

**Diameter Signal Routing  
User Data Repository  
Cloud Installation and Configuration Guide for  
Release 8.4**

**F32106-01**

May 2020



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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 8.4.

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**

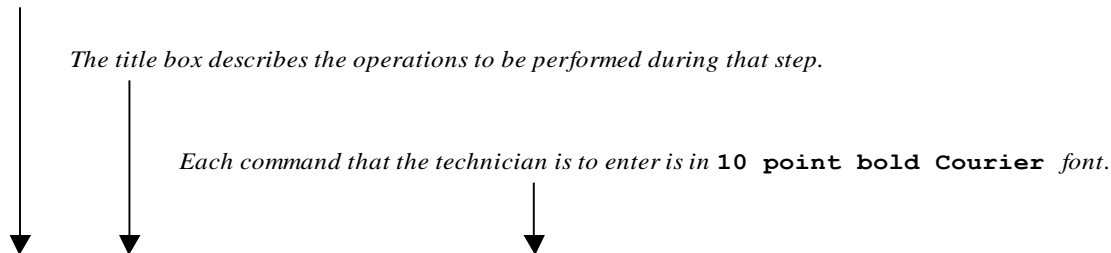
Acronym	Definition
BIOS	Basic Input Output System
CD	Compact Disk
UDR	User Data Repository
ESXi	Elastic Sky X Integrated
FABR	Full Address Based Resolution
iDIH	Integrated Diameter Intelligence Hub
IPFE	IP Front End
IPM	Initial Product Manufacture—the process of installing TPD
IWF	Inter Working Function
NAPD	Network Architecture Planning Diagram
OS	Operating System (for example, 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"/>	<b>ServerX:</b> 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:

- You have the assigned values from the network and used the values to compile XML files (see Appendix C) for each NOAMP NE site before performing this procedure.
- You have 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 the installation of each NOAMP NE site must be maintained and accessible for use in Disaster Recovery procedures. The Professional Services Engineer (PSE) gives a copy of the XML files used for installation to the designated Customer Operations POC. You are ultimately responsible for maintaining and providing the XML files to My Oracle Support 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 using this document for either purpose, there are a few points, which help to ensure that you understand the intent of the author. These points are as follows:

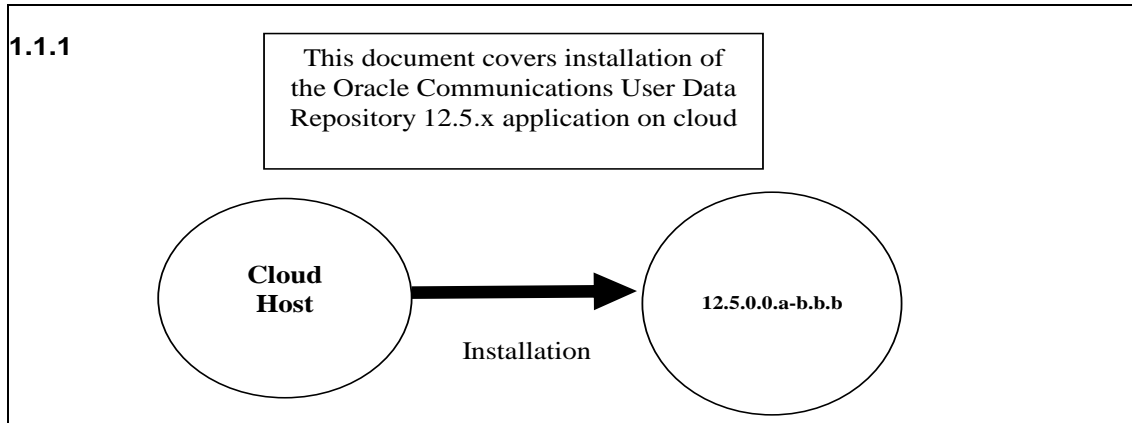
1. Before beginning a procedure, completely read the instructional text (immediately after the Section heading for each procedure) and all associated procedural warnings or notes.
2. Before performing a step in a procedure, completely read the left and right columns including any step specific warnings or notes.

If a procedural step fails to complete successfully, stop and contact My Oracle Support for assistance before attempting to continue.

## Chapter 2. General Description

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

Figure 2 show the Oracle Communications User Data Repository installation paths. 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](http://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 used 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 an Oracle Communications User Data Repository system. These sections expand on the information from the matrix and give 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 are to be performed in the order listed.

**Table 2. Installation Overview**

Procedure	Phase	Elapsed Time (Minutes)	
		This Step	Cum.
<b>Procedure 1</b>	Verify Deployment Options and Cloud Resources	5	5
<b>Procedure 2</b>	Deploy Oracle Communications User Data Repository Virtual Machines on VMware	20	25
<b>Procedure 3</b>	Deploy Oracle User Data Repository Virtual Machines on OpenStack (Only for OpenStack deployments)	20	25
<b>Procedure 4</b>	Deploy Oracle User Data Repository Virtual Machines on Oracle Linux/KVM	20	25
<b>Procedure 5</b>	Configure UDR-A Server (1st NOAMP only)	25	50
<b>Procedure 6</b>	Create Configuration for Remaining Servers	15	65
<b>Procedure 7</b>	Apply Configuration to Remaining Servers	15	80
<b>Procedure 8</b>	Configure XSI Networks	10	90
<b>Procedure 9</b>	OAM Pairing for Primary UDR Servers (1st NOAMP site only)	10	100
<b>Procedure 10</b>	OAM Pairing for DR Sites	15	115
<b>Procedure 11</b>	Configure UDR Signaling Routes ( <b>All NOAM Sites</b> )	10	145
<b>Procedure 12</b>	Configure Services on Signaling Network	5	150
<b>Procedure 13</b>	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"> <li>• For demo purposes, an OVA lab profile is the best option.</li> <li>• For support of larger datasets, ISO installation may be required.</li> </ul>
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><b>NOTE:</b> 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>
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

## 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.

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by 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"> <li>• If using vSphere client, place installation media (OVA, or ISO) onto your local machine.</li> <li>• If using vCloud Director, upload installation media using Appendix C.1: vCloud Director Oracle Communications User Data Repository Media Upload</li> </ul>
2. <input type="checkbox"/>	Create vApp	<ul style="list-style-type: none"> <li>• If using vCloud Director, follow: Appendix C.2: Create vApp</li> <li>• If using vSphere client proceed to the next step.</li> </ul>
3. <input type="checkbox"/>	Create Oracle Communications User Data Repository guests	<ul style="list-style-type: none"> <li>• If using vSphere client, follow: Appendix Appendix B: Create Guests from OVA</li> <li>• If using vCloud Director, follow: Appendix C.5: Create Guests from ISO or Appendix C.3: Create Guests from OVA</li> </ul> <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  <b>Only OVA installs</b>	<ul style="list-style-type: none"> <li>• If using vSphere client to install by OVA, follow: Appendix B.2: Configure Guest Resources</li> <li>• If using vCloud Director to install by OVA, follow: Appendix C.4: Configure Guest Resources</li> <li>• If installing by ISO proceed to the next step.</li> </ul> <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  <b>Only ISO installs</b>	<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"> <li>Appendix B.3: Configure Guest Network</li> </ul> <p>If using vCloud Director, follow:</p> <ul style="list-style-type: none"> <li>Appendix C.7: Configure Guests Network</li> </ul> <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>
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

## 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

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by 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, 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><b>NOTE:</b> 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  <b>NOTE:</b> This step is only needed if none of the networks assigned to VM Instances is a Public Network.
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

### 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.

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by 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
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

## Chapter 5. Oracle Communications User Data Repository Server Configuration

### 5.1 Configure UDR-A Server (1<sup>st</sup> 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:

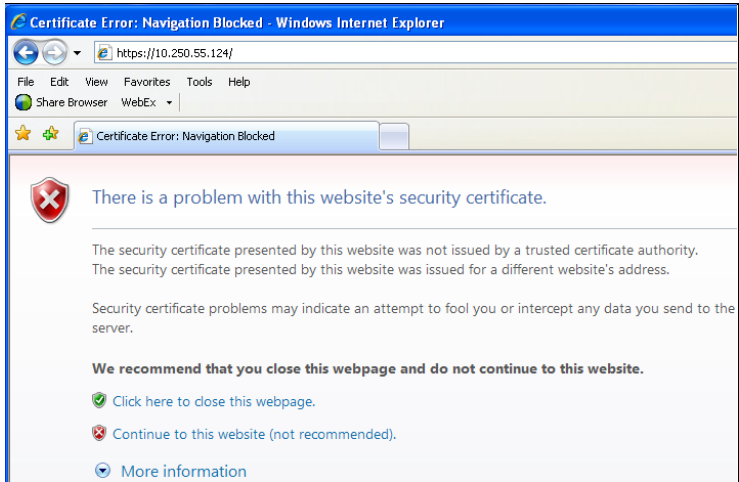

- Chapter 4 Cloud Creation has been completed

#### Assumptions:

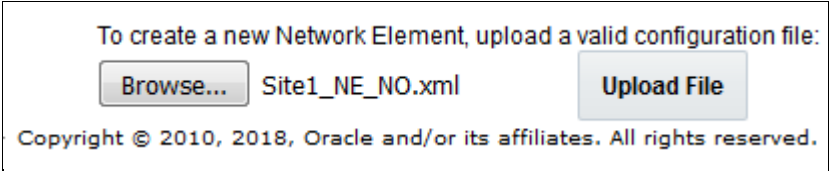
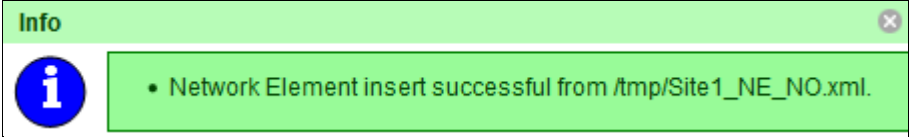
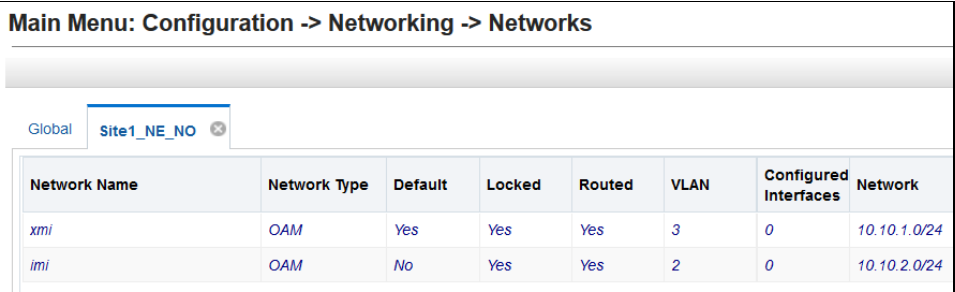
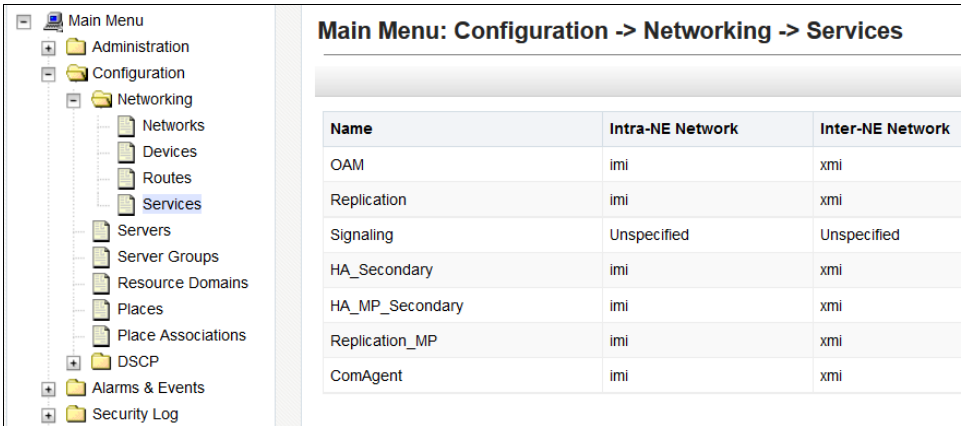
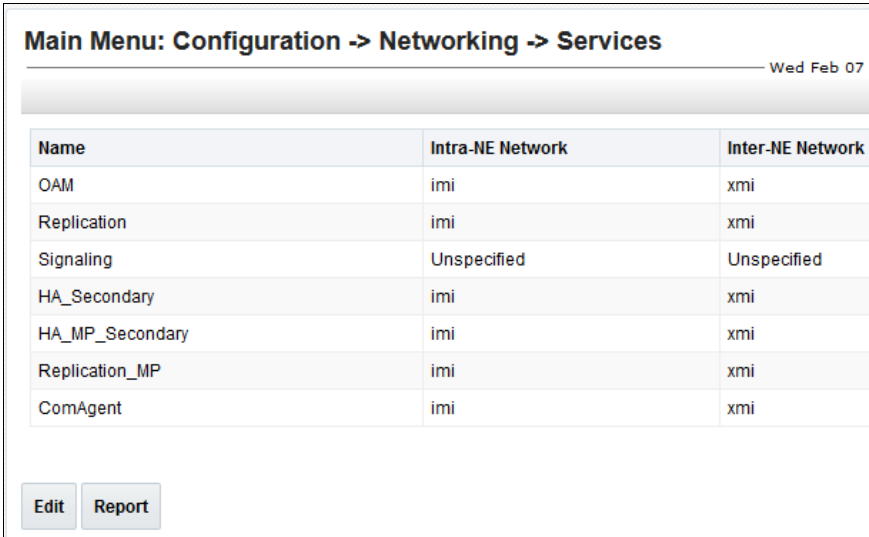
- This procedure assumes that the Oracle Communications User Data Repository Network Element XML file for the Primary Provisioning NOAMP site has previously been created, as described in Appendix E.
- This procedure assumes that the Network Element XML files are either on a USB flash drive or the hard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

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

#### Procedure 5: Configure UDR-A Server (1<sup>st</sup> NOAMP only)

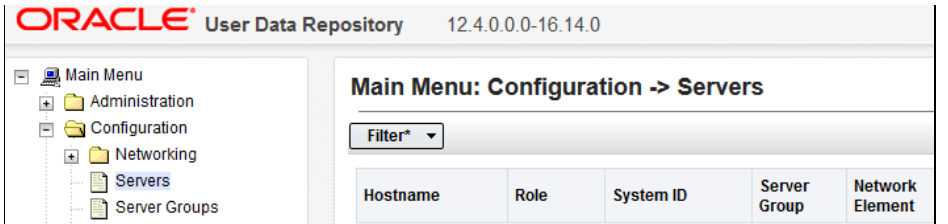
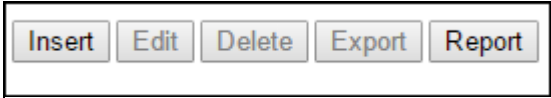
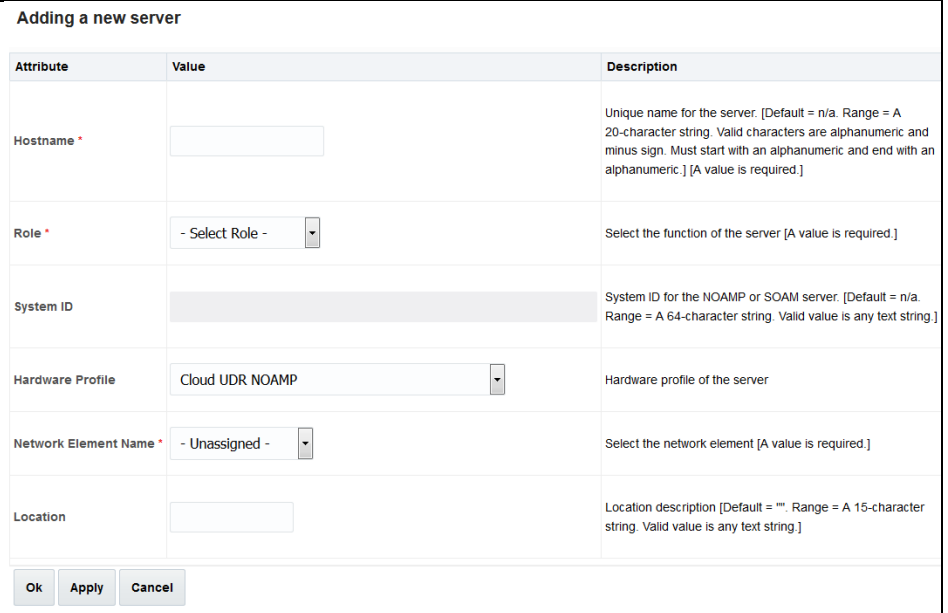
Step	Procedure	Result
1. <input type="checkbox"/>	<b>UDR Server A:</b> Launch an approved web browser and connect to the UDR Server A IP address  <b>NOTE:</b> Click <b>Continue to this website (not recommended)</b> if the security certificate warning displays.	
2. <input type="checkbox"/>	<b>UDR Server A:</b> The login screen opens.  Login to the GUI using the default user and password.	

Step	Procedure	Result
3. <input type="checkbox"/>	<b>UDR Server A:</b> The Oracle Communications User Data Repository Main Menu displays.	
4. <input type="checkbox"/>	<b>UDR Server A:</b> <b>Configuring Network Element</b> Navigate to <b>Main Menu → Configuration → Networking → Networks</b>	
5. <input type="checkbox"/>	<b>UDR Server A:</b> Go to the <b>Configuration → Networking → Networks</b> screen. Click <b>Browse</b> .	
6. <input type="checkbox"/>	<b>UDR Server A:</b> <b>NOTE:</b> 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 <b>Open</b> .	

Step	Procedure	Result
7. <input type="checkbox"/>	<b>UDR Server A:</b> Click <b>Upload File</b> (bottom left corner of screen).	
8. <input type="checkbox"/>	<b>UDR Server A:</b> 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.  <b>NOTE</b> You may have to left mouse click the <b>Info</b> banner option to see the message.	 
9. <input type="checkbox"/>	Navigate to <b>Main Menu → Configuration → Networking → Services</b>	
10. <input type="checkbox"/>	<b>UDR Server A:</b> Click <b>Edit</b> (located at the bottom left corner of the page).	

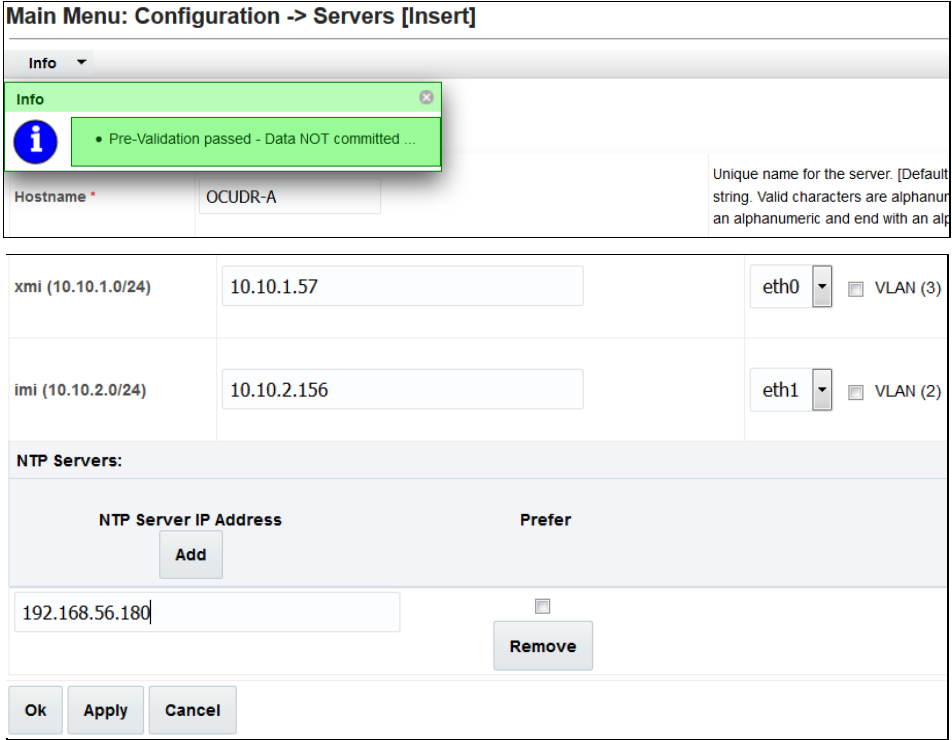
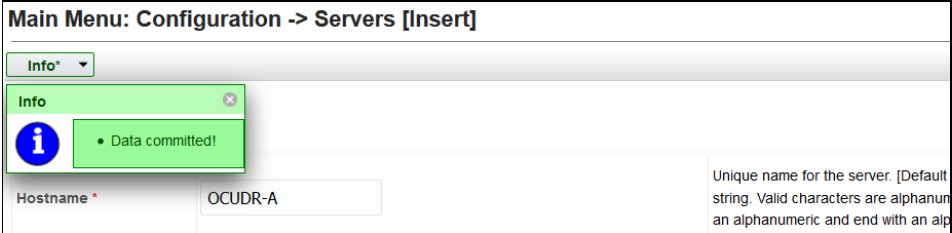
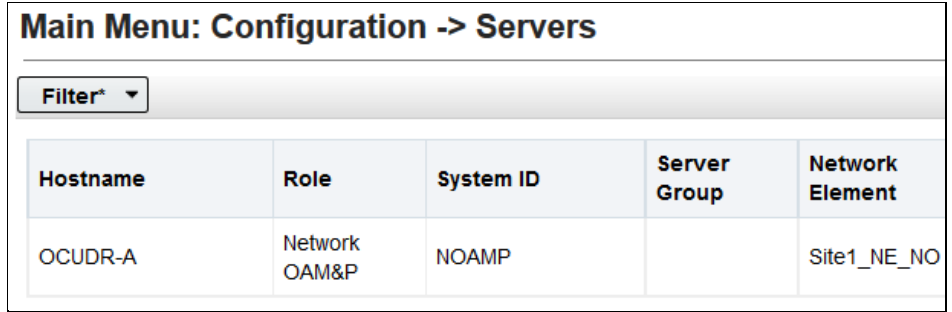
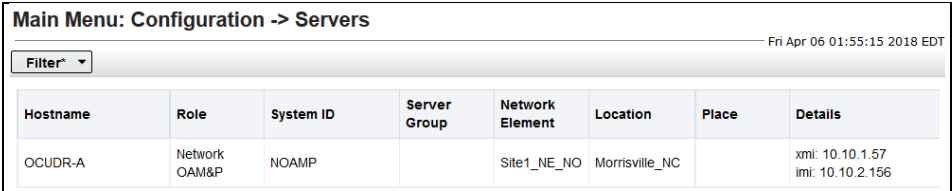


Step	Procedure	Result																								
11. <input type="checkbox"/>	<b>UDR Server A:</b> <ol style="list-style-type: none"> <li>Set the services values (see Note section).</li> <li>Click <b>Apply</b>.</li> <li>Click <b>OK</b>.</li> </ol>	<div> <h3>Services</h3> <table> <thead> <tr> <th>Name</th><th>Intra-NE Network</th><th>Inter-NE Network</th></tr> </thead> <tbody> <tr> <td>OAM</td><td>IMI <input type="button" value="v"/></td><td>XMI <input type="button" value="v"/></td></tr> <tr> <td>Replication</td><td>IMI <input type="button" value="v"/></td><td>XMI <input type="button" value="v"/></td></tr> <tr> <td>Signaling</td><td>Unspecified <input type="button" value="v"/></td><td>Unspecified <input type="button" value="v"/></td></tr> <tr> <td>HA_Secondary</td><td>IMI <input type="button" value="v"/></td><td>XMI <input type="button" value="v"/></td></tr> <tr> <td>HA_MP_Secondary</td><td>IMI <input type="button" value="v"/></td><td>XMI <input type="button" value="v"/></td></tr> <tr> <td>Replication_MP</td><td>IMI <input type="button" value="v"/></td><td>XMI <input type="button" value="v"/></td></tr> <tr> <td>ComAgent</td><td>IMI <input type="button" value="v"/></td><td>XMI <input type="button" value="v"/></td></tr> </tbody> </table> <div> <input type="button" value="Ok"/> <input type="button" value="Apply"/> <input type="button" value="Cancel"/> </div> </div> <p><b>NOTE:</b> Servers do not need to be restarted if this is a fresh installation.</p>	Name	Intra-NE Network	Inter-NE Network	OAM	IMI <input type="button" value="v"/>	XMI <input type="button" value="v"/>	Replication	IMI <input type="button" value="v"/>	XMI <input type="button" value="v"/>	Signaling	Unspecified <input type="button" value="v"/>	Unspecified <input type="button" value="v"/>	HA_Secondary	IMI <input type="button" value="v"/>	XMI <input type="button" value="v"/>	HA_MP_Secondary	IMI <input type="button" value="v"/>	XMI <input type="button" value="v"/>	Replication_MP	IMI <input type="button" value="v"/>	XMI <input type="button" value="v"/>	ComAgent	IMI <input type="button" value="v"/>	XMI <input type="button" value="v"/>
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ComAgent	IMI <input type="button" value="v"/>	XMI <input type="button" value="v"/>																								

Step	Procedure	Result																								
12. <input type="checkbox"/>	<b>UDR Server A:</b> 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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ComAgent	IMI	XMI																								
13. <input type="checkbox"/>	<b>UDR Server A:</b> <b>Configuring Oracle Communications User Data Repository Server</b> Navigate to <b>Main Menu → Configuration → Servers</b>																									
14. <input type="checkbox"/>	<b>UDR Server A:</b> Click <b>Insert</b> at the bottom left.																									
15. <input type="checkbox"/>	<b>UDR Server A:</b> The Adding a new server configuration screen opens.																									


Step	Procedure	Result									
16. <input type="checkbox"/>	<b>UDR Server A:</b> 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 a-z, 0-9, and hyphen. Valid value is any alphanumeric and end with a hyphen.</td></tr> </tbody> </table>	Attribute	Value	Description	Hostname *	OCUDR-A	Unique name for the server. string. Valid characters are a-z, 0-9, and hyphen. Valid value is any alphanumeric and end with a hyphen.			
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17. <input type="checkbox"/>	<b>UDR Server A:</b> Select <b>NETWORK OAM&amp;P</b> for the server Role from the menu.	<table border="1"> <tbody> <tr> <td>Role *</td><td colspan="2"> <div> <div>NETWORK OAM&amp;P ▼</div> <div> - Select Role -  <b>NETWORK OAM&amp;P</b>  SYSTEM OAM  MP  QUERY SERVER </div> </div> </td></tr> <tr> <td>System ID</td><td colspan="2"></td></tr> <tr> <td>Hardware Profile</td><td colspan="2">Cloud UDR NOAMP ▼</td></tr> </tbody> </table>	Role *	<div> <div>NETWORK OAM&amp;P ▼</div> <div> - Select Role -  <b>NETWORK OAM&amp;P</b>  SYSTEM OAM  MP  QUERY SERVER </div> </div>		System ID			Hardware Profile	Cloud UDR NOAMP ▼	
Role *	<div> <div>NETWORK OAM&amp;P ▼</div> <div> - Select Role -  <b>NETWORK OAM&amp;P</b>  SYSTEM OAM  MP  QUERY SERVER </div> </div>										
System ID											
Hardware Profile	Cloud UDR NOAMP ▼										
18. <input type="checkbox"/>	<b>UDR Server A:</b> 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"/>	<b>UDR Server A:</b> Select the hardware profile from the menu.	Select the hardware profile: <b>Cloud UDR NOAMP</b> <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"/>	<b>UDR Server A:</b> Select the Network Element Name from the menu.  <b>NOTE:</b> After the Network Element Name is selected, the Interfaces fields are 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"/>	<b>UDR Server A:</b> Enter the site location.  <b>NOTE:</b> 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"/>	<b>UDR Server A:</b> 1. Enter the IP Addresses for the Server. 2. Set the Interface parameters according to deployment type.	<div><b>OAM Interfaces [At least one interface is required.]:</b></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> <div>1. Enter the IP Addresses for XMI and IMI networks. 2. Set the Interface device for XMI and IMI networks according to the network adapter assignment for the VM guest as viewable in B.3 Step 3 or C.7 Step 5. 3. Leave the VLANs unselected</div>	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)										
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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"/>	<b>UDR Server A:</b> Click <b>Add</b> under NTP Servers and enter the address of the supplied NTP server.	<div><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> Set one or more NTP Server IP Addresses to the supplied NTP servers. It is recommended to have minimum of 3 and up to 4 external NTP servers for reliable functioning of NTP service. <div><b>NTP Servers:</b><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="Remove"/></td></tr></tbody></table></div></div>	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="Remove"/>
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NTP Server IP Address	Prefer																				
<input type="text"/>	<input type="checkbox"/> <input type="button" value="Remove"/>																				

Step	Procedure	Result
24. <input type="checkbox"/>	<b>UDR Server A:</b> Click <b>Info</b> to see a banner message stating Pre-Validation passed.  Click <b>Apply</b> .	
25. <input type="checkbox"/>	<b>UDR Server A:</b> If the values 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"/>	<b>UDR Server A:</b> Applying the Server Configuration File  Navigate to <b>Main Menu → Configuration → Servers</b>	
27. <input type="checkbox"/>	<b>UDR Server A:</b> The Configuration → Servers screen lists the added Server.	

Step	Procedure	Result																
28. <input type="checkbox"/>	<b>UDR Server A:</b> 1. Use the cursor to select the added Server. 2. The row containing the Server is highlighted in SKY BLUE. 3. Click <b>Export</b> .	<div><div>Main Menu: Configuration -&gt; Servers</div><div><div>Fri Apr 06 01:55:15 2018 EDT</div><div>Filter</div><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&amp;P</td><td>NOAMP</td><td></td><td>Site1_NE_NO</td><td>Morrisville_NC</td><td></td><td>xml: 10.10.1.57 imi: 10.10.2.156</td></tr></tbody></table><div><div>Insert</div><div>Edit</div><div>Delete</div><div>Export</div><div>Report</div></div></div></div>	Hostname	Role	System ID	Server Group	Network Element	Location	Place	Details	OCUDR-A	Network OAM&P	NOAMP		Site1_NE_NO	Morrisville_NC		xml: 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		xml: 10.10.1.57 imi: 10.10.2.156											
29. <input type="checkbox"/>	<b>UDR Server A:</b> A banner information message showing a download link for the Server configuration data.	<div><div>Main Menu: Configuration -&gt; Servers</div><div><div>Fri Apr 06 01:57:56 2018 EDT</div><div>Filter</div><div>Info</div><div><div>Info</div><div>• Exported server data in TKLCConfigData.OCUDR-A.sh may be <a href="#">downloaded</a></div></div><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>OAM&amp;P</td><td>NOAMP</td><td></td><td>Site1_NE_NO</td><td>Morrisville_NC</td><td></td><td>xml: 10.10.1.57 imi: 10.10.2.156</td></tr></tbody></table></div></div> <div>The configuration file was created and stored in the /var/TKLC/db/filemgmt directory. The configuration file has a file name similar to TKLCConfigData.&lt;hostname&gt;.sh.</div>	Hostname	Role	System ID	Server Group	Network Element	Location	Place	Details	OCUDR-A	OAM&P	NOAMP		Site1_NE_NO	Morrisville_NC		xml: 10.10.1.57 imi: 10.10.2.156
Hostname	Role	System ID	Server Group	Network Element	Location	Place	Details											
OCUDR-A	OAM&P	NOAMP		Site1_NE_NO	Morrisville_NC		xml: 10.10.1.57 imi: 10.10.2.156											
30. <input type="checkbox"/>	<b>UDR Server A:</b> 1. Access the command prompt. 2. Log into the UDR-A server as the admusr user.	<pre>login as: admusr admusr@10.250.xx.yy's password: &lt;admusr_password&gt; Last login: Wed Mar 28 05:03:47 2018 from 10.178.25.81 [root@NO-A ~]#</pre>																
31. <input type="checkbox"/>	<b>UDR Server A:</b> Switch to root user.	<pre>[admusr@ UDR-A ~]\$ su - password: &lt;root_password&gt;</pre>																
32. <input type="checkbox"/>	<b>UDR Server A:</b> 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.	<div><div><b>Example:</b></div><div>TKLCConfigData&lt;.server_hostname&gt;.sh translates to TKLCConfigData.sh</div><div># cp -p /var/TKLC/db/filemgmt/TKLCConfigData.UDR-A.sh /var/tmp/TKLCConfigData.sh</div><div><b>NOTE:</b> The server polls the /var/tmp directory for the presence of the configuration file and automatically runs the file when it is found.</div></div>																

Step	Procedure	Result
33. <input type="checkbox"/>	<p><b>UDR Server A:</b></p> <p>After the script completes, a broadcast message is sent to the terminal.</p> <p>Ignore the output and press <b>ENTER</b> to return to the command prompt.</p> <p><b>NOTE:</b> The time to complete this step varies by server and may take from 3 to 20 minutes to complete.</p>	<p><b>*** NO OUTPUT FOR approximately 3 to 20 MINUTES ***</b></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. &lt;ENTER&gt;</pre>
34. <input type="checkbox"/>	<p><b>UDR Server A:</b></p> <p>Configure the time zone.</p>	<pre># set_ini_tz.pl &lt;time zone&gt;</pre> <p><b>NOTE:</b> 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><b>UDR Server A:</b></p> <p>Initiate a reboot of the UDR Server.</p>	<pre># reboot</pre>
36. <input type="checkbox"/>	<p><b>UDR Server A:</b></p> <p>Wait until server reboot is complete. Then, SSH into the UDR-A server.</p>	<p>Wait approximately 9 minutes until the server reboot is complete.</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: &lt;admusr_password&gt; Last login: Wed Mar 28 05:03:47 2018 from 10.178.25.81</pre> <p><b>NOTE:</b> If the server is not 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><b>UDR Server A:</b></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><b>Example:</b></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><b>NOTE:</b> 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"> <li>1. Navigate to <b>Main Menu → Configuration → Servers</b></li> <li>2. Scroll to line entry containing the hostname for the servers.</li> </ol>

Step	Procedure	Result																														
38. <input type="checkbox"/>	<b>UDR Server A:</b> 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> <table><thead><tr><th>remote</th><th>refid</th><th>st</th><th>t</th><th>when</th><th>poll</th><th>reach</th><th>delay</th><th>offset</th><th>jitter</th></tr></thead><tbody><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>37</td><td>64</td><td>177</td><td>0.574</td><td>1.165</td><td>21.346</td></tr></tbody></table>	remote	refid	st	t	when	poll	reach	delay	offset	jitter	=====										*192.168.56.180	192.168.56.247	4	u	37	64	177	0.574	1.165	21.346
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*192.168.56.180	192.168.56.247	4	u	37	64	177	0.574	1.165	21.346																							
	<b>IF CONNECTIVITY TO THE NTP SERVERS CANNOT BE ESTABLISHED, STOP AND PERFORM THE FOLLOWING STEPS:</b>																															
<b>Have the IT group provide a network path from the OAM server IP to the assigned NTP IP addresses.</b>																																
<b>AFTER NETWORK CONNECTIVITY IS ESTABLISHED TO THE ASSIGNED NTP IP ADDRESSES, THEN RESTART THIS PROCEDURE BEGINNING WITH STEP 35.</b>																																
39. <input type="checkbox"/>	<b>UDR Server A:</b> Run the alarmMgr to verify the health of the server	<pre>\$ alarmMgr --alarmStatus</pre> <p><b>NOTE:</b> This command should not return output on a healthy system.</p>																														
40. <input type="checkbox"/>	<b>UDR Server A:</b> Exit the SSH session for the UDR-A server	<pre>\$ exit</pre>																														
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>																																



## 5.2 Create Configuration for Remaining Servers

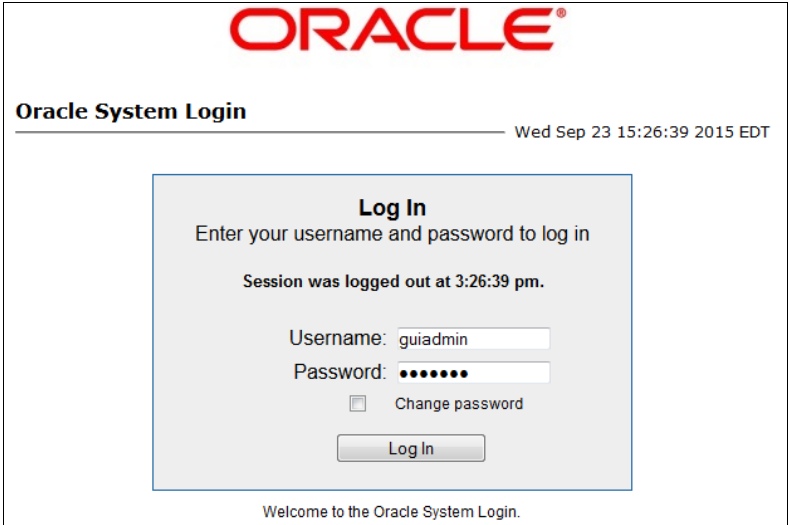
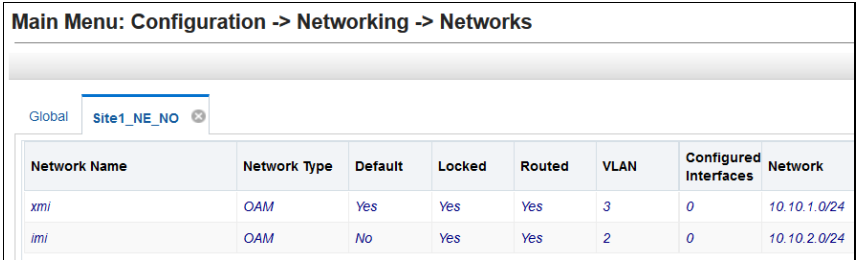
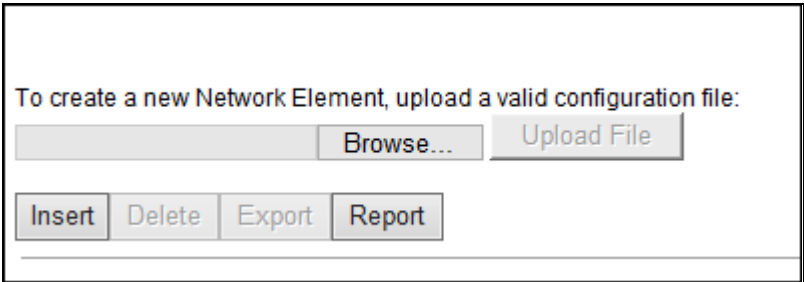
This procedure is used to create and configure all Oracle Communications User Data Repository Servers (Primary and DR Servers) except the first UDR-A server.

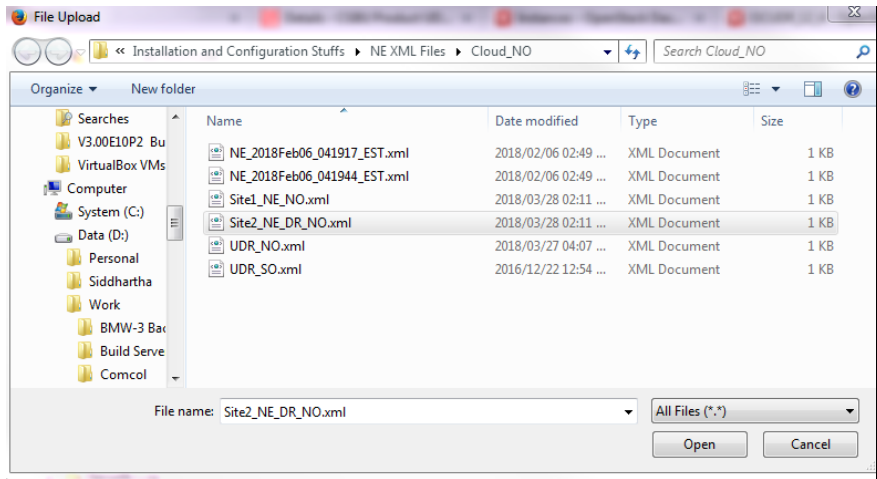
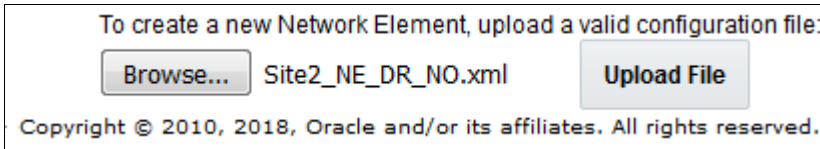
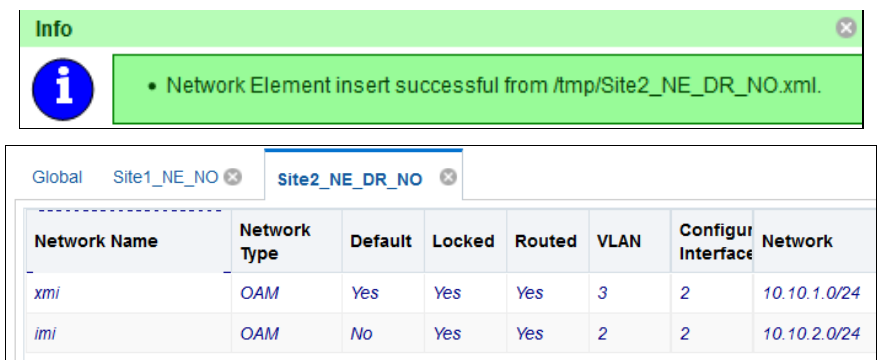
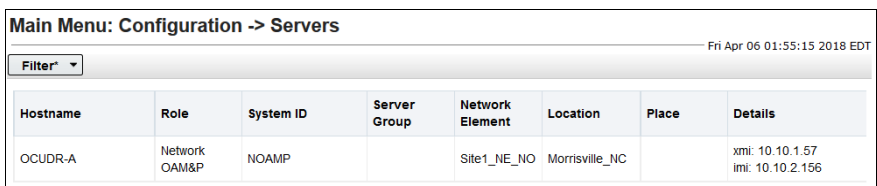
### Requirements:

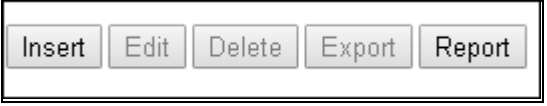
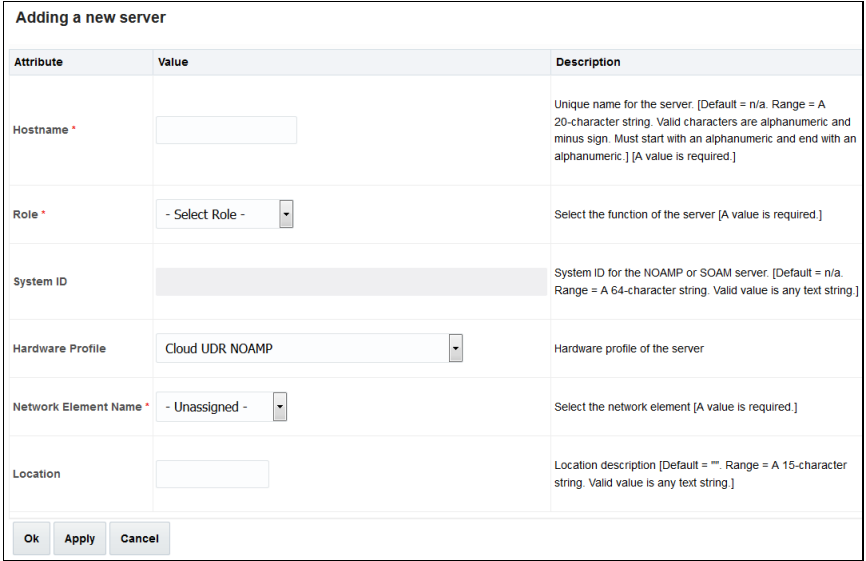
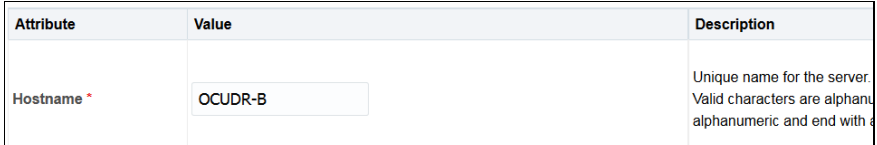
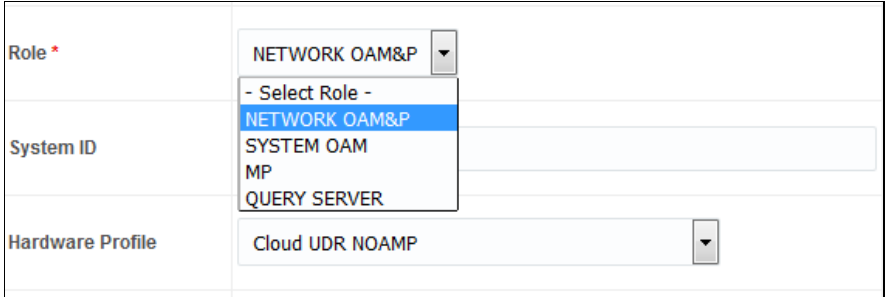
- Section 5.1 Configure UDR-A Server (1<sup>st</sup> NOAMP only) has been completed

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

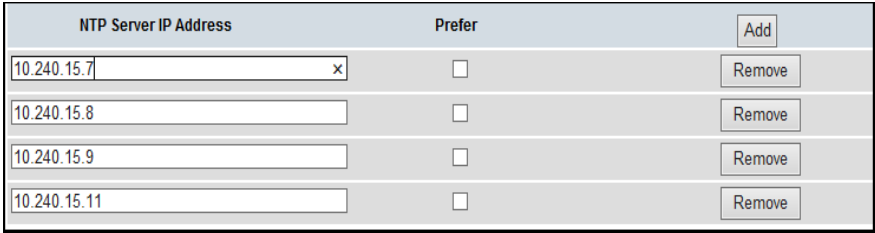
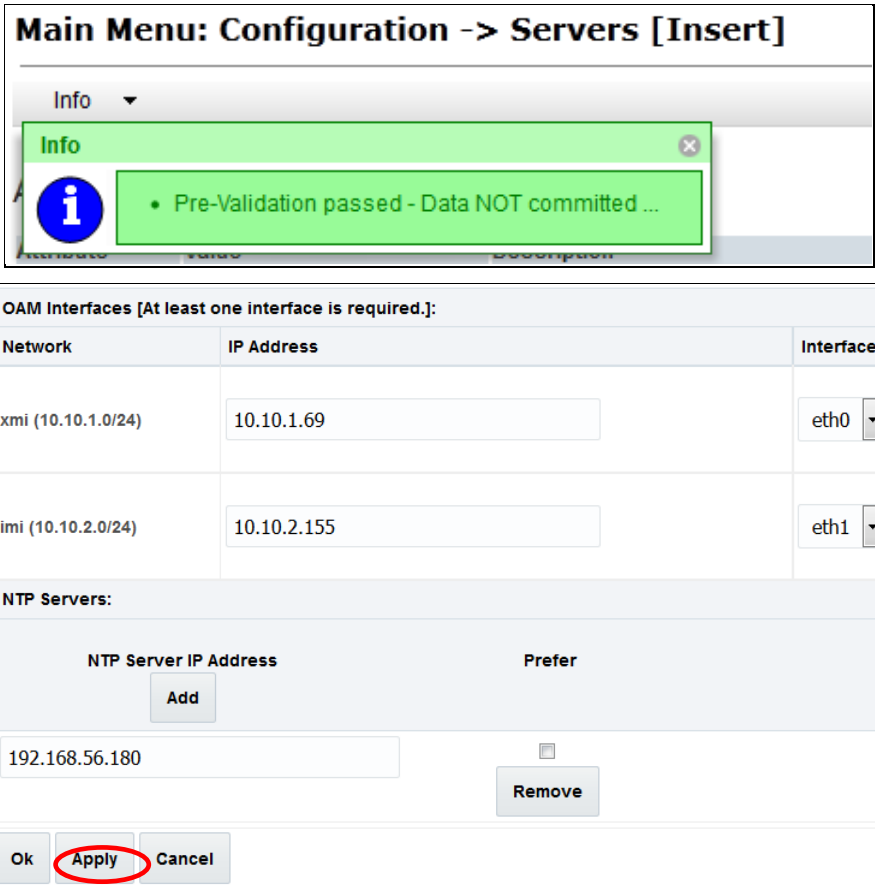
### Procedure 6: Create Configuration for Remaining Servers

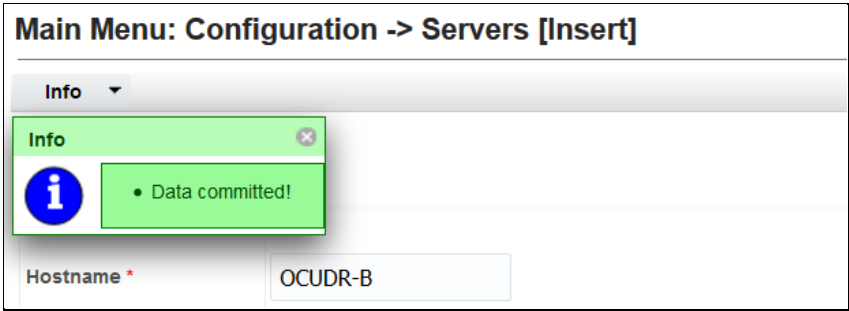
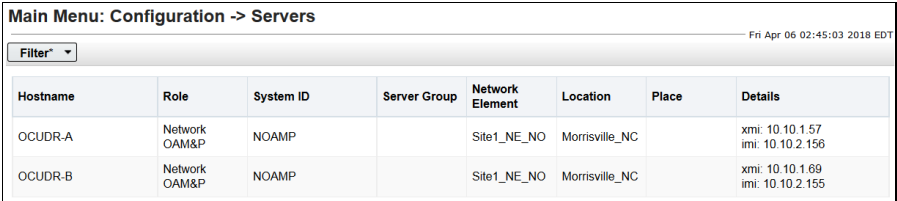
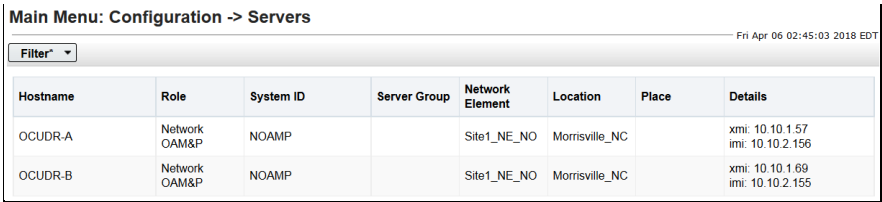
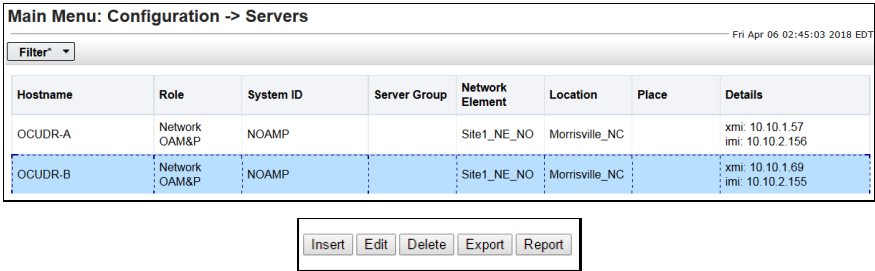
Step	Procedure	Result
1. <input type="checkbox"/>	<b>UDR Server A:</b> Launch an approved web browser and connect to the UDR Server A IP address  <b>NOTE:</b> Click <b>Continue to this website (not recommended)</b> if the security certificate warning displays.  Login to the GUI using the default user and password.	
<b>For steps 4 through 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)</b>		
2. <input type="checkbox"/>	<b>UDR Server A:</b> <b>Configuring Network Element</b>  Navigate to <b>Main Menu → Configuration → Network Elements</b>	
3. <input type="checkbox"/>	<b>UDR Server A:</b> On the <b>Configuration → Network Elements</b> screen, click <b>Browse</b> .	

Step	Procedure	Result																								
4. <input type="checkbox"/>	<b>UDR Server A:</b> <b>NOTE:</b> This step assumes that the xml files were previously prepared, as described in Appendix.  1. Select the location containing the site .xml file. 2. Select the .xml file and click the <b>Open</b> .																									
5. <input type="checkbox"/>	<b>UDR Server A:</b> Click <b>Upload File</b> (bottom left corner of screen).																									
6. <input type="checkbox"/>	<b>UDR Server A:</b> 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.  <b>NOTE:</b> You may have to left mouse click the <b>Info</b> 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																			
<b>NOTE:</b> The following must be run for all servers except the first UDR-A server. These steps include a check box for UDR-A server. That check box refers 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"/>	<b>UDR Server A:</b> Navigate to <b>Main Menu → Configuration → Servers</b>	 <p>Mark the check box as addition is completed for each server.</p> <div><input type="checkbox"/> UDR-A      <input type="checkbox"/> UDR-B</div>																								

Step	Procedure	Result
8. <input type="checkbox"/>	<b>UDR Server A:</b> Click <b>Insert</b> 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"/>	<b>UDR Server A:</b> 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"/>	<b>UDR Server A:</b> 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"/>	<b>UDR Server A:</b> 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"/>	<b>UDR Server A:</b> Enter the System ID for the server.  <b>NOTE:</b> 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"/>	<b>UDR Server A:</b> Select the hardware profile from the list.	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"/>	<b>UDR Server A:</b> Select the Network Element Name from the menu.  <b>NOTE:</b> 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><b>NOTE:</b> 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"/>	<b>UDR Server A:</b> Enter the site location.  <b>NOTE:</b> 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"/>	<b>UDR Server A:</b> 1. Enter the IP Addresses for the Server. 2. Set the Interface parameters according 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>1. Enter the IP Addresses for XMI and IMI networks.  2. Set the Interface device for XMI and IMI networks according to network adapter assignment for the VM guest as viewable in B.3 Step 3 or C.7 Step 5.  3. Leave the VLANs unselected.</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"/>	<b>UDR Server A:</b> Click <b>Add</b> under NTP Servers and enter the addresses of the NTP servers.	 <p>Set one or more NTP Server IP Addresses to the 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"/>	<b>UDR Server A:</b> Click <b>Info</b> to see a banner with a message stating Pre-Validation passed. Click <b>Apply</b> .	 <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"/>	<b>UDR Server A:</b> If the values match the network ranges assigned to the NE, click <b>Info</b> 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> <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
20. <input type="checkbox"/>	<b>UDR Server A:</b> Applying the Server Configuration File  Select <b>Main Menu → Configuration → Servers</b>	 <p>Mark the check box as addition is completed for each server.</p> <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
21. <input type="checkbox"/>	<b>UDR Server A:</b> The Configuration → Servers screen shows the added Server in the list.	 <p>Mark the check box as addition is completed for each server.</p> <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
22. <input type="checkbox"/>	<b>UDR Server A:</b> 1. Use the cursor to select the added Server. 2. The row containing the Server is be highlighted in SKY BLUE. 3. Click <b>Export</b> .	 <p>Mark the check box as addition is completed for each server.</p> <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
23. <input type="checkbox"/>	<b>VMware client:</b> 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
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

### 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

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.


#### Procedure 7: Apply Configuration to Remaining Servers

Step	Procedure	Result
1. <input type="checkbox"/>	<b>UDR Server A:</b> 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"/>	<b>UDR Server A:</b> 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: &lt;admusr_password&gt;  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"/>	<b>UDR Server A:</b> 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"/>	<b>UDR Server A:</b> Get a directory listing and find the configuration files for the servers.	<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"/>	<b>UDR Server A:</b> Copy the configuration files found in the previous step to the target server based on the server name of the configuration file.	<pre>[admusr@pc9040833-no-a ~]\$ scp -p &lt;configuration_file-a&gt; &lt;Associated_Server_XMI_IP&gt;:/tmp admusr@10.240.39.4's password: &lt;admusr_password&gt;  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"/>	<b>UDR Server A:</b> Connect to the target server which has received a configuration file copy in the previous step	<pre>[admusr@pc9040833-no-a ~]\$ ssh &lt;Associated_Server_XMI_IP &gt; admusr@192.168.1.10's password: &lt;admusr_password&gt;</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"/>	<b>Target Server:</b> 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><b>Example:</b></p> <pre>TKLCConfigData&lt;.server_hostname&gt;.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><b>NOTE:</b> The server polls the /var/tmp directory for the presence of the configuration file and automatically runs the file when it is 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"/>	<b>Target Server:</b> After the script completes, a broadcast message is sent to the terminal.  Ignore the output and press <b>ENTER</b> to return to the command prompt.  <b>NOTE:</b> The time to complete this step varies by server and may take from approximately 3 to 20 minutes to complete.	<p><b>*** THERE IS NO OUTPUT FOR APPROXIMATELY 20 MINUTES ***</b></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. &lt;ENTER&gt; [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"/>	<b>Target Server:</b> 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"/>	<b>UDR Server A:</b> The SSH session for the target server was terminated by previous step.	<p>The previous step causes the ssh session for the server to close and you are returned to the UDR server console prompt.</p> <pre>Connection to 192.168.1.16 closed by remote host. Connection to 192.168.1.16 closed. \$</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>
11. <input type="checkbox"/>	<b>UDR Server A:</b> Wait until server reboot is complete. Then, SSH into the target server using its XMI address.	<p>Wait approximately 10 minutes until the server reboot is complete.</p> <p>Using an SSH client such as putty, ssh to the target server using admusr credentials and the &lt;XMI IP Address&gt;.</p> <pre>[admusr@pc9040833-no-a ~]\$ ssh 192.168.1.xx admusr@192.168.1.20's password: &lt;admusr_password&gt;</pre> <p><b>NOTE:</b> If the server is not up, wait a few minutes and re-enter the ssh command. You can also run the ping command to see if the server is up.</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>
12. <input type="checkbox"/>	<b>Target Server:</b> 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> <p><b>NOTE:</b> The XMI and IMI addresses for the server can be verified by reviewing the server configuration through the Oracle Communications User Data Repository GUI.</p> <p>Navigate to <b>Main Menu → Configuration → Servers</b>.</p> <p>Scroll to line containing the hostname for the server.</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																														
13. <input type="checkbox"/>	<b>Target Server:</b> 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 &lt;Remote_NTP_Server_IP&gt;</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> <div><input type="checkbox"/> UDR-A</div> <div><input type="checkbox"/> UDR-B</div>	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																							
		<b>IF CONNECTIVITY TO THE NTP SERVERS CANNOT BE ESTABLISHED, STOP AND PERFORM THE FOLLOWING STEPS:</b>																														
14. <input type="checkbox"/>	<b>Target Server:</b> Run the alarmMgr command to verify the health of the server	<pre>\$ alarmMgr --alarmStatus</pre> <p><b>NOTE:</b> This command should not return output on a healthy system</p> <p>Mark the check box as addition is completed for each server.</p> <div><input type="checkbox"/> UDR-A</div> <div><input type="checkbox"/> UDR-B</div>																														
15. <input type="checkbox"/>	<b>Target Server:</b> 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> <div><input type="checkbox"/> UDR-A</div> <div><input type="checkbox"/> UDR-B</div>																														
16. <input type="checkbox"/>	<b>UDR Server A:</b> 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


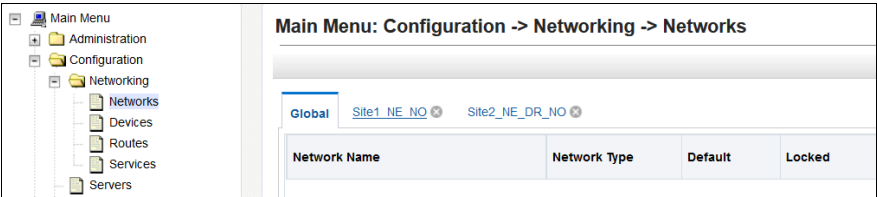
This procedure configures the XSI networks used on UDR to support signaling traffic.

### Requirements:

- Section 5.3 Apply Configuration to Remaining Servers has been completed
- Section 5.1 Configure UDR-A Server (1<sup>st</sup> 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"/>	<b>UDR Server A:</b> Launch an approved web browser and connect to the UDR Server A IP address  <b>NOTE:</b> Click <b>Continue to this website (not recommended)</b> if the security certificate warning displays.  Login to the GUI using the default user and password.	
2. <input type="checkbox"/>	UDR Server A Navigate to <b>Main Menu → Configuration → Networking → Networks</b>	

Step	Procedure	Result																											
3. <input type="checkbox"/>	<b>UDR Server A</b> Add the XSI1 network	<div>Click <b>Insert</b>.</div> <div><div><div>Main Menu: Configuration -&gt; Networking -&gt; Networks [Insert]</div><div>Info*</div><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></tbody></table><div><div>Ok</div><div>Apply</div><div>Cancel</div></div></div></div></div> <div>Enter all of the fields for the XSI1 network according to the network parameters. Retain the default values for Network Element (Signalling), Default Network (No) and Routable (Yes).</div> <div>ComAgent Service may be configured to run on XSI1. In this case, the XSI1 network is used for MP to NOAMP ComAgent Traffic.</div> <div><b>NOTE:</b> 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><b>NOTE:</b> 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>	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
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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																											
4. <input type="checkbox"/>	<b>UDR Server A</b> Repeat as required	Repeat Step 3 of this procedure to Insert additional signaling networks(XSI2, etc) if applicable.																											
5. <input type="checkbox"/>	<b>UDR Server A</b> XSI network is displayed along with a success message.	<div><div><div>Main Menu: Configuration -&gt; Networking -&gt; Networks</div><div>Info</div><div><div><div>Info</div><div>Network 'XSI1' was successfully inserted.</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></div>	Network Name	Network Type	Default	Locked	Routed	VLAN	Configured Interfaces	Network	XSI1	Signaling	No	No	Yes	4	0	10.10.3.0/24											
Network Name	Network Type	Default	Locked	Routed	VLAN	Configured Interfaces	Network																						
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 (1<sup>st</sup> NOAMP site only)

During the OAM Pairing procedure, various errors may be seen at different stages of the procedure. While performing a step, ignore errors related to values other than the ones referenced by that step.


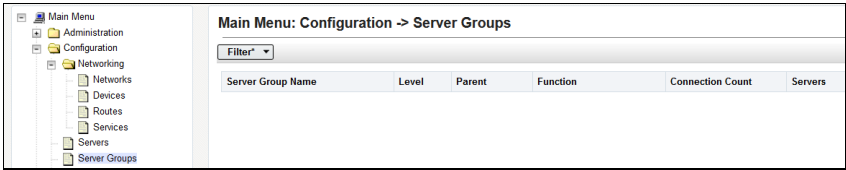

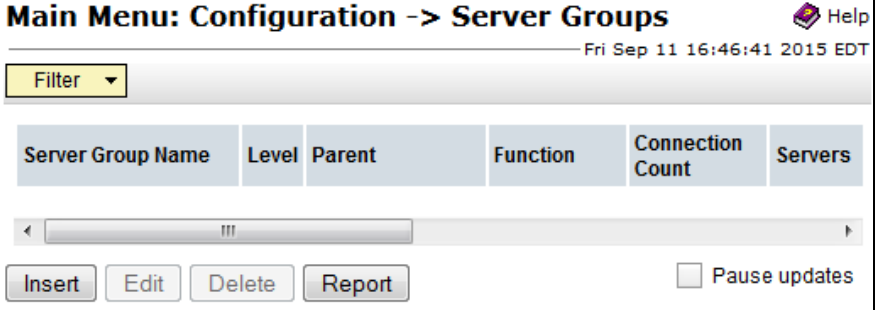
This procedure creates an active, standby pair for the UDR servers at the Primary Provisioning Site.

#### Requirements:

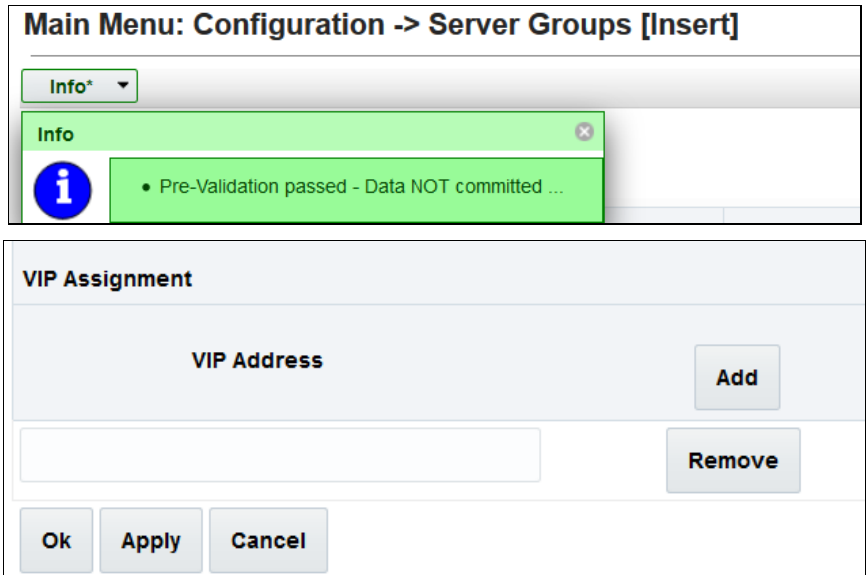
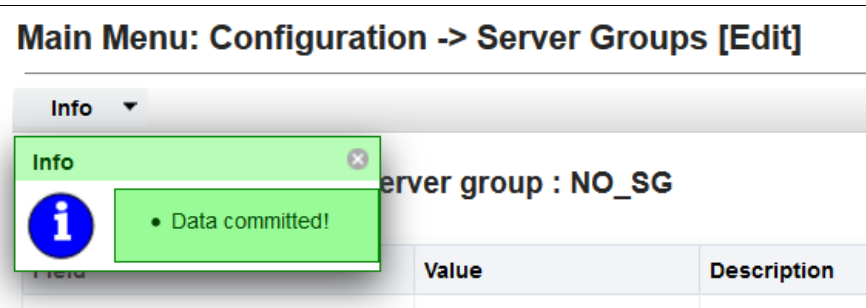
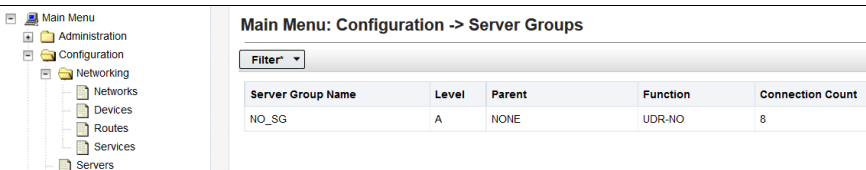
- Section 5.3 Apply Configuration to Remaining Servers has been completed

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

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

Step	Procedure	Result
1. <input type="checkbox"/>	<b>UDR Server A:</b> Launch an approved web browser and connect to the UDR Server A IP address	<p><b>NOTE:</b> Click <b>Continue to this website (not recommended)</b> if the security certificate warning displays.</p> <p>Login to the GUI using the default user and password.</p> 
2. <input type="checkbox"/>	<b>UDR Server A:</b> Configuring Server Group	<p>Navigate to <b>Main Menu → Configuration → Server Groups</b></p> 
3. <input type="checkbox"/>	<b>UDR Server A:</b> Click <b>Insert</b> located at the bottom left corner of the page.  <b>NOTE:</b> Use the vertical scroll-bar to see the <b>Insert</b> button.	<p><b>Main Menu: Configuration -&gt; Server Groups</b>  Help</p> <p>Fri Sep 11 16:46:41 2015 EDT</p> 

Step	Procedure	Result																		
4. <input type="checkbox"/>	<b>UDR Server A:</b> The Server Groups [Insert] screen opens.	<p><b>Adding new server group</b></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><input type="text"/></td><td>Unique identifier used to label a Server Group. [Default = n/a. Range = A 1-32-character string, at least one alpha and must not start with a digit.] [A value is required.]</td></tr> <tr> <td>Level *</td><td>- Select Level -</td><td>Select one of the Levels supported by the system. Level C groups contain MP servers. [A value is required.]</td></tr> <tr> <td>Parent *</td><td>- Select Parent -</td><td>Select an existing Server Group or NONE [A value is required.]</td></tr> <tr> <td>Function *</td><td>- Select Function -</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><input type="text" value="1"/></td><td>Specify the number of TCP connections that will be used for WAN replication. [A value is required. Integer between 1 and 8.]</td></tr> </tbody> </table> <p>Ok Apply Cancel</p>	Field	Value	Description	Server Group Name *	<input type="text"/>	Unique identifier used to label a Server Group. [Default = n/a. Range = A 1-32-character string, at least one alpha and must not start with a digit.] [A value is required.]	Level *	- Select Level -	Select one of the Levels supported by the system. Level C groups contain MP servers. [A value is required.]	Parent *	- Select Parent -	Select an existing Server Group or NONE [A value is required.]	Function *	- Select Function -	Select one of the Functions supported by the system [A value is required.]	WAN Replication Connection Count	<input type="text" value="1"/>	Specify the number of TCP connections that will be used for WAN replication. [A value is required. Integer between 1 and 8.]
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Function *	- Select Function -	Select one of the Functions supported by the system [A value is required.]																		
WAN Replication Connection Count	<input type="text" value="1"/>	Specify the number of TCP connections that will be used for WAN replication. [A value is required. Integer between 1 and 8.]																		
5. <input type="checkbox"/>	<b>UDR Server A:</b> Enter the Server Group Name.	<table border="1"> <thead> <tr> <th>Field</th><th>Value</th><th>Description</th></tr> </thead> <tbody> <tr> <td>Server Group Name *</td><td><input type="text" value="NO_SG"/></td><td>Unique identifier used to label a Server Group. [Default = n/a. Range = A 1-32-character string, at least one alpha and must not start with a digit.] [A value is required.]</td></tr> </tbody> </table>	Field	Value	Description	Server Group Name *	<input type="text" value="NO_SG"/>	Unique identifier used to label a Server Group. [Default = n/a. Range = A 1-32-character string, at least one alpha and must not start with a digit.] [A value is required.]												
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6. <input type="checkbox"/>	<b>UDR Server A:</b> Select <b>A</b> on the Level menu.	<table border="1"> <tbody> <tr> <td>Level *</td> <td> <div>- Select Level -</div> <div>- Select Level -</div> <div>A</div> </td> <td>Select one of the Levels supported by the system. Level B groups are optional and contain SOAM servers. [A value is required.]</td> </tr> </tbody> </table>	Level *	<div>- Select Level -</div> <div>- Select Level -</div> <div>A</div>	Select one of the Levels supported by the system. Level B groups are optional and contain SOAM servers. [A value is required.]															
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7. <input type="checkbox"/>	<b>UDR Server A:</b> Select <b>None</b> on the Parent menu.	<table border="1"> <tbody> <tr> <td>Parent *</td> <td> <div>- Select Parent -</div> <div>- Select Parent -</div> <div>NONE</div> </td> <td>Select an existing Server Group or NONE [A value is required.]</td> </tr> <tr> <td>Function *</td> <td>- Select Function -</td> <td>Select one of the Functions supported by the system [A value is required.]</td> </tr> </tbody> </table>	Parent *	<div>- Select Parent -</div> <div>- Select Parent -</div> <div>NONE</div>	Select an existing Server Group or NONE [A value is required.]	Function *	- Select Function -	Select one of the Functions supported by the system [A value is required.]												
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Function *	- Select Function -	Select one of the Functions supported by the system [A value is required.]																		
8. <input type="checkbox"/>	<b>UDR Server A:</b> Select UDR-NO on the Function menu.	<table border="1"> <tbody> <tr> <td>Function *</td> <td> <div>UDR-NO</div> </td> <td></td> </tr> </tbody> </table>	Function *	<div>UDR-NO</div>																
Function *	<div>UDR-NO</div>																			
9. <input type="checkbox"/>	<b>UDR Server A:</b> Enter 8 for WAN Replication Connection Count.	<table border="1"> <tbody> <tr> <td>WAN Replication Connection Count</td> <td><input type="text" value="8"/></td> <td>Specify the number of TCP connections that will be used for WAN replication. [A value is required. Integer between 1 and 8.]</td> </tr> </tbody> </table>	WAN Replication Connection Count	<input type="text" value="8"/>	Specify the number of TCP connections that will be used for WAN replication. [A value is required. Integer between 1 and 8.]															
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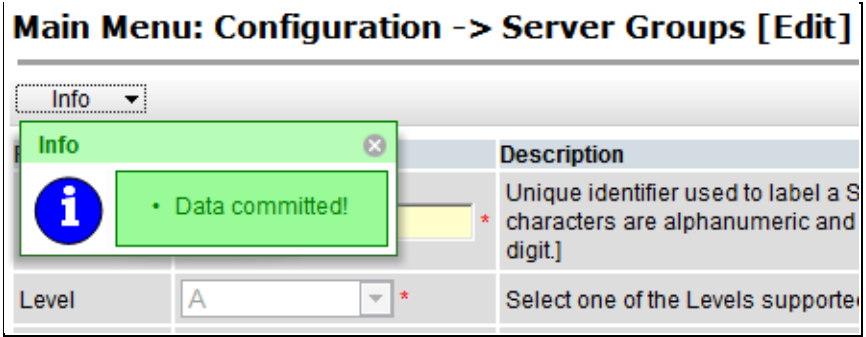
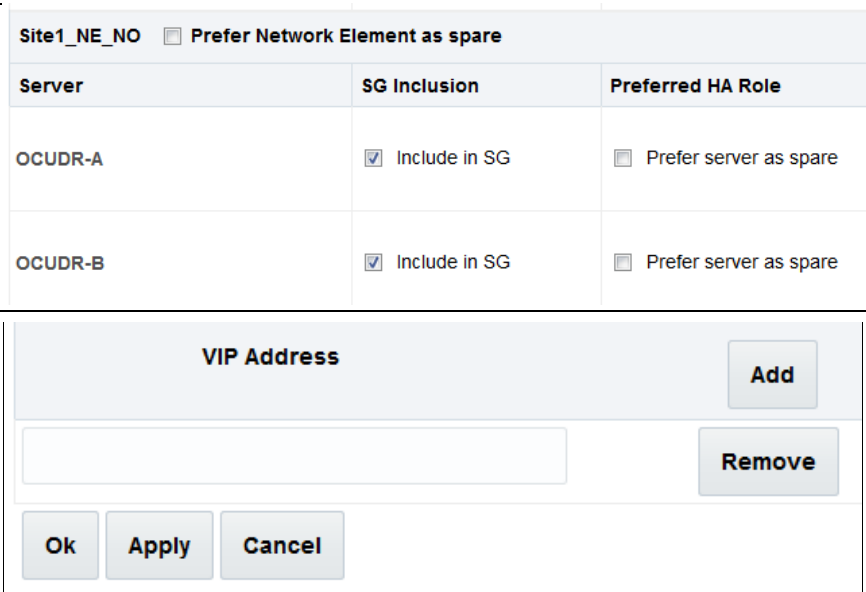
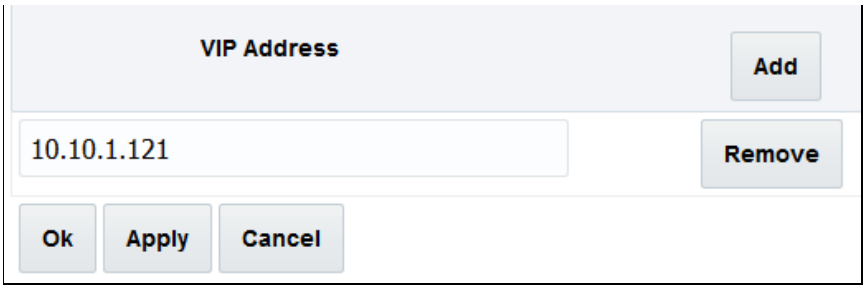
Step	Procedure	Result										
10. <input type="checkbox"/>	<b>UDR Server A:</b> Click <b>Info</b> to see a banner message stating Pre-Validation passed.  Click <b>Apply</b> .											
11. <input type="checkbox"/>	<b>UDR Server A:</b> Click <b>Info</b> to see a banner message stating Data committed.	 <table><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></td></tr></tbody></table>	Field	Value	Description	Server Group Name	NO_SG					
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Server Group Name	NO_SG											
12. <input type="checkbox"/>	<b>UDR Server A:</b> Navigate to <b>Main Menu → Configuration → Server Groups</b>	 <table><thead><tr><th>Server Group Name</th><th>Level</th><th>Parent</th><th>Function</th><th>Connection Count</th></tr></thead><tbody><tr><td>NO_SG</td><td>A</td><td>NONE</td><td>UDR-NO</td><td>8</td></tr></tbody></table>	Server Group Name	Level	Parent	Function	Connection Count	NO_SG	A	NONE	UDR-NO	8
Server Group Name	Level	Parent	Function	Connection Count								
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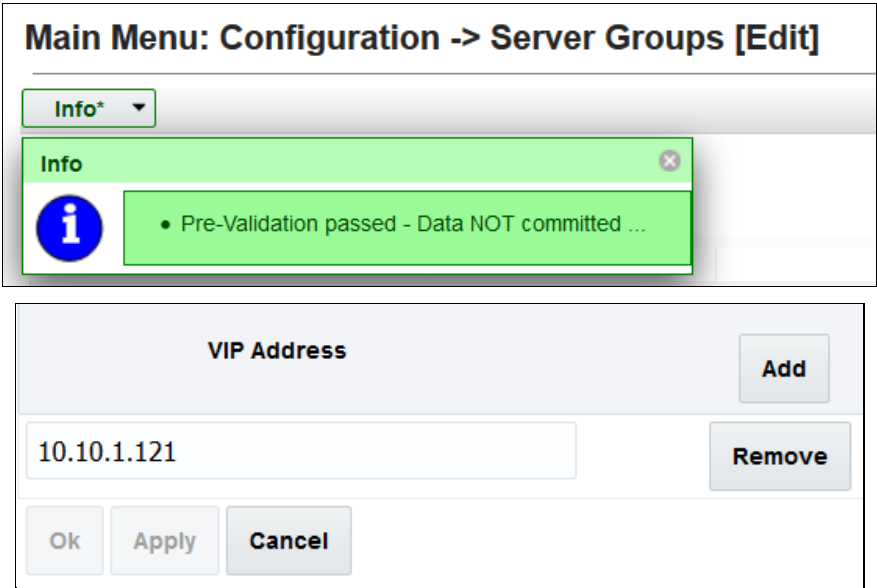
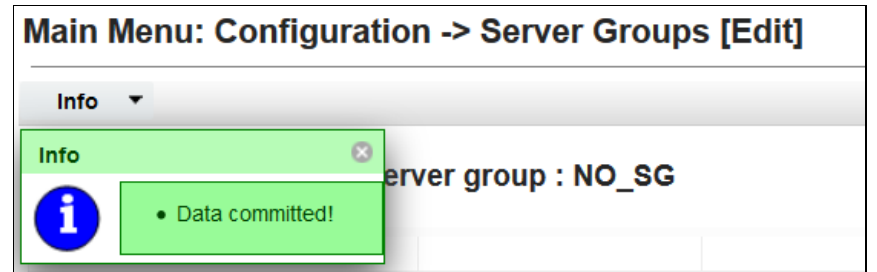
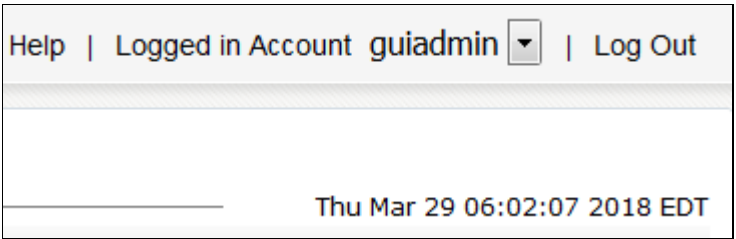
Step	Procedure	Result										
13. <input type="checkbox"/>	<p><b>UDR Server A:</b></p> <ol style="list-style-type: none"><li>1. Select the Server Group entry just added. The line entry is highlighted in sky blue.</li><li>2. Click <b>Edit</b> (located at the bottom left corner of the page).</li></ol> <p><b>NOTE:</b> You may need to use the vertical scroll-bar to see the <b>Edit</b>.</p>	<div><div>Main Menu: Configuration -&gt; Server Groups</div><div><div>Filter* ▼</div><table><tr><th>Server Group Name</th><th>Level</th><th>Parent</th><th>Function</th><th>Connection Count</th></tr><tr><td>NO_SG</td><td>A</td><td>NONE</td><td>UDR-NO</td><td>8</td></tr></table></div><div><div><div><div>Insert</div><div>Edit</div><div>Delete</div><div>Report</div></div></div></div></div>	Server Group Name	Level	Parent	Function	Connection Count	NO_SG	A	NONE	UDR-NO	8
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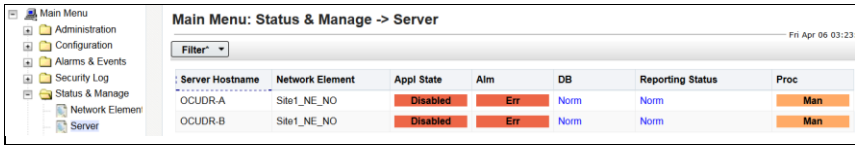
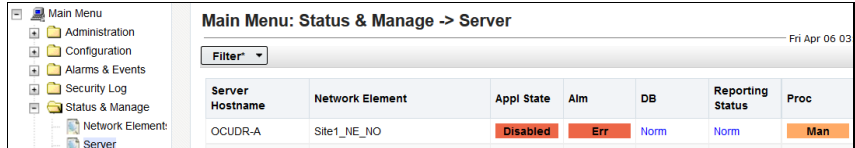
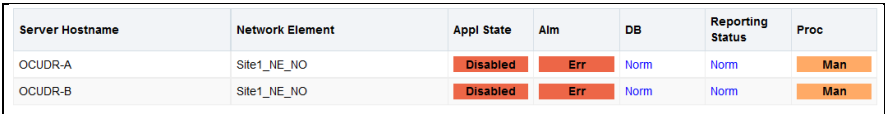


Step	Procedure	Result																																				
14. <input type="checkbox"/>	<b>UDR Server A:</b> The Server Groups [Edit] screen opens.	<div><div>Main Menu: Configuration -&gt; Server Groups [Edit]</div><div><div>Modifying attributes of server group : NO_SG</div><table><thead><tr><th>Field</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><div><div>Site1_NE_NO</div><div><input type="checkbox"/> Prefer Network Element as spare</div></div><table><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><div><div>Site2_NE_DR_NO</div><div><input type="checkbox"/> Prefer Network Element as spare</div></div><table><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><div>VIP Assignment</div><div>VIP Address</div><div>Add</div><div><div>Ok</div><div>Apply</div><div>Cancel</div></div></div></div>	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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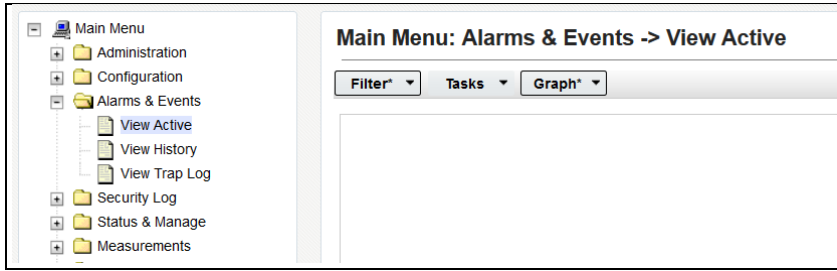
Step	Procedure	Result
15. <input type="checkbox"/>	<p><b>UDR Server A:</b></p> <p>Select the options to include the A server and the B server in the UDR server group.</p> <p><b>NOTE:</b> For single server installation, only NO-A is displayed; therefore only one option is selected.</p> <p>If this is a primary site (single site), then the DR site is not listed.</p>	
16. <input type="checkbox"/>	<p><b>UDR Server A:</b></p> <p>Click <b>Info</b> to see a banner message stating Pre-Validation passed.</p> <p>Click <b>Apply</b>.</p>	

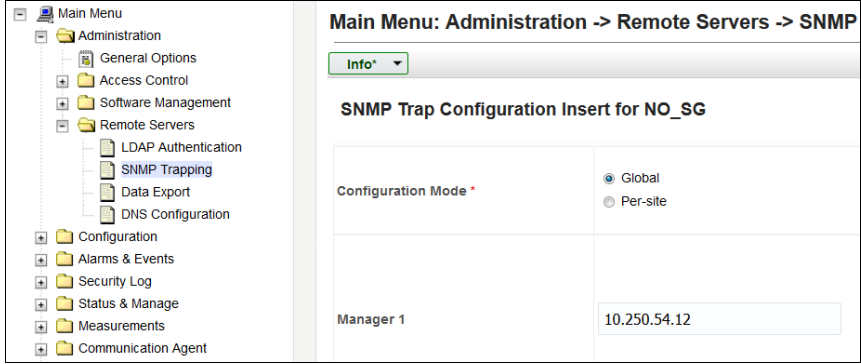
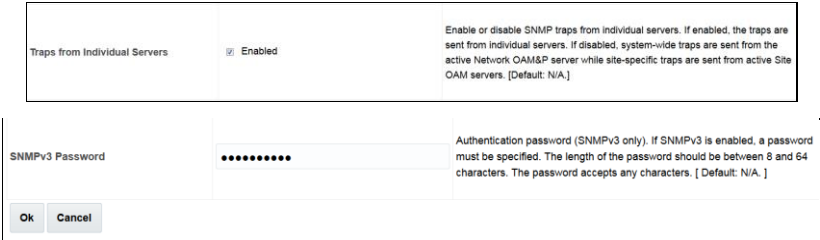

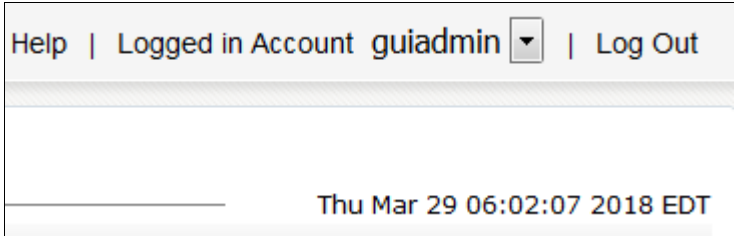
Step	Procedure	Result
17. <input type="checkbox"/>	<b>UDR Server A:</b> Click <b>Info</b> to see a banner message stating Data committed.	
18. <input type="checkbox"/>	<b>UDR Server A:</b> Click <b>Add</b> for the VIP Address.  <b>NOTE:</b> VIP Address optional for Single Server Configuration.	
19. <input type="checkbox"/>	<b>UDR Server A:</b> Enter the VIP Address	

Step	Procedure	Result
20. <input type="checkbox"/>	<b>UDR Server A:</b> Click <b>Info</b> to see a banner message stating Pre-Validation passed. Click <b>Apply</b> .	
21. <input type="checkbox"/>	<b>UDR Server A:</b> Click <b>Info</b> to see a banner message stating Data committed.	
22. <input type="checkbox"/>	<b>UDR Server A:</b> Click <b>Logout</b> on the OAM A server GUI.	
23. <input type="checkbox"/>	<b>IMPORTANT:</b> <i>Wait at least 5 minutes before proceeding on to the next step.</i>	<p>Now that the servers have been 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><b>NOTE:</b> Single server configuration is not needed 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
24. <input type="checkbox"/>	<p><b>Active UDR VIP:</b></p> <p>Launch an approved web browser and connect to the UDR Server A IP address</p> <p><b>NOTE:</b> Click <b>Continue to this website (not recommended)</b> if the security certificate warning displays.</p> <p>Login to the GUI using the default user and password.</p>	
25. <input type="checkbox"/>	<p><b>UDR VIP:</b></p> <p>Restarting the UDR Server Application</p> <p>Navigate to <b>Main Menu → Status &amp; Manage → Server</b></p>	<p>Normal or Low Capacity Configuration:</p>  <p>Single Server Configuration:</p> 
26. <input type="checkbox"/>	<p><b>UDR VIP:</b></p> <ol style="list-style-type: none"> <li>The A and B servers are listed in the right panel.</li> </ol> <p><b>NOTE:</b> For single server, only the A server is listed.</p> <ol style="list-style-type: none"> <li>Verify that the DB status shows Norm and the Proc status shows Man for one or both servers before proceeding to the next Step.</li> </ol>	<p>Normal or Low Capacity Configuration:</p>  <p>Single Server Configuration:</p> 

Step	Procedure	Result																																																					
27. <input type="checkbox"/>	<p><b>UDR VIP:</b></p> <ol style="list-style-type: none"><li>Using the mouse, select UDR Server A. The line entry is highlighted in sky blue.</li><li>Click <b>Restart</b> (located at the bottom of the page).</li><li>Click <b>OK</b>.</li></ol> <p>A confirmation message (in the banner area) for UDR Server A displays stating: Successfully restarted application.</p> <p><b>NOTE:</b> Use the vertical scroll-bar to see the <b>Restart</b> 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><div>Help</div><div>Logout</div></div><div><div>Stop</div><div>Restart</div><div>Reboot</div></div></div> <div><div>Are you sure you wish to restart application software on the following server(s)?</div><div>OCUDR-A</div><div><div>OK</div><div>Cancel</div></div></div> <div><div>Main Menu: Status &amp; Manage -&gt; Server</div><div><div>Filter</div><div>Info</div></div><div><div>Info</div><div>• OCUDR-A: Successfully restarted application.</div></div><table><tr><th>Server Host</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>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-B</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	Appl State	Alm	DB	Reporting Status	Proc	OCUDR-A	Enabled	Err	Norm	Norm	Norm	OCUDR-B	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																																																	
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OCUDR-B	Disabled	Err	Norm	Norm	Man																																																		
28. <input type="checkbox"/>	<p><b>UDR VIP:</b></p> <p>Verify that the Appl State shows Enabled and that the DB, Reporting Status and 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><b>NOTE:</b> If you want to refresh the Server status screen before the default setting (15 to 30 seconds), this can be done by reselecting the <b>Status &amp; Manage</b> → <b>Server</b> 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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OCUDR-B	Site1_NE_NO	Disabled	Err	Norm	Norm	Man																																																	
29. <input type="checkbox"/>	<p><b>UDR VIP:</b></p> <p>Restart UDR Server B.</p>	<p><b>NOTE:</b> Do not perform this step for single server installations.</p> <p>Repeat steps 27 and 28 to restart UDR Server B.</p>																																																					

Step	Procedure	Result																																																																																																																																																																																				
30. <input type="checkbox"/>	<b>UDR VIP:</b>  Verifying the UDR server alarm status	Navigate to <b>Main Menu → Alarms &amp; Events → View Active</b>  																																																																																																																																																																																				
31. <input type="checkbox"/>	<b>UDR VIP:</b>  Verify that the Event IDs are the only alarms present on the system.	<table><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><tr><td></td><td colspan="2">Alarm Text</td><td colspan="7">Additional Info</td></tr><tr><td>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></td><td colspan="2">Communication Agent Routed Service Unavailable</td><td colspan="7">GN_INFO/WRN ^^ [26801:ComAgentStack.C:2826]</td></tr><tr><td>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></td><td colspan="2">Communication Agent Routed Service Unavailable</td><td colspan="7">GN_INFO/WRN ^^ [16353:ComAgentStack.C:2826]</td></tr><tr><td>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></td><td colspan="2">No Remote RAS Client Connections</td><td colspan="7">GN_NOTENAB/WRN No remote provisioning RAS clients are connected. ^^ [16365... <a href="#">More...</a></td></tr><tr><td>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></td><td colspan="2">No Remote XSAS Client Connections</td><td colspan="7">GN_NOTENAB/WRN No remote provisioning XSAS clients are connected. ^^ [1636... <a href="#">More...</a></td></tr></table> <table><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><tr><td></td><td colspan="2">Alarm Text</td><td colspan="7">Additional Info</td></tr><tr><td>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></td><td colspan="2">Communication Agent Routed Service Unavailable</td><td colspan="7">GN_INFO/WRN ^^ [31511:ComAgentStack.C:3025]</td></tr><tr><td>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></td><td colspan="2">Provisioning Interfaces Disabled</td><td colspan="7">GN_NOTENAB/WRN SOAP and REST interfaces are disabled ^^ [945:ProvControlle... <a href="#">More...</a></td></tr><tr><td>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></td><td colspan="2">Communication Agent Routed Service Unavailable</td><td colspan="7">GN_INFO/WRN ^^ [577:ComAgentStack.C:3025]</td></tr></table> Verify that only the following Event IDs are the only alarms present:  13075 Provisioning Interfaces Disabled 19820 Communicaton Agent Routed Service Unavailable  <b>NOTE:</b> It may take a few minutes for residual process alarms to clear.	Seq #	Event ID	Timestamp	Severity	Product	Process	NE	Server	Type	Instance		Alarm Text		Additional Info							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... <a href="#">More...</a>							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. ^^ [1636... <a href="#">More...</a>							Seq #	Event ID	Timestamp	Severity	Product	Process	NE	Server	Type	Instance		Alarm Text		Additional Info							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... <a href="#">More...</a>							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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Step	Procedure	Result
32. <input type="checkbox"/>	<b>UDR VIP:</b> Configuring SNMP for Traps from Individual Servers	Navigate to <b>Main Menu → Administration → Remote Servers → SNMP Trapping</b> 
33. <input type="checkbox"/>	<b>UDR VIP:</b> 1. Select <b>Traps from Individual Servers</b> . 2. Click <b>OK</b> 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"/>	<b>UDR VIP:</b> Click <b>Logout</b> on the server GUI.	
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

## 6.2 OAM Pairing for DR Sites

During the OAM Pairing procedure, various errors may be seen at different stages of the procedure. While performing a step, 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 an active, standby pair for the DR UDR Servers.

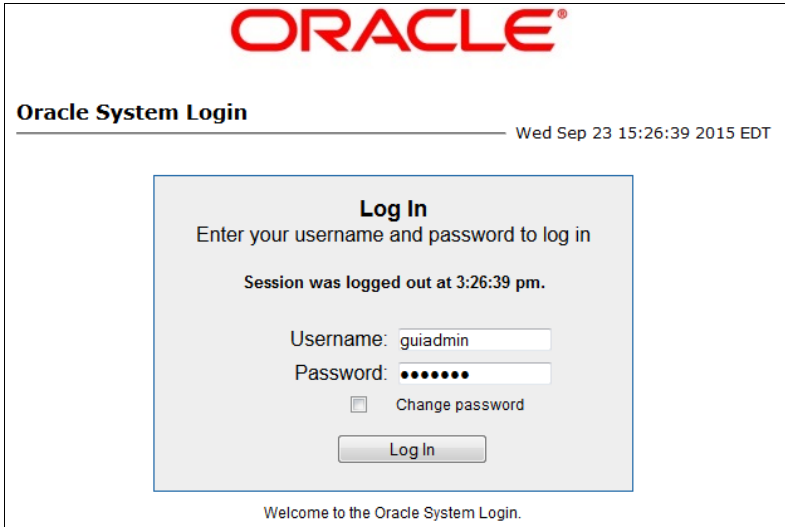
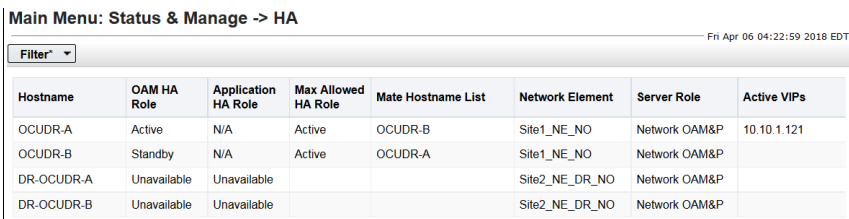
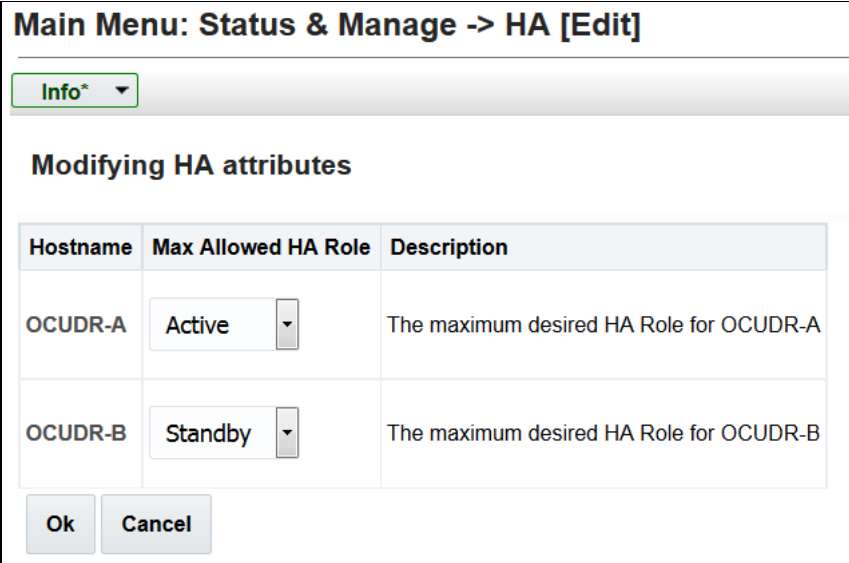
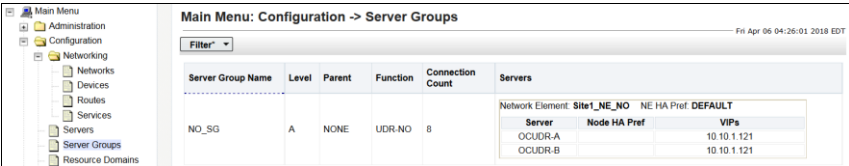
### Requirements:

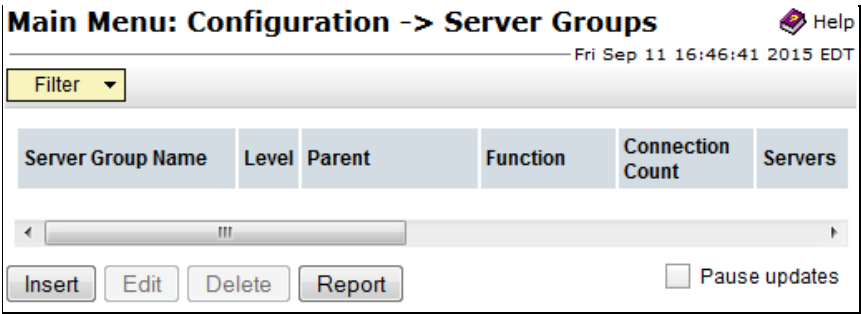
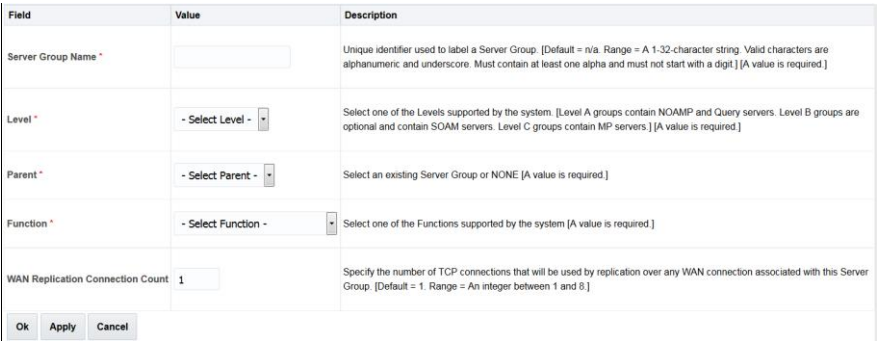
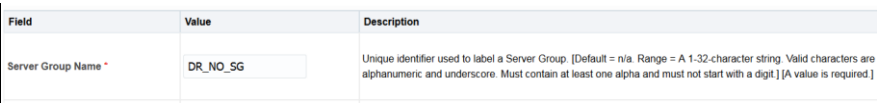
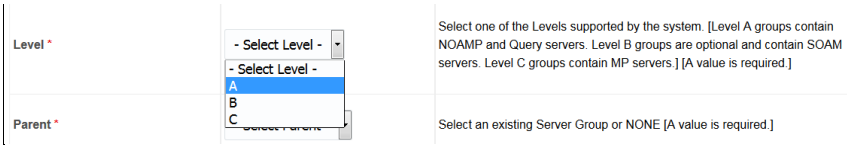
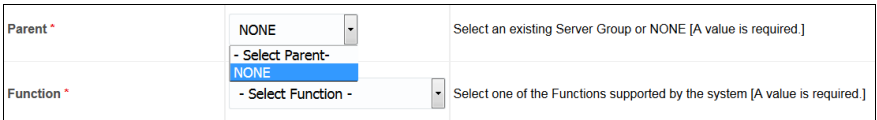
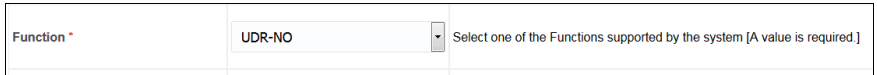
- Chapter 5 Oracle Communications User Data Repository Server Configuration has been completed
- Section 6.1 OAM Pairing for Primary UDR Servers (1<sup>st</sup> NOAMP site only) has been completed



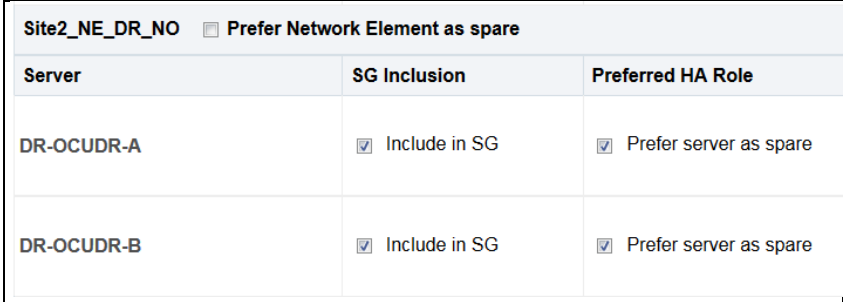
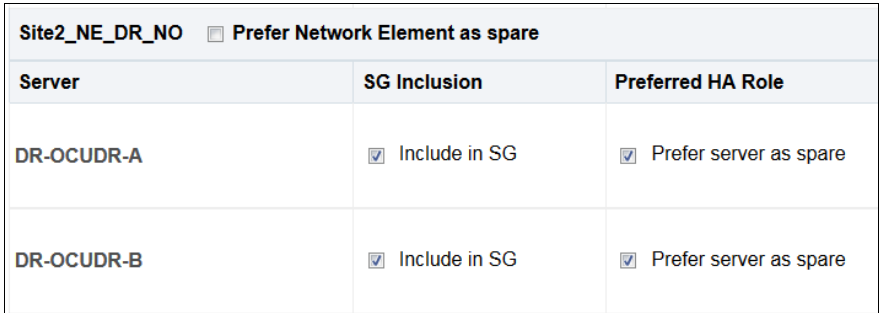
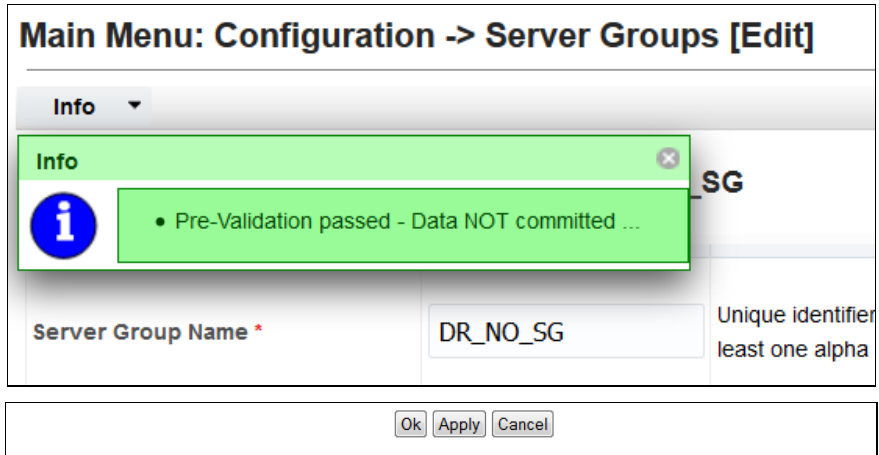
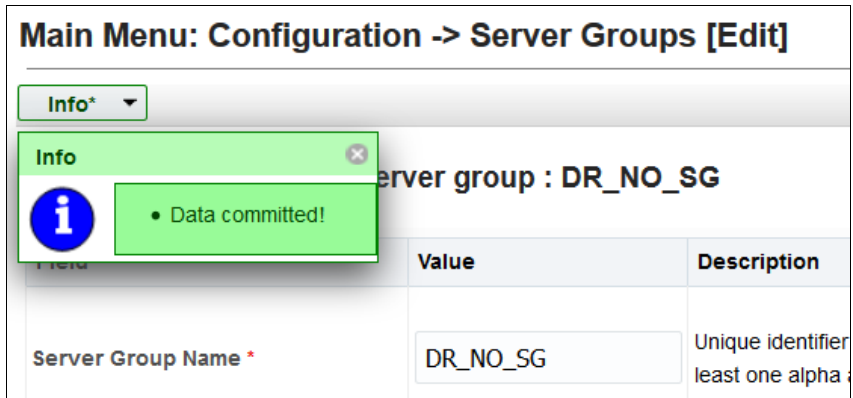
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

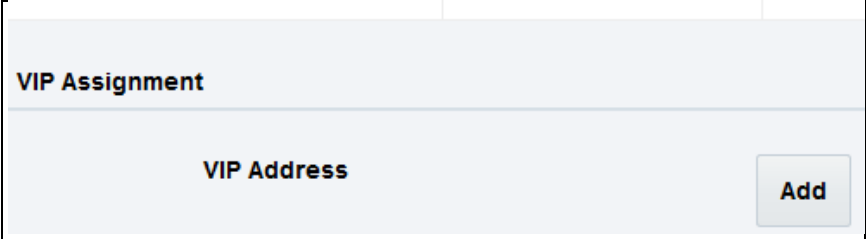
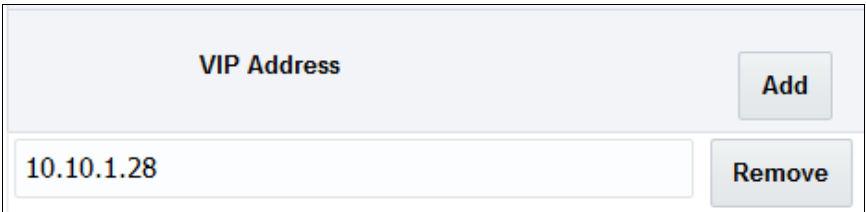
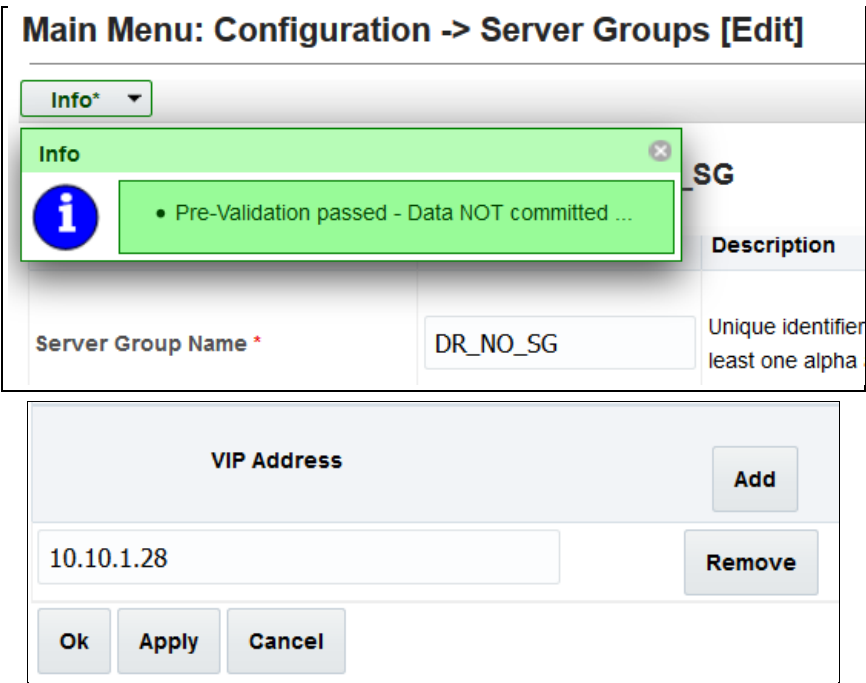
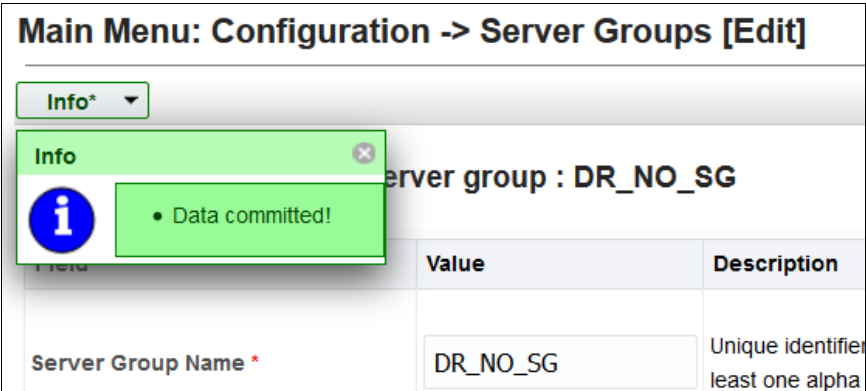
### Procedure 10: OAM Pairing for DR Sites

Step	Procedure	Result
1. <input type="checkbox"/>	<p><b>Active UDR VIP:</b></p> <p>Launch an approved web browser and connect to the UDR Server A IP address</p> <p><b>NOTE:</b> Click <b>Continue to this website (not recommended)</b> if the security certificate warning displays.</p> <p>Login to the GUI using the default user and password.</p>	
2. <input type="checkbox"/>	<p><b>Active UDR VIP:</b></p> <p><b>For primary UDR standby server only:</b></p> <p>Change the HA role to forced standby for the server.</p> <ol style="list-style-type: none"> <li>1. Navigate to <b>Main Menu → Status &amp; Manage → HA</b></li> <li>2. Click <b>Edit</b> on bottom left</li> <li>3. Find the row for the primary UDR standby server and change Max Allowed HA Role to Standby.</li> </ol>	<p><b>NOTE:</b> Do not perform this step for single server installations.</p>  
3. <input type="checkbox"/>	<p><b>Active UDR VIP:</b></p> <p>Navigate to <b>Main Menu → Configuration → Server Groups</b></p>	

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

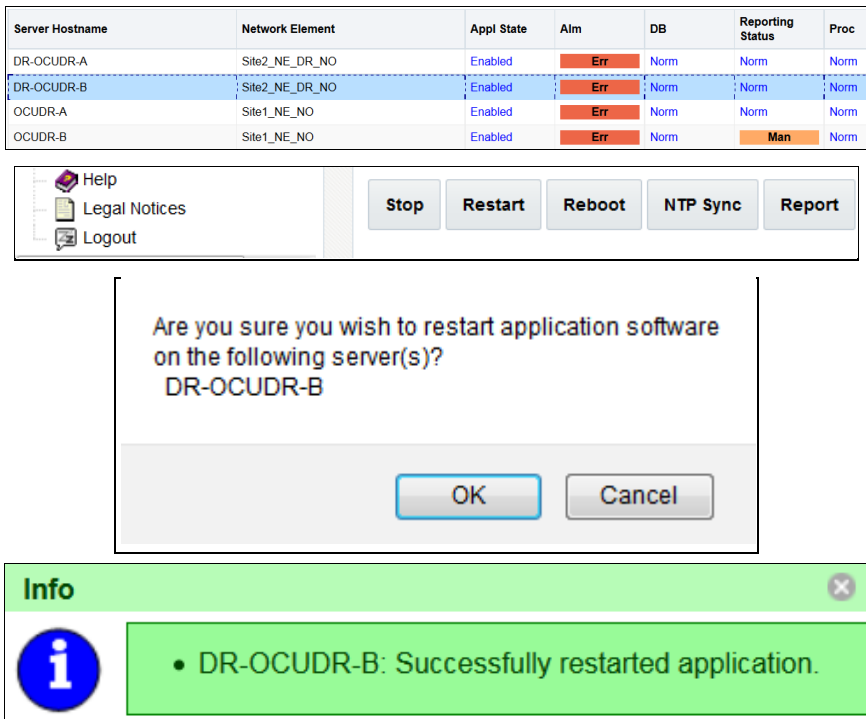
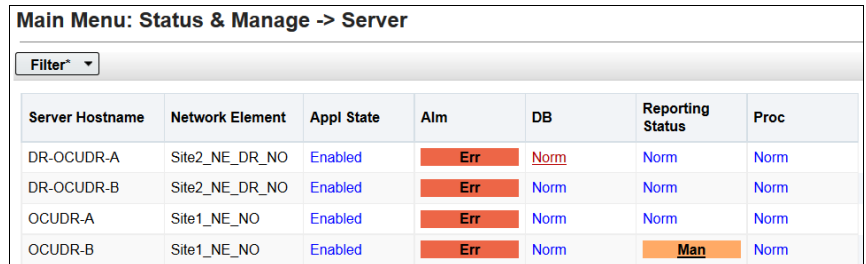
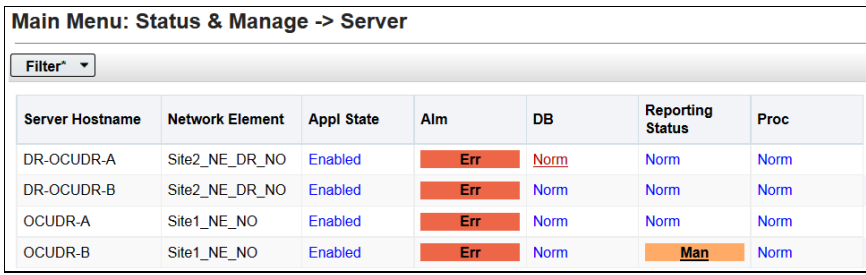
Step	Procedure	Result																											
10. <input type="checkbox"/>	<b>Active UDR VIP:</b> <b>For DR UDR only:</b>  Enter 8 for the WAN Replication Connection Count.	<div><div>WAN Replication Connection Count</div><div>8</div><div>Specify the number of TCP connections that will be used by Group. [Default = 1. Range = An integer between 1 and 8.]</div></div>																											
11. <input type="checkbox"/>	<b>Active UDR VIP:</b>  Click <b>Info</b> to see a banner with a message stating that Pre-Validation passed.  Click <b>Apply</b>	<div><div><div>Main Menu: Configuration -&gt; Server Groups [Insert]</div><div><div>Info</div><div><div>Info</div><div><div>• Pre-Validation passed - Data NOT committed ...</div></div></div></div><div><div>Ok</div><div>Apply</div><div>Cancel</div></div></div></div>																											
12. <input type="checkbox"/>	<b>Active UDR VIP:</b>  You see a banner with a message stating Data committed.	<div><div><div>Main Menu: Configuration -&gt; Server Groups [Insert]</div><div><div>Info*</div><div><div>Info</div><div><div>• Data committed!</div></div></div></div><div><table><tr><th>Field</th><th>Value</th><th>Description</th></tr></table></div></div></div>	Field	Value	Description																								
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13. <input type="checkbox"/>	<b>Active UDR VIP:</b>  Navigate to <b>Main Menu → Configuration → Server Groups</b>  <b>NOTE:</b> Server group entry is listed on the Server Groups configuration screen.	<div><div><div>Main Menu: Configuration -&gt; Server Groups</div><div><div>Filter*</div><div><table><tr><th>Server Group Name</th><th>Level</th><th>Parent</th><th>Function</th><th>Connection Count</th><th>Servers</th></tr><tr><td>DR_NO_SG</td><td>A</td><td>NONE</td><td>UDR-NO</td><td>8</td><td></td></tr><tr><td>NO_SG</td><td>A</td><td>NONE</td><td>UDR-NO</td><td>8</td><td><div>Network Element: Site1_NE_NO NE HA Pref: DEFAULT<table><tr><th>Server</th><th>Node HA Pref</th><th>VIPs</th></tr><tr><td>OCUDR-A</td><td></td><td>10.10.1.121</td></tr><tr><td>OCUDR-B</td><td></td><td>10.10.1.121</td></tr></table></div></td></tr></table></div></div></div></div>	Server Group Name	Level	Parent	Function	Connection Count	Servers	DR_NO_SG	A	NONE	UDR-NO	8		NO_SG	A	NONE	UDR-NO	8	<div>Network Element: Site1_NE_NO NE HA Pref: DEFAULT<table><tr><th>Server</th><th>Node HA Pref</th><th>VIPs</th></tr><tr><td>OCUDR-A</td><td></td><td>10.10.1.121</td></tr><tr><td>OCUDR-B</td><td></td><td>10.10.1.121</td></tr></table></div>	Server	Node HA Pref	VIPs	OCUDR-A		10.10.1.121	OCUDR-B		10.10.1.121
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14. <input type="checkbox"/>	<b>Active UDR VIP:</b>  1. Select the Server Group entry applied in Step 7. The line entry is highlighted in sky blue.  2. Click <b>Edit</b> (located at the bottom left corner of the page).  <b>NOTE:</b> Use the vertical scroll-bar to see the Edit button.	<div><div><div><table><tr><th>Server Group Name</th><th>Level</th><th>Parent</th><th>Function</th><th>Connection Count</th><th>Servers</th></tr><tr><td>DR_NO_SG</td><td>A</td><td>NONE</td><td>UDR-NO</td><td>8</td><td></td></tr><tr><td>NO_SG</td><td>A</td><td>NONE</td><td>UDR-NO</td><td>8</td><td><div>Network Element: Site1_NE_NO NE HA Pref: DEFAULT<table><tr><th>Server</th><th>Node HA Pref</th><th>VIPs</th></tr><tr><td>OCUDR-A</td><td></td><td>10.10.1.121</td></tr><tr><td>OCUDR-B</td><td></td><td>10.10.1.121</td></tr></table></div></td></tr></table></div><div><div>Insert</div><div>Edit</div><div>Delete</div><div>Report</div></div></div></div>	Server Group Name	Level	Parent	Function	Connection Count	Servers	DR_NO_SG	A	NONE	UDR-NO	8		NO_SG	A	NONE	UDR-NO	8	<div>Network Element: Site1_NE_NO NE HA Pref: DEFAULT<table><tr><th>Server</th><th>Node HA Pref</th><th>VIPs</th></tr><tr><td>OCUDR-A</td><td></td><td>10.10.1.121</td></tr><tr><td>OCUDR-B</td><td></td><td>10.10.1.121</td></tr></table></div>	Server	Node HA Pref	VIPs	OCUDR-A		10.10.1.121	OCUDR-B		10.10.1.121
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Step	Procedure	Result									
15. <input type="checkbox"/>	<b>Active UDR VIP:</b> Select the A server and the B server from the list of servers.	Normal or Low Capacity Configuration:  <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 checked="" type="checkbox"/> Include in SG</td><td><input checked="" type="checkbox"/> Prefer server as spare</td></tr> <tr> <td>DR-OCUDR-B</td><td><input checked="" type="checkbox"/> Include in SG</td><td><input checked="" type="checkbox"/> Prefer server as spare</td></tr> </tbody> </table>	Server	SG Inclusion	Preferred HA Role	DR-OCUDR-A	<input checked="" type="checkbox"/> Include in SG	<input checked="" type="checkbox"/> Prefer server as spare	DR-OCUDR-B	<input checked="" type="checkbox"/> Include in SG	<input checked="" type="checkbox"/> Prefer server as spare
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DR-OCUDR-B	<input checked="" type="checkbox"/> Include in SG	<input checked="" type="checkbox"/> Prefer server as spare									
16. <input type="checkbox"/>	<b>Active UDR VIP:</b> <b>For DR UDR servers only</b> Select the preferred spare options.	 <p><b>NOTE:</b> 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>									
17. <input type="checkbox"/>	<b>Active UDR VIP:</b> Click <b>Info</b> to see a banner message stating Pre-Validation passed. <b>Click Apply.</b>	 <p>Ok Apply Cancel</p>									
18. <input type="checkbox"/>	<b>Active UDR VIP:</b> Click <b>Info</b> to see a banner message stating Data committed.	 <p>Server group : DR_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>DR_NO_SG</td><td>Unique identifier least one alpha</td></tr> </tbody> </table>	Field	Value	Description	Server Group Name *	DR_NO_SG	Unique identifier least one alpha			
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Step	Procedure	Result
19. <input type="checkbox"/>	<b>Active UDR VIP:</b> Click <b>Add</b> for the VIP Address.	
20. <input type="checkbox"/>	<b>Active UDR VIP:</b> Enter the VIP Address	
21. <input type="checkbox"/>	<b>Active UDR VIP:</b> Click <b>Info</b> to see a banner message stating Pre-Validation passed.  Click <b>Apply</b> .	
22. <input type="checkbox"/>	<b>Active UDR VIP:</b> Click <b>Info</b> to see a banner message stating Data committed.	

Step	Procedure	Result																																								
23. <input type="checkbox"/>	<b>IMPORTANT: Wait at least 5 minutes before proceeding on to the next Step.</b>	<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><b>NOTE:</b> Single Server Configurations do not establish master/slave relationship for High Availability (HA).</p> <p><b>Allow a minimum of 5 minutes before continuing to the next Step.</b></p>																																								
24. <input type="checkbox"/>	<b>Active UDR VIP:</b> Navigate to <b>Main Menu → Status &amp; Manage → HA</b>	<div><b>Main Menu: Status &amp; Manage -&gt; HA</b></div> <div><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&amp;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&amp;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&amp;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&amp;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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25. <input type="checkbox"/>	<b>Active UDR VIP:</b> <b>NOTE:</b> DR UDR servers have an OAM MAX HA Role of Spare and no active VIPs	<p>Normal or Low Capacity Configuration:</p> <div><b>Main Menu: Status &amp; Manage -&gt; HA</b></div> <div><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&amp;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&amp;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&amp;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&amp;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"/>	<b>Active UDR VIP:</b> Restarting the OAM Server Application  Navigate to <b>Main Menu → Status &amp; Manage → Server</b>	<div><b>Main Menu: Status &amp; Manage -&gt; Server</b></div> <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>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>	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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27. <input type="checkbox"/>	<b>Active UDR VIP:</b> 1. The A and B servers are listed 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)	<p>Normal or Low Capacity Configuration:</p> <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> <p>Single Server Configuration:</p>	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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28. <input type="checkbox"/>	<p><b>Active UDR VIP:</b></p> <p>3. UsinXSg the mouse, select Server A. The line entry is highlighted in sky blue.</p> <p>4. Click <b>Restart</b> (located at the bottom of the page).</p> <p>5. Click <b>OK</b>.</p> <p>A confirmation message (in the banner area) for Server A stating: Successfully restarted application.</p> <p><b>NOTE:</b> Use the vertical scroll-bar to see the <b>Restart</b> button.</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><div>Stop</div><div>Restart</div><div>Reboot</div><div>NTP Sync</div><div>Report</div></div></div> <div><p>Are you sure you wish to restart application software on the following server(s)? DR-OCUDR-A</p><div><div>OK</div><div>Cancel</div></div></div> <div><div>Filter* Info</div><div><div>Server Host</div><div>DR-OCUDR</div></div><div><div>Info</div><div>• 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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30. <input type="checkbox"/>	<p><b>Active UDR VIP:</b></p> <p>Verify that the Appl State shows Enabled and that the Alm, DB, Reporting Status and Proc columns all show Norm for OAM Server A before proceeding to the next Step.</p>	<p>Main Menu: Status &amp; Manage → Server</p> <p>Fri Apr 06 04:58:03 2018 EDT</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>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><b>NOTE:</b> To refresh the server status screen before the default setting (15 to 30 seconds). Select the <b>Status &amp; Manage → Server</b> 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><b>Active UDR VIP:</b></p> <p>Navigate to <b>Main Menu → Status &amp; Manage → Server</b></p>	<p>Main Menu: Status &amp; Manage → Server</p> <p>Fri Apr 06 04:58:03 2018 EDT</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>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																															

Step	Procedure	Result
<b>Perform steps 32 to 35 for multiple server configurations only (not single server).</b>		
32. <input type="checkbox"/>	<p><b>Active UDR VIP:</b></p> <ol style="list-style-type: none"> <li>Using the mouse, select Server B. The line entry is highlighted in sky blue.</li> <li>Click <b>Restart</b> (located at the bottom of the page).</li> <li>Click <b>OK</b>.</li> </ol> <p>A confirmation message displays in the banner area for server B stating: Successfully restarted application.</p> <p><b>NOTE:</b> Use the vertical scroll-bar to see the <b>Restart</b> button.</p>	
33. <input type="checkbox"/>	<p><b>Active UDR VIP:</b></p> <p>Navigate to <b>Main Menu → Status &amp; Manage → Server</b></p>	
34. <input type="checkbox"/>	<p><b>Active UDR VIP:</b></p> <p>Verify that the Appl State shows Enabled and that the Alm, DB, Reporting Status and Proc columns all show Norm for Server B before proceeding to the next Step.</p>	 <p><b>NOTE:</b> If you want to refresh the server status screen before the default setting (15 to 30 seconds). Select the <b>Status &amp; Manage → Server</b> 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><b>Active UDR VIP:</b>  <i>For primary UDR standby server only:</i></p> <p>Move the server back to Active</p> <p>Navigate to <b>Main Menu → Status &amp; Manage → HA[Edit]</b></p> <p>Find the row for the primary UDR standby server and change Max Allowed HA Role back to Active.</p>	<p><b>Modifying HA attributes</b></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>	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><b>Active UDR VIP:</b></p> <p>Click <b>Logout</b> on the server GUI.</p>	<p>Help   Logged in Account <b>guiadmin</b> ▼   Log Out</p> <hr/> <p>Thu Mar 29 06:02:07 2018 EDT</p>															
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>																	


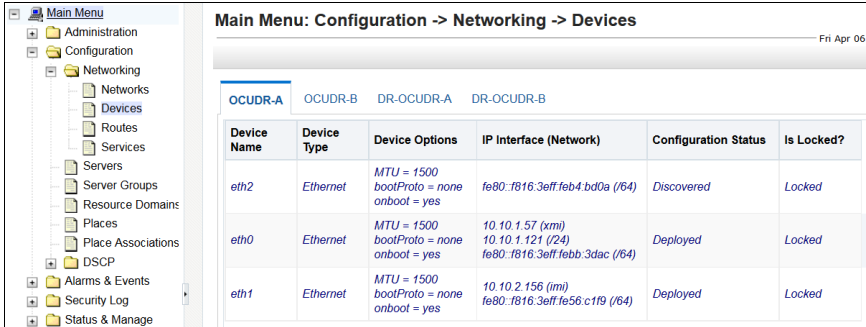
## Chapter 7. Application Configuration

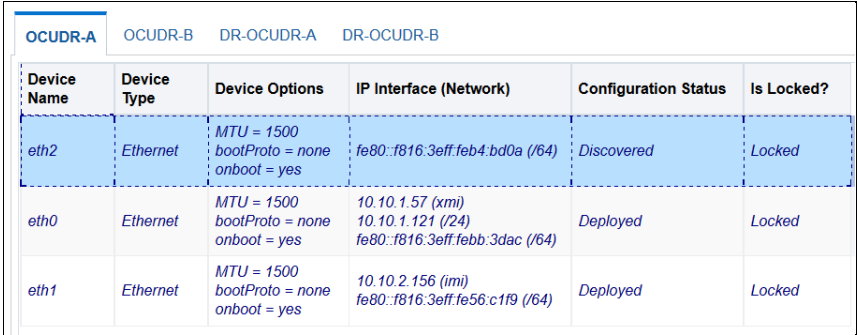
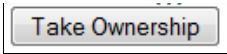
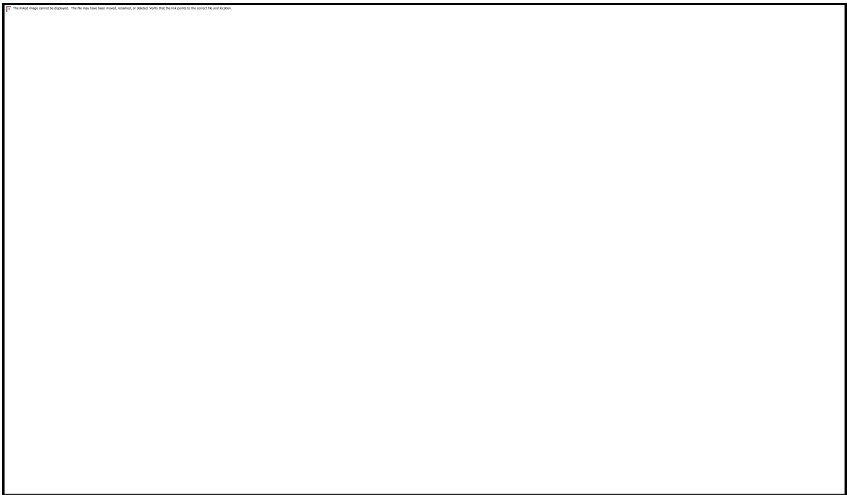
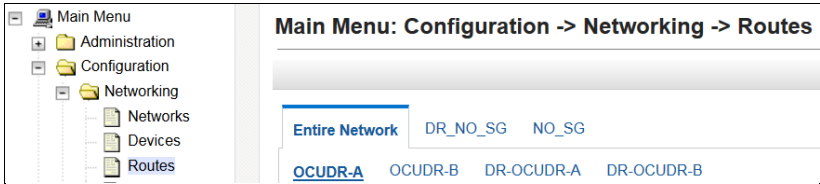
### 7.1 Configure UDR Signaling Routes (All NOAM Sites)

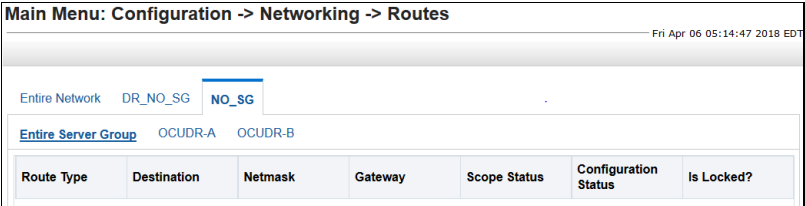

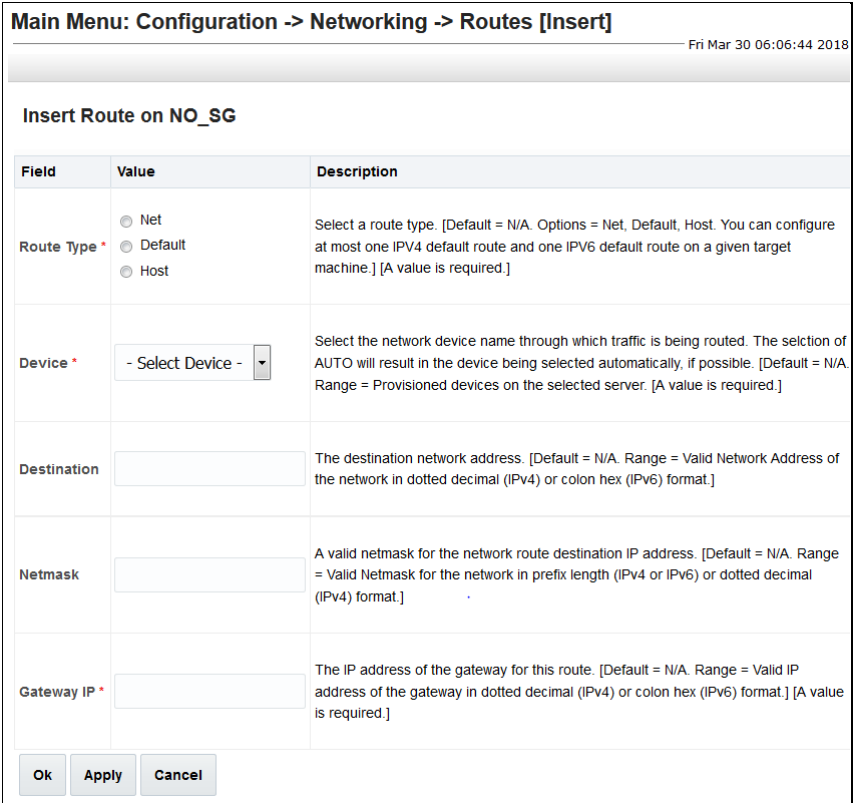
This procedure configures the XSI signaling route for the UDR and DR UDR Server Groups.

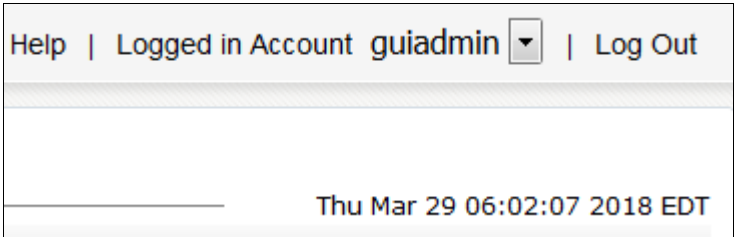
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

#### 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><b>NOTE:</b> Click <b>Continue to this website (not recommended)</b> if the security certificate warning displays.</p> <p>Login to the GUI using the default user and password.</p>	 <p>The screenshot shows the Oracle System Login page. At the top is the Oracle logo. Below it is the title 'Oracle System Login' and a timestamp 'Wed Sep 23 15:26:39 2015 EDT'. The main content area is titled 'Log In' and contains 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 two input fields: 'Username:' with the value 'guiadmin' and 'Password:' with masked characters. A 'Change password' checkbox is below the password field. A 'Log In' button is at the bottom. At the very bottom, it says 'Welcome to the Oracle System Login.'</p>
2. <input type="checkbox"/>	<p>Active UDR VIP</p> <p>Navigate to <b>Main Menu → Configuration → Networking → Devices</b></p>	 <p>The screenshot shows the 'Main Menu: Configuration -&gt; Networking -&gt; Devices' page. On the left is a tree view with 'Main Menu' expanded, showing 'Administration', 'Configuration', 'Networking', 'Devices', 'Routes', 'Services', 'Servers', 'Server Groups', 'Resource Domains', 'Places', 'Place Associations', 'DSCP', 'Alarms &amp; Events', 'Security Log', and 'Status &amp; Manage'. The 'Main Menu' is selected. The main content area shows a table with columns: 'Device Name', 'Device Type', 'Device Options', 'IP Interface (Network)', 'Configuration Status', and 'Is Locked?'. The table has three rows of data for devices eth2, eth0, and eth1. Below the table, there are two checkboxes: 'UDR-A (XSI-1)' and 'UDR-B (XSI-1)'. The text 'Mark the check box as addition is completed for each server.' is above the checkboxes.</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"/>	<b>Active UDR VIP:</b> Select the xsi device for the UDR	Select the <b>UDR</b> tab. Select the XSI-1 device (recorded in B.3 Step 3 or C.7 Step 5).  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)
4. <input type="checkbox"/>	<b>Active UDR VIP</b> Edit the xsi device for the UDR	Click <b>Take Ownership</b> .  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"/>	<b>Active UDR VIP</b> 1. Add the xsi device for the UDR 2. For Start On Boot, select <b>Enable</b> 3. Click <b>OK</b> to apply changes.	
6. <input type="checkbox"/>	<b>Active UDR VIP:</b> Repeat as required.	Repeat Steps 3 throughg 5 for each UDR and its Signaling networks. <b>NOTE:</b> Steps 7 throughg 9 are only needed for geo-redundant systems.
7. <input type="checkbox"/>	<b>Active UDR VIP:</b> Navigate to <b>Main Menu → Configuration → Networking → Routes</b>	

Step	Procedure	Result
8. <input type="checkbox"/>	<b>Active UDR VIP:</b> Insert a route for the UDR or DR UDR Server group.	<ol style="list-style-type: none"> <li>1. Select the <b>Server Group</b> tab on the top line.</li> <li>2. Click <b>Entire Server Group</b> on the line below Server Group line.</li> </ol>  <ol style="list-style-type: none"> <li>3. Click <b>Insert</b></li> </ol> 
9. <input type="checkbox"/>	<b>Active UDR VIP:</b> Add signaling route	 <ol style="list-style-type: none"> <li>1. Set Route Type to Net</li> <li>2. Set Device to XSI-1 device (recorded in B.3 Step 3 or C.7 Step 5).</li> <li>3. Enter Destination: This is the network address of the remote MP server group that connects to Oracle Communications User Data Repository UDR for ComAgent service.</li> <li>4. Enter Netmask for the remote network.</li> <li>5. Enter Gateway IP: This is the signaling network gateway for Oracle Communications User Data Repository.</li> <li>6. Click <b>Apply</b>.</li> </ol>

Step	Procedure	Result
10. <input type="checkbox"/>	<b>NOTES:</b> 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"/>	<b>Active UDR VIP:</b> Click <b>Logout</b> 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.

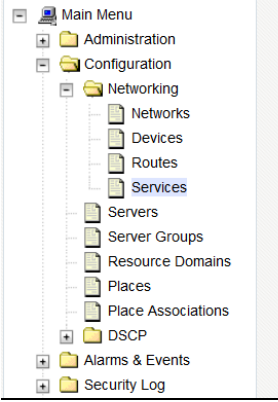
### Requirements:

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

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

### Procedure 12: Configure Services on Signaling Network

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

Step	Procedure	Result																								
2. <input type="checkbox"/>	<b>Active UDR VIP:</b> Navigate to <b>Main Menu → Configuration → Services</b>	 <p><b>Main Menu: Configuration -&gt; Networking -&gt; Services</b></p> <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>	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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HA_MP_Secondary	imi	xmi																								
Replication_MP	imi	xmi																								
ComAgent	imi	xmi																								

Step	Procedure	Result																								
3. <input type="checkbox"/>	<p><b>Active UDR VIP:</b></p> <p>1. Set two services values:</p> <p style="padding-left: 40px;"><b>Inter-NE HA_Secondary → XSI1</b></p> <p style="padding-left: 40px;"><b>Inter-NE ComAgent → XSI1</b></p> <p>2. Click <b>Apply</b>.</p> <p>3. Click <b>OK</b>.</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> <div style="border: 1px solid gray; padding: 10px; text-align: center;"> <p>You must restart all Servers to apply any services changes, ComAgent</p> <p>OK Cancel</p> </div> <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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Step	Procedure	Result																																			
4. <input type="checkbox"/>	<b>Active UDR VIP:</b> 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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5. <input type="checkbox"/>	Reboot all UDR Servers	<p>Reboot all UDR servers either by</p> <ul style="list-style-type: none"><li>On the GUI for the active UDR, go to <b>Status &amp; Manage</b> → <b>Server</b> screen and click <b>Reboot</b>.</li></ul> <div><p><b>Main Menu: Status &amp; Manage -&gt; Server</b></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> <ul style="list-style-type: none"><li>On the terminal of each server with the reboot command:<pre>\$ sudo reboot</pre></li></ul> <p><b>NOTE:</b> Perform this 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
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THIS PROCEDURE HAS BEEN COMPLETED																																					

### 7.3 Accept Installation

This procedure accepts the installation/upgrade on any servers that have not been accepted. Depending on the manner of installation, there may not be any servers that require acceptance at this point in installation.

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

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





Step	Procedure	Result																					
3. <input type="checkbox"/>	<b>Active UDR VIP (GUI):</b> Accept upgrade for selected servers.	<p>Accept upgrade of selected servers:</p> <ol style="list-style-type: none"><li>1. Select the server where the upgrade has not been accepted.</li><li>2. Click <b>Accept</b>.</li></ol> <div><p><b>Main Menu: Administration -&gt; Software Management -&gt; Upgrade</b></p><div><div>Filter* ▾</div><div>Tasks ▾</div></div><div><div>DR_NO_SG</div><div>NO_SG</div></div><table><thead><tr><th rowspan="2">Hostname</th><th>Upgrade State</th><th>OAM HA Role</th><th>Server Role</th></tr><tr><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&amp;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&amp;P</td></tr><tr><td>Err</td><td>N/A</td><td>Site1_NE_NO</td></tr></tbody></table><div><div>Backup</div><div>Upgrade Server</div><div>Accept</div><div>Report</div><div>Report All</div></div></div> <p>A confirmation dialog warns that after the upgrade is accepted, the servers are not able to revert back to their previous image states.</p> <div><div>The page at https://10.240.42.20 says: <span>×</span></div><div>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.</div><div>Accept the upgrade for the following server?</div><div>BL908070109-NO-A (10.240.56.108)</div><div><div>OK</div><div>Cancel</div></div></div> <p>3. Click <b>OK</b></p> <p>The Upgrade Administration screen re-displays.</p> <p>An Informational message indicates the servers where the 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																			
	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																				
4. <input type="checkbox"/>	<b>Active UDR VIP:</b> Accept upgrade of the rest of the system	<ol style="list-style-type: none"><li>1. Accept upgrade on all remaining servers in the system:</li><li>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.</li></ol> <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"/>	<b>Active UDR VIP:</b> Verify accept	<p>Check that alarms are removed:</p> <p>1. Navigate to <b>Alarms &amp; Events &gt; View Active</b></p> <div><div>Main Menu: Alarms &amp; Events -&gt; View Active</div><div><div>Filter ▾</div><div>Tasks ▾</div></div><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></tr></thead><tbody><tr><td></td><td colspan="2">Alarm Text</td><td colspan="5">Additional Info</td></tr></tbody></table></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>	Seq #	Event ID	Timestamp	Severity	Product	Process	NE	Server		Alarm Text		Additional Info				
Seq #	Event ID	Timestamp	Severity	Product	Process	NE	Server											
	Alarm Text		Additional Info															
THIS PROCEDURE HAS BEEN COMPLETED																		

## Appendix A. VMWare vSphere Environment setup

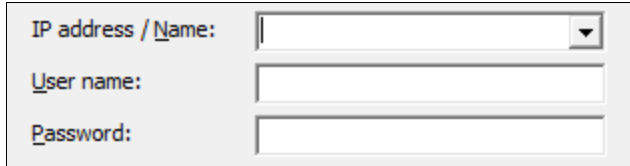
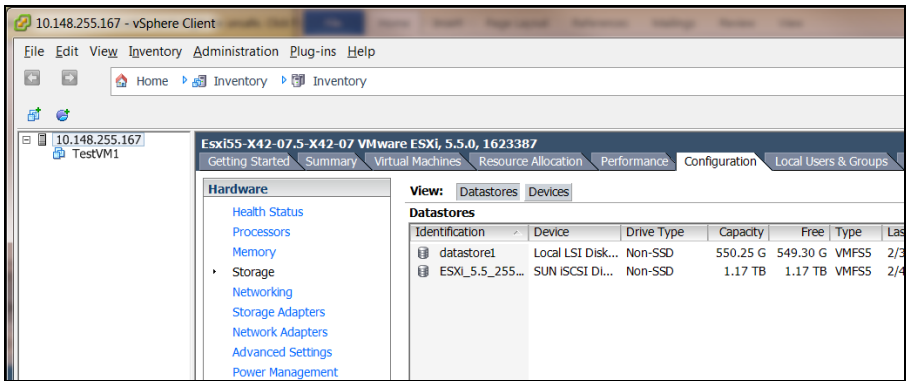
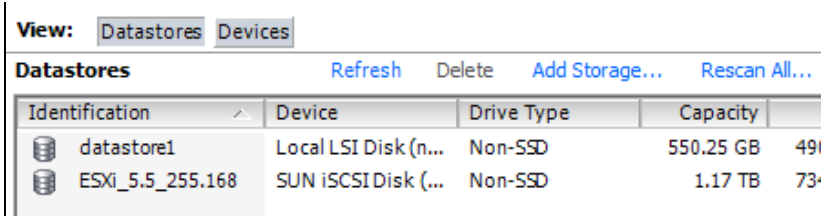
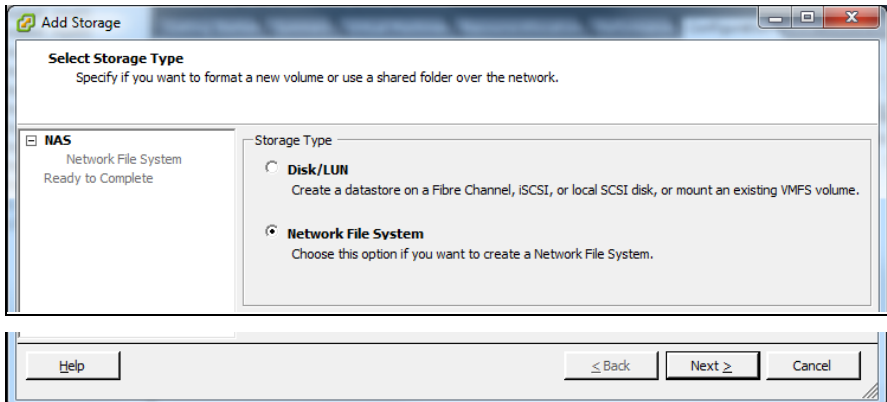
### A.1 HOST DATASTORE CONFIGURATION USING VSPHERE

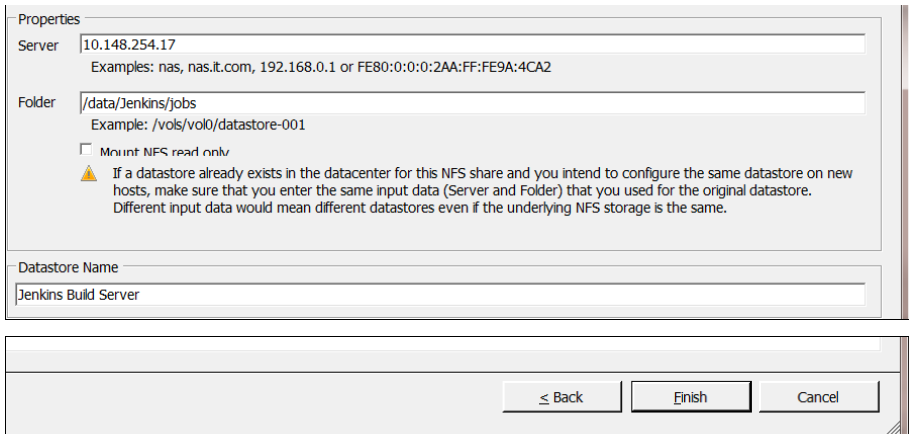
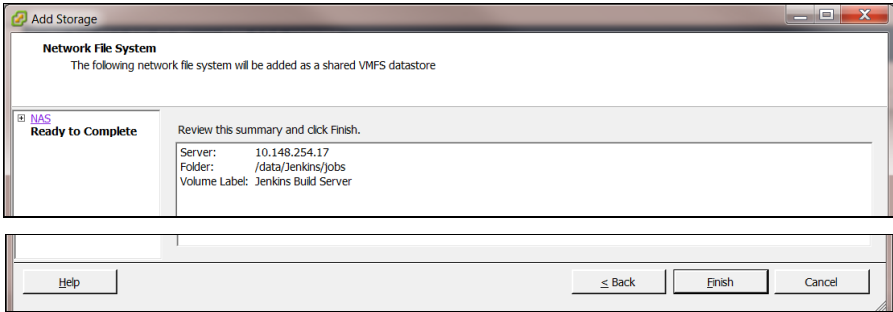
This procedure is performed to configure a datastore on the Host so that the appropriate storage is available for Oracle Communications User Data Repository component VMs. Steps and screenshots are taken from vSphere Client.

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by 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"/>	<b>VMware client:</b> 1. Select the Host on the left tree menu 2. Click the <b>Configuration</b> tab on right 3. Click <b>Storage</b> under Hardware menu	
3. <input type="checkbox"/>	<b>VMware client:</b> Click <b>Add Storage</b>	
4. <input type="checkbox"/>	<b>VMware client:</b> 1. Select Network File System storage type 2. Click <b>Next</b>	

Step	Procedure	Details
5. <input type="checkbox"/>	<b>VMware client:</b> 1. Enter a Server IP, Folder, and Datastore Name in the fields according to the resource availability in your VMware host environment 2. Click <b>Next</b>	
6. <input type="checkbox"/>	<b>VMware client:</b> 1. Review the Datastore summary 2. Click <b>Finish</b>	
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

## A.2 HOST NETWORKING CONFIGURATION USING VSPHERE

The following procedure is performed to 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 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.


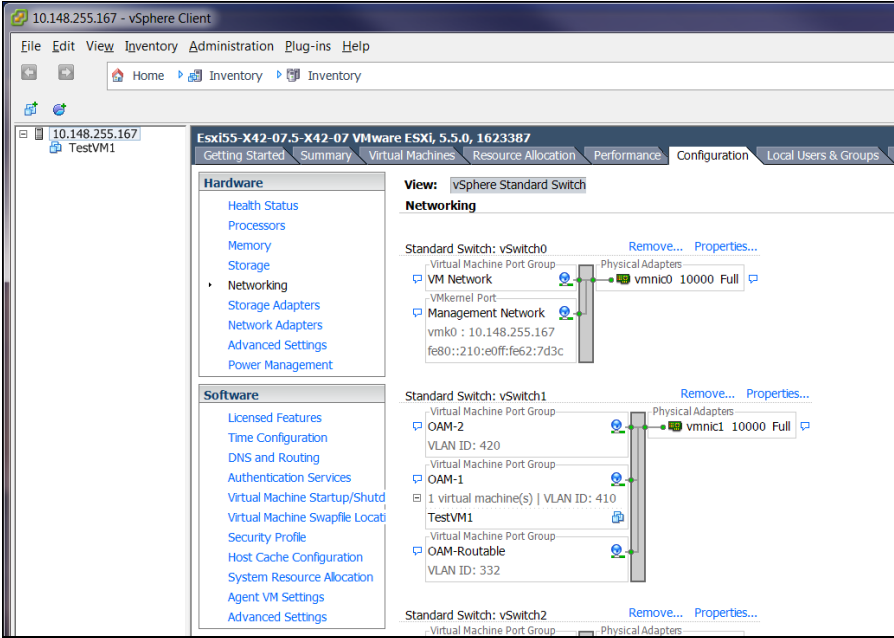
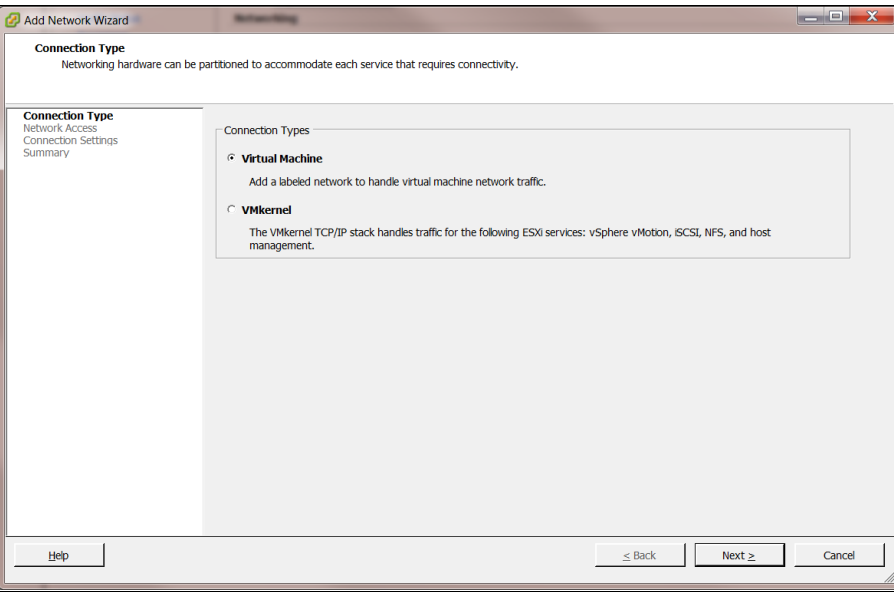
Oracle Communications User Data Repository VMs can be associated with up to 5 vLAN Networks. All 5 vNICs must be created and configured in order to be available for the Guest. The expected vNICs correspond to the following dedicated interfaces of the Oracle Communications User Data Repository and so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

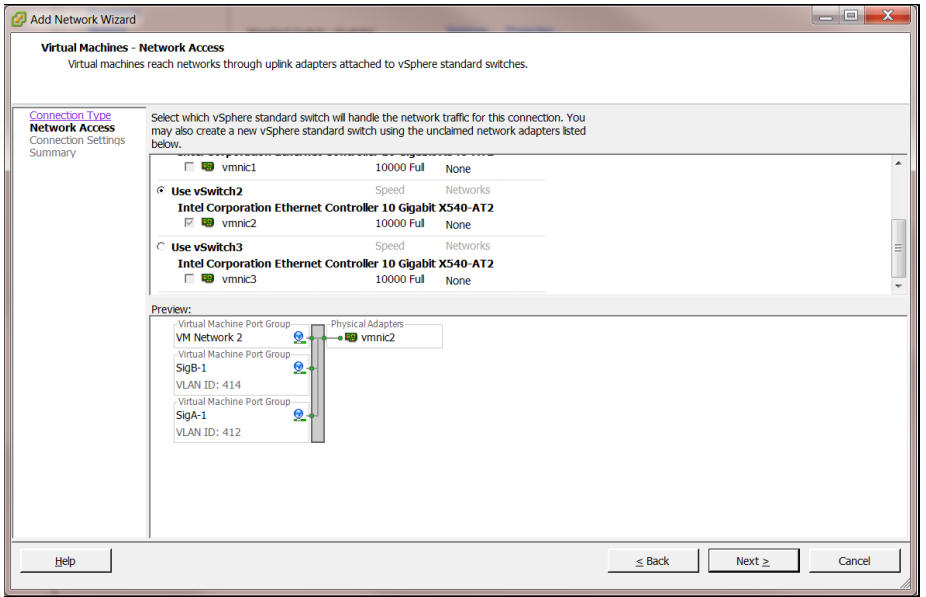
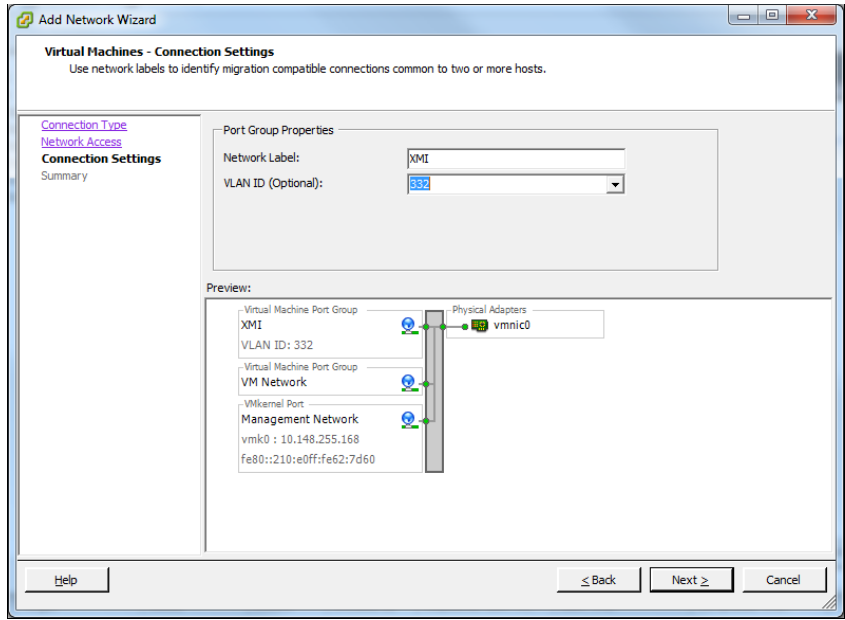
- XMI  
OAM Management Interface for the application
- XSI1  
Signaling Interface
- XSI2  
Signaling Interface
- IMI  
Replication Interface
- Guest Management  
Reserved for Guest management activities.

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

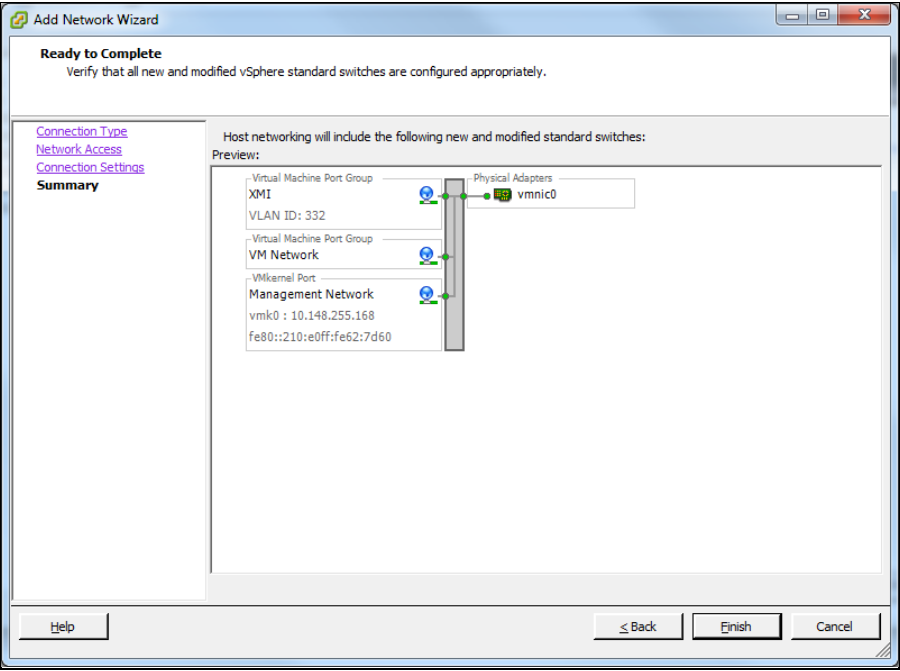
If this procedure fails, contact My Oracle Support, and ask for assistance.

### Procedure15: Host Networking Configuration with vSphere

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

Step	Procedure	Details																		
10. <input type="checkbox"/>	<b>VMware client:</b> Select appropriate vSwitch type based on the Host hardware and click <b>Next</b>	 <p><b>Add Network Wizard</b> Virtual Machines - Network Access Virtual machines reach networks through uplink adapters attached to vSphere standard switches.</p> <p><b>Connection Type</b> Network Access Connection Settings Summary</p> <p>Select which vSphere standard switch will handle the network traffic for this connection. You may also create a new vSphere standard switch using the undrained network adapters listed below.</p> <table border="1"> <thead> <tr> <th>vmnic</th> <th>Speed</th> <th>Networks</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> vmnic1</td> <td>10000 Full</td> <td>None</td> </tr> <tr> <td><input checked="" type="radio"/> <b>Use vSwitch2</b></td> <td><b>Intel Corporation Ethernet Controller 10 Gigabit X540-AT2</b></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> vmnic2</td> <td>10000 Full</td> <td>None</td> </tr> <tr> <td><input type="radio"/> <b>Use vSwitch3</b></td> <td><b>Intel Corporation Ethernet Controller 10 Gigabit X540-AT2</b></td> <td></td> </tr> <tr> <td><input type="checkbox"/> vmnic3</td> <td>10000 Full</td> <td>None</td> </tr> </tbody> </table> <p><b>Preview:</b></p> <ul style="list-style-type: none"> <li>- Virtual Machine Port Group: VM Network 2</li> <li>- Virtual Machine Port Group: SigB-1</li> <li>- Virtual Machine Port Group: SigA-1</li> <li>- Physical Adapters: vmnic2</li> </ul> <p>Help    &lt; Back    Next &gt;    Cancel</p>	vmnic	Speed	Networks	<input type="checkbox"/> vmnic1	10000 Full	None	<input checked="" type="radio"/> <b>Use vSwitch2</b>	<b>Intel Corporation Ethernet Controller 10 Gigabit X540-AT2</b>		<input checked="" type="checkbox"/> vmnic2	10000 Full	None	<input type="radio"/> <b>Use vSwitch3</b>	<b>Intel Corporation Ethernet Controller 10 Gigabit X540-AT2</b>		<input type="checkbox"/> vmnic3	10000 Full	None
vmnic	Speed	Networks																		
<input type="checkbox"/> vmnic1	10000 Full	None																		
<input checked="" type="radio"/> <b>Use vSwitch2</b>	<b>Intel Corporation Ethernet Controller 10 Gigabit X540-AT2</b>																			
<input checked="" type="checkbox"/> vmnic2	10000 Full	None																		
<input type="radio"/> <b>Use vSwitch3</b>	<b>Intel Corporation Ethernet Controller 10 Gigabit X540-AT2</b>																			
<input type="checkbox"/> vmnic3	10000 Full	None																		
11. <input type="checkbox"/>	<b>VMware client:</b> Label the Network, enter its VLAN ID, click <b>Next</b>	 <p><b>Add Network Wizard</b> Virtual Machines - Connection Settings Use network labels to identify migration compatible connections common to two or more hosts.</p> <p><b>Connection Type</b> Network Access Connection Settings Summary</p> <p><b>Port Group Properties</b></p> <p>Network Label: XMI</p> <p>VLAN ID (Optional): 332</p> <p><b>Preview:</b></p> <ul style="list-style-type: none"> <li>- Virtual Machine Port Group: XMI</li> <li>- Virtual Machine Port Group: VM Network</li> <li>- VMkernel Port: Management Network</li> <li>- Physical Adapters: vmnic0</li> </ul> <p>Help    &lt; Back    Next &gt;    Cancel</p>																		

**NOTE:** It is recommended that the name reflect how the Network is used or referenced from in the Guest, ie XMI, IMI, XSI1, and so on.

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



## Appendix B. VMware vSphere Oracle Communications User Data Repository Deployment

### B.1 CREATE GUESTS FROM OVA


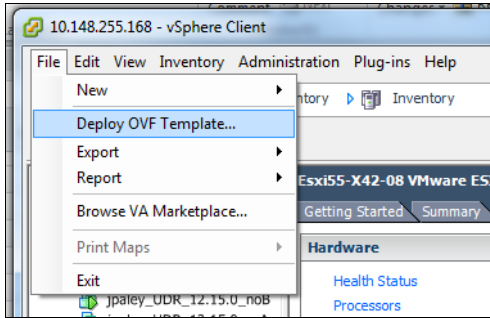
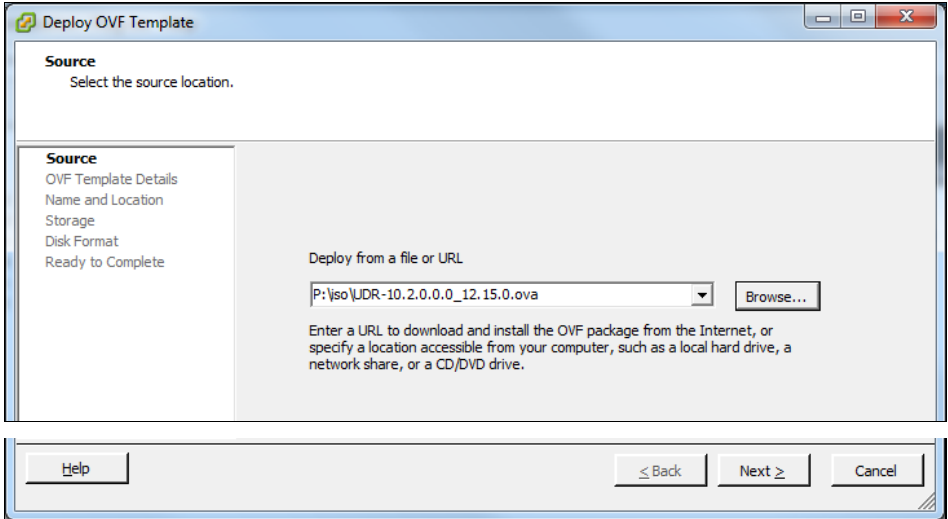
This procedure creates Oracle Communications User Data Repository virtual machines (guests) from OVA.

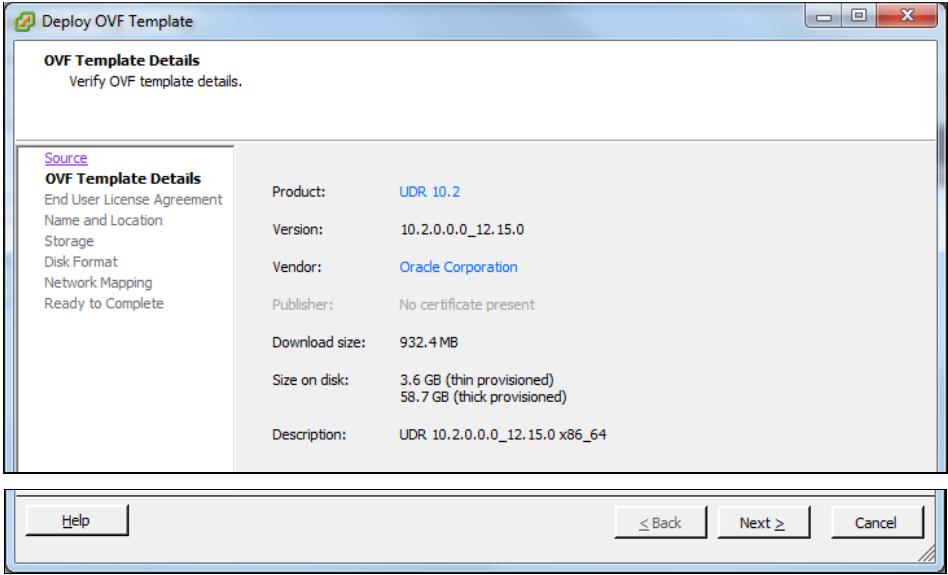

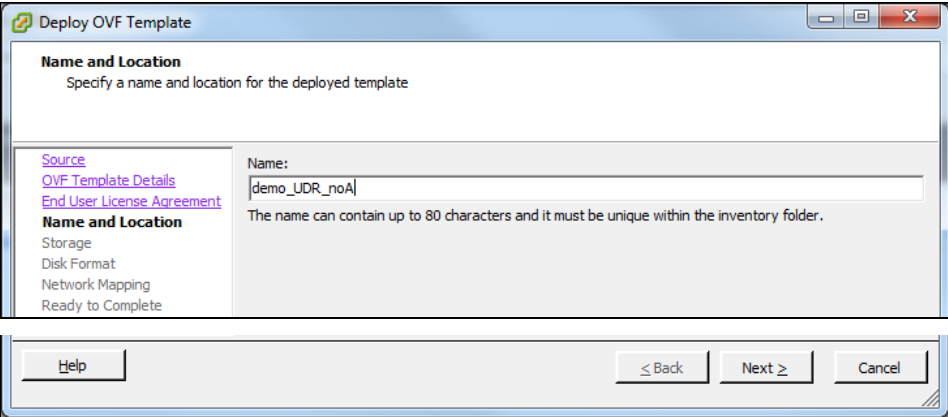
#### Needed material:

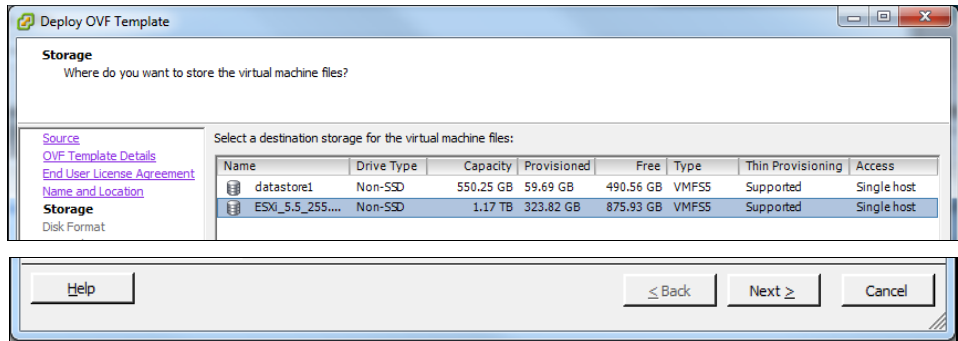
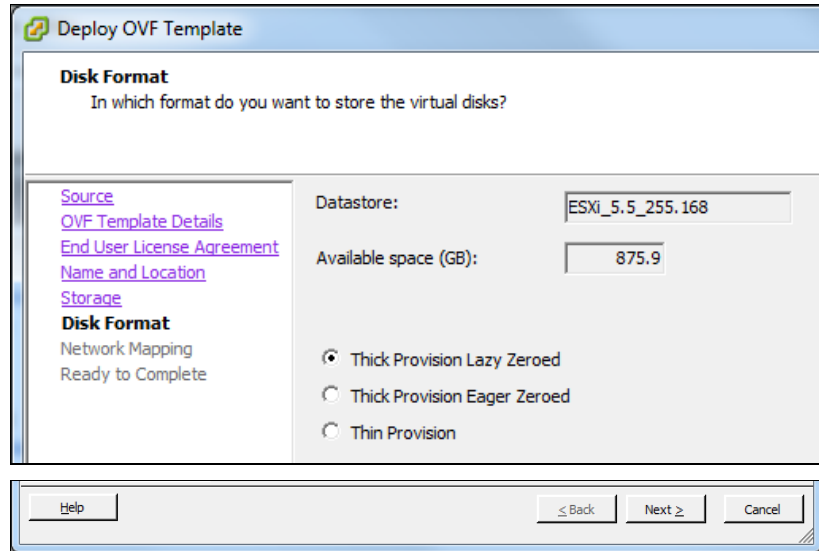
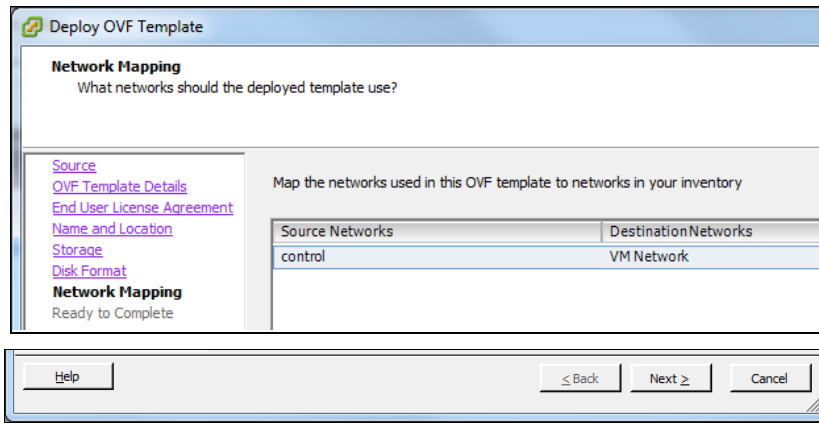
- Oracle Communications User Data Repository OVA

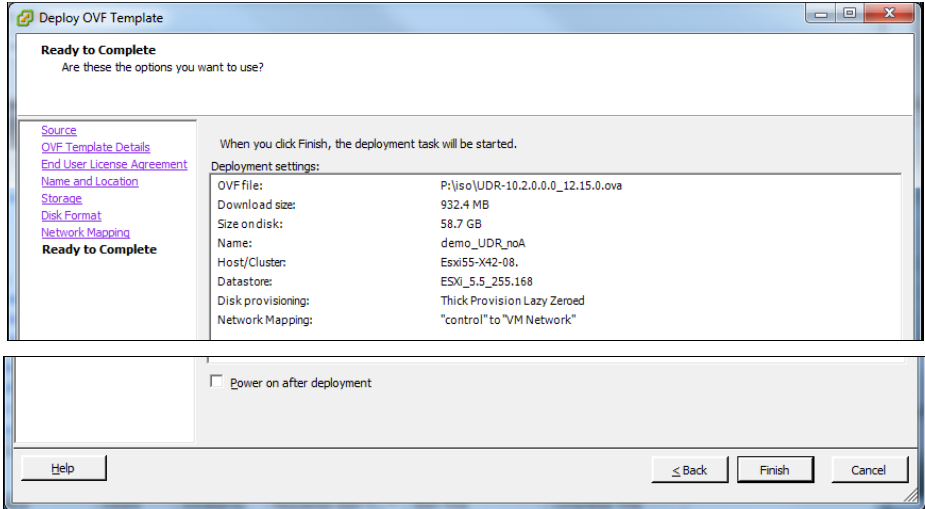
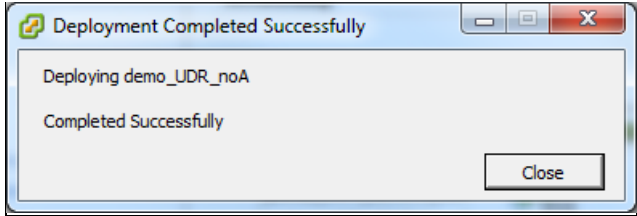
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

#### Procedure16: Deploy Oracle Communications User Data Repository OVA

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

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

Step	Procedure	Result																								
7. <input type="checkbox"/>	<b>VMware client:</b> Select <b>destination storage</b> for the virtual machine from the list of available data stores then click <b>Next</b> .	 <p><b>Storage</b> Where do you want to store the virtual machine files?</p> <p>Select a destination storage for the virtual machine files:</p> <table><thead><tr><th>Name</th><th>Drive Type</th><th>Capacity</th><th>Provisioned</th><th>Free</th><th>Type</th><th>Thin Provisioning</th><th>Access</th></tr></thead><tbody><tr><td>datastore1</td><td>Non-SSD</td><td>550.25 GB</td><td>59.69 GB</td><td>490.56 GB</td><td>VMFSS</td><td>Supported</td><td>Single host</td></tr><tr><td>ESXi_5.5_255....</td><td>Non-SSD</td><td>1.17 TB</td><td>323.82 GB</td><td>875.93 GB</td><td>VMFSS</td><td>Supported</td><td>Single host</td></tr></tbody></table> <p>Help    &lt; Back    Next &gt;    Cancel</p> <p><b>NOTE:</b> 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>	Name	Drive Type	Capacity	Provisioned	Free	Type	Thin Provisioning	Access	datastore1	Non-SSD	550.25 GB	59.69 GB	490.56 GB	VMFSS	Supported	Single host	ESXi_5.5_255....	Non-SSD	1.17 TB	323.82 GB	875.93 GB	VMFSS	Supported	Single host
Name	Drive Type	Capacity	Provisioned	Free	Type	Thin Provisioning	Access																			
datastore1	Non-SSD	550.25 GB	59.69 GB	490.56 GB	VMFSS	Supported	Single host																			
ESXi_5.5_255....	Non-SSD	1.17 TB	323.82 GB	875.93 GB	VMFSS	Supported	Single host																			
8. <input type="checkbox"/>	<b>VMware client:</b> Select <b>Thick Provision Lazy Zeroed</b> and click <b>Next</b>	 <p><b>Disk Format</b> In which format do you want to store the virtual disks?</p> <p>Source: <a href="#">Source</a>, <a href="#">OVF Template Details</a>, <a href="#">End User License Agreement</a>, <a href="#">Name and Location</a>, <a href="#">Storage</a></p> <p><b>Disk Format</b> Network Mapping Ready to Complete</p> <p>Datastore: ESXi_5.5_255.168 Available space (GB): 875.9</p> <p><input checked="" type="radio"/> Thick Provision Lazy Zeroed <input type="radio"/> Thick Provision Eager Zeroed <input type="radio"/> Thin Provision</p> <p>Help    &lt; Back    Next &gt;    Cancel</p>																								
9. <input type="checkbox"/>	<b>VMware client:</b> Click <b>Next</b>	 <p><b>Network Mapping</b> What networks should the deployed template use?</p> <p>Source: <a href="#">Source</a>, <a href="#">OVF Template Details</a>, <a href="#">End User License Agreement</a>, <a href="#">Name and Location</a>, <a href="#">Storage</a>, <a href="#">Disk Format</a></p> <p><b>Network Mapping</b> Ready to Complete</p> <p>Map the networks used in this OVF template to networks in your inventory</p> <table><thead><tr><th>Source Networks</th><th>Destination Networks</th></tr></thead><tbody><tr><td>control</td><td>VM Network</td></tr></tbody></table> <p>Help    &lt; Back    Next &gt;    Cancel</p>	Source Networks	Destination Networks	control	VM Network																				
Source Networks	Destination Networks																									
control	VM Network																									

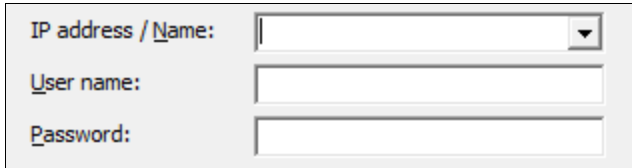
Step	Procedure	Result
10. <input type="checkbox"/>	<b>VMware client:</b> Review deployment settings and click <b>Finish</b>	
11. <input type="checkbox"/>	<b>VMware client:</b> After a wait a deployment status message is displayed. Click <b>Close</b> .	
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

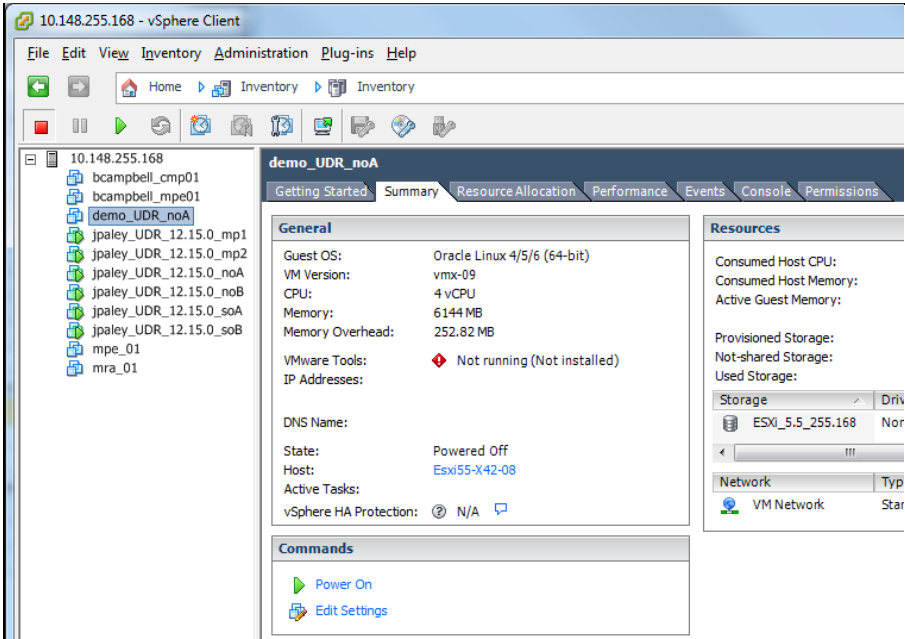
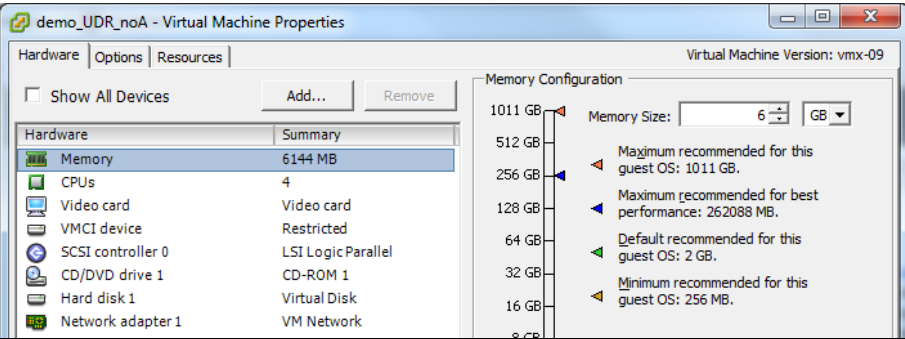
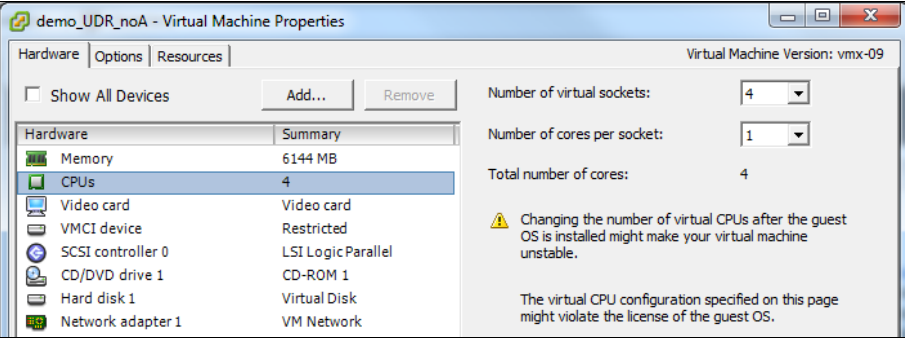
## B.2 CONFIGURE GUEST RESOURCES

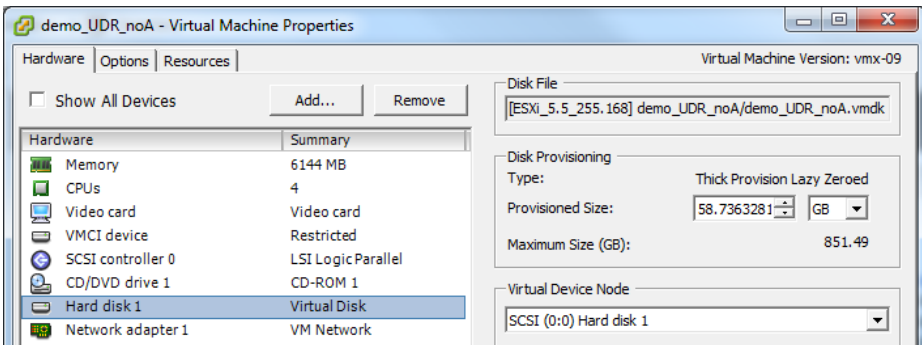
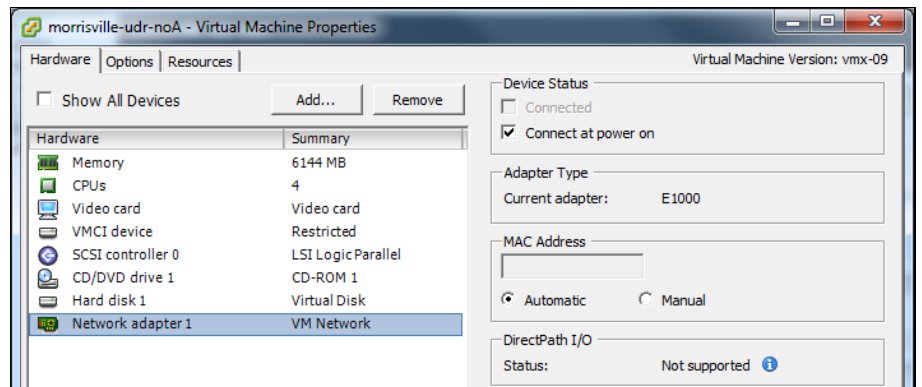
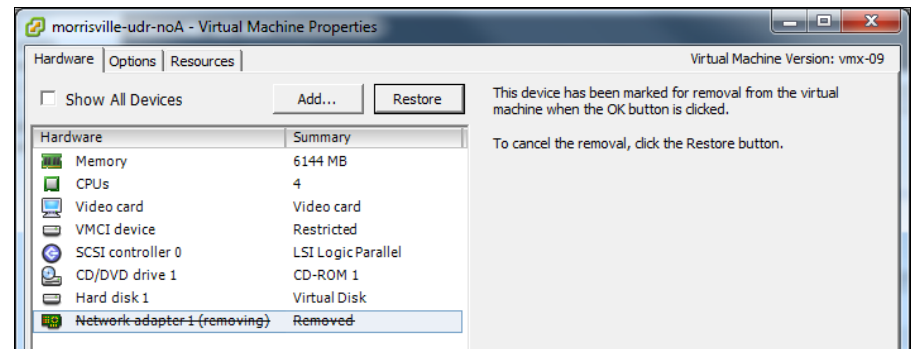
This procedure configures the required resource allocations and associations for Oracle Communications User Data Repository virtual machines (guests) and power them on.

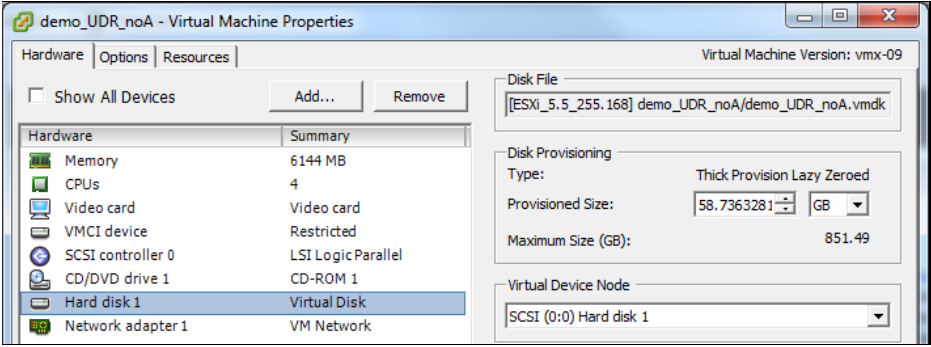
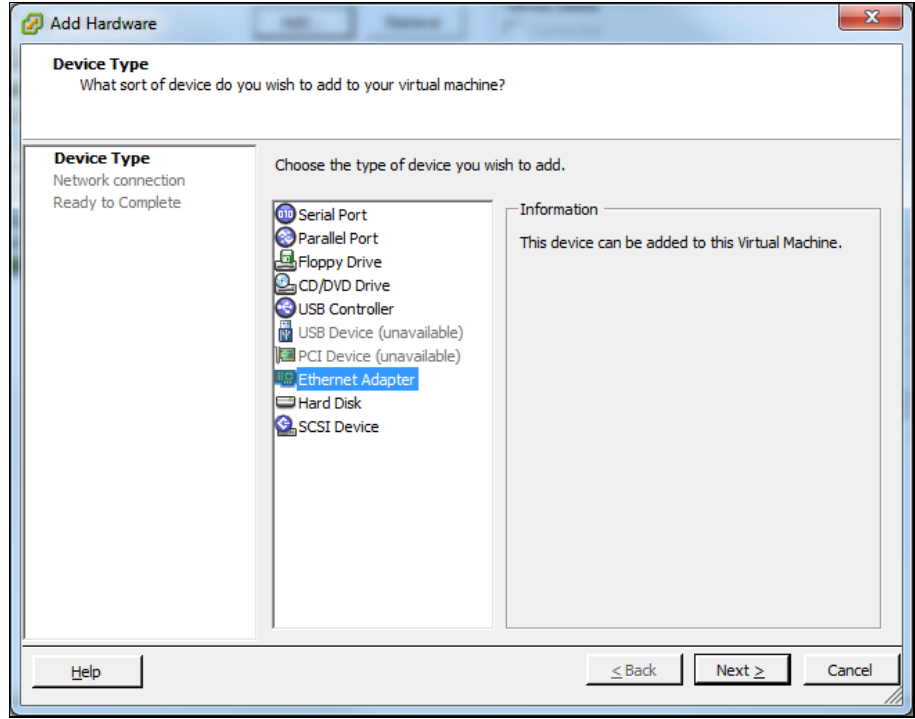
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

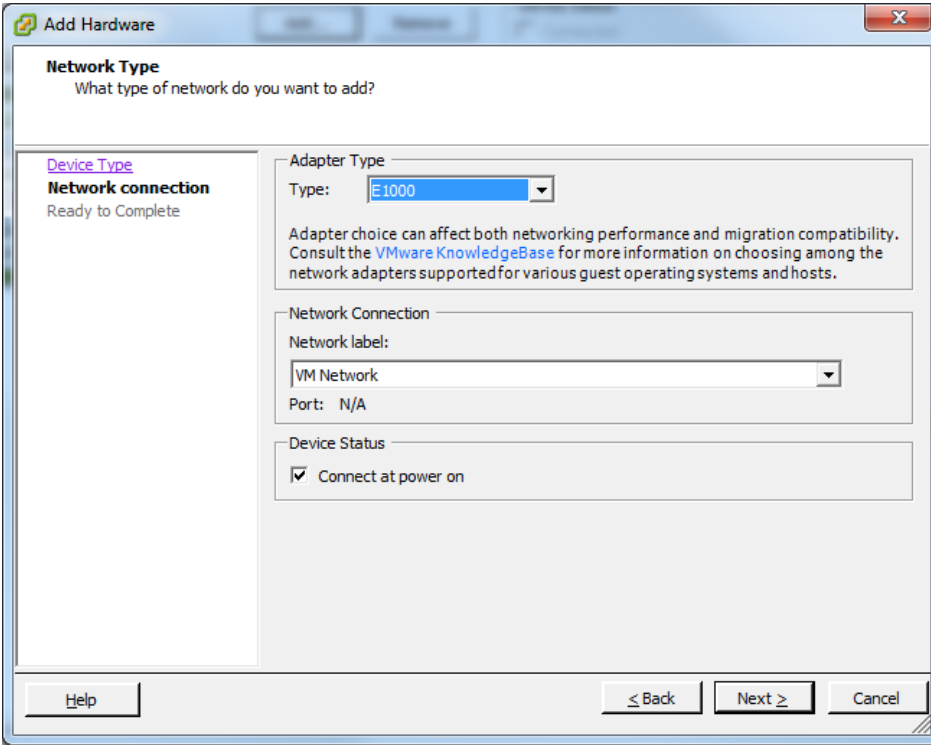
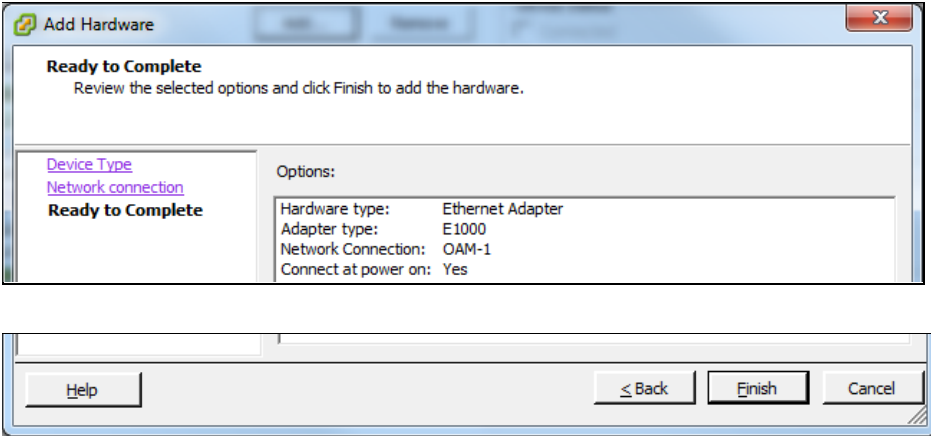
### Procedure17: Configure Guest Resources

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

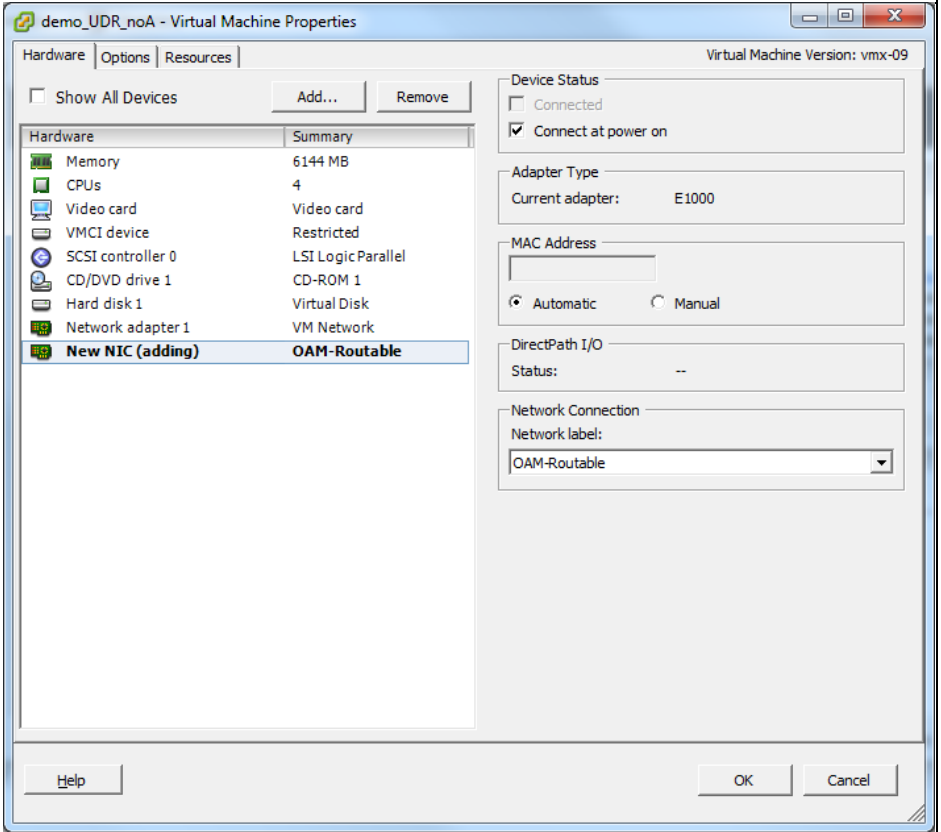
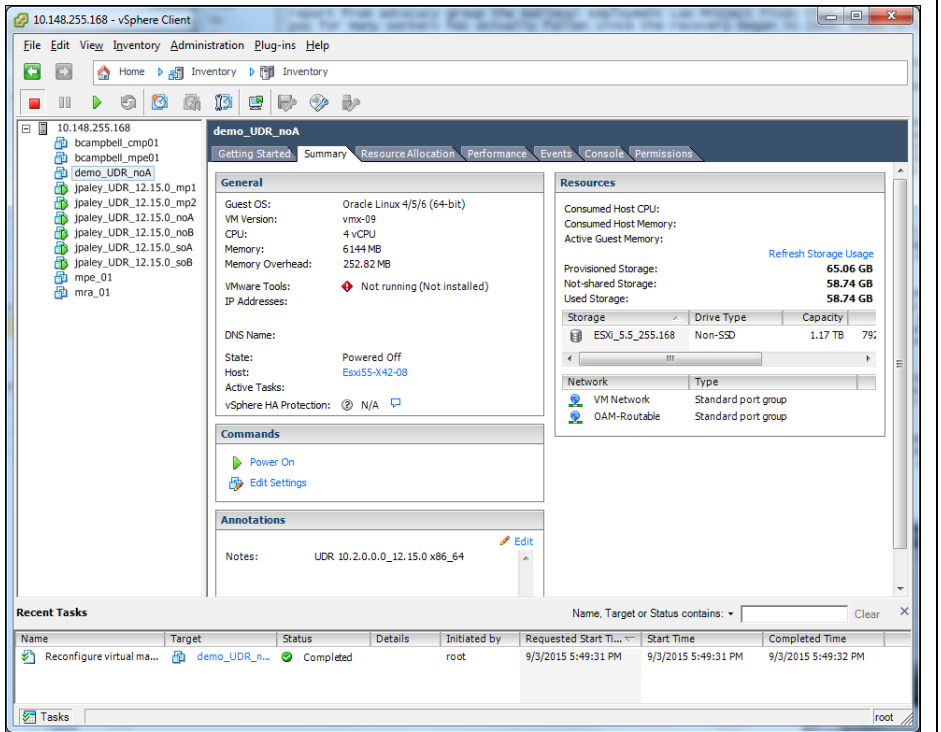
Step	Procedure	Result
2. <input type="checkbox"/>	<b>VMware client:</b> <ol style="list-style-type: none"> <li>1. Select the Oracle Communications User Data Repository virtual machine from the left tree menu</li> <li>2. Click <b>Summary</b> tab</li> <li>3. Click <b>Edit Settings</b> under Commands</li> </ol>	
3. <input type="checkbox"/>	<b>VMware client:</b> <p>Select <b>Memory</b> from the Hardware menu and adjust Memory Size for the role of the server.</p> <p>UDR: 48 GB</p>	
4. <input type="checkbox"/>	<b>VMware client:</b> <p>Select <b>CPUs</b> from the Hardware menu and adjust the Number of virtual sockets according to [1].</p>	

Step	Procedure	Result				
5. <input type="checkbox"/>	<b>VMware client:</b> Select <b>Hard disk 1</b> from the Hardware menu and adjust the Provisioned Size according to [1].					
6. <input type="checkbox"/>	<b>VMware client:</b> 1. Select any Network adapter that may exist by default 2. Click <b>Remove</b> tab					
7. <input type="checkbox"/>	<b>VMware client:</b> The network adapter is crossed out and a removal message displayed					
8. <input type="checkbox"/>	<b>VMware client:</b> Take note of the order in which networks are added.	<p><b>NOTE:</b> The order in which networks are added by the following steps affects their device order in the virtual machine. Add them in the order they appear for each server:</p> <table border="1"><thead><tr><th>UDR</th></tr></thead><tbody><tr><td>1. <input type="checkbox"/> XMI</td></tr><tr><td>2. <input type="checkbox"/> IMI</td></tr><tr><td>3. <input type="checkbox"/> XSI-1 (optional)</td></tr></tbody></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"/>	<b>VMware client:</b> Click <b>Add</b> on the Hardware tab.	
10. <input type="checkbox"/>	<b>VMware client:</b> Select <b>Ethernet Adapter</b> from the list of devices and click <b>Next</b>	

Step	Procedure	Result
11. <input type="checkbox"/>	<b>VMware client:</b> <ol style="list-style-type: none"> <li>1. Select Adapter Type to conform to your virtual host</li> <li>2. Select the Network Label to match the network type</li> <li>3. Click <b>Next</b></li> </ol>	
12. <input type="checkbox"/>	<b>VMware client:</b> <p>Confirm Option settings and click <b>Finish</b></p>	
13. <input type="checkbox"/>	<b>VMware client:</b> <p>Repeat as required</p>	Repeat Steps 9 through 12 to add every network required for the role of the server.




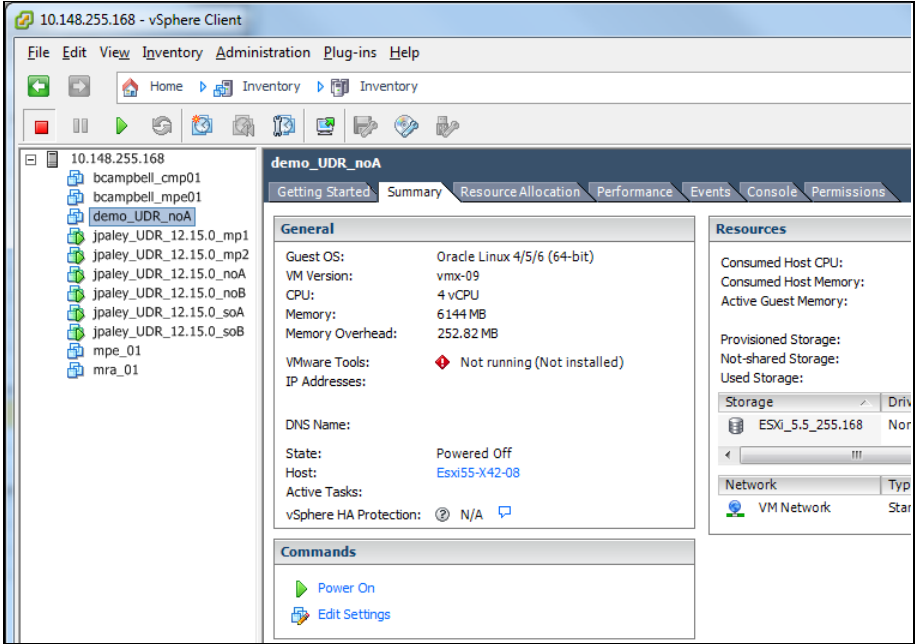
Step	Procedure	Result
14. <input type="checkbox"/>	<b>VMware client:</b> After all networks are added, confirm their entry in the Hardware menu then click <b>OK</b> .	
15. <input type="checkbox"/>	<b>VMware client:</b> New devices and networks are listed on the Summary tab and Reconfigure task shows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

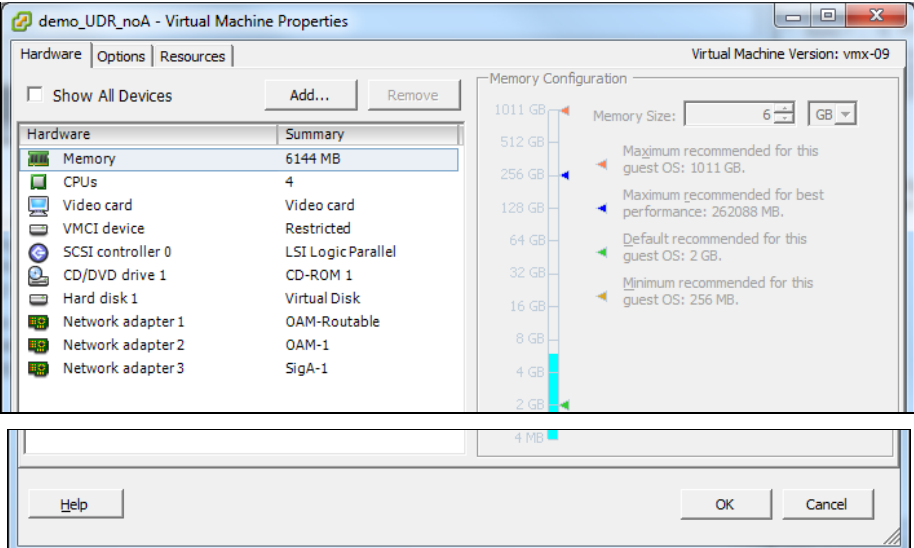
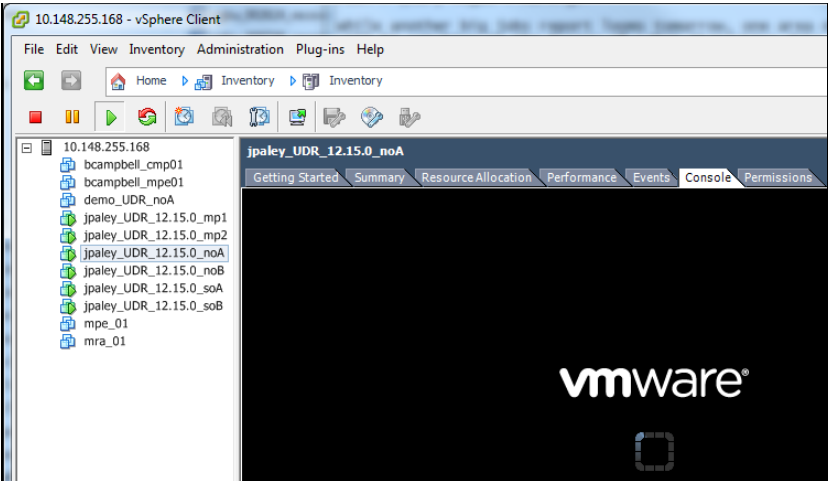
## B.3 CONFIGURE GUEST NETWORK

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

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

### Procedure18: Configure Guest OAM Network

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

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

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

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

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

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

#### Needed material:

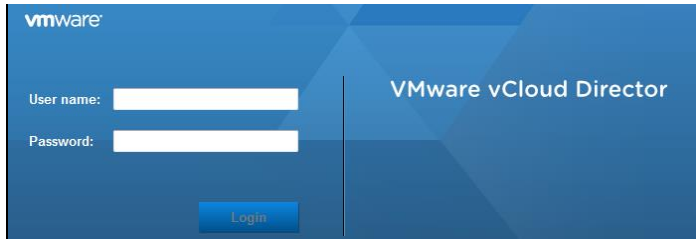
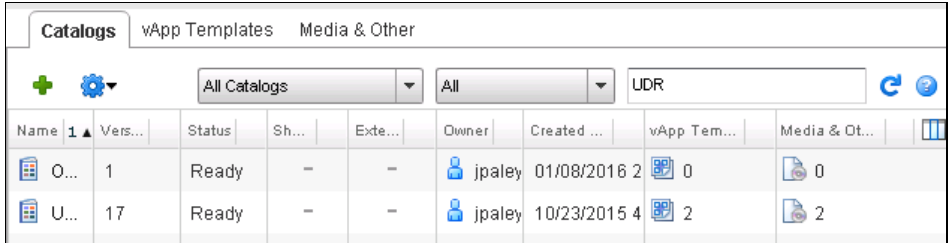
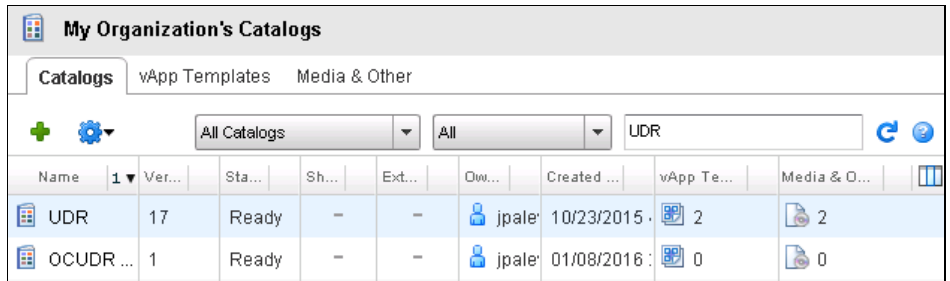
- Oracle Communications User Data Repository OVA

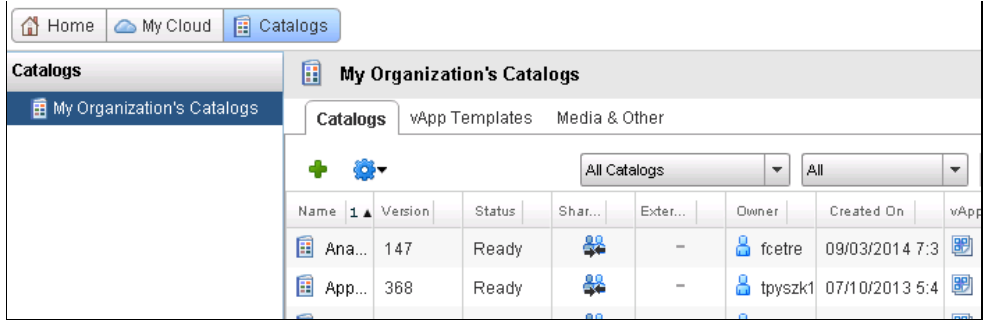
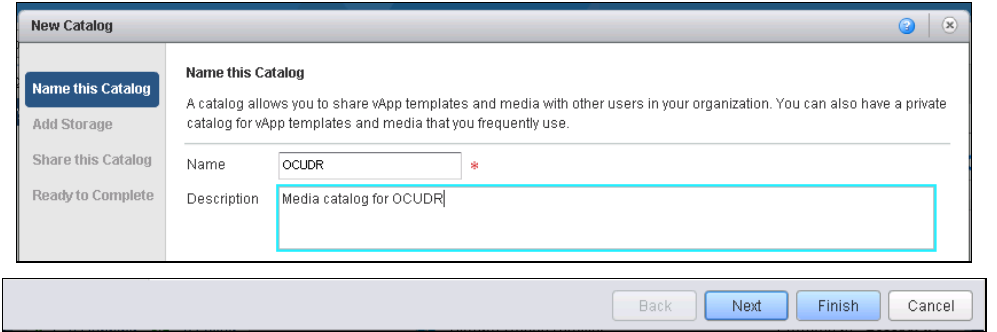

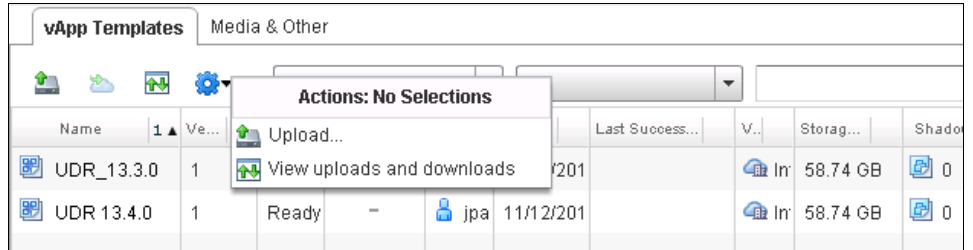
#### Optional material (required for ISO install only):

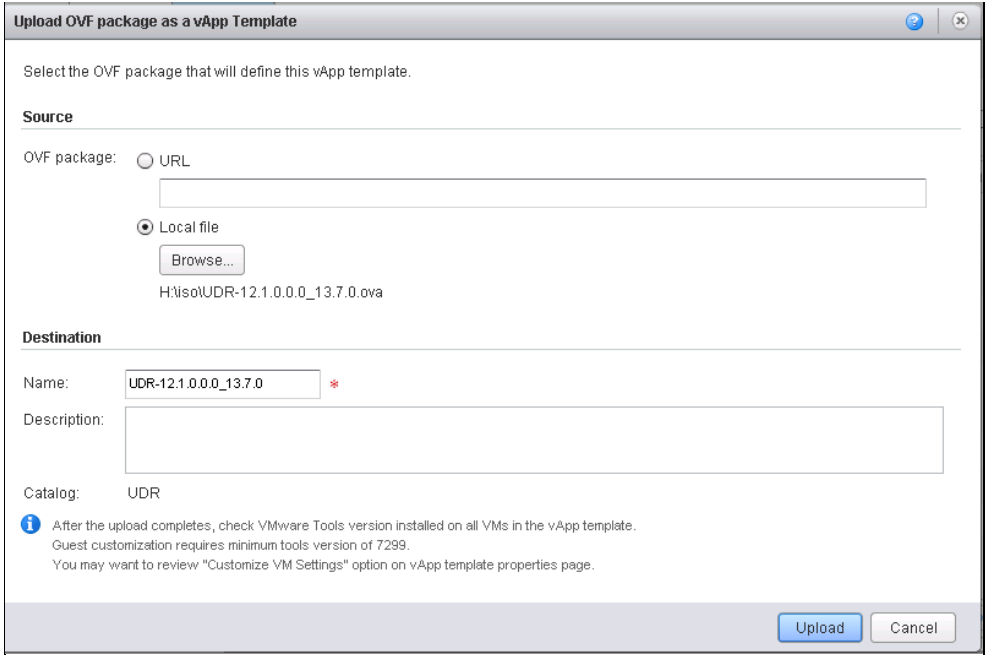
- Oracle Communications User Data Repository ISO
- TPD Platform ISO

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by 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"/>	<b>vCloud Director:</b> Enter Oracle Communications User Data Repository catalog name in the search field and hit Enter.	
3. <input type="checkbox"/>	<b>vCloud Director:</b> Click the name for the appropriate catalog and proceed to Step 6	 <p><b>NOTE:</b> If a catalog for Oracle Communications User Data Repository does not exist, create one using steps 4 and 5.</p>

Step	Procedure	Result
4. <input type="checkbox"/>	<b>vCloud Director:</b> Click Catalogs tab. Click the green plus sign.	
5. <input type="checkbox"/>	<b>vCloud Director:</b> 1. Enter the catalog name and description. 2. Unless this catalog requires special storage or sharing, click <b>Finish</b> .	 <p><b>NOTE:</b> After clicking Finish, return to Step 2 of this procedure to access the catalog.</p>
6. <input type="checkbox"/>	<b>vCloud Director:</b> <ul style="list-style-type: none"> <li>Select <b>vApp Templates</b> for OVA upload</li> <li>Select <b>Media &amp; Other</b> for ISO upload</li> </ul>	
7. <input type="checkbox"/>	<b>vCloud Director:</b> Click the Blue Gear Symbol and then select <b>Upload</b>	


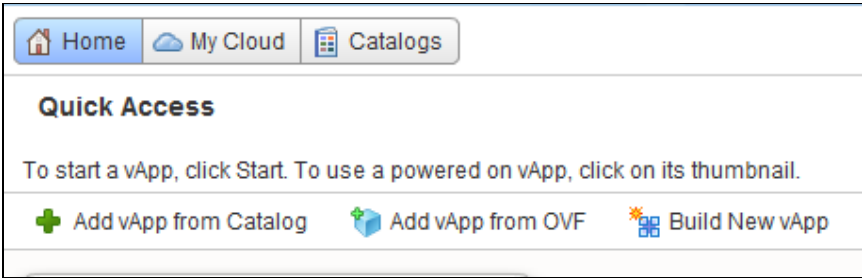
Step	Procedure	Result
8. <input type="checkbox"/>	<b>vCloud Director:</b> Select Source as either URL or local file then enter a Name. Click <b>Upload</b> .	
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

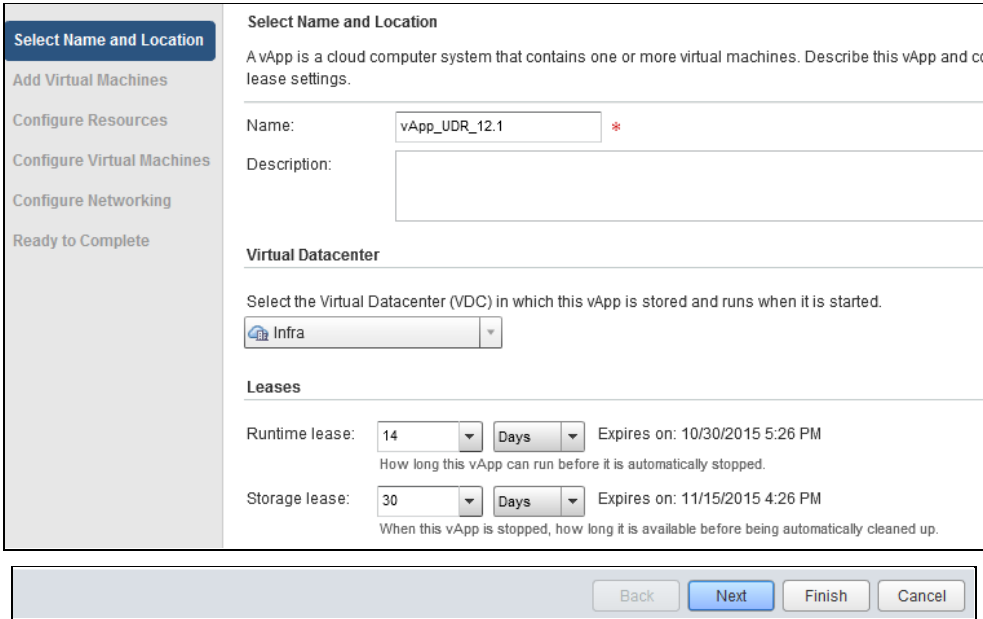
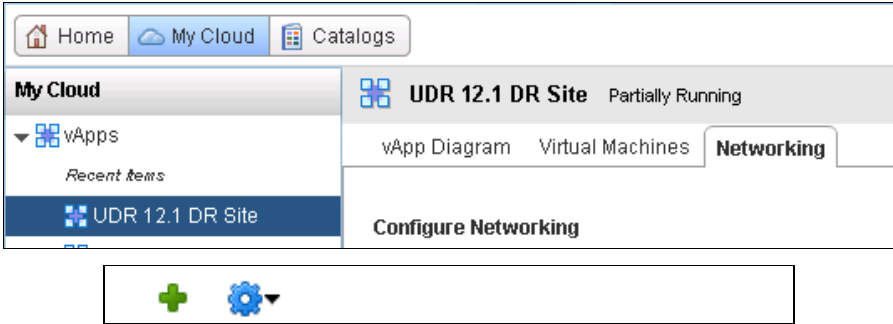
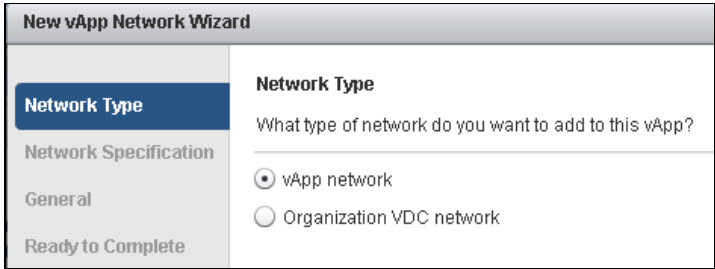
## C.2 CREATE VAPP

This procedure creates and configure a vApp virtual appliance.

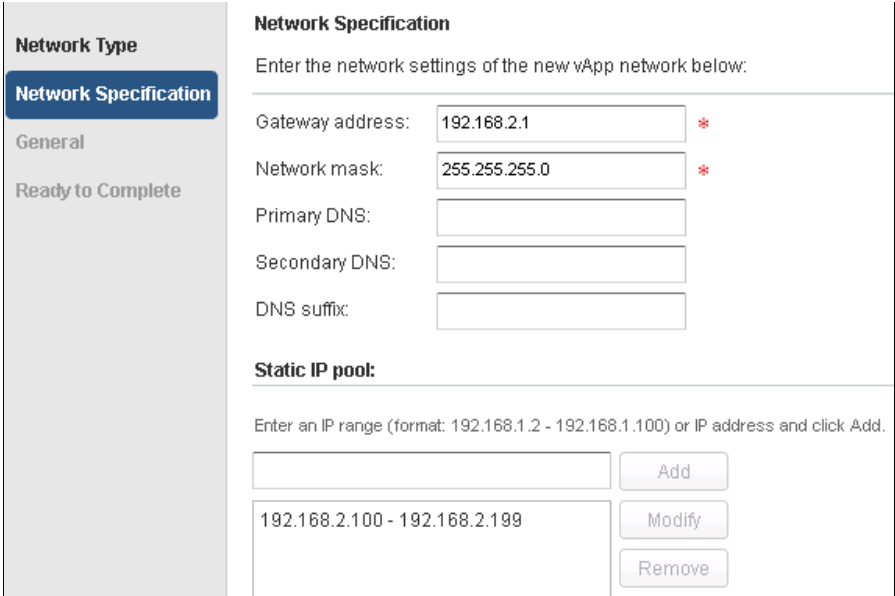
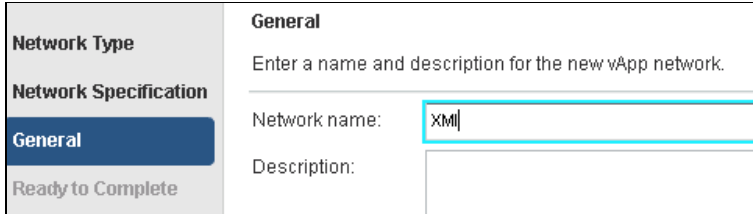
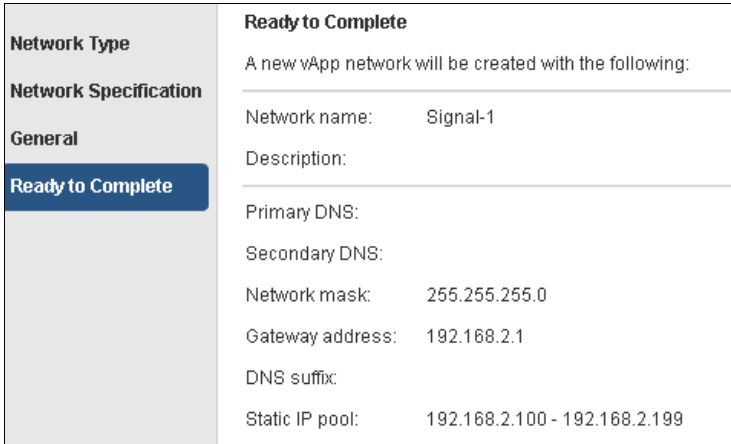
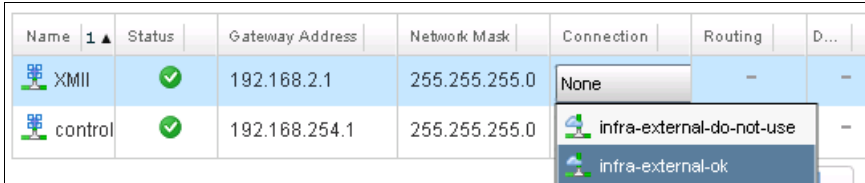
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

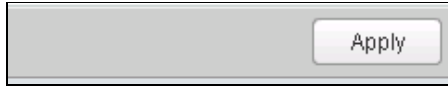
### Procedure20: Create vApp

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

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



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


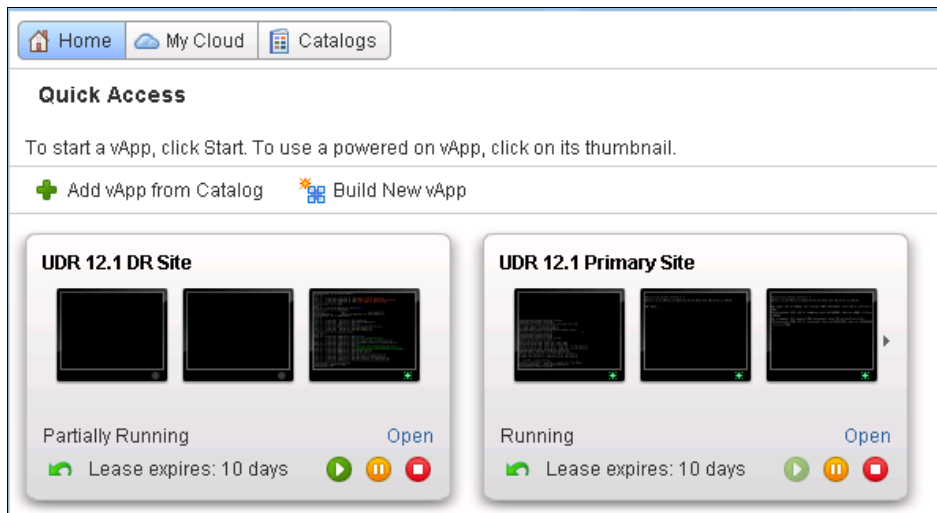
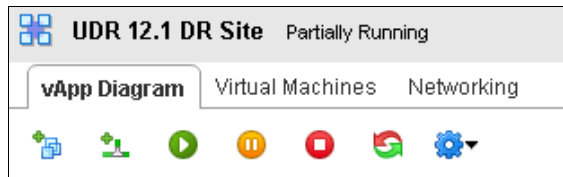
Step	Procedure	Result
10. <input type="checkbox"/>	<b>vCloud Director:</b> Click <b>Apply</b> .	
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

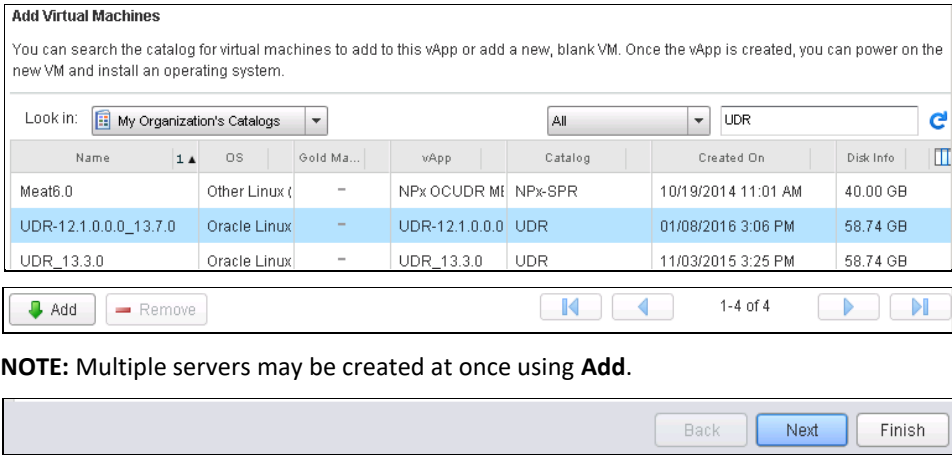
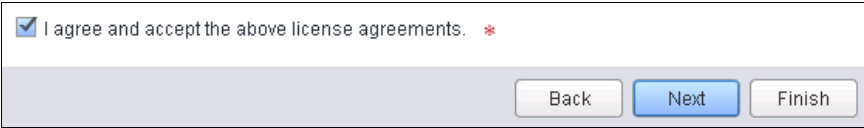

### C.3 CREATE GUESTS FROM OVA

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

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by 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"/>	<b>vCloud Director:</b> Click <b>Open</b> for the Oracle Communications User Data Repository vApp	 <p><b>NOTE:</b> Current vApps are listed on the Home Page. If a new vApp is required continue with the next step.</p>
3. <input type="checkbox"/>	<b>vCloud Director:</b> Select icon on left to Add VM	

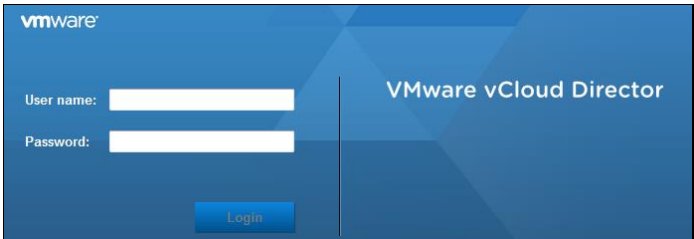
Step	Procedure	Result
4. <input type="checkbox"/>	<b>vCloud Director:</b> <ol style="list-style-type: none"> <li>Enter name in the search field and press <b>Enter</b></li> <li>Select Oracle Communications User Data Repository media name</li> <li>Click <b>Add</b>.</li> <li>Click <b>Next</b>.</li> </ol>	 <p><b>NOTE:</b> Multiple servers may be created at once using <b>Add</b>.</p>
5. <input type="checkbox"/>	<b>vCloud Director:</b> <ol style="list-style-type: none"> <li>Select the license agreement</li> <li>Click <b>Next</b></li> </ol>	
6. <input type="checkbox"/>	<b>vCloud Director:</b> <ol style="list-style-type: none"> <li>Rename virtual machines to reflect its location and role</li> <li>Click <b>Finish</b>.</li> </ol>	
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		


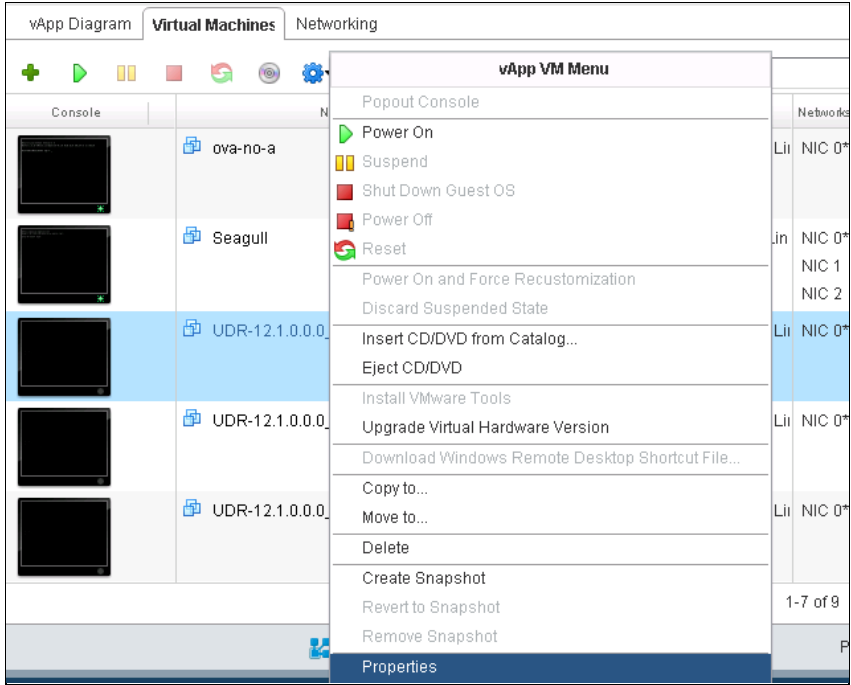
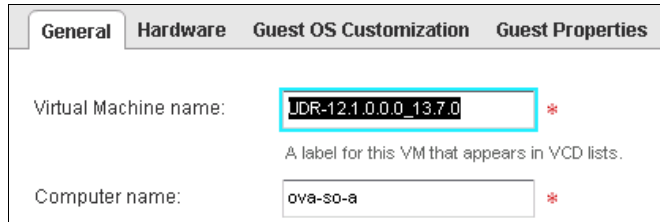
## C.4 CONFIGURE GUEST RESOURCES

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

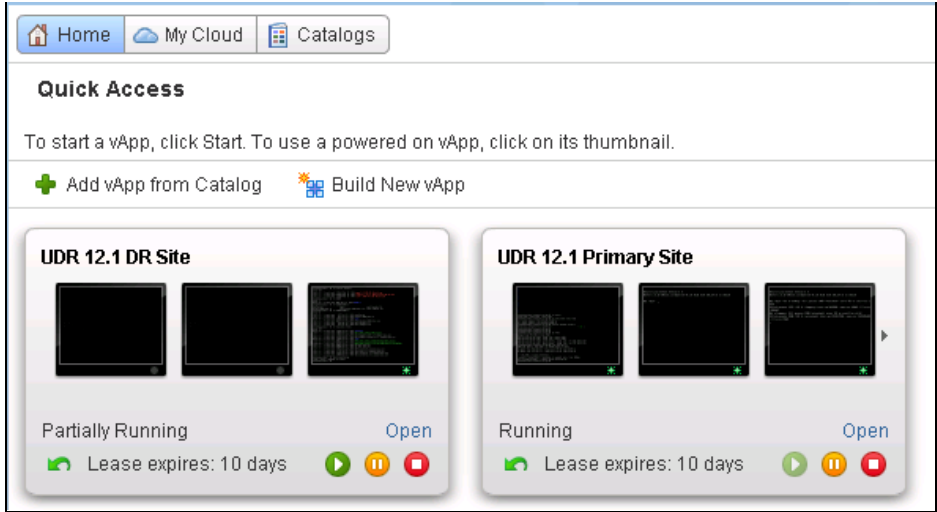
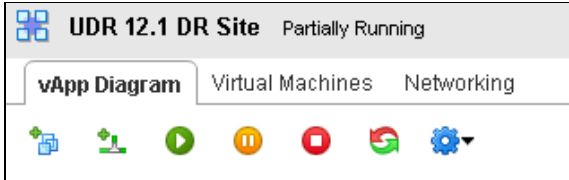
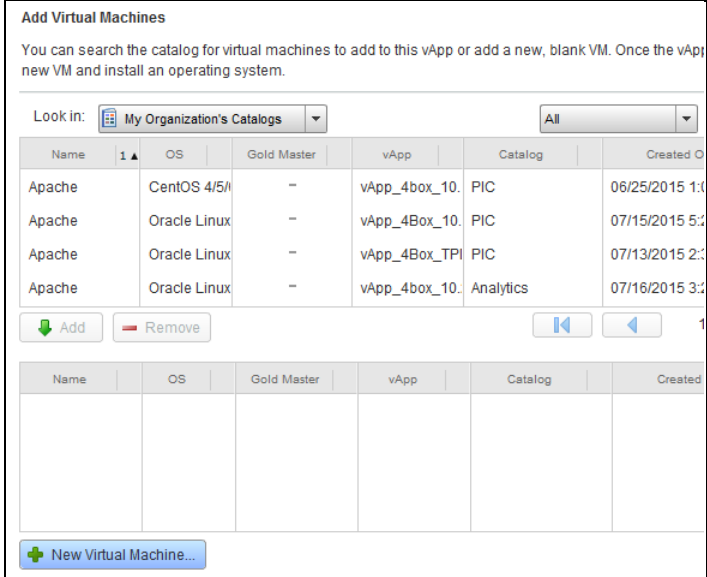
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

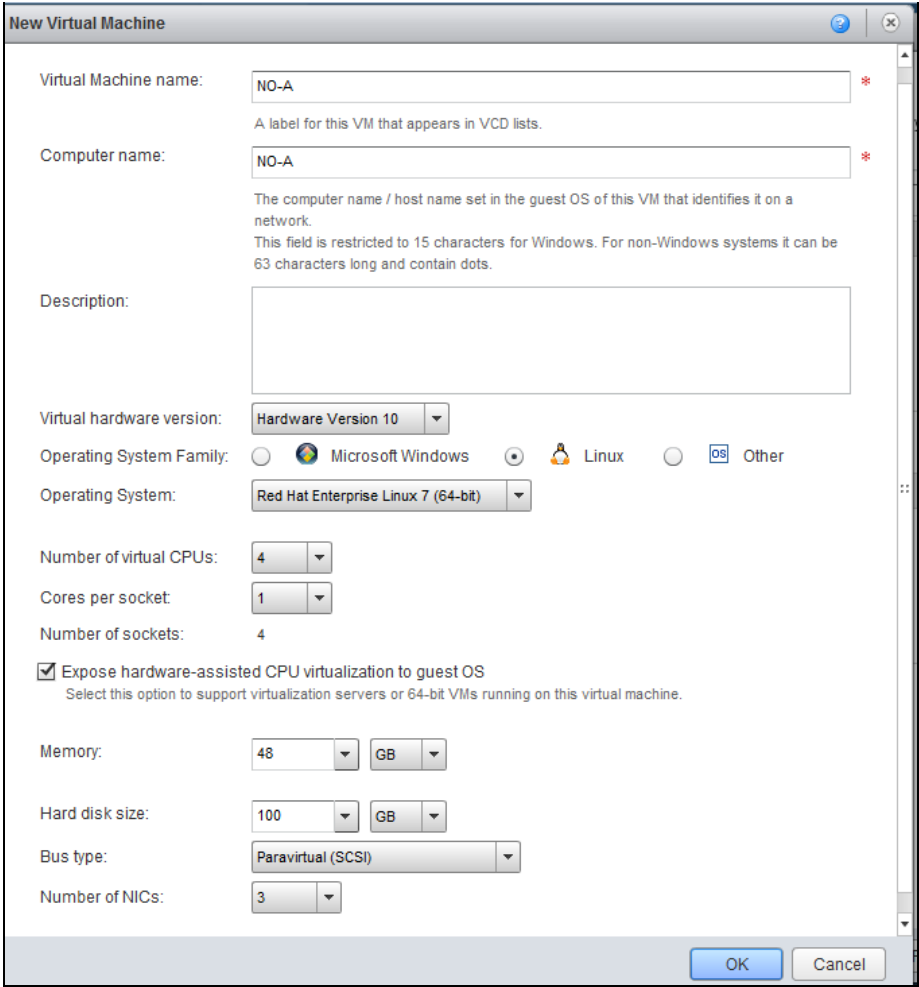
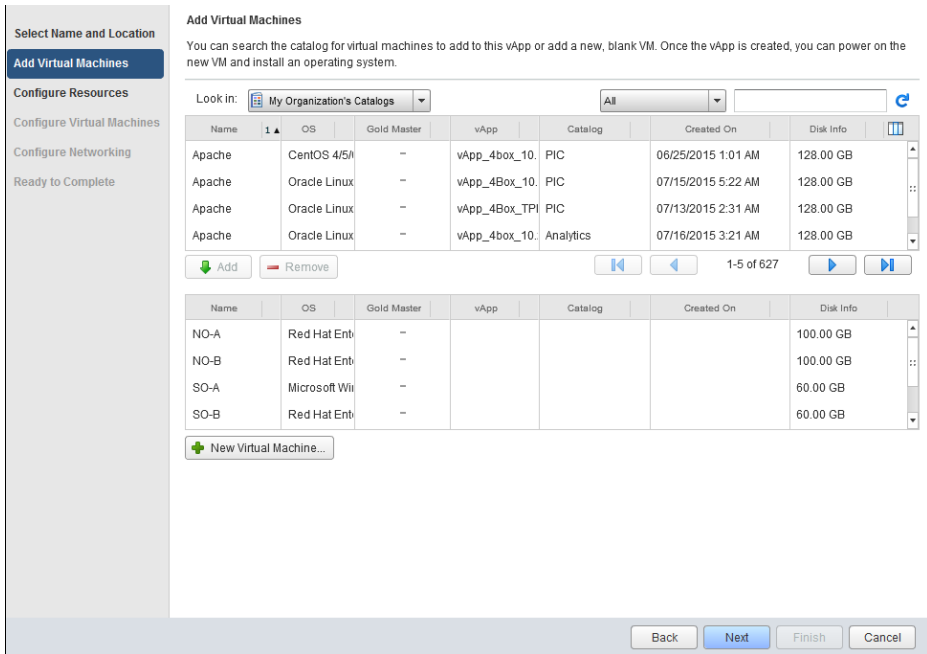
### Procedure22: Configure Guests from OVA with vCloud Director

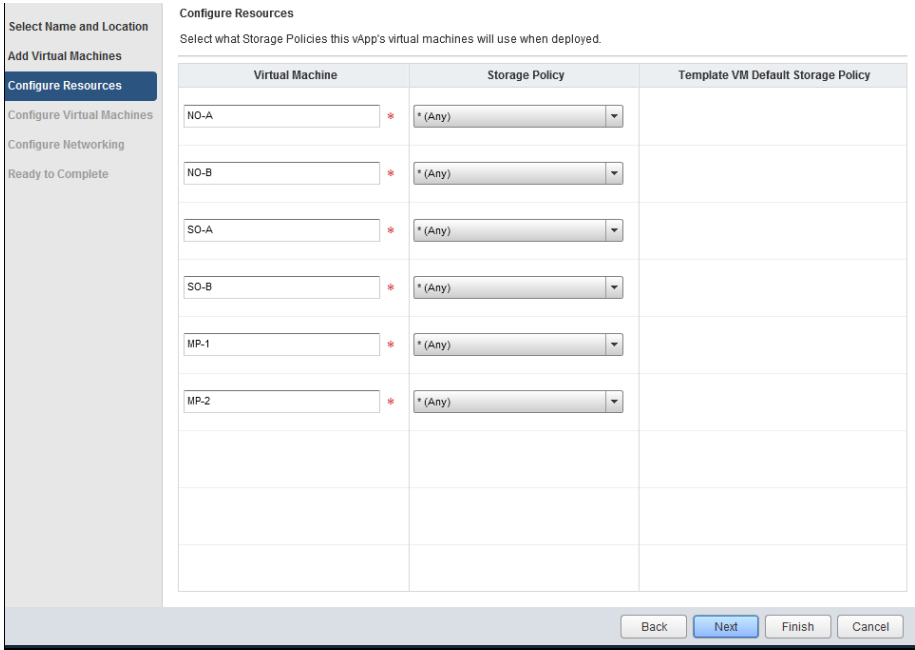
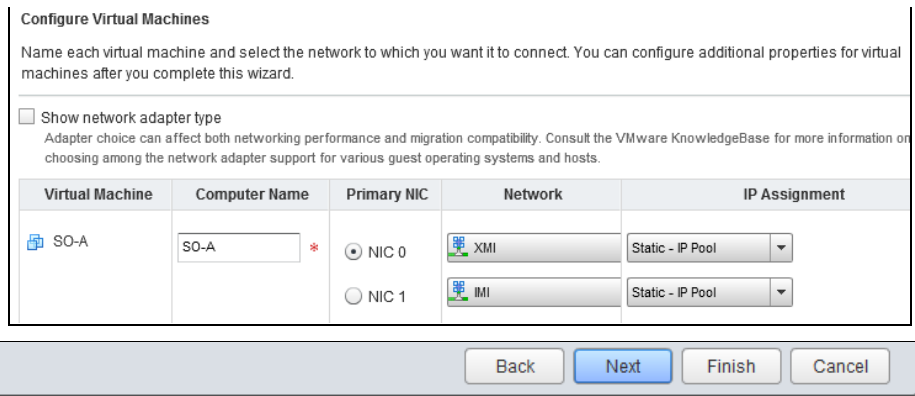
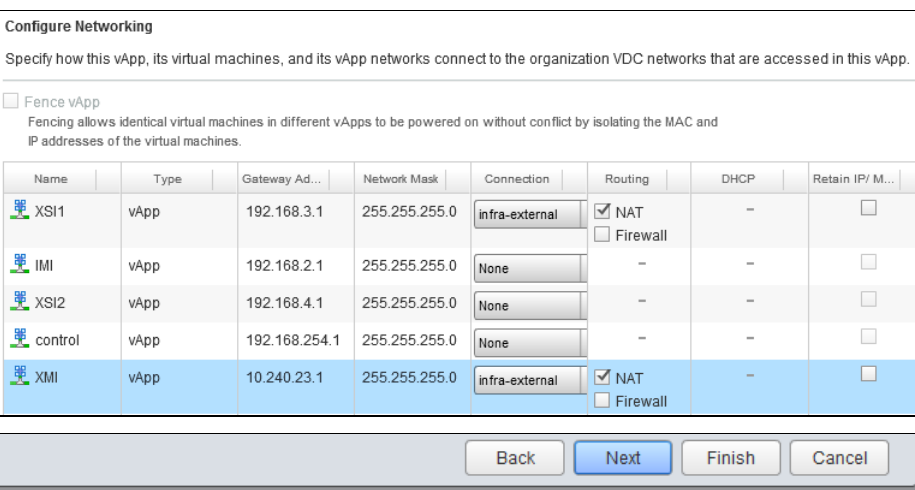
Step	Procedure	Result
1. <input type="checkbox"/>	Log into the VMware vCloud Director	

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

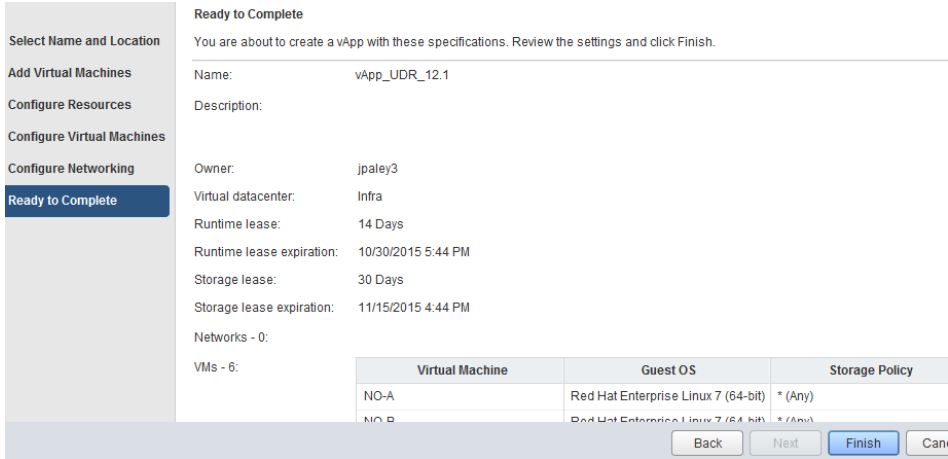
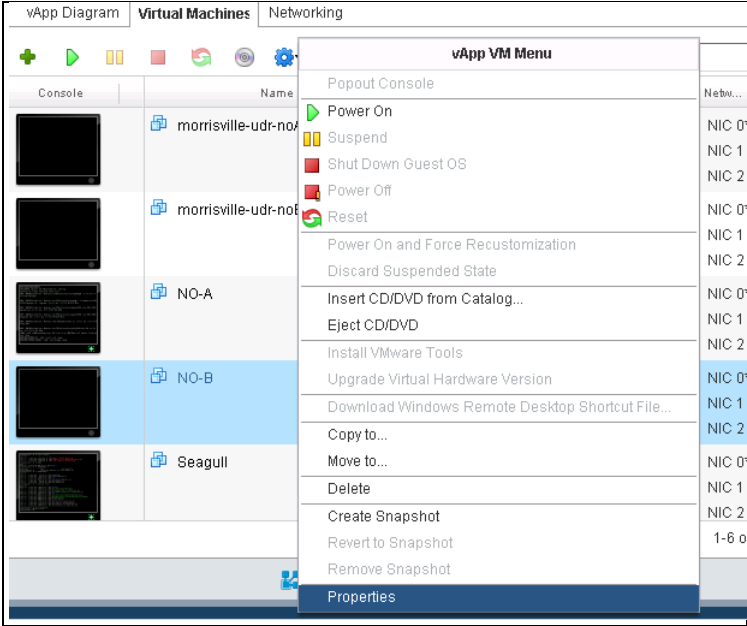
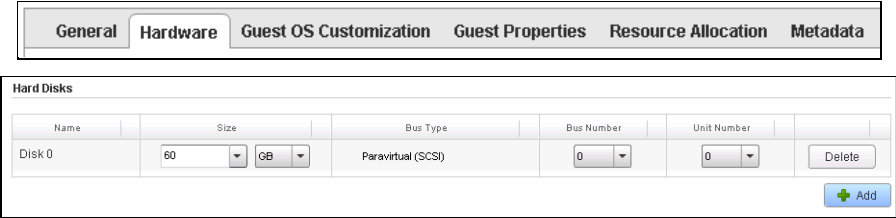


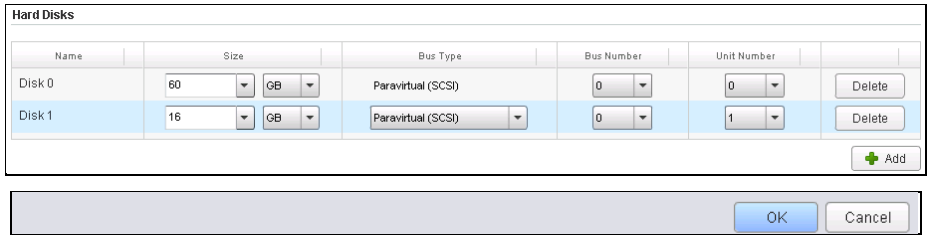
Step	Procedure	Result
2. <input type="checkbox"/>	<b>vCloud Director:</b> Click <b>Open</b> for the Oracle Communications User Data Repository vApp	 <p><b>NOTE:</b> Current vApps are listed on the Home Page. If a new vApp is required continue with the next step.</p>
3. <input type="checkbox"/>	<b>vCloud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

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

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



Step	Procedure	Result
10. <input type="checkbox"/>	<b>vCloud Director:</b> 1. Review the settings. 2. Click <b>Finish</b> .	
11. <input type="checkbox"/>	<b>vCloud Director:</b> 1. Select the VM. 2. Click the Blue Gear icon. 3. Select <b>Properties</b> .	
12. <input type="checkbox"/>	<b>vCloud Director:</b> 1. Select the <b>Hardware</b> tab. 2. Adjust the size of Disk 0 to match VM profile [1]	

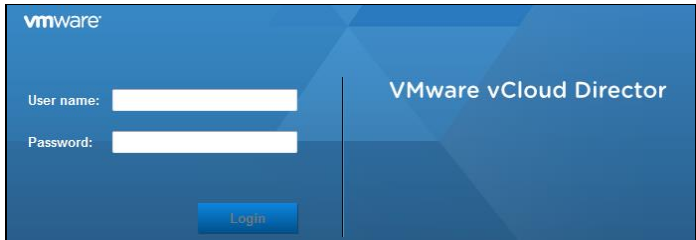
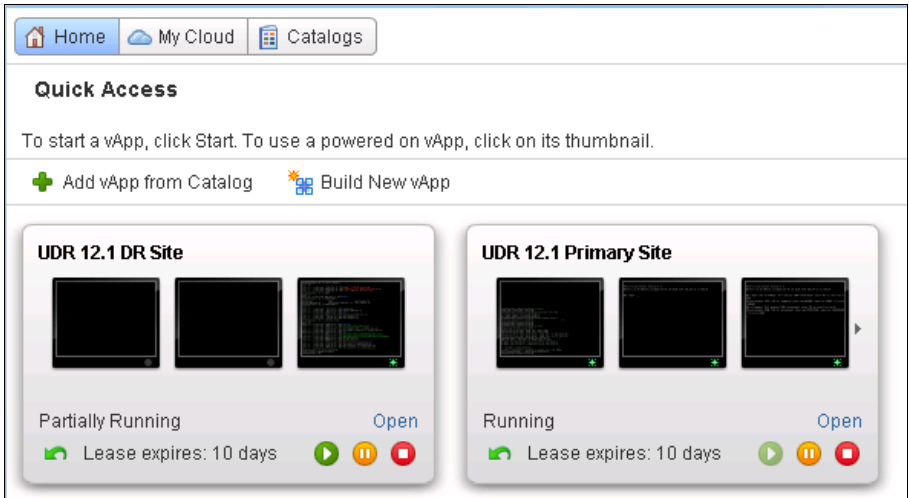
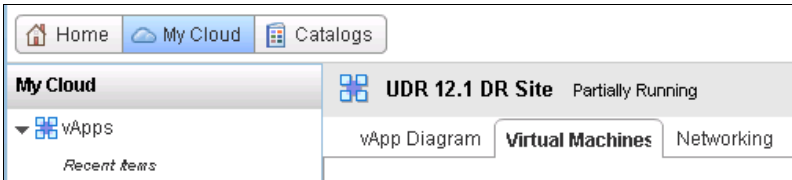
Step	Procedure	Result
13. <input type="checkbox"/>	<b>vCloud Director:</b> Only If the VM uses a second disk by [1]: 1. Click <b>Add</b> 2. Adjust size of Disk 1 to match VM profile [1]. 3. Click <b>OK</b>	
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

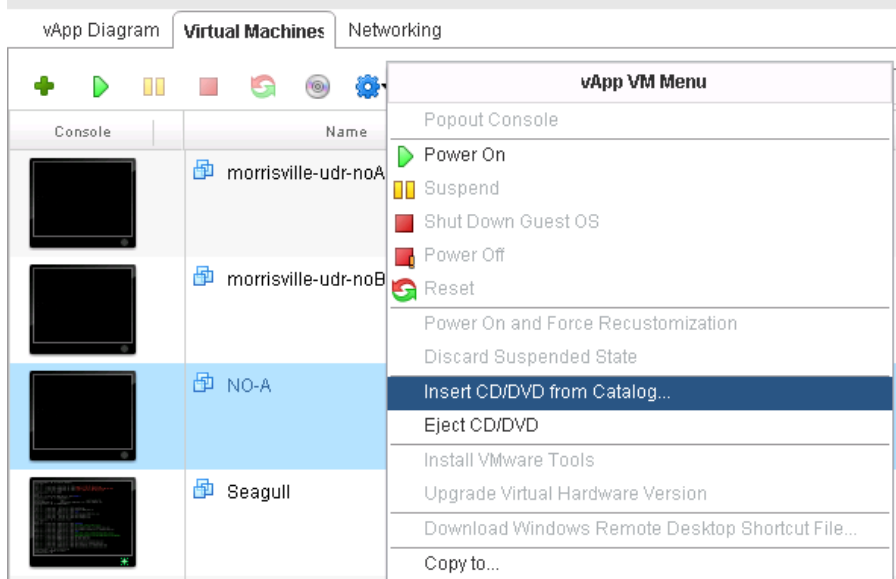
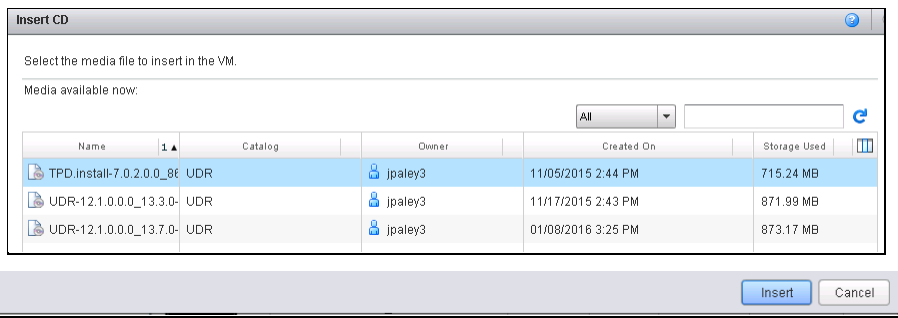
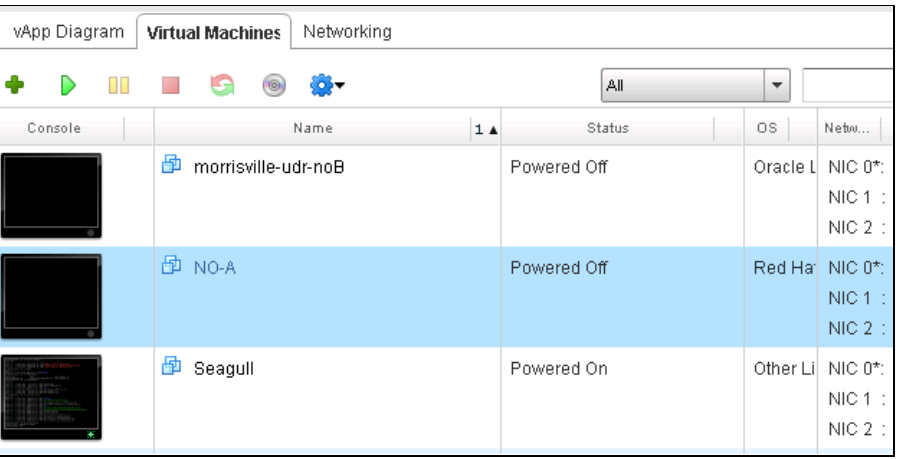
## C.6 INSTALL GUESTS FROM ISO

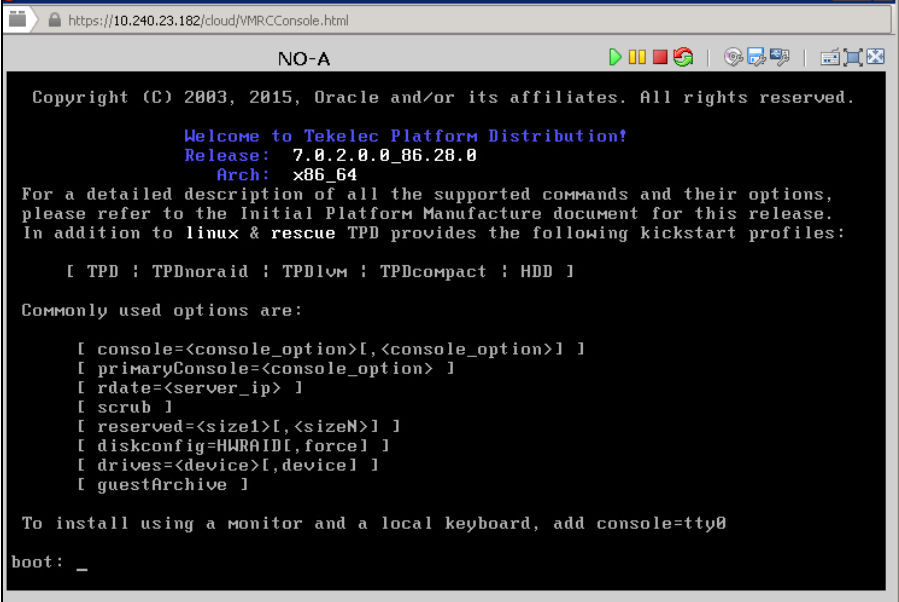
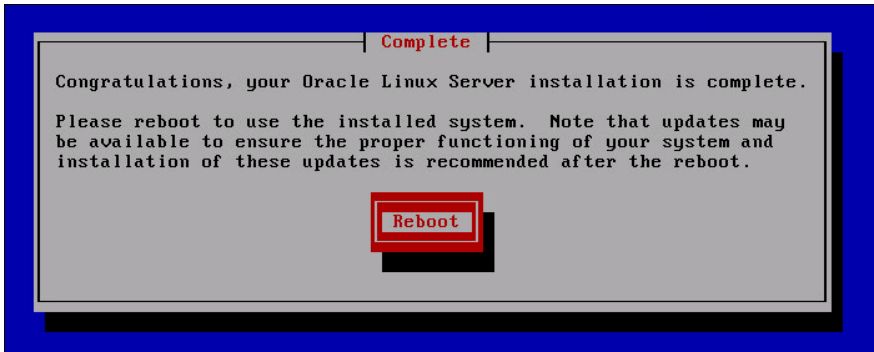
This procedure creates Oracle Communications User Data Repository virtual machines (guests) from ISO.

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

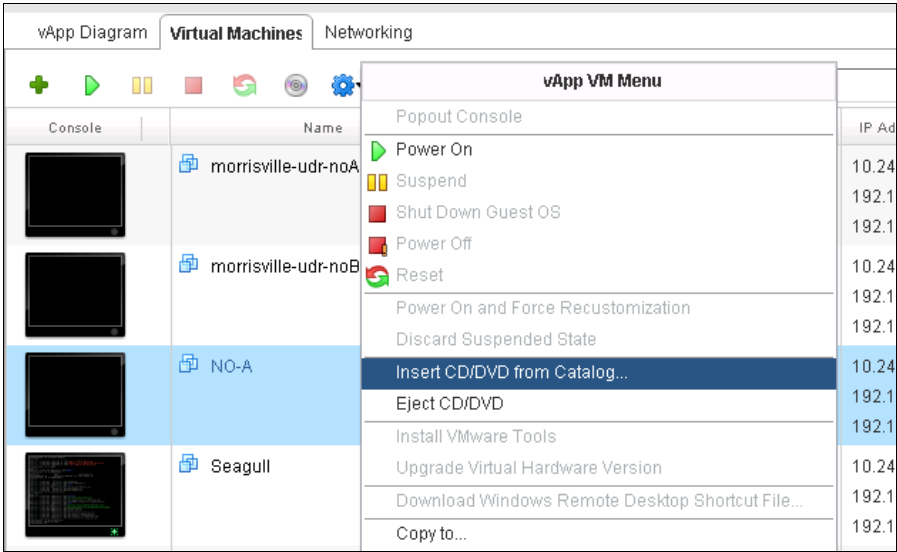
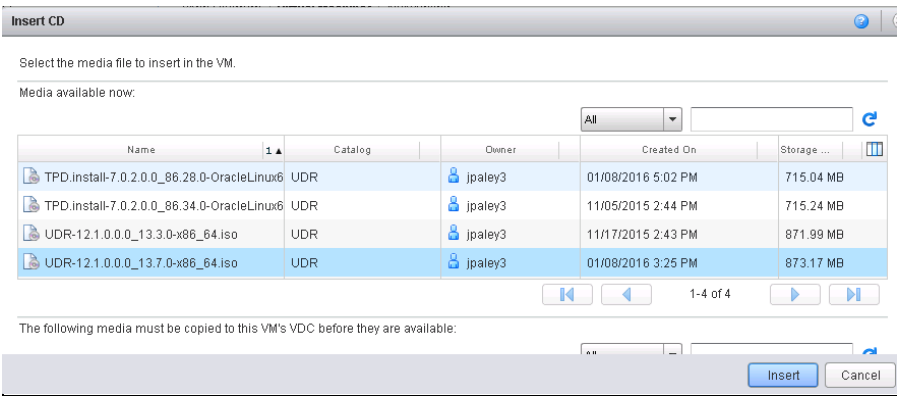
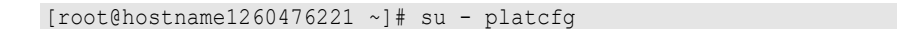
### Procedure24: Install Guests from ISO with vCloud Director

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

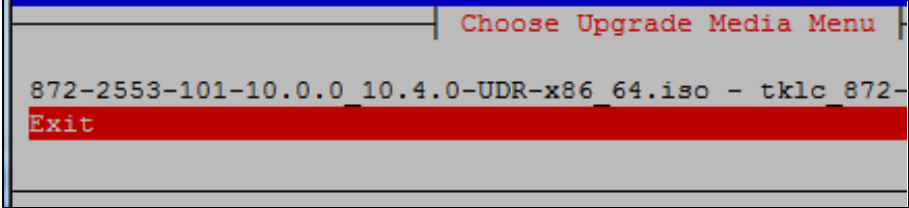
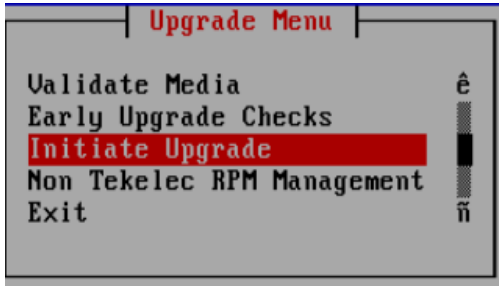


Step	Procedure	Result																				
4. <input type="checkbox"/>	<b>vCloud Director:</b> 1. Select the VM. 2. Click the Blue Gear icon. 3. Select <b>Insert CD/DVD from Catalog</b> .	 <p>The screenshot shows the vCloud Director interface with the 'Virtual Machines' tab selected. A list of VMs is shown: 'morrisville-udr-noA', 'morrisville-udr-noB', 'NO-A', and 'Seagull'. The 'NO-A' VM is selected. The 'vApp VM Menu' is open, showing options like 'Power On', 'Suspend', 'Shut Down Guest OS', 'Power Off', 'Reset', 'Power On and Force Recustomization', 'Discard Suspended State', 'Insert CD/DVD from Catalog...', 'Eject CD/DVD', 'Install VMware Tools', 'Upgrade Virtual Hardware Version', 'Download Windows Remote Desktop Shortcut File...', and 'Copy to...'. The 'Insert CD/DVD from Catalog...' option is highlighted.</p>																				
5. <input type="checkbox"/>	<b>vCloud Director:</b> 1. Select TPD ISO. 2. Click <b>Insert</b>	 <p>The screenshot shows the 'Insert CD' dialog box. It prompts the user to 'Select the media file to insert in the VM.' and lists 'Media available now:'. A table of media files is shown:</p> <table><tr><th>Name</th><th>Catalog</th><th>Owner</th><th>Created On</th><th>Storage Used</th></tr><tr><td>TPD.install-7.0.2.0.0_86</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-</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-</td><td>UDR</td><td>jpaley3</td><td>01/08/2016 3:25 PM</td><td>873.17 MB</td></tr></table> <p>The 'TPD.install-7.0.2.0.0_86' file is selected. The 'Insert' button is highlighted.</p>	Name	Catalog	Owner	Created On	Storage Used	TPD.install-7.0.2.0.0_86	UDR	jpaley3	11/05/2015 2:44 PM	715.24 MB	UDR-12.1.0.0.0_13.3.0-	UDR	jpaley3	11/17/2015 2:43 PM	871.99 MB	UDR-12.1.0.0.0_13.7.0-	UDR	jpaley3	01/08/2016 3:25 PM	873.17 MB
Name	Catalog	Owner	Created On	Storage Used																		
TPD.install-7.0.2.0.0_86	UDR	jpaley3	11/05/2015 2:44 PM	715.24 MB																		
UDR-12.1.0.0.0_13.3.0-	UDR	jpaley3	11/17/2015 2:43 PM	871.99 MB																		
UDR-12.1.0.0.0_13.7.0-	UDR	jpaley3	01/08/2016 3:25 PM	873.17 MB																		
6. <input type="checkbox"/>	<b>vCloud Director:</b> 1. Click the sky blue Play icon to start the VM 2. Click the Console to open the console window	 <p>The screenshot shows the vCloud Director interface with the 'Virtual Machines' tab selected. A table of VMs is shown:</p> <table><tr><th>Name</th><th>Status</th><th>OS</th><th>Netw...</th></tr><tr><td>morrisville-udr-noB</td><td>Powered Off</td><td>Oracle L</td><td>NIC 0*: NIC 1 : NIC 2 :</td></tr><tr><td>NO-A</td><td>Powered Off</td><td>Red Ha</td><td>NIC 0*: NIC 1 : NIC 2 :</td></tr><tr><td>Seagull</td><td>Powered On</td><td>Other Li</td><td>NIC 0*: NIC 1 : NIC 2 :</td></tr></table>	Name	Status	OS	Netw...	morrisville-udr-noB	Powered Off	Oracle L	NIC 0*: NIC 1 : NIC 2 :	NO-A	Powered Off	Red Ha	NIC 0*: NIC 1 : NIC 2 :	Seagull	Powered On	Other Li	NIC 0*: NIC 1 : NIC 2 :				
Name	Status	OS	Netw...																			
morrisville-udr-noB	Powered Off	Oracle L	NIC 0*: NIC 1 : NIC 2 :																			
NO-A	Powered Off	Red Ha	NIC 0*: NIC 1 : NIC 2 :																			
Seagull	Powered On	Other Li	NIC 0*: NIC 1 : NIC 2 :																			

Step	Procedure	Result
7. <input type="checkbox"/>	<b>vCloud Director:</b> 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 <b>Enter</b> to reboot	 <p><b>NOTE:</b> Escape the console session by pressing <b>Ctrl-Alt</b></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 7.6.1.x	<pre># getPlatRev 7.6.1.0.0-88.55.0</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><b>NOTE:</b> This command should not return 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><b>NOTE:</b> This command should not return 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 &lt;SIZE&gt;G --alloc anywhere --name rundb stripe_vg</pre> <p>Replace &lt;SIZE&gt; 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:      &lt;SIZE&gt;    = 60 ISO production second disk is 720:  &lt;SIZE&gt;    = 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 by pressing <b>Ctrl-Alt</b>

Step	Procedure	Result																									
19. <input type="checkbox"/>	<b>vCloud Director:</b> 1. Select the <b>VM</b> . 2. Click the Blue Gear icon. 3. Select <b>Insert CD/DVD from Catalog</b> .	 <p>The screenshot shows the vCloud Director interface with the 'Virtual Machines' tab selected. A list of VMs is shown, including 'morrisville-udr-noA', 'morrisville-udr-noB', 'NO-A', and 'Seagull'. The 'NO-A' VM is selected, and the 'vApp VM Menu' is open. The menu options include: Popout Console, Power On, Suspend, Shut Down Guest OS, Power Off, Reset, Power On and Force Recustomization, Discard Suspended State, <b>Insert CD/DVD from Catalog...</b>, Eject CD/DVD, Install VMware Tools, Upgrade Virtual Hardware Version, Download Windows Remote Desktop Shortcut File..., and Copy to... The 'Insert CD/DVD from Catalog...' option is highlighted.</p>																									
20. <input type="checkbox"/>	<b>vCloud Director:</b> 1. Select Oracle Communications User Data Repository ISO. 2. Click <b>Insert</b>	 <p>The screenshot shows the 'Insert CD' dialog box. It prompts the user to 'Select the media file to insert in the VM.' and lists 'Media available now:' in a table. The table has columns for Name, Catalog, Owner, Created On, and Storage. The following media files are listed:</p> <table><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> <p>Below the table, it states: 'The following media must be copied to this VM's VDC before they are available:'. At the bottom, there are 'Insert' and 'Cancel' buttons.</p>	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
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																							
21. <input type="checkbox"/>	<b>VM Console:</b> 1. Re-enter the console window 2. Login to the platcfg utility.	 <p>The screenshot shows the VM console window with the command prompt: <code>[root@hostname1260476221 ~]# su - platcfg</code></p>																									

Step	Procedure	Result
22. <input type="checkbox"/>	<b>VM Console:</b> From the platcfg Main Menu, select each option, pressing <b>Enter</b> after each selection.	 <p>The result shows three sequential screenshots of the VM console interface. The first screenshot displays the 'Main Menu' with options: Maintenance (highlighted), Diagnostics, Server Configuration, Remote Consoles, Network Configuration, and Exit. The second screenshot shows 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 shows the 'Upgrade Menu' with options: Validate Media (highlighted), Early Upgrade Checks, Initiate Upgrade, Non Tekelec RPM Management, and Exit.</p>
23. <input type="checkbox"/>	<b>VM Console:</b> 1. From the platcfg Main Menu, verify that the CDROM is Valid. 2. Press any key to return to platcfg menu.	 <p>The result is a screenshot of the VM console window titled 'root@pc9000724-no-a:~'. It shows the output of the 'UMVT Validate Utility v2.2.2' command. The utility validates the file '/var/TKLC/upgrade/872-2553-101-10.0.0_10.4.0-UDR-x86_64.iso'. The output includes metadata such as Date&amp;Time (2014-01-31 14:44:21), Volume ID, Part Number, Version (10.4.0), Disc Label (UDR), and Disc description. The final message states 'The media validation is complete, the result is: PASS' followed by 'CDROM is Valid' and a prompt 'PRESS ANY KEY TO RETURN TO THE PLATCFG MENU.'</p>

Step	Procedure	Result
24. <input type="checkbox"/>	<b>VM Console:</b> From the platcfg Main Menu, select each option, pressing the <b>Enter</b> after each selection.	 
25. <input type="checkbox"/>	<b>VM Console:</b> Verify that the Application release level matches the target release.  Press <b>Enter</b> .	 
26. <input type="checkbox"/>	<b>VM Console:</b> 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"/>	<b>VM Console:</b> 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"/>	<b>VM Console:</b> 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: &lt;admusr_password&gt;</pre>
29. <input type="checkbox"/>	<b>VM Console:</b> Output similar to that shown on the right appears 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"/>	<b>VM Console:</b> Verify successful upgrade.	<pre>\$ verifyUpgrade</pre> <p><b>NOTE:</b> This command should not return output on a healthy system.</p>
31. <input type="checkbox"/>	<b>VM Console:</b> Verify that the Application release level matches the target release.	<pre>[admusr@ pc9000724-no-a ~]\$ appRev  Install Time: Fri Feb 9 04:48:18 2019 Product Name: UDR Product Release: 12.5.1.0.0_17.7.0 Base Distro Product: TPD Base Distro Release: 7.6.1.0.0-88.55.0 Base Distro ISO: TPD.install-7.6.1.0.0_88.55.0-OracleLinux6.9- x86_64.iso ISO name: UDR-12.5.1.0.0_17.7.0-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>


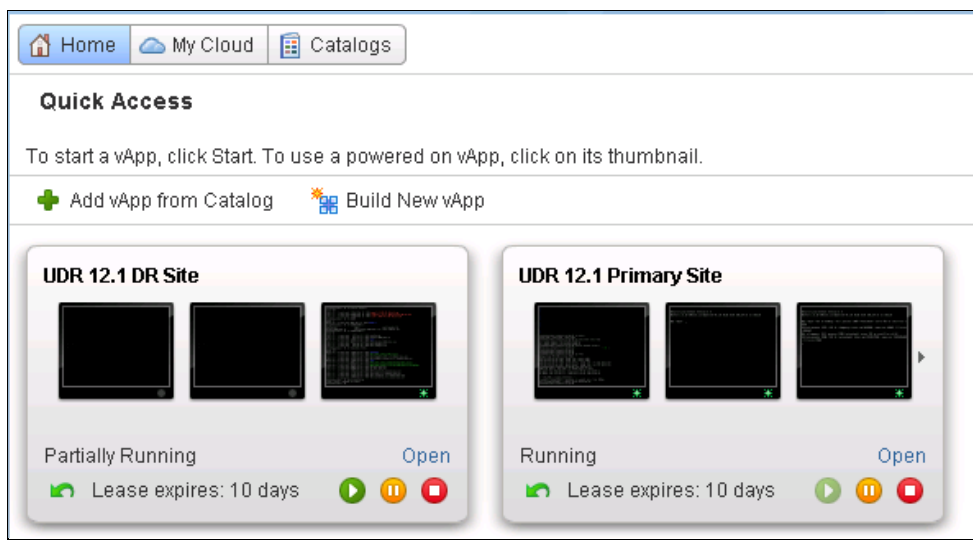
Step	Procedure	Result
34. <input type="checkbox"/>	<b>VM Console:</b> Reboot the server	Reboot the server: <pre>\$ sudo reboot</pre> Wait until the reboot completes and re-login with admusr credentials.
35. <input type="checkbox"/>	<b>VM Console:</b> Verify server health	Verify server health: <pre>\$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


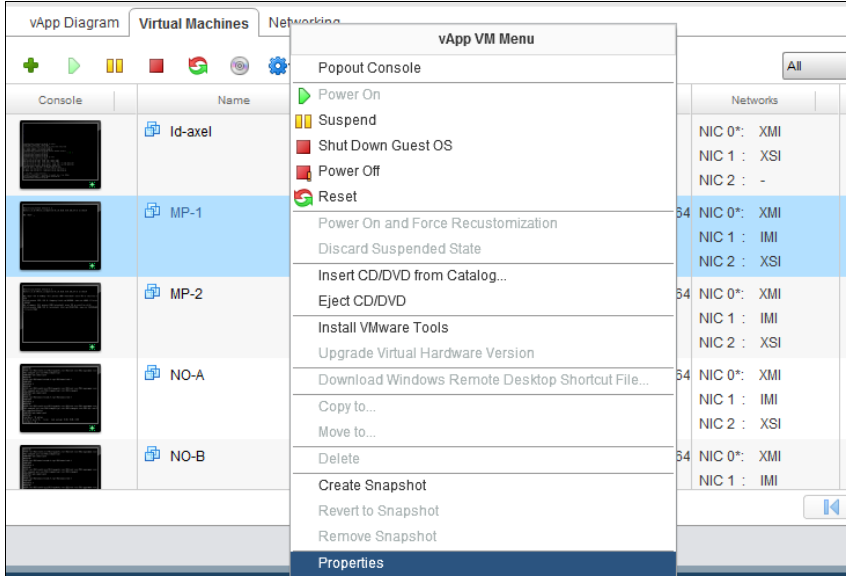
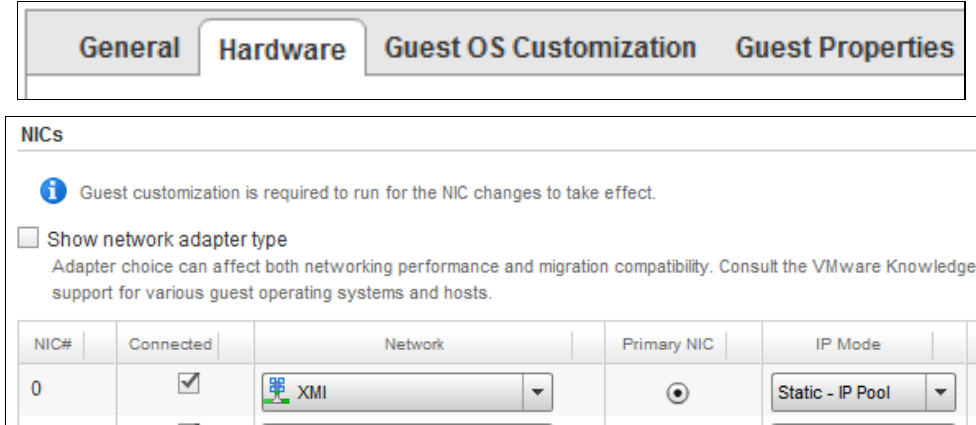
## C.7 CONFIGURE GUESTS NETWORK

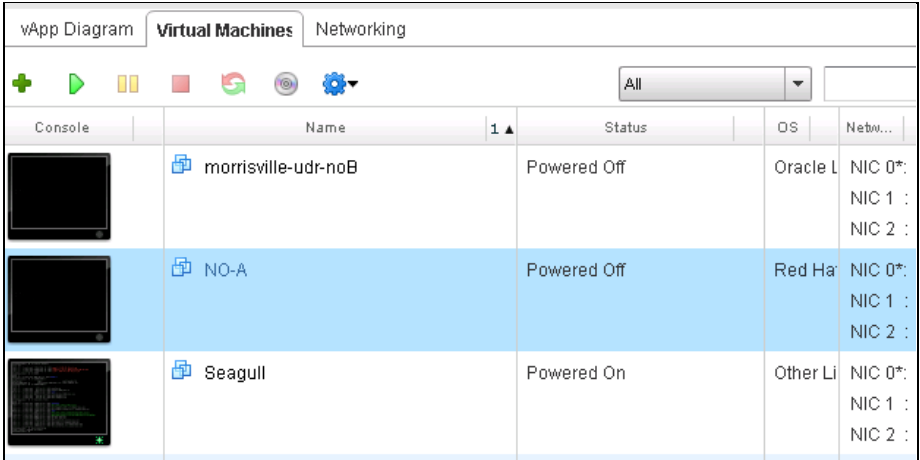
This procedure creates Oracle Communications User Data Repository virtual machines (guests) from ISO.

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by 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 two input fields labeled 'User name:' and 'Password:'. Below them is a blue 'Login' button.
2. <input type="checkbox"/>	<b>vCloud Director:</b> Select <b>Open</b> hyperlink for the Oracle Communication s User Data Repository vApp then procede to Step 5.	 The image shows the VMware vCloud Director Home page. At the top are tabs for '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. The first is titled 'UDR 12.1 DR Site' and shows three server icons; it is labeled 'Partially Running' with a green arrow icon and 'Lease expires: 10 days'. The second is titled 'UDR 12.1 Primary Site' and also shows three server icons; it is labeled 'Running' with a green arrow icon and 'Lease expires: 10 days'. Both thumbnails have an 'Open' button at the bottom right. <b>NOTE:</b> Current vApps are listed on the Home Page. If a new vApp is required continue with the next step.

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

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

## 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. Consult the latest documents from the vendor of your OpenStack distrobution.

### D.1 OPENSTACK IMAGE CREATION FROM OVA

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

#### Needed material:

- Oracle Communications User Data Repository OVAs

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by 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-12.5.1.0.0_17.7.0.ova
3. <input type="checkbox"/>	Untar this ova file	[root@pc12107008 ova]# tar xvf UDR-12.5.1.0.0_17.7.0.ova UDR-17_7_0.ovf UDR-17_7_0.mf UDR-17_7_0.vmdk
4. <input type="checkbox"/>	Convert this vmdk file to qcow2 file	[root@pc12107008 ova]# qemu-img convert -O qcow2 UDR-17_17_0.vmdk UDR-17_7_0.qcow2

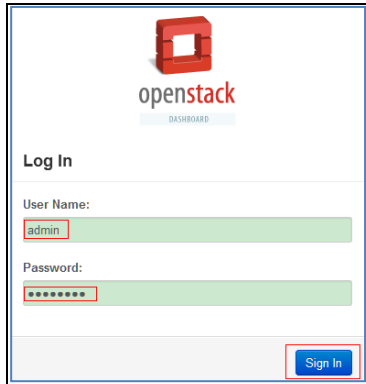
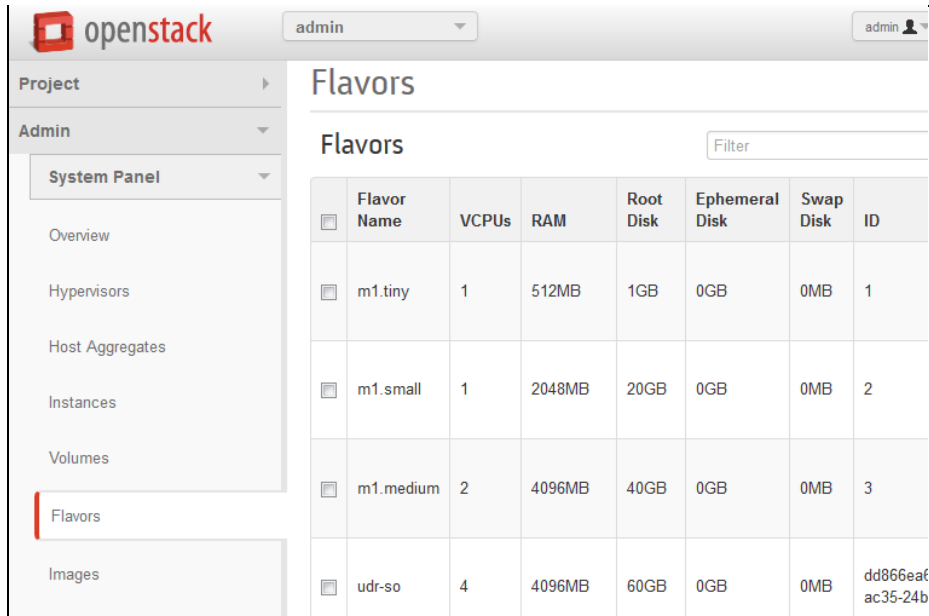
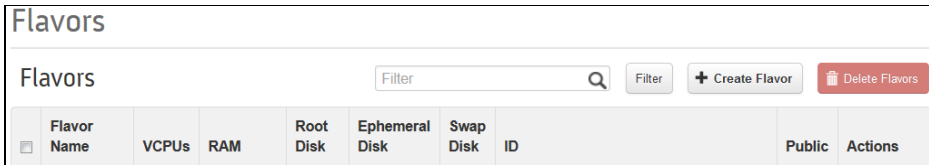
Step	Procedure	Result																																				
5. <input type="checkbox"/>	Import converted qcow2 file into OpenStack	<pre>[root@pcl2107008 ova]# source /root/keystonerc_admin [root@pcl2107008 ova(keystone_admin)]# time glance image-create --name UDR-17_7_0 --disk-format=qcow2 --container-format=bare -- visibility=public--          file= UDR-17_7_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>2019-02-9T06:56:51</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-17_7_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> <pre>real    0m26.267s user    0m2.435s sys     0m2.691s</pre>	Property	Value	checksum	81e7f682231b108e29053e9516ff91ac	container_format	bare	created_at	2019-02-9T06:56:51	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-17_7_0	owner	63efbafd70864562aa6440abfca60ca5	protected	False	size	3615227904	status	active	updated_at	2016-03-29T06:57:16	virtual_size	None
Property	Value																																					
checksum	81e7f682231b108e29053e9516ff91ac																																					
container_format	bare																																					
created_at	2019-02-9T06:56:51																																					
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-17_7_0																																					
owner	63efbafd70864562aa6440abfca60ca5																																					
protected	False																																					
size	3615227904																																					
status	active																																					
updated_at	2016-03-29T06:57:16																																					
virtual_size	None																																					
6. <input type="checkbox"/>	After image-create, this image could be seen from OpenStack GUI under <b>Project</b> → <b>Images</b>	<div><div><input type="text" value="q"/></div><div><div><div><div><input type="checkbox"/></div><div>Owner</div></div><div><div><div><div><input type="checkbox"/></div><div>admin</div></div><div>UDR-17_7</div></div><div><div>Type</div><div>Image</div></div><div><div>Status</div><div>Active</div></div><div><div>Visibility</div><div>Public</div></div><div><div>Protected</div><div>No</div></div><div><div>Disk Format</div><div>QCOW2</div></div><div><div>Size</div><div>4.06 GB</div></div></div></div></div><div><div>Create Image</div></div></div>																																				
THIS PROCEDURE HAS BEEN COMPLETED																																						

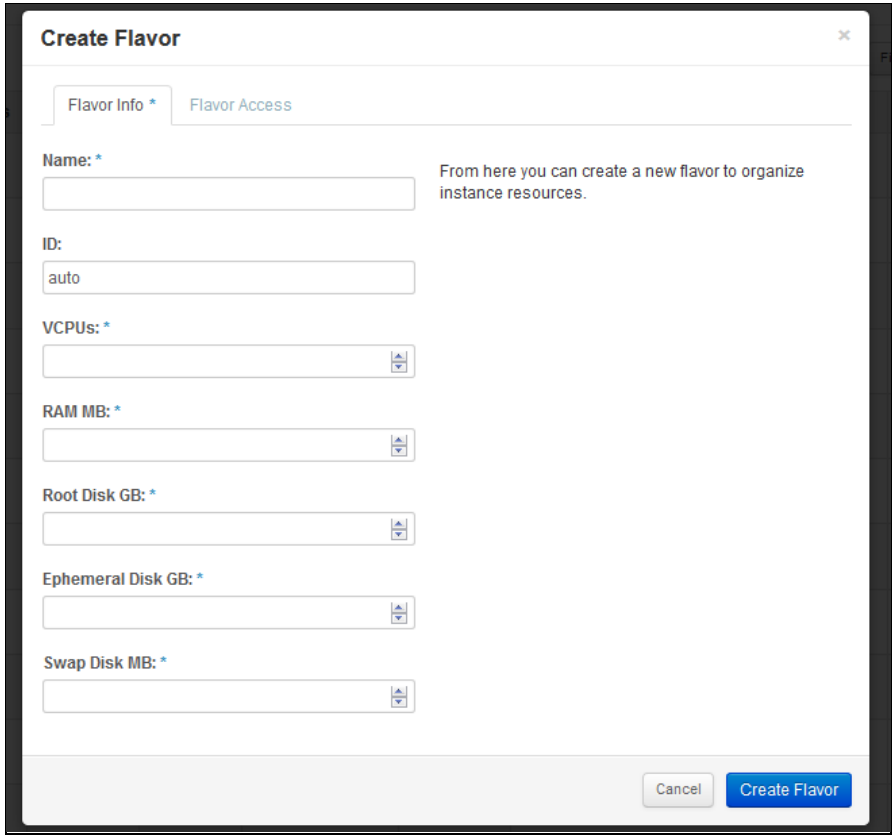
## D.2 CREATE RESOURCE PROFILES (FLAVORS)

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

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

### Procedure27: Create Resource Profiles (Flavors)

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

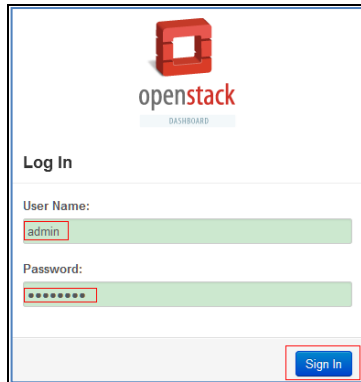
Step	Procedure	Result
4. <input type="checkbox"/>	<p>Enter Flavor Details using Appendix G as a guide *</p> <p>Name: udr-no</p> <p>ID: auto</p> <p>VCPUs: vCPUs*</p> <p>RAM: RAM*</p> <p>Root Disk: Storage*</p> <p>Ephemeral Disk: 0</p> <p>Swap Disk: 0</p> <p><b>NOTE:</b> UDR does not require Ephemeral or Swap Disk.</p> <p>Then click <b>Create Flavor</b>.</p>	 <p><b>Create Flavor</b></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


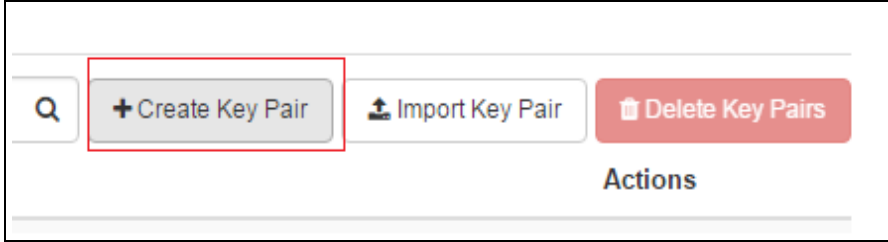
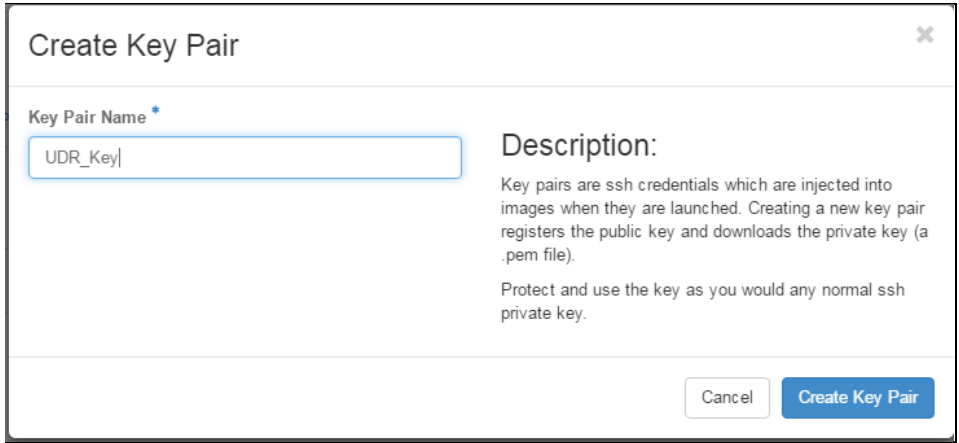
This procedure creates Key Pair to be used in VM creation.

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

#### Procedure28: Create Key Pair

Step	Procedure	Result
1. <input type="checkbox"/>	<p>Login to the OpenStack GUI</p> <p><b>NOTE:</b> 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: <b>Main Menu</b> → <b>Compute</b> → <b>Access &amp; Security</b> → <b>Key Pairs</b>	
3. <input type="checkbox"/>	Click <b>Create Key Pair</b> .	
4. <input type="checkbox"/>	Enter Key Pair Name Then click <b>Create Key Pair</b> .	
5. <input type="checkbox"/>	The Key pair automatically get downloaded to your computer.	The generated Key Pair gets downloaded automatically on creation. This is used for SSH Access to VM Instances.
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

## D.4 UPDATE UDR STACK YAML FILE

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

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by 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 <a href="#">UDR Heat Templates</a> .
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: <b>UDR-12.5.1.0.0_17.7.0</b> </pre>

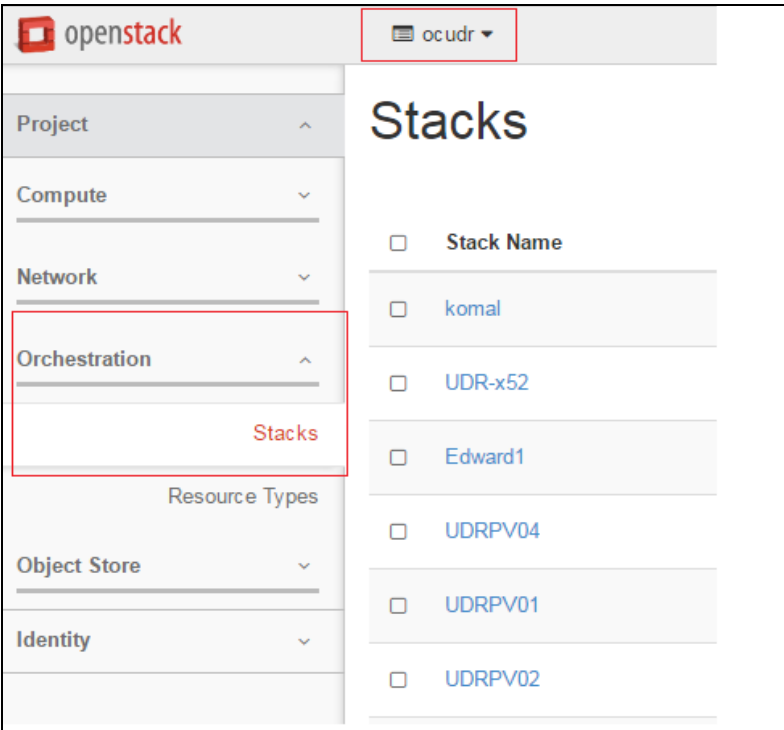
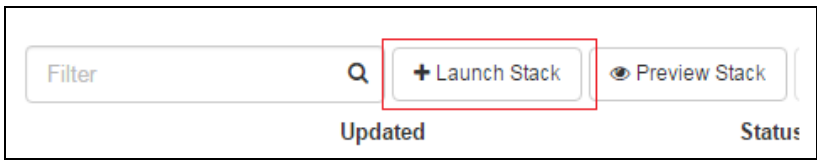
Step	Procedure	Result
3. <input type="checkbox"/>	Update the NTP Server IP	Change the default value. label: NTP server description: IP address of the NTP server used for UDR VM syncing time default: 192.168.56.180
4. <input type="checkbox"/>	Update the UDR flavor name if different	Change the default 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
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

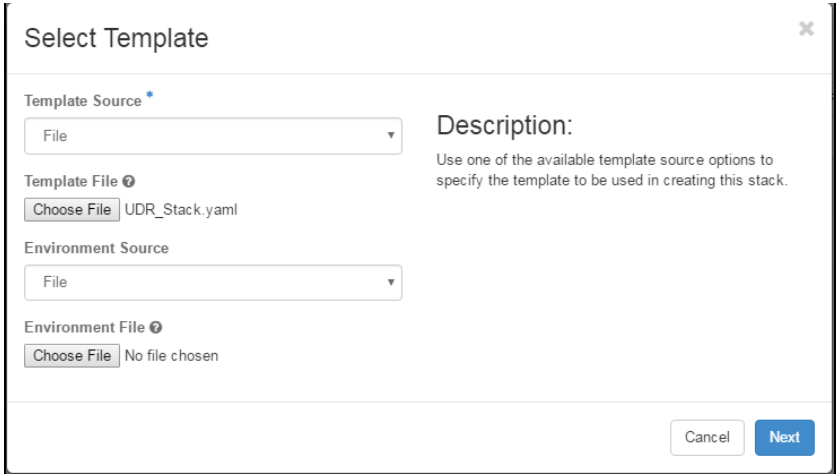
## D.5 CREATE VM INSTANCES USING YAML FILE

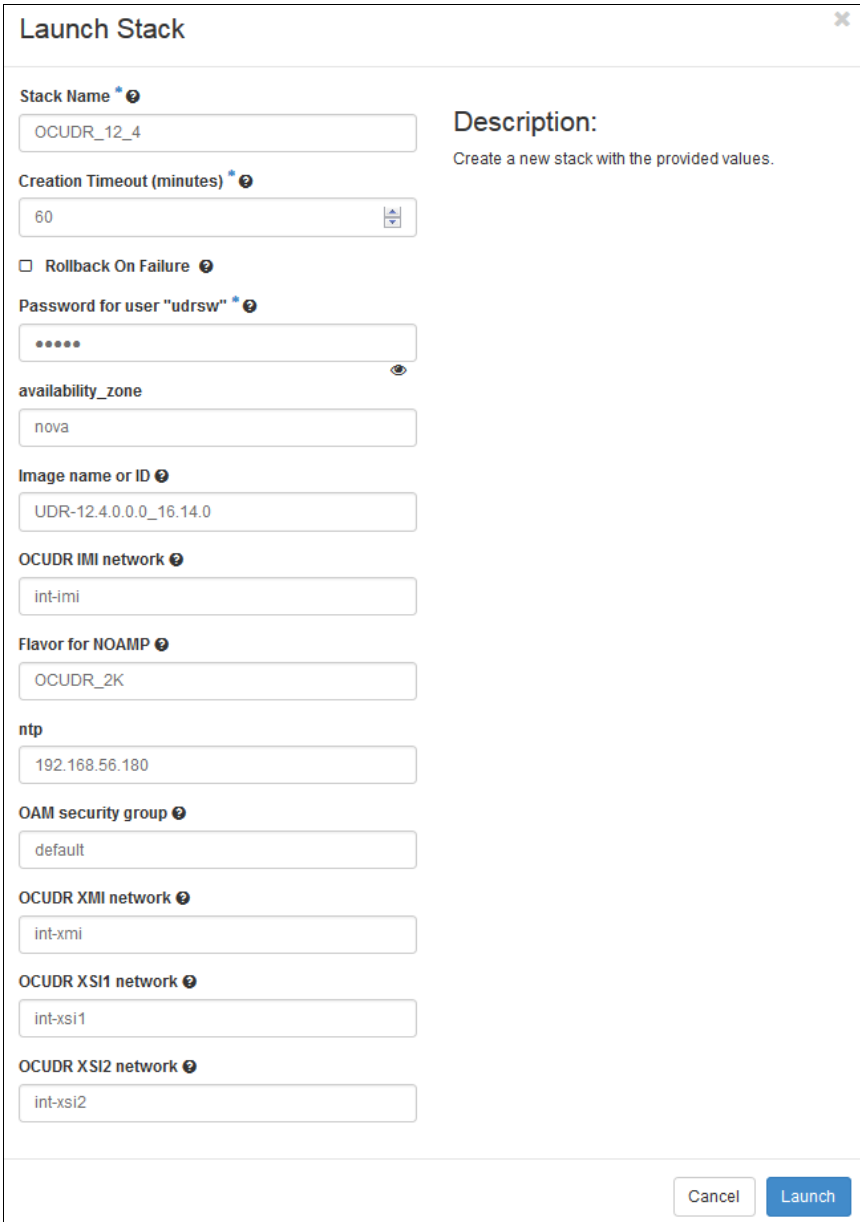
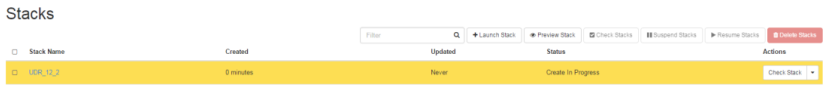
This procedure creates and configure all VM instances needed for UDR configuration.

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

### Procedure30: Create VM Instances Using Yaml File

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. Navigate to <b>Project</b> → <b>Orchestration</b> → <b>Stacks</b> to show all Stacks created under this project.	 <p>The screenshot shows the OpenStack Project page for 'oc udr'. The left sidebar has 'Orchestration' selected, and the 'Stacks' sub-tab is active. The main area displays a list of stacks: Stack Name, komal, UDR-x52, Edward1, UDRPV04, UDRPV01, and UDRPV02.</p>
3. <input type="checkbox"/>	Click <b>Launch Stack</b>	 <p>The screenshot shows the bottom of the stack list. A '+ Launch Stack' button is highlighted with a red box. Other buttons include 'Filter', 'Preview Stack', 'Updated', and 'Status'.</p>

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

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 extends the storage capacity of a VM instance using filesystem utilities.

**Important:** The steps in this procedure only apply to servers where storage demands exceed the default size of 60GB. The numbers here vary depending on the unique needs of each deployment and the 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 must be performed only under these conditions:

- UDR Instance with resource profile other than lab profile

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by 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: &lt;root_password&gt;</pre>
3. <input type="checkbox"/>	Use fdisk to create a partition on /dev/vda  <b>NOTE:</b> 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: &lt;root_password&gt;</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-logs_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>

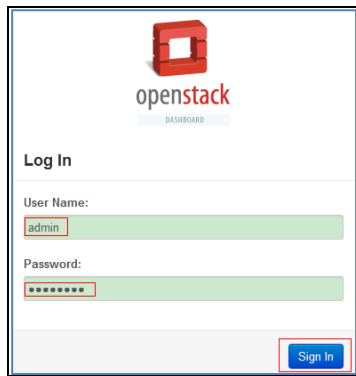
Step	Procedure	Result
9. <input type="checkbox"/>	Extend logical volumes for 7K or 12.5K profile	<pre># lvextend -L +115343360K /dev/vgroot/run_db # lvextend -L +104857600K /dev/vgroot/filemgmt # lvextend -L +6291456K /dev/vgroot/logs_process # lvextend -L +10485760K /dev/vgroot/apw_tmp  # resize2fs /dev/mapper/vgroot-filemgmt # resize2fs /dev/mapper/vgroot-run_db # resize2fs /dev/mapper/vgroot-logs_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>
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

## D.7 VM INSTANCE NETWORK CONFIGURATION

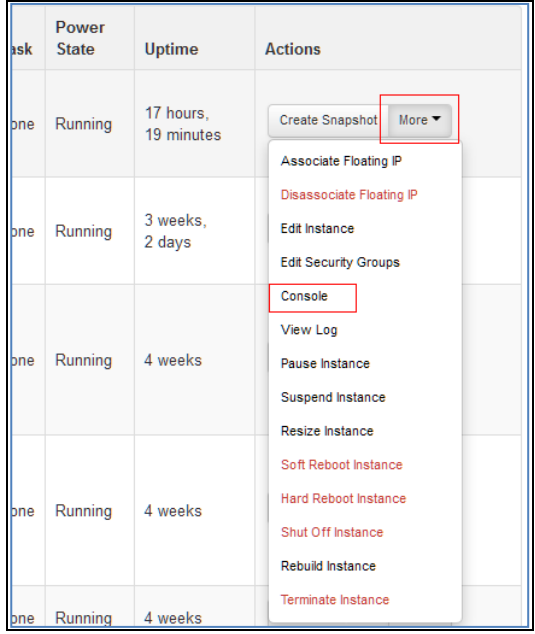
This procedure configures network interfaces for VM instance.

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

### Procedure32: VM Instance Network Configuration

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



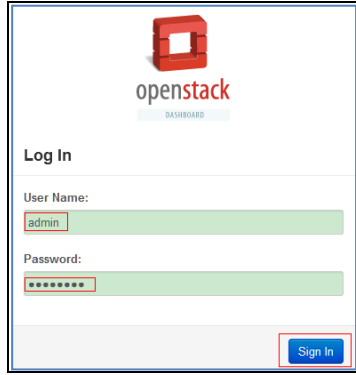
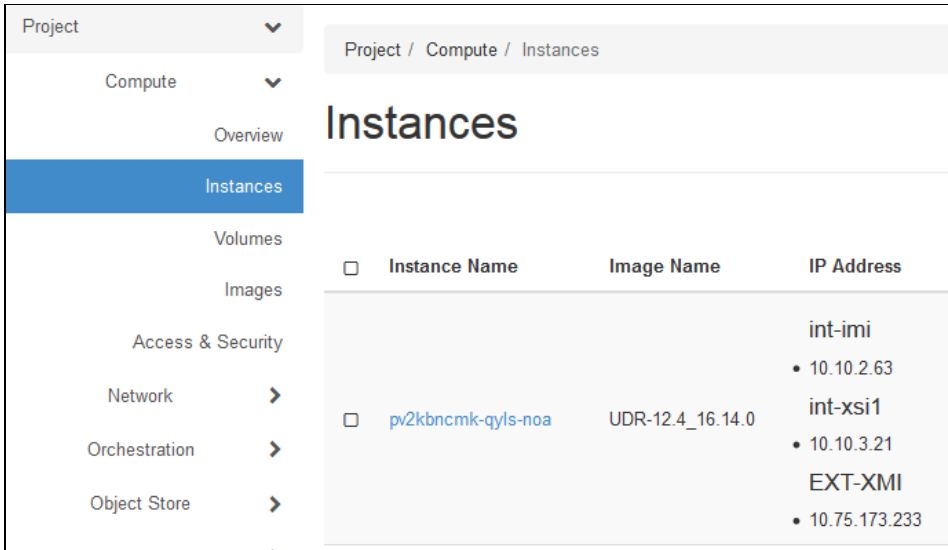
Step	Procedure	Result
2. <input type="checkbox"/>	Login VM instance from <b>Project → Compute → Instances → More → Console</b>	
3. <input type="checkbox"/>	Login to the VM with root user	<pre>hostnameea0c2d9aa8bce login: root password: &lt;root_password&gt;</pre>
4. <input type="checkbox"/>	Use netAdm to add device and set ip address <b>(ISO installs only)</b>	<p><b>NOTE:</b> 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=&lt;netmask&gt; --address=&lt;ip_address&gt; 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>
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

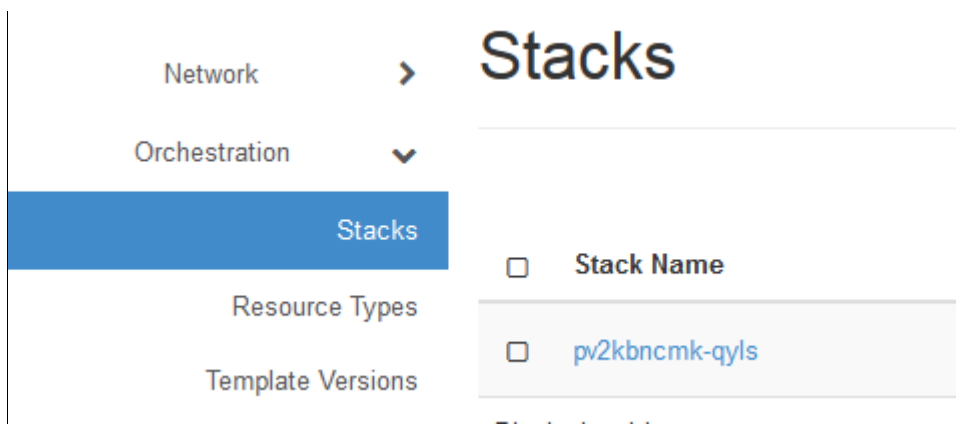
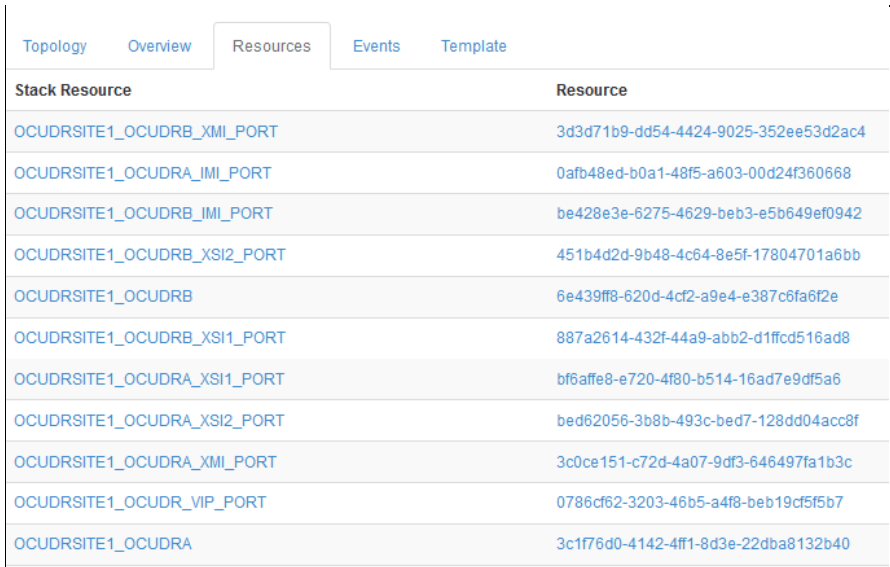
## D.8 VIRTUAL IP ADDRESS ASSIGNMENT

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

Mark (Ö) each step as it is completed. Boxes have been provided for this purpose by 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 <b>Project</b> → <b>Compute</b> → <b>Instances</b> 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 &amp; 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 • 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 • 10.10.3.21</td> </tr> <tr> <td></td> <td></td> <td>EXT-XMI • 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												
		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												
3. <input type="checkbox"/>	Find the UDR instances	Record the IP addresses of the UDR instances primary XMI network. UDR A: _____ UDR B: _____												

Step	Procedure	Result																																																																	
4. <input type="checkbox"/>	<div>1. Navigate to <b>Project → Orchestration → Stacks</b></div> <div>2. Select the Stack Name to see more detail</div>																																																																		
5. <input type="checkbox"/>	Select the <b>Resource</b> tab, find the VIP PORT for UDR servers.	 <table><tr><th>Topology</th><th>Overview</th><th>Resources</th><th>Events</th><th>Template</th></tr><tr><th colspan="2">Stack Resource</th><th colspan="3">Resource</th></tr><tr><td colspan="2">OCUDRSITE1_OCUDRB_XML_PORT</td><td colspan="3">3d3d71b9-dd54-4424-9025-352ee53d2ac4</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDRA_IMI_PORT</td><td colspan="3">0afb48ed-b0a1-48f5-a603-00d24f360668</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDRB_IMI_PORT</td><td colspan="3">be428e3e-6275-4629-beb3-e5b649ef0942</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDRB_XSI2_PORT</td><td colspan="3">451b4d2d-9b48-4c64-8e5f-17804701a6bb</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDRB</td><td colspan="3">6e439ff8-620d-4cf2-a9e4-e387c6fa6f2e</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDRB_XSI1_PORT</td><td colspan="3">887a2614-432f-44a9-abb2-d1ffc516ad8</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDRA_XSI1_PORT</td><td colspan="3">bf6affe8-e720-4f80-b514-16ad7e9df5a6</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDRA_XSI2_PORT</td><td colspan="3">bed62056-3b8b-493c-bed7-128dd04acc8f</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDRA_XML_PORT</td><td colspan="3">3c0ce151-c72d-4a07-9df3-646497fa1b3c</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDR_VIP_PORT</td><td colspan="3">0786cf62-3203-46b5-a4f8-beb19cf5f5b7</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDRA</td><td colspan="3">3c1f76d0-4142-4ff1-8d3e-22dba8132b40</td></tr></table>	Topology	Overview	Resources	Events	Template	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		6e439ff8-620d-4cf2-a9e4-e387c6fa6f2e			OCUDRSITE1_OCUDRB_XSI1_PORT		887a2614-432f-44a9-abb2-d1ffc516ad8			OCUDRSITE1_OCUDRA_XSI1_PORT		bf6affe8-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		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_XMI_PORT</td><td>3d3d71b9-dd54-4424-9025-352ee53d2ac4</td></tr><tr><td>OCUDRSITE1_OCUDRA_XMI_PORT</td><td>0afb48ed-b0a1-48f5-a603-00d24f360668</td></tr><tr><td>OCUDRSITE1_OCUDRB_XMI_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>6e439ff8-620d-4cf2-a9e4-e387c6fa8f2e</td></tr><tr><td>OCUDRSITE1_OCUDRB_XSI1_PORT</td><td>887a2614-432f-44a9-abb2-d1ffc516ad8</td></tr><tr><td>OCUDRSITE1_OCUDRA_XSI1_PORT</td><td>bf6affe8-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_XMI_PORT</td><td>3c0ce151-c72d-4a07-9df3-646497fa1b3c</td></tr><tr><td>OCUDRSITE1_OCUDR_VIP_PORT</td><td>0786cf62-3203-46b5-a4f8-beb19df5f5b7</td></tr><tr><td>OCUDRSITE1_OCUDRA</td><td>3c1f76d0-4142-4ff1-8d3e-22dba8132b40</td></tr></tbody></table></div>	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-e387c6fa8f2e	OCUDRSITE1_OCUDRB_XSI1_PORT	887a2614-432f-44a9-abb2-d1ffc516ad8	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-beb19df5f5b7	OCUDRSITE1_OCUDRA	3c1f76d0-4142-4ff1-8d3e-22dba8132b40
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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"/>	<b>OpenStack Controller node:</b> 1. Access the command prompt. 2. Log into the controller node as a privileged user.	<pre>login as: &lt;usr_name&gt; root@10.250.xx.yy's password: &lt;usr_password&gt; Last login: Mon Jul 30 10:33:19 2012 from 10.25.80.199 [root@control01]#</pre>																								
9. <input type="checkbox"/>	<b>OpenStack Controller node:</b> Initialize environment variables	<pre>controller ~]# source keystone_rc_udrsw</pre>																								

Step	Procedure	Result
10. <input type="checkbox"/>	<b>OpenStack Controller node:</b> Assign VIP by Port IDs	Assign the 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"/>	<b>OpenStack Controller node:</b> Repeat if needed	Repeat Step 10 as required for any other server pairs requiring a VIP.
12. <input type="checkbox"/>	<b>OpenStack Controller node:</b> 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.
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

Figure 3 Example port-show output.

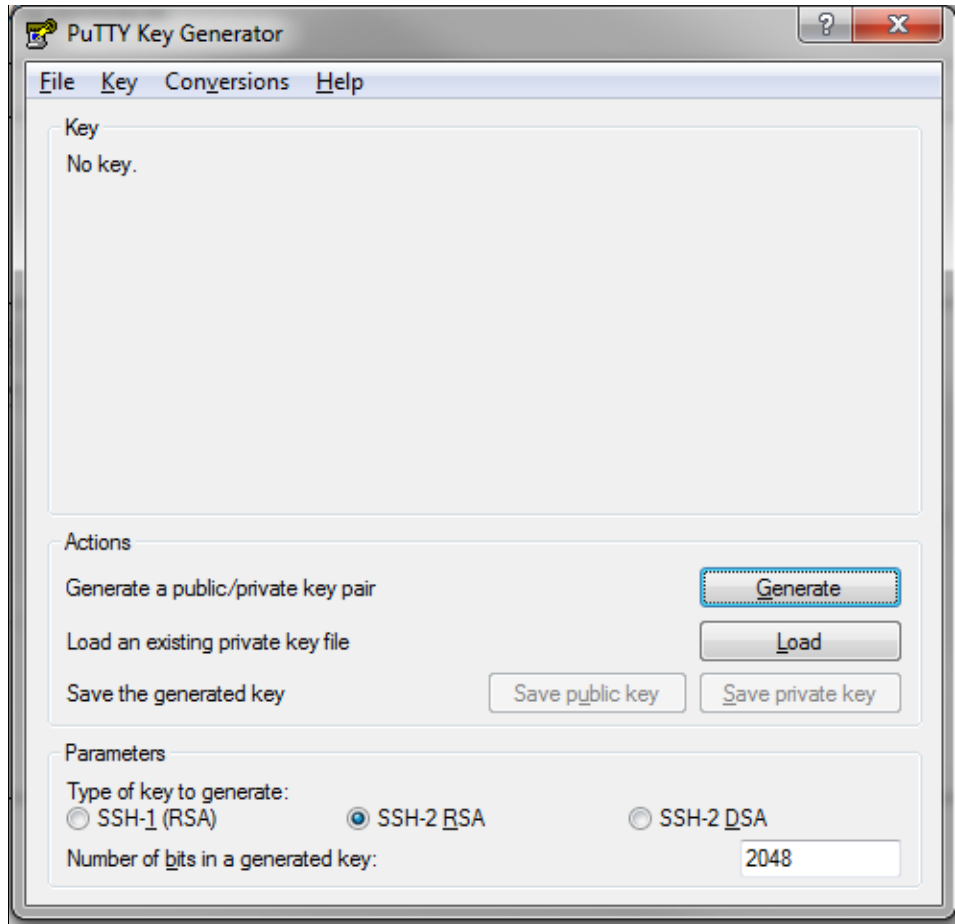
Field	Value
admin_state_up	True
allowed_address_pairs	{"ip_address": "10.240.221.36", "mac_address": "fa:16:3e:ce:18:2a"}
binding:host_id	compute05.labafrica
binding:profile	{}
binding:vif_details	{"port_filter": true, "ovs_hybrid_plug": true}
binding:vif_type	ovs
binding:vnictype	normal
device_id	947457b4-46e8-43e7-8f14-79c816388e3d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

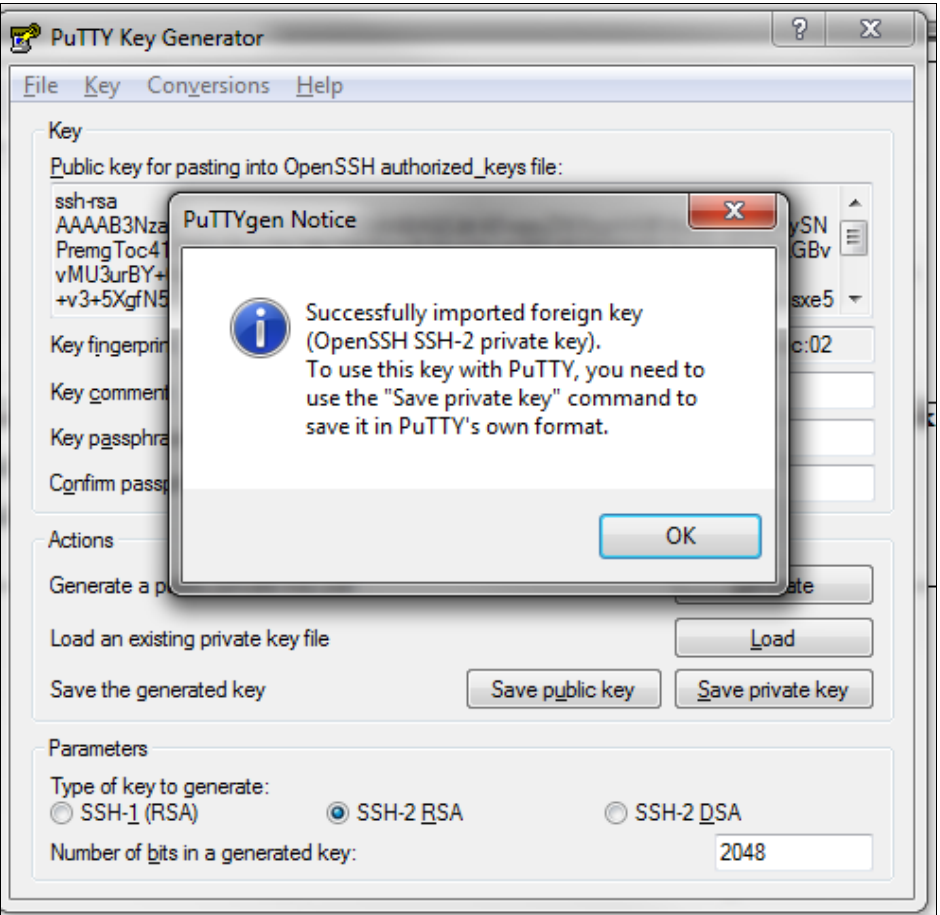
## D.9 GENERATE PRIVATE KEY FOR SSH ACCESS

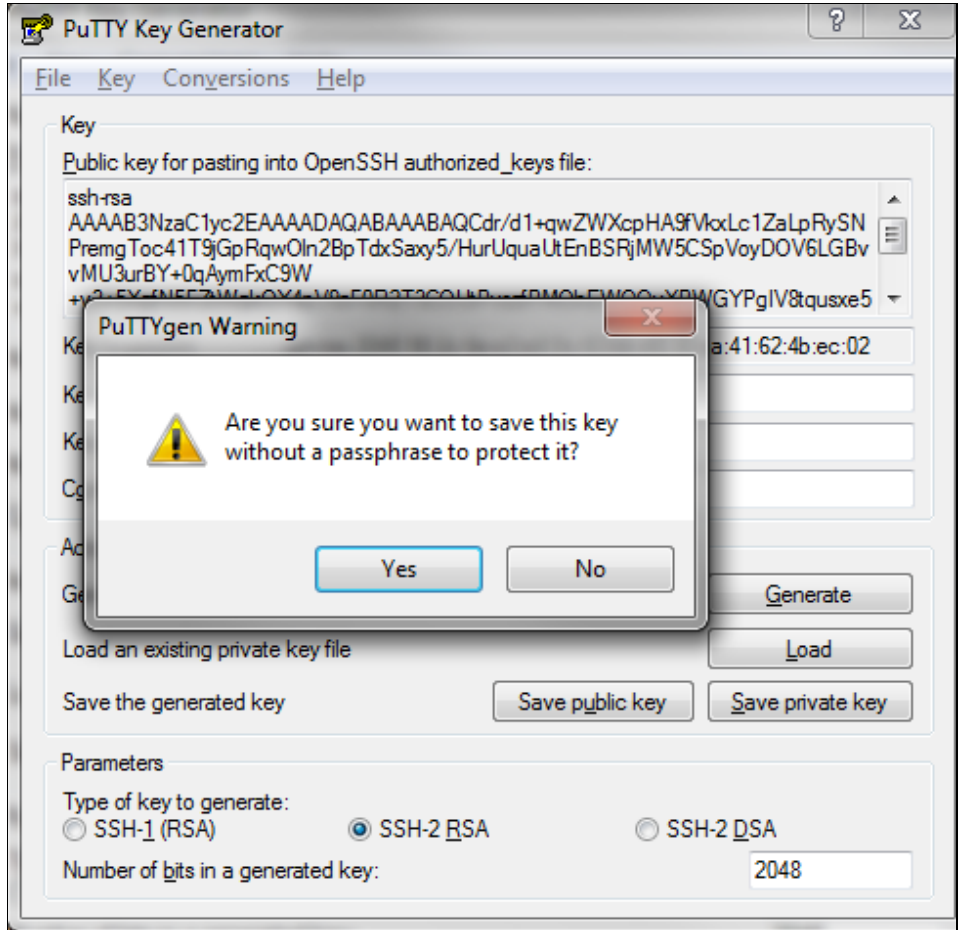
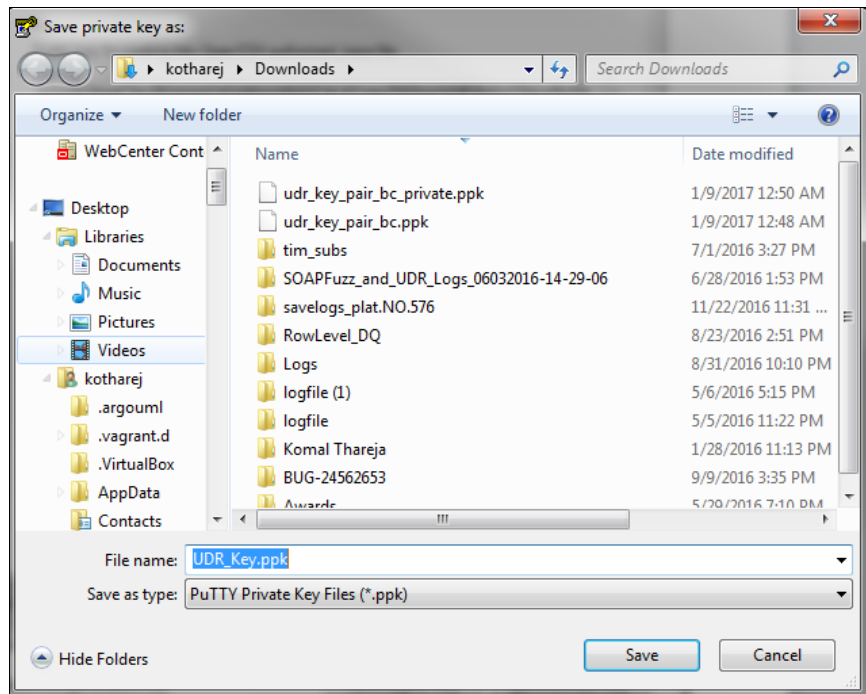
This procedure is used to generate Private Key to be used for accessing VM instance via SSH.

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by 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 <b>OK</b></p>	

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



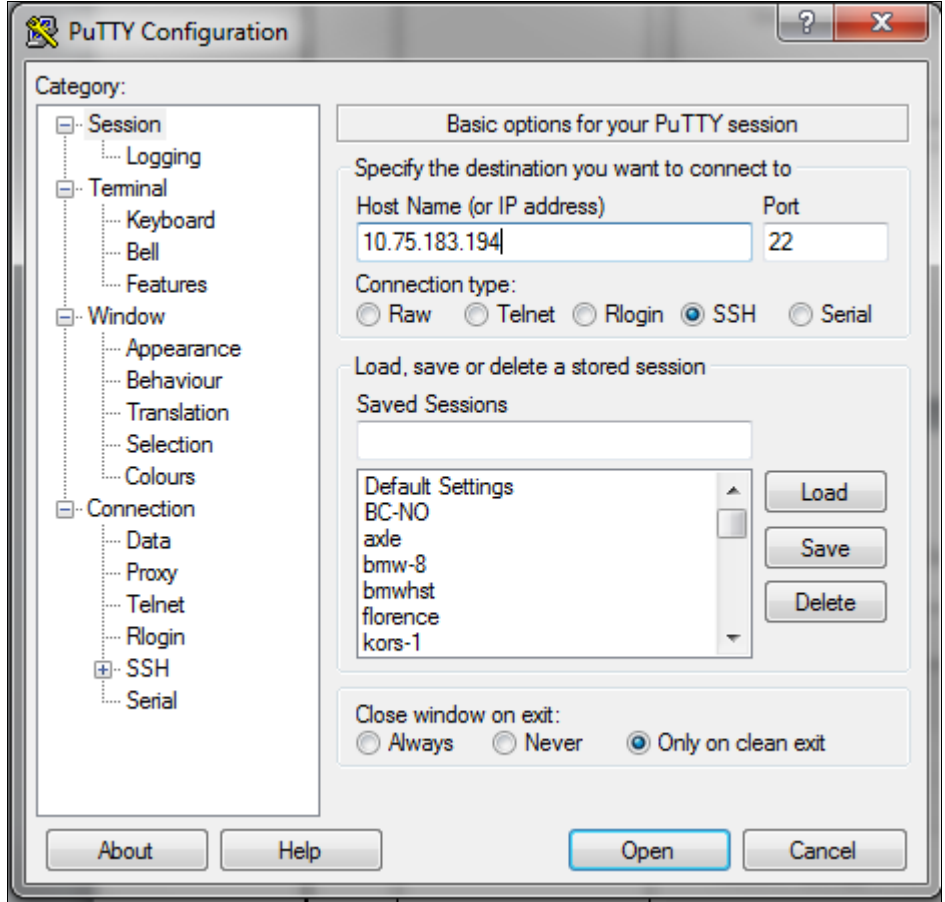
## D.10 ACCESSING VM INSTANCE USING SSH

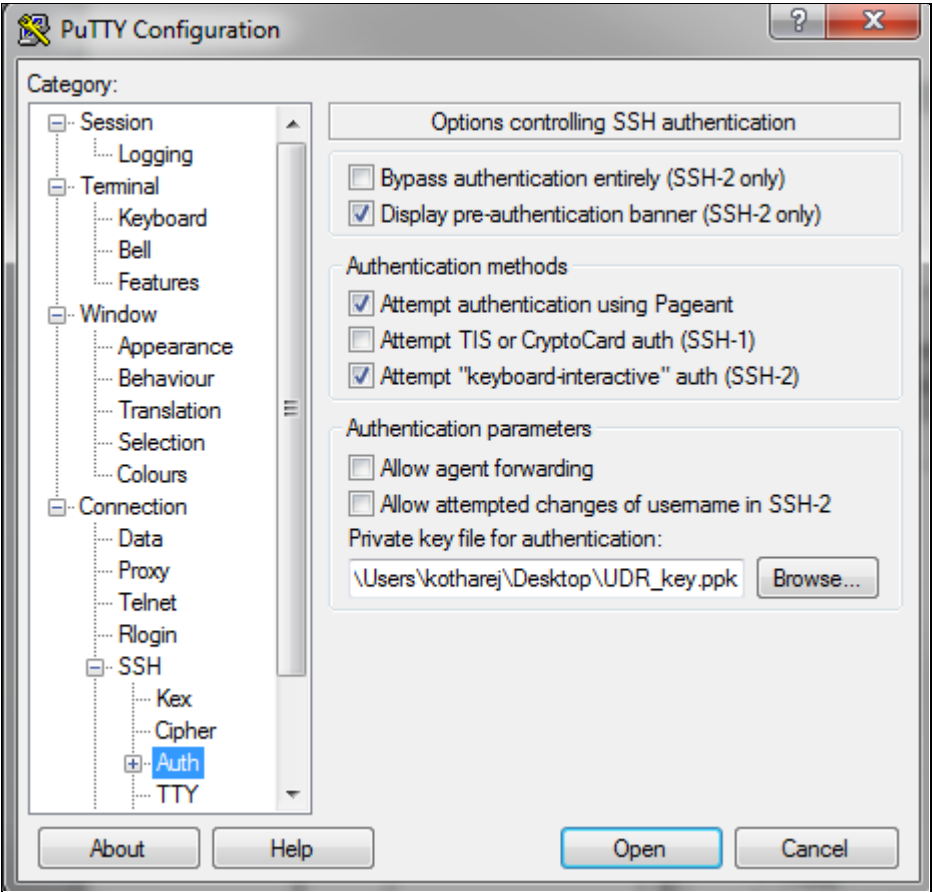
This procedure is used to access VM instance via SSH. This procedure assumes following:

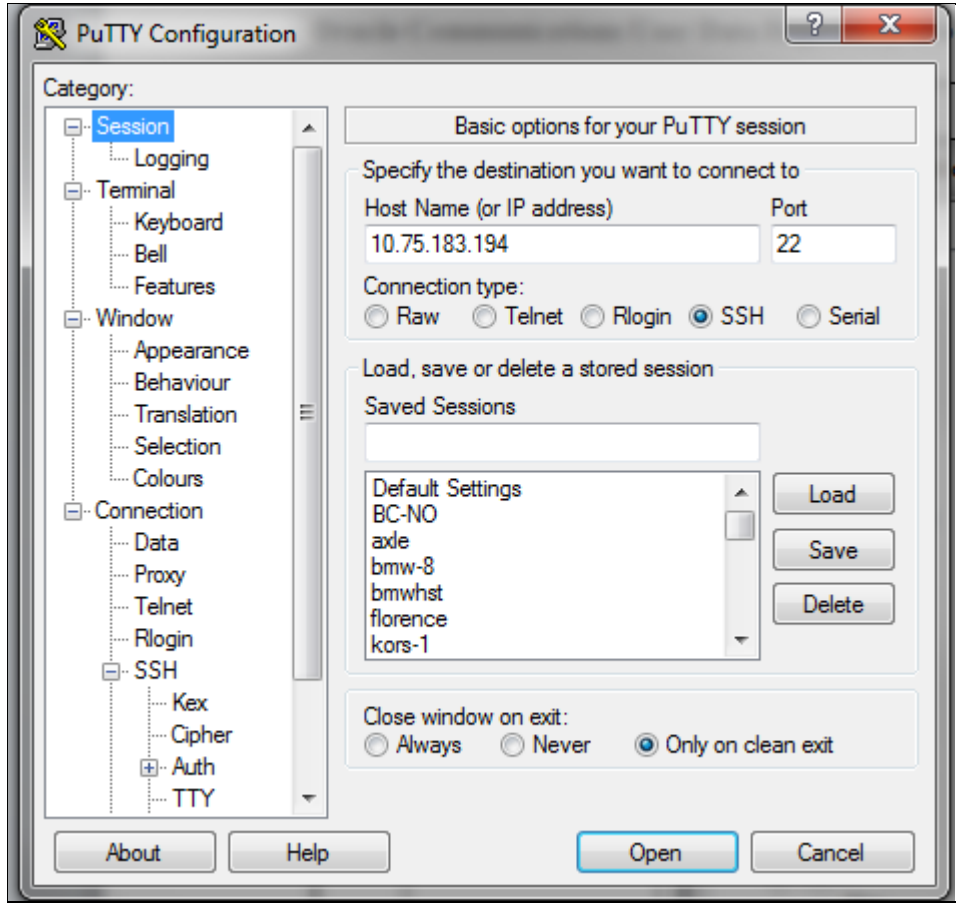
- Network configuration on VM instance is complete or floating IPs have been associated with VM instance
- Private Key has been generated as per D.9 Generate Private Key for SSH Access

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by 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 <b>SSH → Auth</b></p> <p>Select the *.ppk file generated by D.9 Generate Private Key for SSH Access</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>	 <p style="text-align: center;"><b>THIS PROCEDURE HAS BEEN COMPLETED</b></p>

## D.11 CLOBBER THE DATABASE ON VM INSTANCE

This procedure clobbers the database on VM instance.

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by 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: &lt;root_password&gt;</code>

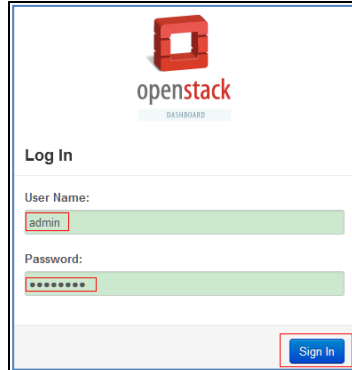
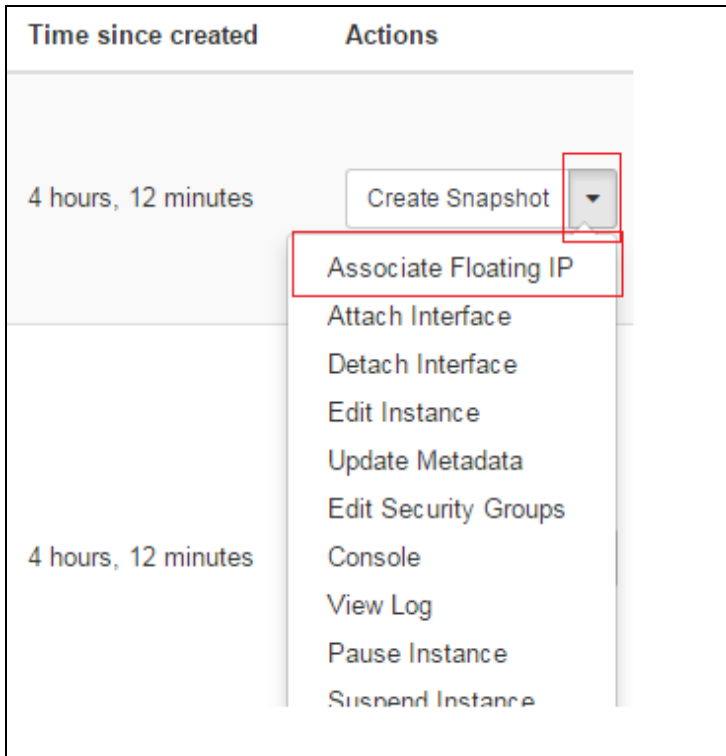
Step	Procedure	Result
3. <input type="checkbox"/>	Run prod.clobber on the created instances	<pre> [root@hostname2c6772f9819e ~]# prod.clobber ...prod.clobber (RUNID=00)... ...getting current state... Current state: X (product under procmgr)  WARNING: ABOUT TO DESTROY ALL PRODUCT DISK FILES !!!!  Are you sure? [enter Y or N] y ...setting state 0... ...waiting for state 0... Current state is 0 ...taking down processes... processes down ...removing existing IPC resources... + md_ipcrm ... 852 resources ...clobbering runenv files... + rm -rf /var/TRILC/run/db/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_  + lgt -liddtoXML -DataDictPart &gt; /var/TRILC/run/db/DataDictPart/20160527.055813.5460.DataDictPart.tmp + edd.op --install --must-eq-current /var/TRILC/run/db/DataDictPart/20160527.055813.5460.DataDictPart.xml created: 20160527.055813.5460.DataDictPart.xml ...starting procmgr ... [root@hostname2c6772f9819e ~]# pl \$ pid procTag      \$1      stat  spaumfine      N cmd Z 29470 cnha        Up      05/27 01:59:29 1 cnha Z 29471 cnsoapa      Up      05/27 01:59:29 1 cnsoapa Z 29473 idbsvc       Up      05/27 01:59:29 1 idbsvc -H10 -HE204 -D40 -DE820 -U1 -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=00)... ...getting current state... Current state: 2 (product under procmgr) ...setting state X... ...waiting for state [X00]... Current state is X [root@hostname2c6772f9819e ~]# pl \$ pid procTag      \$1      stat  spaumfine      N cmd X 29586 lmysqld      Up      05/27 02:00:25 1 lmysqld.start -force X 29587 ProcWatch    Up      05/27 02:00:25 1 ProcWatch -L X 29589 apuSoapServer Up      05/27 02:00:25 1 tCH00SIGCHK=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 1.3.6.1.4.1.323.5.3.32.1 X 29471 cnsoapa      Up      05/27 01:59:29 1 cnsoapa 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 -U1 -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 nkdbhooks     Up      05/27 02:00:25 1 nkdbhooks X 29601 oanpAgent     Up      05/27 02:00:25 1 oanpAgent 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 vipmgr       Up      05/27 02:00:25 1 vipmgr </pre>
THIS PROCEDURE HAS BEEN COMPLETED		

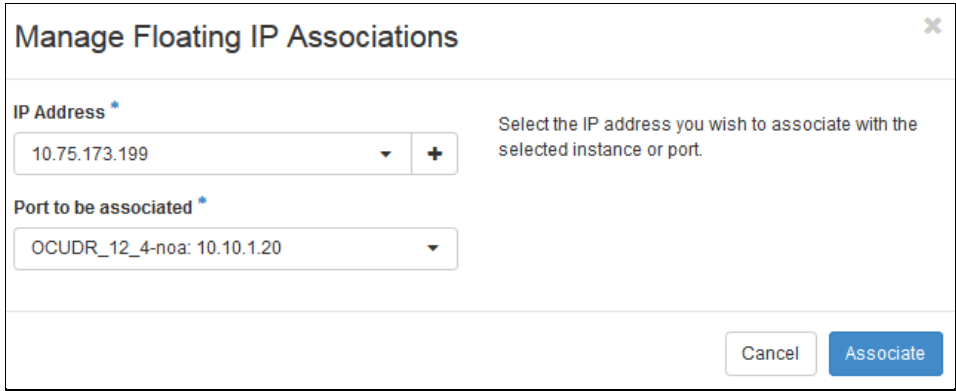
## D.12 ASSOCIATING FLOATING IPS

This procedure associates Floating IP to VM instance.

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

### Procedure37: Associate Floating IP

Step	Procedure	Result
1. <input type="checkbox"/>	Login to the OpenStack GUI	
2. <input type="checkbox"/>	Login to the VM instance by navigating to <b>Project → Instances → More → Associate Floating IP</b>	

Step	Procedure	Result
3. <input type="checkbox"/>	Select the IP Addresss and Port to be associated  Click <b>Associate</b>	
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 updated 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 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 is not possible.

**Example Network Element XML file:**

Example NOAMP Network Element XML	Example SOAM Network Element XML
<pre> &lt;?xml version="1.0"?&gt; &lt;networkelement&gt;   &lt;name&gt;NO_UDR_NE&lt;/name&gt;   &lt;networks&gt;     &lt;network&gt;       &lt;name&gt;XMI&lt;/name&gt;       &lt;vlanId&gt;3&lt;/vlanId&gt;       &lt;ip&gt;10.2.0.0&lt;/ip&gt;       &lt;mask&gt;255.255.255.0&lt;/mask&gt;       &lt;gateway&gt;10.2.0.1&lt;/gateway&gt;       &lt;isDefault&gt;true&lt;/isDefault&gt;     &lt;/network&gt;     &lt;network&gt;       &lt;name&gt;IMI&lt;/name&gt;       &lt;vlanId&gt;4&lt;/vlanId&gt;       &lt;ip&gt;10.3.0.0&lt;/ip&gt;       &lt;mask&gt;255.255.255.0&lt;/mask&gt;       &lt;nonRoutable&gt;true&lt;/nonRoutable&gt;     &lt;/network&gt;   &lt;/networks&gt; &lt;/networkelement&gt; </pre>	<pre> &lt;?xml version="1.0"?&gt; &lt;networkelement&gt;   &lt;name&gt;SO_UDR_NE&lt;/name&gt;   &lt;networks&gt;     &lt;network&gt;       &lt;name&gt;XMI&lt;/name&gt;       &lt;vlanId&gt;3&lt;/vlanId&gt;       &lt;ip&gt;10.2.0.0&lt;/ip&gt;       &lt;mask&gt;255.255.255.0&lt;/mask&gt;       &lt;gateway&gt;10.2.0.1&lt;/gateway&gt;       &lt;isDefault&gt;true&lt;/isDefault&gt;     &lt;/network&gt;     &lt;network&gt;       &lt;name&gt;IMI&lt;/name&gt;       &lt;vlanId&gt;4&lt;/vlanId&gt;       &lt;ip&gt;10.3.0.0&lt;/ip&gt;       &lt;mask&gt;255.255.255.0&lt;/mask&gt;       &lt;nonRoutable&gt;true&lt;/nonRoutable&gt;     &lt;/network&gt;   &lt;/networks&gt; &lt;/networkelement&gt; </pre>

**NOTE:** Do not include the XSI networks 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 in the GUI during server configuration. Figure 4 is an example of a server hardware profile XML file stored in the `/var/TKLC/appworks/profiles` directory.

**Figure 4: 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	vEIR	vMNP	vFABR	Lab	vEIR	vMNP	vFABR	Lab	vEIR	vMNP	vFABR
UDR	Network Operation, Administration, Maintenance, and Provisioning	4	14	28	56	6	64	128	256	60	400	800	800

### NOTES:

- Lab numbers are for demonstration of functionality only and can only support 100/s SOAP provisioning with 2k/s traffic.
- 1:1vCPU to CPU ratio based on Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
- vMNP flavor must be used for Signaling Security Application(For vSTP and DSA).

## 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 OAM 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 values a listed)								

## 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.

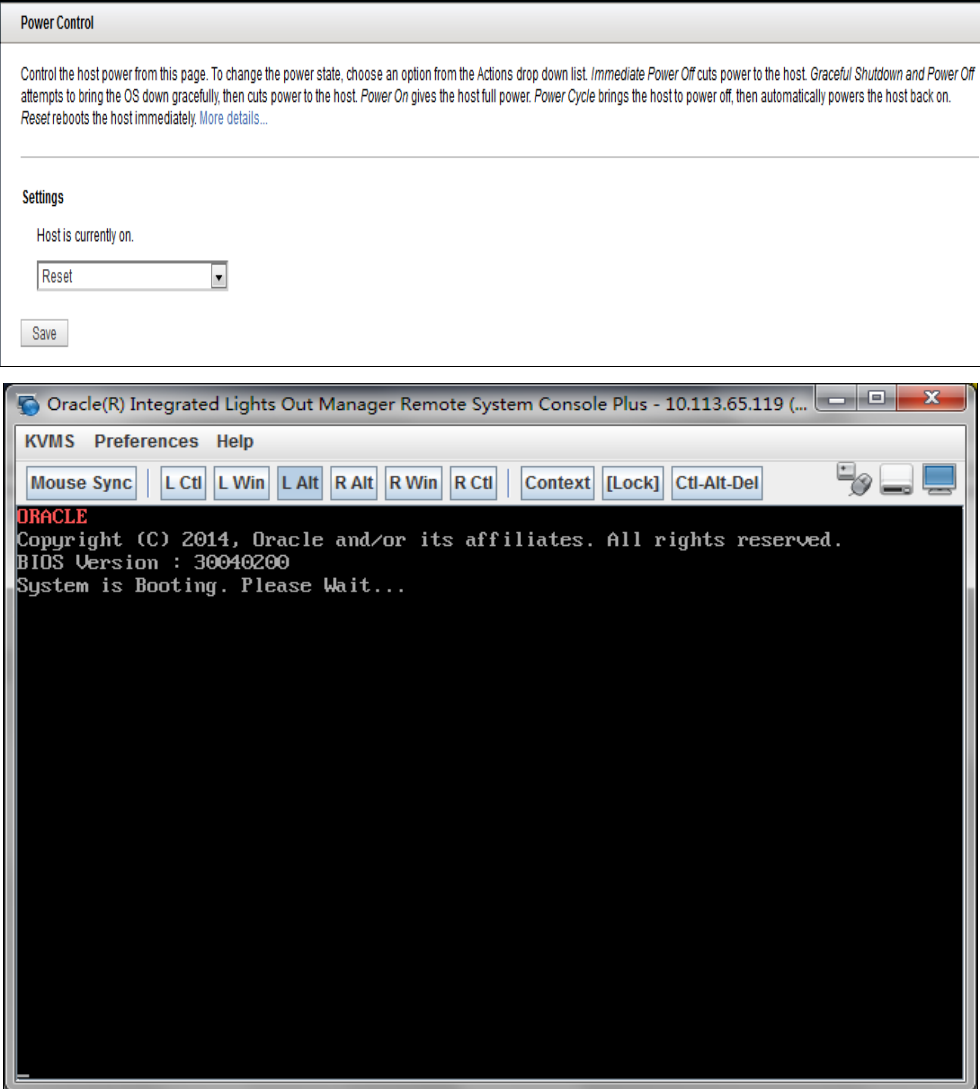
**NOTE:**


- 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.

Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

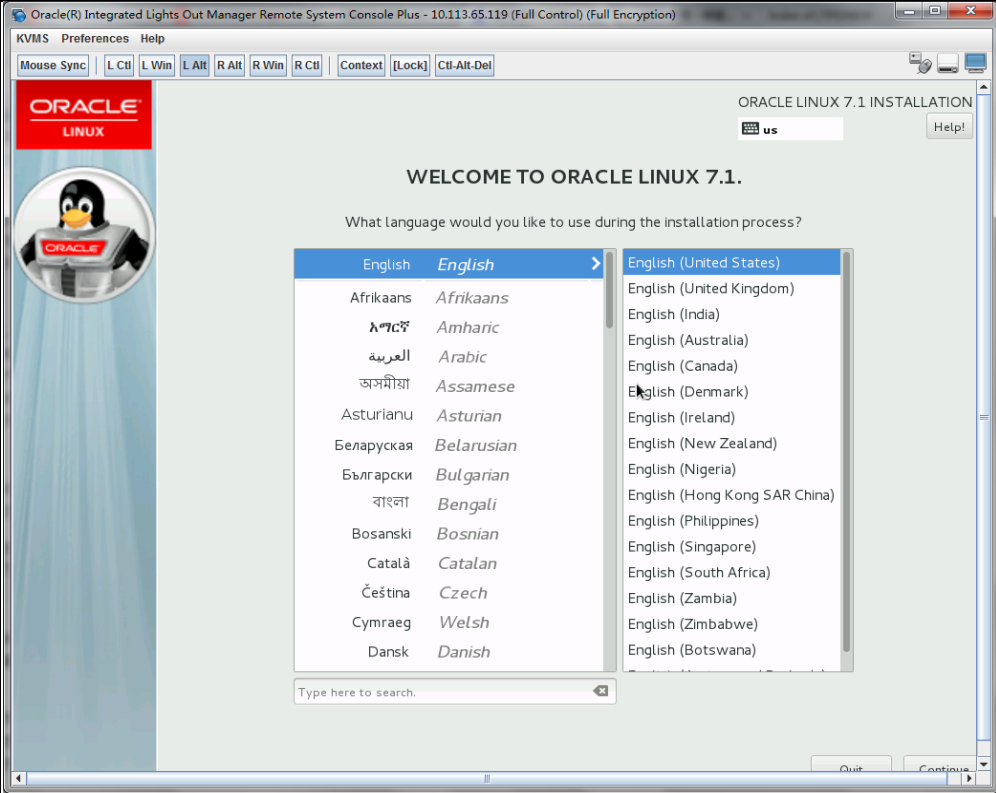
**Procedure38: Install UDR on Oracle Linux/KVM**

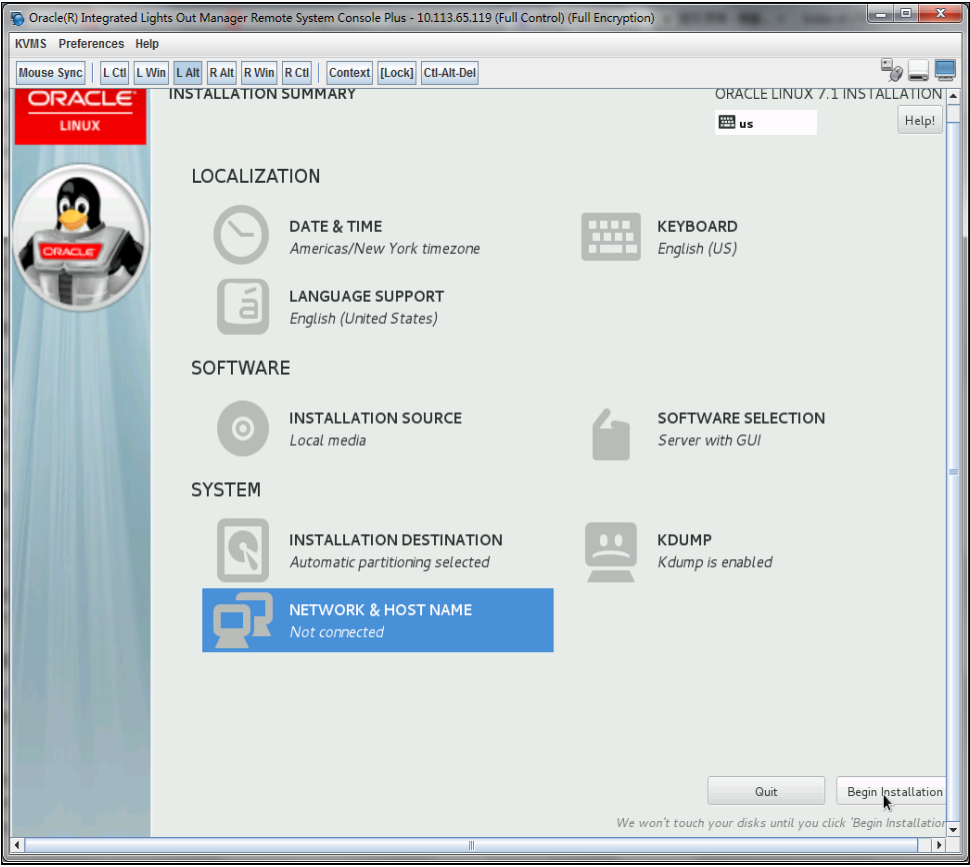
Step	Procedure	Result
1. <input type="checkbox"/>	For each Oracle X5-2 RMS, mount virtual media contains Oracle Linux OS software	Follow steps defined in Appendix C.3 Mounting Virtual Media on Oracle RMS Server of <b>Error! Reference source not found..</b> to mount the Oracle Linux OS software ISO.

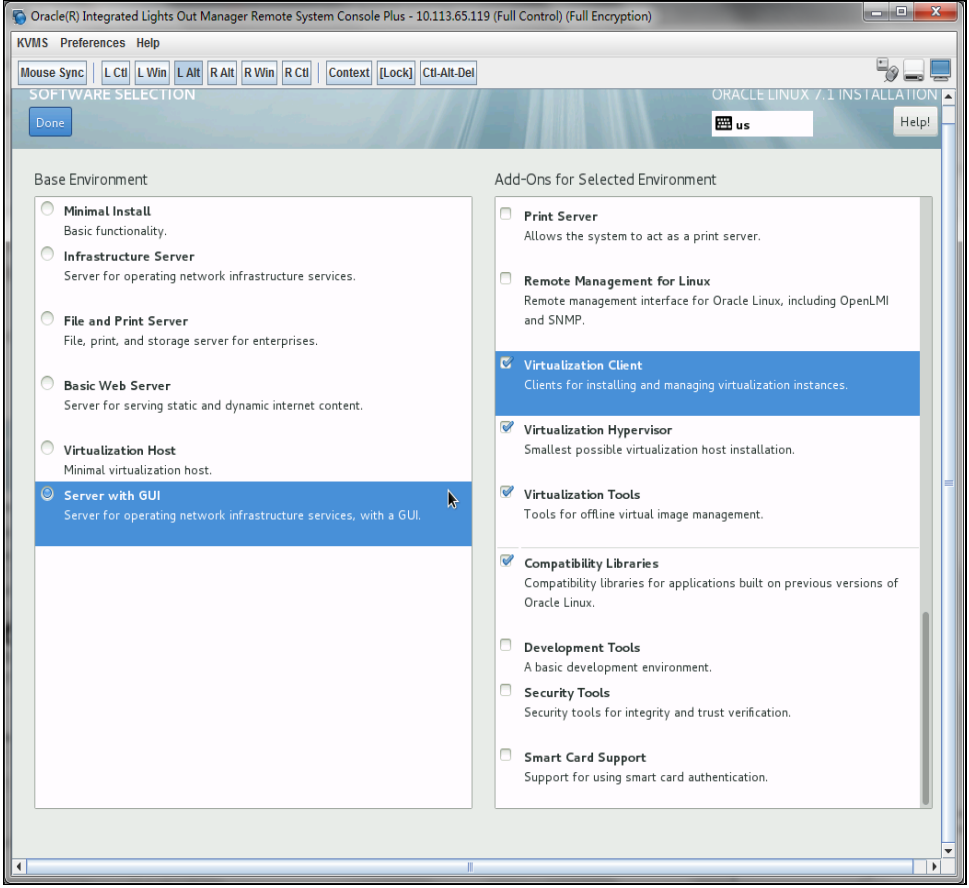
Step	Procedure	Result
2. <input type="checkbox"/>	For each Oracle X5-2 RMS, reboot the host.	<p>1. Login to the X5-2 iLo GUI browser page and launch remote console</p> <p>2. In ILO GUI, navigate to <b>Host Management</b> → <b>Power Control</b></p> <p>3. Select <b>Reset</b></p> <p>4. Click <b>Save</b> to reboot host.</p> <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 process. The top part is the 'Power Control' page in the iLo GUI, which includes instructions on how to use the 'Actions' drop-down list for power management. The 'Settings' section shows 'Host is currently on.' and a 'Reset' button selected in the drop-down menu. The bottom part is a remote console window titled 'Oracle(R) Integrated Lights Out Manager Remote System Console Plus - 10.113.65.119'. It displays the BIOS boot screen with the text: 'ORACLE Copyright (C) 2014, Oracle and/or its affiliates. All rights reserved. BIOS Version : 30040200 System is Booting. Please Wait...'</p>

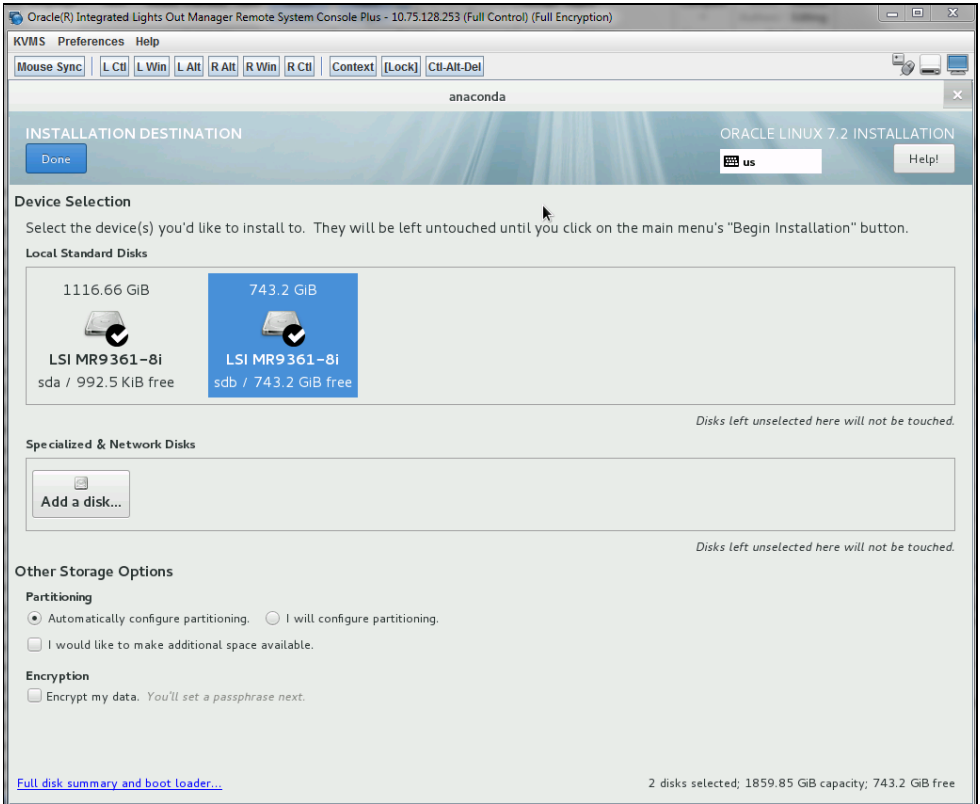
Step	Procedure	Result
3. <input type="checkbox"/>	For each Oracle X5-2 RMS, initiate Oracle Linux Platform installation	<p>After the reboot is complete, the host boots with Oracle Linux installation ISO and the Oracle Linux GUI with the installation option opens.</p> <p>Select <b>Install Oracle Linux 7.x</b>.</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 several keyboard shortcuts: "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". There are three menu items: "Install Oracle Linux 7.1", "Test this media &amp; install Oracle Linux 7.1", and "Troubleshooting". A right arrow is next to "Troubleshooting". At the bottom, it says "Press Tab for full configuration options on menu items." and "Oracle Linux" with a Linux penguin logo.</p>

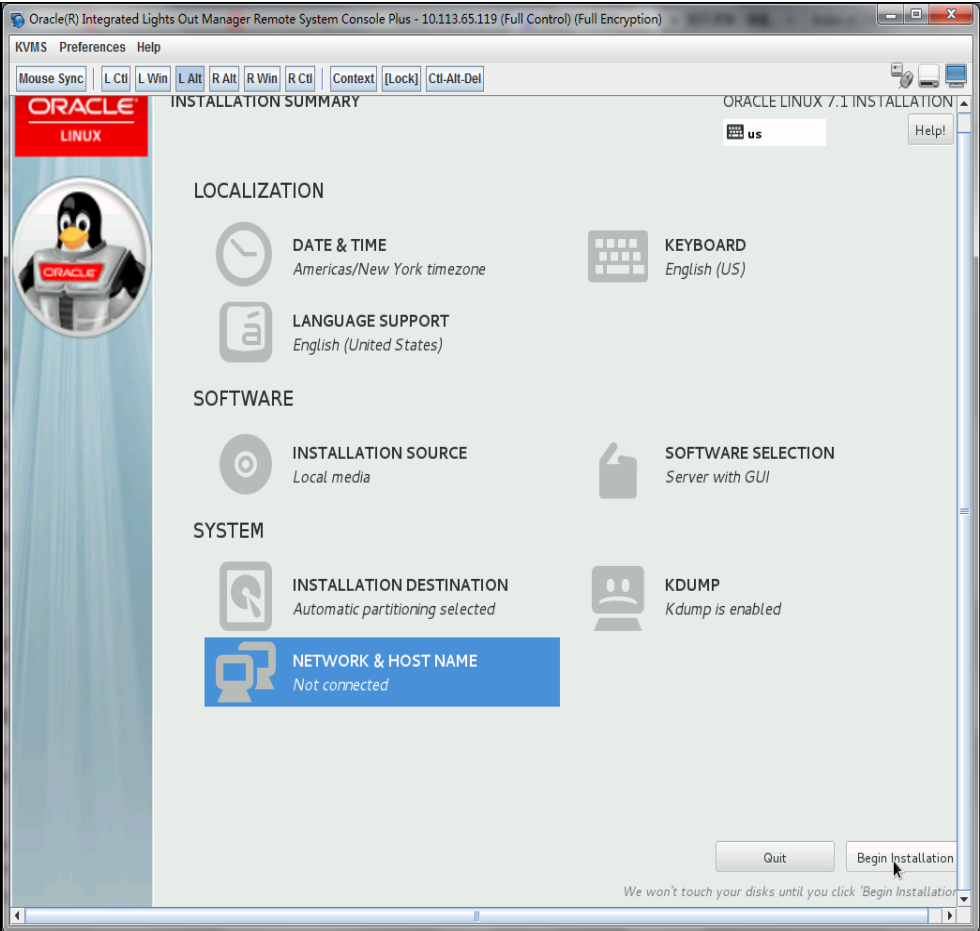


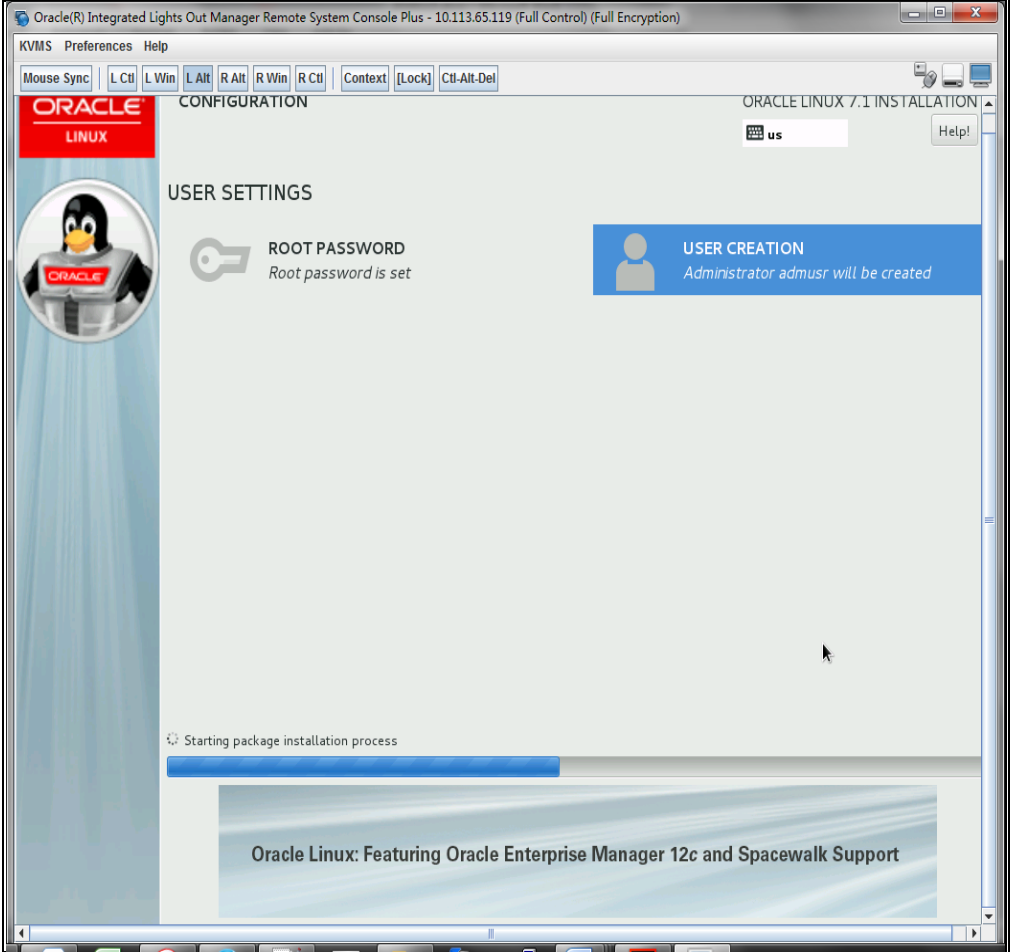
Step	Procedure	Result
4. <input type="checkbox"/>	For each Oracle X5-2 RMS, select Oracle Linux OS language	<p>1. When prompted, select <b>English</b> as Oracle Linux OS language:</p>  <p>2. Click <b>Continue</b>.</p>

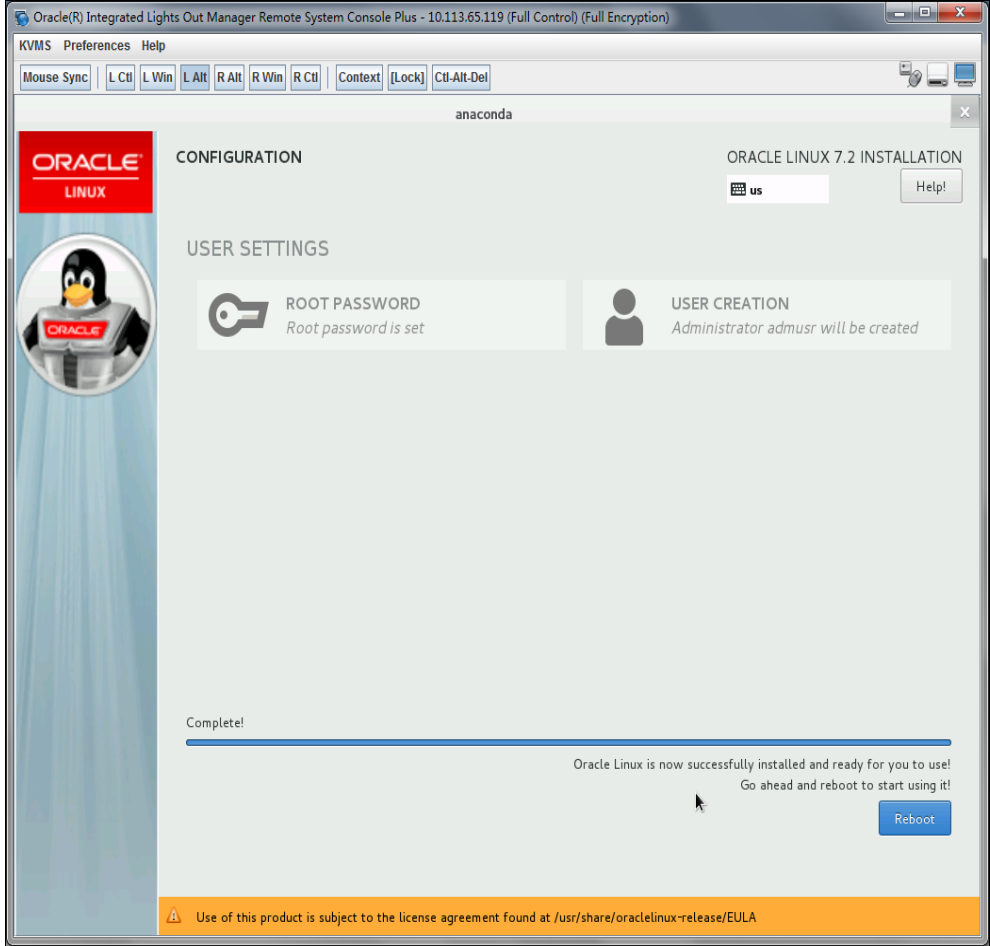
Step	Procedure	Result
5. <input type="checkbox"/>	For each Oracle X5-2 RMS, setup time zone	<p>The next page prompts you for Oracle Linux OS installation required information to start installation.</p>  <ol style="list-style-type: none"> <li>1. Navigate to <b>LOCALIZATION</b> → <b>DATE &amp; TIME</b>.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

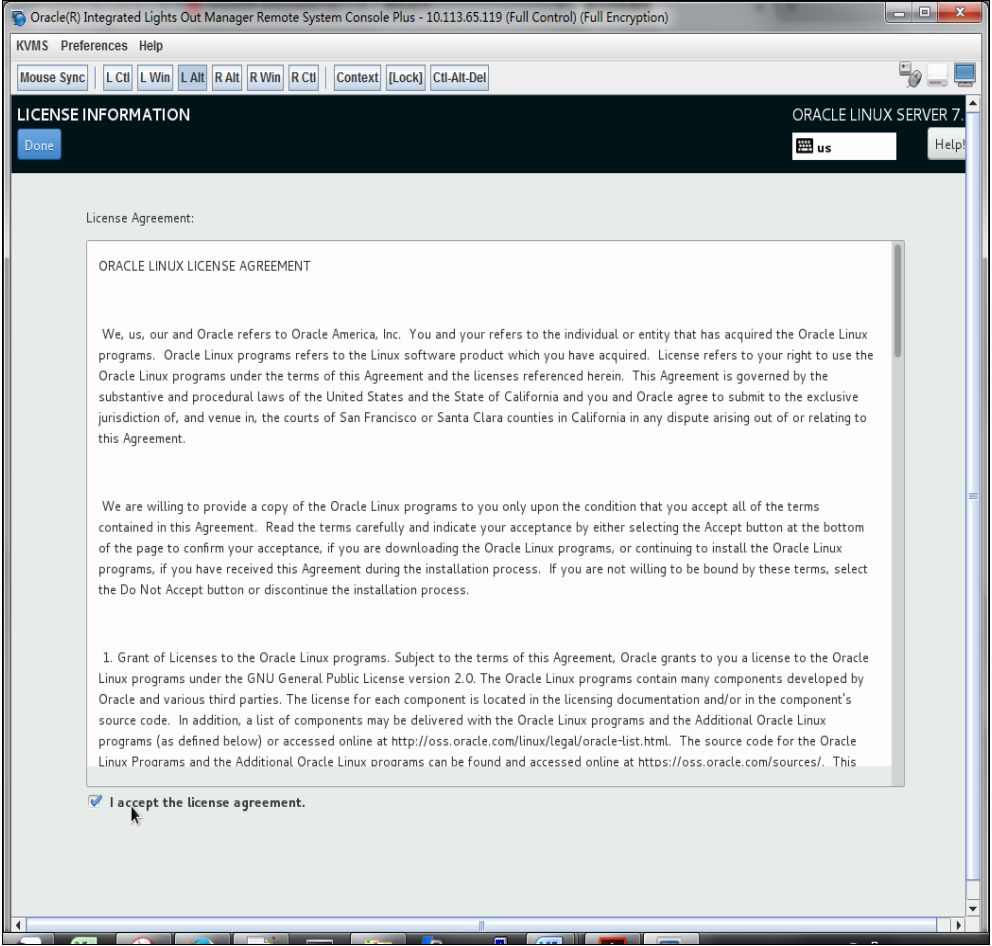
Step	Procedure	Result
6. <input type="checkbox"/>	<p><b>For each Oracle X5-2 RMS:</b></p> <p>Setup installation base environment</p>	<ol style="list-style-type: none"> <li>1. Navigate to <b>SOFTWARE</b> → <b>SOFTWARE SELECTION</b> menu.</li> <li>2. Select <b>Server with GUI</b>, and verify that these add-ons are selected: <ul style="list-style-type: none"> <li>- Virtualization Client</li> <li>- Virtualization Hypervisor</li> <li>- Virtualization Tools</li> <li>- Compatibility Libraries</li> </ul> </li> </ol>  <p>Click <b>Done</b> to save the changes and go back to the main configuration page.</p>

Step	Procedure	Result
7. <input type="checkbox"/>	For each Oracle X5-2 RMS, setup installation destination	<p>1. Navigate to <b>SYSTEM → INSTALLATION DESTINATION</b> menu.</p> <p>2. Select <b>sda</b> and <b>sdb</b>.</p> <p>3. Select <b>Automatically configure partitioning</b>.</p> <p>4. Click <b>Done</b>.</p> 

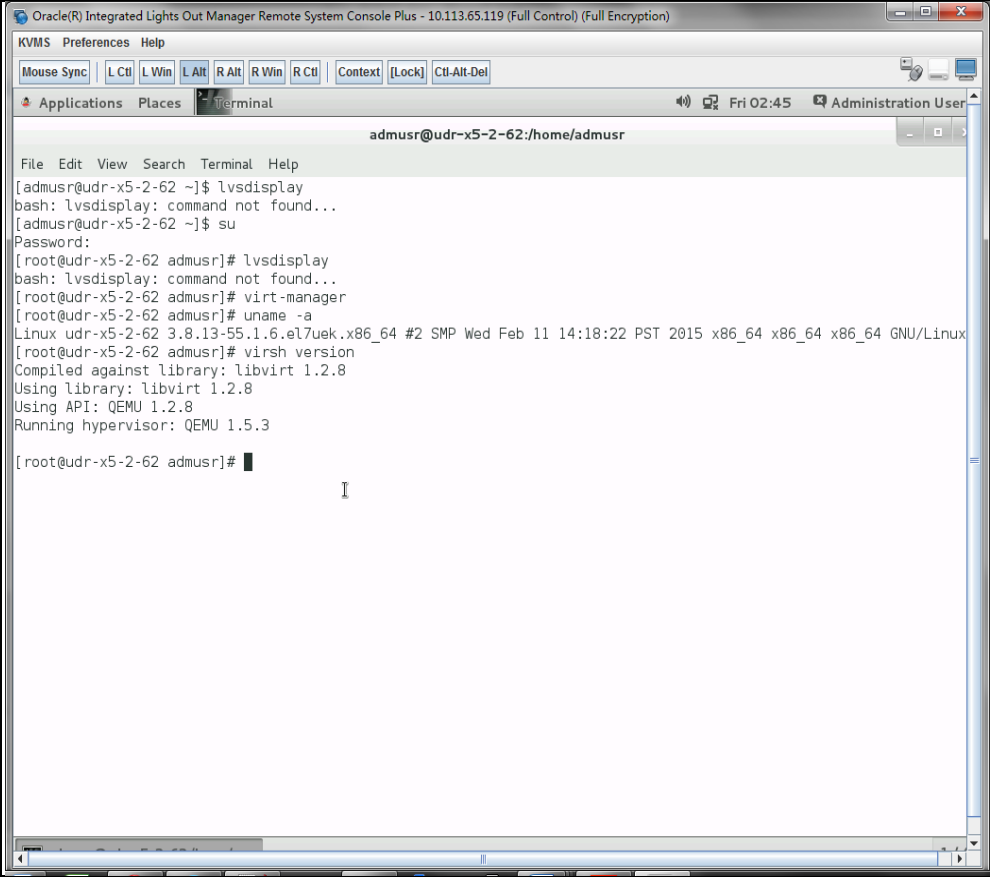
Step	Procedure	Result
8. <input type="checkbox"/>	For each Oracle X5-2 RMS, review configuration and start to install	<p>Review all information before clicking <b>Begin Installation</b>.</p> <p>(You do not need to configure the network at this time, network configuration is performed after the Oracle Linux OS is installed.)</p>  <p>The screenshot shows the Oracle(R) Integrated Lights Out Manager Remote System Console Plus window. The title bar indicates the connection to 10.113.65.119 (Full Control) (Full Encryption). The window contains a menu bar with 'KVMS', 'Preferences', and 'Help'. Below the menu bar is a toolbar with various keyboard shortcuts. The main content area is titled 'ORACLE LINUX 7.1 INSTALLATION SUMMARY'. It features a vertical sidebar on the left with the Oracle Linux logo and a penguin icon. The main area is divided into sections: 'LOCALIZATION' with 'DATE &amp; TIME' (Americas/New York timezone) and 'LANGUAGE SUPPORT' (English (United States)); 'SOFTWARE' with 'INSTALLATION SOURCE' (Local media) and 'SOFTWARE SELECTION' (Server with GUI); and 'SYSTEM' with 'INSTALLATION DESTINATION' (Automatic partitioning selected) and 'KDUMP' (Kdump is enabled). A blue box highlights the 'NETWORK &amp; HOST NAME' section, which shows 'Not connected'. At the bottom right, there are 'Quit' and 'Begin Installation' buttons. A footer message states: 'We won't touch your disks until you click 'Begin Installation''.</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 <b>Reboot</b>.</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 <b>I accept the license agreement</b>.</p> <p>2. Click <b>Finish Configuration</b>.</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> 
13. <input type="checkbox"/>	For each Oracle X5-2 RMS, change network interface name pattern to <code>ethx</code>	<ol style="list-style-type: none"> <li>1. Edit <code>/etc/default/grub</code> to append <code>net.ifnames=0</code> to option <code>GRUB_CMDLINE_LINUX</code>: <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> </li> <li>2. Recreate the grub2 config file with following command: <pre># grub2-mkconfig -o /boot/grub2/grub.cfg</pre> </li> <li>3. Restart host using shutdown -r command and verify that network interface have the ethx name pattern.</li> </ol>

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=&lt;nic1&gt;,&lt;nic2&gt; ONBOOT=yes NM_CONTROLLED=no BOOTPROTO=none BONDING_OPTS="mode=active-backup primary=&lt;nic1&gt; 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-&lt;nic1&gt;</pre> <pre>DEVICE=&lt;nic1&gt; 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-&lt;nic2&gt;</pre> <pre>DEVICE=&lt;nic2&gt; 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 &lt;nic1&gt; # ifup &lt;nic2&gt; # ifup bond0</pre>
15. <input type="checkbox"/>	For each Oracle X5-2 RMS, create IMI bridge	<p>1. Create bond0.&lt;imi_vlan&gt; configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-bond0.&lt;imi_vlan&gt;</pre> <pre>DEVICE=bond0.&lt;imi_vlan&gt; 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.&lt;imi_vlan&gt;</pre> <p>3. Bring the devices into service:</p> <pre># ifup bond0.&lt;imi_vlan&gt; # ifup imi</pre>

Step	Procedure	Result
16. <input type="checkbox"/>	For each Oracle X5-2 RMS, create XMI bridge	<p>1. Create bond0.&lt;xmi_vlan&gt; configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-bond0.&lt;xmi_vlan&gt;  DEVICE=bond0.&lt;xmi_vlan&gt; 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:  DEVICE=xmi TYPE=Bridge BOOTPROTO=none ONBOOT=yes NM_CONTROLLED=no IPADDR=&lt;xmi_ip_addr&gt; NETMASK=&lt;xmi_netmask&gt; NETWORK=&lt;xmi_network&gt; BRIDGE_INTERFACES=bond0.&lt;xmi_vlan&gt;</pre> <p>3. Set default route for xmi network:</p> <pre># vim /etc/sysconfig/network-scripts/route-xmi  default via &lt;xmi_gateway&gt; table main</pre> <p>4. Bring the devices into service:</p> <pre># ifup bond0.&lt;xmi_vlan&gt; # 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=&lt;nic3&gt;,&lt;nic4&gt; ONBOOT=yes NM_CONTROLLED=no BOOTPROTO=none BONDING_OPTS="mode=active-backup primary=&lt;nic3&gt; miimon=100"</pre> <p>Create device eth4 configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-&lt;nic3&gt;</pre> <pre>DEVICE=&lt;nic3&gt; 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-&lt;nic4&gt;</pre> <pre>DEVICE=&lt;nic4&gt; TYPE=Ethernet ONBOOT=yes NM_CONTROLLED=no BOOTPROTO=none MASTER=bond1 SLAVE=yes</pre> <p>Bring the devices into service:</p> <pre># ifup &lt;nic3&gt; # ifup &lt;nic4&gt; # ifup bond1</pre>

Step	Procedure	Result
18. <input type="checkbox"/>	For each Oracle X5-2 RMS, Create xsi1/xsi2 bridge	<p>Create device bond1.&lt;xsi1_vlan&gt; configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-bond1.&lt;xsi1_vlan&gt;</pre> <pre>BOOTPROTO=none VLAN=yes ONBOOT=yes TYPE=Ethernet DEVICE=bond1.&lt;xsi1_vlan&gt; 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.&lt;xsi1_vlan&gt;</pre> <p>Bring the devices into service:</p> <pre># ifup xsi1 # ifup bond1.&lt;xsi1_vlan&gt;</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><b>Modify /etc/chrony.conf, comment out all server * entries and append your NTP server IP to the list with prepending server text:</b></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><b>Force ntp to sync with the added server:</b></p> <pre># ntpdate 144.25.255.140 # timedatectl</pre> <p><b>Verify time synced:</b></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 /home/ova 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-12.5.1.0.0_17.7.0.ova</pre>
23. <input type="checkbox"/>	Untar this ova file	<pre>[root@pc9112020 ova]# tar xvf UDR-12.5.1.0.0_17.7.0.ova UDR-17_7_0.ovf UDR-17_7_0.mf UDR-17_7_0.vmdk</pre>
24. <input type="checkbox"/>	Convert this vmdk	<pre>[root@pc9112020 ova]# qemu-img convert -O qcow2 DR- UDR-12.5.1.0.0_17.7.0.ova.vmdk UDRNO-17_7_0.qcow2</pre>

Step	Procedure	Result
	file to qcow2 file	
25. <input type="checkbox"/>	Copy the qcow2 files for SO and MP	<pre>[root@pc9112020 ova]# cp UDRNO-17_7_0.qcow2 UDRSO-17_7_0.qcow2 [root@pc9112020 ova]# cp UDRNO-17_7_0.qcow2 UDRMP-17_7_0.qcow2</pre>
26. <input type="checkbox"/>	Configure storage for corresponding qcow2 files	<p>Configure storage qcow2 files as per corresponding VMs. Refer <a href="#">Appendix G</a> to get the required storage.</p> <p>Run the following command for each VM to set the storage:</p> <pre>qemu-img resize &lt;NO_qcow2_filename&gt;.qcow2 &lt;storage_in_gigabytes&gt;G</pre> <p>Run the command for a VM if storage required is greater than 60G. You do not have to run this command if the storage required is 60G or less.</p> <p>For example, if resource profile is EIR and VM is UDR, the storage required is 400G. The command in that case is:</p> <pre>qemu-img resize UDRNO-17_7_0.qcow2 400G</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><a href="#">Appendix J Install UDR on Oracle Linux OS via KVM</a></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><b>NOTE:</b> 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"/>	<b>For each UDR VMs:</b> Configure XMI network address	<p>Set XMI network address for each UDR VM:</p> <pre># netAdm set --device=eth0 --onboot=yes --netmask=&lt;XMI_netmask&gt; --address=&lt;XMI_network_address&gt; # netAdm add --device=eth0 --route=default --gateway=&lt;XMI_gateway&gt;</pre>
30. <input type="checkbox"/>	<b>For each UDR VMs:</b> Configure NTP service	<p>Use Step 5 to 6 of Appendix L.6 Configure TVOE Server (Hostname, Time Zone, SNMP, NTP, etc) in [2] 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>
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

## 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 sequence 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 Service Request (SR), Select **1**.
  - o For Non-technical issues such as registration or assistance with My Oracle Support, Select **2**.

You are connected to a live agent who can assist you with My Oracle Support 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 displays. Most products covered by these documentation sets appear under the headings Network Session Delivery and Control Infrastructure or Platforms.
5. Click your Product and then the Release Number.
6. A list of the documentation set for the selected product and release displays.
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.

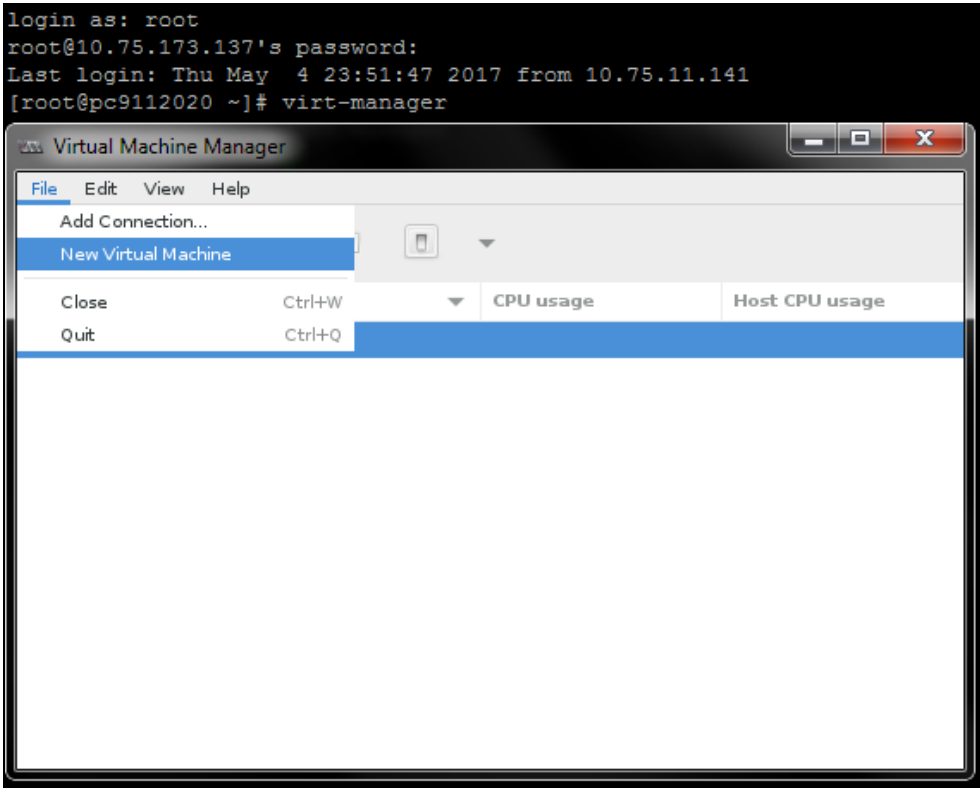
**NOTE:** This procedure needs to be done for each VM: NO, SO and MP

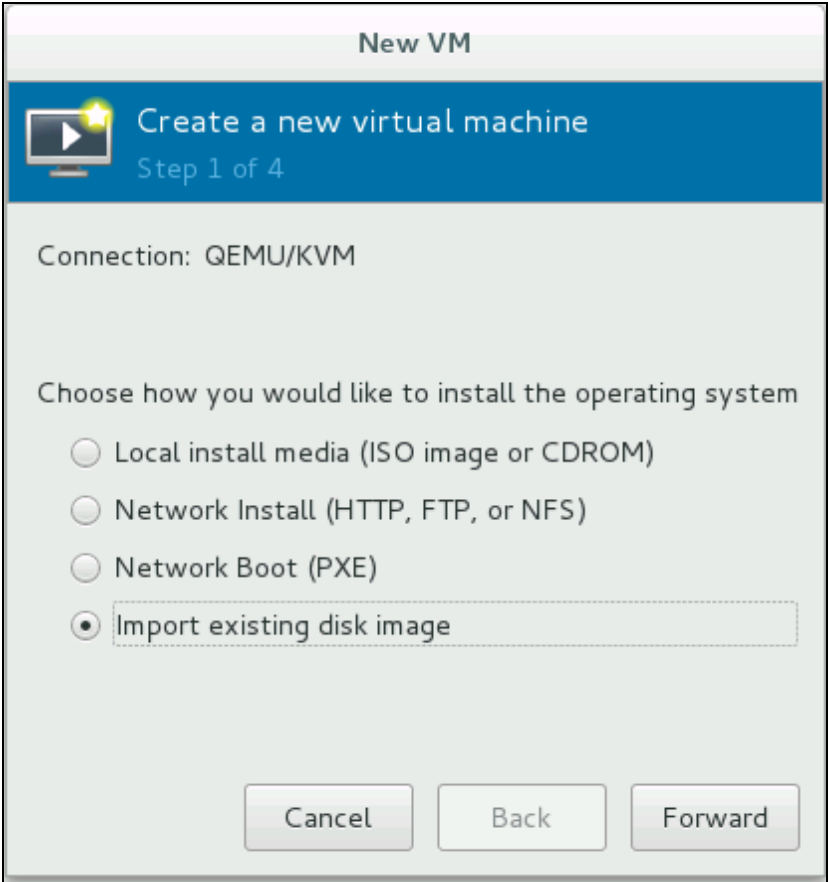
### Requirements:

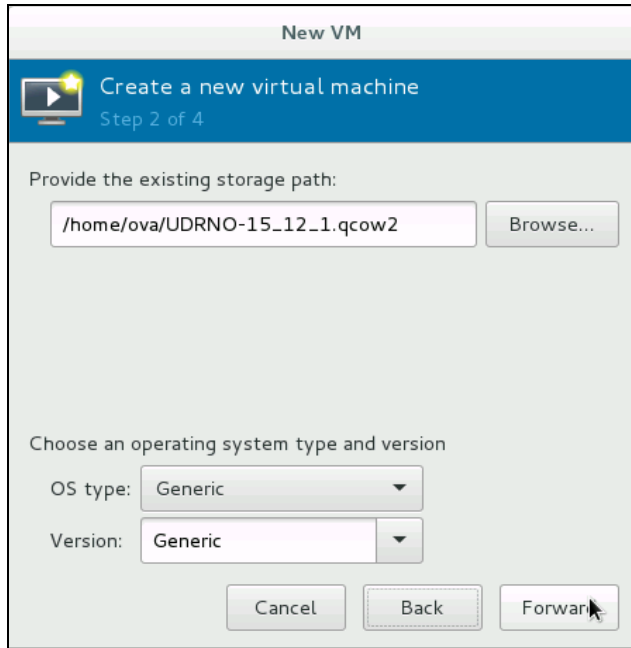
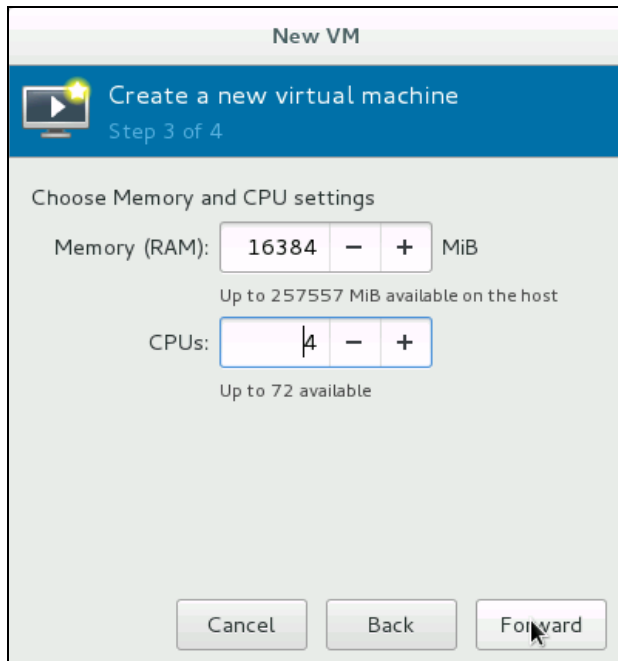
- [Appendix J Install UDR on Oracle Linux OS via KVM](#) Steps: 1 to 25 must be complete.

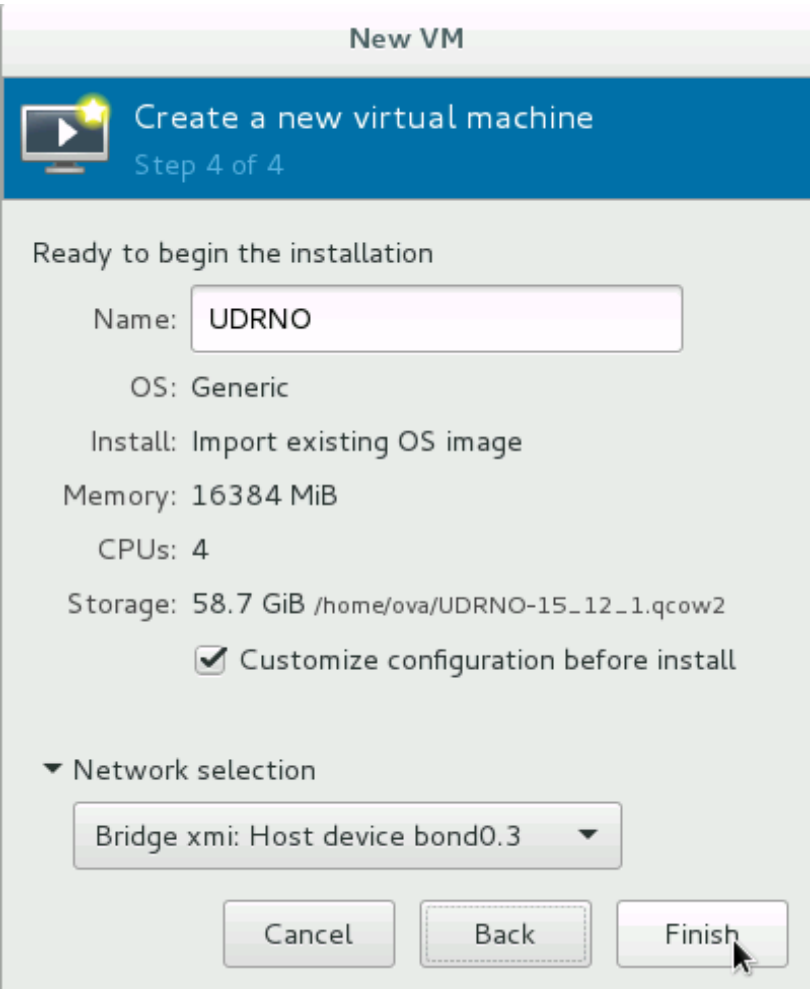
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

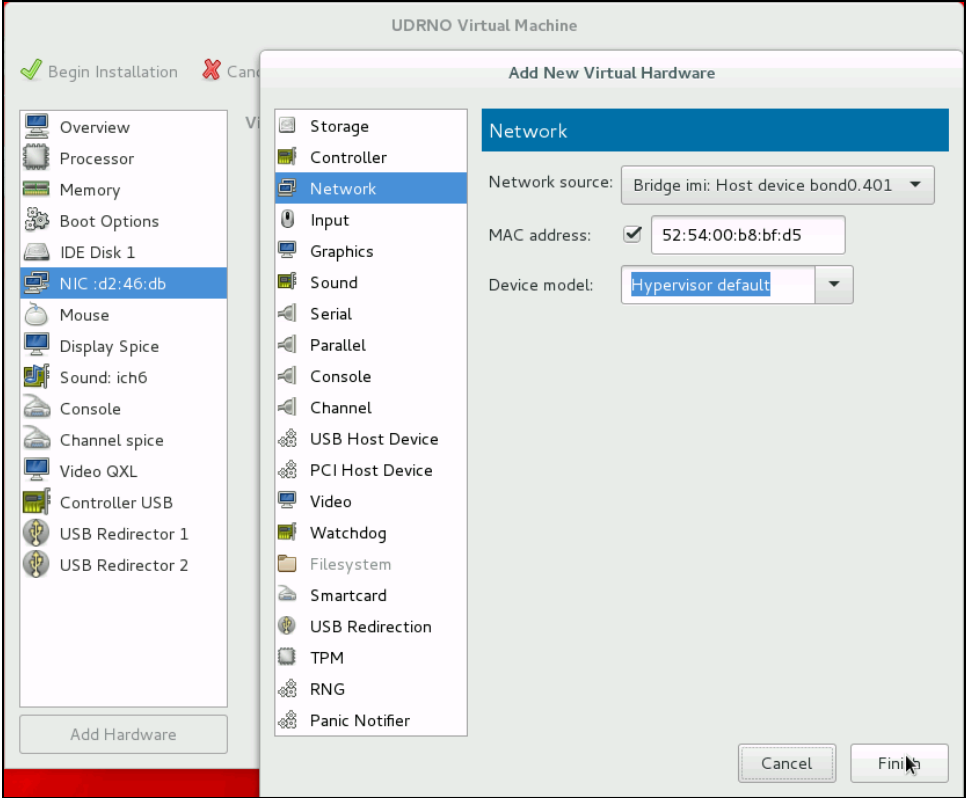
### Procedure39: Create and Install UDR VMs via KVM GUI

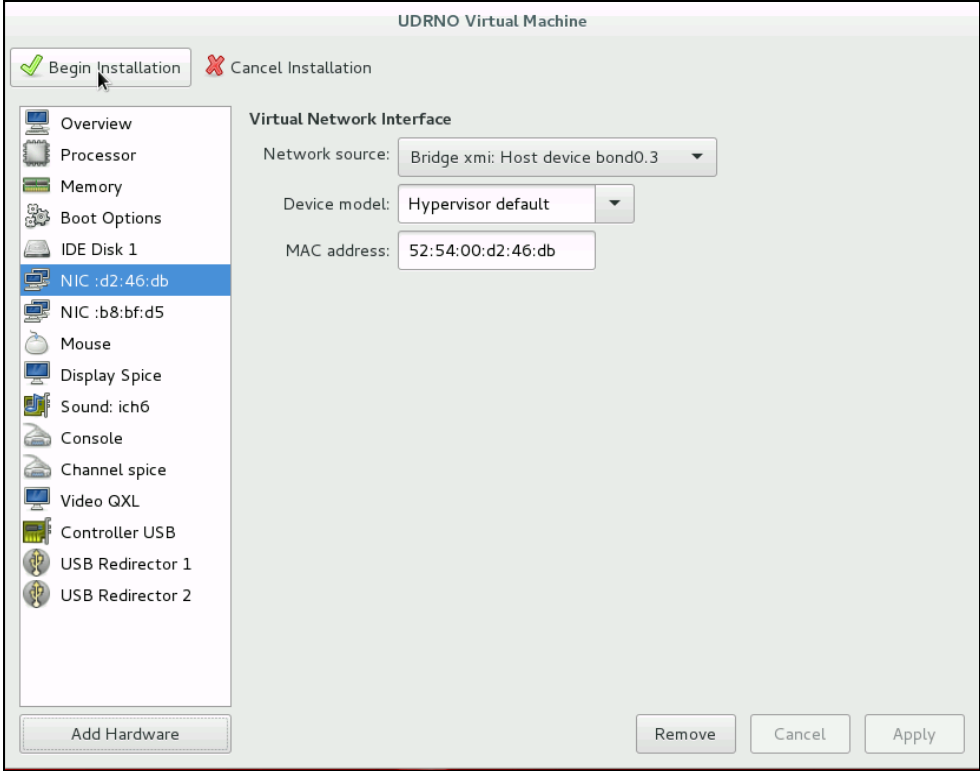
Step	Procedure	Result
1. <input type="checkbox"/>	Login to the host machine and open the Virtual Machine Manager	<p>Login to the host machine which has Oracle Linux installed and open the Virtual Machine Manager via command-line using <code>virt-manager</code> command.</p> <p><b>NOTE:</b> Verify that X11 forwarding is enabled before running the <code>virt-manager</code> command.</p>  <pre> login as: root root@10.75.173.137's password: Last login: Thu May  4 23:51:47 2017 from 10.75.11.141 [root@pc9112020 ~]# virt-manager </pre> <p>The screenshot shows the Virtual Machine Manager window with the 'File' menu open, highlighting 'New Virtual Machine'. Other menu items include 'Add Connection...', 'Close', and 'Quit'. The window also displays 'CPU usage' and 'Host CPU usage' tabs.</p>

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

Step	Procedure	Result
3. <input type="checkbox"/>	Select the image file	<p>Select the qcow2 from the location: <code>/home/ova</code> (as done Steps 24 and 25 in Appendix J) by browsing the location and clicking <b>Forward</b></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 <a href="#">Appendix G</a>. Click <b>Forward</b>.</p> 

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

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

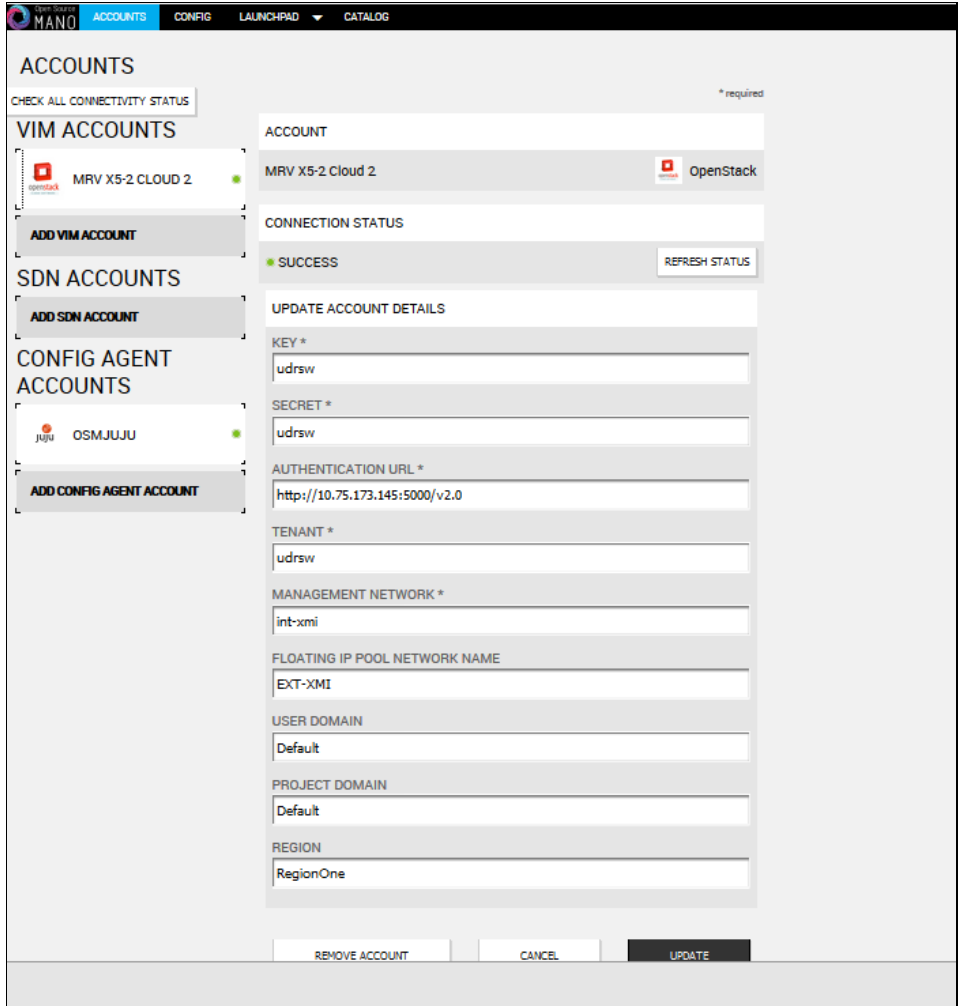
## Appendix N. Orchestrating UDR Via OSM

### 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

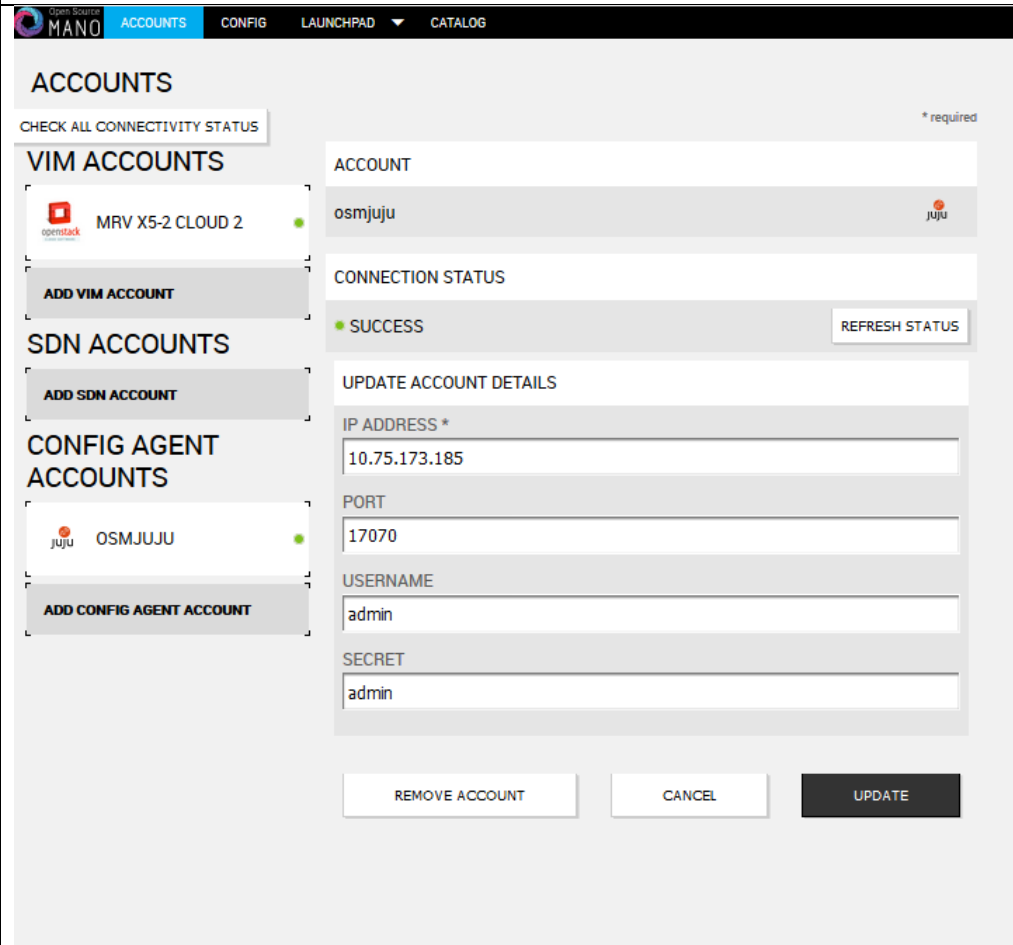
On the OSM GUI, navigate to the Accounts tab and click **Add VIM Account**. Enter the OpenStack VIM details and add the VIM account.

Procedure	Result
Add the VIM details on the <b>Account</b> → <b>VIM ACCOUNTS</b> on OSM GUI.	 <p>The screenshot shows the OSM GUI 'ACCOUNTS' page. On the left, there are three sections: 'VIM ACCOUNTS' with 'MRV X5-2 CLOUD 2' and an 'ADD VIM ACCOUNT' button; 'SDN ACCOUNTS' with an 'ADD SDN ACCOUNT' button; and 'CONFIG AGENT ACCOUNTS' with 'OSMJUJU' and an 'ADD CONFIG AGENT ACCOUNT' button. The main area displays details for the 'MRV X5-2 Cloud 2' account, including its connection status as 'SUCCESS' and a 'REFRESH STATUS' button. Below this is the 'UPDATE ACCOUNT DETAILS' form with fields for KEY (*), SECRET (*), AUTHENTICATION URL (*), TENANT (*), MANAGEMENT NETWORK (*), FLOATING IP POOL NETWORK NAME, USER DOMAIN, PROJECT DOMAIN, and REGION. The bottom of the form has 'REMOVE ACCOUNT', 'CANCEL', and 'UPDATE' buttons.</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 **Add Config Agent Account**. A screen like the one below displays. Enter in the Juju Server details and add the account.

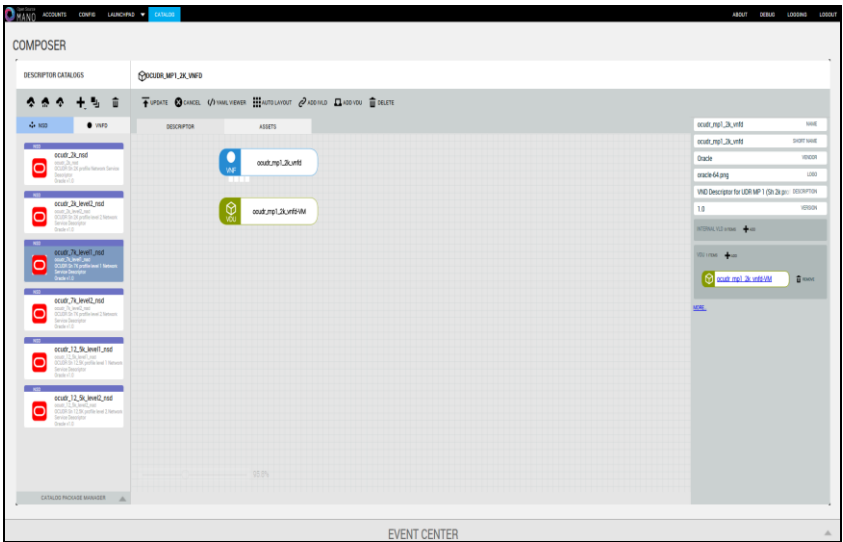
Procedure	Result
Add the CONFIG AGENT (Juju) account details in the Account → CONFIG AGENT ACCOUNTS on OSM GUI.	 <p>The screenshot shows the OSM GUI 'ACCOUNTS' page. The left sidebar contains 'VIM ACCOUNTS', 'SDN ACCOUNTS', and 'CONFIG AGENT ACCOUNTS'. The 'CONFIG AGENT ACCOUNTS' section is active, displaying a list of accounts including 'OSMJUUU' with a green status dot. Below the list is an 'ADD CONFIG AGENT ACCOUNT' button. The main panel shows the details for the 'osmjuju' account, including a 'CONNECTION STATUS' of 'SUCCESS' and a 'REFRESH STATUS' button. The 'UPDATE ACCOUNT DETAILS' form contains fields for 'IP ADDRESS *' (10.75.173.185), 'PORT' (17070), 'USERNAME' (admin), and 'SECRET' (admin). At the bottom are 'REMOVE ACCOUNT', 'CANCEL', and 'UPDATE' buttons.</p>

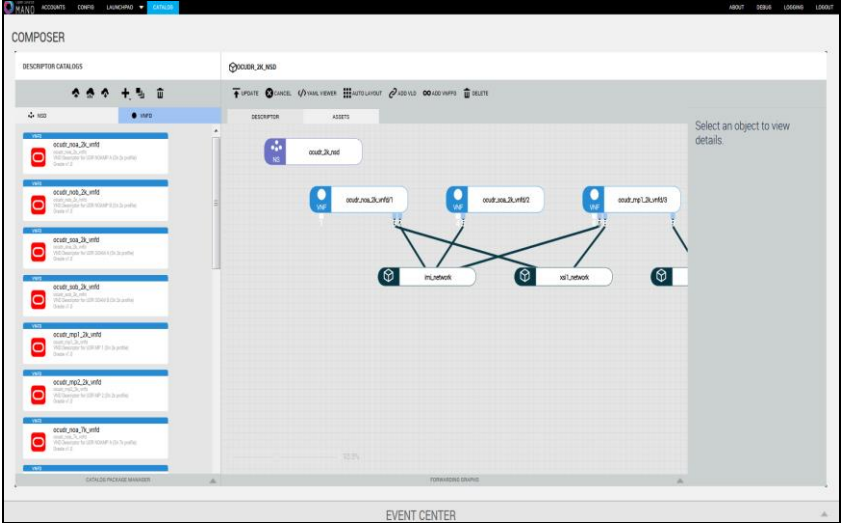
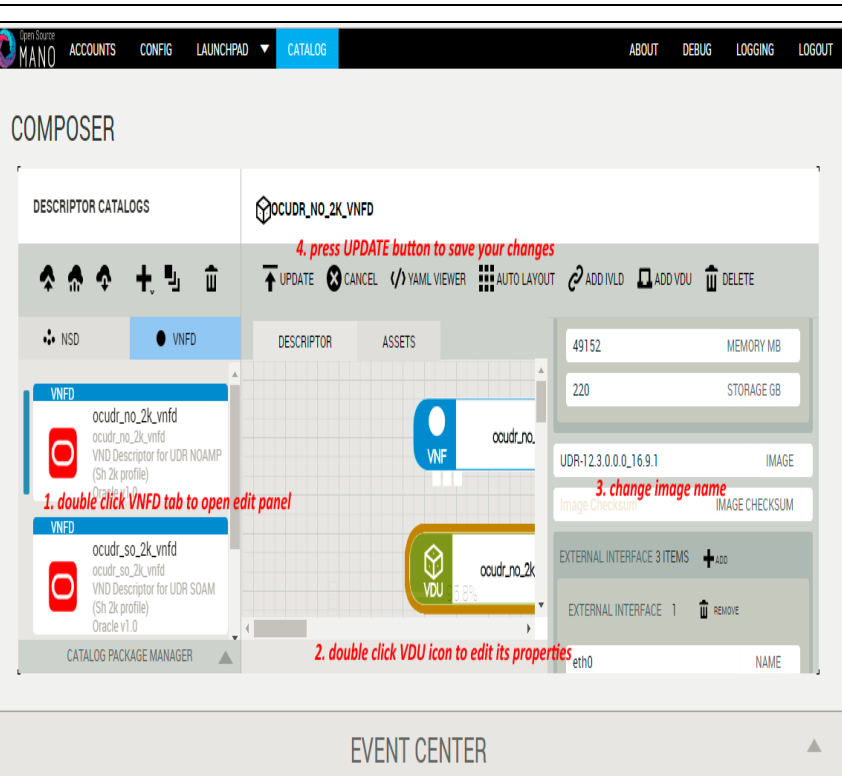
## N.3 BUILD AND DEPLOY UDR NSD/VNFD PACKAGE

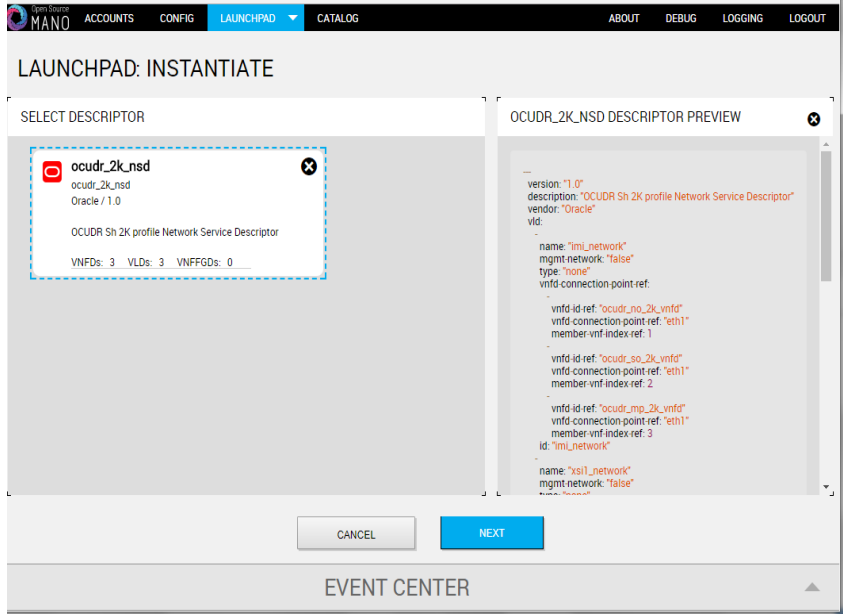
Build and deploy scripts must be run in order to upload UDR NSDs and VNFDs to OSM.

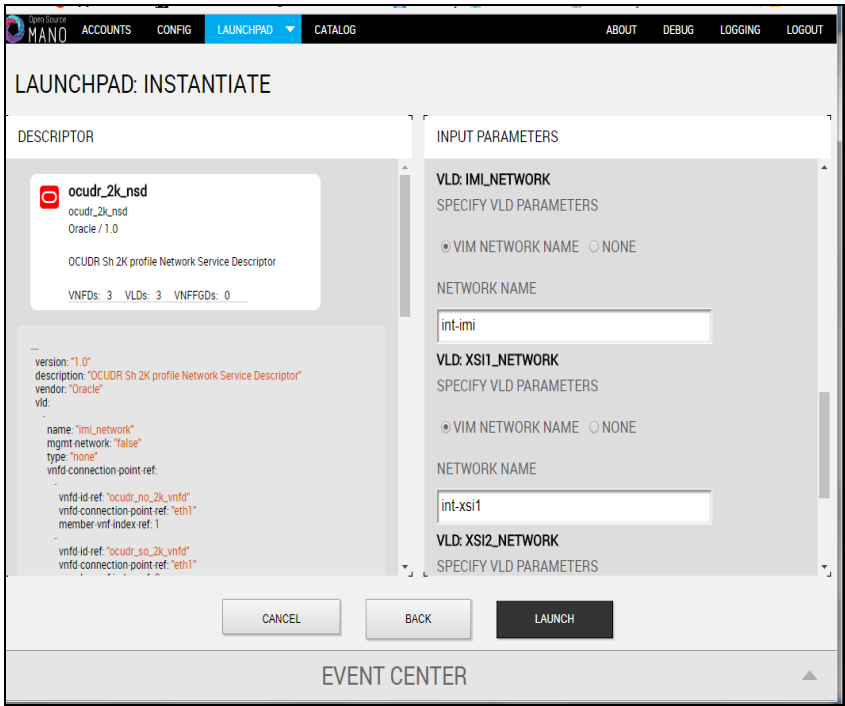
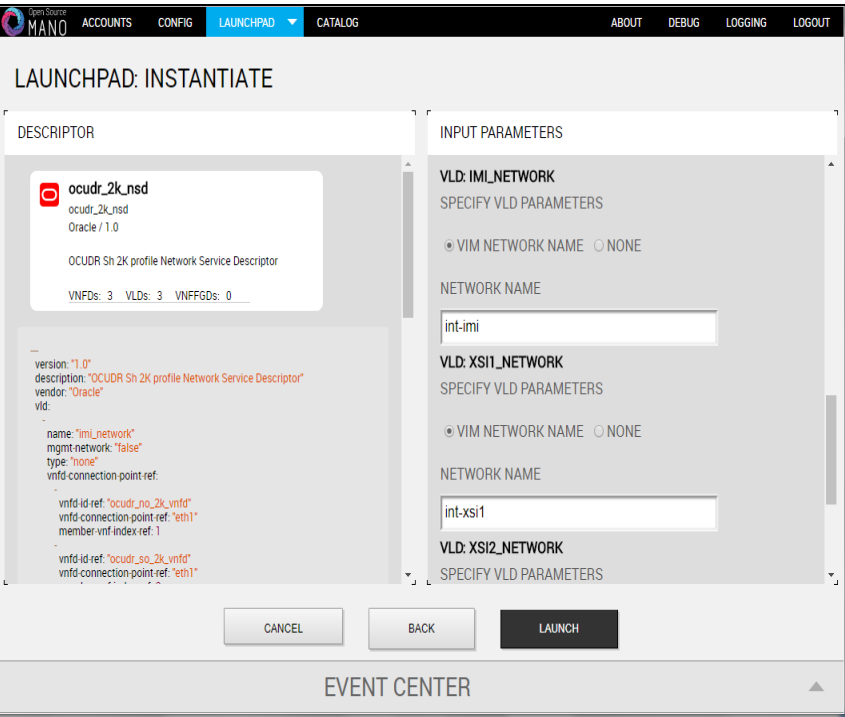
### Procedure 11 SSH Logon to Juju Server and fetch build and deploy source scripts

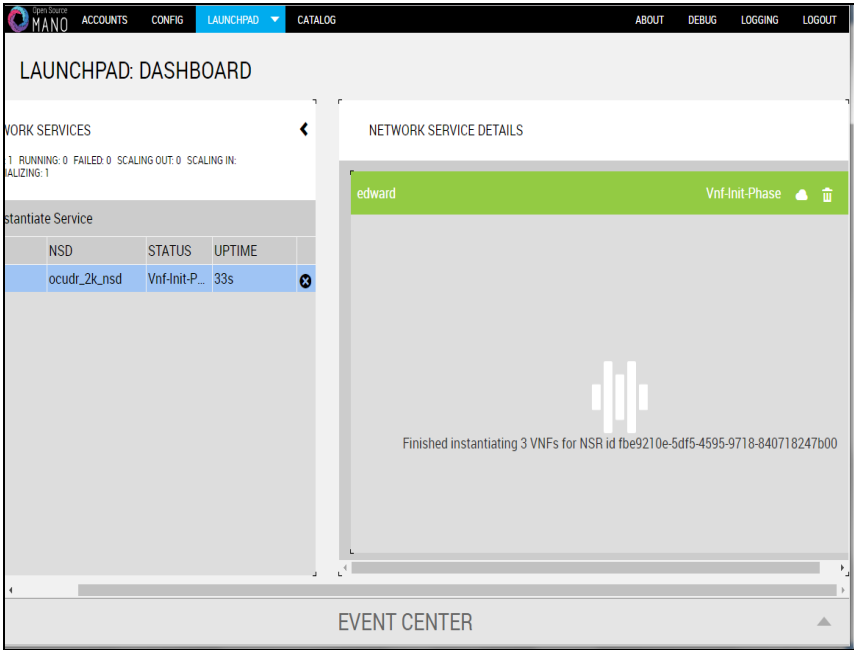
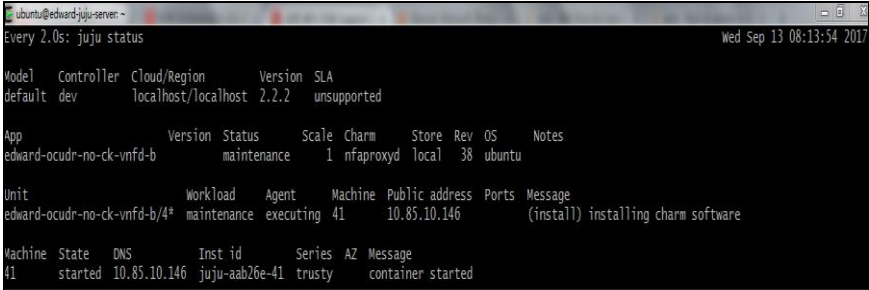
Step	Procedure	Result
1. <input type="checkbox"/>	SSH Logon to Juju server and fetch the build and deploy source scripts	<p>1. Copy the qcow2 file made from the ova file of UDR image to the Juju server.</p> <p>2. Run the following commands:</p> <pre>\$ sudo guestmount -a UDR-12.5.1.0.0_17.7.0.qcow2 -m /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 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 ubuntu@edward-juju-server:~\$</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><b>NOTE:</b> Monitor the console output to verify that the build script 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.in 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 in g the charm: proof: W: README.ex includes boilerplate: You can then br address to configure the service. proof: W: README.ex includes boilerplate: - Upstream mail t information proof: W: README.ex includes boilerplate: - Feel free to useful for users proof: I: all charms should provide at least one thing</pre>

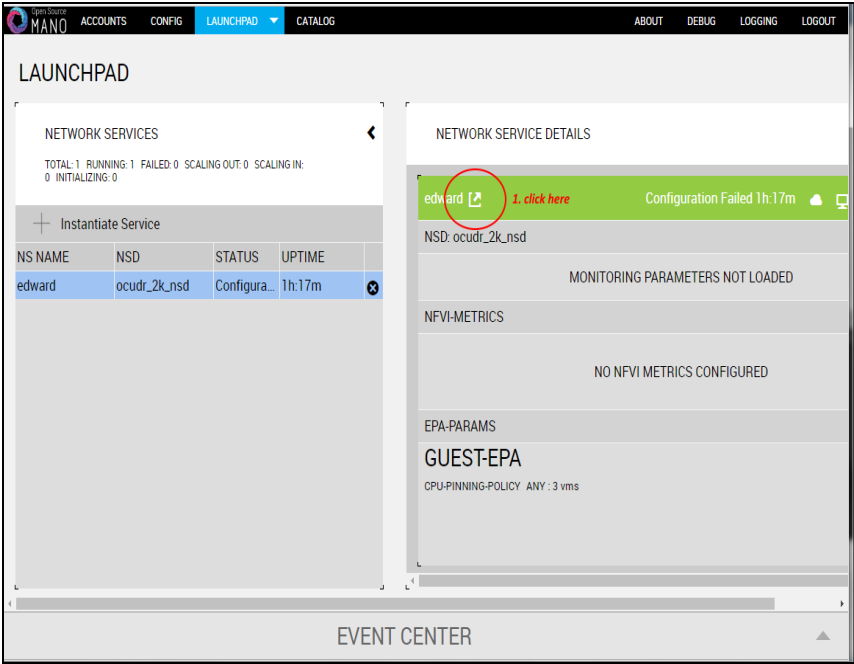
Step	Procedure	Result
		<pre> ocudr_12_5k_level1_ns/ ocudr_12_5k_level1_ns/README ocudr_12_5k_level1_ns/icons/ ocudr_12_5k_level1_ns/icons/oracle-64.png ocudr_12_5k_level1_ns/ocudr_12_5k_level1_nsd.yaml ocudr_12_5k_level1_ns/checksums.txt ocudr_12_5k_level2_ns/ ocudr_12_5k_level2_ns/README ocudr_12_5k_level2_ns/icons/ 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. <input type="checkbox"/>	<p>After the build script completes, run the deploy script inside OSM-support directory</p> <p><b>Pre-requisite:</b> OSM host IP is required to run <code>deploy.sh</code>. Open the deploy script with an editor and change the env variable of <code>OSM_HOSTNAME</code> to your OSM host IP before running <code>deploy.sh</code>.</p> <pre>\$. /deploy.sh</pre>	<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>
4. <input type="checkbox"/>	<p>Logon to OSM GUI, verify that UDR NSD/VNFD has been uploaded successfully:</p>	 <p>The screenshot shows the OSM GUI Composer interface. On the left, there is a 'Descriptor Catalog' with a list of descriptors including 'ocudr_12_5k_nsd', 'ocudr_12_5k_nsd2', 'ocudr_12_5k_nsd3', 'ocudr_12_5k_nsd4', 'ocudr_12_5k_nsd5', 'ocudr_12_5k_nsd6', 'ocudr_12_5k_nsd7', 'ocudr_12_5k_nsd8', 'ocudr_12_5k_nsd9', 'ocudr_12_5k_nsd10', 'ocudr_12_5k_nsd11', 'ocudr_12_5k_nsd12', 'ocudr_12_5k_nsd13', 'ocudr_12_5k_nsd14', 'ocudr_12_5k_nsd15', 'ocudr_12_5k_nsd16', 'ocudr_12_5k_nsd17', 'ocudr_12_5k_nsd18', 'ocudr_12_5k_nsd19', 'ocudr_12_5k_nsd20', 'ocudr_12_5k_nsd21', 'ocudr_12_5k_nsd22', 'ocudr_12_5k_nsd23', 'ocudr_12_5k_nsd24', 'ocudr_12_5k_nsd25', 'ocudr_12_5k_nsd26', 'ocudr_12_5k_nsd27', 'ocudr_12_5k_nsd28', 'ocudr_12_5k_nsd29', 'ocudr_12_5k_nsd30', 'ocudr_12_5k_nsd31', 'ocudr_12_5k_nsd32', 'ocudr_12_5k_nsd33', 'ocudr_12_5k_nsd34', 'ocudr_12_5k_nsd35', 'ocudr_12_5k_nsd36', 'ocudr_12_5k_nsd37', 'ocudr_12_5k_nsd38', 'ocudr_12_5k_nsd39', 'ocudr_12_5k_nsd40', 'ocudr_12_5k_nsd41', 'ocudr_12_5k_nsd42', 'ocudr_12_5k_nsd43', 'ocudr_12_5k_nsd44', 'ocudr_12_5k_nsd45', 'ocudr_12_5k_nsd46', 'ocudr_12_5k_nsd47', 'ocudr_12_5k_nsd48', 'ocudr_12_5k_nsd49', 'ocudr_12_5k_nsd50', 'ocudr_12_5k_nsd51', 'ocudr_12_5k_nsd52', 'ocudr_12_5k_nsd53', 'ocudr_12_5k_nsd54', 'ocudr_12_5k_nsd55', 'ocudr_12_5k_nsd56', 'ocudr_12_5k_nsd57', 'ocudr_12_5k_nsd58', 'ocudr_12_5k_nsd59', 'ocudr_12_5k_nsd60', 'ocudr_12_5k_nsd61', 'ocudr_12_5k_nsd62', 'ocudr_12_5k_nsd63', 'ocudr_12_5k_nsd64', 'ocudr_12_5k_nsd65', 'ocudr_12_5k_nsd66', 'ocudr_12_5k_nsd67', 'ocudr_12_5k_nsd68', 'ocudr_12_5k_nsd69', 'ocudr_12_5k_nsd70', 'ocudr_12_5k_nsd71', 'ocudr_12_5k_nsd72', 'ocudr_12_5k_nsd73', 'ocudr_12_5k_nsd74', 'ocudr_12_5k_nsd75', 'ocudr_12_5k_nsd76', 'ocudr_12_5k_nsd77', 'ocudr_12_5k_nsd78', 'ocudr_12_5k_nsd79', 'ocudr_12_5k_nsd80', 'ocudr_12_5k_nsd81', 'ocudr_12_5k_nsd82', 'ocudr_12_5k_nsd83', 'ocudr_12_5k_nsd84', 'ocudr_12_5k_nsd85', 'ocudr_12_5k_nsd86', 'ocudr_12_5k_nsd87', 'ocudr_12_5k_nsd88', 'ocudr_12_5k_nsd89', 'ocudr_12_5k_nsd90', 'ocudr_12_5k_nsd91', 'ocudr_12_5k_nsd92', 'ocudr_12_5k_nsd93', 'ocudr_12_5k_nsd94', 'ocudr_12_5k_nsd95', 'ocudr_12_5k_nsd96', 'ocudr_12_5k_nsd97', 'ocudr_12_5k_nsd98', 'ocudr_12_5k_nsd99', 'ocudr_12_5k_nsd100'. In the center, there is a workspace with a diagram showing a flow from 'ocudr_12_5k_nsd' to 'ocudr_12_5k_nsd2' to 'ocudr_12_5k_nsd3' to 'ocudr_12_5k_nsd4' to 'ocudr_12_5k_nsd5' to 'ocudr_12_5k_nsd6' to 'ocudr_12_5k_nsd7' to 'ocudr_12_5k_nsd8' to 'ocudr_12_5k_nsd9' to 'ocudr_12_5k_nsd10' to 'ocudr_12_5k_nsd11' to 'ocudr_12_5k_nsd12' to 'ocudr_12_5k_nsd13' to 'ocudr_12_5k_nsd14' to 'ocudr_12_5k_nsd15' to 'ocudr_12_5k_nsd16' to 'ocudr_12_5k_nsd17' to 'ocudr_12_5k_nsd18' to 'ocudr_12_5k_nsd19' to 'ocudr_12_5k_nsd20' to 'ocudr_12_5k_nsd21' to 'ocudr_12_5k_nsd22' to 'ocudr_12_5k_nsd23' to 'ocudr_12_5k_nsd24' to 'ocudr_12_5k_nsd25' to 'ocudr_12_5k_nsd26' to 'ocudr_12_5k_nsd27' to 'ocudr_12_5k_nsd28' to 'ocudr_12_5k_nsd29' to 'ocudr_12_5k_nsd30' to 'ocudr_12_5k_nsd31' to 'ocudr_12_5k_nsd32' to 'ocudr_12_5k_nsd33' to 'ocudr_12_5k_nsd34' to 'ocudr_12_5k_nsd35' to 'ocudr_12_5k_nsd36' to 'ocudr_12_5k_nsd37' to 'ocudr_12_5k_nsd38' to 'ocudr_12_5k_nsd39' to 'ocudr_12_5k_nsd40' to 'ocudr_12_5k_nsd41' to 'ocudr_12_5k_nsd42' to 'ocudr_12_5k_nsd43' to 'ocudr_12_5k_nsd44' to 'ocudr_12_5k_nsd45' to 'ocudr_12_5k_nsd46' to 'ocudr_12_5k_nsd47' to 'ocudr_12_5k_nsd48' to 'ocudr_12_5k_nsd49' to 'ocudr_12_5k_nsd50' to 'ocudr_12_5k_nsd51' to 'ocudr_12_5k_nsd52' to 'ocudr_12_5k_nsd53' to 'ocudr_12_5k_nsd54' to 'ocudr_12_5k_nsd55' to 'ocudr_12_5k_nsd56' to 'ocudr_12_5k_nsd57' to 'ocudr_12_5k_nsd58' to 'ocudr_12_5k_nsd59' to 'ocudr_12_5k_nsd60' to 'ocudr_12_5k_nsd61' to 'ocudr_12_5k_nsd62' to 'ocudr_12_5k_nsd63' to 'ocudr_12_5k_nsd64' to 'ocudr_12_5k_nsd65' to 'ocudr_12_5k_nsd66' to 'ocudr_12_5k_nsd67' to 'ocudr_12_5k_nsd68' to 'ocudr_12_5k_nsd69' to 'ocudr_12_5k_nsd70' to 'ocudr_12_5k_nsd71' to 'ocudr_12_5k_nsd72' to 'ocudr_12_5k_nsd73' to 'ocudr_12_5k_nsd74' to 'ocudr_12_5k_nsd75' to 'ocudr_12_5k_nsd76' to 'ocudr_12_5k_nsd77' to 'ocudr_12_5k_nsd78' to 'ocudr_12_5k_nsd79' to 'ocudr_12_5k_nsd80' to 'ocudr_12_5k_nsd81' to 'ocudr_12_5k_nsd82' to 'ocudr_12_5k_nsd83' to 'ocudr_12_5k_nsd84' to 'ocudr_12_5k_nsd85' to 'ocudr_12_5k_nsd86' to 'ocudr_12_5k_nsd87' to 'ocudr_12_5k_nsd88' to 'ocudr_12_5k_nsd89' to 'ocudr_12_5k_nsd90' to 'ocudr_12_5k_nsd91' to 'ocudr_12_5k_nsd92' to 'ocudr_12_5k_nsd93' to 'ocudr_12_5k_nsd94' to 'ocudr_12_5k_nsd95' to 'ocudr_12_5k_nsd96' to 'ocudr_12_5k_nsd97' to 'ocudr_12_5k_nsd98' to 'ocudr_12_5k_nsd99' to 'ocudr_12_5k_nsd100'. On the right, there is a sidebar with details for the selected descriptor, including 'NAME', 'SHORT NAME', 'ORACLE', 'ORACLE-64.png', 'VNFD Descriptor for UDR MP1 (On-3gpp)', 'VERSION', and '1.0'.</p>

Step	Procedure	Result
		
5. <input type="checkbox"/>	<p><b>Optional Step: Change UDR image name</b></p> <ol style="list-style-type: none"> <li>1. Open The OSM GUI and select <b>CATALOG</b>.</li> </ol> <p>Follow the steps in the image to change UDR Image Name:</p> <ol style="list-style-type: none"> <li>2. Double click <b>VNFD</b> to open edit pane</li> <li>3. Double click VDU to edit its properties</li> <li>4. Change the image name</li> <li>5. Click <b>Update</b> to save changes</li> </ol> <p><b>NOTE:</b> UDR image name must match the one you intend to use and an image with the same name is available on openstack</p>	

Step	Procedure	Result
6. <input type="checkbox"/>	<ol style="list-style-type: none"><li>1. Open the OSM GUI.</li><li>2. Click <b>LAUNCHPAD</b></li><li>3. Click <b>Instantiate Service</b></li><li>4. Select <b>UDR_2k_nsd</b>.</li><li>5. Click <b>Next</b>.</li></ol>	 <p>The screenshot displays the OSM GUI's 'LAUNCHPAD: INSTANTIATE' interface. The top navigation bar includes 'MANO', 'ACCOUNTS', 'CONFIG', 'LAUNCHPAD', and 'CATALOG'. The main content area is split into two panels. The left panel, titled 'SELECT DESCRIPTOR', shows a list of descriptors with 'ocudr_2k_nsd' highlighted. The right panel, titled 'OCUDR_2K_NSD DESCRIPTOR PREVIEW', shows the details of the selected descriptor, including its version, description, and various network parameters. At the bottom of the main content area are 'CANCEL' and 'NEXT' buttons. The 'EVENT CENTER' is visible at the very bottom of the window.</p>

Step	Procedure	Result
7. <input type="checkbox"/>	Enter the required information and click <b>Launch</b> , enter the instance name.	<p><b>NOTE:</b> Enter the VLD:*_network: VLD:IMI_NETWORK → int-imi, VLD:XSI1_NETWORK → int-xsi1, VLD:XSI2_NETWORK → int-xsi2</p>  

Step	Procedure	Result
8. <input type="checkbox"/>	Wait for the instantiation operation to complete	<p><b>NOTE:</b> In OSM Release 2, UDR NSR information may be incorrectly shown on GUI.</p> <p>To verify the status, login to the Juju server and issue the command</p> <pre>\$watch juju status</pre> <p>The screen displays a message. Wait for the cleanup of the message. The cleanup of message indicates success. (Refer to the second figure in this step)</p>  

Step	Procedure	Result
9. <input type="checkbox"/>	<p>After instantiation is complete, 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>	 <p>The screenshot shows the MANO LAUNCHPAD interface. On the left, under 'NETWORK SERVICES', there is a table with columns 'NS NAME', 'NSD', 'STATUS', and 'UPTIME'. The table contains one entry: 'edward' with NSD 'ocudr_2k_nsd', STATUS 'Configura...', and UPTIME '1h:17m'. A red circle highlights the 'edward' link in the table. On the right, the 'NETWORK SERVICE DETAILS' panel shows 'NSD: ocudr_2k_nsd' and a green banner with the text '1. click here' and 'Configuration Failed 1h:17m'. Below this, sections for 'MONITORING PARAMETERS NOT LOADED', 'NFVI-METRICS', and 'EPA-PARAMS' are visible, with the latter showing 'GUEST-EPA' and 'CPU-PINNING-POLICY ANY: 3 vms'. At the bottom, an 'EVENT CENTER' section is partially visible.</p>



Step	Procedure	Result

## N.4 PERFORM ORCHESTRATION OPERATIONS VIA OSM

After the UDR NSR ID is added in the NO charm, UDR Orchestration operations can be performed. OSM supports two operations:

1. Instantiation
2. Termination

## N.5 INSTANTIATE UDR

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

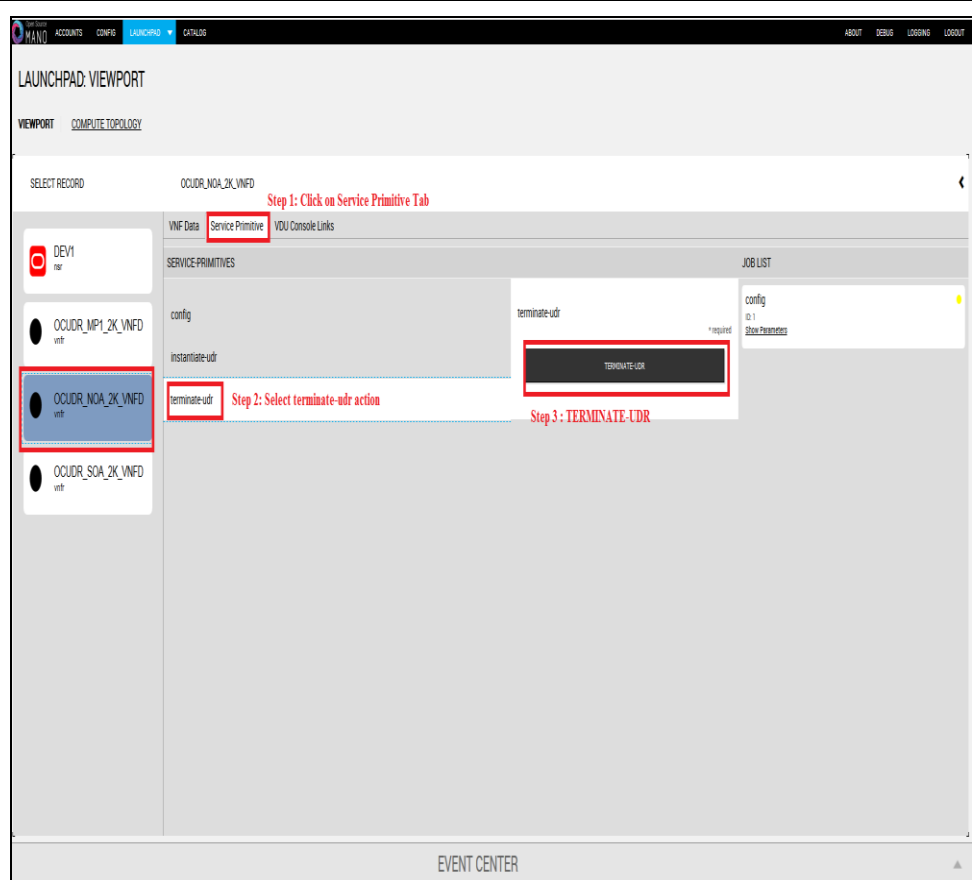
1. Navigate to **Launchpad**  
→ **Viewport** →  
**UDR\_NO\_VM**
2. Click the **Service Primitive** tab
3. Select **instantiate-udr** action
4. Enter the levelId to instantiate UDR
5. Click **instantiate-UDR**

The screenshot displays the Oracle Communications User Data Repository (UDR) Launchpad Viewport interface. The interface is divided into several sections:

- Top Navigation Bar:** Includes tabs for ACCOUNTS, CONFIG, LAUNCHPAD, and ORACLE. The LAUNCHPAD tab is active.
- Left Sidebar:** Contains a list of records under the heading "SELECT RECORD". The record "OCUDR\_NOA\_2K\_VNFD" is selected and highlighted with a red box.
- Main Content Area:**
  - Service Primitive Tab:** A red box highlights the "Service Primitive" tab, with a red arrow pointing to it and the text "Step 1: Click on Service Primitive Tab".
  - Instantiate-UDR Action:** A red box highlights the "instantiate-udr" action, with a red arrow pointing to it and the text "Step 2: Select instantiate-udr action".
  - LEVELID Input:** A red box highlights the "LEVELID" input field, with a red arrow pointing to it and the text "Step 3: provide appropriate level-id". The input field contains the value "1".
  - Instantiate-UDR Button:** A red box highlights the "INstantiate-UDR" button, with a red arrow pointing to it and the text "Step 4: instantiate-UDR".
- Right Panel:** Displays a "JOB LIST" table with columns for ID, Name, and Status. The table shows two jobs: "ID: 1" and "ID: 2".
- Bottom Bar:** Labeled "EVENT CENTER".

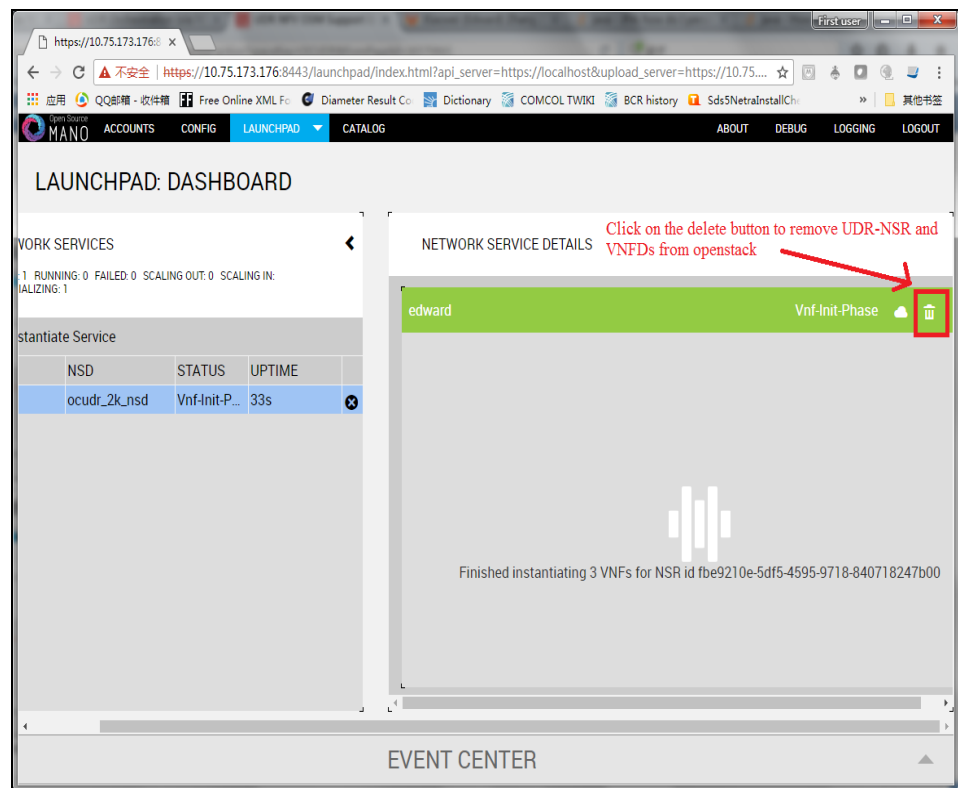
## N.6 TERMINATE UDR

1. Navigate to  
**Launchpad** →  
**Viewport** →  
**UDR\_NO\_VM**
2. Click the **Service Primitive** tab
3. Select **terminate-udr** action
4. Click **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. UDR is successfully instantiated and NFAgent service is up and running. Also a public IP is 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> <p>1. Copy the qcow2 file made from the ova file of UDR image to the tacker server (controller Node).</p> <p>2. Run the following commands:</p> <pre>\$ sudo guestmount -a UDR- 12.5.1.0.0_ 17.7.0.qcow 2 -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 extract Tacker-supprt.tar.gz file from qcow2 image</p> <p>3. Untar the file to tacker-support directory</p>	<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>

Step	Procedure	Result
2. <input type="checkbox"/>	Browse to the directory where the tacker scripts are copied on the controller Node.	<p>Run the following commands:</p> <ol style="list-style-type: none"> <li>1. <code>sudo mkdir -p /usr/lib/python2.7/site-packages/tacker/vnfm/mgmt_drivers/udr</code></li> <li>2. edit <code>mgmt_driver/udr/udr.py</code> to navigate to line 102:</li> <li>3. <code>level = str(self.cluster_info['options']['LEVEL'])</code></li> <li>4. <code>sudo cp mgmt_driver/udr/*.py /usr/lib/python2.7/site-packages/tacker/vnfm/mgmt_drivers/udr/</code></li> <li>5. <code>sudo service openstack-tacker-server restart</code></li> </ol> <p><b>NOTE:</b> Substitute <code>/usr/lib/python2.7/site-packages/tacker</code> with the tacker script installation directory for your local tacker installation path.</p> <p>Inspect <code>tacker.log</code> to verify that UDR management driver 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	<ol style="list-style-type: none"> <li>1. Edit <code>vnfd/udr-2k-vnfd.yaml</code> and find occurrences of <code>init 6</code> (there are 6 occurrences in total), prepend line with: <pre>echo 'ifconfig eth0 mtu 1450' &gt;&gt; /etc/rc.d/rc.local</pre> before each occurrence of <code>'init 6'</code>, like following: <pre>echo 'ifconfig eth0 mtu 1450' &gt;&gt; /etc/rc.d/rc.local</pre> <code>init 6</code> </li> <li>2. Source keystone rc file of openstack: <pre>source ~/keystonerc_admin</pre> </li> <li>3. Deploy the updated VNFD file with following command: <pre>tacker vnfd-create --vnfd-file vnfd/udr-2k-vnfd.yaml udrvnfd</pre> </li> <li>4. Verify that VNFD is deployed successfully. <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> </li> </ol>

### 0.3 PERFORM ORCHESTRATION OPERATIONS VIA TACKER

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

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` is replaced with the name you specify for udr vnf.
- `udrvnf-param.yaml` is the configuration file used for customizing parameters in UDR VNFD template. Change the file parameters to specify the configuration.

**Figure 5 Example of udrvnf-param.yaml**

```
xmi_network: int-xmi
imi_network: int-imi
xsi1_network: int-xsi1
xsi2_network: int-xsi2image: UDR-12.5.1.0.0_17.7.0.0
```

```
[root@nj-x52-61 tacker-support]# source ~/keystonerc_admin
[root@nj-x52-61 tacker-support(keystone_admin)]# tacker vnf-create --vnfd-name 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` is 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)]#
```