network device name through which traffic is being routed. The selction of AUTO will result in the device being selected automatically, if possible. [Default = N/A. Range = Provisioned devices on the selected server. [A value is required.]	Destination	<div></div>	The destination network address. [Default = N/A. Range = Valid Network Address of the network in dotted decimal (IPv4) or colon hex (IPv6) format.]	Netmask	<div></div>	A valid netmask for the network route destination IP address. [Default = N/A. Range = Valid Netmask for the network in prefix length (IPv4 or IPv6) or dotted decimal (IPv4) format.]	Gateway IP *	<div></div>	The IP address of the gateway for this route. [Default = N/A. Range = Valid IP address of the gateway in dotted decimal (IPv4) or colon hex (IPv6) format.] [A value is required.]
Field	Value	Description																		
Route Type *	<div><div><input type="radio"/> Net</div><div><input type="radio"/> Default</div><div><input type="radio"/> Host</div></div>	Select a route type. [Default = N/A. Options = Net, Default, Host. You can configure at most one IPV4 default route and one IPV6 default route on a given target machine.] [A value is required.]																		
Device *	<div>- Select Device -</div>	Select the network device name through which traffic is being routed. The selction of AUTO will result in the device being selected automatically, if possible. [Default = N/A. Range = Provisioned devices on the selected server. [A value is required.]																		
Destination	<div></div>	The destination network address. [Default = N/A. Range = Valid Network Address of the network in dotted decimal (IPv4) or colon hex (IPv6) format.]																		
Netmask	<div></div>	A valid netmask for the network route destination IP address. [Default = N/A. Range = Valid Netmask for the network in prefix length (IPv4 or IPv6) or dotted decimal (IPv4) format.]																		
Gateway IP *	<div></div>	The IP address of the gateway for this route. [Default = N/A. Range = Valid IP address of the gateway in dotted decimal (IPv4) or colon hex (IPv6) format.] [A value is required.]																		

Step	Procedure	Result
10. <input type="checkbox"/>	NOTES: Destination would be DR Site XSI1 Address if configuring Primary Site and vice-versa. Netmask would be DR Site XSI1 Address if configuring Primary Site and vice-versa. Gateway IP would be Primary Site XSI1 Gateway if configuring Primary Site and vice-versa.	
11. <input type="checkbox"/>	Active UDR VIP: Click the “Logout” link on the server GUI.	
THIS PROCEDURE HAS BEEN COMPLETED		

7.2 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.

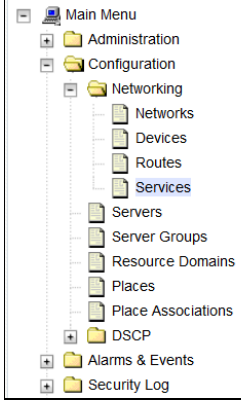
Requirements:

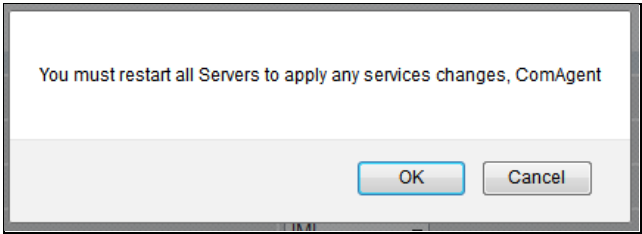
- Section 7.1 Configure UDR Signaling Routes (All NOAM Sites) has been completed

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

Procedure 12: Configure Services on Signaling Network

Step	Procedure	Result
1. <input type="checkbox"/>	Active UDR VIP: Launch an approved web browser and connect to the UDR Server A IP address NOTE: Select Continue to this website (not recommended) if presented with the “security certificate” warning. Login to the GUI using the default user and password.	

Step	Procedure	Result																								
2. <input type="checkbox"/>	Active UDR VIP: Navigate to Main Menu → Configuration → Services	 <p>Main Menu: Configuration -> Networking -> Services</p> <table border="1"> <thead> <tr> <th>Name</th><th>Intra-NE Network</th><th>Inter-NE Network</th></tr> </thead> <tbody> <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>xmi</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>xmi</td></tr> </tbody> </table>	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
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																								

Step	Procedure	Result																								
3. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>1. Set two services values:</p> <p>Inter-NE HA_Secondary → XSI1</p> <p>Inter-NE ComAgent → XSI1</p> <p>2. Click Apply.</p> <p>3. Click OK.</p>	<table border="1"> <thead> <tr> <th>Name</th><th>Intra-NE Network</th><th>Inter-NE Network</th></tr> </thead> <tbody> <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>xmi ▼</td></tr> </tbody> </table>  <p>UDR Servers must be restarted.</p>	Name	Intra-NE Network	Inter-NE Network	OAM	imi ▼	xmi ▼	Replication	imi ▼	xmi ▼	Signaling	Unspecified ▼	Unspecified ▼	HA_Secondary	imi ▼	XSI1 ▼	HA_MP_Secondary	imi ▼	xmi ▼	Replication_MP	imi ▼	xmi ▼	ComAgent	imi ▼	xmi ▼
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ComAgent	imi ▼	xmi ▼																								

Step	Procedure	Result																																			
4. <input type="checkbox"/>	Active UDR VIP: The Services configuration screen opens.	<table><thead><tr><th>Name</th><th>Intra-NE Network</th><th>Inter-NE Network</th></tr></thead><tbody><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>xmi</td></tr></tbody></table>	Name	Intra-NE Network	Inter-NE Network	OAM	imi	xmi	Replication	imi	xmi	Signaling	Unspecified	Unspecified	HA_Secondary	imi	XSI1	HA_MP_Secondary	imi	xmi	Replication_MP	imi	xmi	ComAgent	imi	xmi											
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HA_MP_Secondary	imi	xmi																																			
Replication_MP	imi	xmi																																			
ComAgent	imi	xmi																																			
5. <input type="checkbox"/>	Reboot all UDR Servers	<p>Reboot all UDR servers either by the Active UDR GUI's</p> <p>Go to Status & Manage → Server screen and click Reboot.</p> <div><p>Main Menu: Status & Manage -> Server</p><div><div>Filter* ▼</div><table><thead><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></thead><tbody><tr><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Man</td><td>Norm</td></tr></tbody></table><div><div>Stop</div><div>Restart</div><div>Reboot</div><div>NTP Sync</div><div>Report</div></div></div></div> <p>Or on the terminal of each server with the reboot command:</p> <pre>\$ sudo reboot</pre> <p>NOTE: This should be executed on all UDRs.</p>	Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc	DR-OCUDR-A	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm	DR-OCUDR-B	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm	OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm	OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm
Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc																															
DR-OCUDR-A	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm																															
DR-OCUDR-B	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm																															
OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm																															
OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm																															
THIS PROCEDURE HAS BEEN COMPLETED																																					

7.3 Accept Installation

This procedure accepts the installation/upgrade on any servers that have not already been accepted. Depending on the manner of installation, there may be no servers that require acceptance at this point in 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.

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

Procedure 13: Accept Installation

Step	Procedure	Result
1. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Launch an approved web browser and connect to the UDR Server A IP address</p> <p>NOTE: Select Continue to this website (not recommended) if presented with the security certificate warning.</p> <p>Login to the GUI using the default user and password.</p>	
2. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Navigate to Main Menu → Administration → Software Management → Upgrade</p>	

Step	Procedure	Result																						
3. <input type="checkbox"/>	Active UDR VIP (GUI): Accept upgrade for selected servers.	<p>Accept upgrade of selected servers:</p> <ol style="list-style-type: none">1. Select the server on which upgrade has not yet been accepted.2. Click Accept. <div><p>Main Menu: Administration -> Software Management -> Upgrade</p><p>Filter* Tasks</p><p>DR_NO_SG NO_SG</p><table><thead><tr><th>Hostname</th><th>Upgrade State</th><th>OAM HA Role</th><th>Server Role</th></tr><tr><th></th><th>Server Status</th><th>Appl HA Role</th><th>Network Element</th></tr></thead><tbody><tr><td rowspan="2">OCUDR-A</td><td>Backup Needed</td><td>Active</td><td>Network OAM&P</td></tr><tr><td>Err</td><td>N/A</td><td>Site1_NE_NO</td></tr><tr><td rowspan="2">OCUDR-B</td><td>Backup Needed</td><td>Standby</td><td>Network OAM&P</td></tr><tr><td>Err</td><td>N/A</td><td>Site1_NE_NO</td></tr></tbody></table><p>Backup Upgrade Server Accept Report Report All</p></div> <p>A confirmation dialog warns that after the upgrade is accepted, the servers will not be able to revert back to their previous image states.</p> <div><p>The page at https://10.240.42.20 says:</p><p>WARNING: Selecting OK will result in the selected server being set to ACCEPT for its upgrade mode. Once accepted, the server will NOT be able to revert back to its previous image state.</p><p>Accept the upgrade for the following server?</p><p>BL908070109-NO-A (10.240.56.108)</p><p>OK Cancel</p></div> <ol style="list-style-type: none">3. Click OK <p>The Upgrade Administration screen re-displays.</p> <p>An Informational message indicates the servers on which upgrade was accepted.</p>	Hostname	Upgrade State	OAM HA Role	Server Role		Server Status	Appl HA Role	Network Element	OCUDR-A	Backup Needed	Active	Network OAM&P	Err	N/A	Site1_NE_NO	OCUDR-B	Backup Needed	Standby	Network OAM&P	Err	N/A	Site1_NE_NO
Hostname	Upgrade State	OAM HA Role	Server Role																					
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OCUDR-A	Backup Needed	Active	Network OAM&P																					
	Err	N/A	Site1_NE_NO																					
OCUDR-B	Backup Needed	Standby	Network OAM&P																					
	Err	N/A	Site1_NE_NO																					
4. <input type="checkbox"/>	Active UDR VIP: Accept upgrade of the rest of the system	<ol style="list-style-type: none">1. Accept Upgrade on all remaining servers in the system:2. 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. <p>Note: As the upgrade is accepted on each server the corresponding Alarm ID 32532 (Server Upgrade Pending Accept/Reject) is removed.</p>																						

Step	Procedure	Result
5. <input type="checkbox"/>	Active UDR VIP: Verify accept	<p>Check that alarms are removed:</p> <p>1. Navigate to Alarms & Events > View Active</p> <div data-bbox="571 256 1412 384" data-label="Image"> </div> <p>2. Verify that Alarm ID 32532 (Server Upgrade Pending Accept/Reject) is not displayed under active alarms on User Data Repository system</p>
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix A. VMWare vSphere Environment setup

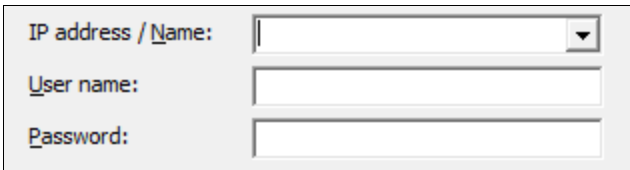
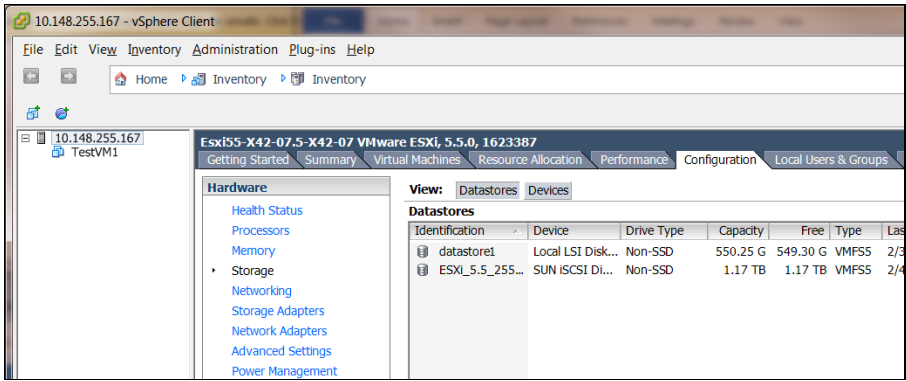
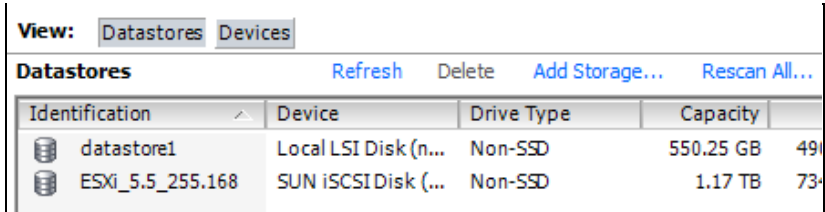
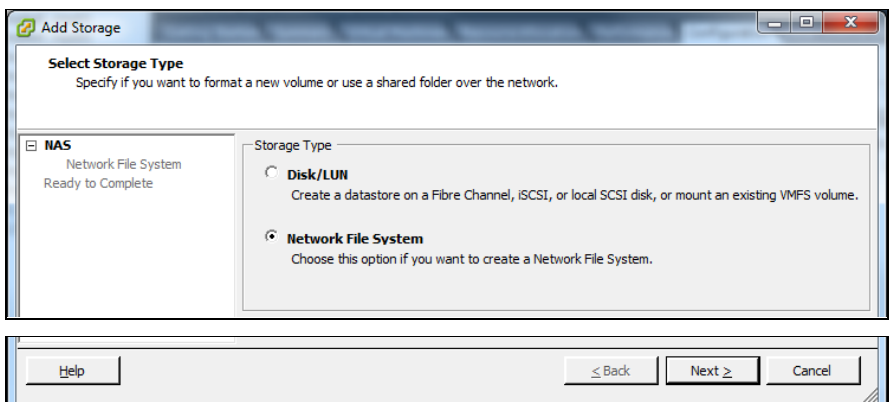
A.1 HOST DATASTORE CONFIGURATION USING VSPHERE

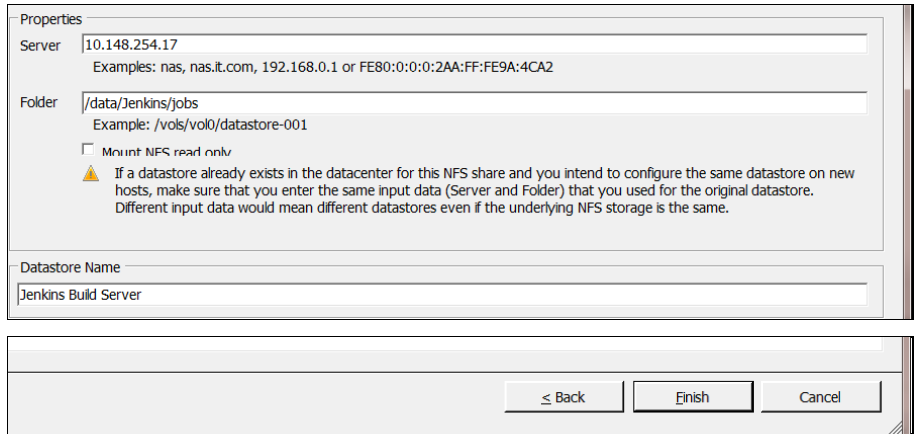
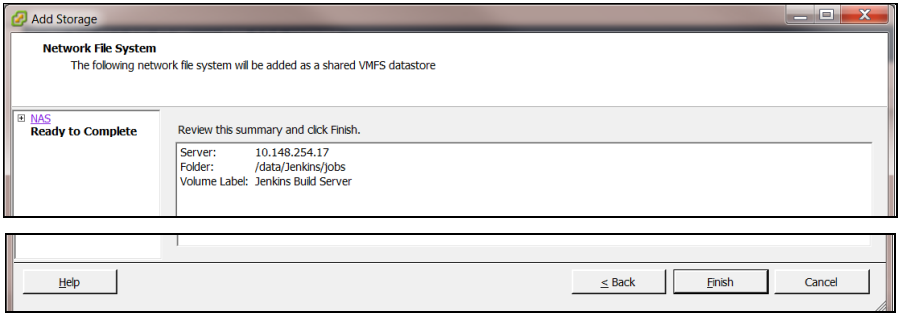
This procedure is executed to properly configure a datastore on the Host so that the appropriate storage is available for Oracle Communications User Data Repository component VMs. Steps and screenshots are taken from vSphere Client.

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

If this procedure fails, contact My Oracle Support, and ask for assistance.

Procedure14: Host Datastore Configuration with vSphere

Step	Procedure	Details
1. <input type="checkbox"/>	Log into the Vmware client	
2. <input type="checkbox"/>	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. <input type="checkbox"/>	VMware client: Click Add Storage	
4. <input type="checkbox"/>	VMware client: 1. Select Network File System storage type 2. Click Next	

Step	Procedure	Details
5. <input type="checkbox"/>	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. <input type="checkbox"/>	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 Oracle Communications User Data Repository 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 ethernet.


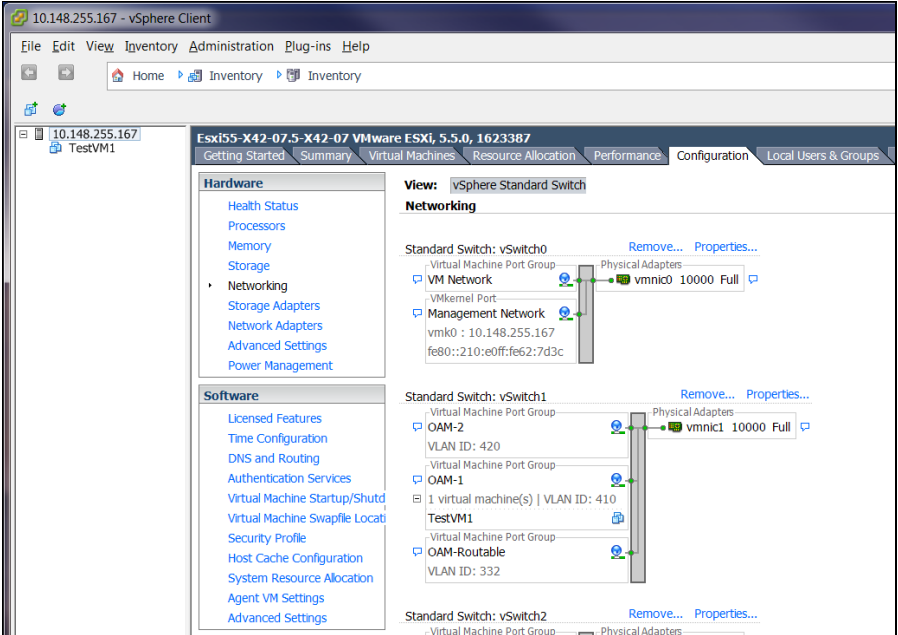
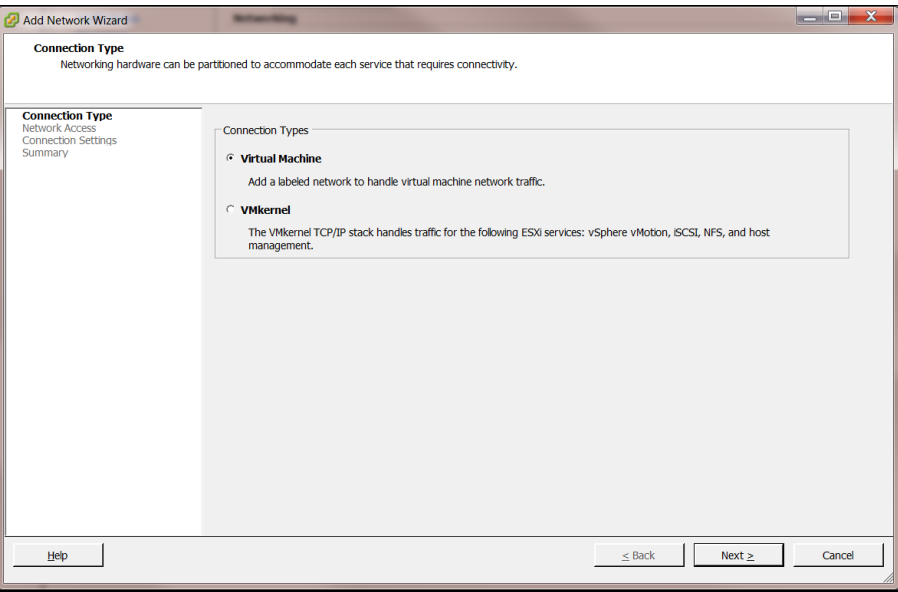
Oracle Communications User Data Repository VMs can be associated with up to 5 vLAN Networks. All 5 vNICs should be created and configured in order to be available for the Guest. The expected vNICs correspond to the following dedicated interfaces of the Oracle Communications User Data Repository and so the recommendation is the label them similarly:

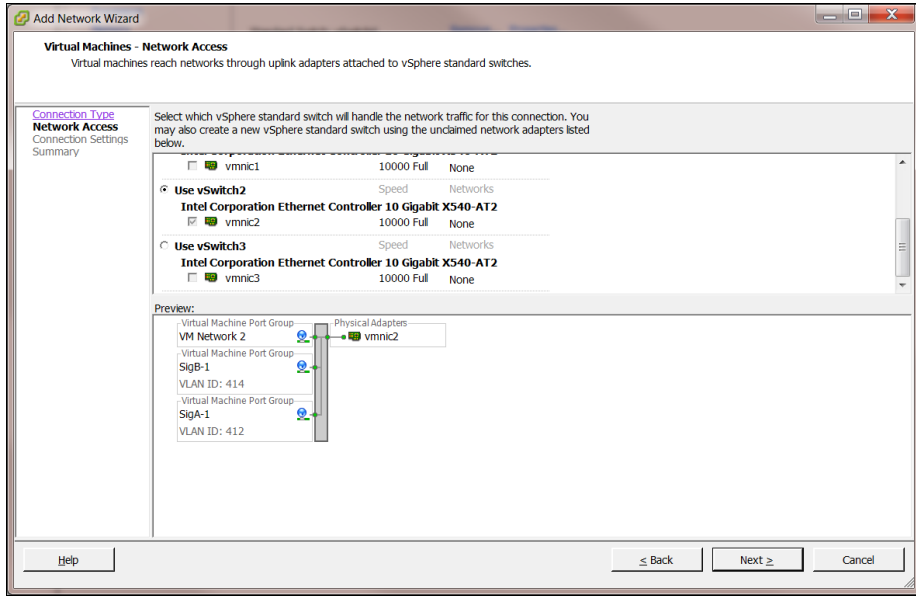
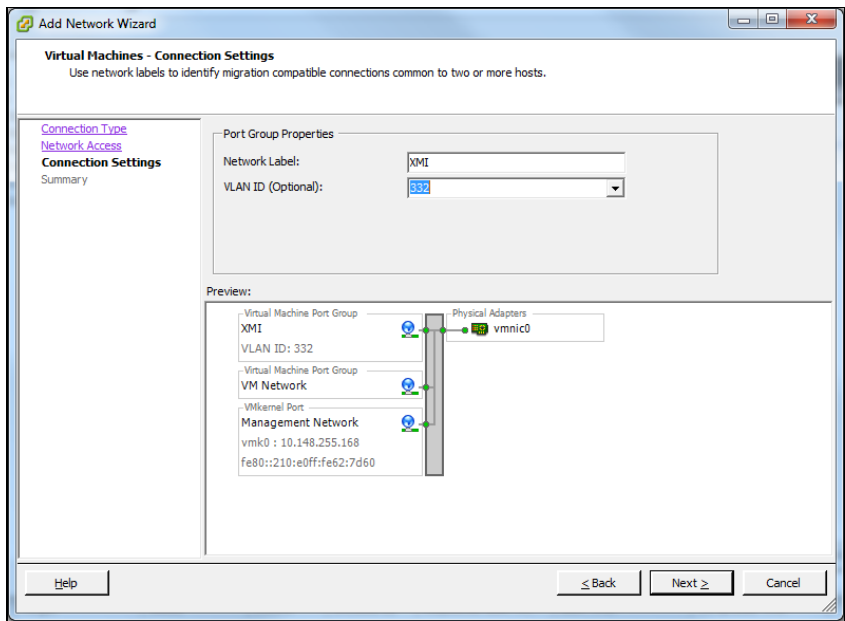
- XMI
OAM Management Interface for the application
- XSI1
Signaling Interface
- XSI2
Signaling Interface
- IMI
Replication Interface
- Guest Management
Reserved for Guest management activities.

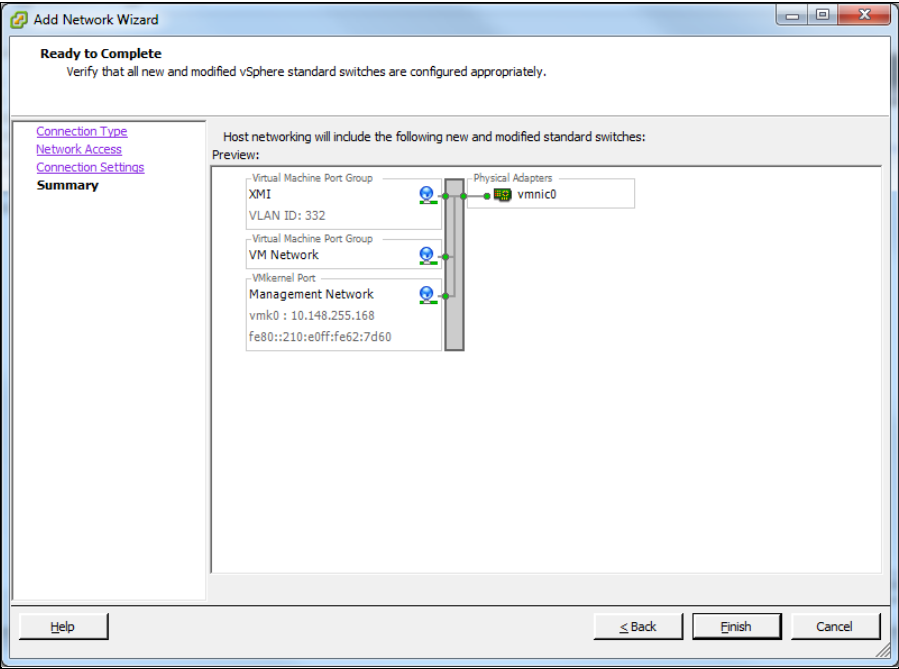
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

If this procedure fails, contact My Oracle Support, and ask for assistance.

Procedure15: Host Networking Configuration with vSphere

Step	Procedure	Details
7. <input type="checkbox"/>	Log into the Vmware client	
8. <input type="checkbox"/>	VMware client: 1. Select the Host on the left tree menu 2. Click Configuration tab on right 3. Click Networking under Hardware menu	
9. <input type="checkbox"/>	VMware client: 1. Select Add Networking from top 2. Select connection type Virtual Machine and click Next	

Step	Procedure	Details
10. <input type="checkbox"/>	VMware client: Select appropriate vSwitch type based on the Host hardware and click Next	
11. <input type="checkbox"/>	VMware client: Label the Network, enter its VLAN ID, click Next	 <p>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.</p>

Step	Procedure	Details
12. <input type="checkbox"/>	VMware client: Review input and click Finish	
13. <input type="checkbox"/>	Repeat this procedure for each network	Repeat this procedure for each network type that will be supported by this VMWare host: <input type="checkbox"/> XMI <input type="checkbox"/> IMI <input type="checkbox"/> XSI-1 <input type="checkbox"/> XSI-2 (optional)
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix B. VMware vSphere Oracle Communications User Data Repository Deployment

B.1 CREATE GUESTS FROM OVA

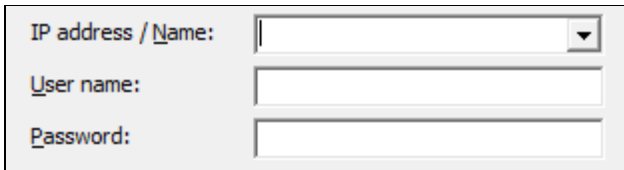
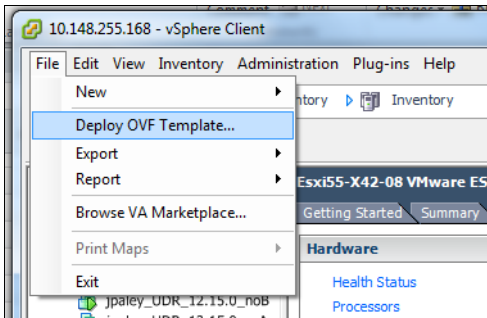
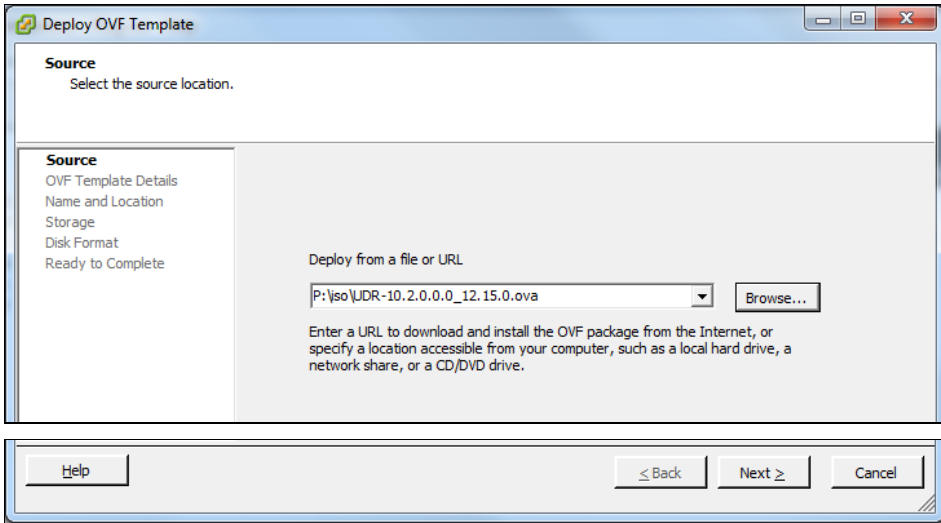
This procedure creates Oracle Communications User Data Repository virtual machines (guests) from OVA.

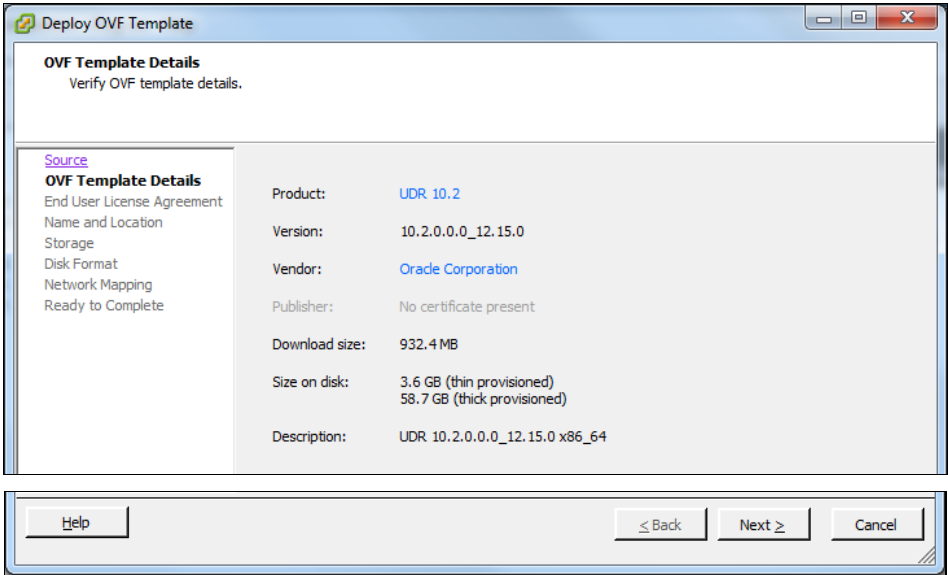

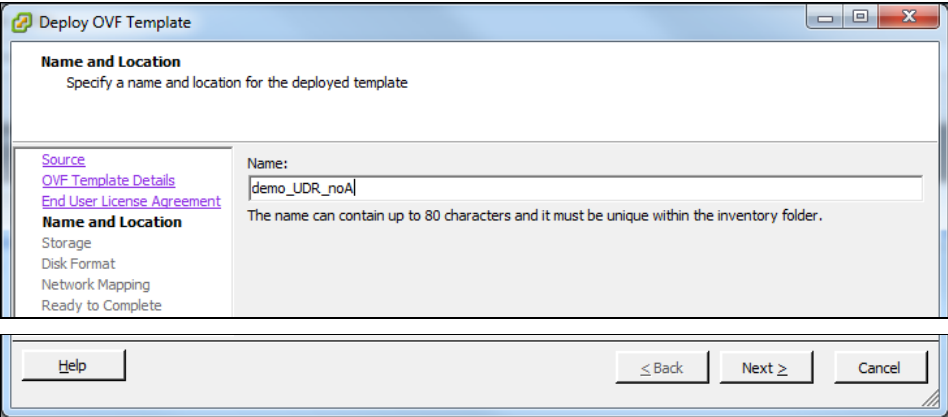
Needed material:

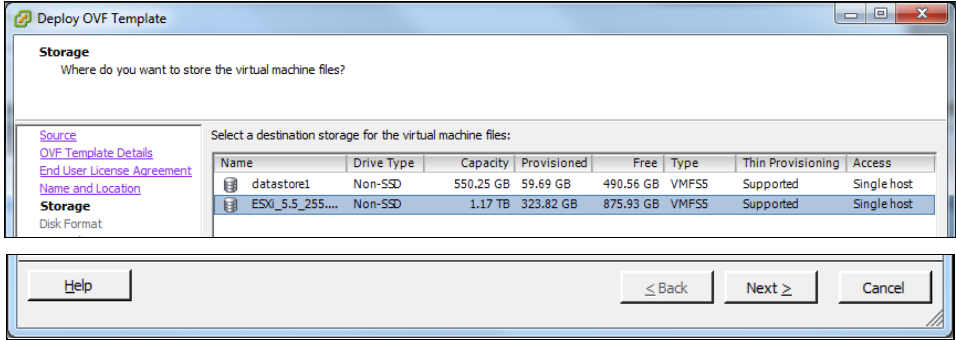
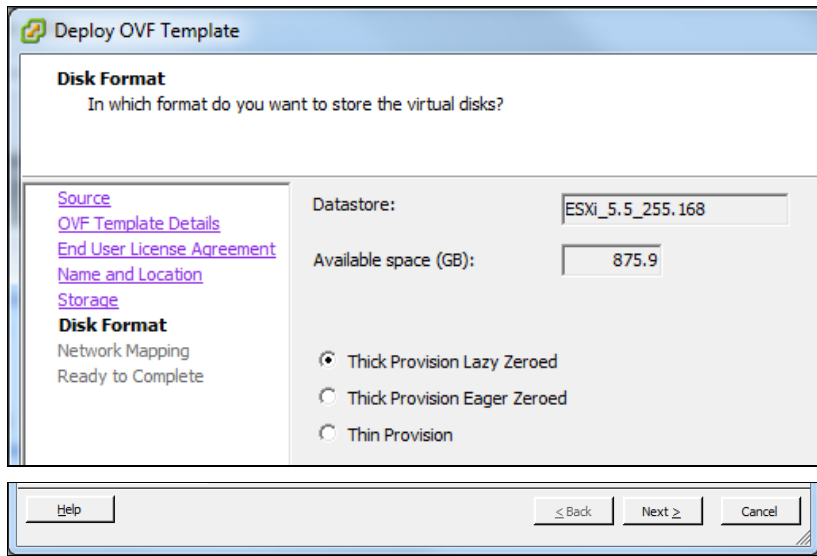
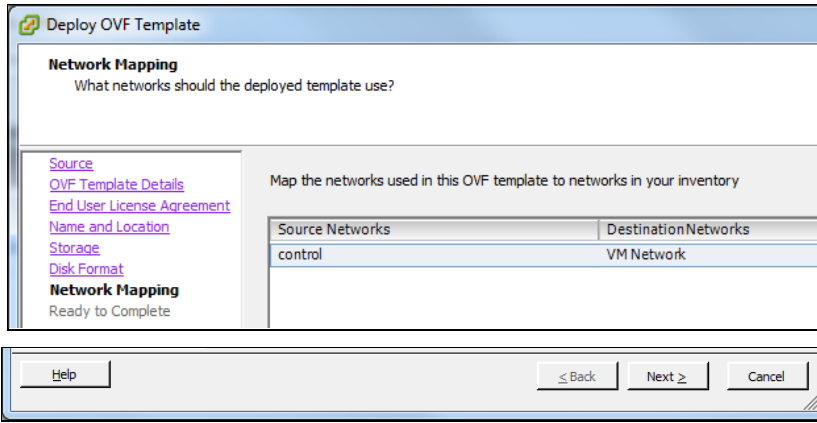
- Oracle Communications User Data Repository OVA

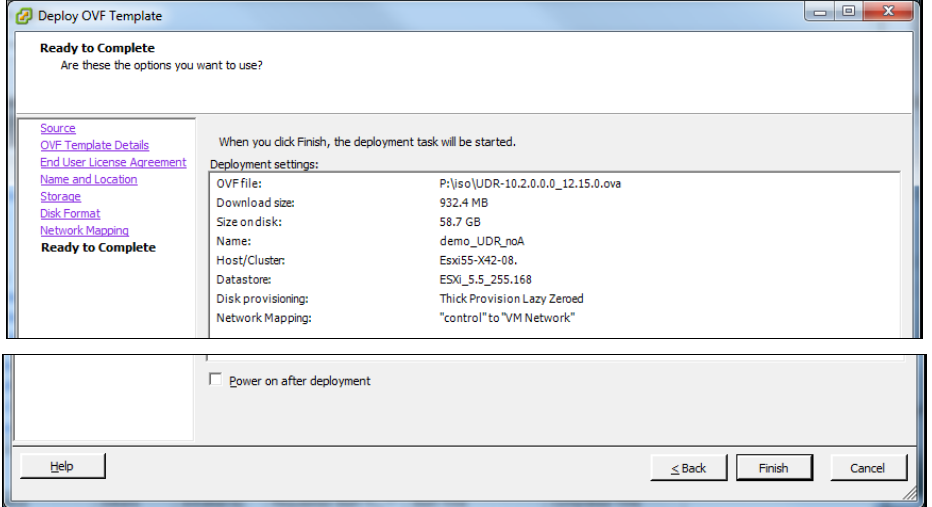
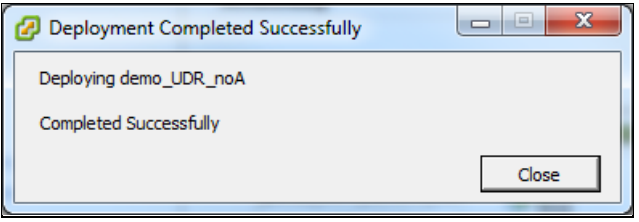
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

Procedure16: Deploy Oracle Communications User Data Repository OVA

Step	Procedure	Result
1. <input type="checkbox"/>	Log into the VMware client	
2. <input type="checkbox"/>	VMware client: Navigate to File → Deploy OVF Template	
3. <input type="checkbox"/>	VMware client: 1. Click Browse and select the OVA file 2. Click Next .	

Step	Procedure	Result
4. <input type="checkbox"/>	VMware client: Details screen displays, click Next	
5. <input type="checkbox"/>	VMware client: Accept End User License Agreement by clicking Accept button then click Next	
6. <input type="checkbox"/>	VMware client: Name the virtual machine and click Next	

Step	Procedure	Result
7. <input type="checkbox"/>	VMware client: Select destination storage for the virtual machine from the list of available data stores then click Next .	 <p>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 Oracle Communications User Data Repository Installation and Configuration Guide, E72453, latest revision.</p>
8. <input type="checkbox"/>	VMware client: Choose Thick Provision Lazy Zeroed and click Next	
9. <input type="checkbox"/>	VMware client: Click Next	

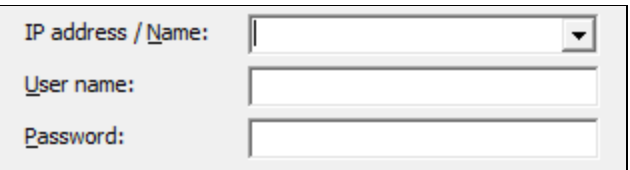
Step	Procedure	Result
10. <input type="checkbox"/>	VMware client: Review deployment settings and click Finish	
11. <input type="checkbox"/>	VMware client: After a wait a deployment status message is displayed. Click Close .	
THIS PROCEDURE HAS BEEN COMPLETED		

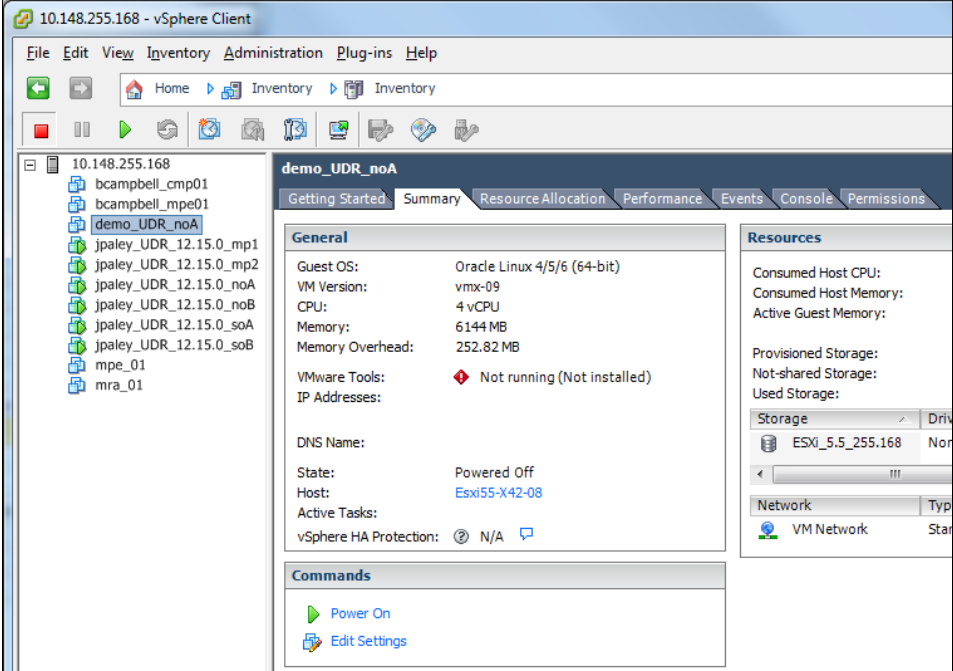
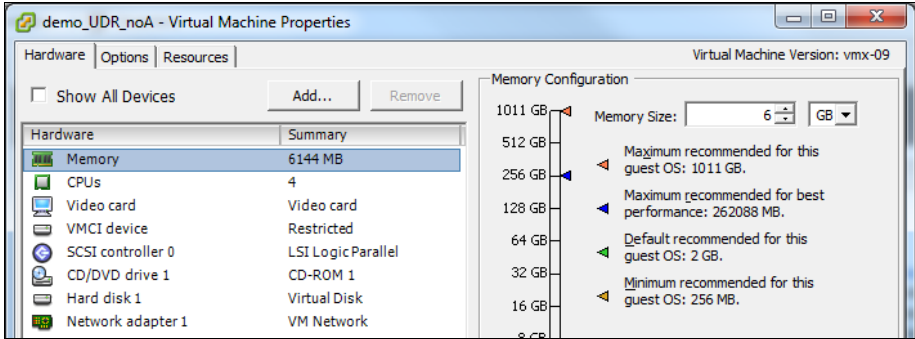
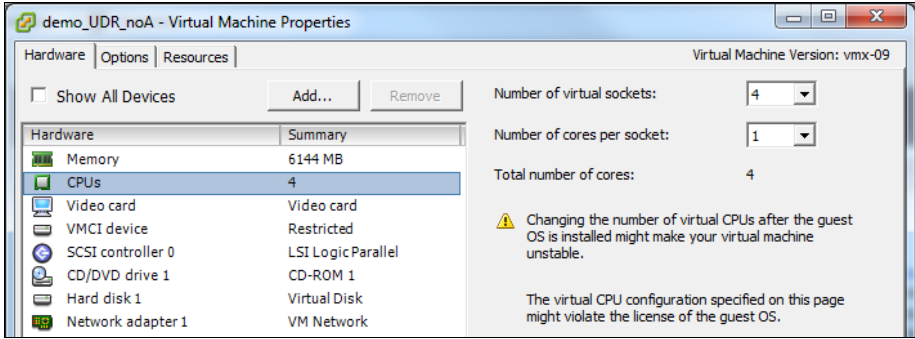
B.2 CONFIGURE GUEST RESOURCES

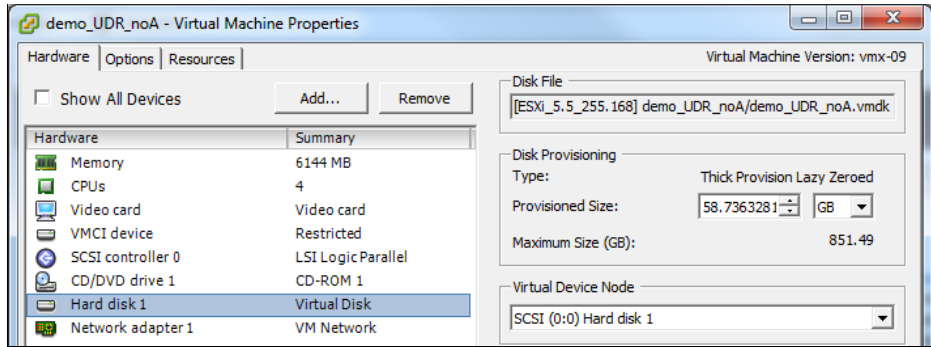
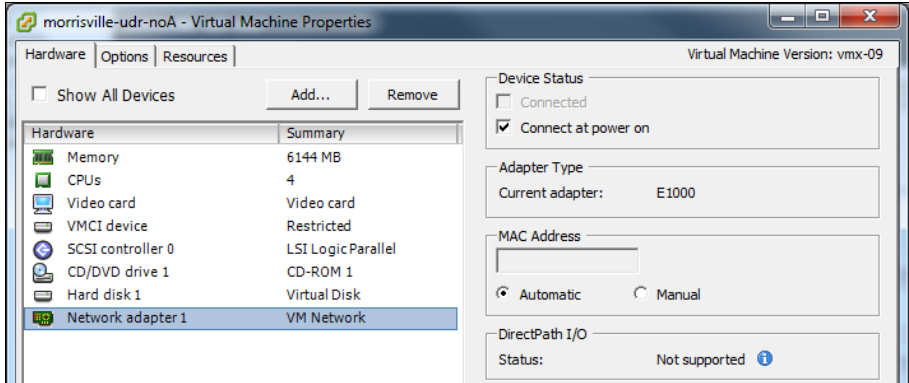
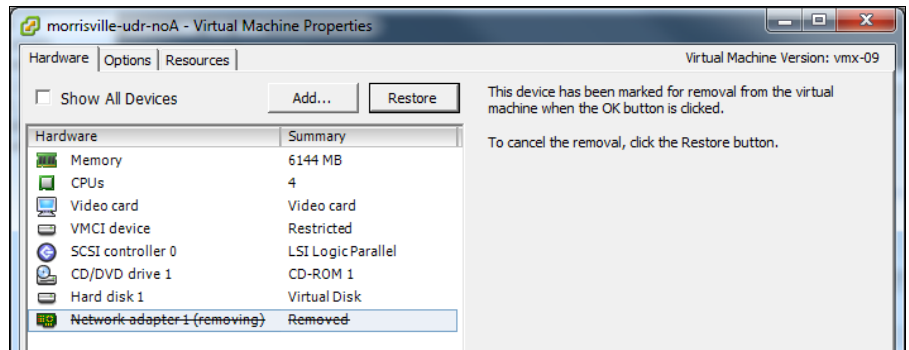
This procedure configures the required resource allocations and associations for Oracle Communications User Data Repository virtual machines (guests) and power them on.

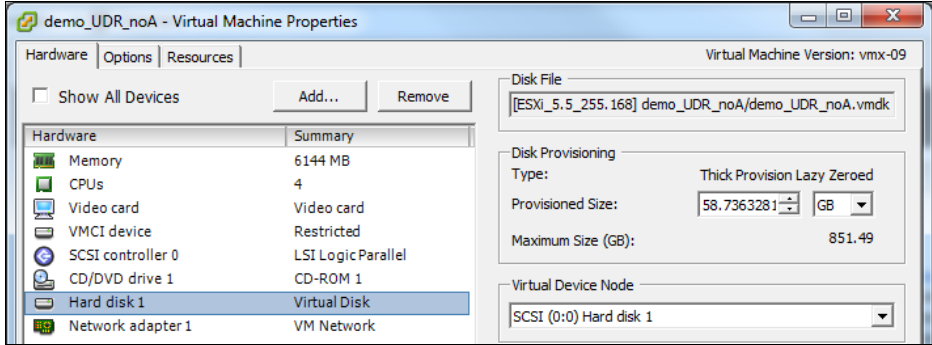
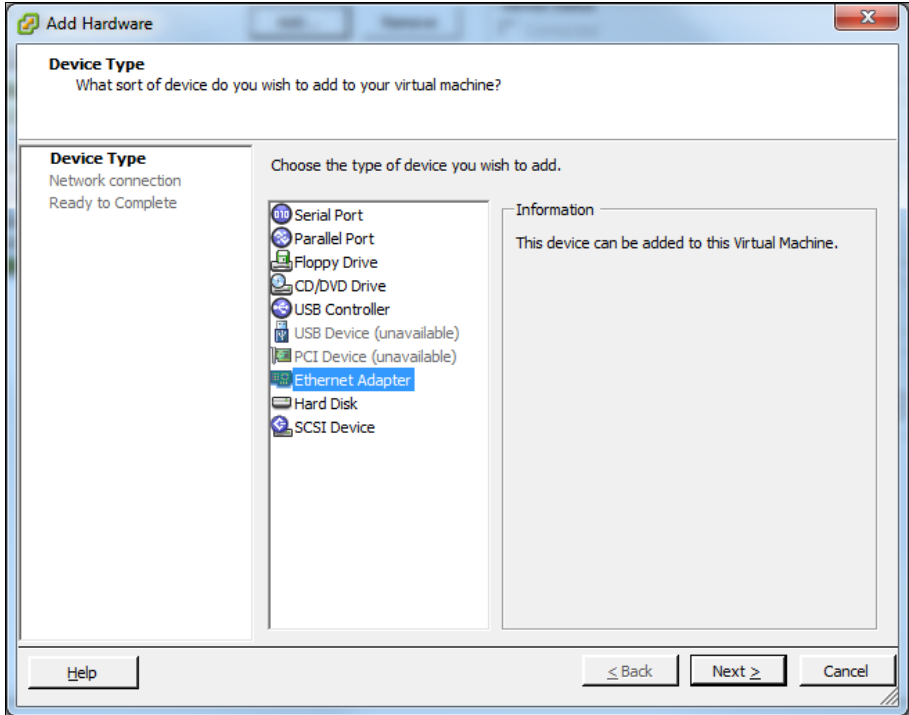
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

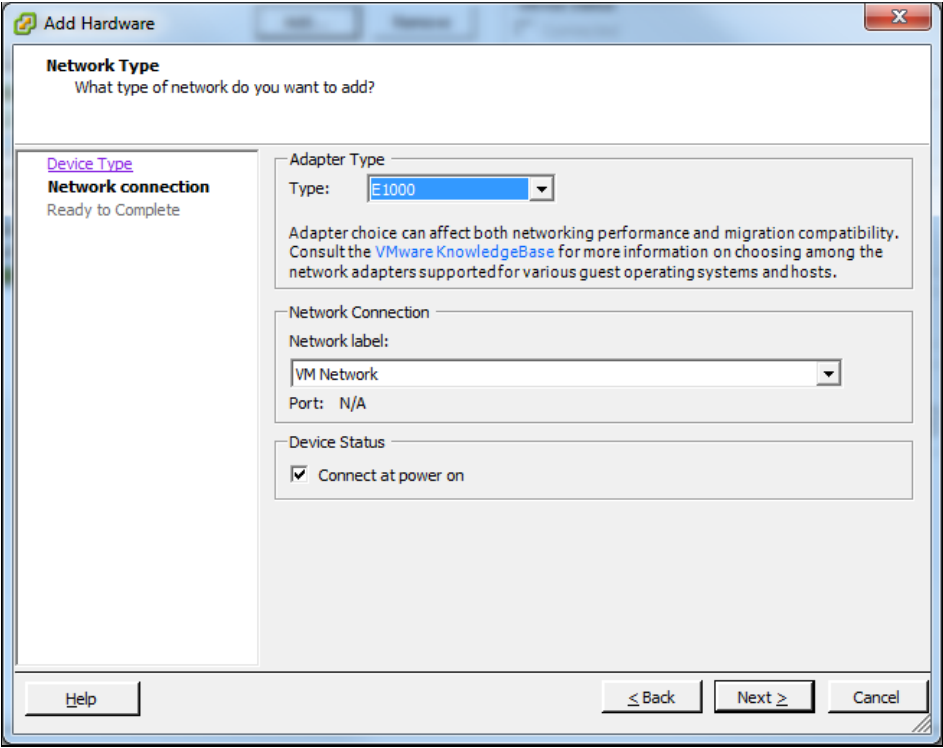
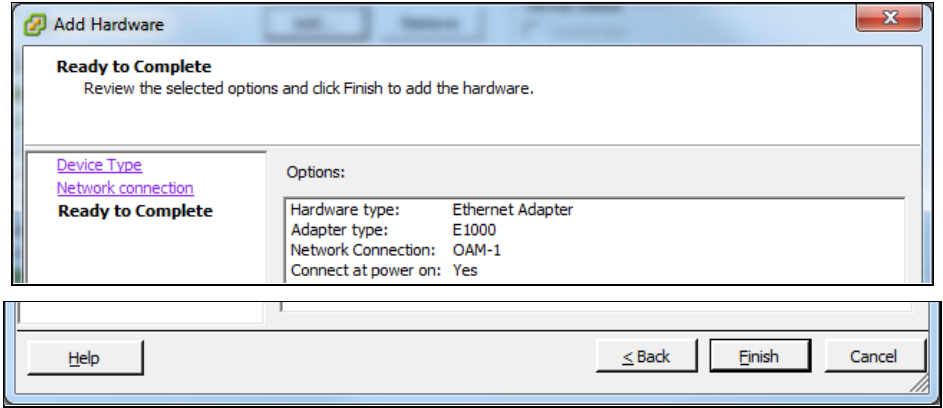
Procedure17: Configure Guest Resources

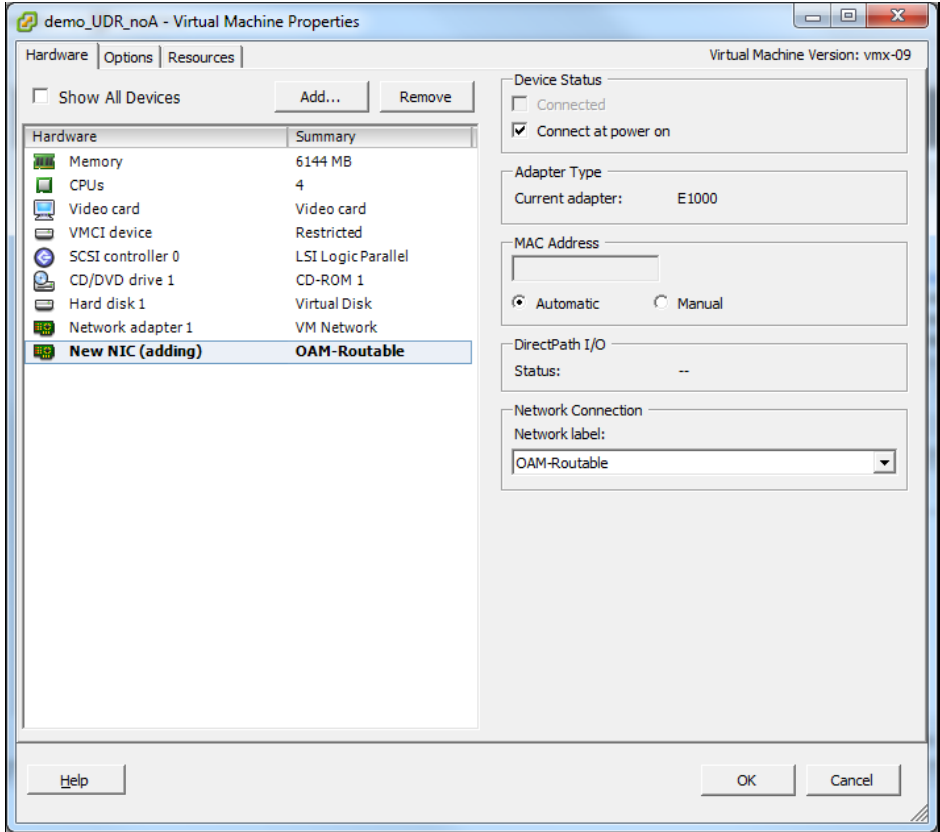
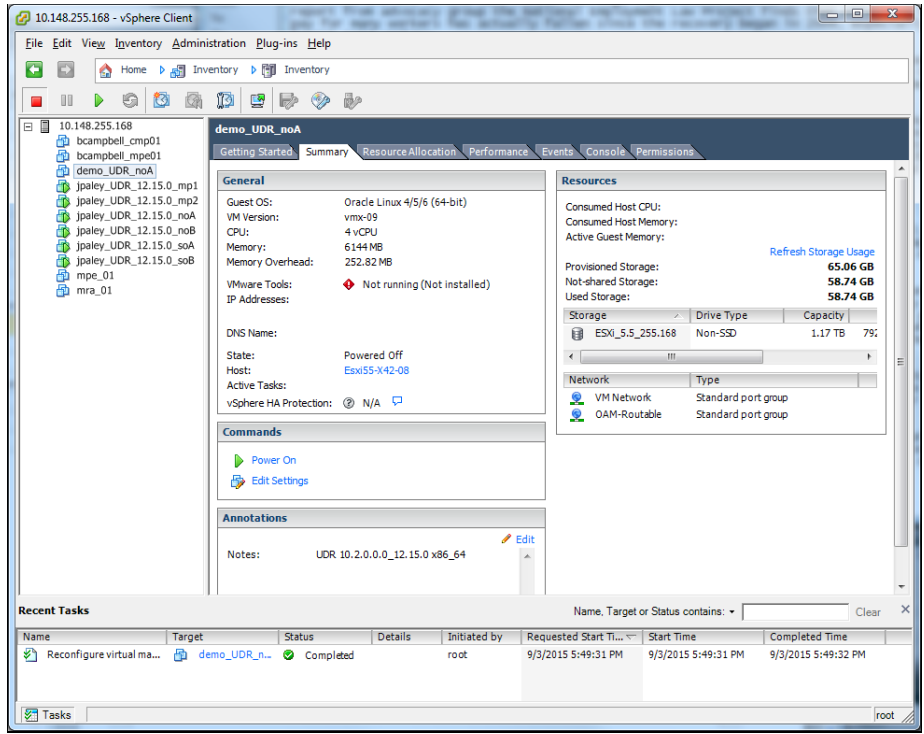
Step	Procedure	Result
1. <input type="checkbox"/>	VMware client: Log into the VMware client	

Step	Procedure	Result
2. <input type="checkbox"/>	VMware client: <ol style="list-style-type: none"> Select the Oracle Communications User Data Repository virtual machine from the left tree menu Click Summary tab Click Edit Settings under Commands 	
3. <input type="checkbox"/>	VMware client: <p>Select Memory from the Hardware menu and adjust Memory Size for the server's role UDR: 48 GB</p>	
4. <input type="checkbox"/>	VMware client: <p>Select CPUs from the Hardware menu and adjust the Number of virtual sockets according to [1] Error! eference source not found..</p>	

Step	Procedure	Result								
5. <input type="checkbox"/>	VMware client: Select Hard disk 1 from the Hardware menu and adjust the Provisioned Size according to [1].									
6. <input type="checkbox"/>	VMware client: 1. Select any Network adapter that may exist by default 2. Click Remove tab									
7. <input type="checkbox"/>	VMware client: The network adapter will be crossed out and a removal message displayed									
8. <input type="checkbox"/>	VMware client: Take note of the order in which networks are added.	<p>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:</p> <table><tr><th colspan="2">UDR</th></tr><tr><td>1. <input type="checkbox"/></td><td>XMI</td></tr><tr><td>2. <input type="checkbox"/></td><td>IMI</td></tr><tr><td>3. <input type="checkbox"/></td><td>XSI-1 (optional)</td></tr></table>	UDR		1. <input type="checkbox"/>	XMI	2. <input type="checkbox"/>	IMI	3. <input type="checkbox"/>	XSI-1 (optional)
UDR										
1. <input type="checkbox"/>	XMI									
2. <input type="checkbox"/>	IMI									
3. <input type="checkbox"/>	XSI-1 (optional)									

Step	Procedure	Result
9. <input type="checkbox"/>	VMware client: Click Add on the Hardware tab.	
10. <input type="checkbox"/>	VMware client: Select Ethernet Adapter from the list of devices and click Next	

Step	Procedure	Result
11. <input type="checkbox"/>	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. <input type="checkbox"/>	VMware client: Confirm Option settings and click Finish	
13. <input type="checkbox"/>	VMware client: Repeat as required	Repeat Steps 9 through 12 to add every network appropriate for the server's role.


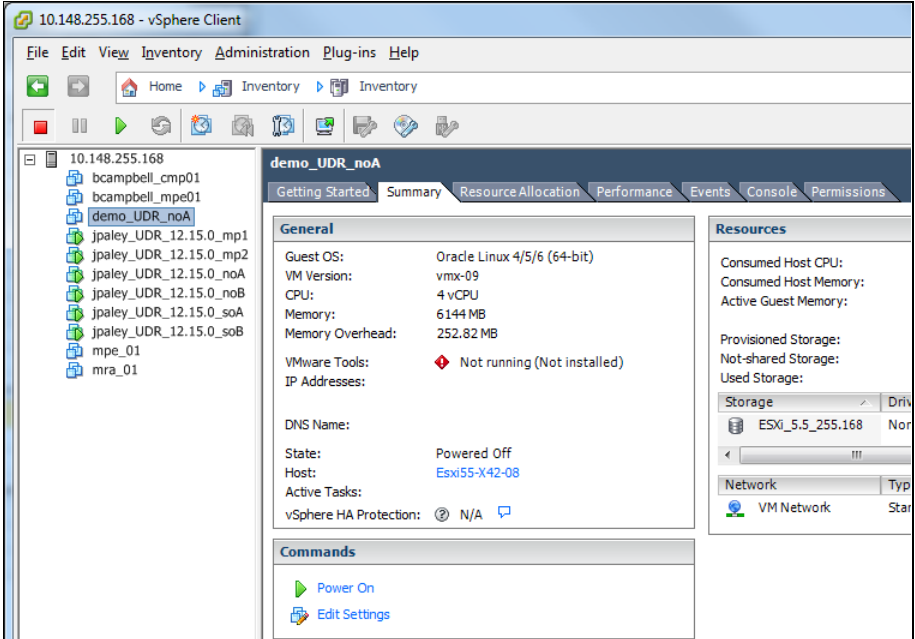
Step	Procedure	Result
14. <input type="checkbox"/>	VMware client: After all networks are added, confirm their correct entry in the left Hardware menu then click OK .	
15. <input type="checkbox"/>	VMware client: New devices and networks are shown on the Summary tab and Reconfigure task shows status Completed under Recent Tasks. Click Power On under Commands.	
THIS PROCEDURE HAS BEEN COMPLETED		

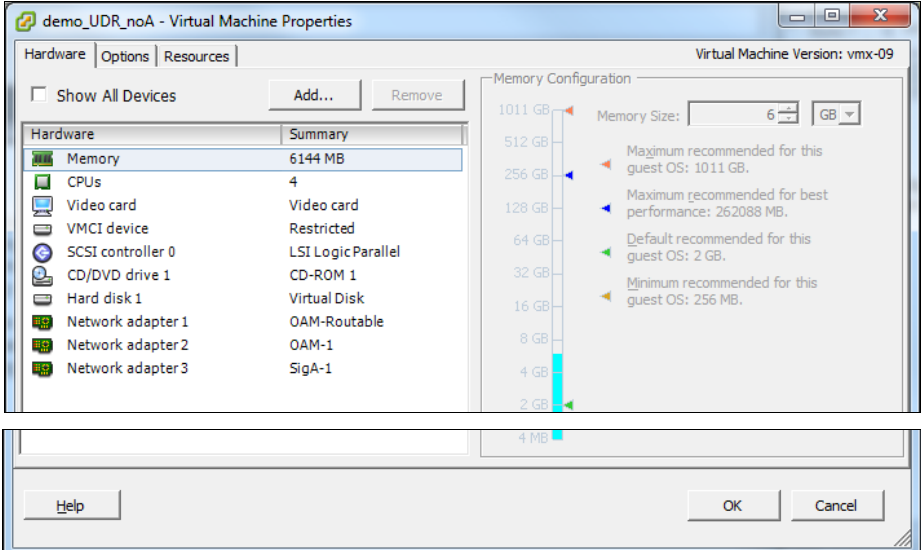
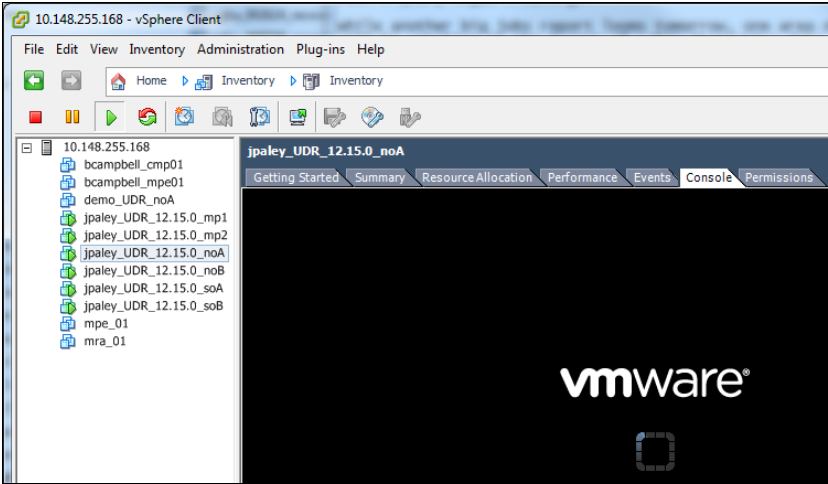
B.3 CONFIGURE GUEST NETWORK

This procedure configures the OAM network on Oracle Communications User Data Repository virtual machines (guests).

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

Procedure18: Configure Guest OAM Network

Step	Procedure	Result
1. <input type="checkbox"/>	Log into the VMware client	
2. <input type="checkbox"/>	VMware client: 1. Select the Oracle Communication s User Data Repository virtual machine from the left tree menu 2. Click the Summary tab 3. Click Edit Settings under Commands	

Step	Procedure	Result
3. <input type="checkbox"/>	<p>VMware client:</p> <ol style="list-style-type: none"> Take note of the Network adapter assignment under Hardware tab for each application network. Click Cancel 	 <p>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.</p> <p>For instance, in the example capture above:</p> <ul style="list-style-type: none"> OAM (XMI) is on eth0 device OAM-1 (IMI) is on eth1 device Sig-A (XSI-1) is on eth2 device <p>Note the device NIC# assignment of the following networks:</p> <p>XMI: _____</p> <p>IMI: _____</p> <p>XSI-1: _____</p> <p>XSI-2: _____ (optional)</p>
4. <input type="checkbox"/>	<p>VMware client:</p> <ol style="list-style-type: none"> Click the Console tab Click inside the console window to bring focus there <p>NOTE: Press Ctrl-Alt keys to escape from console.</p>	
5. <input type="checkbox"/>	<p>VM Console:</p> <p>Login to console as admusr</p>	<pre>login as: admusr Password:</pre>

Step	Procedure	Result
6. <input type="checkbox"/>	VM Console: Configure XMI network	<p>1. Set the XMI device for routable OAM access:</p> <p>NOTE: Where ethX is the interface associated with the XMI network</p> <pre>\$ sudo netAdm add --device=eth0 --address=<Guest_XMI_IP_Address> --netmask=<XMI_Netmask> --onboot=yes --bootproto=none</pre> <p>2. Add the default route for XMI:</p> <pre>\$ sudo netAdm add --route=default --gateway=<Gateway_XMI_IP_Address> --device=eth0</pre> <p>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.</p>
7. <input type="checkbox"/>	VM Console: Configure XSI network	<p>Set the XSI device for routable signaling network access (Only for NO and MP Servers):</p> <p>NOTE: Where ethX is the interface associated with the XSI network</p> <pre>\$ sudo netAdm add --device=eth2 --address=<Guest_XSI_IP_Address> --netmask=<XSI_Netmask> --onboot=yes --bootproto=none</pre> <p>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.</p>
8. <input type="checkbox"/>	VM Console: Repeat as required	Repeat Step 7 to add XS1-2 (eth3) if a second signaling network. Adjust input parameter values accordingly.
9. <input type="checkbox"/>	VM Console: Exit console	<pre>\$ exit</pre> <p>NOTE: Press Ctrl-Alt keys to escape from console.</p>
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix C. VMWare vCloud Director Oracle Communications User Data Repository Deployment

C.1 VCLOUD DIRECTOR ORACLE COMMUNICATIONS USER DATA REPOSITORY MEDIA UPLOAD

This procedure will upload Oracle Communications User Data Repository media (ISO or OVA) into vCloud Director Catalogs.

Needed material:


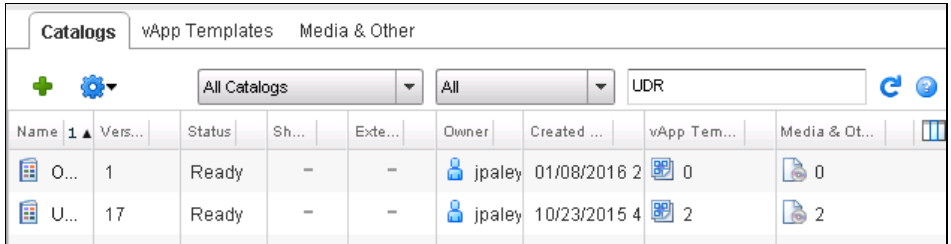
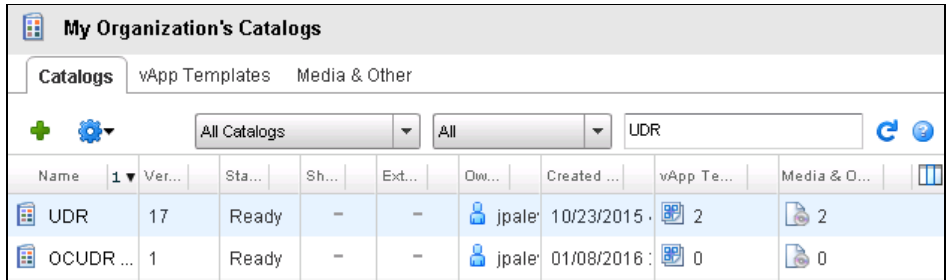
- Oracle Communications User Data Repository OVA

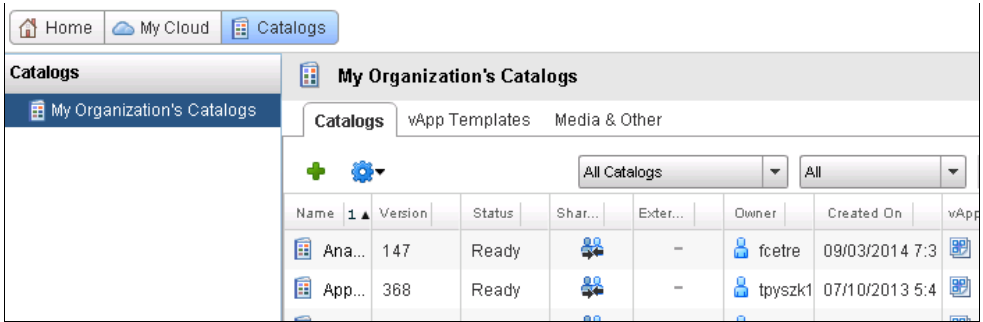
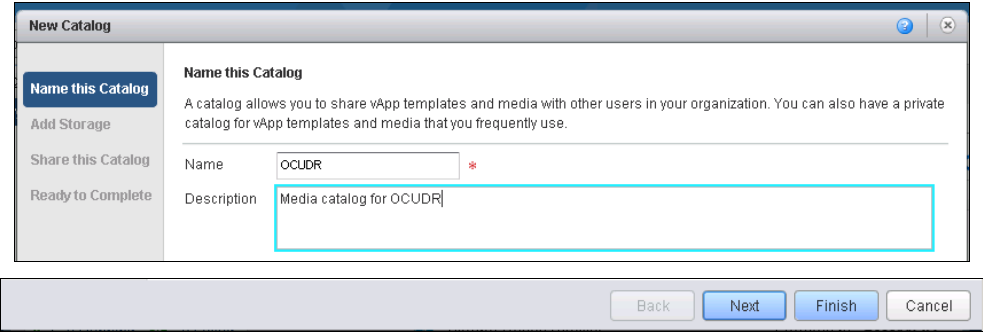

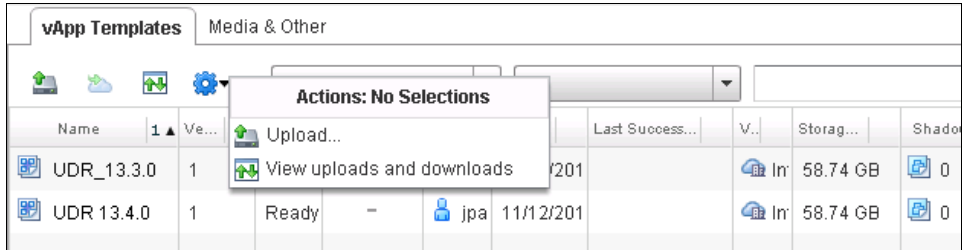
Optional material (required for ISO install only):

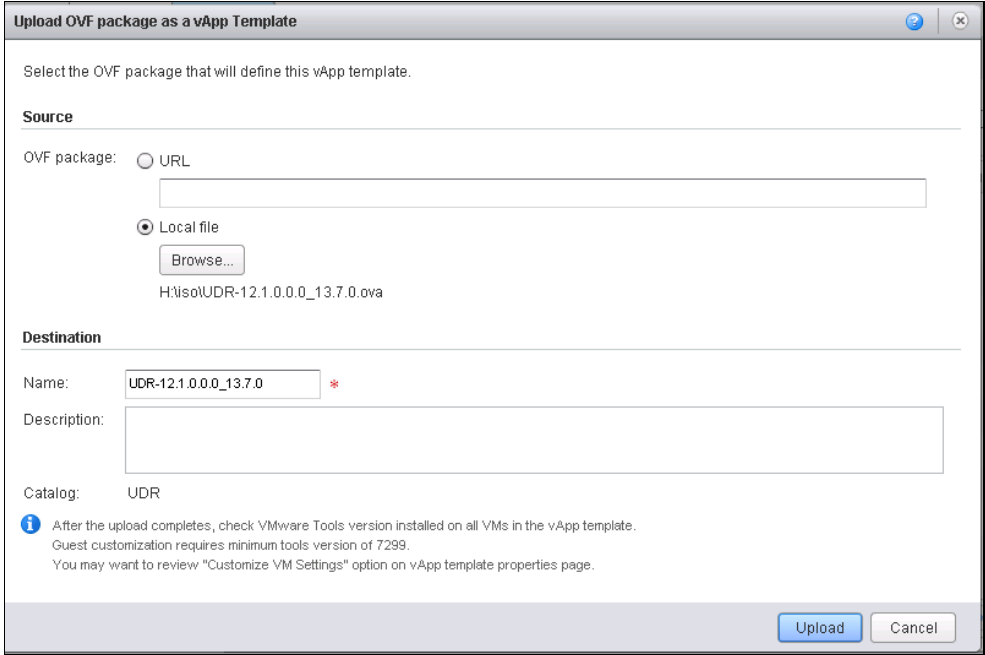
- Oracle Communications User Data Repository ISO
- TPD Platform ISO

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

Procedure19: vCloud Director Oracle Communications User Data Repository Media Upload

Step	Procedure	Result
1. <input type="checkbox"/>	Log into the VMware vCloud Director	
2. <input type="checkbox"/>	vCloud Director: Enter Oracle Communication s User Data Repository catalog name in the search field and hit Enter.	
3. <input type="checkbox"/>	vCloud Director: Click the name for the appropriate catalog and proceed to Step 6	 <p>NOTE: If a catalog for Oracle Communications User Data Repository does not yet exist, create one with the following two steps.</p>

Step	Procedure	Result
4. <input type="checkbox"/>	vCloud Director: Click Catalogs tab. Click the green plus sign.	
5. <input type="checkbox"/>	vCloud Director: 1. Enter the catalog name and description. 2. Unless this catalog requires special storage or sharing, click Finish .	 <p>NOTE: After clicking Finish, return to Step 2 of this procedure to access the new catalog.</p>
6. <input type="checkbox"/>	vCloud Director: Select. vApp Templates for OVA upload or Media & Other for ISO upload	
7. <input type="checkbox"/>	vCloud Director: Click the Blue Gear Symbol and then select Upload	


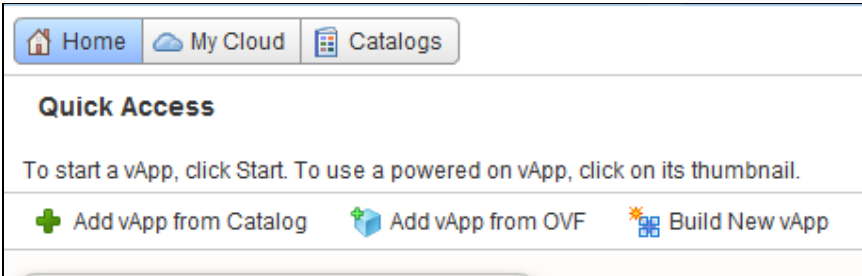
Step	Procedure	Result
8. <input type="checkbox"/>	vCloud Director: Select Source as either URL or local file then input a Name. Click Upload .	
THIS PROCEDURE HAS BEEN COMPLETED		

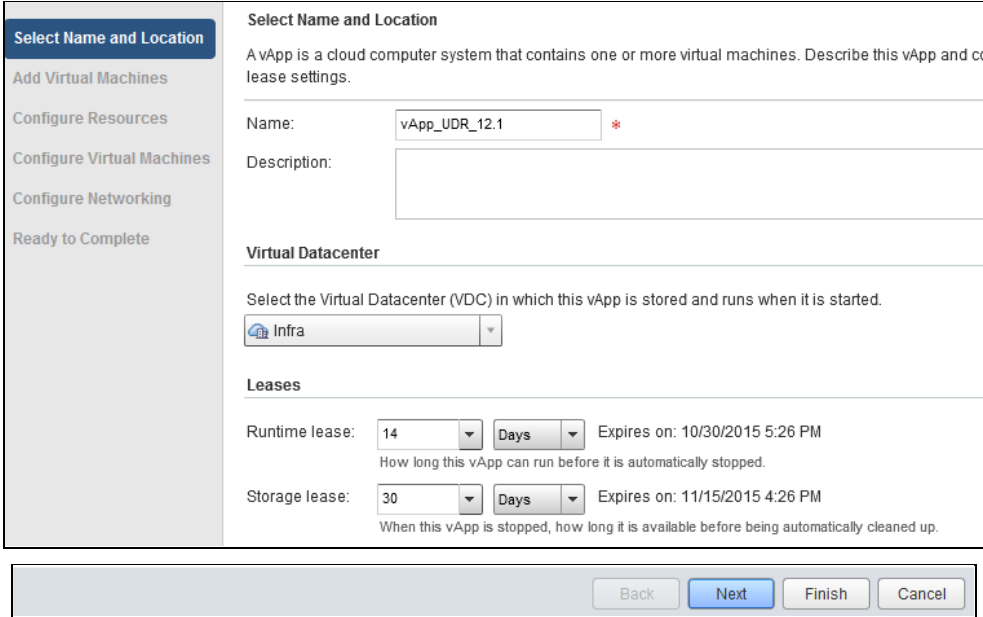
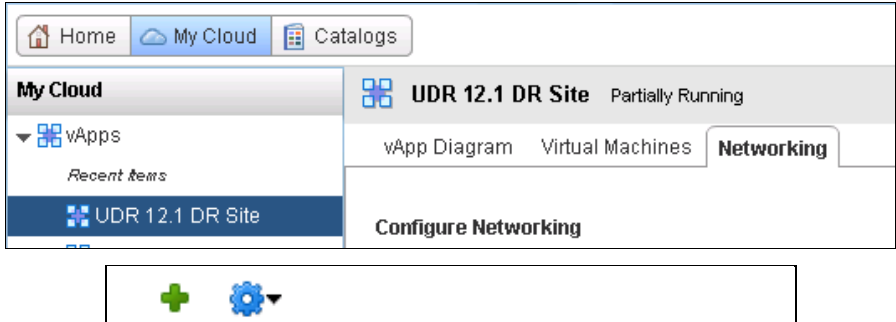
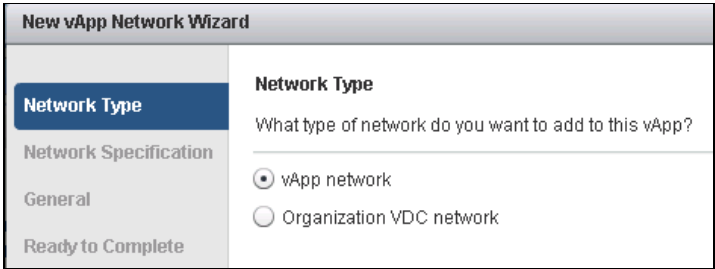
C.2 CREATE VAPP

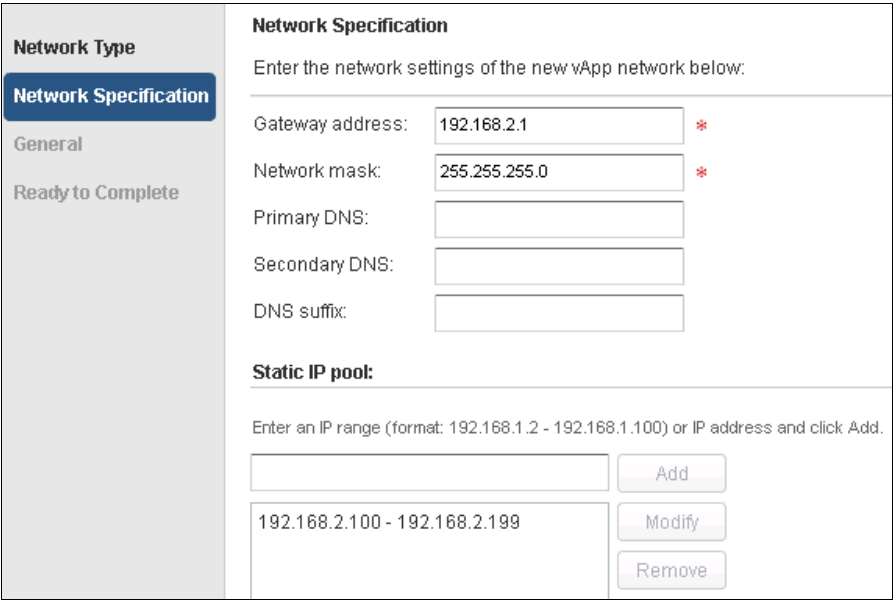
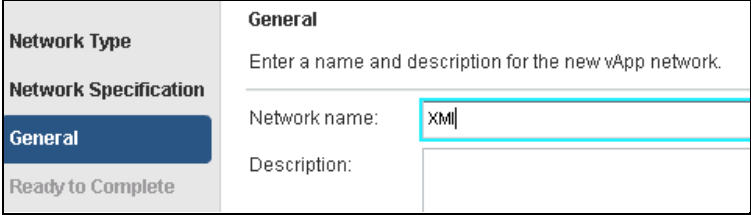
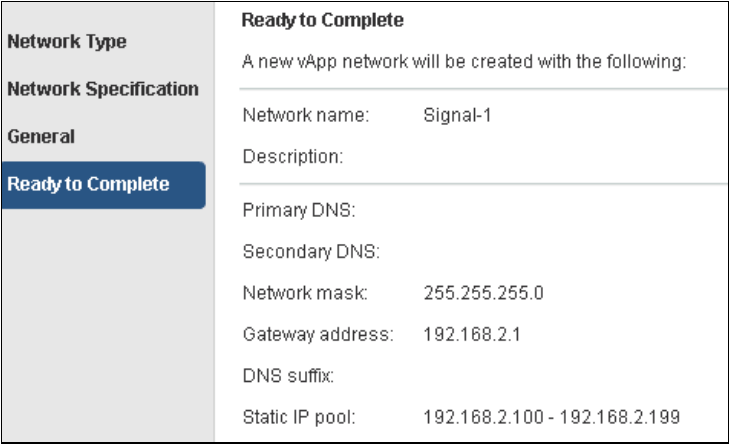
This procedure creates and configure a new vApp virtual appliance.

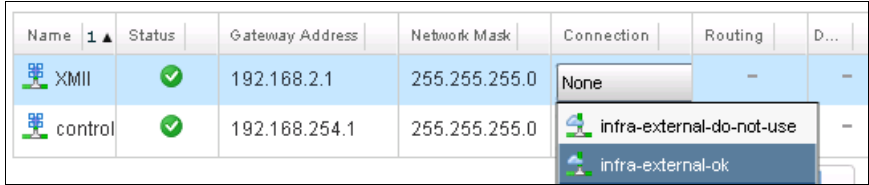
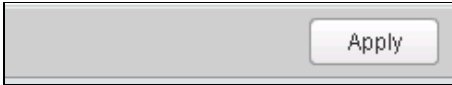
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

Procedure20: Create vApp

Step	Procedure	Result
1. <input type="checkbox"/>	Log into the VMware vCloud Director	
2. <input type="checkbox"/>	vCloud Director: Select Home tab, then click Build New vApp	

Step	Procedure	Result
3. <input type="checkbox"/>	vCloud Director: 1.. Enter the name for the vApp and other parameters as required. 2. Click Finish .	
4. <input type="checkbox"/>	vCloud Director: Navigate to My Cloud → <vApp Name> → Networking Then click the green plus icon to add a network.	
5. <input type="checkbox"/>	vCloud Director: Select vApp network . Click Next .	

Step	Procedure	Result
6. <input type="checkbox"/>	vCloud Director: Enter parameters for your internal network. Be sure to have sufficient address space for the number of servers you expect to deploy. Click Next .	
7. <input type="checkbox"/>	vCloud Director: Enter a Name for your network using Error! eference source not found. as a guide. Click Next .	
8. <input type="checkbox"/>	vCloud Director: Review the network data Click Finish .	

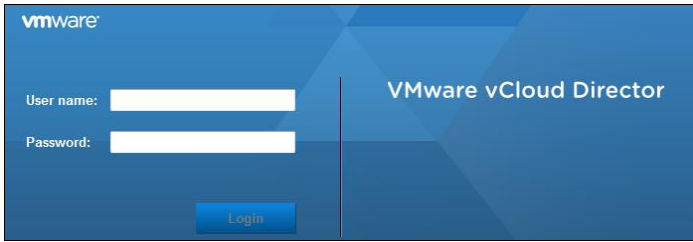
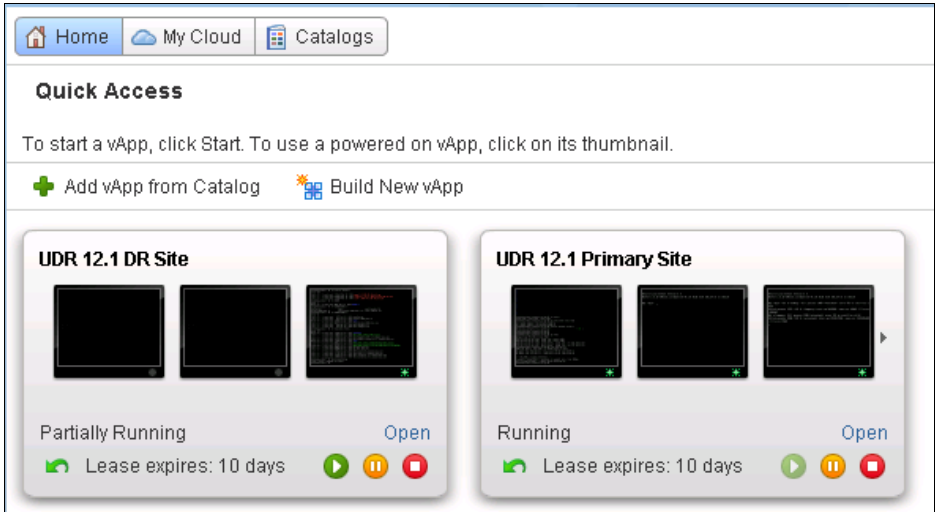
Step	Procedure	Result
9. <input type="checkbox"/>	vCloud Director: Back on the Networking tab.	 <p>If the network is to be addressable outside the Cloud (such as XMI for administration), select an external network from the Connection drop box.</p> <p>Otherwise, leave Connection setting as None.</p>
10. <input type="checkbox"/>	vCloud Director: Click Apply .	
THIS PROCEDURE HAS BEEN COMPLETED		

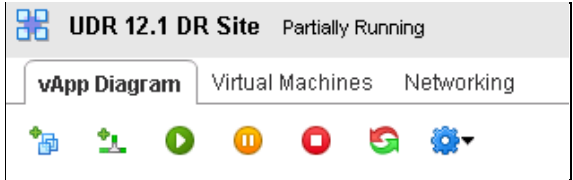
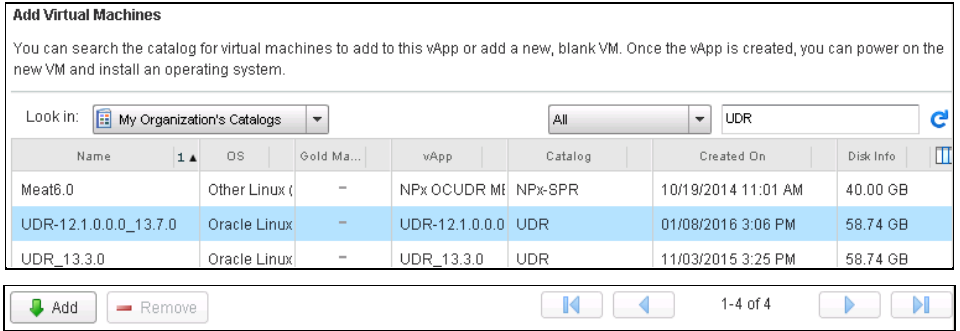

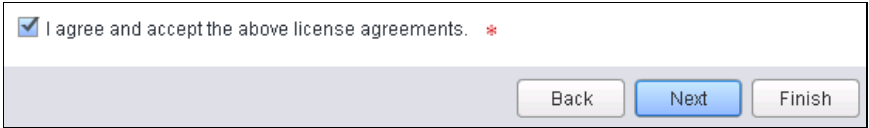
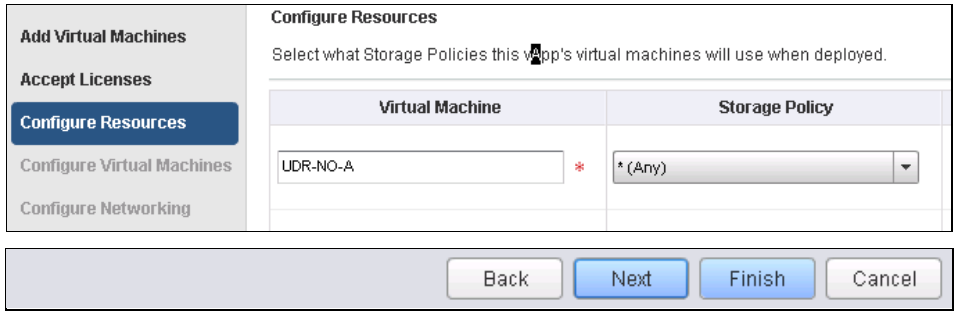
C.3 CREATE GUESTS FROM OVA

This procedure creates Oracle Communications User Data Repository virtual machines (guests) from OVA.

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

Procedure21: Create Guests from OVA with vCloud Director

Step	Procedure	Result
1. <input type="checkbox"/>	Log into the VMware vCloud Director	
2. <input type="checkbox"/>	vCloud Director: Click Open for the Oracle Communications User Data Repository vApp	 <p>NOTE: Current vApps are listed on the Home Page. If a new vApp is required continue with the next step to create it.</p>

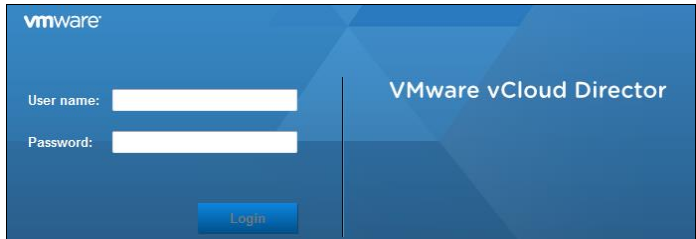
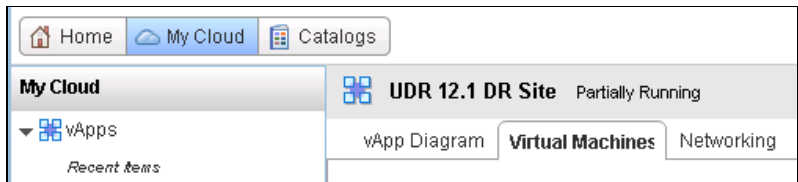
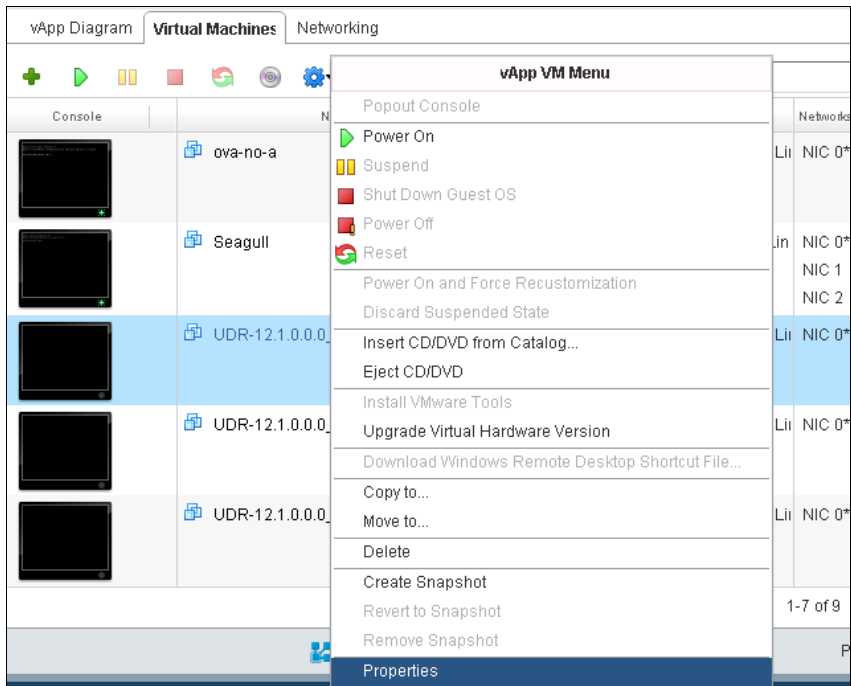
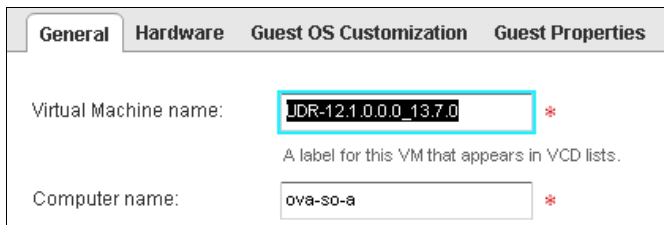
Step	Procedure	Result
3. <input type="checkbox"/>	vCloud Director: Select icon on left to Add VM	
4. <input type="checkbox"/>	vCloud Director: 1. Enter name in the search field and press Enter 2. Select Oracle Communications User Data Repository media name 3. Click Add . 4. Click Next .	 <p>NOTE: Multiple servers may be created at once using Add.</p> 
5. <input type="checkbox"/>	vCloud Director: 1. Check box to agree with license 2. Click Next	
6. <input type="checkbox"/>	vCloud Director: 1. Rename virtual machines to reflect its location and role 2. Click Finish .	
THIS PROCEDURE HAS BEEN COMPLETED		

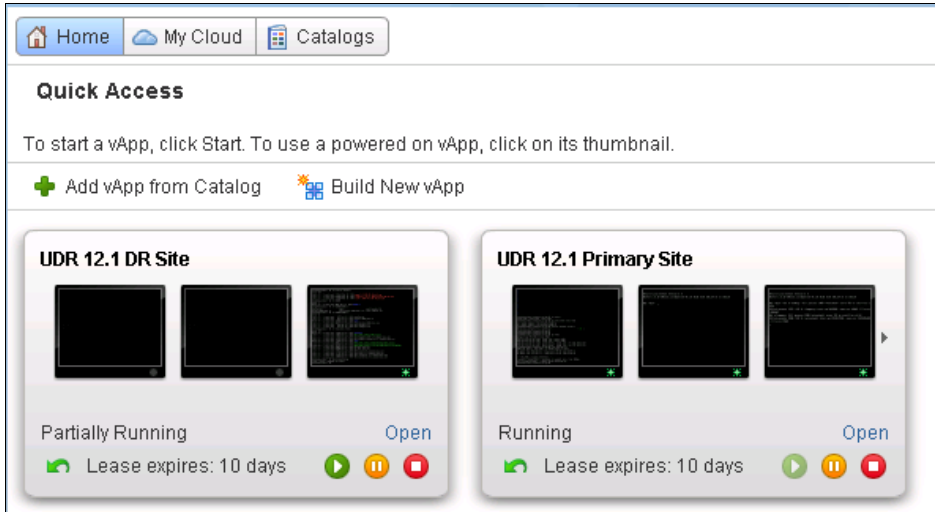
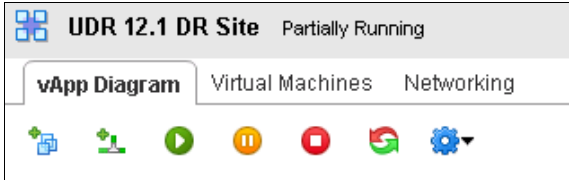
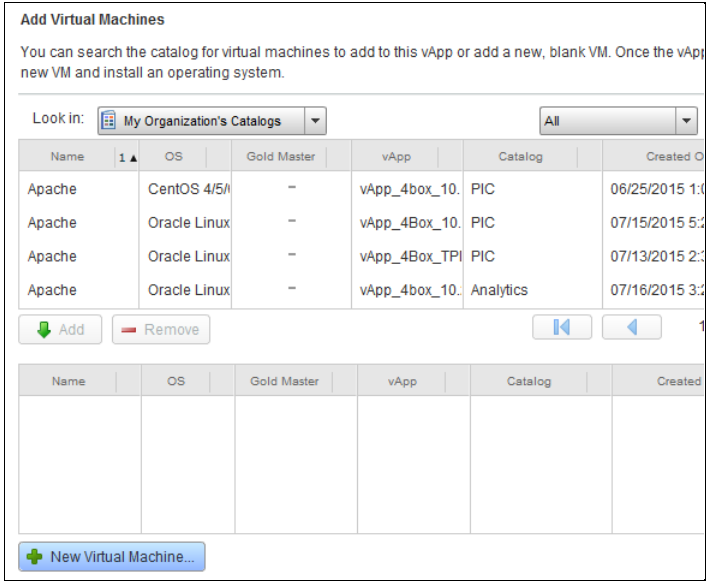
C.4 CONFIGURE GUEST RESOURCES

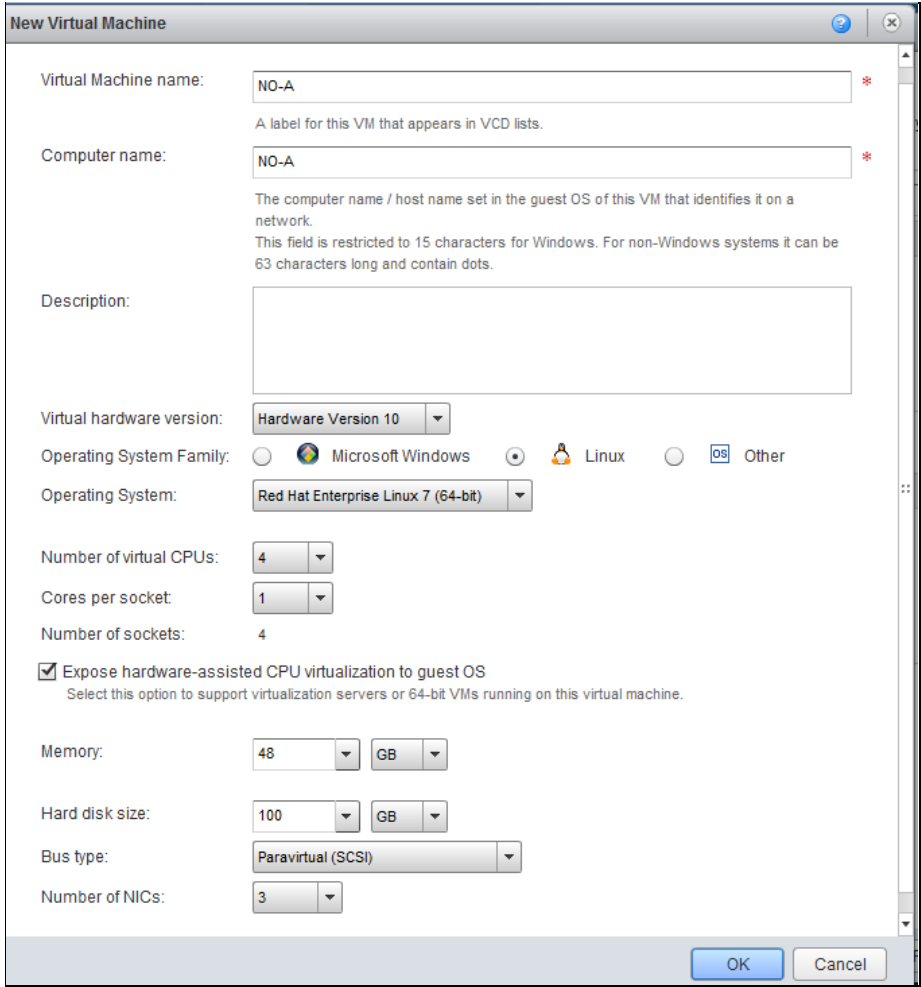
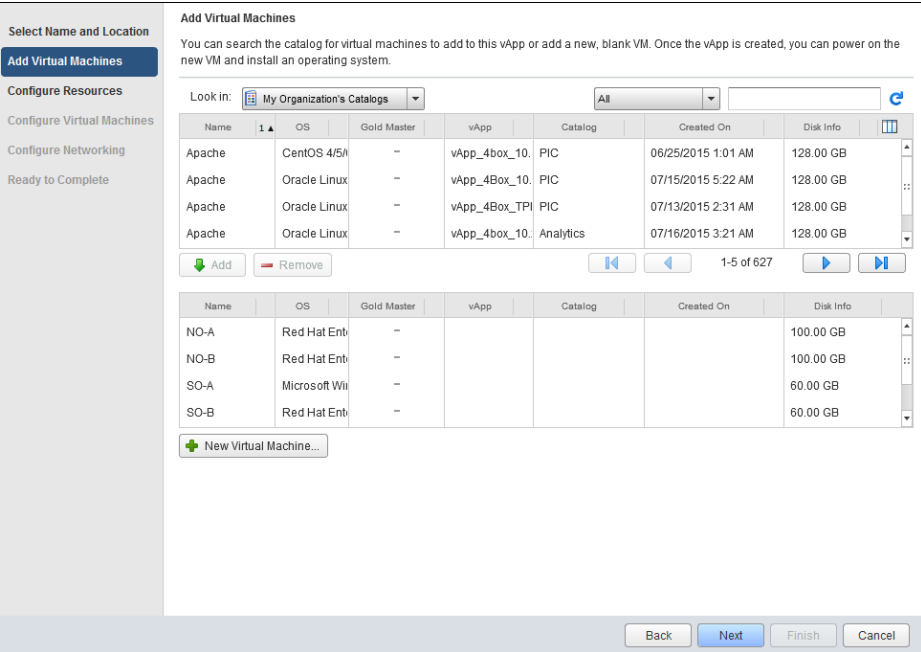
This procedure configures Oracle Communications User Data Repository virtual machines (guests) which have been created from OVA.

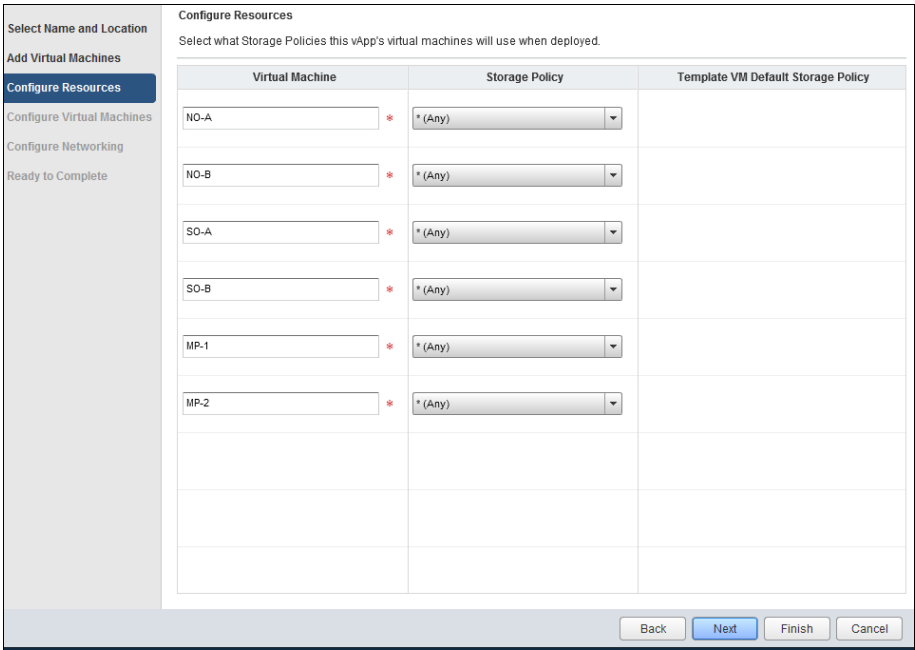
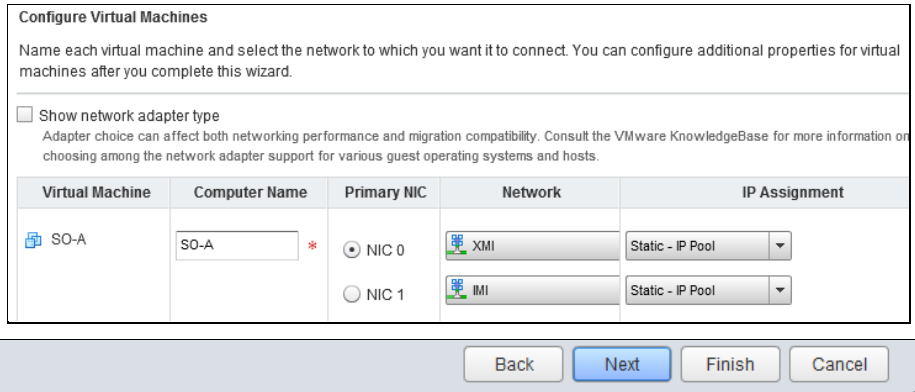
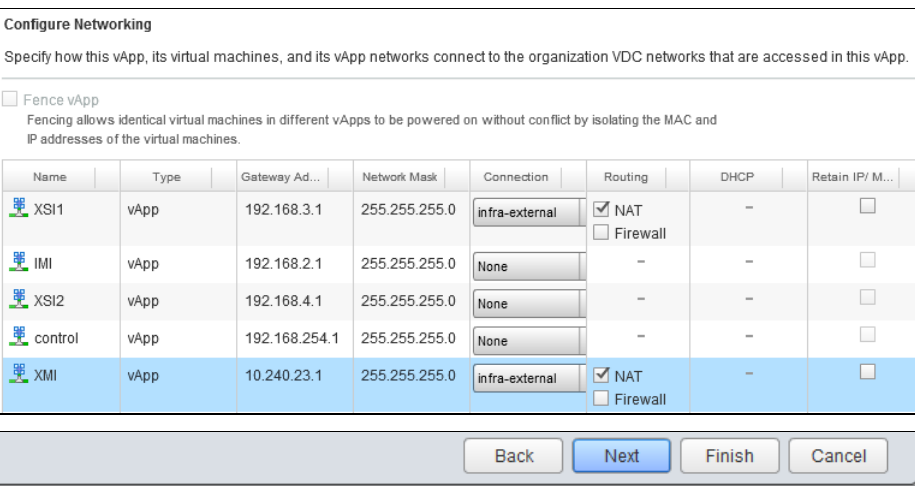
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

Procedure22: Configure Guests from OVA with vCloud Director

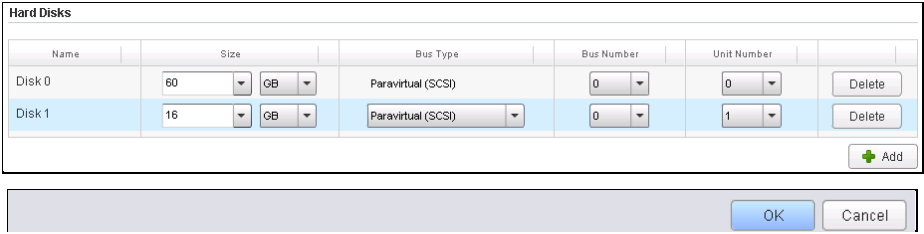
Step	Procedure	Result
1. <input type="checkbox"/>	Log into the VMware vCloud Director	
2. <input type="checkbox"/>	vCloud Director: Navigate to My Cloud → Virtual Machines	
3. <input type="checkbox"/>	vCloud Director: 1. Select the VM. 2. Click the Blue Gear icon. 3. Select Properties .	
4. <input type="checkbox"/>	vCloud Director: Under the General tab, adjust Virtual Machine and Computer names.	

Step	Procedure	Result
2. <input type="checkbox"/>	vCloud Director: Click Open for the Oracle Communications User Data Repository vApp	 <p>NOTE: Current vApps are listed on the Home Page. If a new vApp is required continue with the next step to create it.</p>
3. <input type="checkbox"/>	vCloud Director: Select icon on left to Add VM	
4. <input type="checkbox"/>	vCloud Director: Click New Virtual Machine .	

Step	Procedure	Result
5. <input type="checkbox"/>	vCloud Director: <ol style="list-style-type: none"> 1. Enter Name and Computer Name for VM. 2. Set Operating System Family to Linux. 3. Select Expose hardware-assisted CPU... 4. Enter all resource parameters according to the role given in OCCUR Resource Profile[1]. 5. Click OK. 	
6. <input type="checkbox"/>	vCloud Director: Click Next .	

Step	Procedure	Result
7. <input type="checkbox"/>	vCloud Director: Click Next .	
8. <input type="checkbox"/>	vCloud Director: 1. Select Networks and IP Assignments for VM according to the role given in Resource Profile [1]. 2. Click Next .	
9. <input type="checkbox"/>	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 .	

Step	Procedure	Result
10. <input type="checkbox"/>	vCloud Director: 1. Review the settings. 2. Click Finish .	
11. <input type="checkbox"/>	vCloud Director: 1. Select the VM. 2. Click the Blue Gear icon. 3. Select Properties .	
12. <input type="checkbox"/>	vCloud Director: 1. Select the Hardware tab. 2. Adjust the size of Disk 0 to match VM profile Error! eference source not found.	

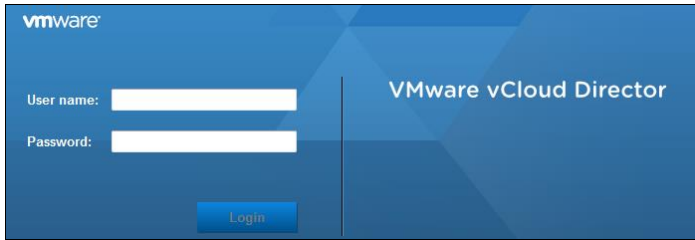
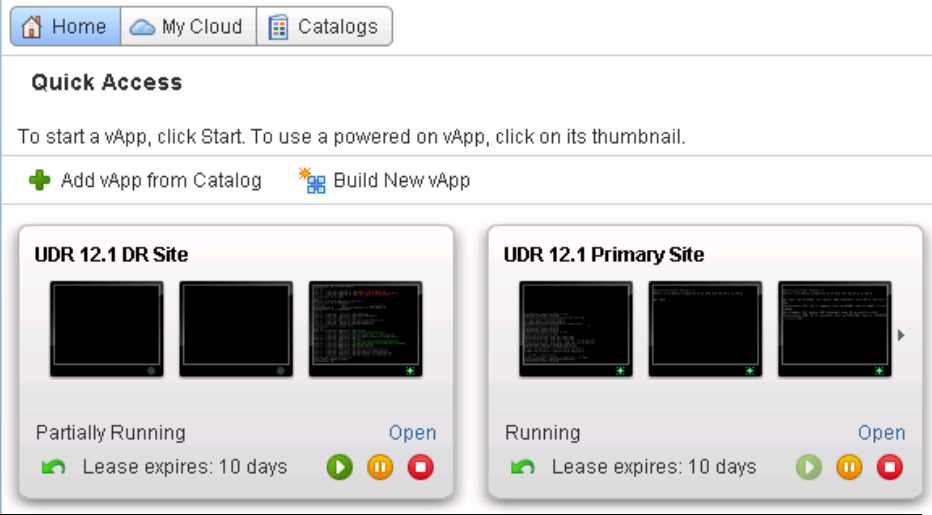
Step	Procedure	Result
13. <input type="checkbox"/>	vCloud Director: Only If the VM uses a second disk by [1]: 1. Click Add 2. Adjust size of Disk 1 to match VM profile [1]. 3. Click OK	
THIS PROCEDURE HAS BEEN COMPLETED		


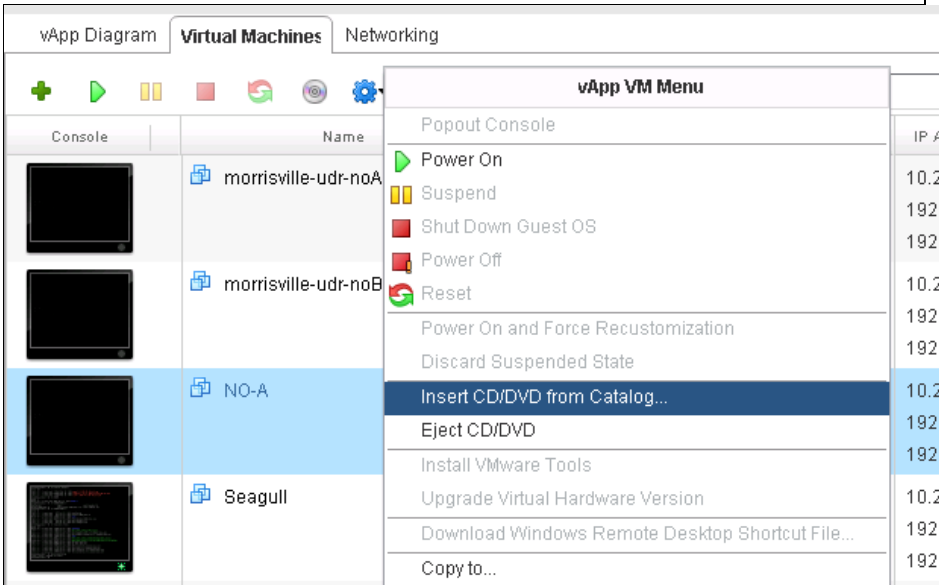
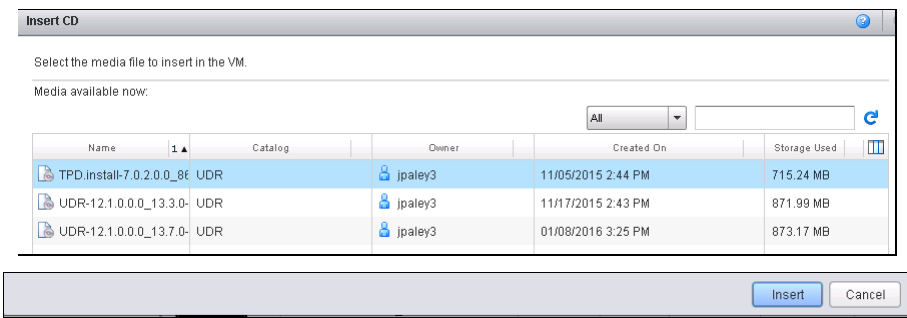
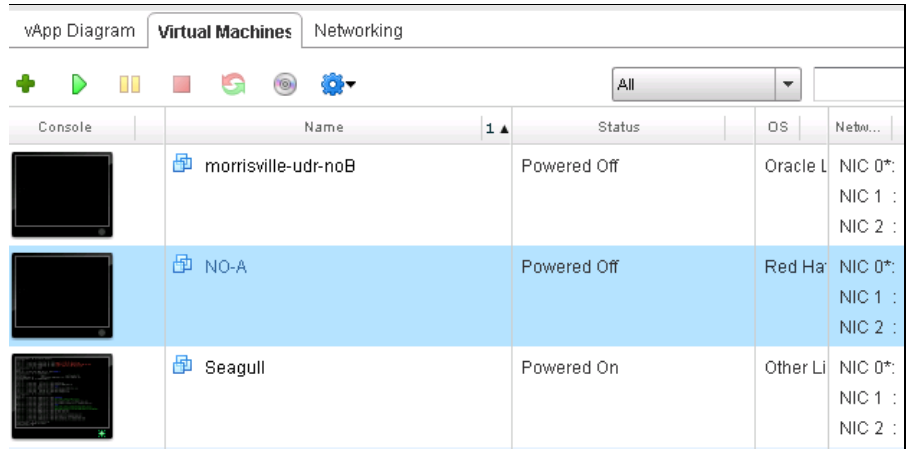
C.6 INSTALL GUESTS FROM ISO

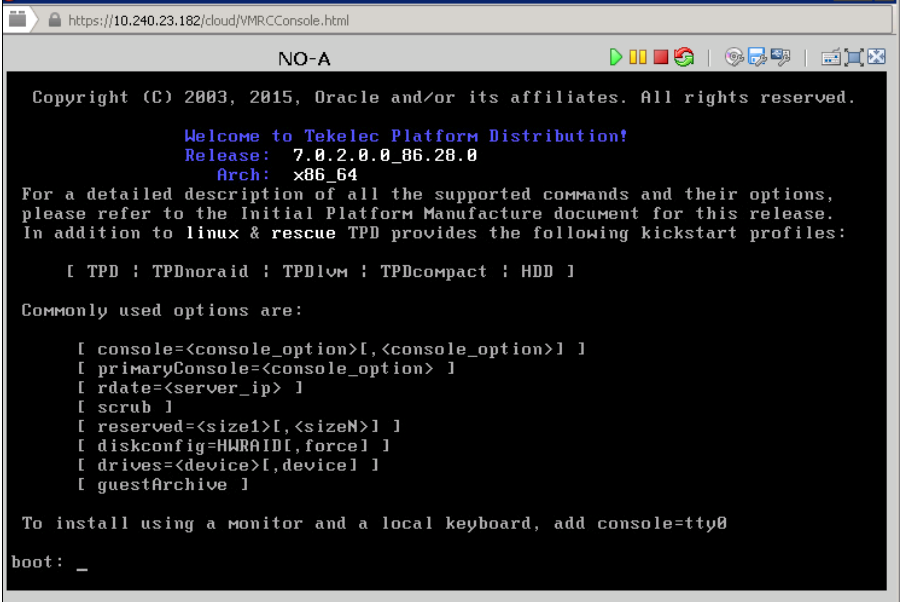
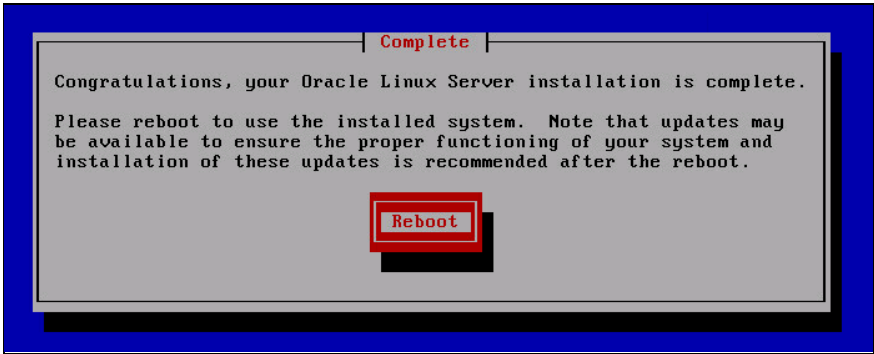
This procedure creates Oracle Communications User Data Repository virtual machines (guests) from ISO.

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

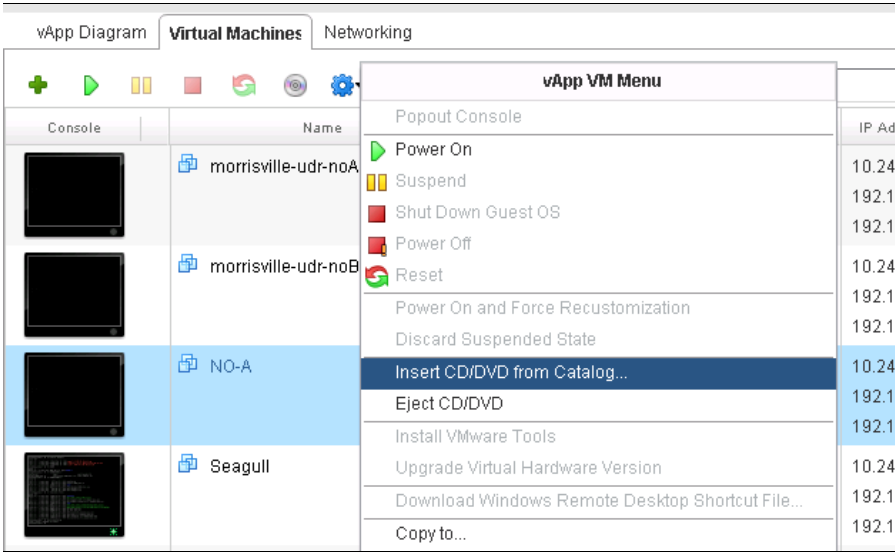
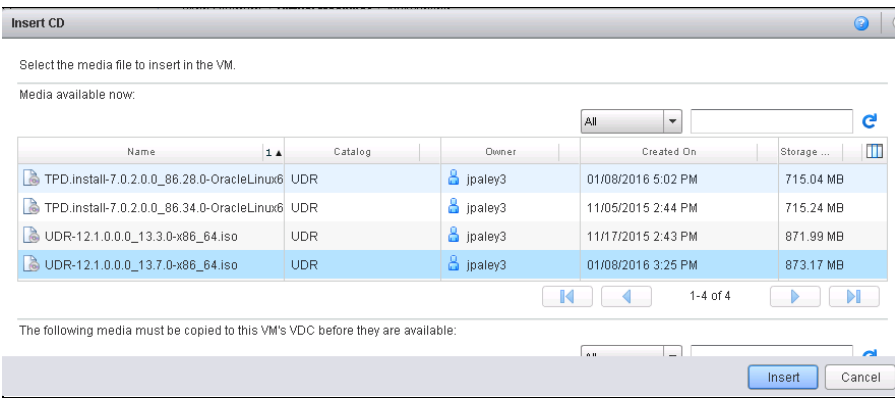
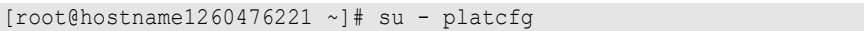
Procedure24: Install Guests from ISO with vCloud Director

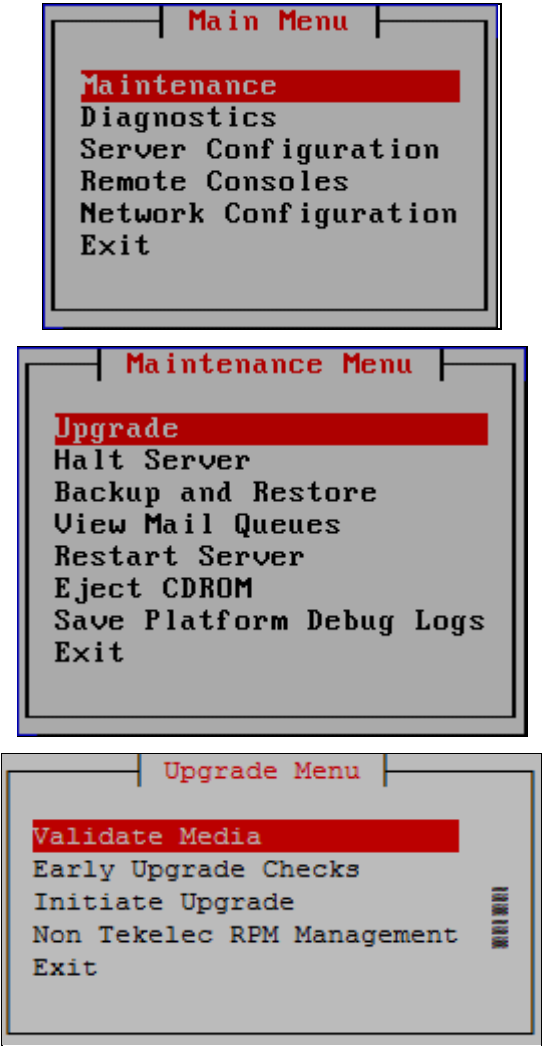
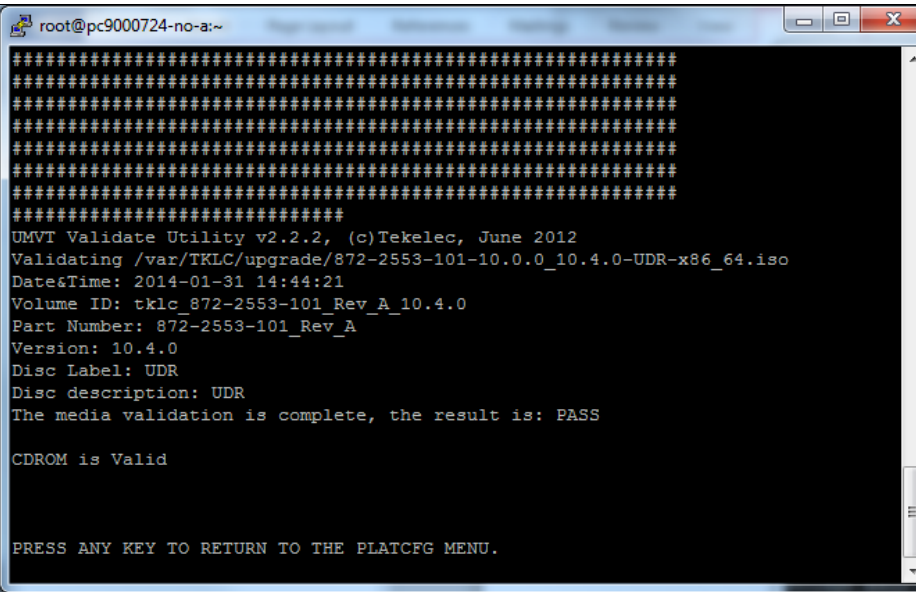
Step	Procedure	Result
1. <input type="checkbox"/>	Log into the VMware vCloud Director	
2. <input type="checkbox"/>	vCloud Director: Click Open for the Oracle Communications User Data Repository vApp then proceed to Step 5.	 <p>NOTE: Current vApps are listed on the Home Page. If a new vApp is required continue with the next step to create it.</p>

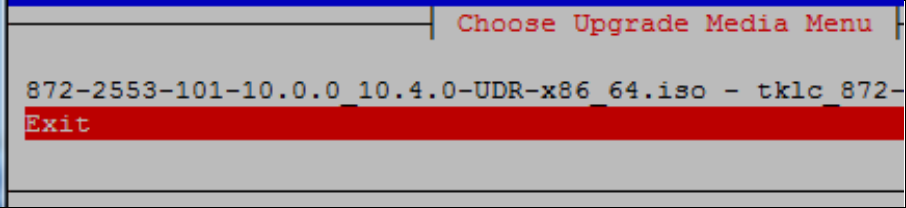
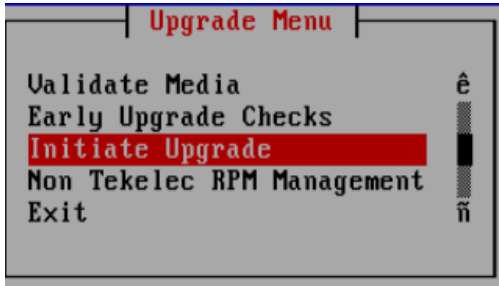


Step	Procedure	Result
3. <input type="checkbox"/>	vCloud Director: Navigate to → My Cloud → Virtual Machines	
4. <input type="checkbox"/>	vCloud Director: 1. Select the VM. 2. Click the Blue Gear icon. 3. Select Insert CD/DVD from Catalog .	
5. <input type="checkbox"/>	vCloud Director: 1. Select TPD ISO. 2. Click Insert	
6. <input type="checkbox"/>	vCloud Director: 1. Click on the SKY BLUE Play icon to start the VM 2. Click the Console raise console window	

Step	Procedure	Result
7. <input type="checkbox"/>	vCloud Director: Initiate operating system install by entering the given text into console boot prompt	 <pre>boot: TPDnoraidd console=tty0</pre>
8. <input type="checkbox"/>	When installation completes, press Enter to reboot	 <p>NOTE: Escape the console session with keyboard combination Ctrl- Alt</p>
9. <input type="checkbox"/>	After reboot, log into console	<pre>Hostname:b6092a316785 login: root password:</pre>
10. <input type="checkbox"/>	Verify that the TPD release is 7.0.2.x	<pre># getPlatRev 7.0.2.0.0-86.34.0</pre>
11. <input type="checkbox"/>	Run the <code>alarmMgr</code> command to verify health of the server before Application install.	<pre># alarmMgr --alarmStatus</pre> <p>NOTE: This command should return no output on a healthy system.</p>
12. <input type="checkbox"/>	Run the <code>verifyIPM</code> as a secondary way to verify health of the server before Application install.	<pre># verifyIPM</pre> <p>NOTE: This command should return no output on a healthy system.</p>
13. <input type="checkbox"/>	Create physical volume <code>sdb</code>	<pre># pvcreate /dev/sdb Physical volume "/dev/sdb" successfully created</pre>

Step	Procedure	Result
14. <input type="checkbox"/>	Create volume group stripe_vg	<pre># vgcreate stripe_vg /dev/sdb</pre> <p>Volume group "stripe_vg" successfully created</p>
15. <input type="checkbox"/>	Create logical volume rundb	<pre># lvcreate -L <SIZE>G --alloc anywhere --name rundb stripe_vg</pre> <p>Replace <SIZE> size tag with a number in gigabytes half the size of the second disk according to [1].</p> <pre>ISO lab second disk is 120: <SIZE> = 60 ISO production second disk is 720: <SIZE> = 360</pre>
16. <input type="checkbox"/>	Make filesystem on rundb	<pre># mkfs -t ext4 /dev/stripe_vg/rundb</pre> <pre>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.</pre>
17. <input type="checkbox"/>	Run the syscheck/restart steps in order	<pre># syscheck --reconfig disk</pre>
18. <input type="checkbox"/>	Escape console	Escape the console session with keyboard combination Ctrl-Alt

Step	Procedure	Result																									
19. <input type="checkbox"/>	vCloud Director: 1. Select the VM . 2. Click the Blue Gear icon. 3. Select Insert CD/DVD from Catalog .	 <table border="1"><thead><tr><th>VM Name</th><th>IP Address</th></tr></thead><tbody><tr><td>morrisville-udr-noA</td><td>10.24</td></tr><tr><td>morrisville-udr-noB</td><td>192.1</td></tr><tr><td>NO-A</td><td>192.1</td></tr><tr><td>Seagull</td><td>10.24</td></tr></tbody></table>	VM Name	IP Address	morrisville-udr-noA	10.24	morrisville-udr-noB	192.1	NO-A	192.1	Seagull	10.24															
VM Name	IP Address																										
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Seagull	10.24																										
20. <input type="checkbox"/>	vCloud Director: 1. Select Oracle Communications User Data Repository ISO. 2. Click Insert	 <table border="1"><thead><tr><th>Name</th><th>Catalog</th><th>Owner</th><th>Created On</th><th>Storage</th></tr></thead><tbody><tr><td>TPD.Install-7.0.2.0.0_86.28.0-OracleLinux6</td><td>UDR</td><td>jpaley3</td><td>01/08/2016 5:02 PM</td><td>715.04 MB</td></tr><tr><td>TPD.Install-7.0.2.0.0_86.34.0-OracleLinux6</td><td>UDR</td><td>jpaley3</td><td>11/05/2015 2:44 PM</td><td>715.24 MB</td></tr><tr><td>UDR-12.1.0.0.0_13.3.0-x86_64.iso</td><td>UDR</td><td>jpaley3</td><td>11/17/2015 2:43 PM</td><td>871.99 MB</td></tr><tr><td>UDR-12.1.0.0.0_13.7.0-x86_64.iso</td><td>UDR</td><td>jpaley3</td><td>01/08/2016 3:25 PM</td><td>873.17 MB</td></tr></tbody></table>	Name	Catalog	Owner	Created On	Storage	TPD.Install-7.0.2.0.0_86.28.0-OracleLinux6	UDR	jpaley3	01/08/2016 5:02 PM	715.04 MB	TPD.Install-7.0.2.0.0_86.34.0-OracleLinux6	UDR	jpaley3	11/05/2015 2:44 PM	715.24 MB	UDR-12.1.0.0.0_13.3.0-x86_64.iso	UDR	jpaley3	11/17/2015 2:43 PM	871.99 MB	UDR-12.1.0.0.0_13.7.0-x86_64.iso	UDR	jpaley3	01/08/2016 3:25 PM	873.17 MB
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TPD.Install-7.0.2.0.0_86.34.0-OracleLinux6	UDR	jpaley3	11/05/2015 2:44 PM	715.24 MB																							
UDR-12.1.0.0.0_13.3.0-x86_64.iso	UDR	jpaley3	11/17/2015 2:43 PM	871.99 MB																							
UDR-12.1.0.0.0_13.7.0-x86_64.iso	UDR	jpaley3	01/08/2016 3:25 PM	873.17 MB																							
21. <input type="checkbox"/>	VM Console: 1. Re-enter the console window 2. Login to the platcfg utility.	 <pre>[root@hostname1260476221 ~]# su - platcfg</pre>																									

Step	Procedure	Result
22. <input type="checkbox"/>	VM Console: From the platcfg Main Menu, select each option, pressing Enter after each selection.	 <p>The result shows three screenshots of the VM console. The first screenshot is the 'Main Menu' with options: Maintenance (highlighted), Diagnostics, Server Configuration, Remote Consoles, Network Configuration, and Exit. The second screenshot is the 'Maintenance Menu' with options: Upgrade (highlighted), Halt Server, Backup and Restore, View Mail Queues, Restart Server, Eject CDROM, Save Platform Debug Logs, and Exit. The third screenshot is the 'Upgrade Menu' with options: Validate Media (highlighted), Early Upgrade Checks, Initiate Upgrade, Non Tekelec RPM Management, and Exit.</p>
23. <input type="checkbox"/>	VM Console: 1. From the "platcfg" Main Menu, verify that the CDROM is Valid. 2. Press any key to return to platcfg menu.	 <p>The result shows a screenshot of the VM console window. The window title is 'root@pc9000724-no-a:~'. The output of the 'UMVT Validate Utility v2.2.2, (c)Tekelec, June 2012' is displayed. It shows the validation of the CDROM image '/var/TKLC/upgrade/872-2553-101-10.0.0_10.4.0-UDR-x86_64.iso'. The output includes the date and time (2014-01-31 14:44:21), volume ID (tklc_872-2553-101_Rev_A_10.4.0), part number (872-2553-101_Rev_A), version (10.4.0), disc label (UDR), and disc description (UDR). The final result is 'The media validation is complete, the result is: PASS' and 'CDROM is Valid'. A prompt at the bottom says 'PRESS ANY KEY TO RETURN TO THE PLATCFG MENU.'</p>

Step	Procedure	Result
24. <input type="checkbox"/>	VM Console: From the platcfg Main Menu, select each option, pressing the Enter after each selection.	 
25. <input type="checkbox"/>	VM Console: Verify that the Application release level shown matches the target release. Press Enter .	 
26. <input type="checkbox"/>	VM Console: Output similar to that shown on the right may be observed as the Application install progresses.	<pre> 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... </pre>

Step	Procedure	Result
27. <input type="checkbox"/>	VM Console: Output similar to that shown on the right may be observed as the server initiates a post-install reboot.	<pre>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.3-1 Restarting system. . machine restart</pre>
28. <input type="checkbox"/>	VM Console: After the server has completed reboot, log into the server as admusr.	<pre>CentOS release 5.6 (Final) Kernel 2.6.18-238.19.1.el5prere15.0.0_72.22.0 on an x86_64 hostname1260476221 login:admusr Password: <admusr_password></pre>
29. <input type="checkbox"/>	VM Console: Output similar to that shown on the right will appear as the server returns to a command prompt.	<pre>*** 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 ~]\$</pre>
30. <input type="checkbox"/>	VM Console: Verify successful upgrade.	<pre>\$ verifyUpgrade</pre> NOTE: This command should return no output on a healthy system.
31. <input type="checkbox"/>	VM Console: Verify that the Application release level shown matches the target release.	<pre>[admusr@ pc9000724-no-a ~]\$ appRev Install Time: Fri Feb 9 04:48:18 2018 Product Name: UDR Product Release: 12.4.0.0.0_16.14.0 Base Distro Product: TPD Base Distro Release: 7.5.0.0.0_88.45.0 Base Distro ISO: TPD.install-7.5.0.0.0_88.45.0-OracleLinux6.9- x86_64.iso ISO name: UDR-12.4.0.0.0_16.14.0-x86_64.iso OS: OracleLinux 6.9</pre>
32. <input type="checkbox"/>	Change directory	<pre>\$ cd /var/TKLC/backout</pre>
33. <input type="checkbox"/>	Perform upgrade acceptance.	<pre>\$ sudo ./accept</pre>

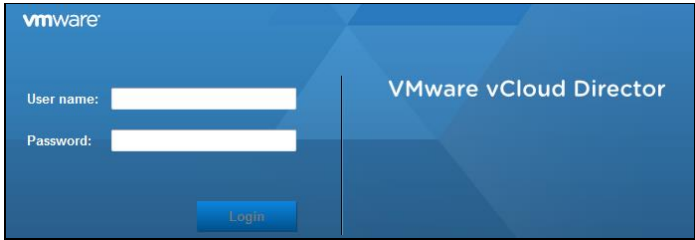
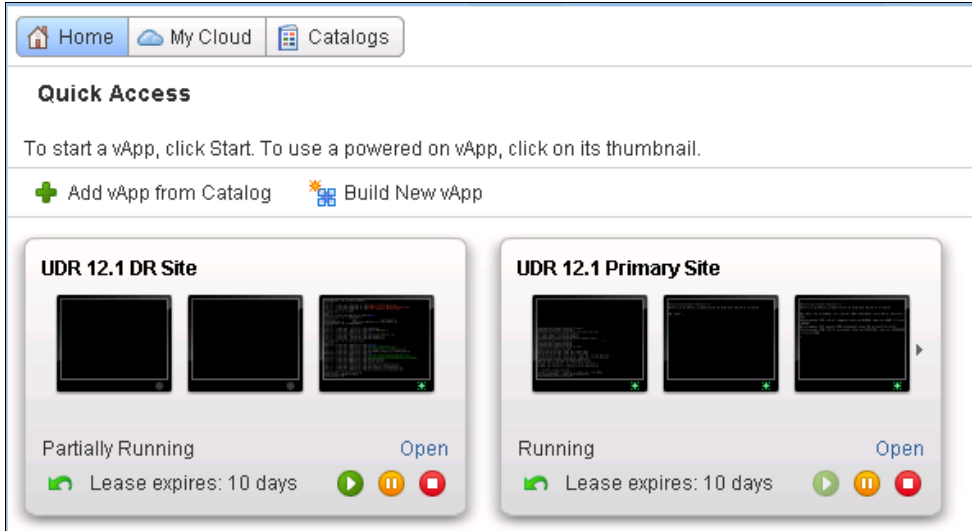
Step	Procedure	Result
34. <input type="checkbox"/>	VM Console: Reboot the server	Reboot the server: <pre>\$ sudo reboot</pre> Wait until the reboot completes and re-login with admusr credentials.
35. <input type="checkbox"/>	VM Console: Verify server health	Verify server health: <pre>\$ alarmMgr --alarmStatus</pre> NOTE: This command should return only one alarm related to pending upgrade acceptance.
THIS PROCEDURE HAS BEEN COMPLETED		

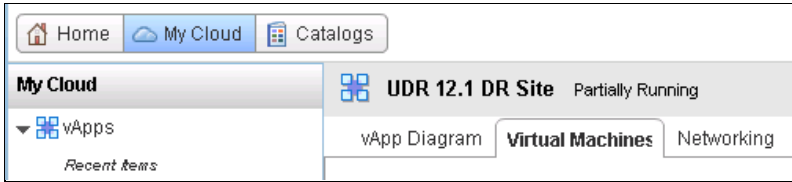
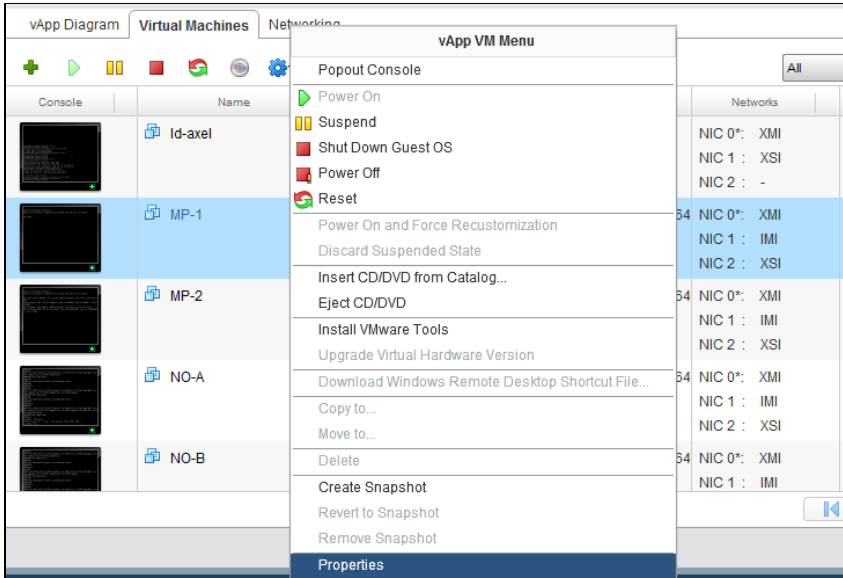
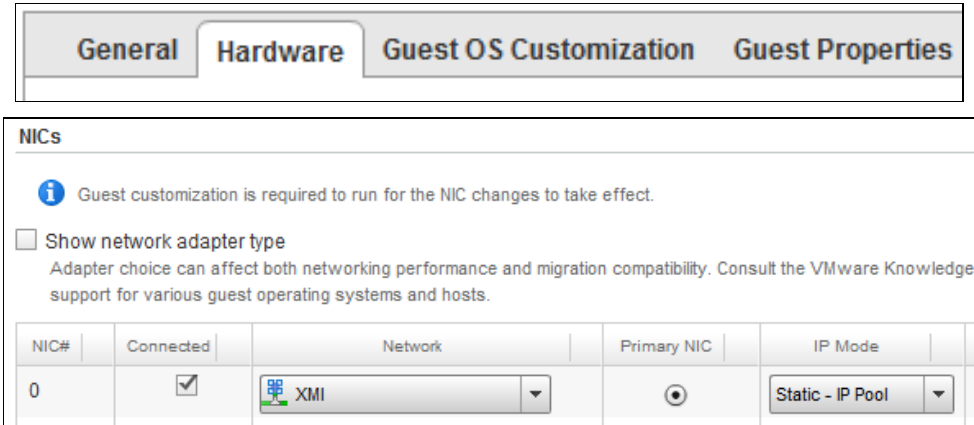

C.7 CONFIGURE GUESTS NETWORK

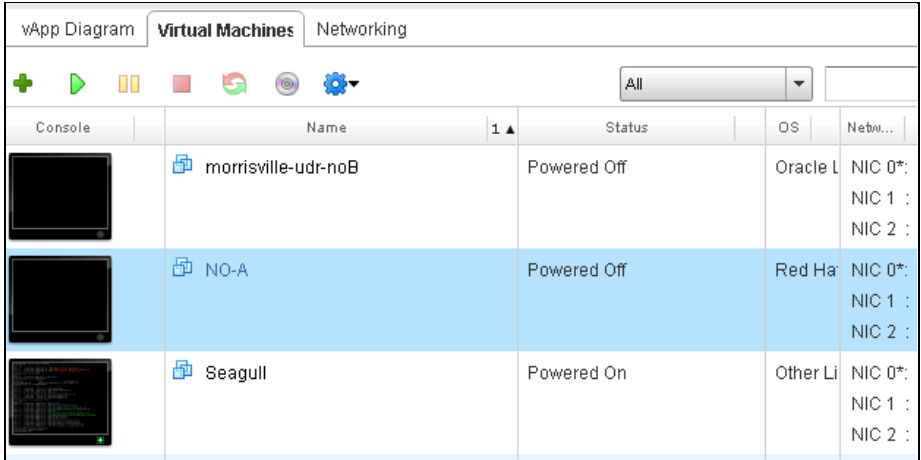
This procedure creates Oracle Communications User Data Repository virtual machines (guests) from ISO.

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

Procedure25: Configure Guest OAM Network

Step	Procedure	Result
1. <input type="checkbox"/>	Log into the VMware vCloud Director	 The image shows the VMware vCloud Director login interface. It has a blue background with the VMware logo at the top left. There are input fields for 'User name:' and 'Password:', and a 'Login' button at the bottom.
2. <input type="checkbox"/>	vCloud Director: Select Open hyperlink for the Oracle Communication s User Data Repository vApp then procede to Step 5.	 The image shows the VMware vCloud Director Home page. It has a navigation bar with 'Home', 'My Cloud', and 'Catalogs'. Below is a 'Quick Access' section with instructions: 'To start a vApp, click Start. To use a powered on vApp, click on its thumbnail.' There are two buttons: 'Add vApp from Catalog' and 'Build New vApp'. Below these are two vApp thumbnails: 'UDR 12.1 DR Site' and 'UDR 12.1 Primary Site'. The 'UDR 12.1 DR Site' thumbnail shows three server icons, one of which is highlighted with a green border. Below the thumbnail, it says 'Partially Running' and 'Lease expires: 10 days'. The 'UDR 12.1 Primary Site' thumbnail shows three server icons, one of which is highlighted with a green border. Below the thumbnail, it says 'Running' and 'Lease expires: 10 days'. Both thumbnails have an 'Open' button.
		NOTE: Current vApps are listed on the Home Page. If a new vApp is required continue with the next step to create it.

Step	Procedure	Result
3. <input type="checkbox"/>	vCloud Director: Navigate to My Cloud → Virtual Machines	
4. <input type="checkbox"/>	vCloud Director: 1. Select the VM. 2. Click the Blue Gear icon. 3. Select Properties	
5. <input type="checkbox"/>	vCloud Director: 1. Select Hardware tab. 2. Note the NIC# assignment of application networks 3. Click Cancel	 <p>Note the device NIC# assignment of the following networks:</p> <p>XMI: _____</p> <p>IMI: _____</p> <p>XSI-1: _____</p> <p>XSI-2: _____ (optional)</p> 

Step	Procedure	Result
6. <input type="checkbox"/>	vCloud Director: Click the console to raise console window	
7. <input type="checkbox"/>	VM Console: Login to console as admusr	<pre>login as: admusr Password:</pre>
8. <input type="checkbox"/>	VM Console: Configure XMI network	<p>1. View a list of netAdm devices</p> <pre>\$ sudo netAdm show</pre> <p>2. Set the XMI device for routable OAM access:</p> <p>NOTE: Use add if the show command did not list device eth0. Use set otherwise.</p> <pre>\$ sudo netAdm add --device=eth0 --address=<Guest_XMI_IP_Address> - -netmask=<XMI_Netmask> --onboot=yes --bootproto=none</pre> <p>3. Add the default route for XMI:</p> <pre>\$ sudo netAdm add --route=default --gateway=<Gateway_XMI_IP_Address> --device=eth0</pre> <p>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.</p>
9. <input type="checkbox"/>	VM Console: Configure XSI network	<p>Set the XSI device for routable signaling network access (Only for NO & MP Servers):</p> <p>NOTE: Where ethX is the interface associated with the signaling network</p> <pre>\$ sudo netAdm add --device=eth2 --address=<Guest_XSI_IP_Address> - -netmask=<XSI_Netmask> --onboot=yes --bootproto=none</pre> <p>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.</p>
10. <input type="checkbox"/>	VM Console: Repeat as required	Repeat Step 7 to add XS1-2 (eth3) if a second signaling network is in use. Adjust input parameter values accordingly
11. <input type="checkbox"/>	VM Console: Exit console	<pre>\$ exit</pre> <p>NOTE: Press Ctrl-Alt keys to escape from console.</p>
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix D. OpenStack Cloud Oracle Communications User Data Repository

This appendix contains procedures for deploying Oracle Communications 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 distribution.

D.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.

Procedure26: OpenStack Image Creation from OVA

Step	Procedure	Result
1. <input type="checkbox"/>	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 Feb 9 21:10:59 2016 from 10.182.167.73 [root@pc12107008 ~]# mkdir -p /home/ova [root@pc12107008 ~]# cd /home/ova
2. <input type="checkbox"/>	Transfer OVA file this dir using sftp tool	[root@pc12107008 ova]# ll -rw-r--r-- 1 root root 1519329280 Feb 2 03:40 UDR-12.4.0.0_16.14.0.ova
3. <input type="checkbox"/>	Untar this ova file	[root@pc12107008 ova]# tar xvf UDR-12.4.0.0_16.14.0.ova UDR-16_14_0.ovf UDR-16_14_0.mf UDR-16_14_0.vmdk
4. <input type="checkbox"/>	Convert this vmdk file to qcow2 file	[root@pc12107008 ova]# qemu-img convert -O qcow2 UDR-16_14_0.vmdk UDR-16_14_0.qcow2

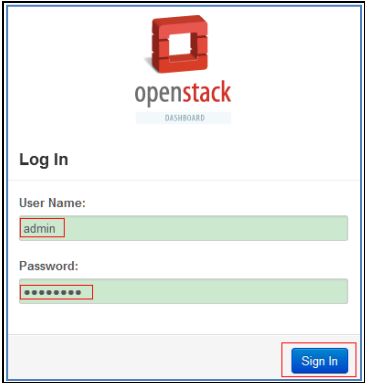
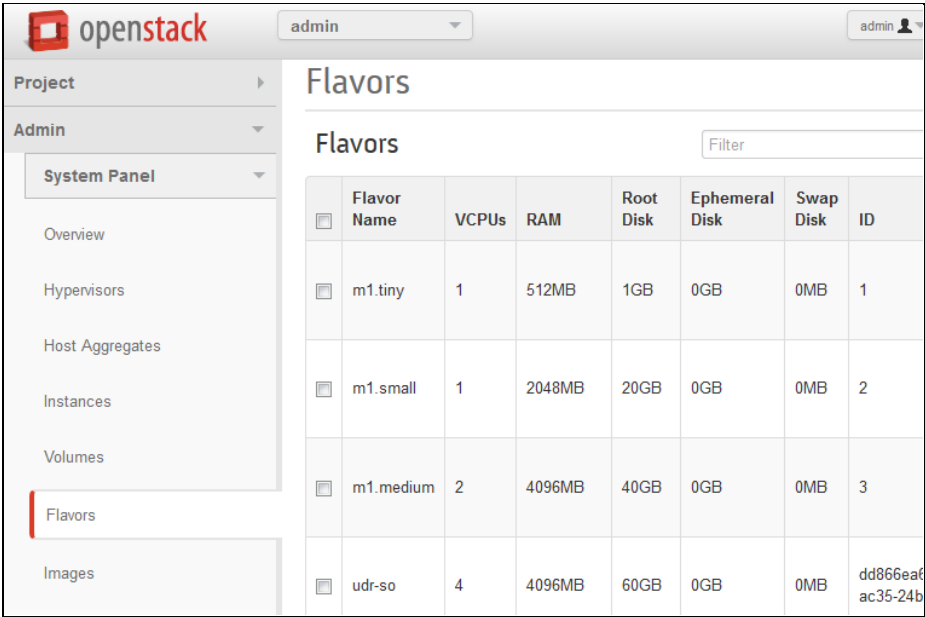
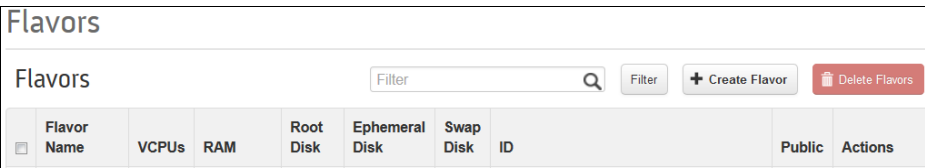
Step	Procedure	Result																																										
5. <input type="checkbox"/>	Import converted qcow2 file into OpenStack	<pre>[root@pcl2107008 ova]# source /root/keystonerc_admin [root@pcl2107008 ova(keystone_admin)]# time glance image-create --name UDR-16_14_0 --disk-format=qcow2 --container-format=bare -- visibility=public-- file= UDR-16_14_0.qcow2</pre> <table><tr><td>Property</td><td>Value</td></tr><tr><td>checksum</td><td>81e7f682231b108e29053e9516ff91ac</td></tr><tr><td>container_format</td><td>bare</td></tr><tr><td>created_at</td><td>2018-02-9T06:56:51</td></tr><tr><td>deleted</td><td>False</td></tr><tr><td>deleted_at</td><td>None</td></tr><tr><td>disk_format</td><td>qcow2</td></tr><tr><td>id</td><td>ee0ffa59-356b-4b32-aea2-b0cdf9063653</td></tr><tr><td>is_public</td><td>True</td></tr><tr><td>min_disk</td><td>0</td></tr><tr><td>min_ram</td><td>0</td></tr><tr><td>name</td><td>UDR-16_14_0</td></tr><tr><td>owner</td><td>63efbafd70864562aa6440abfca60ca5</td></tr><tr><td>protected</td><td>False</td></tr><tr><td>size</td><td>3615227904</td></tr><tr><td>status</td><td>active</td></tr><tr><td>updated_at</td><td>2016-03-29T06:57:16</td></tr><tr><td>virtual_size</td><td>None</td></tr></table> <table><tr><td>real</td><td>0m26.267s</td></tr><tr><td>user</td><td>0m2.435s</td></tr><tr><td>sys</td><td>0m2.691s</td></tr></table>	Property	Value	checksum	81e7f682231b108e29053e9516ff91ac	container_format	bare	created_at	2018-02-9T06:56:51	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-16_14_0	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
Property	Value																																											
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created_at	2018-02-9T06:56:51																																											
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-16_14_0																																											
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. <input type="checkbox"/>	After image-create, this image could be seen from OpenStack GUI under Project → Images	<div><div><div><div></div><div>Q</div><div>Name: UDR-16_14_0 x</div><div></div></div><div>Create Image</div></div><table><tr><td><input type="checkbox"/></td><td>Owner</td><td>Name ^</td><td>Type</td><td>Status</td><td>Visibility</td><td>Protected</td><td>Disk Format</td><td>Size</td></tr><tr><td><input type="checkbox"/></td><td>admin</td><td>UDR-16_14_0</td><td>Image</td><td>Active</td><td>Public</td><td>No</td><td>QCOW2</td><td>4.06 GB</td></tr></table></div>	<input type="checkbox"/>	Owner	Name ^	Type	Status	Visibility	Protected	Disk Format	Size	<input type="checkbox"/>	admin	UDR-16_14_0	Image	Active	Public	No	QCOW2	4.06 GB																								
<input type="checkbox"/>	Owner	Name ^	Type	Status	Visibility	Protected	Disk Format	Size																																				
<input type="checkbox"/>	admin	UDR-16_14_0	Image	Active	Public	No	QCOW2	4.06 GB																																				
THIS PROCEDURE HAS BEEN COMPLETED																																												

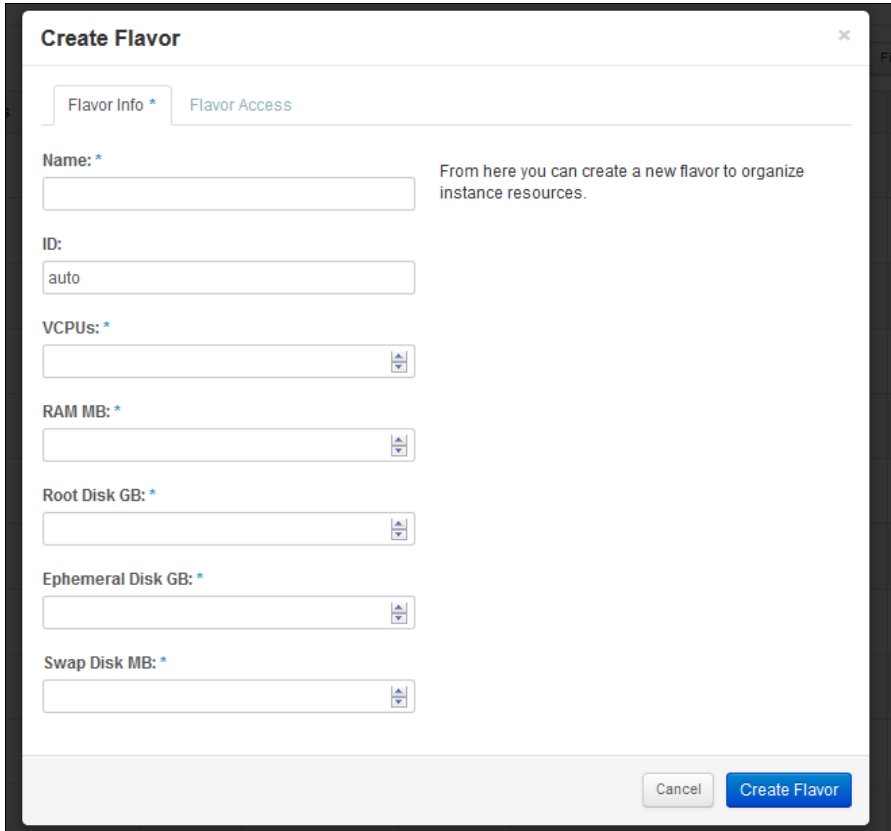
D.2 CREATE RESOURCE PROFILES (FLAVORS)

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.

Procedure27: Create Resource Profiles (Flavors)

Step	Procedure	Result
1. <input type="checkbox"/>	Login to the OpenStack GUI NOTE: Flavor Profile creation may require administrative privilege.	
2. <input type="checkbox"/>	Select Main Menu → Admin → System Panel → Flavors	
3. <input type="checkbox"/>	Click Create Flavor	

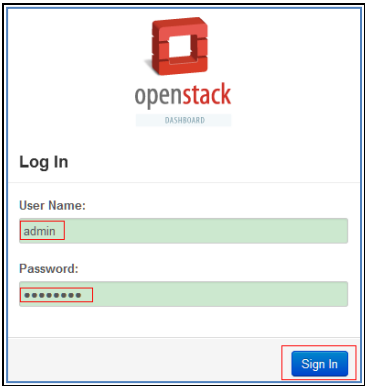
Step	Procedure	Result
4. <input type="checkbox"/>	<p>Enter Flavor Details using Appendix G as a guide *</p> <p>Name: udr-no</p> <p>ID: auto</p> <p>VCPUs: vCPUs*</p> <p>RAM: RAM*</p> <p>Root Disk: Storage*</p> <p>Ephemeral Disk: 0</p> <p>Swap Disk: 0</p> <p>NOTE: UDR does not require Ephemeral or Swap Disk.</p> <p>Then click Create Flavor.</p>	 <p>Create Flavor</p> <p>Flavor Info * Flavor Access</p> <p>Name: * <input type="text"/> From here you can create a new flavor to organize instance resources.</p> <p>ID: <input type="text" value="auto"/></p> <p>VCPUs: * <input type="text"/></p> <p>RAM MB: * <input type="text"/></p> <p>Root Disk GB: * <input type="text"/></p> <p>Ephemeral Disk GB: * <input type="text"/></p> <p>Swap Disk MB: * <input type="text"/></p> <p>Cancel Create Flavor</p>
THIS PROCEDURE HAS BEEN COMPLETED		


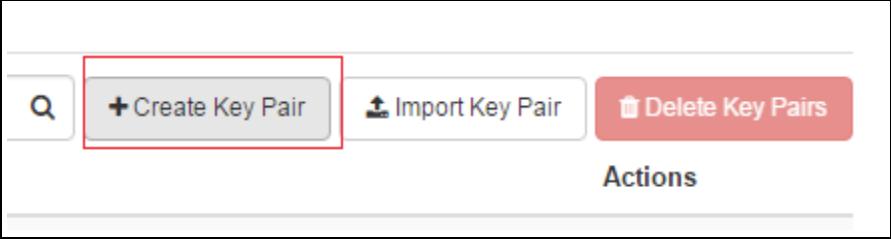
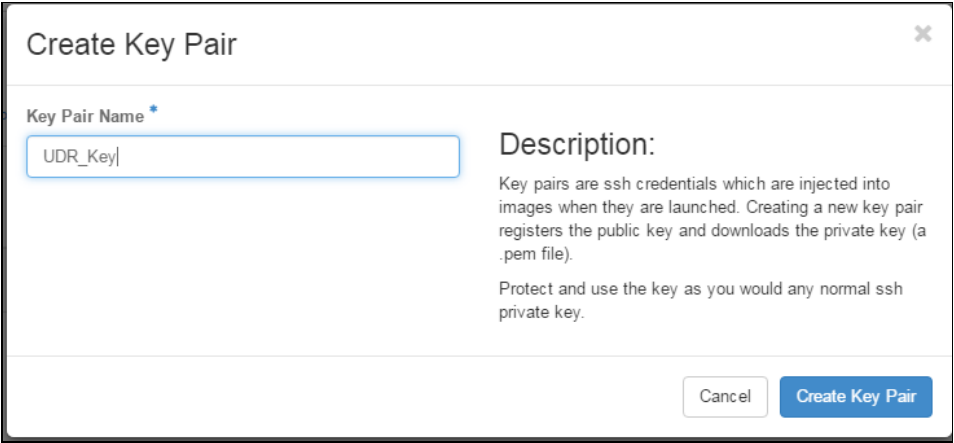
D.3 CREATE KEY PAIR

This procedure creates Key Pair to be used in VM creation.

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

Procedure28: Create Key Pair

Step	Procedure	Result
1. <input type="checkbox"/>	<p>Login to the OpenStack GUI</p> <p>NOTE: Flavor Profile creation may require administrative privilege.</p>	 <p>openstack DASHBOARD</p> <p>Log In</p> <p>User Name: <input type="text" value="admin"/></p> <p>Password: <input type="password" value="*****"/></p> <p>Sign In</p>

Step	Procedure	Result
2. <input type="checkbox"/>	Select: Main Menu → Compute → Access & Security → Key Pairs	
3. <input type="checkbox"/>	Click Create Key Pair .	
4. <input type="checkbox"/>	Enter Key Pair Name Then click Create Key Pair .	
5. <input type="checkbox"/>	The Key pair automatically get downloaded to your computer.	The generated Key Pair gets downloaded automatically on creation. This shall be used for SSH Access to VM Instances.
THIS PROCEDURE HAS BEEN COMPLETED		

D.4 UPDATE UDR STACK YAML FILE

This procedure updates UDR Stack Yaml File to be used in VM creation.

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

Procedure29: Create Key Pair

Step	Procedure	Result
1. <input type="checkbox"/>	Download the yaml file	Go to the Oracle Help Center and download the zip file containing the UDR Heat Templates .
2. <input type="checkbox"/>	Update Image name or ID with the name of the UDR Qcow2 to be used	Change the default value. <pre> label: Image name or ID description: UDR Image to be used for launching UDR VM default: UDR-12.4.0.0.0_16.14.0 </pre>

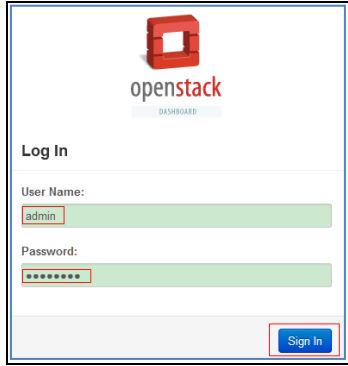
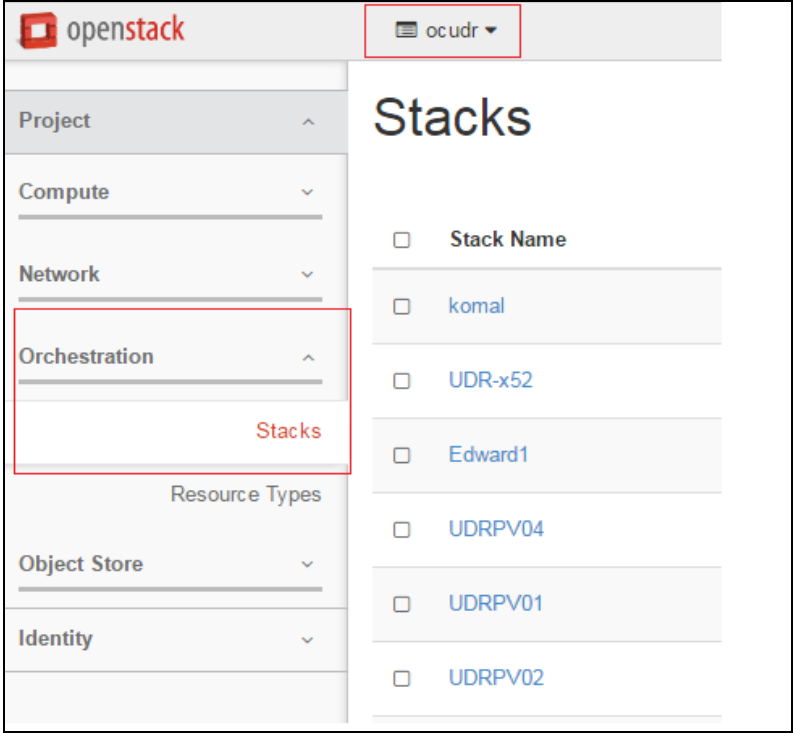
Step	Procedure	Result
3. <input type="checkbox"/>	Update the NTP Server IP	Change the default value. label: NTP server description: IP address of the NTP server used for UDR VM syncing time default: 192.168.56.180
4. <input type="checkbox"/>	Update the UDR flavor name if different	Change the default value. label: Flavor for UDR description: Type of instance (flavor) to be used for launching UDR VM default: UDR
5. <input type="checkbox"/>	Update the XMI Network name if different	Change the default value. label: UDR XMI network description: Network name or ID to attach UDR XMI network to. default: xmi
6. <input type="checkbox"/>	Update the IMI Network name if different	Change the default value. label: UDR IMI network description: Private network name or ID to attach UDR IMI network to. default: imi
7. <input type="checkbox"/>	Update the XSI1 Network name if different	Change the default value. label: UDR XSI1 network description: Network name or ID to attach UDR XSI1 network to. default: xsi1
8. <input type="checkbox"/>	Update the XSI2 Network name if different	Change the default value. label: UDR XSI2 network description: Network name or ID to attach UDR XSI2 network to. default: xsi2
9. <input type="checkbox"/>	Uncomment UDROB configuration from line 147 to 234 if configuring Active/Standby UDRs	Uncomment UDRB configuration from line 147 to 234 if configuring Active/Standby UDRs NOTE: Incase of Primary and DR Site, use EIR-UDR-4NOs.yml template.
THIS PROCEDURE HAS BEEN COMPLETED		

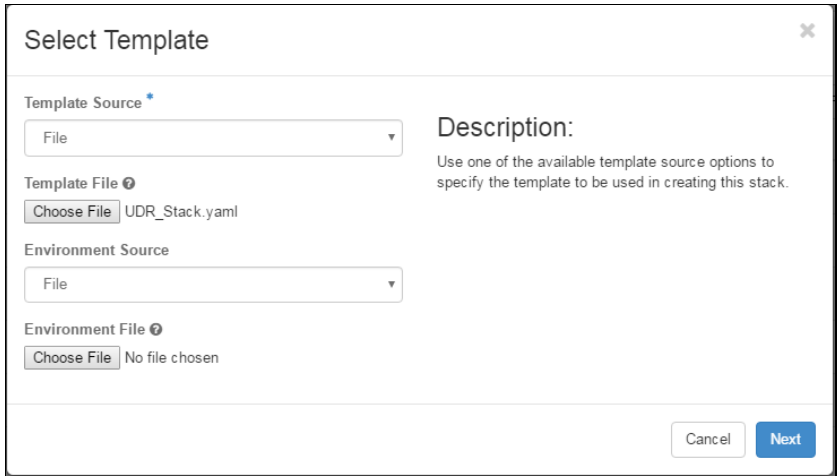
D.5 CREATE VM INSTANCES USING YAML FILE

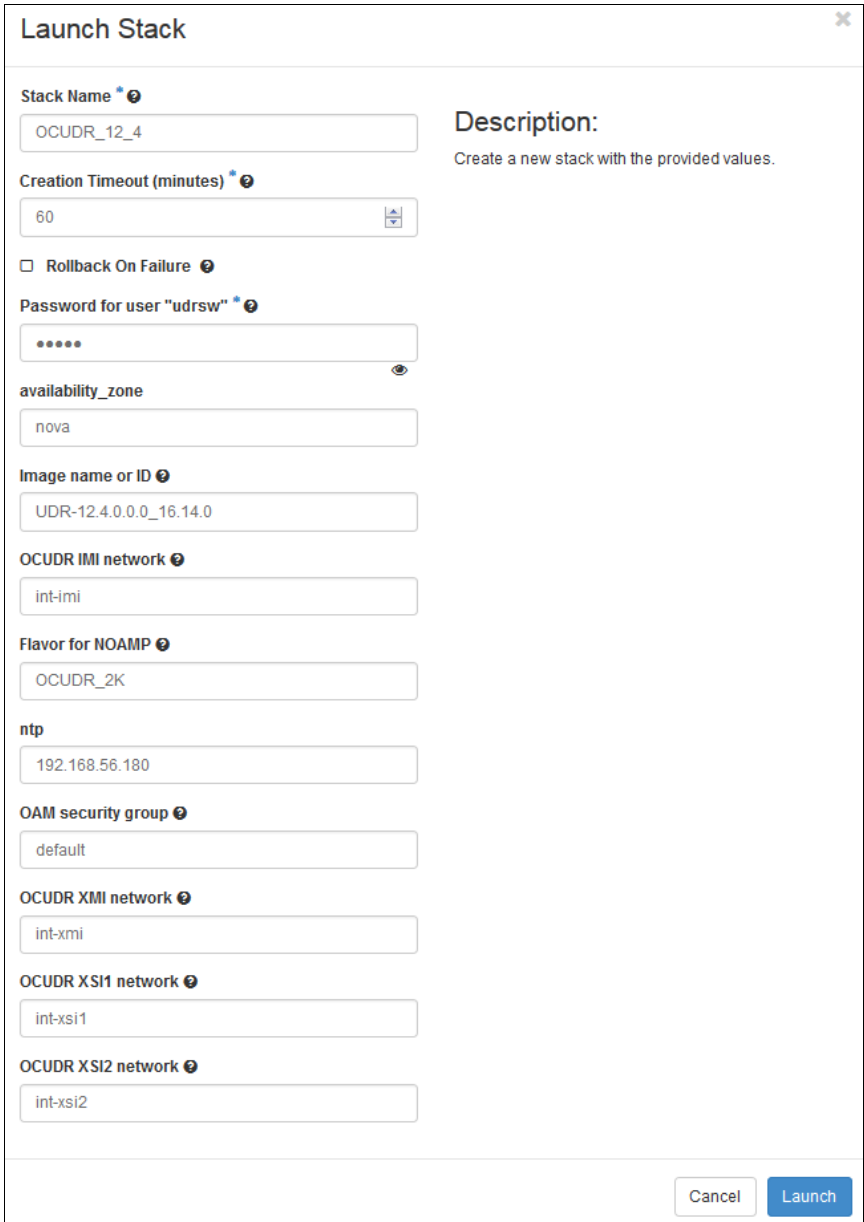
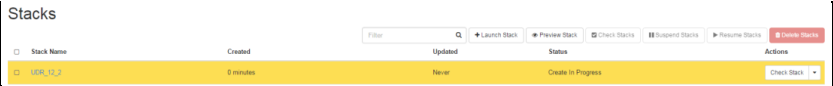
This procedure creates and configure all vm instances needed for UDR configuration.

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

Procedure30: Create VM Instances Using Yaml File

Step	Procedure	Result
1. <input type="checkbox"/>	Login to the OpenStack GUI	 The screenshot shows the OpenStack login dashboard. At the top is the OpenStack logo and a 'DASHBOARD' link. Below is a 'Log In' section with 'User Name:' and 'Password:' labels. The 'User Name' field contains 'admin' and the 'Password' field contains a masked password. A 'Sign In' button is at the bottom right.
2. <input type="checkbox"/>	1. Select project, (for example, UDR). 2. Navigate to Project → Orchestration → Stacks to show all Stacks created under this project.	 The screenshot shows the OpenStack 'Stacks' page for the 'ocudr' project. On the left is a sidebar with a 'Project' dropdown and a list of resource types: Compute, Network, Orchestration (highlighted with a red box), Object Store, and Identity. The 'Orchestration' section is expanded to show 'Stacks'. The main area is titled 'Stacks' and lists several stacks: Stack Name, komal, UDR-x52, Edward1, UDRPV04, UDRPV01, and UDRPV02. Each stack has a checkbox to its left.
3. <input type="checkbox"/>	Click Launch Stack	 The screenshot shows a control bar with a 'Filter' input field, a search icon, a '+ Launch Stack' button (highlighted with a red box), and a 'Preview Stack' button with an eye icon. Below the buttons are labels for 'Updated' and 'Status'.

Step	Procedure	Result
4. <input type="checkbox"/>	Select the Template File and Click Next	

Step	Procedure	Result
5. <input type="checkbox"/>	1. Enter the Stack Name 2. Enter the password for Openstack user 3. Click Launch to create UDR Stack	
6. <input type="checkbox"/>	Wait for stack creation to finish.	
THIS PROCEDURE HAS BEEN COMPLETED		

D.6 EXTEND VM INSTANCE VOLUME SIZE

This procedure will extend a VM instance's storage capacity using filesystem utilities.

Important: The steps here only apply to servers where storage demands exceed the server's default size 60GB. 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 guaranteed across all deployment scenarios.

This procedure should be performed only under these conditions:

- UDR Instance with Resource Profile other than Lab Profile

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

Procedure31: Extend VM Instance Volume Size

Step	Procedure	Result
1. <input type="checkbox"/>	Login to the VM Instance as per D.10 Accessing VM Instance using SSH	<pre>hostnameea0c2d9aa8bce login: admusr</pre>
2. <input type="checkbox"/>	Switch to root user	<pre># su - root password: <root_password></pre>
3. <input type="checkbox"/>	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	<pre>[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.</pre>
4. <input type="checkbox"/>	Reboot instance	<pre>[root@hostnameb267a6968148 ~]# init 6</pre>

Step	Procedure	Result
5. <input type="checkbox"/>	After reboot, Login to the VM with admusr user and switch to root user D.10 Accessing VM Instance using SSH	<pre>hostnameb267a6968148 login: admusr # su - root password: <root_password></pre>
6. <input type="checkbox"/>	Create pv /dev/vda3	<pre>[root@hostnameb267a6968148 ~]# pvcreate /dev/vda3 Physical volume "/dev/vda3" successfully created</pre>
7. <input type="checkbox"/>	Extend vg vgroot on /dev/vda3	<pre>[root@hostnameb267a6968148 ~]# vgextend vgroot /dev/vda3 Volume group "vgroot" successfully extended</pre>
8. <input type="checkbox"/>	Extend logical volumes for 2K profile	<pre># lvextend -L +52428800K /dev/vgroot/run_db # lvextend -L +52428800K /dev/vgroot/filemgmt # lvextend -L +6291456K /dev/vgroot/logs_process # resize2fs /dev/mapper/vgroot-filemgmt # resize2fs /dev/mapper/vgroot-run_db # resize2fs /dev/mapper/vgroot-log_process # lvsdf -ha LV VG Attr LSize Pool Origin Data% Meta% Move Log Cpy%Sync Convert apw_tmp vgroot -wi-ao---- 9.09g filemgmt vgroot -wi-ao---- 68.19g logs_process vgroot -wi-ao---- 9.66g logs_security vgroot -wi-ao---- 3.66g netbackup_lv vgroot -wi-ao---- 2.00g plat_root vgroot -wi-ao---- 1.00g plat_tmp vgroot -wi-ao---- 1.00g plat_usr vgroot -wi-ao---- 4.00g plat_var vgroot -wi-ao---- 1.00g plat_var_tklc vgroot -wi-ao---- 4.00g run_db vgroot -wi-ao---- 59.09g # vgs VG #PV #LV #SN Attr VSize VFree vgroot 2 11 0 wz--n- 219.72g 57.03g</pre>

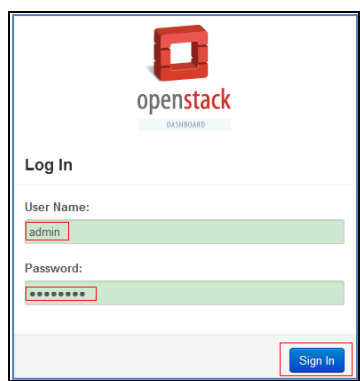
Step	Procedure	Result
9. <input type="checkbox"/>	Extend logical volumes for 7K or 12.5K profile	<pre># lvextend -L +115343360K /dev/vgroot/run_db # lvextend -L +104857600K /dev/vgroot/filemgmt # lvextend -L +6291456K /dev/vgroot/logs_process # lvextend -L +10485760K /dev/vgroot/apw_tmp # resize2fs /dev/mapper/vgroot-filemgmt # resize2fs /dev/mapper/vgroot-run_db # resize2fs /dev/mapper/vgroot-log_process # resize2fs /dev/mapper/vgroot-apw_tmp# lvs LV VG Attr LSize Pool Origin Data% Meta% Move Log Cpy%Sync Convert apw_tmp vgroot -wi-ao---- 29.09g filemgmt vgroot -wi-ao---- 118.19g logs_process vgroot -wi-ao---- 9.66g logs_security vgroot -wi-ao---- 3.66g netbackup_lv vgroot -wi-ao---- 2.00g plat_root vgroot -wi-ao---- 1.00g plat_tmp vgroot -wi-ao---- 1.00g plat_usr vgroot -wi-ao---- 4.00g plat_var vgroot -wi-ao---- 1.00g plat_var_tklc vgroot -wi-ao---- 4.00g run_db vgroot -wi-ao---- 109.09g # vgs VG #PV #LV #SN Attr VSize VFree vgroot 2 11 0 wz--n- 282.69g 117.31g</pre>
10. <input type="checkbox"/>	Reboot instance	<pre>[root@hostnameb267a6968148 ~]# init 6</pre>
THIS PROCEDURE HAS BEEN COMPLETED		

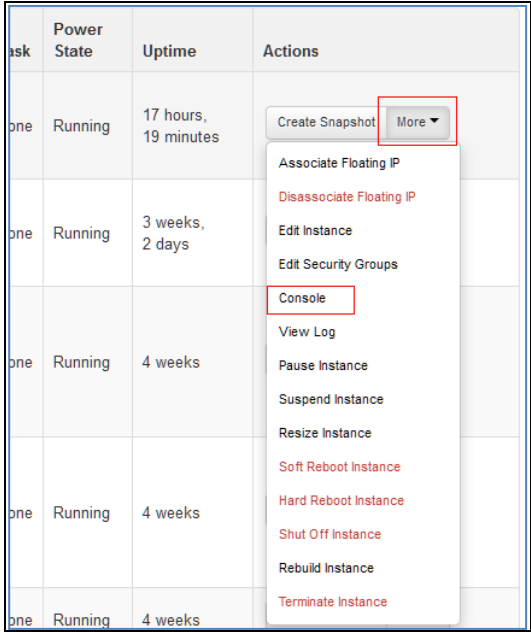
D.7 VM INSTANCE NETWORK CONFIGURATION

This procedure configures network interfaces for vm instance.

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

Procedure32: VM Instance Network Configuration

Step	Procedure	Result
1. <input type="checkbox"/>	Login to the OpenStack GUI	

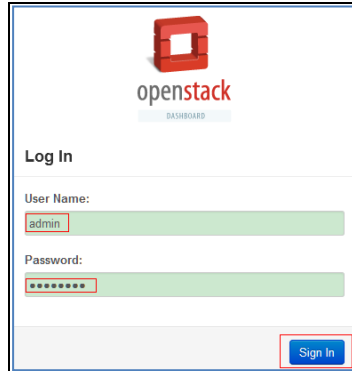
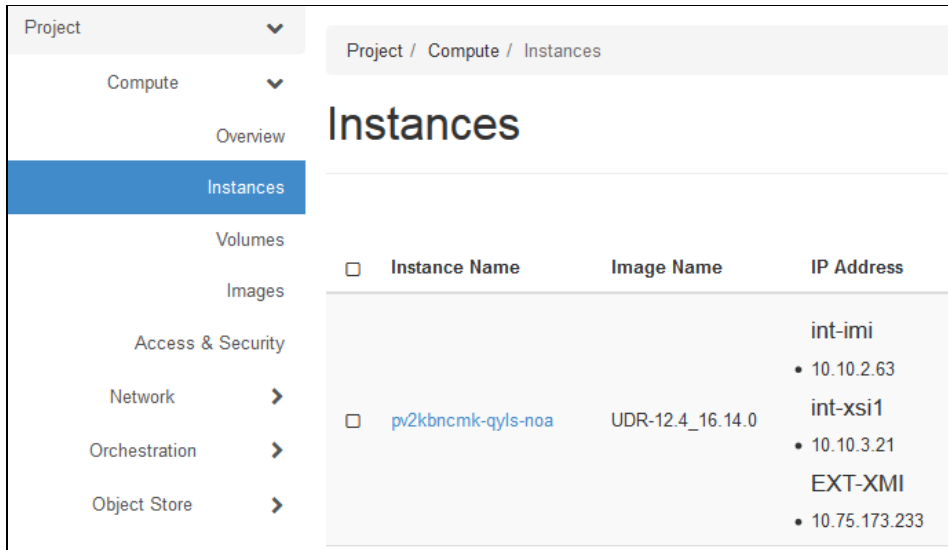
Step	Procedure	Result
2. <input type="checkbox"/>	Login VM instance from Project → Compute → Instances → More → Console	
3. <input type="checkbox"/>	Login to the VM with root user	<pre>hostnameea0c2d9aa8bce login: root password: <root_password></pre>
4. <input type="checkbox"/>	Use netAdm to add device and set ip address (ISO installs only)	<p>NOTE: This step is required only for ISO installs.</p> <pre>[root@ hostnameea0c2d9aa8bce ~]# netAdm add --device=eth0 Interface eth0 added</pre>
5. <input type="checkbox"/>	Set ip address for this interface	<pre>[root@ hostnameea0c2d9aa8bce ~]# netAdm set --device=eth0 --onboot=yes \ --netmask=<netmask> --address=<ip_address> Interface eth0 updated</pre>
6. <input type="checkbox"/>	Add default router	<pre>[root@ hostnameea0c2d9aa8bce ~]# netAdm add --route=default -- device=eth0 \ --gateway=10.240.174.1 Route to eth0 added</pre>
7. <input type="checkbox"/>	Add eth1 interface	<pre>[root@ hostnameea0c2d9aa8bce ~]# netAdm add --device=eth1 Interface eth1 added</pre>
8. <input type="checkbox"/>	Add eth2 interface	<pre>[root@hostnameeb6092a316785 ~]# netAdm add --device=eth2 Interface eth2 added</pre>
THIS PROCEDURE HAS BEEN COMPLETED		

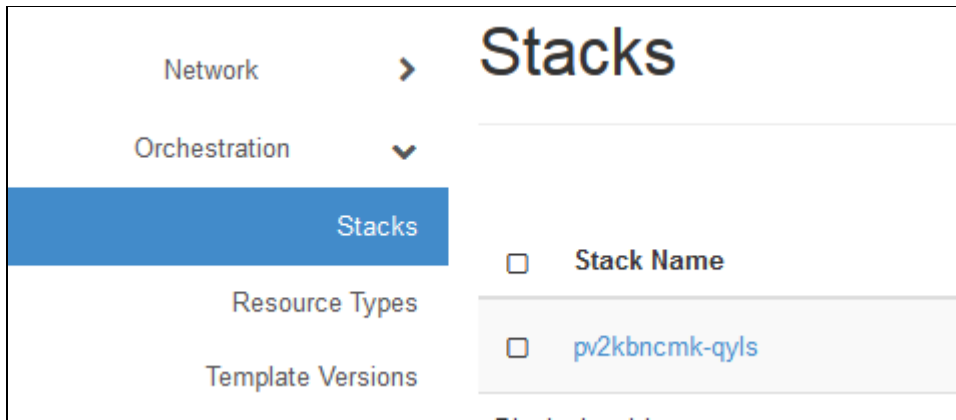
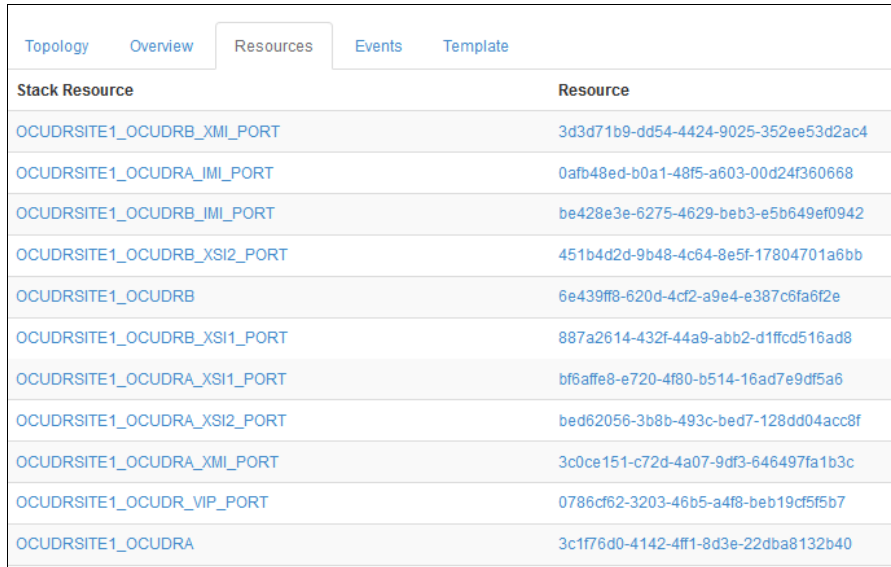
D.8 VIRTUAL IP ADDRESS ASSIGNMENT

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

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

Procedure33: Virtual IP Address Assignment

Step	Procedure	Result																					
1. <input type="checkbox"/>	Login to the OpenStack GUI	 <p>The screenshot shows the OpenStack Dashboard login page. The 'Log In' section has a 'User Name' field with 'admin' entered and a 'Password' field with masked characters. A 'Sign In' button is at the bottom right.</p>																					
2. <input type="checkbox"/>	1. Select project, (for example: UDR). 2. Select Project → Compute → Instances to show all Instances created under this project:	 <p>The screenshot shows the OpenStack 'Instances' page. The left sidebar has a menu with 'Project', 'Compute', 'Overview', 'Instances' (selected), 'Volumes', 'Images', 'Access & Security', 'Network', 'Orchestration', and 'Object Store'. The main content area shows a table of instances:</p> <table border="1"> <thead> <tr> <th>Instance Name</th> <th>Image Name</th> <th>IP Address</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>int-imi</td> </tr> <tr> <td></td> <td></td> <td>• 10.10.2.63</td> </tr> <tr> <td><input type="checkbox"/> pv2kbncmk-qyls-noa</td> <td>UDR-12.4_16.14.0</td> <td>int-xsi1</td> </tr> <tr> <td></td> <td></td> <td>• 10.10.3.21</td> </tr> <tr> <td></td> <td></td> <td>EXT-XMI</td> </tr> <tr> <td></td> <td></td> <td>• 10.75.173.233</td> </tr> </tbody> </table>	Instance Name	Image Name	IP Address			int-imi			• 10.10.2.63	<input type="checkbox"/> pv2kbncmk-qyls-noa	UDR-12.4_16.14.0	int-xsi1			• 10.10.3.21			EXT-XMI			• 10.75.173.233
Instance Name	Image Name	IP Address																					
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		• 10.10.3.21																					
		EXT-XMI																					
		• 10.75.173.233																					
3. <input type="checkbox"/>	Find the UDR instances	<p>Record the IP addresses of the UDR instances primary XMI network.</p> <p>UDR A: _____</p> <p>UDR B: _____</p>																					

Step	Procedure	Result																																																																	
4. <input type="checkbox"/>	<div>1. Navigate to Project → Orchestration → Stacks</div> <div>2. Select the Stack Name to see more detail</div>																																																																		
5. <input type="checkbox"/>	<div>Select the Resource tab,</div> <div>find the VIP PORT for UDR servers.</div>	 <table><tr><th>Topology</th><th>Overview</th><th>Resources</th><th>Events</th><th>Template</th></tr><tr><th>Stack Resource</th><th colspan="4">Resource</th></tr><tr><td>OCUDRSITE1_OCUDRB_XMI_PORT</td><td colspan="4">3d3d71b9-dd54-4424-9025-352ee53d2ac4</td></tr><tr><td>OCUDRSITE1_OCUDRA_XMI_PORT</td><td colspan="4">0afb48ed-b0a1-48f5-a603-00d24f360668</td></tr><tr><td>OCUDRSITE1_OCUDRB_XMI_PORT</td><td colspan="4">be428e3e-6275-4629-beb3-e5b649ef0942</td></tr><tr><td>OCUDRSITE1_OCUDRB_XSI2_PORT</td><td colspan="4">451b4d2d-9b48-4c64-8e5f-17804701a6bb</td></tr><tr><td>OCUDRSITE1_OCUDRB</td><td colspan="4">6e439ff8-620d-4cf2-a9e4-e387c6fa6f2e</td></tr><tr><td>OCUDRSITE1_OCUDRB_XSI1_PORT</td><td colspan="4">887a2614-432f-44a9-abb2-d1ffcd516ad8</td></tr><tr><td>OCUDRSITE1_OCUDRA_XSI1_PORT</td><td colspan="4">bf6affe8-e720-4f80-b514-16ad7e9df5a6</td></tr><tr><td>OCUDRSITE1_OCUDRA_XSI2_PORT</td><td colspan="4">bed62056-3b8b-493c-bed7-128dd04acc8f</td></tr><tr><td>OCUDRSITE1_OCUDRA_XMI_PORT</td><td colspan="4">3c0ce151-c72d-4a07-9df3-646497fa1b3c</td></tr><tr><td>OCUDRSITE1_OCUDR_VIP_PORT</td><td colspan="4">0786cf62-3203-46b5-a4f8-beb19cf5f5b7</td></tr><tr><td>OCUDRSITE1_OCUDRA</td><td colspan="4">3c1f76d0-4142-4ff1-8d3e-22dba8132b40</td></tr></table>	Topology	Overview	Resources	Events	Template	Stack Resource	Resource				OCUDRSITE1_OCUDRB_XMI_PORT	3d3d71b9-dd54-4424-9025-352ee53d2ac4				OCUDRSITE1_OCUDRA_XMI_PORT	0afb48ed-b0a1-48f5-a603-00d24f360668				OCUDRSITE1_OCUDRB_XMI_PORT	be428e3e-6275-4629-beb3-e5b649ef0942				OCUDRSITE1_OCUDRB_XSI2_PORT	451b4d2d-9b48-4c64-8e5f-17804701a6bb				OCUDRSITE1_OCUDRB	6e439ff8-620d-4cf2-a9e4-e387c6fa6f2e				OCUDRSITE1_OCUDRB_XSI1_PORT	887a2614-432f-44a9-abb2-d1ffcd516ad8				OCUDRSITE1_OCUDRA_XSI1_PORT	bf6affe8-e720-4f80-b514-16ad7e9df5a6				OCUDRSITE1_OCUDRA_XSI2_PORT	bed62056-3b8b-493c-bed7-128dd04acc8f				OCUDRSITE1_OCUDRA_XMI_PORT	3c0ce151-c72d-4a07-9df3-646497fa1b3c				OCUDRSITE1_OCUDR_VIP_PORT	0786cf62-3203-46b5-a4f8-beb19cf5f5b7				OCUDRSITE1_OCUDRA	3c1f76d0-4142-4ff1-8d3e-22dba8132b40			
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Step	Procedure	Result																								
6. <input type="checkbox"/>	Copy or record the Port ID for UDR	<div><div>TopologyOverviewResourcesEventsTemplate</div><table><thead><tr><th>Stack Resource</th><th>Resource</th></tr></thead><tbody><tr><td>OCUDRSITE1_OCUDRB_XML_PORT</td><td>3d3d71b9-dd54-4424-9025-352ee53d2ac4</td></tr><tr><td>OCUDRSITE1_OCUDRA_IMI_PORT</td><td>0afb48ed-b0a1-48f5-a603-00d24f360668</td></tr><tr><td>OCUDRSITE1_OCUDRB_IMI_PORT</td><td>be428e3e-6275-4629-beb3-e5b649ef0942</td></tr><tr><td>OCUDRSITE1_OCUDRB_XSI2_PORT</td><td>451b4d2d-9b48-4c64-8e5f-17804701a6bb</td></tr><tr><td>OCUDRSITE1_OCUDRB</td><td>6e439f8b-620d-4cf2-a9e4-e387c6fa8f2e</td></tr><tr><td>OCUDRSITE1_OCUDRB_XSI1_PORT</td><td>887a2614-432f-44a9-abb2-d1ffc0516ad8</td></tr><tr><td>OCUDRSITE1_OCUDRA_XSI1_PORT</td><td>bf6affe0-e720-4f80-b514-16ad7e9df5a6</td></tr><tr><td>OCUDRSITE1_OCUDRA_XSI2_PORT</td><td>bed62056-3b8b-493c-bed7-128dd04acc8f</td></tr><tr><td>OCUDRSITE1_OCUDRA_XML_PORT</td><td>3c0ce151-c72d-4a07-9df3-646497fa1b3c</td></tr><tr><td>OCUDRSITE1_OCUDR_VIP_PORT</td><td>0786cd62-3203-46b5-a4f8-beb19cd5f5b7</td></tr><tr><td>OCUDRSITE1_OCUDRA</td><td>3c1f76d0-4142-4ff1-8d3e-22dba8132b40</td></tr></tbody></table></div>	Stack Resource	Resource	OCUDRSITE1_OCUDRB_XML_PORT	3d3d71b9-dd54-4424-9025-352ee53d2ac4	OCUDRSITE1_OCUDRA_IMI_PORT	0afb48ed-b0a1-48f5-a603-00d24f360668	OCUDRSITE1_OCUDRB_IMI_PORT	be428e3e-6275-4629-beb3-e5b649ef0942	OCUDRSITE1_OCUDRB_XSI2_PORT	451b4d2d-9b48-4c64-8e5f-17804701a6bb	OCUDRSITE1_OCUDRB	6e439f8b-620d-4cf2-a9e4-e387c6fa8f2e	OCUDRSITE1_OCUDRB_XSI1_PORT	887a2614-432f-44a9-abb2-d1ffc0516ad8	OCUDRSITE1_OCUDRA_XSI1_PORT	bf6affe0-e720-4f80-b514-16ad7e9df5a6	OCUDRSITE1_OCUDRA_XSI2_PORT	bed62056-3b8b-493c-bed7-128dd04acc8f	OCUDRSITE1_OCUDRA_XML_PORT	3c0ce151-c72d-4a07-9df3-646497fa1b3c	OCUDRSITE1_OCUDR_VIP_PORT	0786cd62-3203-46b5-a4f8-beb19cd5f5b7	OCUDRSITE1_OCUDRA	3c1f76d0-4142-4ff1-8d3e-22dba8132b40
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OCUDRSITE1_OCUDRA	3c1f76d0-4142-4ff1-8d3e-22dba8132b40																									
7. <input type="checkbox"/>	Copy or record all required Port IDs for DR Site.	Repeat Step 5 and Step 6 to copy or record the Port ID of both servers: DR-UDR-A and DR-UDR-B. DR-UDR-A: _____ DR-UDR-B: _____																								
8. <input type="checkbox"/>	OpenStack Controller node: 1. Access the command prompt. 2. Log into the controller node as a privileged user.	<pre>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]#</pre>																								
9. <input type="checkbox"/>	OpenStack Controller node: Initialize environment variables	<pre>controller ~]# source keystone_rc_udrsw</pre>																								

Step	Procedure	Result
10. <input type="checkbox"/>	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_udrsw)]# openstack floating ip create --port <UDR_VIP_Port_ID> EXT-XMI For example: openstack floating ip create --port fc7b8473-b39d-477f-8b2b-7e0a3b45ce5b EXT-XMI
11. <input type="checkbox"/>	OpenStack Controller node: Repeat if needed	Repeat Step 10 as required for any other server pairs requiring a VIP.
12. <input type="checkbox"/>	OpenStack Controller node: Confirm VIP association	VIP associations may be confirmed with the following command by Port ID: [root@control01 ~](keystone_udrsw)]# neutron port-show <port_id> See Figure 3 for an example of the output.
THIS PROCEDURE HAS BEEN COMPLETED		

Figure 3 Example port-show output.

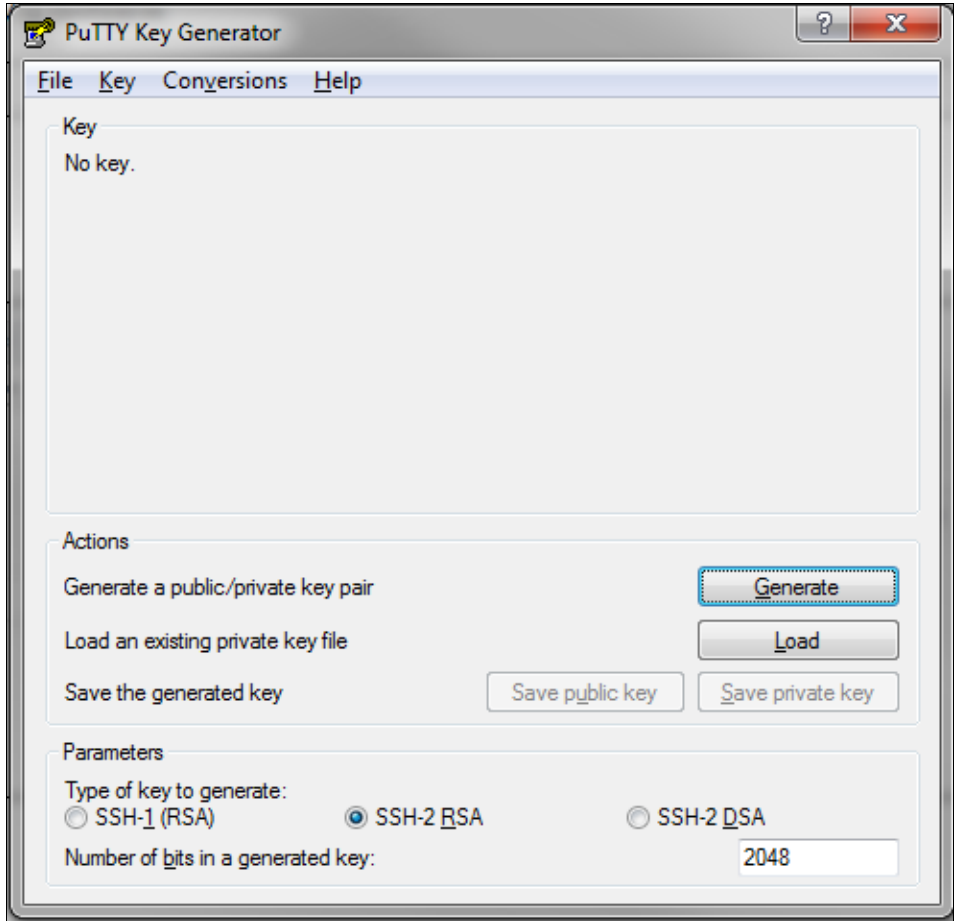
Field	Value
admin_state_up	True
allowed_address_pairs	{"ip_address": "10.240.221.36", "mac_address": "fa:16:3e:ce:18:2a"}
binding:host_id	compute05.labafrica
binding:profile	{}
binding:vif_details	{"port_filter": true, "ovs_hybrid_plug": true}
binding:vif_type	ovs
binding:vnictype	normal
device_id	947457b4-46e8-43e7-8f14-79c816388e3d
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

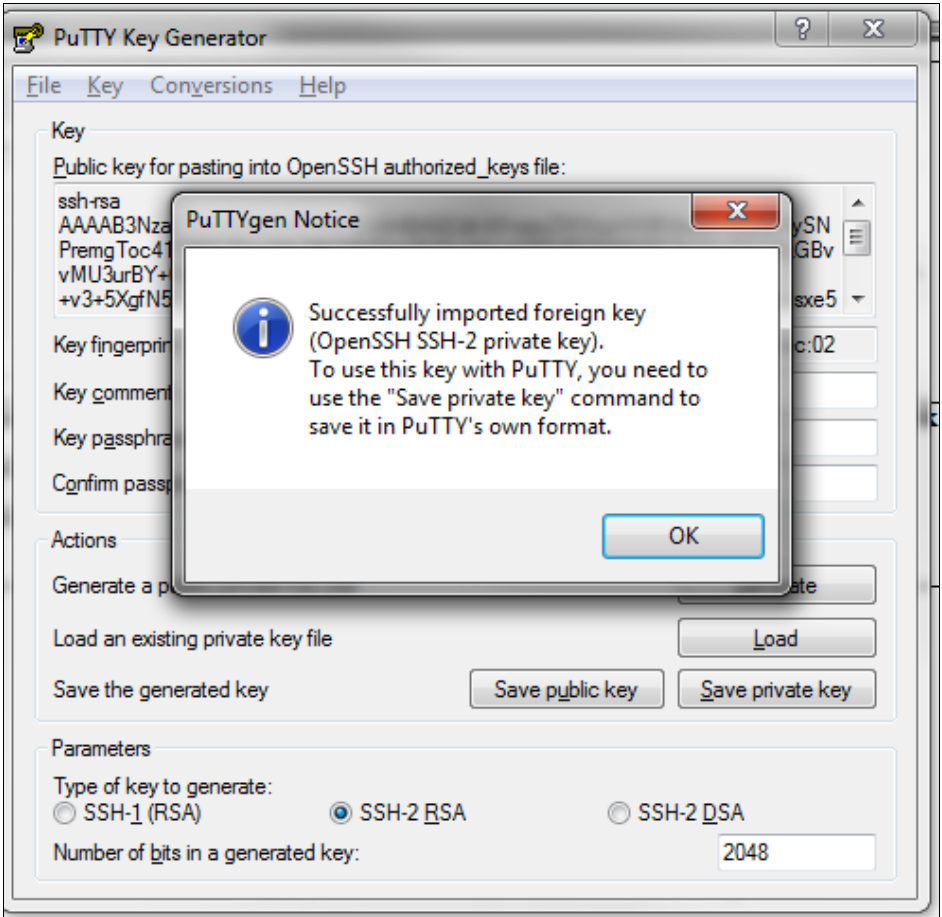
D.9 GENERATE PRIVATE KEY FOR SSH ACCESS

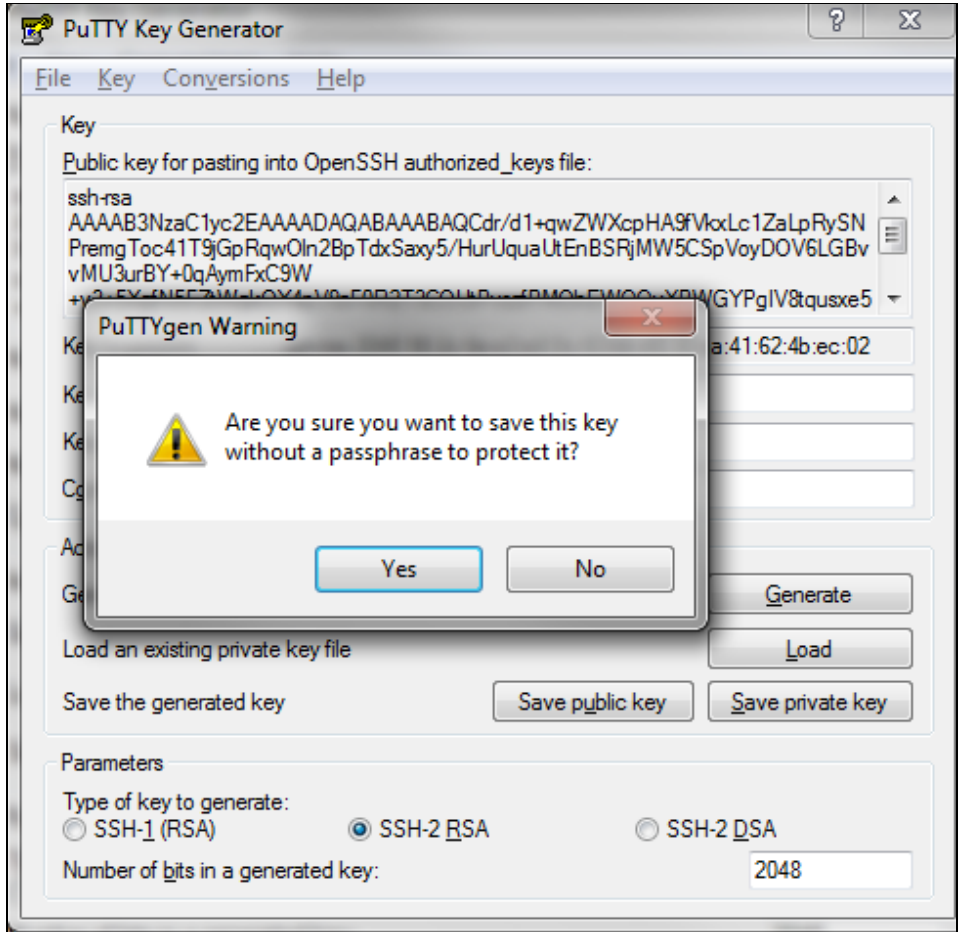
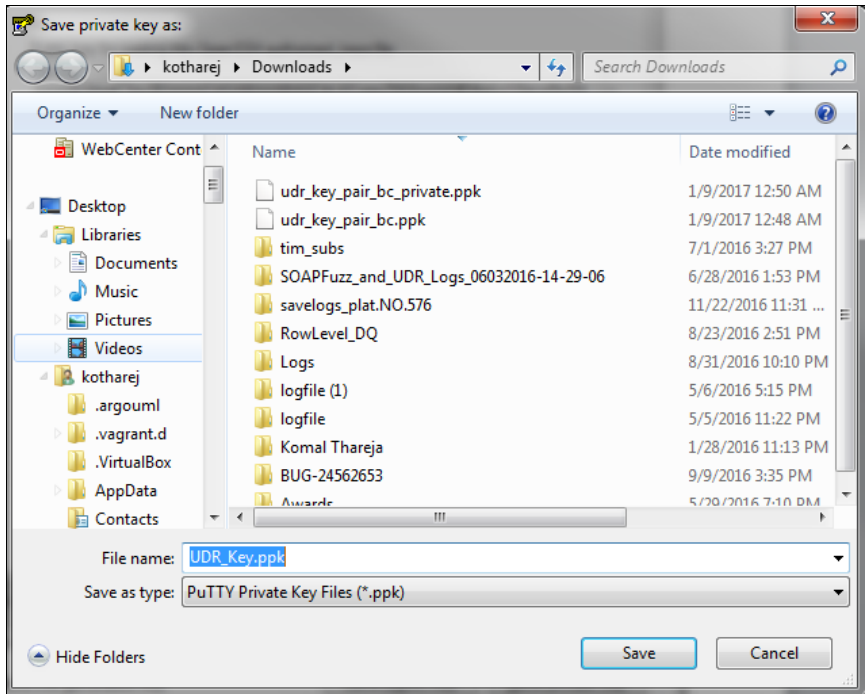
This procedure is used to generate Private Key to be used for accessing VM instance via SSH.

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

Procedure34: Generate Private Key for SSH Access

Step	Procedure	Result
1. <input type="checkbox"/>	Launch PuTTYGen	

Step	Procedure	Result
2. <input type="checkbox"/>	<p>Load the Key file i.e *.pem generated in D.3 Create Key Pair</p> <p>Click OK</p>	 <p>The screenshot shows the PuTTY Key Generator application. A 'PuTTYgen Notice' dialog box is displayed in the foreground, indicating that a foreign key (OpenSSH SSH-2 private key) has been successfully imported. The message instructs the user to use the 'Save private key' command to save it in PuTTY's own format. The background window shows the 'Key' tab, where a public key for pasting into the OpenSSH authorized_keys file is displayed. The key fingerprint, comment, and passphrase fields are also visible. The 'Actions' section includes buttons for 'Load', 'Save public key', and 'Save private key'. The 'Parameters' section shows the 'Type of key to generate' set to 'SSH-2 RSA' and the 'Number of bits in a generated key' set to '2048'.</p>

Step	Procedure	Result
3. <input type="checkbox"/>	<p>Save the Private Key by click Save Private Key</p> <p>Click Yes</p> <p>Click Save</p>	 
THIS PROCEDURE HAS BEEN COMPLETED		

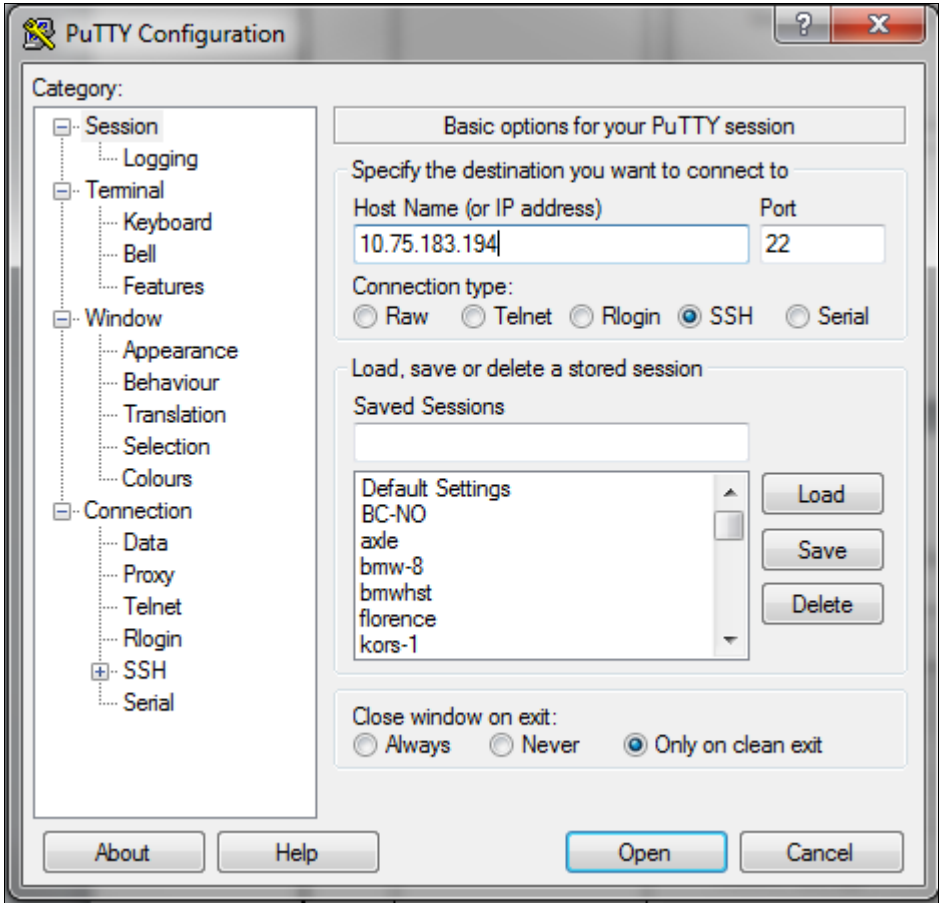
D.10 ACCESSING VM INSTANCE USING SSH

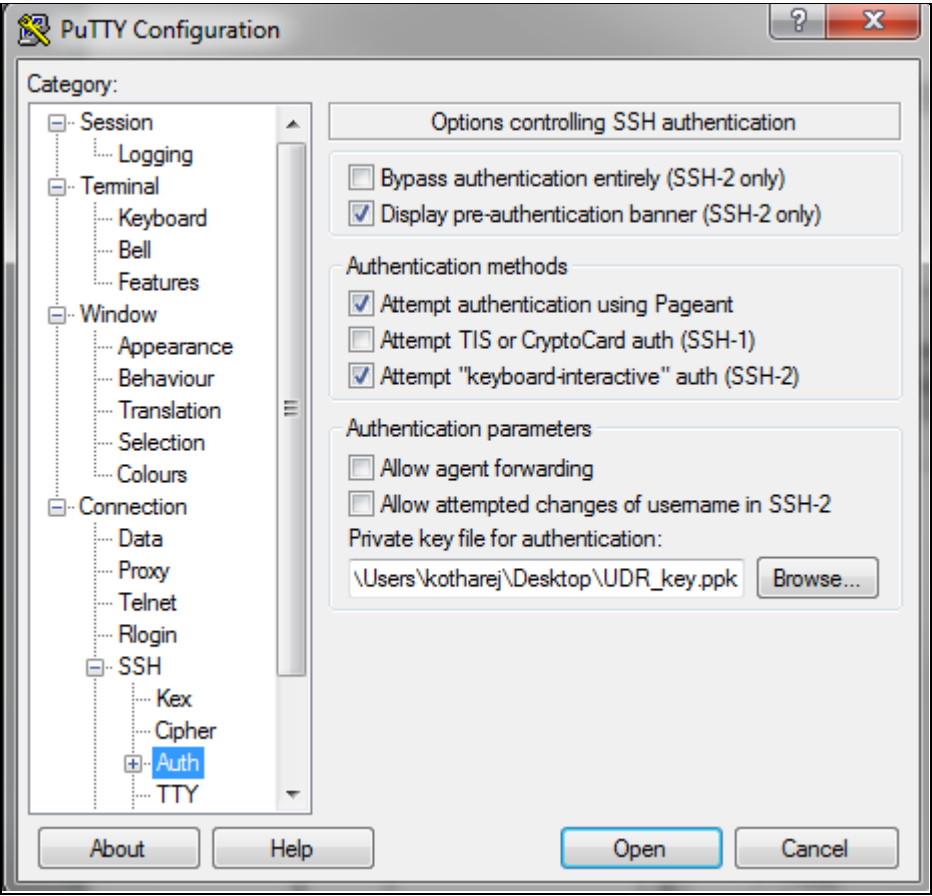
This procedure is used to access VM instance via SSH. This procedure assumes following:

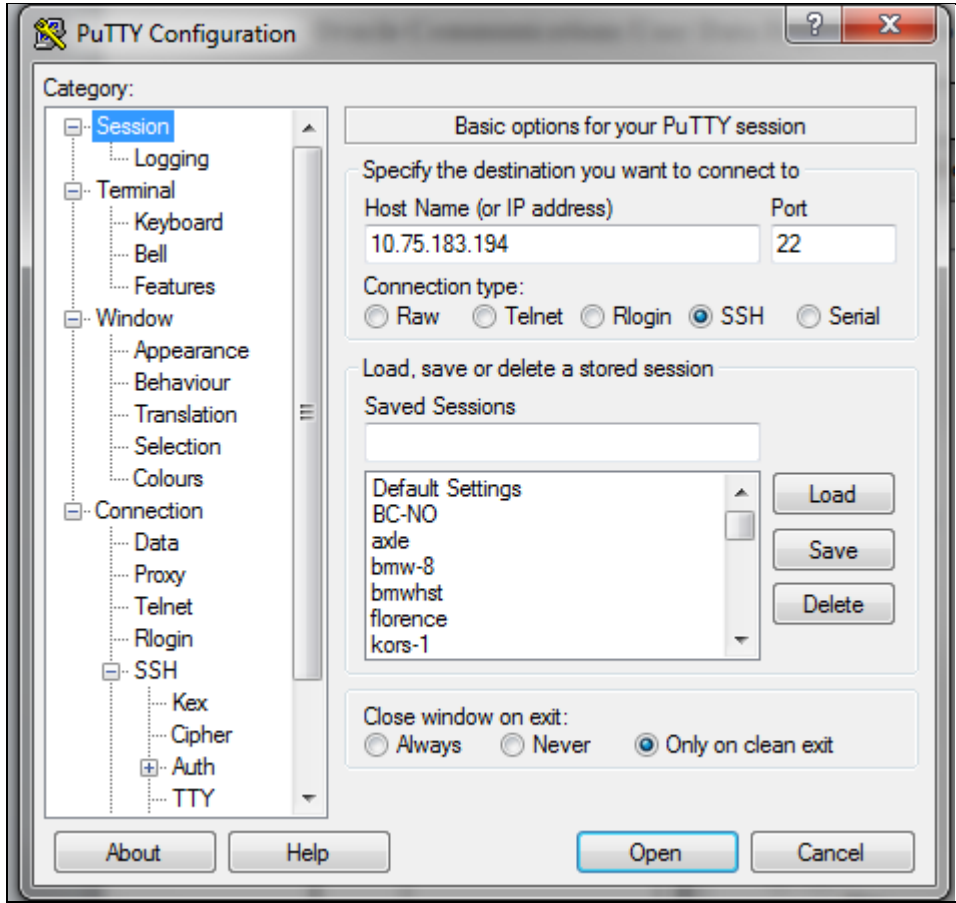
- Network configuration on VM instance is complete or floating IPs have been associated with VM instance
- Private Key has been generated as per D.9 Generate Private Key for SSH Access

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

Procedure35: SSH Access to VM Instance

Step	Procedure	Result
1. <input type="checkbox"/>	Launch Putty Specify IP Address of the VM Instance	

Step	Procedure	Result
2. <input type="checkbox"/>	<p>Navigate to SSH → Auth</p> <p>Select the *.ppk file generated by D.9 Generate Private Key for SSH Access</p>	 <p>The screenshot shows the PuTTY Configuration dialog box. The left pane, titled 'Category:', lists various configuration categories. The 'SSH' category is expanded, and the 'Auth' sub-category is selected and highlighted in blue. The right pane, titled 'Options controlling SSH authentication', contains several sections: 'Options controlling SSH authentication' with a checked box for 'Display pre-authentication banner (SSH-2 only)'; 'Authentication methods' with checked boxes for 'Attempt authentication using Pageant' and 'Attempt "keyboard-interactive" auth (SSH-2)', and an unchecked box for 'Attempt TIS or CryptoCard auth (SSH-1)'; and 'Authentication parameters' with unchecked boxes for 'Allow agent forwarding' and 'Allow attempted changes of username in SSH-2'. Below these sections is a text field for 'Private key file for authentication:' containing the path '\\Users\\kotharej\\Desktop\\UDR_key.ppk', followed by a 'Browse...' button. At the bottom of the dialog are 'About', 'Help', 'Open', and 'Cancel' buttons.</p>

Step	Procedure	Result
3. <input type="checkbox"/>	<p>From Session Category, click Open to launch the SSH connection</p> <p>Specify username admusr when prompted</p>	
THIS PROCEDURE HAS BEEN COMPLETED		

D.11 CLOBBER THE DATABASE ON VM INSTANCE

This procedure clobbers the database on VM instance.

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

Procedure36: Clobber Database on VM Instance

Step	Procedure	Result
1. <input type="checkbox"/>	Login to the VM with admusr via SSH as per D.10 Accessing VM Instance using SSH	<code>hostnameea0c2d9aa8bce login: admusr</code>
2. <input type="checkbox"/>	Switch to root user	<code># su - root password: <root_password></code>

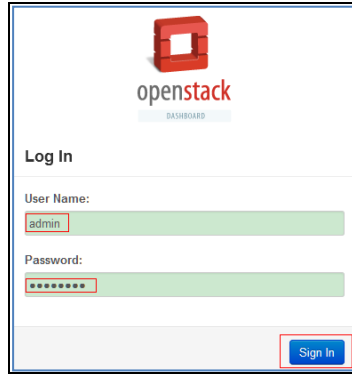
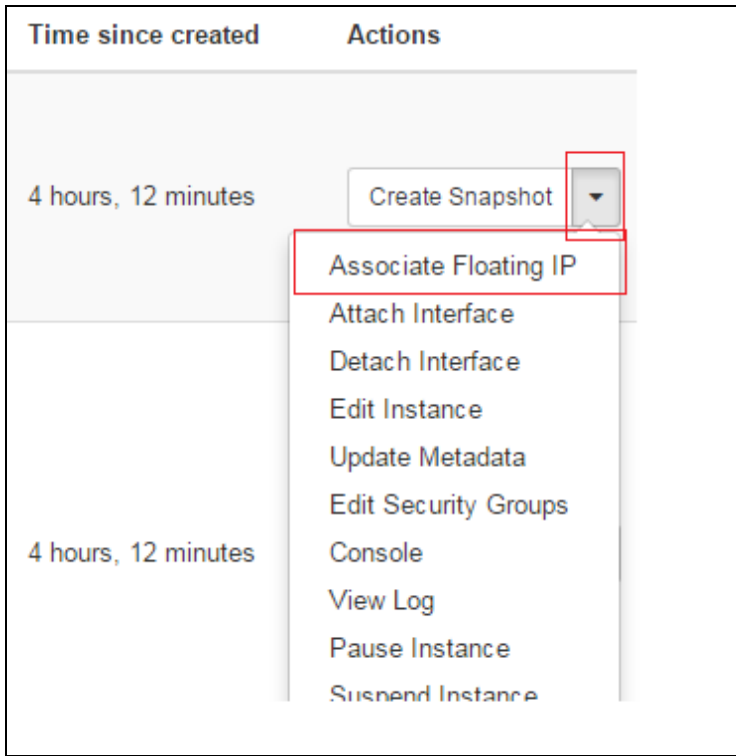
Step	Procedure	Result
3. <input type="checkbox"/>	Run prod.clobber on the created instances	<pre> [root@hostname2c6772f9819e ~]# prod.clobber ...prod.clobber (RUNID=88)... ...getting current state... Current state: X (product under procmgr) WARNING: ABOUT TO DESTROY ALL PRODUCT DISK FILES !!!! Are you 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 </pre>
4. <input type="checkbox"/>	Run prod.start on instance After start, use pl to check process status, after first start, only a few processes start	<pre> [root@hostname2c6772f9819e ~]# prod.start_ + iqt -liddioXML -DataDictPart > /var/TKLC/rundb/run/db/DataDictPart/20160527.055813.5460.DataDictPart.tmp + add.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 \$ pid procTag \$1 stat spawnTime H cmd Z 29470 cnha Up 05/27 01:59:29 1 cnha Z 29471 cnsopa Up 05/27 01:59:29 1 cnsopa Z 29473 idbsvc Up 05/27 01:59:29 1 idbsvc -H10 -HE204 -D40 -DE820 -M1 -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 </pre>
5. <input type="checkbox"/>	Run prod.start -i again on instance, this time, all processes started	<pre> [root@hostname2c6772f9819e ~]# prod.start ...prod.start (RUNID=88)... ...getting current state... Current state: Z (product under procmgr) ...setting state X... ...waiting for state [X0A]... Current state is X [root@hostname2c6772f9819e ~]# pl \$ pid procTag \$1 stat spawnTime H 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 apuSoapServer Up 05/27 02:00:25 1 TCMOSIGCHK-1 apuSoapServer X 29470 cnha Up 05/27 01:59:29 1 cnha X 29591 cnplatalarm Up 05/27 02:00:25 1 cnplatalarm X 29593 cnsnmpsa Up 05/27 02:00:25 1 cnsnmpsa -R 1.3.6.1.4.1.320.5.3.32.1 X 29471 cnsopa Up 05/27 01:59:29 1 cnsopa 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 -H10 -HE204 -D40 -DE820 -M1 -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 nkdhooks Up 05/27 02:00:25 1 nkdhooks X 29601 oampAgent Up 05/27 02:00:25 1 oampAgent X 29603 pn.watchdog Up 05/27 02:00:25 1 pn.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 vipngr Up 05/27 02:00:25 1 vipngr </pre>
THIS PROCEDURE HAS BEEN COMPLETED		

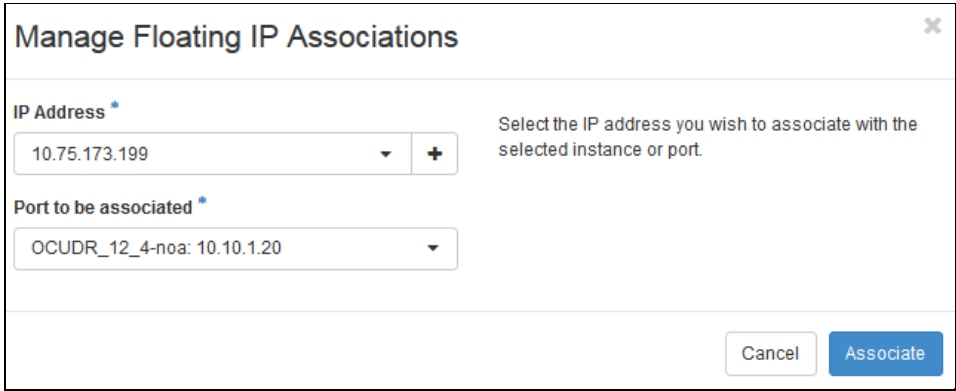
D.12 ASSOCIATING FLOATING IPS

This procedure associates Floating IP to vm instance.

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

Procedure37: Associate Floating IP

Step	Procedure	Result
1. <input type="checkbox"/>	Login to the OpenStack GUI	 <p>The screenshot shows the OpenStack Dashboard login page. It features the OpenStack logo at the top. Below the logo is a 'Log In' section with two input fields: 'User Name' containing the text 'admin' and 'Password' containing a series of dots. A 'Sign In' button is located at the bottom right of the login section.</p>
2. <input type="checkbox"/>	Login to the VM instance by navigating to Project → Instances → More → Associate Floating IP	 <p>The screenshot shows the OpenStack VM instance management interface. It has two columns: 'Time since created' and 'Actions'. The first row shows '4 hours, 12 minutes' and a 'Create Snapshot' button. The second row shows '4 hours, 12 minutes' and a dropdown menu. The dropdown menu is open, showing a list of actions: 'Associate Floating IP', 'Attach Interface', 'Detach Interface', 'Edit Instance', 'Update Metadata', 'Edit Security Groups', 'Console', 'View Log', 'Pause Instance', and 'Suspend Instance'. The 'Associate Floating IP' option is highlighted with a red box.</p>

Step	Procedure	Result
3. <input type="checkbox"/>	Select the IP Addresss and Port to be associated Click Associate	 <p>Manage Floating IP Associations</p> <p>IP Address * 10.75.173.199 +</p> <p>Port to be associated * OCUDR_12_4-noa: 10.10.1.20</p> <p>Select the IP address you wish to associate with the selected instance or port.</p> <p>Cancel Associate</p>
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix E. Same 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	Example SOAM Network Element XML
<pre><?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></pre>	<pre><?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></pre>

NOTE: Do not include the XSI network(s) in a Network Element XML file.

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>Cloud UDR</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 F. High Availability Configurations

VM Name	Non HA		HA			
	Min number of VMs	Max number of VMs	Min number of VMs	Max number of VMs	HA config	Affinity
UDR	1	2	2	2	Active-Standby	Anti-affinity. UDRs must be hosted on different servers

NOTES:

Non-HA configuration is for labs and demonstrations only.

The UDR VMs raise HA alarms when deployed as singletons. For this reason, standby VMs are often deployed even in non-HA labs.

The HA Max number of VMs was used for performance testing

For Geo-Diverse configurations, DR site VMs must be hosted at a geo-diverse location from the first site

Appendix G. Resource Profile

		vCPUs				RAM (GB)				Storage (GB)			
		Lab	2K Sh	7K Sh	12.5K	Lab	2K Sh	7K Sh	12.5K Sh	Lab	2K Sh	7K Sh	12.5K Sh
UDR	Network Opertation, Administration, Maintenace, and Provisioning	4	4	8	14	6	16	32	64	60	220	400	400

NOTES:

- Lab numbers are for demonstration of functionality only and can only support 100/s SOAP provisioning with 2k/s SH traffic.
- 1:1vCPU to CPU ratio based on Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz

Appendix H. 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		

Legend				
Mandatory	Not Applicable	Unsupported	Optional	Suggested

Appendix I. Network and Port Information

Network	Description	Also Known As	Optional/ Mandatory	Type	IPv6	VMs using	Services	Notes
OAMP	Routable operations, administration, maintenance and provisioning flows	External Management Interface (XMI)	Mandatory	External	No	All	AppWorks SOAP Server (TCP/18081) AppWorks GUI (TCP/443, TCP/80) AppWorks File Transfer (TCP/22) AppWorks Online Help (TCP/8081) DNS (TCP/53, UDP/53) NTP (UDP/123) SNMP gets (UDP/161) SSH (TCP/22) X11 Forwarding (TCP/6010) RPC Bind (TCP/111) Prov REST (TCP/8787) Prov SOAP (TCP/62001) Prov GUI (TCP/16530) Prov Import (TCP/16531) Prov OnDemand (TCP/16532) Prov Notifications (TCP/16535)	Local services may also run on OAMP network when the target is outside the Network Element. ComAgent Services may run over OAMP Network between Network Elements unless configured to run on Signaling A.

Local	Application internal communications	Internal Management Interface (IMI)	Mandatory	Internal	No	All	COMCOL SOAP Server (TCP/15360) COMCOL Merging (TCP/16878) COMCOL Replication (TCP/17398,17399, TCP/17400) COMCOL HA (TCP/17401,17402,17406 UDP/17401) ComAgent EventTransfer (TCP/16529) ComAgent EventTransfer Alert (TCP/16541) Imysql (TCP 15616)	OAM services may be configured to run on the Local network when the destination is inside the Network Element.
Signaling A	Application external communications	External Signaling Interface 1 (XSI1)	Mandatory	External	Yes	MP, Optional:NOAMP	Diameter (TCP/3868, SCTP/3868)	Signal A network may also be configured to host ComAgent services when the target is outside the Network Element.
Signaling B	Application external communications	External Signaling Interface 2 (XSI2)	Optional	External	Yes	MP	Diameter (TCP/3868, SCTP/3868)	

Port values are configurable (default value shown)

Appendix J. Install UDR on Oracle Linux OS via KVM

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

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

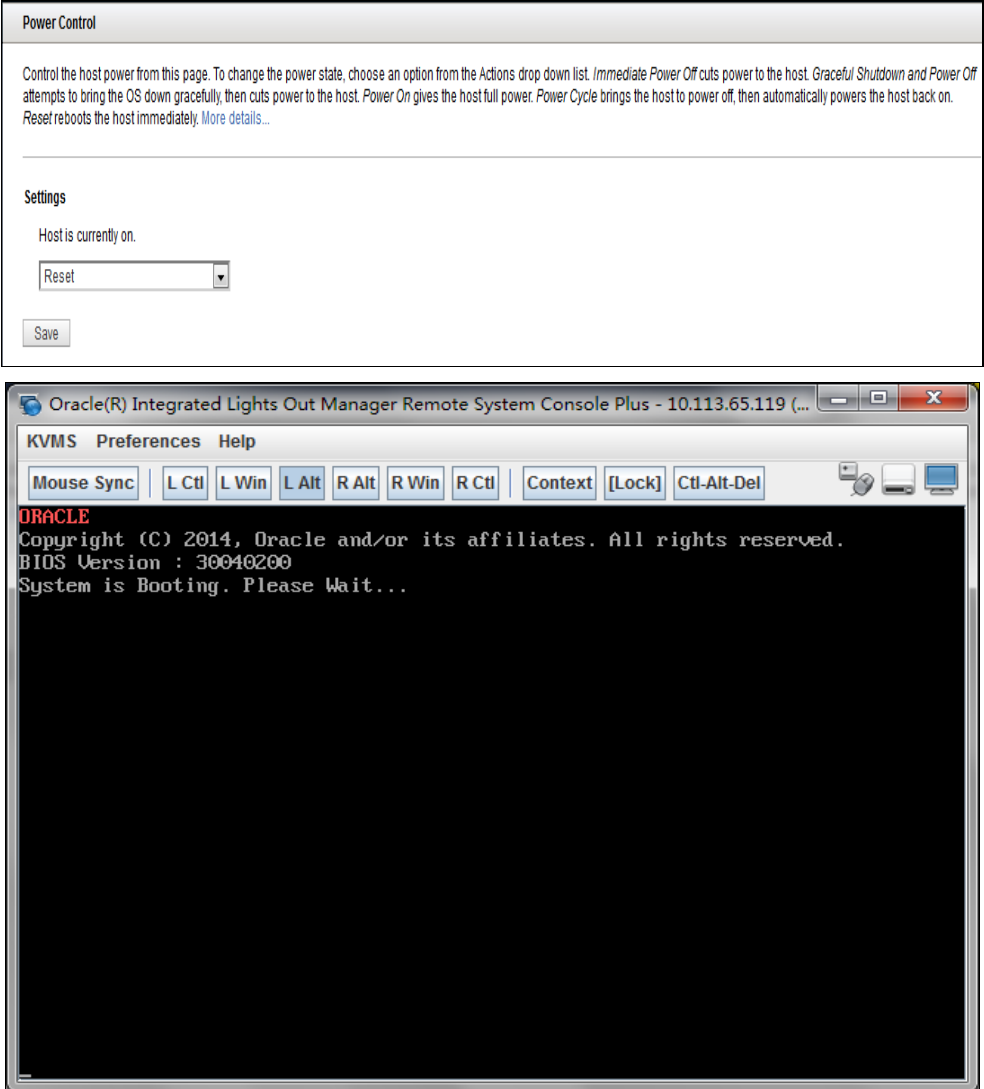
NOTE:


- 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.

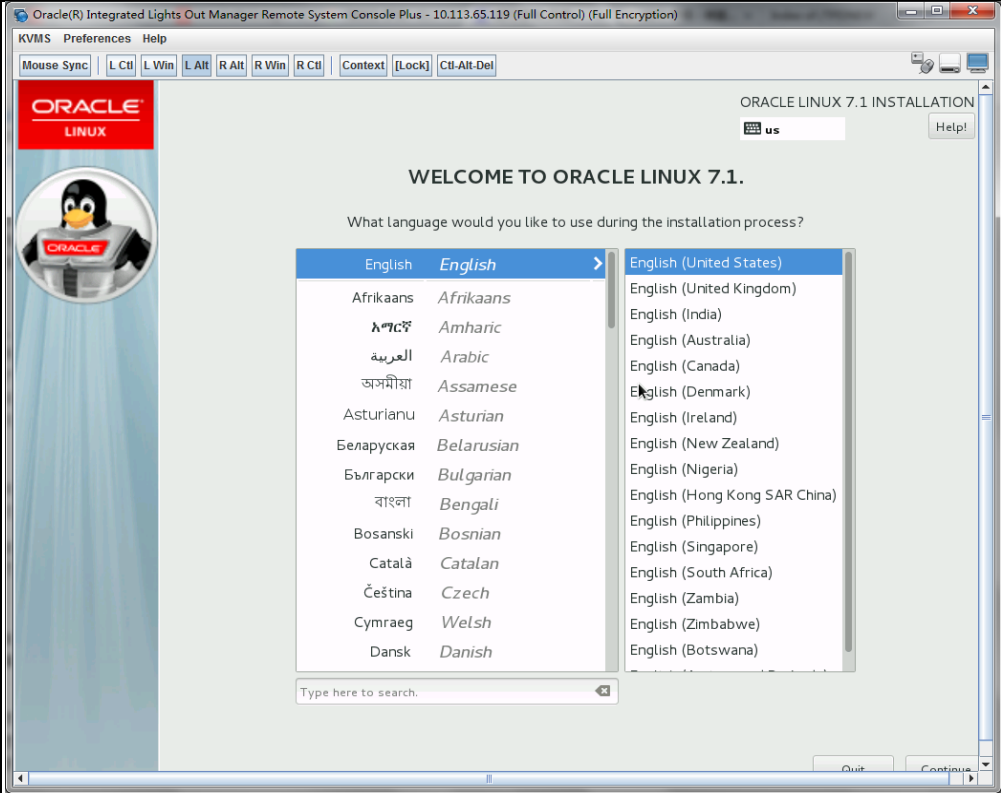
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

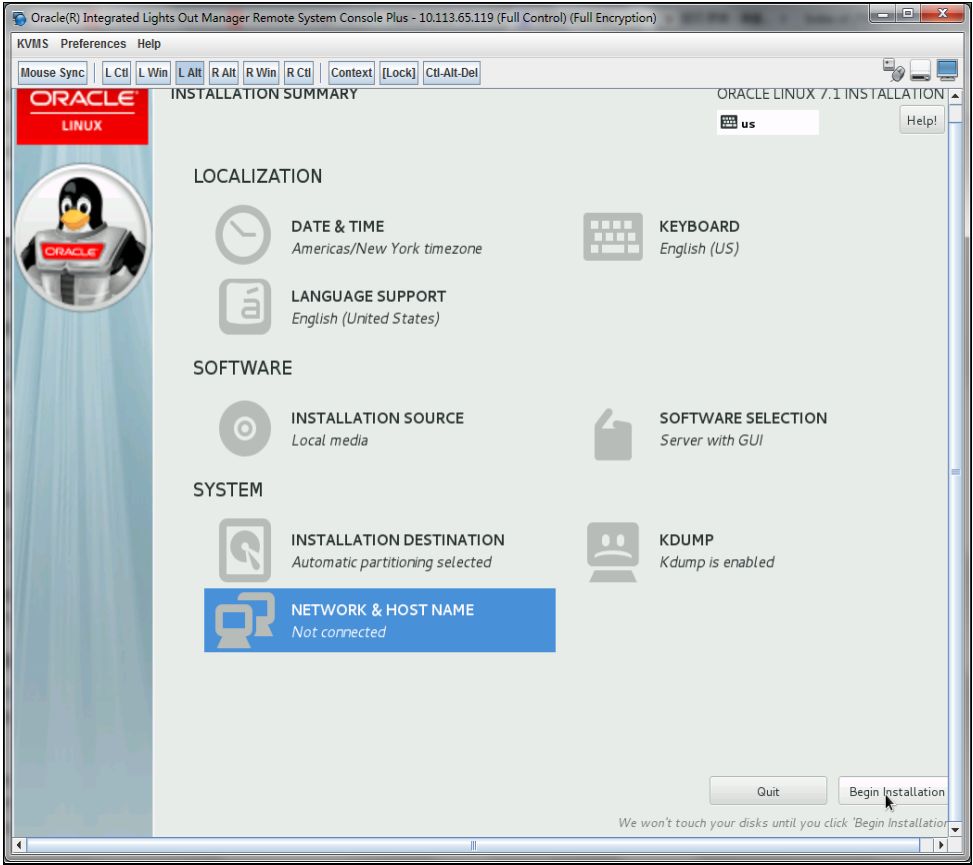
Procedure38: Install UDR on Oracle Linux/KVM

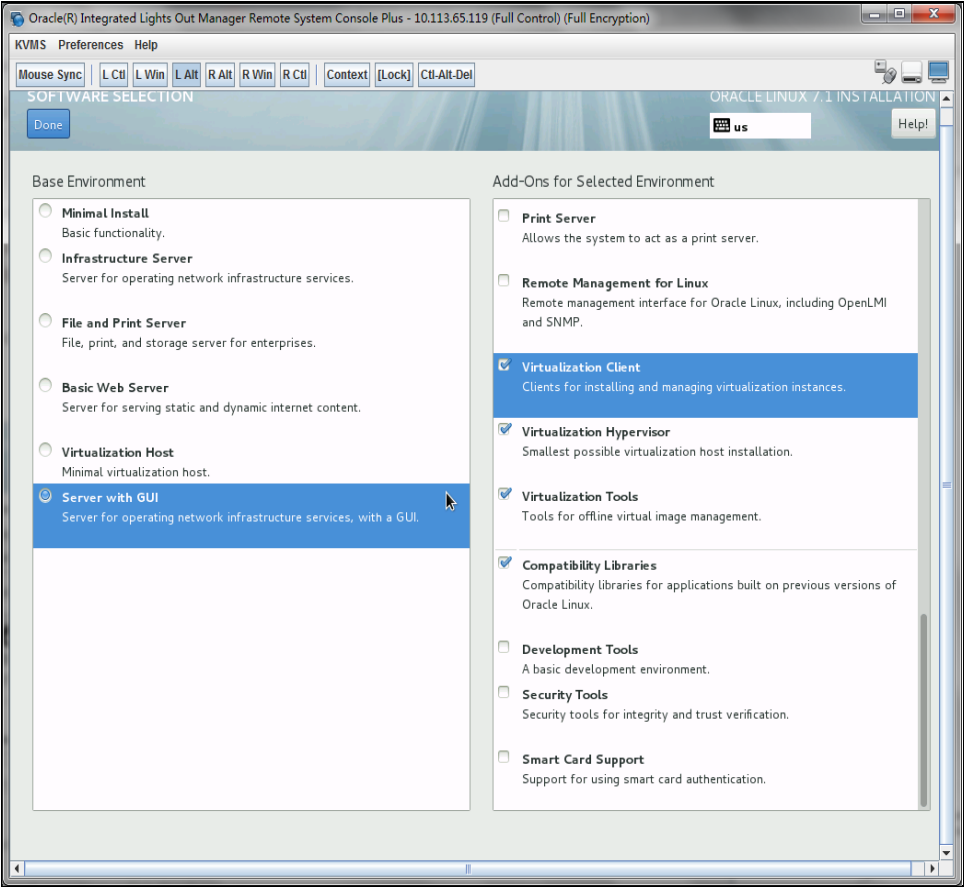
Step	Procedure	Result
1. <input type="checkbox"/>	For each Oracle X5-2 RMS, mount virtual media contains Oracle Linux OS software	Follow steps defined in Appendix C.3 Mounting Virtual Media on Oracle RMS Server of Error! Reference source not found.. to mount the Oracle Linux OS software ISO.

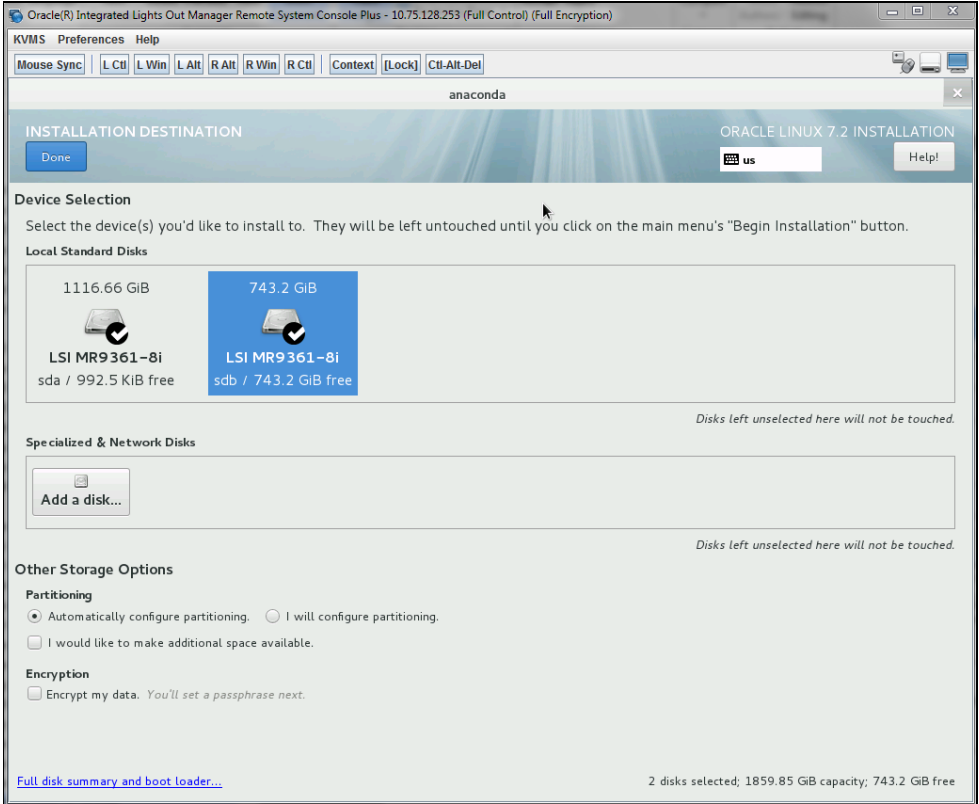
Step	Procedure	Result
2. <input type="checkbox"/>	For each Oracle X5-2 RMS, reboot the host..	<ol style="list-style-type: none"> 1. Login to the X5-2 iLo GUI browser page and launch remote console 2. In ILO GUI, navigate to Host Management → Power Control 3. Select Reset 4. Click Save to reboot host. <p>In remote console window, you see that the host is rebooting. Wait for the reboot to complete.</p>  <p>The screenshot shows two parts of the iLo interface. The top part is the 'Power Control' web page, which includes instructions on how to use the 'Actions' drop-down list (Immediate Power Off, Graceful Shutdown, Power Off, Power On, Power Cycle, Reset) and a 'Settings' section indicating the host is currently on, with a 'Reset' button selected in the drop-down and a 'Save' button below it. The bottom part is a remote console window titled 'Oracle(R) Integrated Lights Out Manager Remote System Console Plus - 10.113.65.119'. The console shows the 'ORACLE' logo, copyright information for 2014, BIOS version 30040200, and the message 'System is Booting. Please Wait...'.</p>

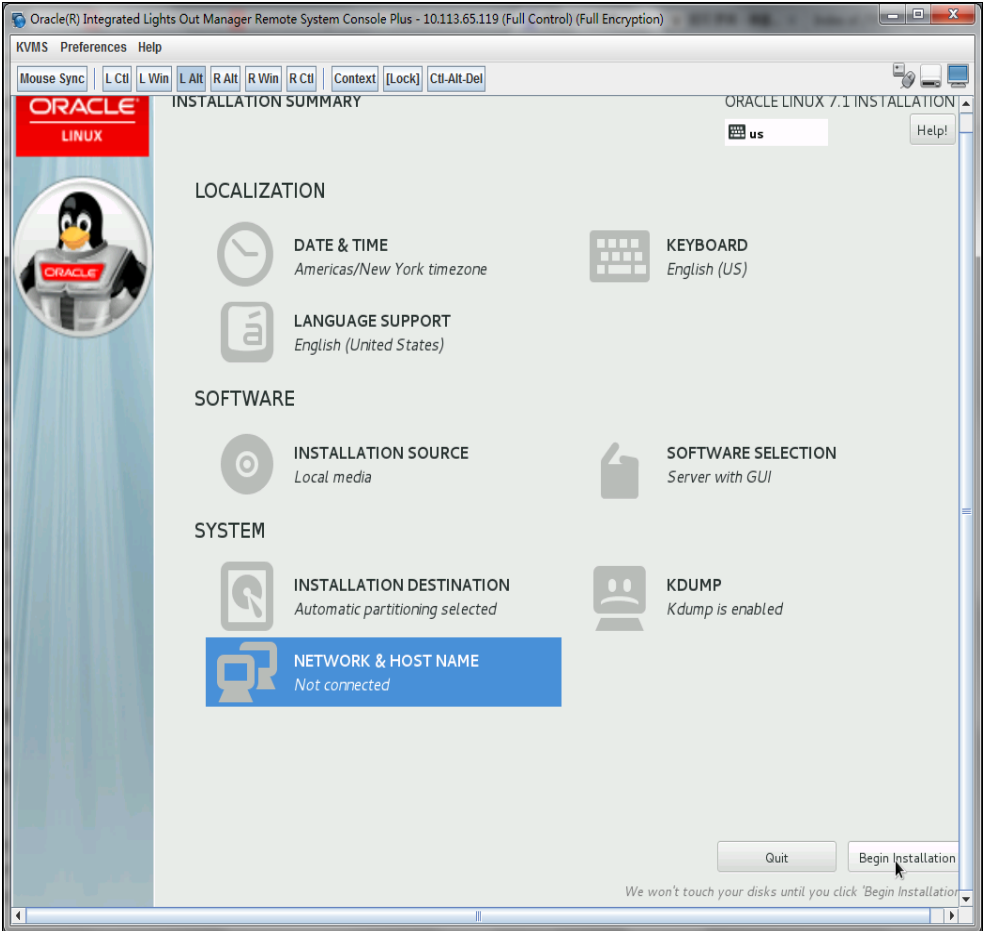
Step	Procedure	Result
3. <input type="checkbox"/>	For each Oracle X5-2 RMS, initiate Oracle Linux Platform installation	<p>After the reboot is complete, the host boots with Oracle Linux installation ISO and the Oracle Linux GUI with the installation option opens.</p> <p>Select Install Oracle Linux 7.x.</p>  <p>The screenshot shows a remote console window titled "Oracle(R) Integrated Lights Out Manager Remote System Console Plus - 10.113.65.119". The window has a menu bar with "KVMS", "Preferences", and "Help". Below the menu bar are buttons for "Mouse Sync", "L Ctl", "L Win", "L Alt", "R Alt", "R Win", "R Ctl", "Context", "[Lock]", and "Ctl-Alt-Del". The main display area has a red background with the "ORACLE" logo at the top. Below the logo, it says "Oracle Linux 7.1". Underneath, there are three menu items: "Install Oracle Linux 7.1", "Test this media & install Oracle Linux 7.1", and "Troubleshooting" with a right arrow. At the bottom, it says "Press Tab for full configuration options on menu items." and "Oracle Linux" with a Tux penguin logo.</p>

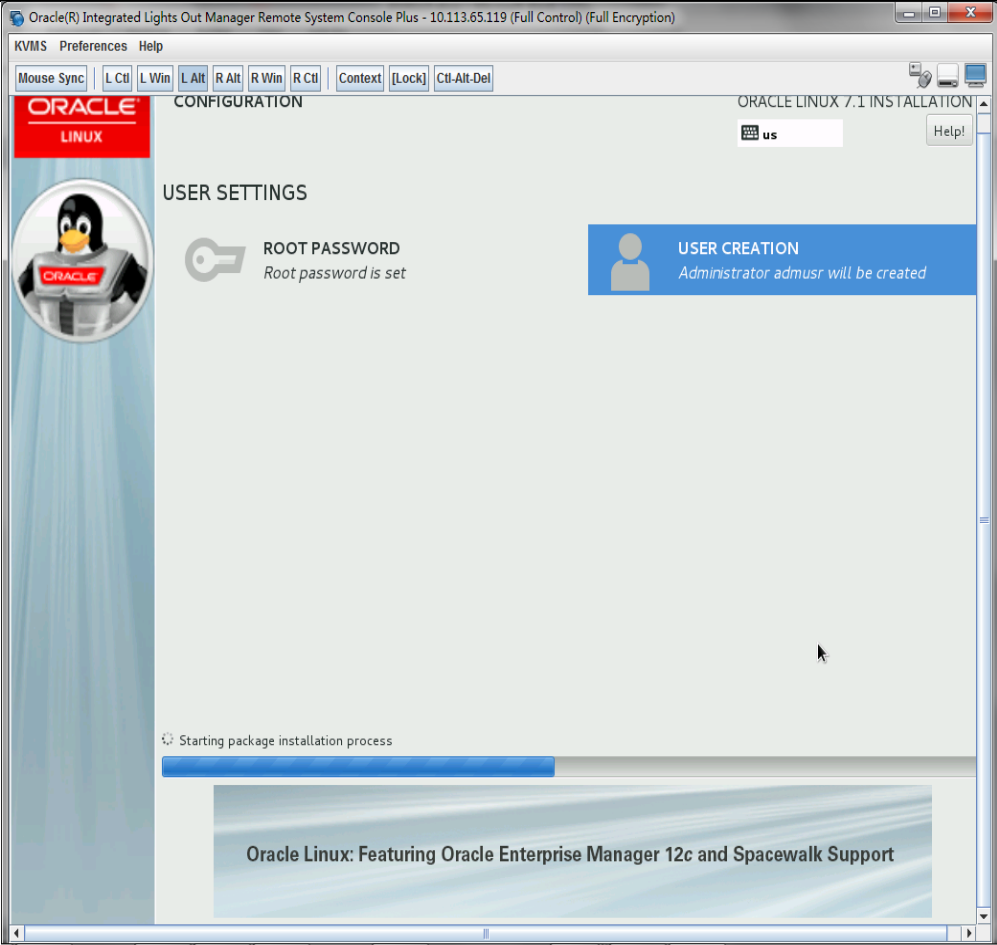
Step	Procedure	Result
4. <input type="checkbox"/>	For each Oracle X5-2 RMS, select Oracle Linux OS language	<p>1. When prompted, select English as Oracle Linux OS language:</p>  <p>2. Click Continue.</p>

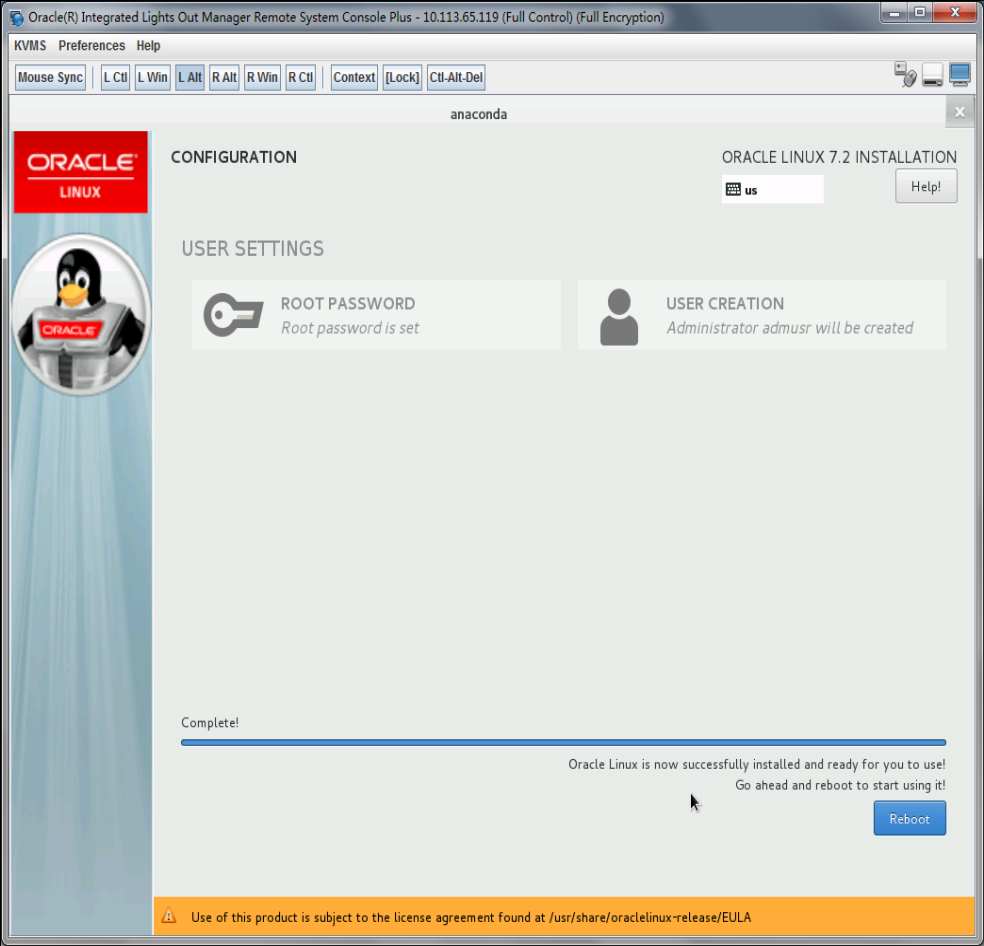
Step	Procedure	Result
5. <input type="checkbox"/>	For each Oracle X5-2 RMS, setup time zone	<p>The next page prompts you for Oracle Linux OS installation required information to start installation.</p>  <ol style="list-style-type: none"> 1. Navigate to LOCALIZATION → DATE & TIME. 2. Set time zone as Americas/New York. 3. Click Done to save the changes and return to the main configuration page.

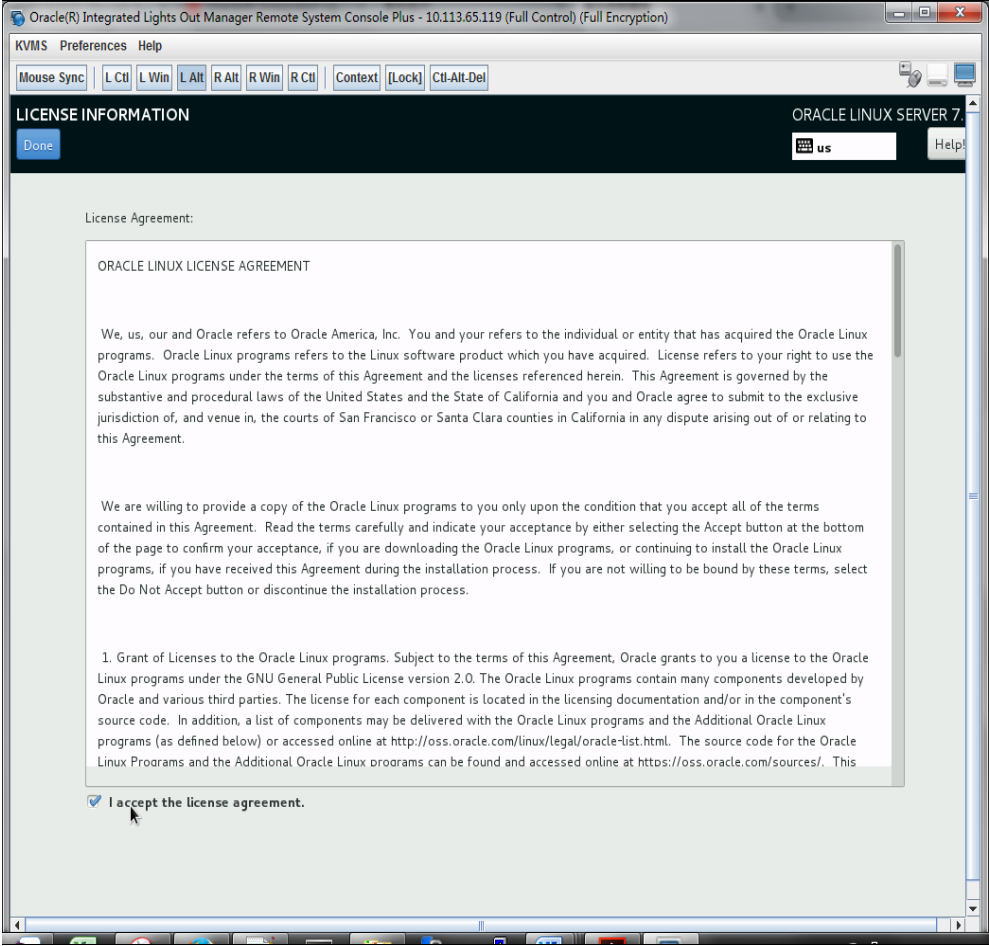
Step	Procedure	Result
6. <input type="checkbox"/>	<p>For each Oracle X5-2 RMS:</p> <p>Setup installation base environment</p>	<p>Navigate to SOFTWARE → SOFTWARE SELECTION menu. Choose “Server with GUI” group, and make sure following add-ons are selected:</p> <ul style="list-style-type: none"> • Virtualization Client • Virtualization Hypervisor • Virtualization Tools • Compatibility Libraries  <p>Click Done to save up changes and goes back to main configuration page.</p>

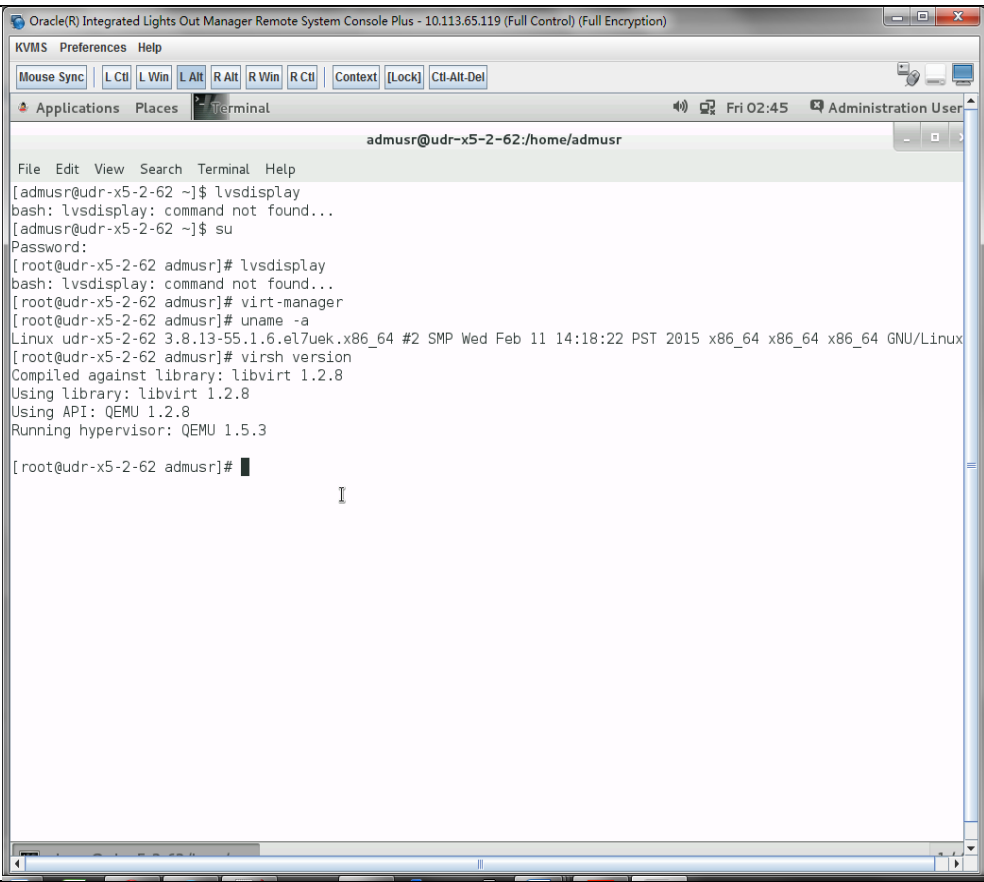
Step	Procedure	Result
7. <input type="checkbox"/>	For each Oracle X5-2 RMS, setup installation destination	<ol style="list-style-type: none"> 1. Navigate to SYSTEM → INSTALLATION DESTINATION menu. 2. Select sda and sdb. 3. Choose Automatically configure partitioning. 4. Click Done. 

Step	Procedure	Result
8. <input type="checkbox"/>	For each Oracle X5-2 RMS, review configuration and start to install	<p>Review all information before clicking Begin Installation.</p> <p>(You do not need to configure network at this time, network configuration is done after the Oracle Linux OS is installed.)</p> 

Step	Procedure	Result
9. <input type="checkbox"/>	For each Oracle X5-2 RMS, create login credential	<p>At the same time Oracle Linux installation software is putting files onto the Oracle X5-2 local hard disk, you can configure the root credentials or any other login credentials required.</p> 

Step	Procedure	Result
10. <input type="checkbox"/>	For each Oracle X5-2 RMS, reboot host after installation completed	<p>Wait for the installation to complete.</p>  <p>Click Reboot.</p>

Step	Procedure	Result
11. <input type="checkbox"/>	For each Oracle X5-2 RMS, read and accept the license agreement	<p>After reboot is complete, the license agreement page opens.</p>  <p>1. Select I accept the license agreement.</p> <p>2. Click Finish Configuration.</p> <p>If you are prompted for ULN setting, skip that step.</p>

Step	Procedure	Result
12. <input type="checkbox"/>	For each Oracle X5-2 RMS, verify kernel version and KVM version	<p>Open SSH console window and check following:</p>  <pre> [admusr@udr-x5-2-62 ~]\$ lvsdisplay bash: lvsdisplay: command not found... [admusr@udr-x5-2-62 ~]\$ su Password: [root@udr-x5-2-62 admusr]# lvsdisplay bash: lvsdisplay: command not found... [root@udr-x5-2-62 admusr]# virt-manager [root@udr-x5-2-62 admusr]# uname -a Linux udr-x5-2-62 3.8.13-55.1.6.el7uek.x86_64 #2 SMP Wed Feb 11 14:18:22 PST 2015 x86_64 x86_64 x86_64 GNU/Linux [root@udr-x5-2-62 admusr]# virsh version Compiled against library: libvirt 1.2.8 Using library: libvirt 1.2.8 Using API: QEMU 1.2.8 Running hypervisor: QEMU 1.5.3 [root@udr-x5-2-62 admusr]# </pre>
13. <input type="checkbox"/>	For each Oracle X5-2 RMS, change network interface name pattern to 'ethx'	<ol style="list-style-type: none"> 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</pre> <pre> 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 using shutdown -r command and verify that network interface have the ethx name pattern.

Step	Procedure	Result
14. <input type="checkbox"/>	For each Oracle X5-2 RMS, Create bond0 device	<p>1. Create device bond0 configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-bond0</pre> <pre>DEVICE=bond0 TYPE=Bonding BOND_INTERFACES=<nic1>,<nic2> ONBOOT=yes NM_CONTROLLED=no BOOTPROTO=none BONDING_OPTS="mode=active-backup primary=<nic1> miimon=100"</pre> <p>2. Save the file and exit.</p> <p>3. Create device eth0 configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-<nic1></pre> <pre>DEVICE=<nic1> TYPE=Ethernet ONBOOT=yes NM_CONTROLLED=no BOOTPROTO=none MASTER=bond0 SLAVE=yes</pre> <p>4. Save the file and exit.</p> <p>5. Create device eth1 configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-<nic2></pre> <pre>DEVICE=<nic2> TYPE=Ethernet ONBOOT=yes NM_CONTROLLED=no BOOTPROTO=none MASTER=bond0 SLAVE=yes</pre> <p>6. Save the file and exit.</p> <p>7. Bring the devices into service:</p> <pre># ifup <nic1> # ifup <nic2> # ifup bond0</pre>
15. <input type="checkbox"/>	For each Oracle X5-2 RMS, create IMI bridge	<p>1. Create bond0.<imi_vlan> configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-bond0.<imi_vlan></pre> <pre>DEVICE=bond0.<imi_vlan> TYPE=Ethernet BOOTPROTO=none ONBOOT=yes NM_CONTROLLED=no BRIDGE=imi VLAN=yes</pre> <p>2. Create imi device configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-imi</pre> <pre>DEVICE=imi TYPE=Bridge BOOTPROTO=none ONBOOT=yes NM_CONTROLLED=no BRIDGE_INTERFACES=bond0.<imi_vlan></pre> <p>3. Bring the devices into service:</p> <pre># ifup bond0.<imi_vlan> # ifup imi</pre>

Step	Procedure	Result
16. <input type="checkbox"/>	For each Oracle X5-2 RMS, create XMI bridge	<p>1. Create bond0.<xmi_vlan> configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-bond0.<xmi_vlan></pre> <pre>DEVICE=bond0.<xmi_vlan> TYPE=Ethernet BOOTPROTO=none ONBOOT=yes NM_CONTROLLED=no BRIDGE=xmi VLAN=yes</pre> <p>2. Create xmi device configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-xmi:</pre> <pre>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></pre> <p>3. Set default route for xmi network:</p> <pre># vim /etc/sysconfig/network-scripts/route-xmi</pre> <pre>default via <xmi_gateway> table main</pre> <p>4. Bring the devices into service:</p> <pre># ifup bond0.<xmi_vlan> # ifup xmi</pre>

Step	Procedure	Result
17. <input type="checkbox"/>	For each Oracle X5-2 RMS, Create bond1 device	<p>Create device bond1 configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-bond1</pre> <pre>DEVICE=bond1 TYPE=Bonding BOND_INTERFACES=<nic3>,<nic4> ONBOOT=yes NM_CONTROLLED=no BOOTPROTO=none BONDING_OPTS="mode=active-backup primary=<nic3> miimon=100"</pre> <p>Create device eth4 configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-<nic3></pre> <pre>DEVICE=<nic3> TYPE=Ethernet ONBOOT=yes NM_CONTROLLED=no BOOTPROTO=none MASTER=bond1 SLAVE=yes</pre> <p>Create device eth5 configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-<nic4></pre> <pre>DEVICE=<nic4> TYPE=Ethernet ONBOOT=yes NM_CONTROLLED=no BOOTPROTO=none MASTER=bond1 SLAVE=yes</pre> <p>Bring the devices into service:</p> <pre># ifup <nic3> # ifup <nic4> # ifup bond1</pre>

Step	Procedure	Result
18. <input type="checkbox"/>	For each Oracle X5-2 RMS, Create xsi1/xsi2 bridge	<p>Create device bond1.<xsi1_vlan> configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-bond1.<xsi1_vlan></pre> <pre>BOOTPROTO=none VLAN=yes ONBOOT=yes TYPE=Ethernet DEVICE=bond1.<xsi1_vlan> BRIDGE=xsi1 NM_CONTROLLED=no</pre> <p>Create device xsi1 configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-xsi1</pre> <pre>DEVICE=xsi1 TYPE=Bridge BOOTPROTO=none ONBOOT=yes NM_CONTROLLED=no BRIDGE_INTERFACES=bond1.<xsi1_vlan></pre> <p>Bring the devices into service:</p> <pre># ifup xsi1 # ifup bond1.<xsi1_vlan></pre> <p>Perform similar operations to create network devices for xsi2.</p>
19. <input type="checkbox"/>	For each Oracle X5-2 RMS, set the host name	<p>Rename host by modifying /etc/hostname file:</p> <pre>[root@localhost network-scripts]# cat /etc/hostname</pre> <pre>udr-x5-2-62-017</pre> <p>Review host name change with following command:</p> <pre>[root@localhost network-scripts]# hostnamectl status</pre> <pre>Static hostname: udr-x5-2-62-017 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</pre>

Step	Procedure	Result
20. <input type="checkbox"/>	For each Oracle X5-2 RMS, set the NTP service	<p>Modify <code>/etc/chrony.conf</code>, comment out all server * entries and append your NTP server IP to the list with prepending server text:</p> <pre># 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</pre> <p>Force ntp to sync with newly added server:</p> <pre># ntpdate 144.25.255.140 # timedatectl</pre> <p>Verify time synced:</p> <pre>[root@udr-x5-2-62 log]# chronyc tracking</pre> <pre>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</pre>
21. <input type="checkbox"/>	For each Oracle X5-2 RMS: Create <code>/home/ova</code> dir	<pre>[root@pc9112020 ~]# mkdir -p /home/ova [root@pc9112020 ~]# cd /home/ova</pre>
22. <input type="checkbox"/>	Transfer OVA file this dir using sftp tool	<pre>[root@pc12107008 ova]# ll total 12322888 -rw-r--r--. 1 root root 1047767040 May 2 00:51 UDR- 12.4.0.0.0_16.14.0.ova</pre>
23. <input type="checkbox"/>	Untar this ova file	<pre>[root@pc9112020 ova]# tar xvf UDR-12.4.0.0.0_16.14.0.ova UDR-16_14_0.ovf UDR-16_14_0.mf UDR-16_14_0.vmdk</pre>
24. <input type="checkbox"/>	Convert this vmdk file to	<pre>[root@pc9112020 ova]# qemu-img convert -O qcow2 DR- UDR- 12.4.0.0.0_16.14.0.ova.vmdk UDRNO-16_14_0.qcow2</pre>

Step	Procedure	Result
	qcow2 file	
25. <input type="checkbox"/>	Copy the qcow2 files for SO and MP	<pre>[root@pc9112020 ova]# cp UDRNO-16_14_0.qcow2 UDRSO-16_14_0.qcow2 [root@pc9112020 ova]# cp UDRNO-16_14_0.qcow2 UDRMP-16_14_0.qcow2</pre>
26. <input type="checkbox"/>	Configure storage for corresponding qcow2 files	<p>Configure storage qcow2 files as per corresponding VMs. Refer Appendix G to get the required storage.</p> <p>Run the following command for each VM to set the storage:</p> <pre>qemu-img resize <NO_qcow2_filename>.qcow2 <storage_in_gigabytes>G</pre> <p>Run the command for a VM if storage required is >60G. No need to run this command if the storage required is 60G.</p> <p>For example, if resource profile is 2K Sh and VM is UDR, the storage required is 220G. The command in that case will be:</p> <pre>qemu-img resize UDRNO-16_14_0.qcow2 220G</pre>
27. <input type="checkbox"/>	Create UDR VMs. Repeat this step for each VM.	<p>Create UDR VMs: NO, SO and MP using appendix below. Repeat the below procedure for each VM</p> <p>Appendix J Install UDR on Oracle Linux OS via KVM</p> <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR</p>
28. <input type="checkbox"/>	For each UDR VMs: Add the network device	<p>Login to each VM created and add the network devices:</p> <p>UDR:</p> <pre># netAdm add -device=eth0 # netAdm add -device=eth1 # netAdm add -device=eth2</pre> <p>NOTE: eth0 is XMI, eth1 is IMI and eth2 is XSI1 and eth3 is XSI2 (create eth3 if XSI2 is required).</p>
29. <input type="checkbox"/>	For each UDR VMs: Configure XMI network address	<p>Set XMI network address for each UDR VM:</p> <pre># netAdm set --device=eth0 --onboot=yes --netmask=<XMI_netmask> --address=<XMI_network_address> # netAdm add --device=eth0 --route=default --gateway=<XMI_gateway></pre>
30. <input type="checkbox"/>	For each UDR VMs: Configure NTP service	<p>Use Step 5 to 6 of Appendix L.6 Configure TVOE Server (Hostname, Time Zone, SNMP, NTP, etc) in Error! Reference source not found. to configure NTP service for each VM.</p>
31. <input type="checkbox"/>	Extend VM Instance volume	<p>Extend volumes for various VM Instances depending on flavor following:</p> <p>Appendix D.6 Extend VM Instance Volume Size</p> <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix K. My Oracle Support

My Oracle Support (<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 My Oracle Support registration.

Call the CAS main number at 1-800-223-1711 (toll-free in the US), or call the Oracle Support hotline for your local country from the list at <http://www.oracle.com/us/support/contact/index.html>. When calling, make the selections in the sequence shown below on the Support telephone menu:

1. Select **2** for New Service Request.
2. Select **3** for Hardware, Networking and Solaris Operating System Support.
3. Select one of the following options:
 - o For Technical issues such as creating a new Service Request (SR), Select **1**.
 - o For Non-technical issues such as registration or assistance with MOS, Select **2**.

You are connected to a live agent who can assist you with MOS registration and opening a support ticket.

My Oracle Support is available 24 hours a day, 7 days a week, 365 days a year.

Appendix L. Locate Product Documentation on the Oracle Help Center Site

Oracle Communications customer documentation is available on the web at the Oracle Help Center (OHC) 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 <http://www.adobe.com>.

1. Access the Oracle Help Center site at <http://docs.oracle.com>
2. Click **Industries**.
3. Under the Oracle Communications subheading, click the **Oracle Communications documentation** link.
4. The Communications Documentation page appears. Most products covered by these documentation sets will appear under the headings “Network Session Delivery and Control Infrastructure” or “Platforms.”
5. Click on your Product and then the Release Number.
6. A list of the entire documentation set for the selected product and release appears.
7. To download a file to your location, right-click the **PDF** link, select **Save target as** (or similar command based on your browser), and save to a local folder.

Appendix M. Create and install UDR VM via KVM GUI

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

This procedure installs UDR VMs NO, SO and MP using KVM GUI.

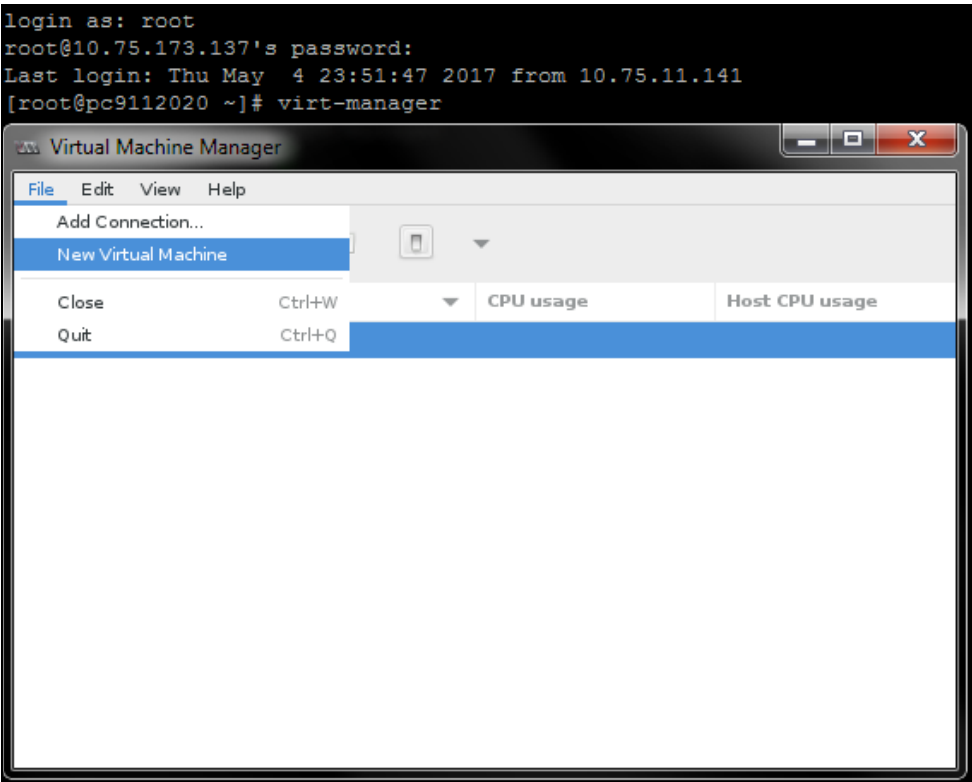
NOTE: This procedure needs to be done for each VM: NO, SO and MP

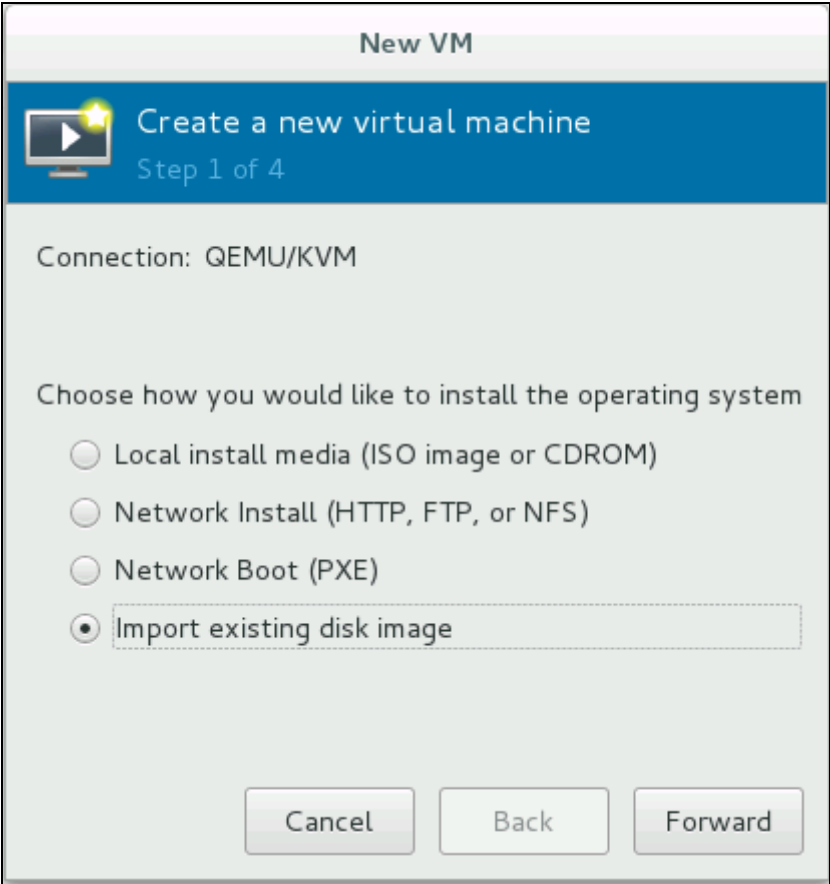
Requirements:

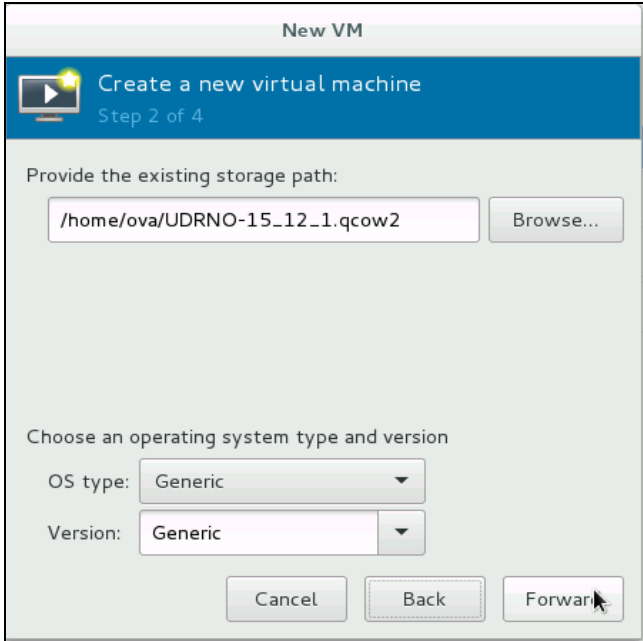
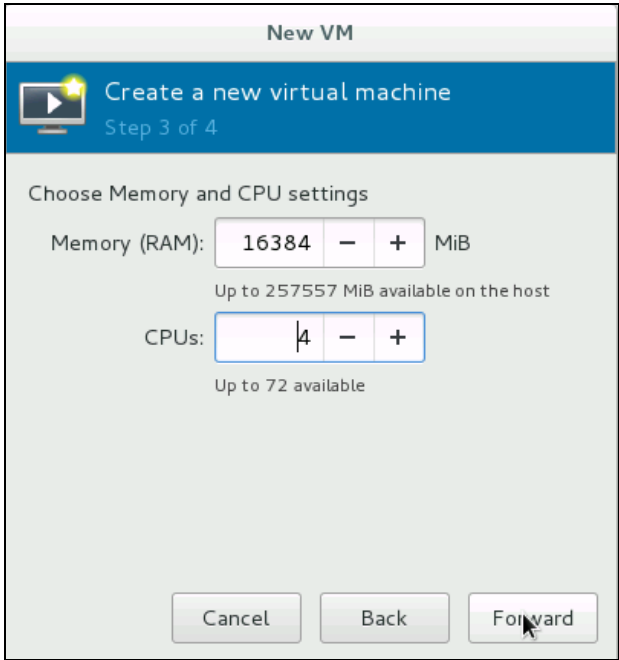
- [Appendix J Install UDR on Oracle Linux OS via KVM](#) Steps: 1 to 25 must be complete.

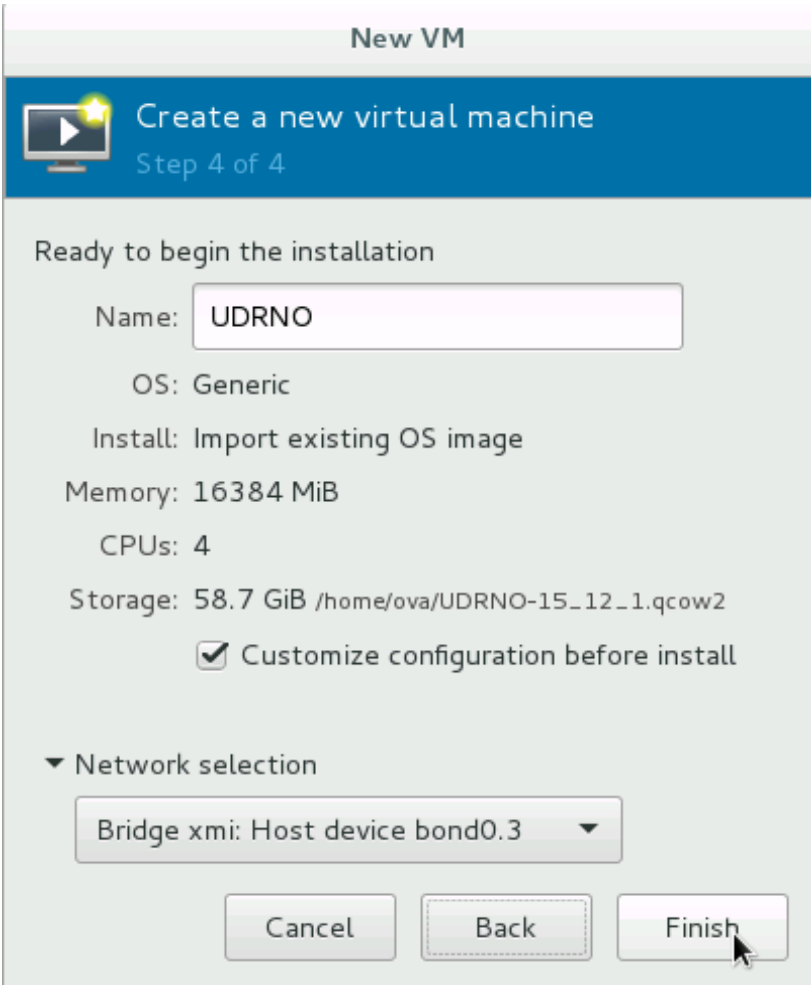
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

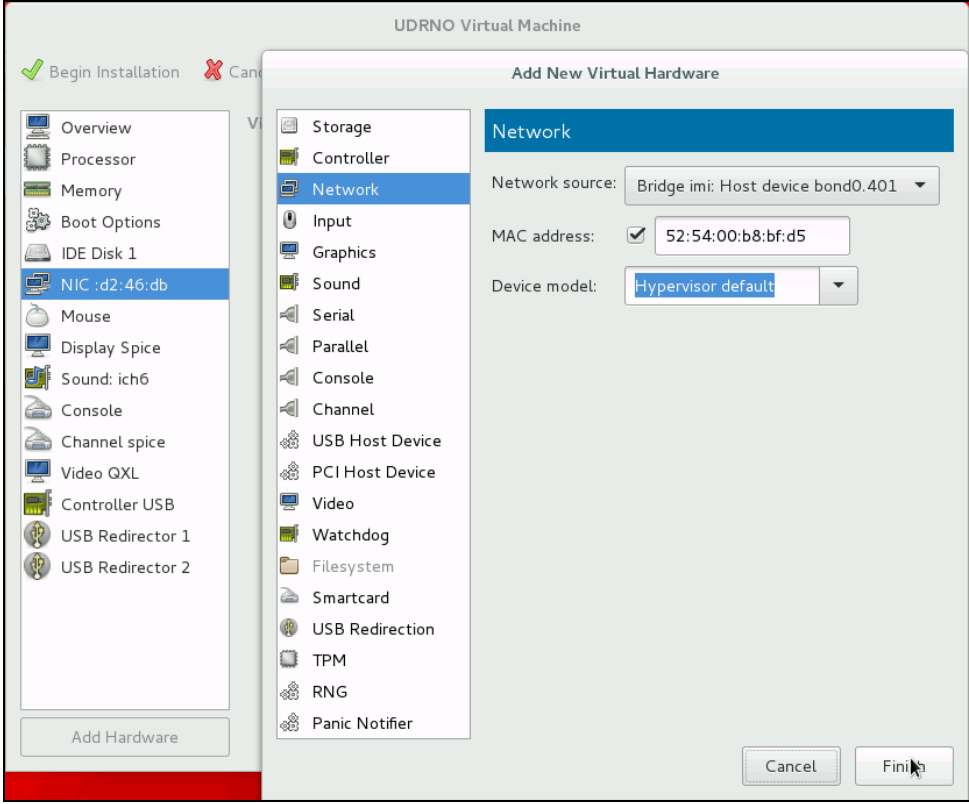
Procedure39: Create and Install UDR VMs via KVM GUI

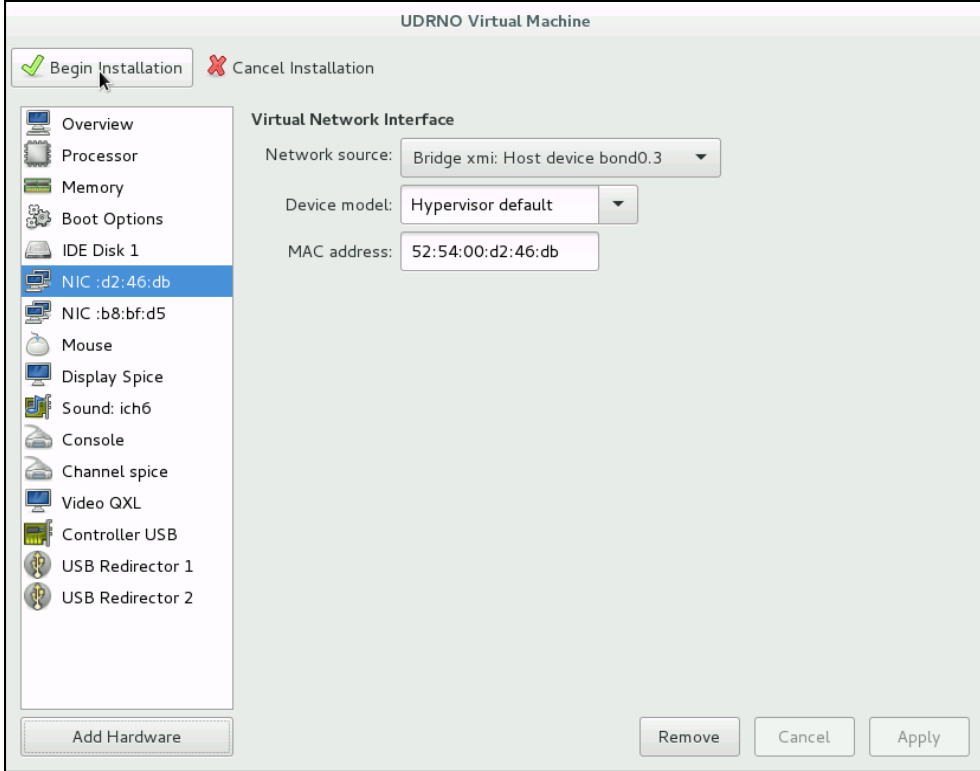
Step	Procedure	Result
1. <input type="checkbox"/>	Login to the host machine and open the Virtual Machine Manager	<p>Login to the host machine which has Oracle Linux installed and open the Virtual Machine Manager via command-line using command 'virt-manager' as shown below:</p> <p>NOTE: Make sure X11 forwarding is enabled before running virt-manager command on CLI.</p> 

Step	Procedure	Result
2. <input type="checkbox"/>	Create a new Virtual Machine using the Virtual Manager GUI	<p>On Virtual Manager GUI,</p> <ol style="list-style-type: none"> 1. Navigate to File → New Virtual Machine. 2. Select Import existing disk image. 

Step	Procedure	Result
3. <input type="checkbox"/>	Select the image file	<p>Select the qcow2 from the location:/home/ova (as done Step 24-25 in Appendix J) by browsing the location as below and Click Forward</p> 
4. <input type="checkbox"/>	Select RAM and vCPUs for VM	<p>For each VM, select the RAM and vCPUs as per the required resource profile. Refer to Appendix G. Click Forward.</p> 

Step	Procedure	Result
5. <input type="checkbox"/>	Verify and customize VM	<p>Update the VM name and select Customize configuration before install.</p> <p>In Network selection, select XMI bridge and click Finish:</p> 

Step	Procedure	Result
6. <input type="checkbox"/>	Customize the network configuration	<p>On the next screen, click Add Hardware. Under Network, select the IMI bridge.</p> <ul style="list-style-type: none"> For NO and SO, choose IMI bridge only. For MP, add XSI1 along with IMI by repeating this step. <p>Click Finsh.</p> 

Step	Procedure	Result
7. <input type="checkbox"/>	Verify and begin installation	<p>After adding all bridges, verify and begin the VM installation:</p> 
THIS PROCEDURE HAS BEEN COMPLETED		

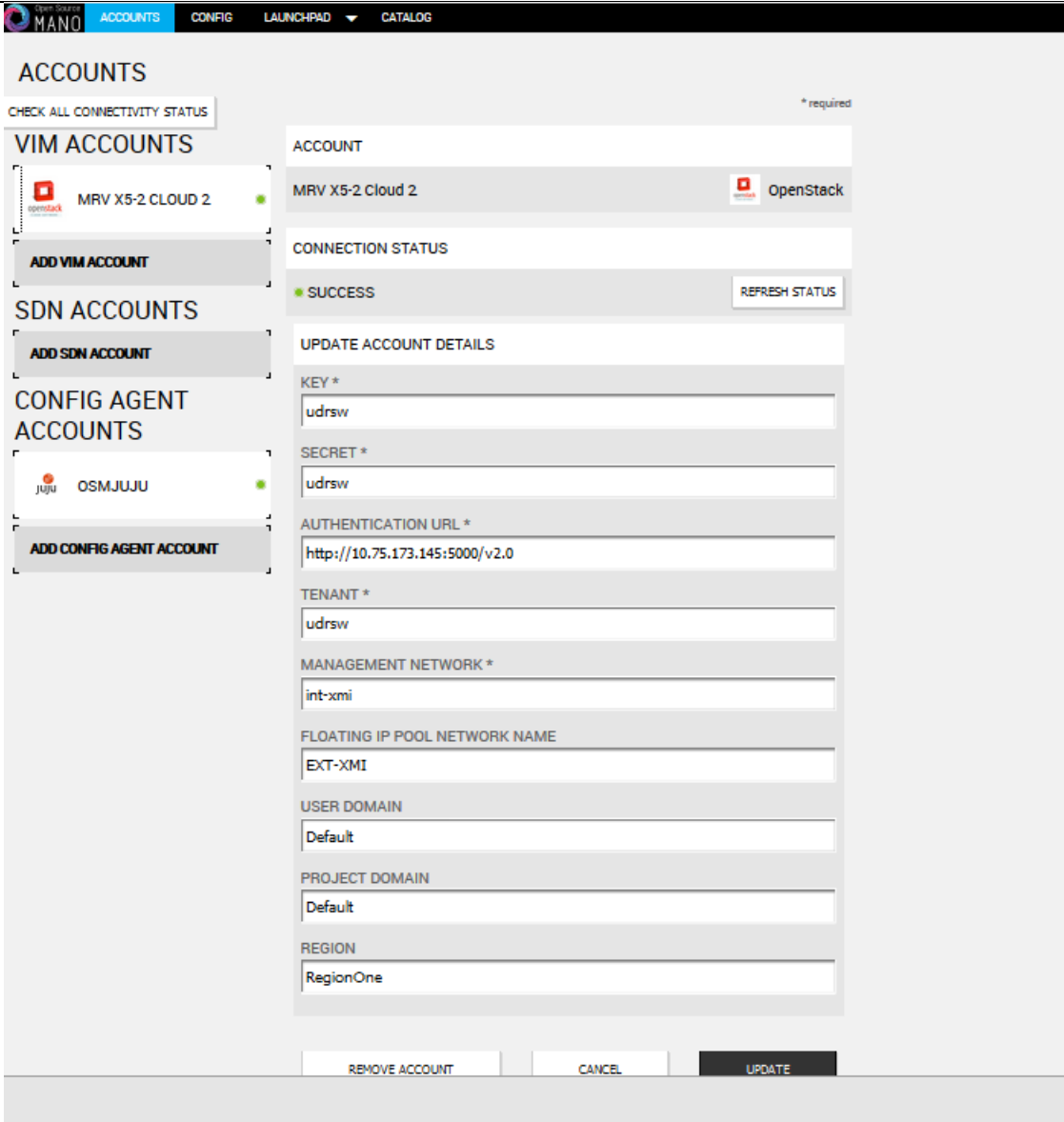
Appendix N. Orchestrating UDR Via OSM

Pre-requisites:

- OSM Release Two must be successfully installed.
- A standalone JUJU server must be successfully bootstrapped .

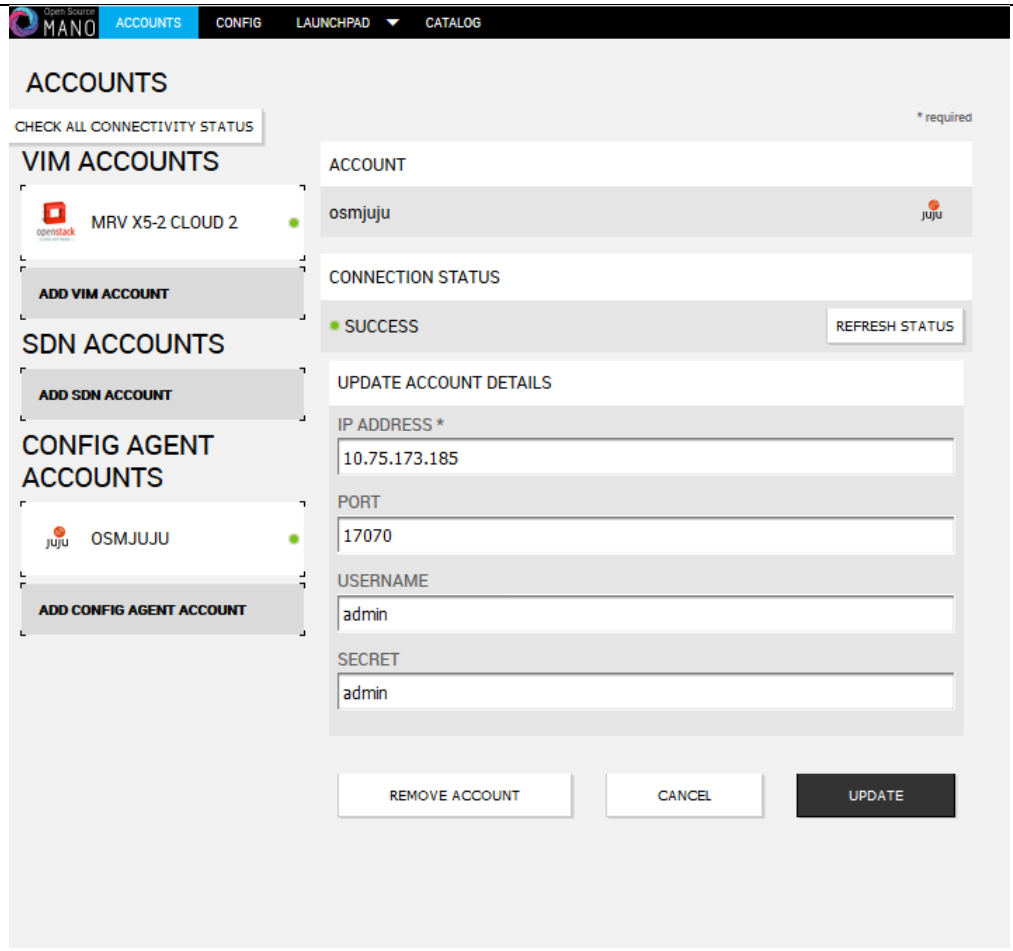
N.1 CONFIGURE OPENSTACK VIM TO RUN WITH OSM

On the OSM GUI, navigate to the Accounts Tab and click on “Add VIM Account”. A screen like the one below will appear. Fill the OpenStack VIM details and add the VIM account.

Procedure	Result
Add the VIM details in the Account Tab -> VIM ACCOUNTS on OSM GUI.	 <p>The screenshot displays the OSM GUI's 'ACCOUNTS' tab. On the left, there are three sections: 'VIM ACCOUNTS' (containing 'MRV X5-2 CLOUD 2' and an 'ADD VIM ACCOUNT' button), 'SDN ACCOUNTS' (with an 'ADD SDN ACCOUNT' button), and 'CONFIG AGENT ACCOUNTS' (containing 'OSMJUJU' and an 'ADD CONFIG AGENT ACCOUNT' button). The main area shows the details for the selected 'MRV X5-2 Cloud 2' account, including its connection status (SUCCESS), and a form to update account details. The form includes fields for KEY, SECRET, AUTHENTICATION URL, TENANT, MANAGEMENT NETWORK, FLOATING IP POOL NETWORK NAME, USER DOMAIN, PROJECT DOMAIN, and REGION. At the bottom, there are buttons for 'REMOVE ACCOUNT', 'CANCEL', and 'UPDATE'.</p>

N.2 CONFIGURE CONFIG AGENT ACCOUNT (JUJU SERVER)

Add the details of standalone JUJU server as a Config Agent account in order to enable OSM to communicate with JUJU Server. On the OSM GUI, navigate to Accounts tab and click on Add Config Agent Account. A screen like the one below will appear. Fill in the JUJU Server details and add the account.

Procedure	Result
<p>Add the CONFIG AGENT (juju) account details in the Account Tab -> CONFIG AGENT ACCOUNTS on OSM GUI.</p>	 <p>The screenshot displays the OSM GUI's 'ACCOUNTS' tab. The left sidebar shows a list of account types: VIM ACCOUNTS, SDN ACCOUNTS, and CONFIG AGENT ACCOUNTS. The 'CONFIG AGENT ACCOUNTS' section is active, showing a list of accounts including 'juju OSMJUJU' with a green status indicator. A button labeled 'ADD CONFIG AGENT ACCOUNT' is visible. The main content area on the right shows the 'UPDATE ACCOUNT DETAILS' form for the selected account. The form includes fields for 'IP ADDRESS *' (10.75.173.185), 'PORT' (17070), 'USERNAME' (admin), and 'SECRET' (admin). A 'CHECK ALL CONNECTIVITY STATUS' button is located at the top left of the account details section. At the bottom of the form are buttons for 'REMOVE ACCOUNT', 'CANCEL', and 'UPDATE'.</p>

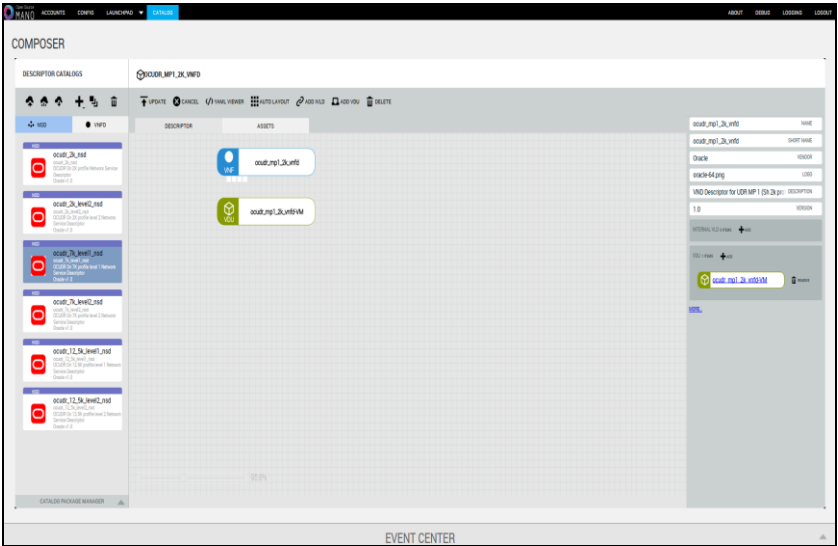
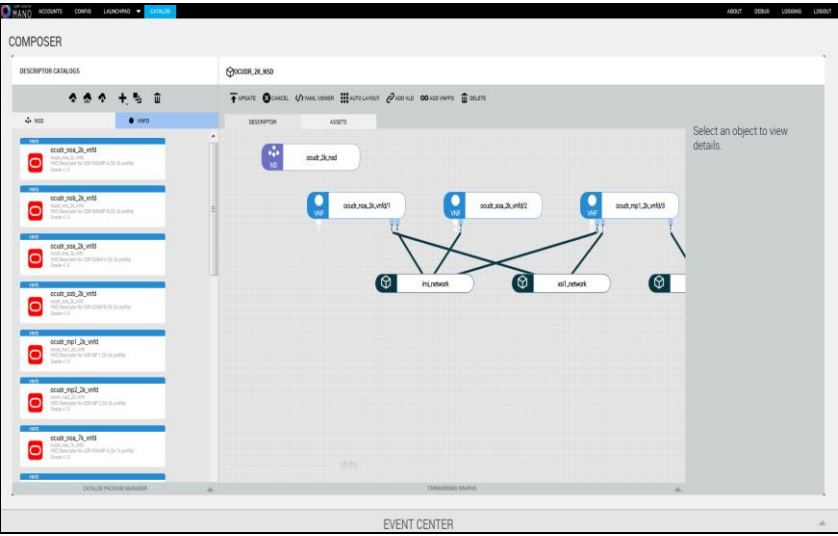
N.3 BUILD AND DEPLOY UDR NSD/VNFD PACKAGE

Build and Deploy scripts are attached below and should be run in order to upload UDR NSDs and VNFDs to OSM.

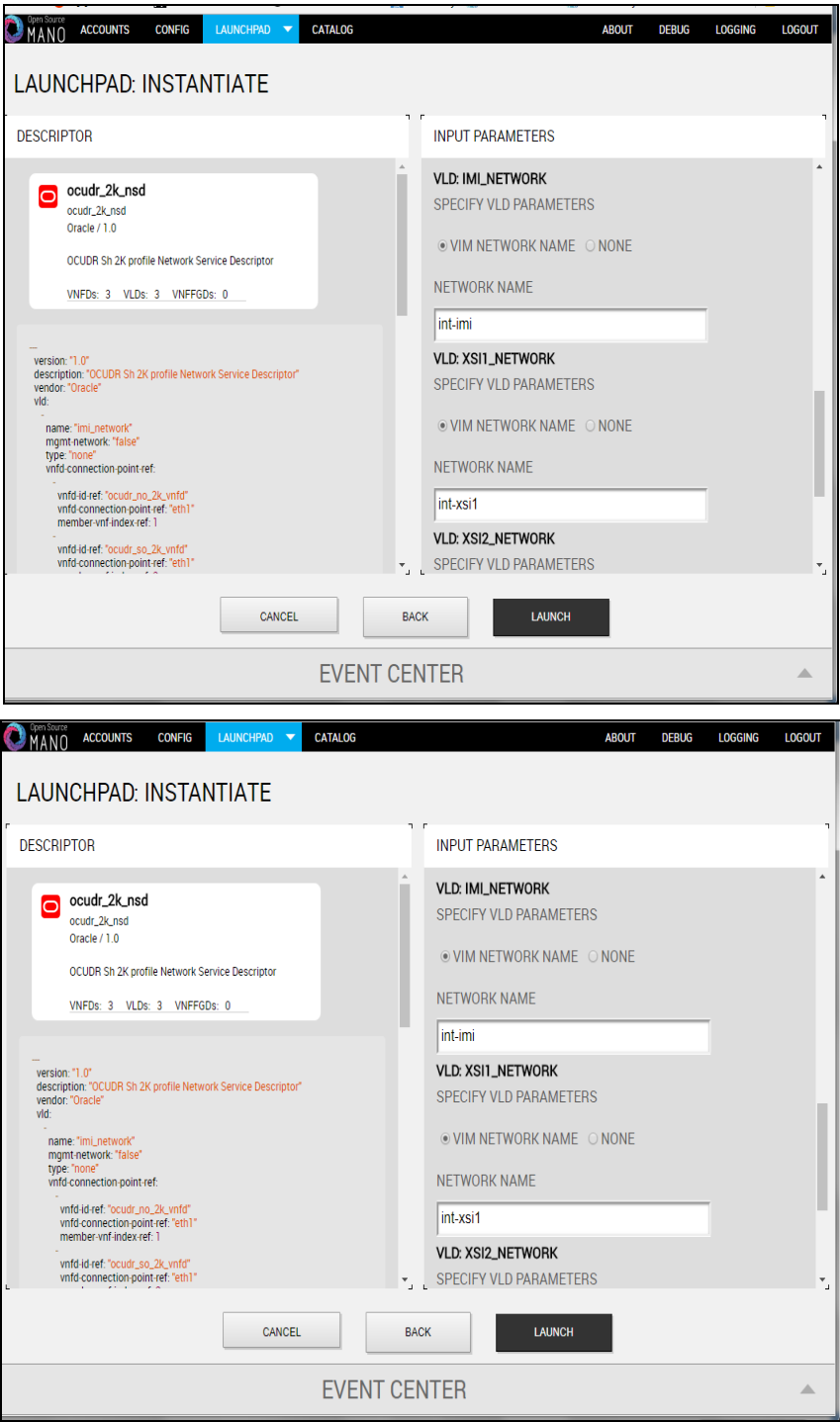
Procedure 11 SSH Logon to Juju Server and fetch build and deploy source scripts

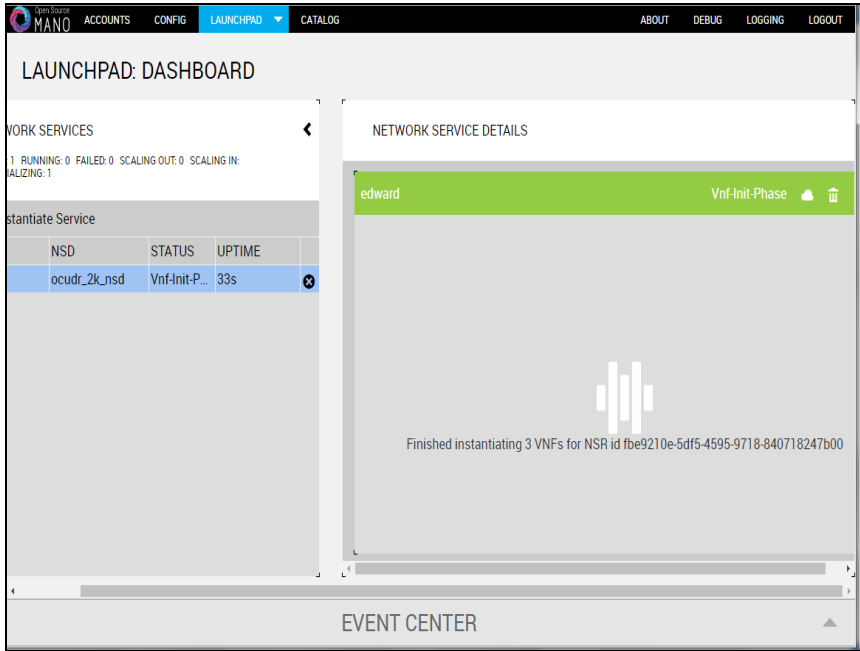
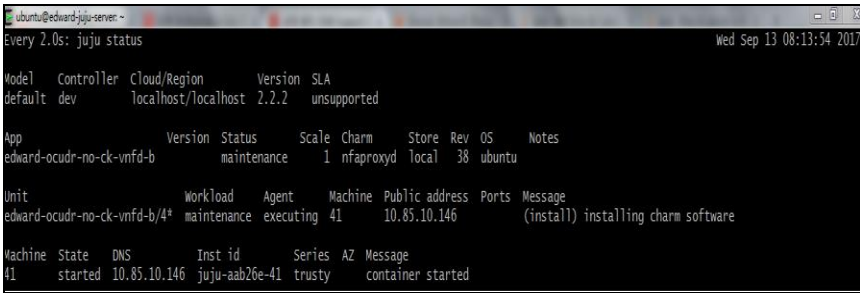
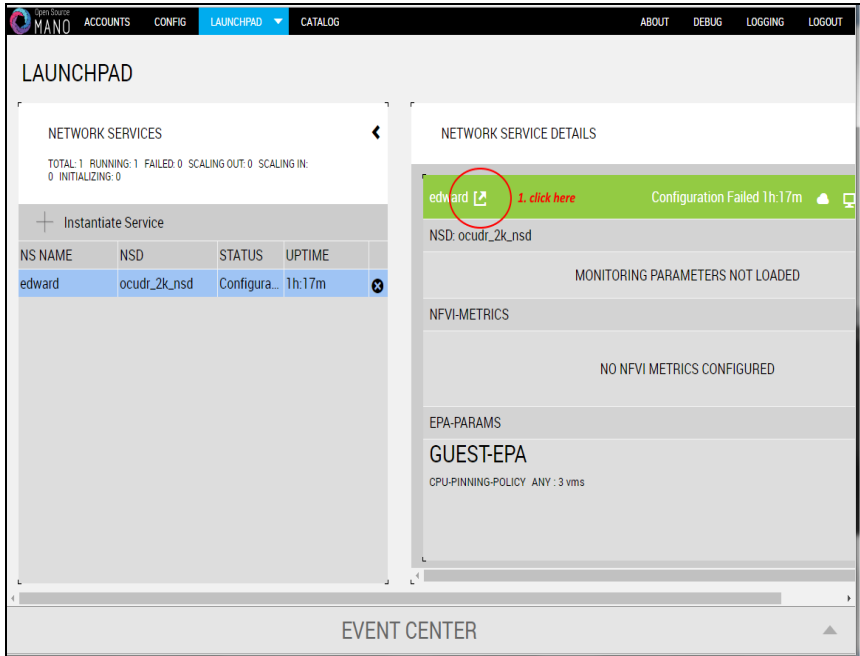
Step	Procedure	Result
1. <input type="checkbox"/>	SSH Logon to JUJU server and fetch the build and deploy source scripts	<p>1. Copy the qcow2 file made from the ova file of UDR image to the juju server.</p> <p>2. Run the following commands:</p> <pre>\$ sudo guestmount -a UDR-12.4.0.0_16.13.1.qcow2 -m /dev/mapper/vgroot-plat_usr /mnt</pre> <pre>\$ sudo cp /mnt/TKLC/udr/cloud/OSM-support.tar.gz ./</pre> <pre>\$ sudo guestunmount /mnt</pre> <p>3. These commands will extract osm-supprt.tar.gz file from qcow2 image</p> <p>4. Untar the file to osm-support directory</p> <p>Copied Image on Juju Server:</p> <pre>ubuntu@edward-juju-server:~\$ ls -l UDR-12.4.0.0_16.13.0.qcow2 -rw-r--r-- 1 ubuntu ubuntu 4345757696 Jan 23 09:57 UDR-12.4.0.0_16.13.0.qcow2</pre> <p>Extracted osm-support directory from qcow2 Image</p> <pre>ubuntu@edward-juju-server:~\$ cd osm-support/ ubuntu@edward-juju-server:~/osm-support\$ ls build build.sh charms deploy.sh doc nsd vnfd ubuntu@edward-juju-server:~/osm-support\$</pre>
2. <input type="checkbox"/>	<p>Navigate to OSM-Support directory and Run the build script</p> <pre>\$./build.sh</pre> <p>NOTE: Monitor the console output make sure the build script is completed successfully</p>	<pre>ubuntu@edward-juju-server:~/osm-support\$./build.sh ocudr_soa_2k_vnf/ ocudr_soa_2k_vnf/ocudr_soa_2k_vnfd.yaml ocudr_soa_2k_vnf/README ocudr_soa_2k_vnf/icons/ ocudr_soa_2k_vnf/icons/oracle-64.png ocudr_soa_2k_vnf/checksums.txt ocudr_soa_2k_vnf/cloud_init/ ocudr_soa_2k_vnf/cloud_init/ocudr_soa_2k_vnfd-VM.init ocudr_sob_2k_vnf/ ocudr_nob_12_5k_vnf/cloud_init/ocudr_nob_12_5k_vnfd-VM.ini build: Composing into /home/ubuntu/osm-support/charms build: Destination charm directory: /home/ubuntu/osm-suppo nfaproxyd build: Processing layer: layer:basic build: Processing layer: layer:sshproxy build: Processing layer: layer:vnfproxy build: Processing layer: nfaproxyd (from charms/nfaproxyd) proof: I: Includes template icon.svg file. proof: W: Includes template README.ex file proof: W: README.ex includes boilerplate: Step by step ins g the charm: proof: W: README.ex includes boilerplate: You can then bro address to configure the service. proof: W: README.ex includes boilerplate: - Upstream maili t information proof: W: README.ex includes boilerplate: - Feel free to a useful for users proof: I: all charms should provide at least one thing</pre>

Step	Procedure	Result
		<pre> ocudr_12_5k_level1_ns/ ocudr_12_5k_level1_ns/README ocudr_12_5k_level1_ns/icons/ ocudr_12_5k_level1_ns/icons/oracle-64.png ocudr_12_5k_level1_ns/ocudr_12_5k_level1_nsd.yaml ocudr_12_5k_level1_ns/checksums.txt ocudr_12_5k_level2_ns/ ocudr_12_5k_level2_ns/README ocudr_12_5k_level2_ns/icons/ ocudr_12_5k_level2_ns/icons/oracle-64.png ocudr_12_5k_level2_ns/checksums.txt ocudr_12_5k_level2_ns/ocudr_12_5k_level2_nsd.yaml ubuntu@edward-juju-server:~/osm-support\$ </pre>
3	<p>Once the build script is run successfully, run the deploy script inside OSM-support directory</p> <p>Pre-requisite: OSM host IP is required to run deploy.sh, Open the deploy script with a editor and change the env variable of "OSM_HOSTNAME" to your OSM host IP before running deploy.sh.</p> <p>\$. /deploy.sh</p>	<pre> ubuntu@edward-juju-server:~/osm-support\$./deploy.sh failed to delete vnfd ocudr_noa_2k_vnfd failed to delete vnfd ocudr_nob_2k_vnfd failed to delete vnfd ocudr_soa_2k_vnfd failed to delete vnfd ocudr_sob_2k_vnfd failed to delete vnfd ocudr_mp1_2k_vnfd failed to delete vnfd ocudr_mp2_2k_vnfd </pre>

Step	Procedure	Result
4	Logon to OSM GUI, verify that UDR NSD/VNFD has been uploaded successfully:	 <p>The top screenshot shows the OSM GUI Composer interface. The left pane lists descriptors, including 'osdr_ns1_3n_vnf' and 'osdr_ns1_3n_vnf'. The central workspace shows a diagram of the UDR NSD/VNFD components, including 'osdr_ns1_3n_vnf' and 'osdr_ns1_3n_vnf'. The bottom pane shows the 'EVENT CENTER'.</p>  <p>The bottom screenshot shows the OSM GUI Composer interface. The left pane lists descriptors, including 'osdr_ns1_3n_vnf' and 'osdr_ns1_3n_vnf'. The central workspace shows a diagram of the UDR NSD/VNFD components, including 'osdr_ns1_3n_vnf' and 'osdr_ns1_3n_vnf'. The bottom pane shows the 'EVENT CENTER'.</p>

Step	Procedure	Result
3. <input type="checkbox"/>	<p>Optional Step: Change UDR image name</p> <ol style="list-style-type: none"> 1. Open The OSM GUI and browse to CATALOG Tab 2. Double Click VNFD Tab to open edit pane 3. Double click VDU to edit its properties 4. Change Image Name 5. Click on Update button to save changes <p>NOTE: UDR image name should match with the one you intend to use and an image with the same name should be available on openstack</p>	
6	<p>Open the OSM GUI.</p> <p>Browse to "LAUNCHPAD" tab and click "Instantiate Service" button, select "UDR_2k_nsd" and click "Next":</p>	

Step	Procedure	Result
7	<p>Fill in required information and click "Launch", fill in instance name as you prefer:</p> <p>NOTE: Fill in the VLD:*_network correctly: VLD:IMI_NETWORK -> int-imi, VLD:XSI1_NETWORK -> int-xsi1, VLD:XSI2_NETWORK -> int-xsi2</p>	

Step	Procedure	Result
8	<p>Wait for the instantiation operation to complete</p> <p>NOTE: In OSM Release Two, UDR NSR result can be incorrectly shown on GUI.</p> <p>To check the status correctly, logon to juju server and issue the command</p> <pre>\$watch juju status</pre> <p>The screen will show a message. Wait for the cleanup of the message. The cleanup of message indicates success. (Refer to the second figure in this step)</p>	 
9	<p>After instantiation is done, query UDR NSR ID from OSM GUI and configure the parameter of 'udr-nsr-id' in NO charm:</p> <p>Follow the steps in the image to Add UDR NSR ID in NO charm</p>	

Step	Procedure	Result

N.4 PERFORM ORCHESTRATION OPERATIONS VIA OSM

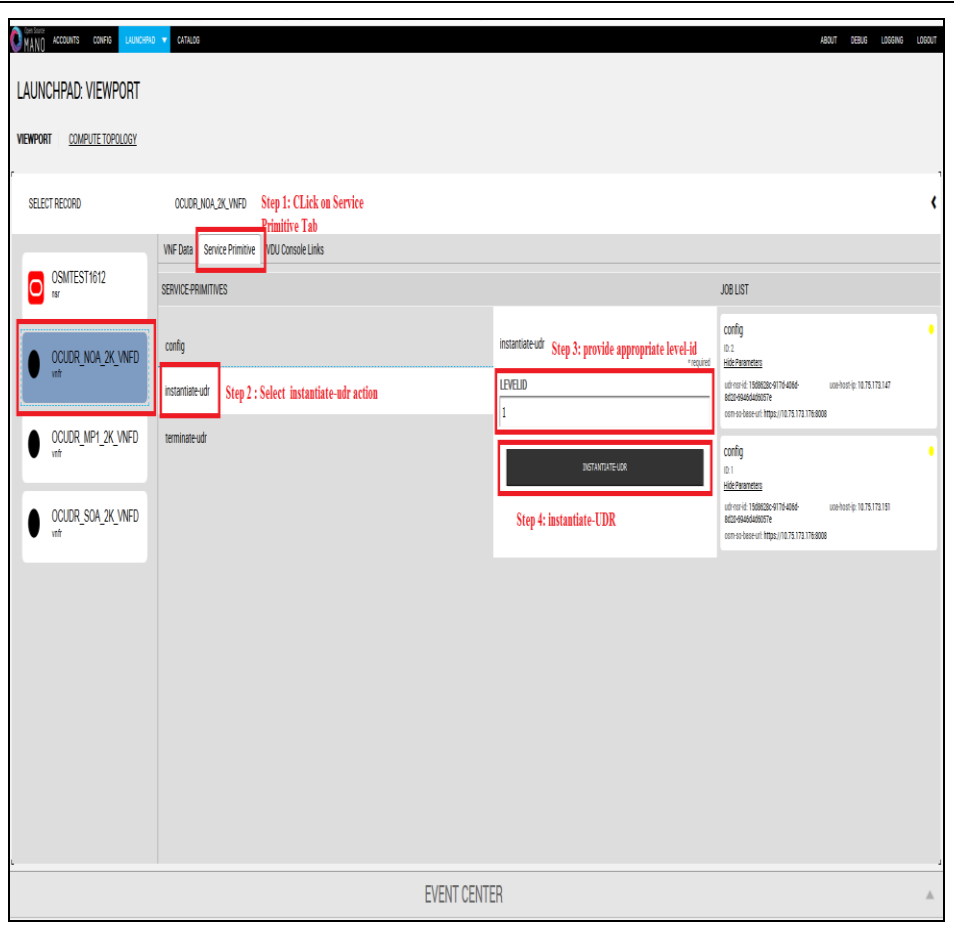
Once the UDR NSR ID is added in the NO charm, UDR Orchestration operations can be performed. Currently OSM supports two operations , namely

1. Instantiation
2. Termination

N.5 INSTANTIATE UDR

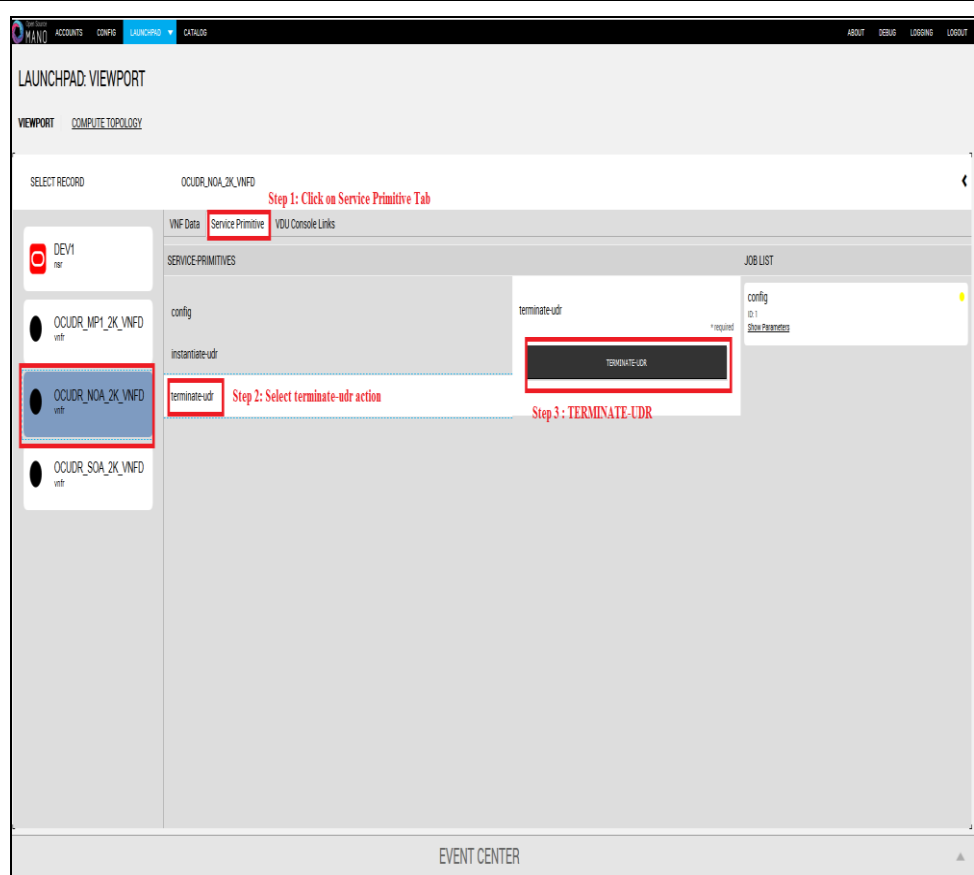
Once the steps in [Appendix N-3](#) are completed successfully, a UDR instance can be instantiated either to level1 or level 2.

1. Navigate to **Launchpad**
→ **Viewport** →
UDR_NO_VM
2. Click on the service
Primitive Tab
3. Select **instantiate-udr**
action
4. Provide the levelId to
instantiate UDR
5. Click on **instantiate-UDR**



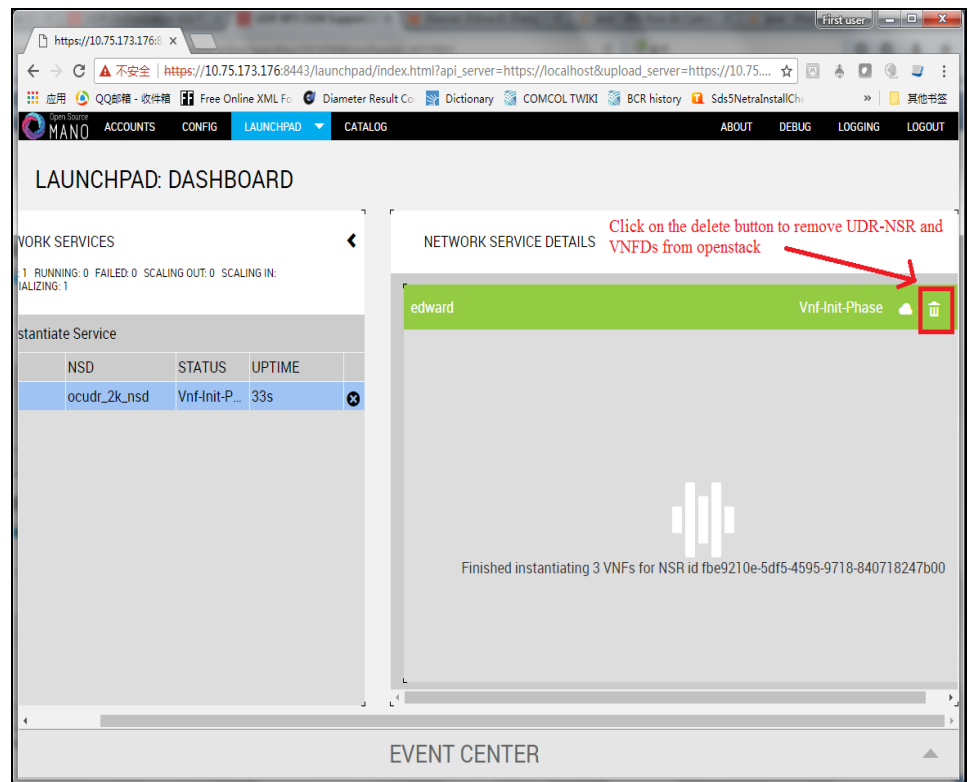
N.6 TERMINATE UDR

1. Navigate to **Launchpad** → **Viewport** → **UDR_NO_VM**
2. Click on the service Primitive Tab
3. Select terminate-udr action
4. Click on terminate-UDR



Manually remove the UDR NSR to remove the deployed VNFDs from openstack

Navigate to **LAUNCHPAD** → **DASHBOARD** on OSM GUI and click the delete icon for the corresponding UDR-NSR



Appendix O. Orchestrating UDR via Tacker

Pre-requisites:

1. Openstack Pike with Tacker service must be installed
2. OCPM is successfully instantiated and NFAgent service is up and running. Also a public IP should be available to access the NFAgent service.

O.1 TACKER CONFIGURATION

Edit the tacker.conf file – location: /usr/local/etc/tacker/tacker.conf – and add the following configuration options to it :

```
[udr]

#
# From tacker.vnfm.mgmt_drivers.udr.udr
#

# IP address on which host NFAgent service is deployed (string value)
nfagent_ip = 10.113.79.112

# user name to login NFAgent (string value)
#user = admusr

# password to login NFAgent (string value)
#password =

# time to wait for UDR VMs to be ready for application configuration (seconds)
#udr_init_wait_sec = 600
udr_init_wait_sec = 900
```

Configuration Options

- nfagent_ip: The public IP Address of the NFAgent service deployed as a pre-requisite before this step
- user: user name to login NFAgent (string value)
- password: password to login NFAgent (string value)
- udr_init_wait_sec: # time to wait for UDR VMs to be ready for application configuration (seconds)

O.2 INSTALL UDR TACKER SUPPORT SCRIPTS

Step	Procedure	Result
1. <input type="checkbox"/>	<p>SSH Logon to Tacker server</p> <ol style="list-style-type: none"> Copy the qcow2 file made from the ova file of UDR image to the tacker server (controller Node). Run the following commands: <pre>\$ sudo guestmount -a UDR- 12.4.0.0.0_ 16.13.1.qcö w2 -m /dev/mapper /vgroot- plat_usr /mnt \$ sudo cp /mnt/TKLC/u dr/cloud/Ta cker- support.tar .gz ./ \$ sudo guestunmoun t /mnt</pre> <p>These commands will extract Tacker-supprt.tar.gz file from qcow2 image</p> <ol style="list-style-type: none"> Untar the file to tacker-support directory 	<p>Copied Image on Tacker server:</p> <pre>[root@nj-x52-61 image]# ls -l UDR-12.4.0.0.0 16.13.0.qcow2 -rwxrwxrwx 1 root root 4345757696 Jan 24 18:05 UDR-12.4.0.0.0 16.13.0.qcow2 [root@nj-x52-61 image]#</pre> <p>Extracted tacker-support directory from qcow2 image</p> <pre>[root@nj-x52-61 tacker-support]# ls bin mgmt_driver requirements.txt vnfd</pre>
2. <input type="checkbox"/>	<p>Browse to the directory where the tacker scripts are copied on the controller Node.</p>	<p>Run the following commands:</p> <ol style="list-style-type: none"> sudo mkdir -p /usr/lib/python2.7/site-packages/tacker/vnfm/mgmt_drivers/udr edit mgmt_driver/udr/udr.py to navigate to line 102: level = str(self.cluster_info['options']['LEVEL']) sudo cp mgmt_driver/udr/*.py /usr/lib/python2.7/site-packages/tacker/vnfm/mgmt_drivers/udr/ sudo service openstack-tacker-server restart <p>NOTE: Change /usr/lib/python2.7/site-packages/tacker with the tacker script installation directory per local tacker installation path.</p>

Step	Procedure	Result
		<p>Inspect tacker.log to verify that UDR management Driver is installed successfully.</p> <pre>[root@nj-x52-61 tacker-support]# mkdir -p /usr/lib/python2.7/site-packages/tacker/vnfm/mgmt_drivers/udr/ [root@nj-x52-61 tacker-support]# /bin/cp -rf mgmt_driver/udr/*.py /usr/lib/python2.7/site-packages/tacker/vnfm/mgmt_drivers/udr/ [root@nj-x52-61 tacker-support]# service openstack-tacker-server restart Redirecting to /bin/systemctl restart openstack-tacker-server.service [root@nj-x52-61 tacker-support]#</pre>
3. <input type="checkbox"/>	Deploy VNFD for UDR 2k level 2 VNF	<p>1. Edit vnfd/udr-2k-vnfd.yaml and find occurrences of 'init 6' (there're 6 occurrences in total), prepend line:</p> <pre>echo 'ifconfig eth0 mtu 1450' >> /etc/rc.d/rc.local before each occurrence of 'init 6', like following: echo 'ifconfig eth0 mtu 1450' >> /etc/rc.d/rc.local init 6</pre> <p>2. source keystone rc file of openstack:</p> <pre>source ~/keystonerc_admin</pre> <p>3. Deploy the updated VNFD file with following command:</p> <pre>tacker vnfd-create --vnfd-file vnfd/udr-2k-vnfd.yaml udrvnfd</pre> <p>Verify that VNFD is deployed successfully.</p> <pre>[root@nj-x52-61 tacker-support]# vim vnfd/udr-2k-vnfd.yaml [root@nj-x52-61 tacker-support]# tacker vnfd-create --vnfd-file vnfd/udr-2k-vnfd.yaml udr-2k-vnfd You must provide a username or user ID via --os-username, env[OS_USERNAME] or --os-user-id, env[OS_USER_ID] [root@nj-x52-61 tacker-support]# source ~/keystonerc_admin [root@nj-x52-61 tacker-support(keystone_admin)]# tacker vnfd-create --vnfd-file vnfd/udr-2k-vnfd.yaml udr-2k-vnfd Created a new vnfd: +-----+-----+ Field Value +-----+-----+ created_at 2018-02-05 03:47:24.167240 description Demo with udr cluster id 0874def4-0ac5-4352-bc7a-cff6139d6df4 name udr-2k-vnfd service_types vnfd template_source onboarded tenant_id 45a69279f4be47d89556b5299bdec769 updated_at +-----+-----+ [root@nj-x52-61 tacker-support(keystone_admin)]#</pre>

O.3 PERFORM ORCHESTRATION OPERATIONS VIA TACKER

After the successful completion of [Appendix O-2](#), you can proceed with the orchestration of UDR. Currently Tacker supports two orchestration operations, namely:

1. Instantiation (CREATE UDR VNF)
2. Termination (DELETE UDR VNF)

O.4 CREATE UDR VNF (INSTANTIATION)

Issue the following command to create UDR VNF (assumes to have sourced the keystone rc file for openstack):

```
tacker vnf-create --vnfd-name udrvnfd <udr_vnf_name> --param-file udrvnf-param.yaml
```

Where:

udr_vnf_name should be replaced with the name you choose for udr vnf.

udrvnf-param.yaml: Configuration file used for customizing input parameters in UDR VNFD Template. Change the file parameters as required to get the desired configuration.

Figure 4 Example of udrvnf-param.yaml

```
xmi_network: int-xmi
imi_network: int-imi
xsi1_network: int-xsi1
xsi2_network: int-xsi2image: UDR-
12.3.0.0.0_16.9.0.2
```

```
[root@nj-x52-61 tacker-support]# source ~/keystonerc_admin
[root@nj-x52-61 tacker-support(keystone_admin)]# tacker vnf-create --vnfd-n
ame udr-2k-vnfd udrpv1
Created a new vnf:
+-----+-----+
| Field      | Value                                     |
+-----+-----+
| created_at | 2018-02-05 04:52:52.342068              |
| description | Demo with udr cluster                   |
| error_reason |                                           |
| id         | e60483c1-94a2-4af6-b415-1a740de59c64    |
| instance_id | 204ad65b-8835-4052-ae57-79d3859a53d7    |
| mgmt_url   |                                           |
| name       | udrpv1                                  |
| placement_attr | {"vim_name": "tacker"}                 |
| status     | PENDING_CREATE                          |
| tenant_id  | 45a69279f4be47d89556b5299bdec769       |
| updated_at |                                           |
| vim_id     | 7ae4f37b-056b-45de-a131-62463bdfce6d    |
| vnfd_id    | 0874def4-0ac5-4352-bc7a-cff6139d6df4    |
+-----+-----+
[root@nj-x52-61 tacker-support(keystone_admin)]#
```

To inspect the detailed log for creating UDR VNF, refer to tacker log use following command:

```
$ sudo tail -f /var/log/tacker/tacker.log
```

O.5 DELETE UDR VNF (TERMINATION)

Issue the following command to delete UDR VNF:

```
tacker vnf-delete <udr_vnf_name>
where,
udr_vnf_name should be replaced with
the name of udr vnf you want to terminate.
```

```
[root@nj-x52-61 tacker-support]# source ~/keystonerc_admin
[root@nj-x52-61 tacker-support(keystone_admin)]# tacker vnf-delete udrpv1
All specified vnf(s) delete initiated successfully
[root@nj-x52-61 tacker-support(keystone_admin)]#
```