

Oracle® Communications

Software Installation

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

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ORACLE®

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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

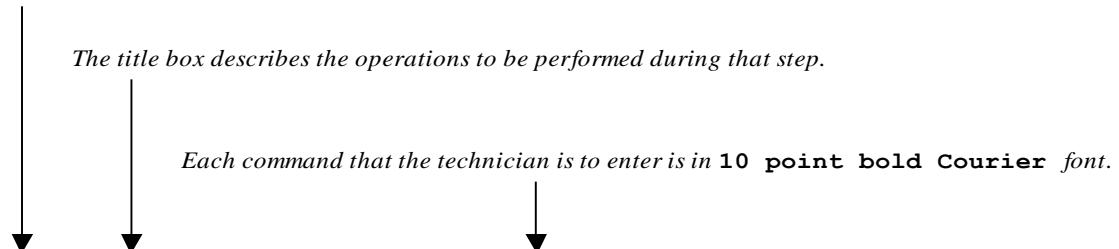
Acronym	Definition
BIOS	Basic Input Output System
CD	Compact Disk
UDR	User Data Repository
ESXi	Elastic Sky X Integrated
FABR	Full Address Based Resolution
iDIH	Integrated Diameter Intelligence Hub
IPFE	IP Front End
IPM	Initial Product Manufacture—the process of installing TPD
IWF	Inter Working Function
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"/>	ServerX: Connect to the console of the server	Establish a connection to the server using cu on the terminal server/console. \$ cu -l /dev/ttyS7
-----------------------------	---------------------------------------------------------	----------------------------------------------------------------------------------------------------------

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

1.5 Assumptions

This procedure assumes 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.

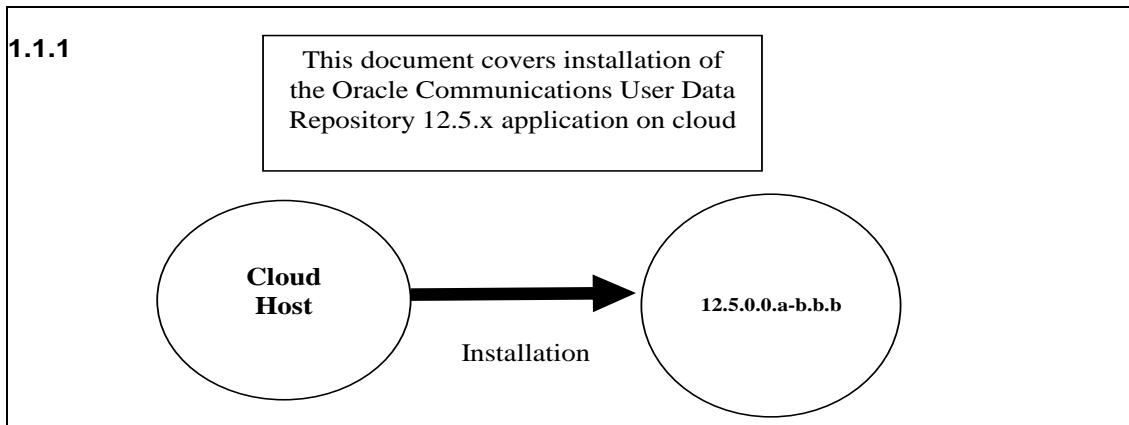


Figure 2. Example of Initial Application Installation Path

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.

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	Elapsed Time (Minutes) Cum.
Procedure 1	Verify Deployment Options and Cloud Resources	5	5
Procedure 2	Deploy Oracle Communications User Data Repository Virtual Machines on VMware	20	25
Procedure 3	Deploy Oracle User Data Repository Virtual Machines on OpenStack (Only for OpenStack deployments)	20	25
Procedure 4	Deploy Oracle User Data Repository Virtual Machines on Oracle Linux/KVM	20	25
Procedure 5	Configure UDR-A Server (1st NOAMP only)	25	50
Procedure 6	Create Configuration for Remaining Servers	15	65
Procedure 7	Apply Configuration to Remaining Servers	15	80
Procedure 8	Configure XSI Networks	10	90
Procedure 9	OAM Pairing for Primary UDR Servers (1st NOAMP site only)	10	100
Procedure 10	OAM Pairing for DR Sites	15	115
Procedure 11	Configure UDR Signaling Routes (All NOAM Sites)	10	145
Procedure 12	Configure Services on Signaling Network	5	150
Procedure 13	Accept Installation	5	155

Chapter 3. Pre-Installation Procedure

3.1 Verify Deployment Options and Cloud Resources

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

Procedure 1: Verify Deployment Options and Cloud Resources

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

Chapter 4. Cloud Creation

4.1 Deploy Oracle Communications User Data Repository Virtual Machines on VMware

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

Requirements:

- 3.1 Verify Deployment Options and Cloud Resources has been completed.

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"> If using vSphere client, place installation media (OVA, or ISO) onto your local machine. If using vCloud Director, upload installation media using Appendix C.1: vCloud Director Oracle Communications User Data Repository Media Upload
2. <input type="checkbox"/>	Create vApp	<ul style="list-style-type: none"> If using vCloud Director, follow: <ul style="list-style-type: none"> Appendix C.2: Create vApp If using vSphere client proceed to the next step.
3. <input type="checkbox"/>	Create Oracle Communications User Data Repository guests	<ul style="list-style-type: none"> If using vSphere client, follow: <ul style="list-style-type: none"> Appendix Appendix B: Create Guests from OVA If using vCloud Director, follow: <ul style="list-style-type: none"> Appendix C.5: Create Guests from ISO or Appendix C.3: Create Guests from OVA <p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
4. <input type="checkbox"/>	Configure guest resources Only OVA installs	<ul style="list-style-type: none"> If using vSphere client to install by OVA, follow: <ul style="list-style-type: none"> Appendix B.2: Configure Guest Resources If using vCloud Director to install by OVA, follow: <ul style="list-style-type: none"> Appendix C.4: Configure Guest Resources If installing by ISO proceed to the next step. <p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
5. <input type="checkbox"/>	Install guest OS Only ISO installs	<p>Only for ISO installs using vCloud Director, follow Appendix C.6: Install Guests from ISO</p> <p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>

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

4.2 Deploy Oracle User Data Repository Virtual Machines on OpenStack

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

Requirements:

- Section 3.1 has been completed

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	Follow this step to configure OAM network for VM instances: Appendix D.7: VM Instance Network Configuration Mark the check box as addition is completed for each server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
7. <input type="checkbox"/>	Associate Floating IP	Associate Floating IPs to the VM Instances if Floating IPs are available in cloud following: Appendix D.12: Associating Floating IPs Mark the check box as addition is completed for each server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B NOTE: This step is only needed if none of the networks assigned to VM Instances is a Public Network.

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

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

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

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	<p>Install Oracle Linux/KVM on the host and create VMs using Virtual Machine Manager by following the below procedure:</p> <p>Appendix J Install UDR on Oracle Linux OS via KVM</p>
THIS PROCEDURE HAS BEEN COMPLETED		

Chapter 5. Oracle Communications User Data Repository Server Configuration

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

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

Requirements:

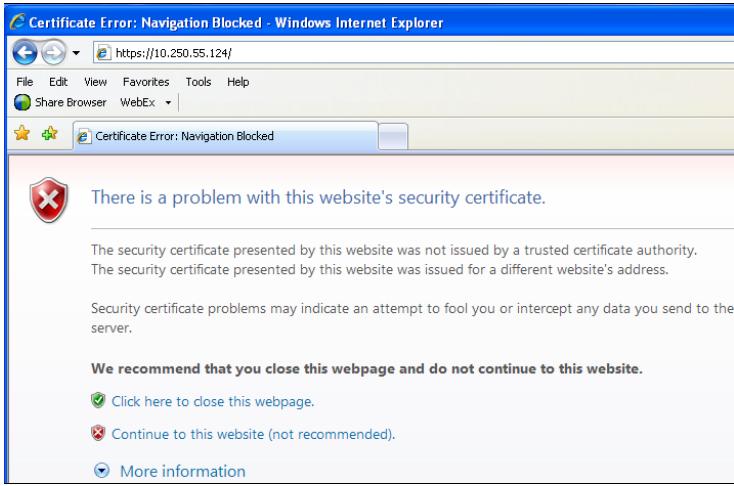
- Chapter 4 Cloud Creation has been completed

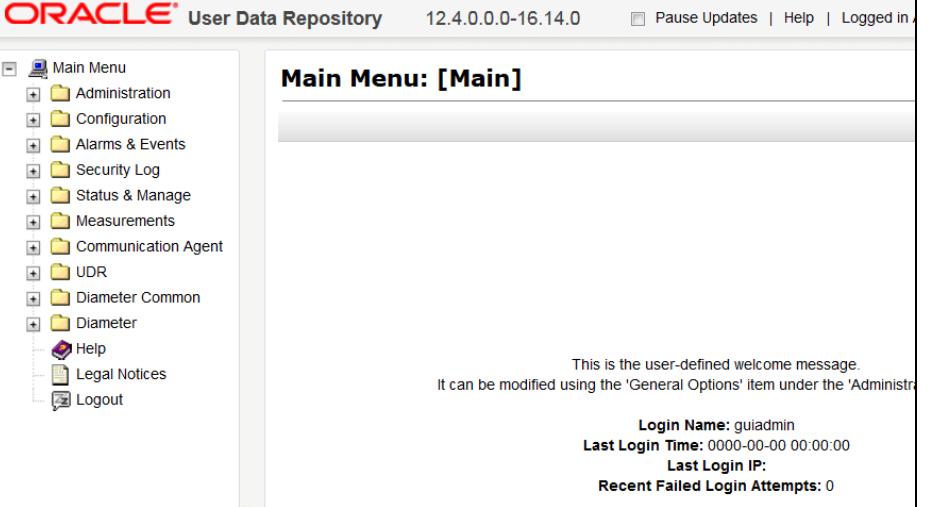
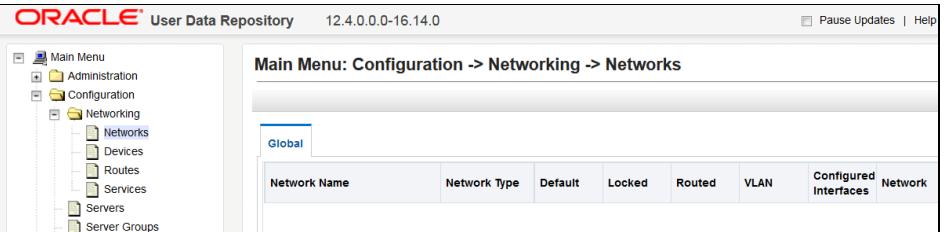
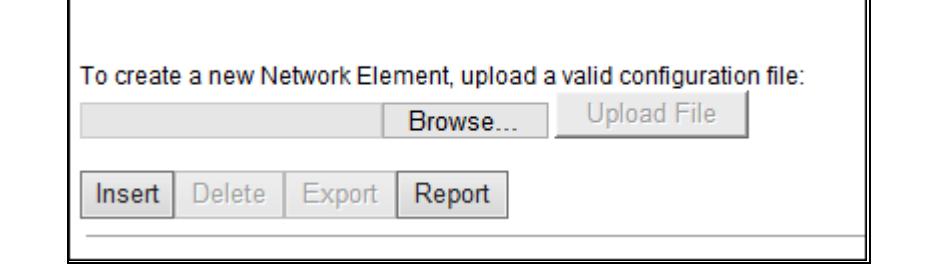
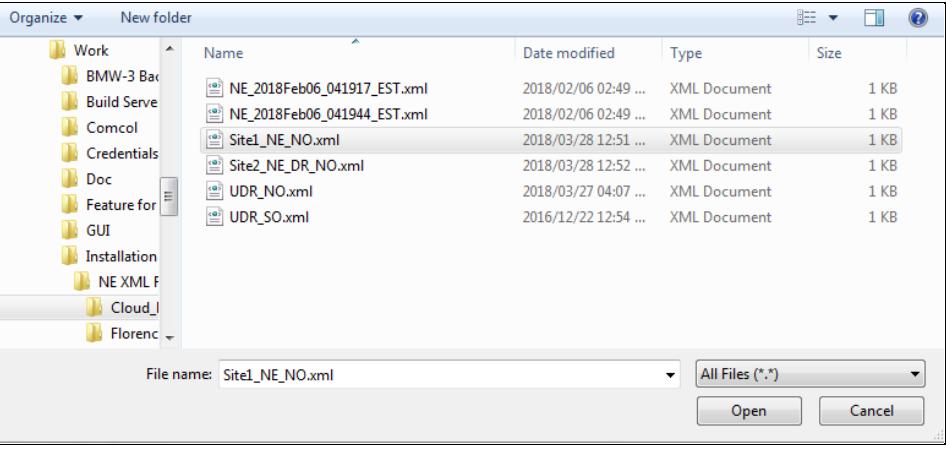
Assumptions:

- 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.

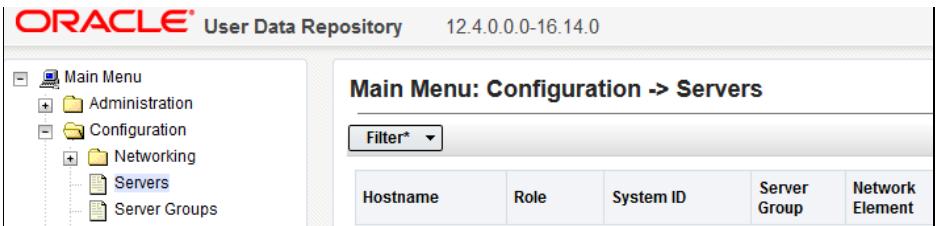
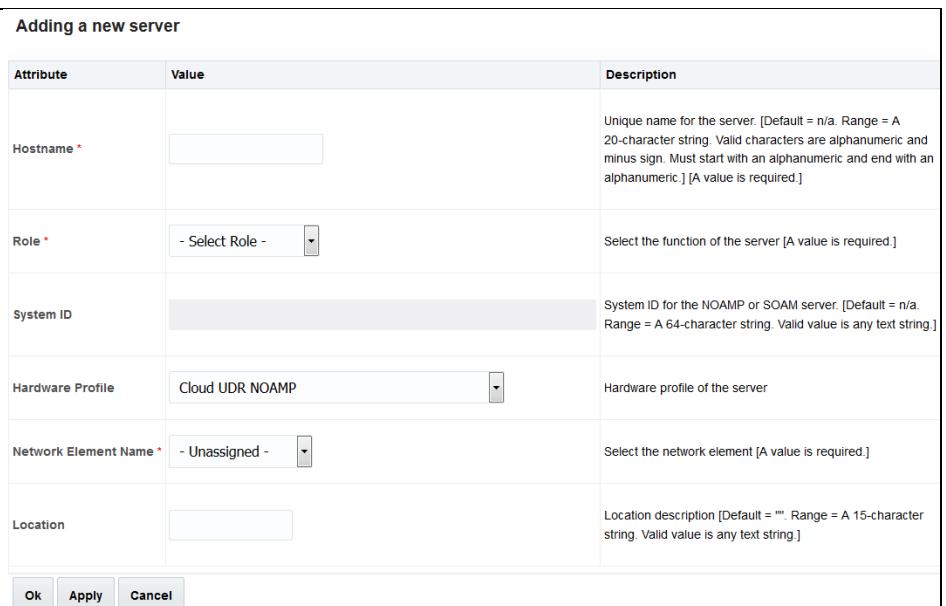
Procedure 5: Configure UDR-A Server (1st NOAMP only)

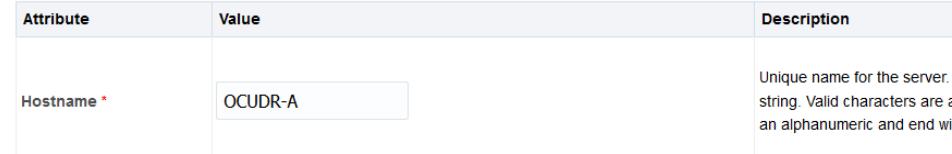
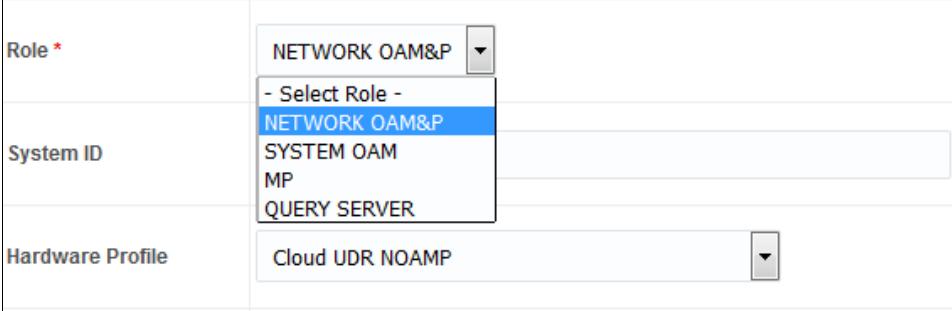
Step	Procedure	Result
1. <input type="checkbox"/>	<p>UDR Server A: Launch an approved web browser and connect to the UDR Server A IP address</p> <p>NOTE: Click Continue to this website (not recommended) if the security certificate warning displays.</p>	
2. <input type="checkbox"/>	<p>UDR Server A: The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

Step	Procedure	Result
3. <input type="checkbox"/>	UDR Server A: The Oracle Communications User Data Repository Main Menu displays.	
4. <input type="checkbox"/>	UDR Server A: <i>Configuring Network Element</i> Navigate to Main Menu → Configuration → Networking → Networks	
5. <input type="checkbox"/>	UDR Server A: Go to the Configuration → Networking → Networks screen. Click Browse.	
6. <input type="checkbox"/>	UDR Server A: NOTE: This step assumes that the XML files were previously prepared, as described in Appendix C. 1. Select the location containing the site XML file. 2. Select the XML file and click the Open .	

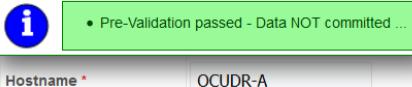
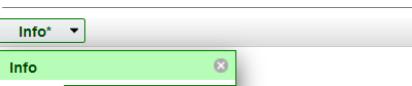
Step	Procedure	Result																								
7. <input type="checkbox"/>	UDR Server A: Click Upload File (bottom left corner of screen).																									
8. <input type="checkbox"/>	UDR Server A: If the values in the XML file pass validation rules, a banner message displays showing that the data has been successfully committed to the DB. NOTE You may have to left mouse click the Info banner option to see the message.	<table border="1"> <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>xmi</td> <td>OAM</td> <td>Yes</td> <td>Yes</td> <td>Yes</td> <td>3</td> <td>0</td> <td>10.1.0.2/24</td> </tr> <tr> <td>imi</td> <td>OAM</td> <td>No</td> <td>Yes</td> <td>Yes</td> <td>2</td> <td>0</td> <td>10.10.2.0/24</td> </tr> </tbody> </table>	Network Name	Network Type	Default	Locked	Routed	VLAN	Configured Interfaces	Network	xmi	OAM	Yes	Yes	Yes	3	0	10.1.0.2/24	imi	OAM	No	Yes	Yes	2	0	10.10.2.0/24
Network Name	Network Type	Default	Locked	Routed	VLAN	Configured Interfaces	Network																			
xmi	OAM	Yes	Yes	Yes	3	0	10.1.0.2/24																			
imi	OAM	No	Yes	Yes	2	0	10.10.2.0/24																			
9. <input type="checkbox"/>	Navigate to Main Menu → Configuration → Networking → Services	<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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10. <input type="checkbox"/>	UDR Server A: Click Edit (located at the bottom left corner of the page).	<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> <p style="text-align: center;">Edit Report</p>	Name	Intra-NE Network	Inter-NE Network	OAM	imi	xmi	Replication	imi	xmi	Signaling	Unspecified	Unspecified	HA_Secondary	imi	xmi	HA_MP_Secondary	imi	xmi	Replication_MP	imi	xmi	ComAgent	imi	xmi
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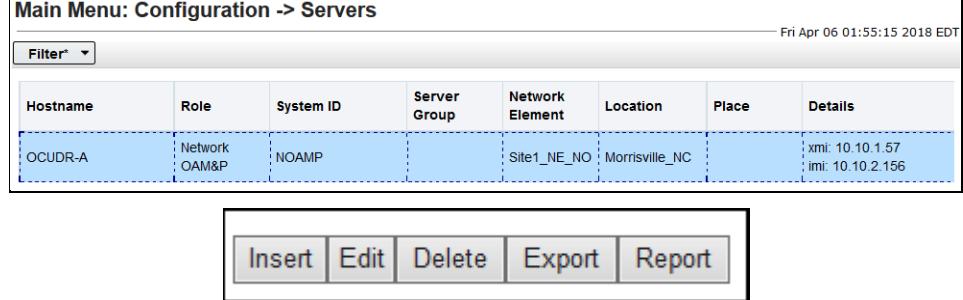
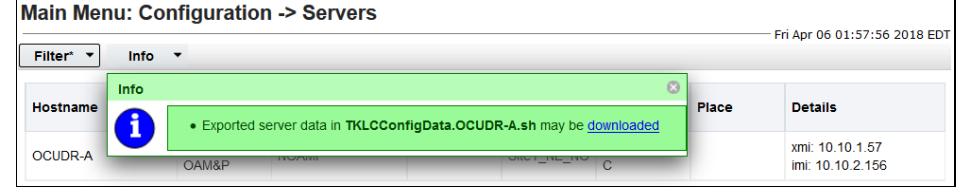
Step	Procedure	Result																											
11. <input type="checkbox"/> UDR Server A: 1. Set the services values (see Note section). 2. Click Apply . 3. Click OK .		<p>Services</p> <table border="1" data-bbox="703 270 1383 1389"> <thead> <tr> <th data-bbox="703 270 899 318">Name</th><th data-bbox="899 270 1127 318">Intra-NE Network</th><th data-bbox="1127 270 1383 318">Inter-NE Network</th></tr> </thead> <tbody> <tr> <td data-bbox="703 375 899 445">OAM</td><td data-bbox="899 375 1127 445">IMI</td><td data-bbox="1127 375 1383 445">XMI</td></tr> <tr> <td data-bbox="703 523 899 593">Replication</td><td data-bbox="899 523 1127 593">IMI</td><td data-bbox="1127 523 1383 593">XMI</td></tr> <tr> <td data-bbox="703 671 899 741">Signaling</td><td data-bbox="899 671 1127 741">Unspecified</td><td data-bbox="1127 671 1383 741">Unspecified</td></tr> <tr> <td data-bbox="703 819 899 889">HA_Secondary</td><td data-bbox="899 819 1127 889">IMI</td><td data-bbox="1127 819 1383 889">XMI</td></tr> <tr> <td data-bbox="703 967 899 1036">HA_MP_Secondary</td><td data-bbox="899 967 1127 1036">IMI</td><td data-bbox="1127 967 1383 1036">XMI</td></tr> <tr> <td data-bbox="703 1115 899 1184">Replication_MP</td><td data-bbox="899 1115 1127 1184">IMI</td><td data-bbox="1127 1115 1383 1184">XMI</td></tr> <tr> <td data-bbox="703 1262 899 1332">ComAgent</td><td data-bbox="899 1262 1127 1332">IMI</td><td data-bbox="1127 1262 1383 1332">XMI</td></tr> <tr> <td data-bbox="703 1389 1029 1438" style="text-align: right;"> <input type="button" value="Ok"/> <input type="button" value="Apply"/> <input type="button" value="Cancel"/> </td><td data-bbox="1029 1389 1383 1438"></td><td data-bbox="1383 1389 1545 1438"></td></tr> </tbody> </table> <p>NOTE: Servers do not need to be restarted if this is a fresh installation.</p>	Name	Intra-NE Network	Inter-NE Network	OAM	IMI	XMI	Replication	IMI	XMI	Signaling	Unspecified	Unspecified	HA_Secondary	IMI	XMI	HA_MP_Secondary	IMI	XMI	Replication_MP	IMI	XMI	ComAgent	IMI	XMI	<input type="button" value="Ok"/> <input type="button" value="Apply"/> <input type="button" value="Cancel"/>		
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<input type="button" value="Ok"/> <input type="button" value="Apply"/> <input type="button" value="Cancel"/>																													

Step	Procedure	Result																								
12. <input type="checkbox"/>	UDR Server A: The Services configuration screen opens.	<table border="1"> <thead> <tr> <th data-bbox="600 213 975 244">Name</th> <th data-bbox="975 213 1204 244">Intra-NE Network</th> <th data-bbox="1204 213 1498 244">Inter-NE Network</th> </tr> </thead> <tbody> <tr> <td data-bbox="600 255 975 287">OAM</td><td data-bbox="975 255 1204 287">IMI</td><td data-bbox="1204 255 1498 287">XMI</td></tr> <tr> <td data-bbox="600 297 975 329">Replication</td><td data-bbox="975 297 1204 329">IMI</td><td data-bbox="1204 297 1498 329">XMI</td></tr> <tr> <td data-bbox="600 340 975 371">Signaling</td><td data-bbox="975 340 1204 371">Unspecified</td><td data-bbox="1204 340 1498 371">Unspecified</td></tr> <tr> <td data-bbox="600 382 975 413">HA_Secondary</td><td data-bbox="975 382 1204 413">IMI</td><td data-bbox="1204 382 1498 413">XMI</td></tr> <tr> <td data-bbox="600 424 975 456">HA_MP_Secondary</td><td data-bbox="975 424 1204 456">IMI</td><td data-bbox="1204 424 1498 456">XMI</td></tr> <tr> <td data-bbox="600 466 975 498">Replication_MP</td><td data-bbox="975 466 1204 498">IMI</td><td data-bbox="1204 466 1498 498">XMI</td></tr> <tr> <td data-bbox="600 508 975 540">ComAgent</td><td data-bbox="975 508 1204 540">IMI</td><td data-bbox="1204 508 1498 540">XMI</td></tr> </tbody> </table>	Name	Intra-NE Network	Inter-NE Network	OAM	IMI	XMI	Replication	IMI	XMI	Signaling	Unspecified	Unspecified	HA_Secondary	IMI	XMI	HA_MP_Secondary	IMI	XMI	Replication_MP	IMI	XMI	ComAgent	IMI	XMI
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13. <input type="checkbox"/>	UDR Server A: <i>Configuring Oracle Communications User Data Repository Server</i> Navigate to Main Menu → Configuration → Servers																									
14. <input type="checkbox"/>	UDR Server A: Click Insert at the bottom left.																									
15. <input type="checkbox"/>	UDR Server A: The Adding a new server configuration screen opens.																									

Step	Procedure	Result
16. <input type="checkbox"/>	UDR Server A: Enter the assigned hostname for the UDR-A Server.	
17. <input type="checkbox"/>	UDR Server A: Select NETWORK OAM&P for the server Role from the menu.	
18. <input type="checkbox"/>	UDR Server A: Enter the System ID for the NOAMP Server.	
19. <input type="checkbox"/>	UDR Server A: Select the hardware profile from the menu.	Select the hardware profile: Cloud UDR NOAMP 
20. <input type="checkbox"/>	UDR Server A: Select the Network Element Name from the menu. NOTE: After the Network Element Name is selected, the Interfaces fields are displayed.	
21. <input type="checkbox"/>	UDR Server A: Enter the site location. NOTE: Location is an optional field.	

Step	Procedure	Result																			
22. <input type="checkbox"/>	UDR Server A: 1. Enter the IP Addresses for the Server. 2. Set the Interface parameters according to deployment type.	<p>OAM Interfaces [At least one interface is required.]:</p> <table border="1"> <thead> <tr> <th data-bbox="572 213 719 240">Network</th> <th data-bbox="719 213 1160 240">IP Address</th> <th data-bbox="1160 213 1535 240">Interface</th> </tr> </thead> <tbody> <tr> <td data-bbox="572 276 719 304">xmi (10.10.1.0/24)</td> <td data-bbox="719 276 1160 304">10.10.1.57</td> <td data-bbox="1160 276 1535 340"> eth0 <input type="button" value="▼"/> <input type="checkbox"/> VLAN (3) </td> </tr> <tr> <td data-bbox="572 382 719 409">imi (10.10.2.0/24)</td> <td data-bbox="719 382 1160 409">10.10.2.156</td> <td data-bbox="1160 382 1535 445"> eth1 <input type="button" value="▼"/> <input type="checkbox"/> VLAN (2) </td> </tr> </tbody> </table> <p>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</p>	Network	IP Address	Interface	xmi (10.10.1.0/24)	10.10.1.57	eth0 <input type="button" value="▼"/> <input type="checkbox"/> VLAN (3)	imi (10.10.2.0/24)	10.10.2.156	eth1 <input type="button" value="▼"/> <input type="checkbox"/> VLAN (2)										
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23. <input type="checkbox"/>	UDR Server A: Click Add under NTP Servers and enter the address of the supplied NTP server.	<p>NTP Server IP Address</p> <table border="1"> <thead> <tr> <th data-bbox="572 656 948 684">NTP Server IP Address</th> <th data-bbox="948 656 1160 684">Prefer</th> <th data-bbox="1160 656 1535 684">Add</th> </tr> </thead> <tbody> <tr> <td data-bbox="572 684 948 711">10.240.15.7</td> <td data-bbox="948 684 1160 711"><input type="checkbox"/></td> <td data-bbox="1160 684 1535 711"><input type="button" value="Remove"/></td> </tr> <tr> <td data-bbox="572 720 948 747">10.240.15.8</td> <td data-bbox="948 720 1160 747"><input type="checkbox"/></td> <td data-bbox="1160 720 1535 747"><input type="button" value="Remove"/></td> </tr> <tr> <td data-bbox="572 756 948 783">10.240.15.9</td> <td data-bbox="948 756 1160 783"><input type="checkbox"/></td> <td data-bbox="1160 756 1535 783"><input type="button" value="Remove"/></td> </tr> <tr> <td data-bbox="572 792 948 819">10.240.15.11</td> <td data-bbox="948 792 1160 819"><input type="checkbox"/></td> <td data-bbox="1160 792 1535 819"><input type="button" value="Remove"/></td> </tr> </tbody> </table> <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>NTP Servers:</p> <table border="1"> <thead> <tr> <th data-bbox="736 1015 1013 1043">NTP Server IP Address</th> <th data-bbox="1013 1015 1160 1043">Prefer</th> </tr> </thead> <tbody> <tr> <td data-bbox="736 1079 1013 1106"><input type="button" value="Add"/></td> <td data-bbox="1160 1079 1535 1106"><input type="button" value="Remove"/></td> </tr> </tbody> </table>	NTP Server IP Address	Prefer	Add	10.240.15.7	<input type="checkbox"/>	<input type="button" value="Remove"/>	10.240.15.8	<input type="checkbox"/>	<input type="button" value="Remove"/>	10.240.15.9	<input type="checkbox"/>	<input type="button" value="Remove"/>	10.240.15.11	<input type="checkbox"/>	<input type="button" value="Remove"/>	NTP Server IP Address	Prefer	<input type="button" value="Add"/>	<input type="button" value="Remove"/>
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<input type="button" value="Add"/>	<input type="button" value="Remove"/>																				

Step	Procedure	Result																
24. <input type="checkbox"/>	UDR Server A: Click Info to see a banner message stating Pre-Validation passed. Click Apply .	<p>Main Menu: Configuration -> Servers [Insert]</p>  <p>Hostname * OCUDR-A</p> <p>xmi (10.10.1.0/24) 10.10.1.57 eth0 VLAN (3)</p> <p>imi (10.10.2.0/24) 10.10.2.156 eth1 VLAN (2)</p> <p>NTP Servers:</p> <table border="1"> <thead> <tr> <th>NTP Server IP Address</th> <th>Prefer</th> </tr> </thead> <tbody> <tr> <td>192.168.56.180</td> <td><input type="checkbox"/></td> </tr> </tbody> </table> <p>Ok Apply Cancel</p>	NTP Server IP Address	Prefer	192.168.56.180	<input type="checkbox"/>												
NTP Server IP Address	Prefer																	
192.168.56.180	<input type="checkbox"/>																	
25. <input type="checkbox"/>	UDR Server A: 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.	<p>Main Menu: Configuration -> Servers [Insert]</p>  <p>Hostname * OCUDR-A</p> <p>Unique name for the server. [Default string. Valid characters are alphanumeric and end with an alp</p>																
26. <input type="checkbox"/>	UDR Server A: Applying the Server Configuration File Navigate to Main Menu → Configuration → Servers	<p>Main Menu: Configuration -> Servers</p> <p>Filter*</p> <table border="1"> <thead> <tr> <th>Hostname</th> <th>Role</th> <th>System ID</th> <th>Server Group</th> <th>Network Element</th> </tr> </thead> <tbody> <tr> <td>OCUDR-A</td> <td>Network OAM&P</td> <td>NOAMP</td> <td></td> <td>Site1_NE_NO</td> </tr> </tbody> </table>	Hostname	Role	System ID	Server Group	Network Element	OCUDR-A	Network OAM&P	NOAMP		Site1_NE_NO						
Hostname	Role	System ID	Server Group	Network Element														
OCUDR-A	Network OAM&P	NOAMP		Site1_NE_NO														
27. <input type="checkbox"/>	UDR Server A: The Configuration → Servers screen lists the added Server.	<p>Main Menu: Configuration -> Servers</p> <p>Fri Apr 06 01:55:15 2018 EDT</p> <p>Filter*</p> <table border="1"> <thead> <tr> <th>Hostname</th> <th>Role</th> <th>System ID</th> <th>Server Group</th> <th>Network Element</th> <th>Location</th> <th>Place</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>OCUDR-A</td> <td>Network OAM&P</td> <td>NOAMP</td> <td></td> <td>Site1_NE_NO</td> <td>Morrisville_NC</td> <td></td> <td>xmi: 10.10.1.57 imi: 10.10.2.156</td> </tr> </tbody> </table>	Hostname	Role	System ID	Server Group	Network Element	Location	Place	Details	OCUDR-A	Network OAM&P	NOAMP		Site1_NE_NO	Morrisville_NC		xmi: 10.10.1.57 imi: 10.10.2.156
Hostname	Role	System ID	Server Group	Network Element	Location	Place	Details											
OCUDR-A	Network OAM&P	NOAMP		Site1_NE_NO	Morrisville_NC		xmi: 10.10.1.57 imi: 10.10.2.156											

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

Step	Procedure	Result
33. <input type="checkbox"/>	<p>UDR Server A: After the script completes, a broadcast message is sent to the terminal.</p> <p>Ignore the output and press ENTER to return to the command prompt.</p> <p>NOTE: The time to complete this step varies by server and may take from 3 to 20 minutes to complete.</p>	<p>*** NO OUTPUT FOR approximately 3 to 20 MINUTES ***</p> <pre>Broadcast message from root (Fri Mar 30 01:47:58 2018): Server configuration completed successfully! See /var/TKLC/appw/logs/Process/install.log for details. Please remove the USB flash drive if connected and reboot the server. <ENTER></pre>
34. <input type="checkbox"/>	<p>UDR Server A: Configure the time zone.</p>	<pre># set_ini_tz.pl <time zone></pre> <p>NOTE: The following command example uses America/New_York time zone. Replace, as appropriate, with the time zone you have selected for this installation. For UTC, use Etc/UTC.</p> <pre># set_ini_tz.pl "America/New_York"</pre>
35. <input type="checkbox"/>	<p>UDR Server A: Initiate a reboot of the UDR Server.</p>	<pre># reboot</pre>
36. <input type="checkbox"/>	<p>UDR Server A: 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: <admusr_password> Last login: Wed Mar 28 05:03:47 2018 from 10.178.25.81</pre> <p>NOTE: 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>UDR Server A: Verify that the XMI and IMI IP addresses entered in Step 22 have been applied</p>	<pre>\$ ifconfig grep in grep -v inet6</pre> <p>Example:</p> <pre>eth0 Link encap:Ethernet HWaddr FA:16:3E:3C:8D:DE inet addr:10.10.1.57 Bcast:10.10.1.255 Mask:255.255.255.0 eth1 Link encap:Ethernet HWaddr FA:16:3E:EF:4D:EF inet addr:10.10.2.156 Bcast:10.10.2.255 Mask:255.255.255.0</pre> <p>NOTE: The XMI and IMI addresses for the server are verified by reviewing the server configuration using the Oracle Communications User Data Repository GUI.</p> <ol style="list-style-type: none"> 1. Navigate to Main Menu → Configuration → Servers 2. Scroll to line entry containing the hostname for the servers.

Step	Procedure	Result
38. <input type="checkbox"/>	<p>UDR Server A: Use the <code>ntpq</code> command to verify that the server has connectivity to the assigned Primary (and Secondary if one was provided) NTP servers.</p>	<pre>\$ ntpq -np 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</pre>
		<p>IF CONNECTIVITY TO THE NTP SERVERS CANNOT BE ESTABLISHED, STOP AND PERFROM THE FOLLOWING STEPS:</p>
<p><i>Have the IT group provide a network path from the OAM server IP to the assigned NTP IP addresses.</i></p> <p>AFTER NETWORK CONNECTIVITY IS ESTABLISHED TO THE ASSIGNED NTP IP ADDRESSES, THEN RESTART THIS PROCEDURE BEGINNING WITH STEP 35.</p>		
39. <input type="checkbox"/>	<p>UDR Server A: Run the <code>alarmMgr</code> to verify the health of the server</p>	<pre>\$ alarmMgr --alarmStatus</pre> <p>NOTE: This command should not return output on a healthy system.</p>
40. <input type="checkbox"/>	<p>UDR Server A: Exit the SSH session for the UDR-A server</p>	<pre>\$ exit</pre>
<p>THIS PROCEDURE HAS BEEN COMPLETED</p>		

5.2 Create Configuration for Remaining Servers

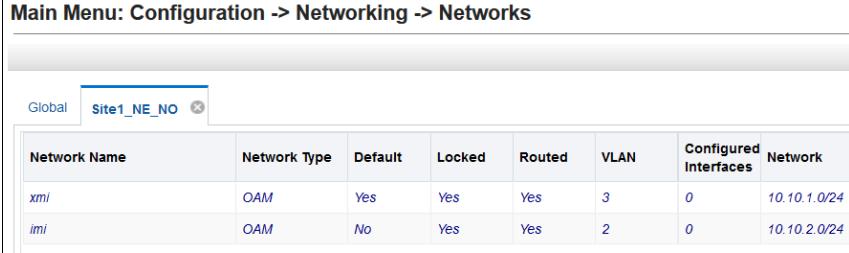
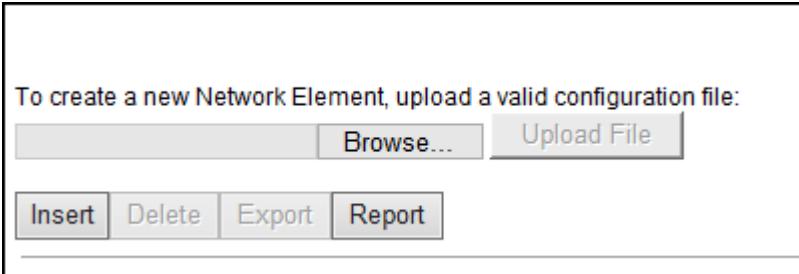
This procedure is used to create and configure all Oracle Communications User Data Repository Servers (Primary and DR Servers) except the first UDR-A server.

Requirements:

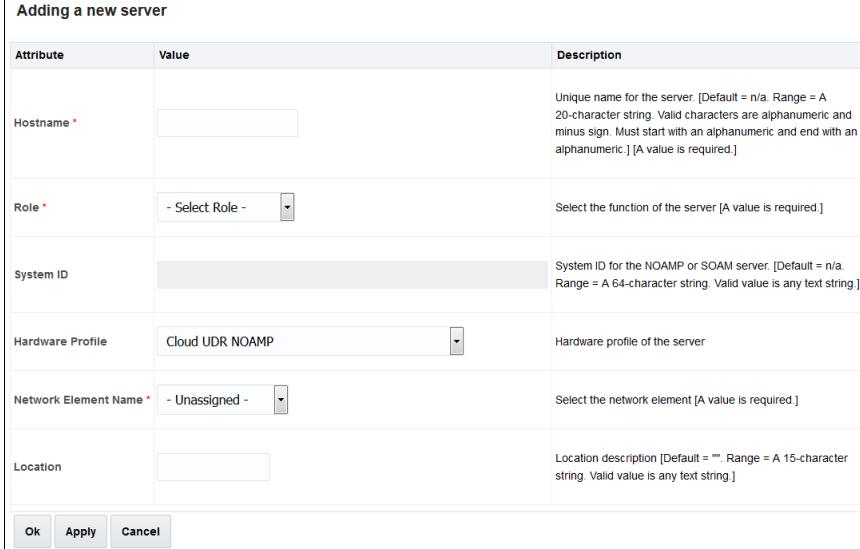
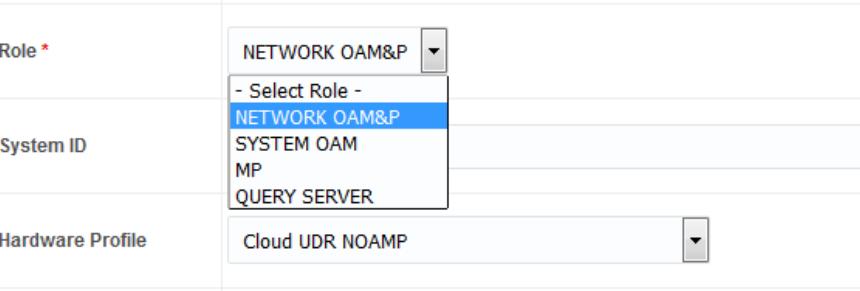
- Section 5.1 Configure UDR-A Server (1st NOAMP only) has been completed

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

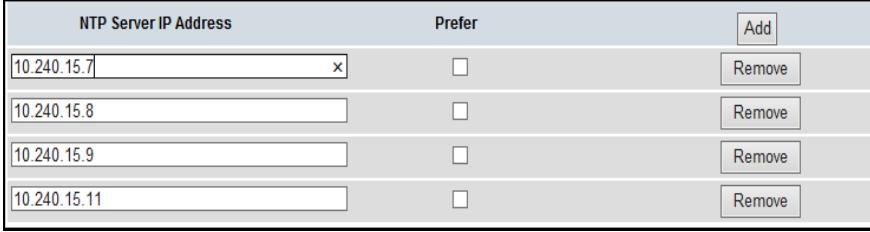
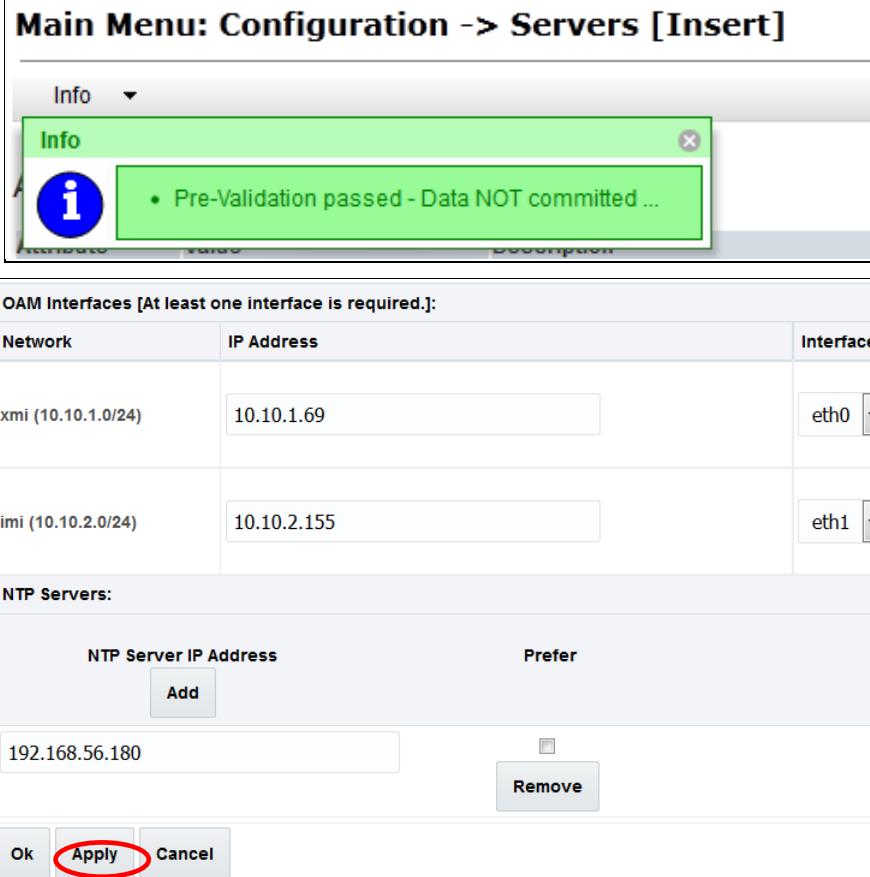
Procedure 6: Create Configuration for Remaining Servers

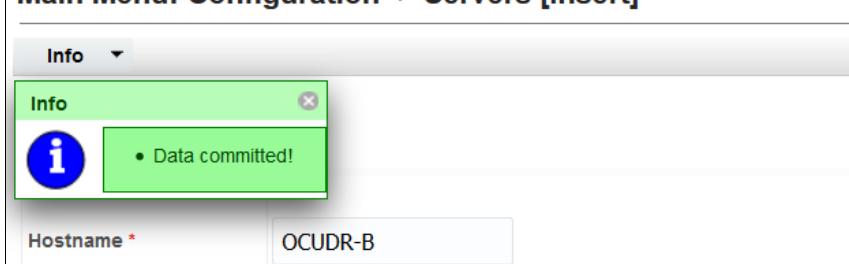
Step	Procedure	Result																								
1. <input type="checkbox"/>	<p>UDR Server A: Launch an approved web browser and connect to the UDR Server A IP address</p> <p>NOTE: Click Continue to this website (not recommended) if the security certificate warning displays.</p> <p>Login to the GUI using the default user and password.</p>	 <p>Welcome to the Oracle System Login.</p>																								
<p><i>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)</i></p>																										
2. <input type="checkbox"/>	<p>UDR Server A: Configuring Network Element Navigate to Main Menu → Configuration → Network Elements</p>	 <table border="1"> <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>xmi</td><td>OAM</td><td>Yes</td><td>Yes</td><td>Yes</td><td>3</td><td>0</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>0</td><td>10.10.2.0/24</td></tr> </tbody> </table>	Network Name	Network Type	Default	Locked	Routed	VLAN	Configured Interfaces	Network	xmi	OAM	Yes	Yes	Yes	3	0	10.10.1.0/24	imi	OAM	No	Yes	Yes	2	0	10.10.2.0/24
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3. <input type="checkbox"/>	<p>UDR Server A: On the Configuration → Network Elements screen, click Browse.</p>																									

Step	Procedure	Result																														
4. <input type="checkbox"/>	<p>UDR Server A:</p> <p>NOTE: This step assumes that the xml files were previously prepared, as described in Appendix.</p> <ol style="list-style-type: none"> 1. Select the location containing the site .xml file. 2. Select the .xml file and click the Open. 																															
5. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Click Upload File (bottom left corner of screen).</p>	<div style="border: 1px solid #ccc; padding: 10px; text-align: center;"> <p>To create a new Network Element, upload a valid configuration file:</p> <div style="display: flex; justify-content: space-around; align-items: center;"> Browse... Site2_NE_DR_NO.xml Upload File </div> <p>Copyright © 2010, 2018, Oracle and/or its affiliates. All rights reserved.</p> </div>																														
6. <input type="checkbox"/>	<p>UDR Server A:</p> <p>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.</p> <p>NOTE: You may have to left mouse click the Info banner option to see the banner message.</p>	<div style="display: flex; align-items: flex-start;"> <div style="border: 1px solid #ccc; padding: 5px; margin-right: 10px;"> Info </div> <div> <p>• Network Element insert successful from /tmp/Site2_NE_DR_NO.xml.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Global</th> <th>Site1_NE_NO</th> <th>Site2_NE_DR_NO</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Network Name</th> <th>Network Type</th> <th>Default</th> <th>Locked</th> <th>Routed</th> <th>VLAN</th> <th>Configured</th> <th>Network</th> </tr> </thead> <tbody> <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> </tbody> </table> </td> </tr> </tbody> </table> </div> </div>	Global	Site1_NE_NO	Site2_NE_DR_NO			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Network Name</th> <th>Network Type</th> <th>Default</th> <th>Locked</th> <th>Routed</th> <th>VLAN</th> <th>Configured</th> <th>Network</th> </tr> </thead> <tbody> <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> </tbody> </table>	Network Name	Network Type	Default	Locked	Routed	VLAN	Configured	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
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<p>NOTE: 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.</p>																																
7. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Navigate to Main Menu → Configuration → Servers</p>	<div style="border: 1px solid #ccc; padding: 10px; width: 100%;"> <p>Main Menu: Configuration -> Servers</p> <p style="text-align: right;">Fri Apr 06 01:55:15 2018 EDT</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Hostname</th> <th>Role</th> <th>System ID</th> <th>Server Group</th> <th>Network Element</th> <th>Location</th> <th>Place</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>OCUDR-A</td> <td>Network OAM&P</td> <td>NOAMP</td> <td></td> <td>Site1_NE_NO</td> <td>Morrisville_NC</td> <td></td> <td>xmi: 10.10.1.57 imi: 10.10.2.156</td> </tr> </tbody> </table> <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> </div>	Hostname	Role	System ID	Server Group	Network Element	Location	Place	Details	OCUDR-A	Network OAM&P	NOAMP		Site1_NE_NO	Morrisville_NC		xmi: 10.10.1.57 imi: 10.10.2.156														
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Step	Procedure	Result
8. <input type="checkbox"/>	UDR Server A: Click Insert at the bottom left.	 Mark the check box as addition is completed for each server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
9. <input type="checkbox"/>	UDR Server A: The Adding a new server configuration screen opens.	 Mark the check box as addition is completed for each server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
10. <input type="checkbox"/>	UDR Server A: Enter the assigned Hostname for the server.	 Mark the check box as addition is completed for each server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
11. <input type="checkbox"/>	UDR Server A: Select the appropriate server Role from the menu.	 Mark the check box as addition is completed for each server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B

Step	Procedure	Result										
12. <input type="checkbox"/>	<p>UDR Server A: Enter the System ID for the server. NOTE: System ID is not required for MP.</p>	<p>System ID <input type="text" value="NOAMP"/></p> <p>System ID for the NOAMP or SOAM server. [Default = n/a. Range = A 64-character string. Valid value is any text string.]</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>									
13. <input type="checkbox"/>	<p>UDR Server A: Select the hardware profile from the list.</p>	<p>Hardware Profile <input type="text" value="Cloud UDR NOAMP"/></p> <p>Hardware profile of 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>									
14. <input type="checkbox"/>	<p>UDR Server A: Select the Network Element Name from the menu. NOTE: After the Network Element Name is selected, the Interfaces fields are displayed.</p>	<p>Network Element Name <input type="text" value="Site1_NE_NO"/></p> <p>Select the network element [A value is required.]</p> <p>NOTE: NO and DR pairs have their own Network element.</p>	<p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>									
15. <input type="checkbox"/>	<p>UDR Server A: Enter the site location. NOTE: Location is an optional field.</p>	<p>Location <input type="text" value="Morrisville_NC"/></p> <p>Location description [Default = "". Range = A 15-character string. Valid value is any text string.]</p>	<p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>									
16. <input type="checkbox"/>	<p>UDR Server A:</p> <ol style="list-style-type: none"> 1. Enter the IP Addresses for the Server. 2. Set the Interface parameters according to deployment type. 	<p>OAM Interfaces [At least one interface is required.]:</p> <table border="1"> <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="10.10.1.69"/></td> <td>eth0 <input type="button" value="▼"/> <input type="checkbox"/> VLAN (3)</td> </tr> <tr> <td>imi (10.10.2.0/24)</td> <td><input type="text" value="10.10.2.155"/></td> <td>eth1 <input type="button" value="▼"/> <input type="checkbox"/> VLAN (2)</td> </tr> </tbody> </table> <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>	Network	IP Address	Interface	xmi (10.10.1.0/24)	<input type="text" value="10.10.1.69"/>	eth0 <input type="button" value="▼"/> <input type="checkbox"/> VLAN (3)	imi (10.10.2.0/24)	<input type="text" value="10.10.2.155"/>	eth1 <input type="button" value="▼"/> <input type="checkbox"/> VLAN (2)	<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>
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Step	Procedure	Result
17. <input type="checkbox"/>	<p>UDR Server A: Click Add under NTP Servers and enter the addresses of the NTP servers.</p>	 <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> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
18. <input type="checkbox"/>	<p>UDR Server A: Click Info to see a banner with a message stating Pre-Validation passed. Click Apply.</p>	<p>Main Menu: Configuration -> Servers [Insert]</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																								
19. <input type="checkbox"/>	UDR Server A: If the values match the network ranges assigned to the NE, click Info to see a banner message stating that the data has been validated and committed to the DB.	<p>Main Menu: Configuration -> Servers [Insert]</p>  <p>Hostname * OCUDR-B</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>																								
20. <input type="checkbox"/>	UDR Server A: Applying the Server Configuration File Select Main Menu → Configuration → Servers	<p>Main Menu: Configuration -> Servers</p> <p>Fri Apr 06 02:45:03 2018 EDT</p> <table border="1"> <thead> <tr> <th>Hostname</th><th>Role</th><th>System ID</th><th>Server Group</th><th>Network Element</th><th>Location</th><th>Place</th><th>Details</th></tr> </thead> <tbody> <tr> <td>OCUDR-A</td><td>Network OAM&P</td><td>NOAMP</td><td></td><td>Site1_NE_NO</td><td>Morrisville_NC</td><td></td><td>xmi: 10.10.1.57 imi: 10.10.2.156</td></tr> <tr> <td>OCUDR-B</td><td>Network OAM&P</td><td>NOAMP</td><td></td><td>Site1_NE_NO</td><td>Morrisville_NC</td><td></td><td>xmi: 10.10.1.69 imi: 10.10.2.155</td></tr> </tbody> </table> <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>	Hostname	Role	System ID	Server Group	Network Element	Location	Place	Details	OCUDR-A	Network OAM&P	NOAMP		Site1_NE_NO	Morrisville_NC		xmi: 10.10.1.57 imi: 10.10.2.156	OCUDR-B	Network OAM&P	NOAMP		Site1_NE_NO	Morrisville_NC		xmi: 10.10.1.69 imi: 10.10.2.155
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21. <input type="checkbox"/>	UDR Server A: The Configuration → Servers screen shows the added Server in the list.	<p>Main Menu: Configuration -> Servers</p> <p>Fri Apr 06 02:45:03 2018 EDT</p> <table border="1"> <thead> <tr> <th>Hostname</th><th>Role</th><th>System ID</th><th>Server Group</th><th>Network Element</th><th>Location</th><th>Place</th><th>Details</th></tr> </thead> <tbody> <tr> <td>OCUDR-A</td><td>Network OAM&P</td><td>NOAMP</td><td></td><td>Site1_NE_NO</td><td>Morrisville_NC</td><td></td><td>xmi: 10.10.1.57 imi: 10.10.2.156</td></tr> <tr> <td>OCUDR-B</td><td>Network OAM&P</td><td>NOAMP</td><td></td><td>Site1_NE_NO</td><td>Morrisville_NC</td><td></td><td>xmi: 10.10.1.69 imi: 10.10.2.155</td></tr> </tbody> </table> <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>	Hostname	Role	System ID	Server Group	Network Element	Location	Place	Details	OCUDR-A	Network OAM&P	NOAMP		Site1_NE_NO	Morrisville_NC		xmi: 10.10.1.57 imi: 10.10.2.156	OCUDR-B	Network OAM&P	NOAMP		Site1_NE_NO	Morrisville_NC		xmi: 10.10.1.69 imi: 10.10.2.155
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22. <input type="checkbox"/>	UDR Server A: 1. Use the cursor to select the added Server. 2. The row containing the Server is be highlighted in SKY BLUE. 3. Click Export .	<p>Main Menu: Configuration -> Servers</p> <p>Fri Apr 06 02:45:03 2018 EDT</p> <table border="1"> <thead> <tr> <th>Hostname</th><th>Role</th><th>System ID</th><th>Server Group</th><th>Network Element</th><th>Location</th><th>Place</th><th>Details</th></tr> </thead> <tbody> <tr> <td>OCUDR-A</td><td>Network OAM&P</td><td>NOAMP</td><td></td><td>Site1_NE_NO</td><td>Morrisville_NC</td><td></td><td>xmi: 10.10.1.57 imi: 10.10.2.156</td></tr> <tr> <td>OCUDR-B</td><td>Network OAM&P</td><td>NOAMP</td><td></td><td>Site1_NE_NO</td><td>Morrisville_NC</td><td></td><td>xmi: 10.10.1.69 imi: 10.10.2.155</td></tr> </tbody> </table> <p>Insert Edit Delete Export Report</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>	Hostname	Role	System ID	Server Group	Network Element	Location	Place	Details	OCUDR-A	Network OAM&P	NOAMP		Site1_NE_NO	Morrisville_NC		xmi: 10.10.1.57 imi: 10.10.2.156	OCUDR-B	Network OAM&P	NOAMP		Site1_NE_NO	Morrisville_NC		xmi: 10.10.1.69 imi: 10.10.2.155
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23. <input type="checkbox"/>	VMware client: Repeat this procedure to create configuration for each remaining server:	<p>Repeat this procedure to create configuration for each remaining server:</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>																								
THIS PROCEDURE HAS BEEN COMPLETED																										

5.3 Apply Configuration to Remaining Servers

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

Requirements:

- Section 5.2 Create Configuration for Remaining Servers has been completed

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"/>	UDR Server A: Connect to the UDR-A Server terminal at the Primary UDR site	SSH to the Primary UDR-A XMI IP_address. Mark the check box as addition is completed for each server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
2. <input type="checkbox"/>	UDR Server A: 1. Access the command prompt. 2. Log into the Primary UDR-A server as the admusr user.	<pre>login as: admusr admusr@10.250.xx.yy's password: <admusr_password></pre> Last login: Mon Jul 30 10:33:19 2012 from 10.25.80.199 \$ Mark the check box as addition is completed for each server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
3. <input type="checkbox"/>	UDR Server A: Change directory into the file management space	<pre>[admusr@pc9040833-no-a ~]\$ cd /var/TKLC/db/filemgmt</pre> Mark the check box as addition is completed for each server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
4. <input type="checkbox"/>	UDR Server A: Get a directory listing and find the configuration files for the servers.	<pre>[admusr@pc9040833-no-a ~]\$ ls -ltr TKLCConfigData*.sh</pre> *** TRUNCATED OUTPUT *** <pre>-rw-rw-rw- 1 root root 1257 Aug 17 14:01 TKLCConfigData.UDR-A .sh -rw-rw-rw- 1 root root 1311 Aug 17 14:30 TKLCConfigData.NO-B.sh</pre> Mark the check box as addition is completed for each server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
5. <input type="checkbox"/>	UDR Server A: Copy the configuration files found in the previous step to the target server based on the server name of the configuration file.	<pre>[admusr@pc9040833-no-a ~]\$ scp -p <configuration_file-a> <Associated_Server_XMI_IP>:/tmp admusr@10.240.39.4's password: <admusr_password></pre> <pre>TKLCConfigData.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"/>	<p>UDR Server A: Connect to the target server which has received a configuration file copy in the previous step</p>	<pre>[admusr@pc9040833-no-a ~]\$ ssh <Associated_Server_XMI_IP > admusr@192.168.1.10's password: <admusr_password></pre> <p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
7. <input type="checkbox"/>	<p>Target Server: Copy the configuration file to the tmp directory.</p>	<p>Copy the server configuration file to the /var/tmp directory on the server, making sure to rename the file by omitting the server hostname from the file name.</p> <p>Example:</p> <pre>TKLCCConfigData<.server_hostname>.sh translates to TKLCCConfigData.sh</pre> <pre>[admusr@hostname1326744539 ~]\$ sudo cp -p /tmp/TKLCCConfigData.NOB.sh /var/tmp/TKLCCConfigData.sh [admusr@hostname1326744539 ~]\$</pre> <p>NOTE: 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"/>	<p>Target Server: After the script completes, a broadcast message is sent to the terminal.</p> <p>Ignore the output and press ENTER to return to the command prompt.</p> <p>NOTE: The time to complete this step varies by server and may take from approximately 3 to 20 minutes to complete.</p>	<p>*** THERE IS NO OUTPUT FOR APPROXIMATELY 20 MINUTES ***</p> <pre>Broadcast message from root (Thu Dec 1 09:41:24 2011): Server configuration completed successfully! See /var/TKLC/appw/logs/Process/install.log for details. Please remove the USB flash drive if connected and reboot the server. <ENTER></pre> <pre>[admusr@hostname1326744539 ~]\$</pre> <p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
9. <input type="checkbox"/>	<p>Target Server: Initiate a reboot of the Server.</p>	<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"/>	<p>UDR Server A: The SSH session for the target server was terminated by previous step.</p>	<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"/>	<p>UDR Server A: Wait until server reboot is complete. Then, SSH into the target server using its XMI address.</p>	<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 <XMI IP Address>.</p> <pre>[admusr@pc9040833-no-a ~]\$ ssh 192.168.1.xx admusr@192.168.1.20's password: <admusr_password></pre> <p>NOTE: 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"/>	<p>Target Server: Verify that the XMI and IMI IP addresses entered in Section 5.2 Step 16 have been applied</p>	<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>NOTE: The XMI and IMI addresses for the server can be verified by reviewing the server configuration through the Oracle Communications User Data Repository GUI. Navigate to Main Menu → Configuration → Servers. Scroll to line containing the hostname for the server.</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"/>	<p>Target Server: Use the <code>ntpq</code> command to verify that the server has connectivity to the assigned Primary and Secondary NTP servers.</p> <p>If offset value is in excess of five seconds, run the commands below to sync time manually:</p> <pre>\$ sudo service ntpd stop Shutting down ntpd: [OK] \$ sudo ntpdate <Remote_NTP_Server_IP> \$ sudo service ntpd start Starting ntpd: [OK]</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>	<pre>\$ ntpq -np 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</pre> <pre>[root@pc9040725-no-a ~]\$</pre>
		<i>IF CONNECTIVITY TO THE NTP SERVERS CANNOT BE ESTABLISHED, STOP AND PERFORM THE FOLLOWING STEPS:</i>
14. <input type="checkbox"/>	<p>Target Server: Run the <code>alarmMgr</code> command to verify the health of the server</p>	<pre>\$ alarmMgr --alarmStatus</pre> <p>NOTE: This command should not return output on a healthy system</p> <p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
15. <input type="checkbox"/>	<p>Target Server: Exit the SSH session for the target server</p>	<pre>\$ exit logout 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>
16. <input type="checkbox"/>	<p>UDR Server A: Exit terminal session</p>	<pre># exit logout Connection to 192.168.1.4 closed. #</pre>
THIS PROCEDURE HAS BEEN COMPLETED		

5.4 Configure XSI Networks

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

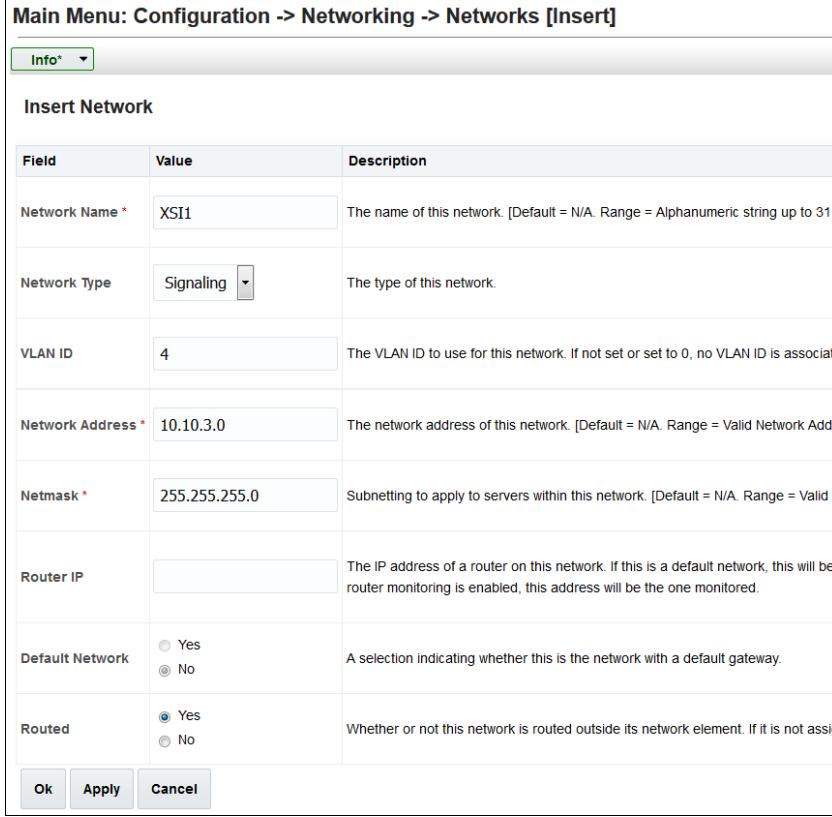
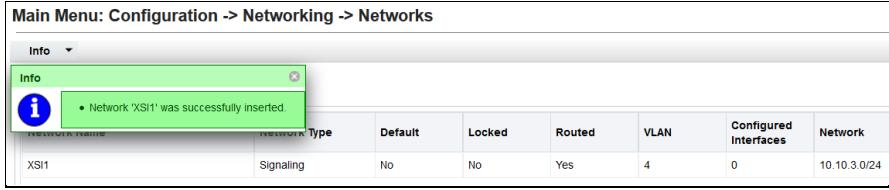
Requirements:

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

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

Procedure 8: Configure XSI Networks

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

Step	Procedure	Result
3. <input type="checkbox"/>	UDR Server A Add the XSI1 network	<p>Click Insert.</p>  <p>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).</p> <p>ComAgent Service may be configured to run on XSI1. In this case, the XSI1 network is used for MP to NOAMP ComAgent Traffic.</p> <p>NOTE: Network names can be overloaded to support multiple subnets. When defining network for ComAgent Service, use same network name for Primary and DR Site.</p> <p>NOTE: VLANs are not used in the context of this document, though VLAN ID is a required field on this screen. Enter any number in the valid range.</p>
4. <input type="checkbox"/>	UDR Server A Repeat as required	Repeat Step 3 of this procedure to Insert additional signaling networks(XSI2, etc) if applicable.
5. <input type="checkbox"/>	UDR Server A XSI network is displayed along with a success message.	

THIS PROCEDURE HAS BEEN COMPLETED

Chapter 6. OAM Pairing

6.1 OAM Pairing for Primary UDR Servers (1st 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:

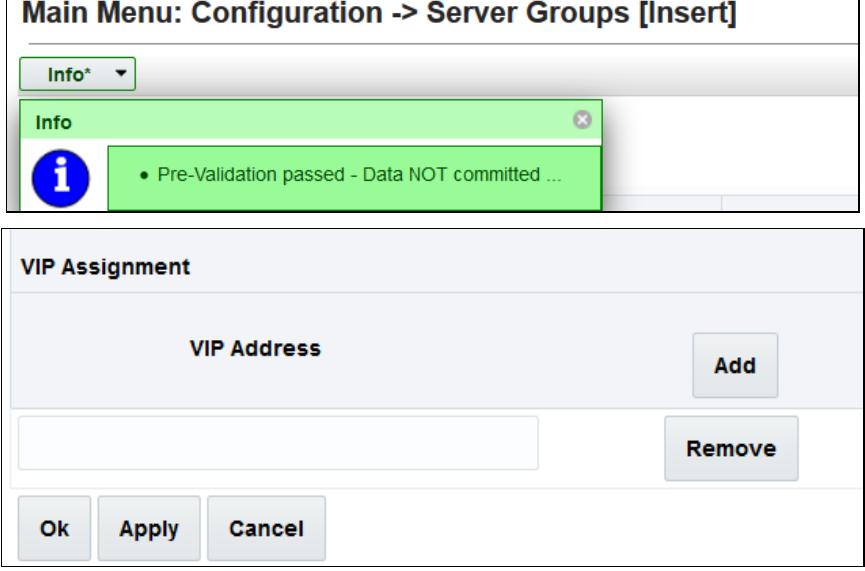
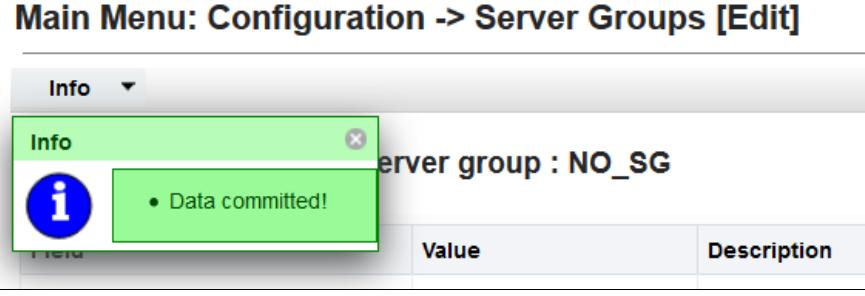
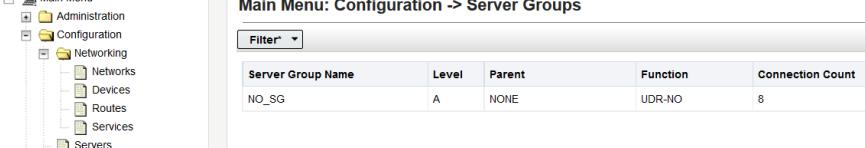
- Section 5.3 Apply Configuration to Remaining Servers has been completed

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)

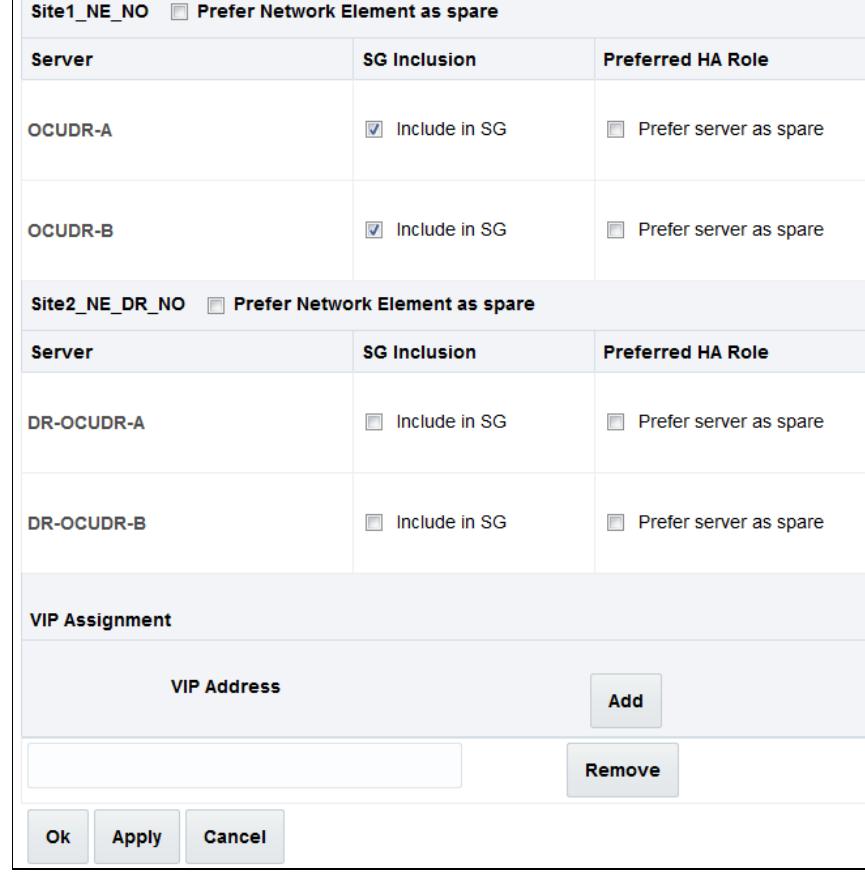
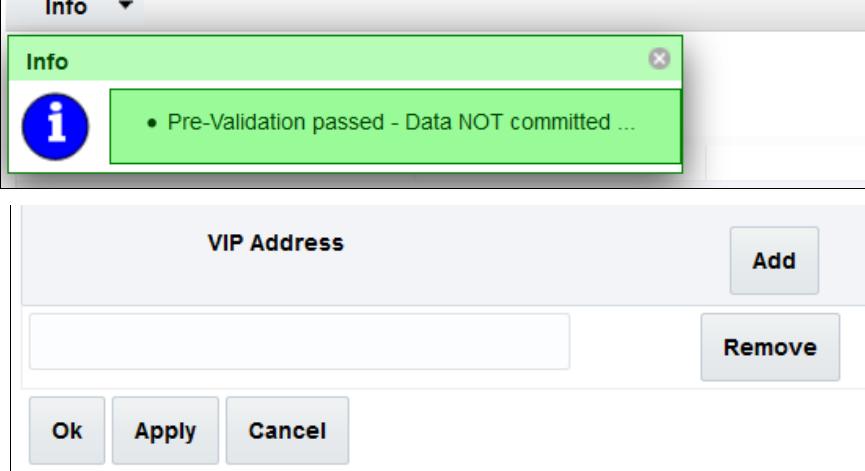
Step	Procedure	Result
1. <input type="checkbox"/>	UDR Server A: Launch an approved web browser and connect to the UDR Server A IP address	<p>NOTE: Click Continue to this website (not recommended) if the security certificate warning displays.</p> <p>Login to the GUI using the default user and password.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

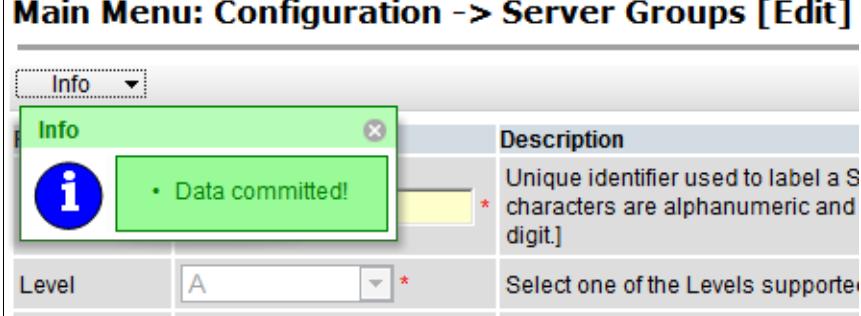
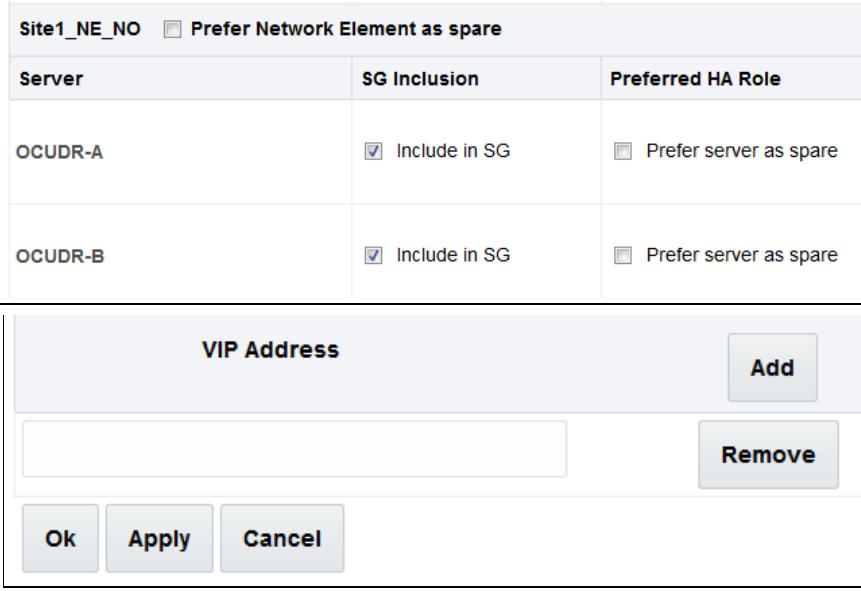
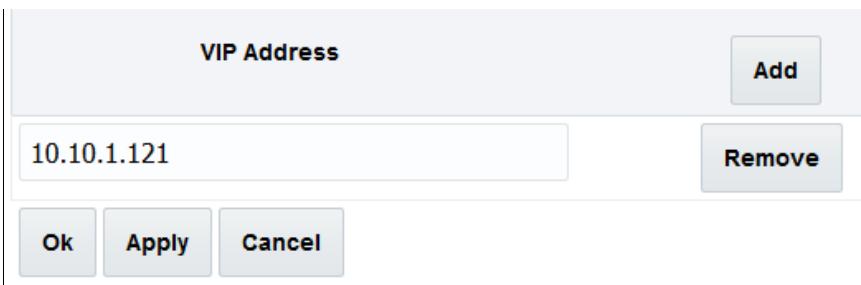
Step	Procedure	Result																					
4. <input type="checkbox"/>	UDR Server A: The Server Groups [Insert] screen opens.	<p>Adding new server group</p> <table border="1"> <thead> <tr> <th data-bbox="572 244 801 276">Field</th><th data-bbox="801 244 1111 276">Value</th><th data-bbox="1111 244 1454 276">Description</th></tr> </thead> <tbody> <tr> <td data-bbox="572 276 801 371">Server Group Name *</td><td data-bbox="801 276 1111 371"></td><td data-bbox="1111 276 1454 371">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 data-bbox="572 371 801 466">Level *</td><td data-bbox="801 371 1111 466">- Select Level -</td><td data-bbox="1111 371 1454 466">Select one of the Levels supported by the system. [Level C groups contain MP servers.] [A value is required.]</td></tr> <tr> <td data-bbox="572 466 801 561">Parent *</td><td data-bbox="801 466 1111 561">- Select Parent -</td><td data-bbox="1111 466 1454 561">Select an existing Server Group or NONE [A value is required.]</td></tr> <tr> <td data-bbox="572 561 801 656">Function *</td><td data-bbox="801 561 1111 656">- Select Function -</td><td data-bbox="1111 561 1454 656">Select one of the Functions supported by the system. [A value is required.]</td></tr> <tr> <td data-bbox="572 656 801 720">WAN Replication Connection Count</td><td data-bbox="801 656 1111 720">1</td><td data-bbox="1111 656 1454 720">Specify the number of TCP connections that will be used. [Range = A integer between 1 and 8.]</td></tr> <tr> <td colspan="3" data-bbox="572 720 801 798"> <input type="button" value="Ok"/> <input type="button" value="Apply"/> <input type="button" value="Cancel"/> </td></tr> </tbody> </table>	Field	Value	Description	Server Group Name *		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	1	Specify the number of TCP connections that will be used. [Range = A integer between 1 and 8.]	<input type="button" value="Ok"/> <input type="button" value="Apply"/> <input type="button" value="Cancel"/>		
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Function *	- Select Function -	Select one of the Functions supported by the system. [A value is required.]																					
WAN Replication Connection Count	1	Specify the number of TCP connections that will be used. [Range = A integer between 1 and 8.]																					
<input type="button" value="Ok"/> <input type="button" value="Apply"/> <input type="button" value="Cancel"/>																							
5. <input type="checkbox"/>	UDR Server A: Enter the Server Group Name.	<table border="1"> <thead> <tr> <th data-bbox="572 830 801 861">Field</th><th data-bbox="801 830 1111 861">Value</th><th data-bbox="1111 830 1454 861">Description</th></tr> </thead> <tbody> <tr> <td data-bbox="572 861 801 946">Server Group Name *</td><td data-bbox="801 861 1111 946">NO_SG</td><td data-bbox="1111 861 1454 946">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 *	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"/>	UDR Server A: Select A on the Level menu.	<table border="1"> <thead> <tr> <th data-bbox="572 977 801 1009">Level *</th><th data-bbox="801 977 1111 1009">- Select Level -</th><th data-bbox="1111 977 1454 1009">Select one of the Levels supported by the system.</th></tr> </thead> <tbody> <tr> <td data-bbox="572 1009 801 1094"></td><td data-bbox="801 1009 1111 1094">- Select Level - A</td><td data-bbox="1111 1009 1454 1094">B groups are optional and contain SOAM servers.</td></tr> </tbody> </table>	Level *	- Select Level -	Select one of the Levels supported by the system.		- Select Level - A	B groups are optional and contain SOAM servers.															
Level *	- Select Level -	Select one of the Levels supported by the system.																					
	- Select Level - A	B groups are optional and contain SOAM servers.																					
7. <input type="checkbox"/>	UDR Server A: Select None on the Parent menu.	<table border="1"> <thead> <tr> <th data-bbox="572 1125 801 1157">Parent *</th><th data-bbox="801 1125 1111 1157">- Select Parent -</th><th data-bbox="1111 1125 1454 1157">Select an existing Server Group or NONE [A value is required.]</th></tr> </thead> <tbody> <tr> <td data-bbox="572 1157 801 1241"></td><td data-bbox="801 1157 1111 1241">- Select Parent - NONE</td><td data-bbox="1111 1157 1454 1241">Function *</td></tr> </tbody> </table>	Parent *	- Select Parent -	Select an existing Server Group or NONE [A value is required.]		- Select Parent - NONE	Function *															
Parent *	- Select Parent -	Select an existing Server Group or NONE [A value is required.]																					
	- Select Parent - NONE	Function *																					
8. <input type="checkbox"/>	UDR Server A: Select UDR-NO on the Function menu.	<table border="1"> <thead> <tr> <th data-bbox="572 1273 1013 1305">Function *</th><th data-bbox="1013 1273 1454 1305">UDR-NO</th></tr> </thead> </table>	Function *	UDR-NO																			
Function *	UDR-NO																						
9. <input type="checkbox"/>	UDR Server A: Enter 8 for WAN Replication Connection Count.	<table border="1"> <thead> <tr> <th data-bbox="572 1421 801 1453">WAN Replication Connection Count</th><th data-bbox="801 1421 1111 1453">8</th><th data-bbox="1111 1421 1454 1453">Specify the number of TCP connections that will be used. [Range = A integer between 1 and 8.]</th></tr> </thead> </table>	WAN Replication Connection Count	8	Specify the number of TCP connections that will be used. [Range = A integer between 1 and 8.]																		
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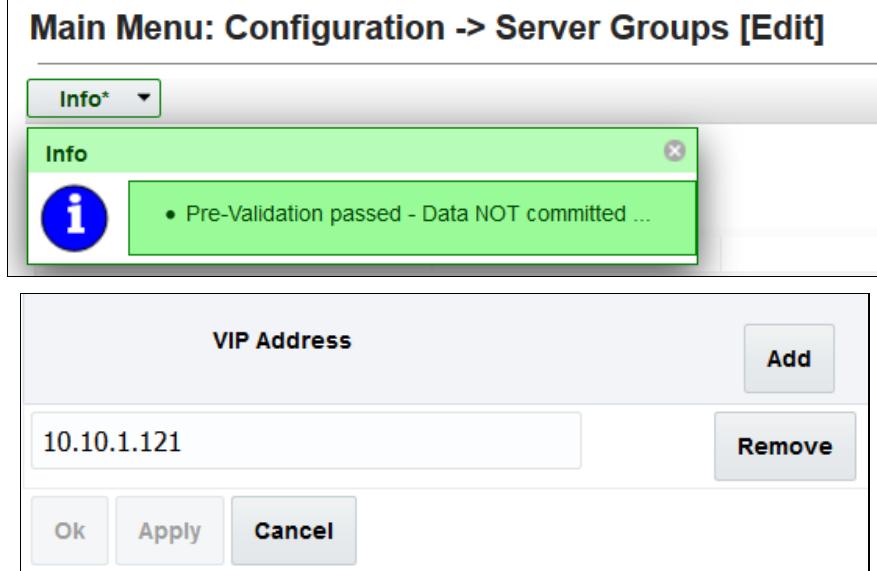
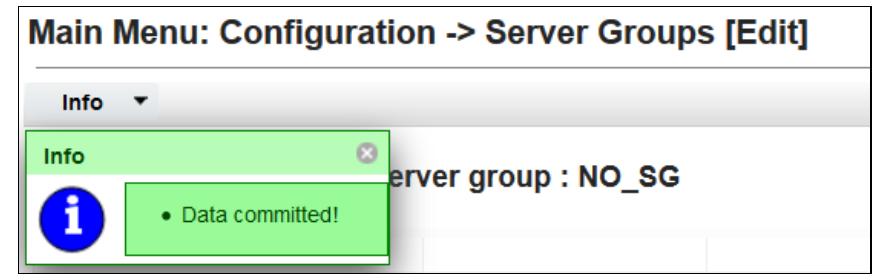
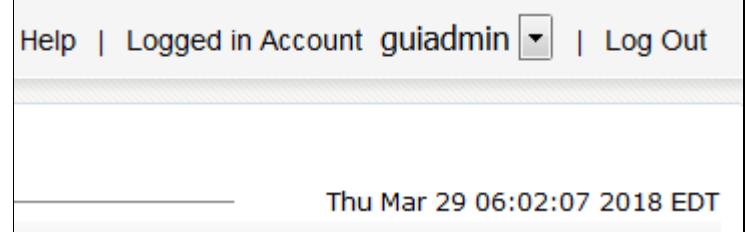
Step	Procedure	Result
10. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Click Info to see a banner message stating Pre-Validation passed.</p> <p>Click Apply.</p>	
11. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Click Info to see a banner message stating Data committed.</p>	
12. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Navigate to Main Menu → Configuration → Server Groups</p>	

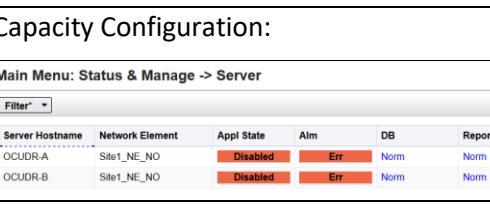
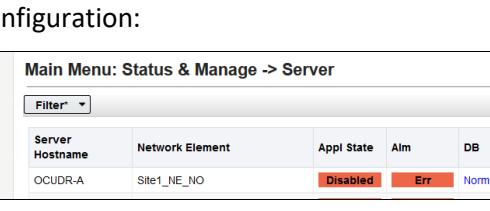
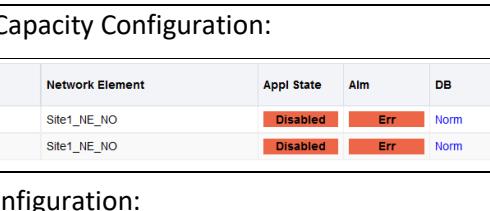
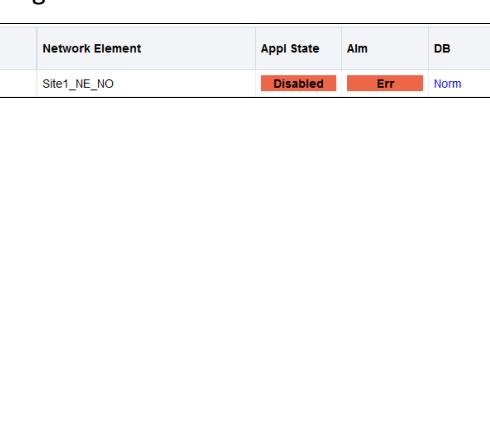
Step	Procedure	Result										
13. <input type="checkbox"/>	<p>UDR Server A:</p> <ol style="list-style-type: none"> 1. Select the Server Group entry just added. The line entry is highlighted in sky blue. 2. Click Edit (located at the bottom left corner of the page). <p>NOTE: You may need to use the vertical scroll-bar to see the Edit.</p>	<p>Main Menu: Configuration -> Server Groups</p> <p>Filter* ▾</p> <table border="1"> <thead> <tr> <th data-bbox="584 291 780 318">Server Group Name</th> <th data-bbox="780 291 894 318">Level</th> <th data-bbox="894 291 1008 318">Parent</th> <th data-bbox="1008 291 1122 318">Function</th> <th data-bbox="1122 291 1468 318">Connection Count</th> </tr> </thead> <tbody> <tr> <td data-bbox="584 318 780 361">NO_SG</td> <td data-bbox="780 318 894 361">A</td> <td data-bbox="894 318 1008 361">NONE</td> <td data-bbox="1008 318 1122 361">UDR-NO</td> <td data-bbox="1122 318 1468 361">8</td> </tr> </tbody> </table> <div data-bbox="784 392 1237 508" style="border: 1px solid black; padding: 5px; text-align: center;"> Insert Edit Delete Report </div>	Server Group Name	Level	Parent	Function	Connection Count	NO_SG	A	NONE	UDR-NO	8
Server Group Name	Level	Parent	Function	Connection Count								
NO_SG	A	NONE	UDR-NO	8								

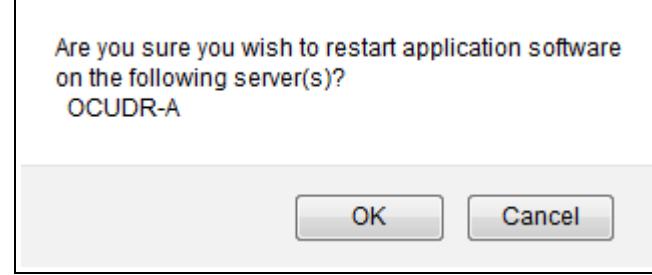
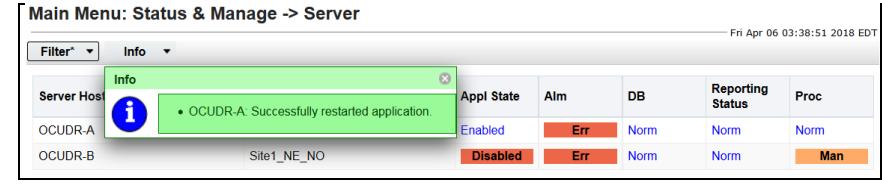
Step	Procedure	Result																																																			
14. <input type="checkbox"/>	<p>UDR Server A: The Server Groups [Edit] screen opens.</p>	<p>Main Menu: Configuration -> Server Groups [Edit]</p> <p>Modifying attributes of server group : NO_SG</p> <table border="1"> <thead> <tr> <th data-bbox="589 318 784 350">Field</th><th data-bbox="784 318 1046 350">Value</th><th data-bbox="1046 318 1437 350">Description</th></tr> </thead> <tbody> <tr> <td data-bbox="589 382 784 413">Server Group Name *</td><td data-bbox="784 382 1046 413">NO_SG</td><td data-bbox="1046 382 1437 413">Unique identifier used to label a Server Group. [Default = n/a]</td></tr> <tr> <td data-bbox="589 445 784 477">Level *</td><td data-bbox="784 445 1046 477">A</td><td data-bbox="1046 445 1437 477">Select one of the Levels supported by the system [A value is required.]</td></tr> <tr> <td data-bbox="589 508 784 540">Parent *</td><td data-bbox="784 508 1046 540">NONE</td><td data-bbox="1046 508 1437 540">Select an existing Server Group [A value is required.]</td></tr> <tr> <td data-bbox="589 572 784 604">Function *</td><td data-bbox="784 572 1046 604">UDR-NO</td><td data-bbox="1046 572 1437 604">Select one of the Functions supported by the system [A value is required.]</td></tr> <tr> <td data-bbox="589 656 915 688">WAN Replication Connection Count</td><td data-bbox="915 656 948 688">8</td><td data-bbox="948 656 1437 688">Specify the number of TCP connections that will be used by the server group.</td></tr> <tr> <td colspan="2" data-bbox="589 720 980 751">Site1_NE_NO <input type="checkbox"/> Prefer Network Element as spare</td><td></td></tr> <tr> <td data-bbox="589 751 784 783">Server</td><td data-bbox="784 751 1046 783">SG Inclusion</td><td data-bbox="1046 751 1437 783">Preferred HA Role</td></tr> <tr> <td data-bbox="589 815 784 846">OCUDR-A</td><td data-bbox="784 815 1046 846"><input type="checkbox"/> Include in SG</td><td data-bbox="1046 815 1437 846"><input type="checkbox"/> Prefer server as spare</td></tr> <tr> <td data-bbox="589 878 784 910">OCUDR-B</td><td data-bbox="784 878 1046 910"><input type="checkbox"/> Include in SG</td><td data-bbox="1046 878 1437 910"><input type="checkbox"/> Prefer server as spare</td></tr> <tr> <td colspan="2" data-bbox="589 941 980 973">Site2_NE_DR_NO <input type="checkbox"/> Prefer Network Element as spare</td><td></td></tr> <tr> <td data-bbox="589 973 784 1005">Server</td><td data-bbox="784 973 1046 1005">SG Inclusion</td><td data-bbox="1046 973 1437 1005">Preferred HA Role</td></tr> <tr> <td data-bbox="589 1036 784 1068">DR-OCUDR-A</td><td data-bbox="784 1036 1046 1068"><input type="checkbox"/> Include in SG</td><td data-bbox="1046 1036 1437 1068"><input type="checkbox"/> Prefer server as spare</td></tr> <tr> <td data-bbox="589 1100 784 1132">DR-OCUDR-B</td><td data-bbox="784 1100 1046 1132"><input type="checkbox"/> Include in SG</td><td data-bbox="1046 1100 1437 1132"><input type="checkbox"/> Prefer server as spare</td></tr> <tr> <td colspan="2" data-bbox="589 1184 719 1216">VIP Assignment</td><td></td></tr> <tr> <td colspan="2" data-bbox="695 1237 793 1258">VIP Address</td><td data-bbox="1013 1237 1070 1258"><input type="button" value="Add"/></td></tr> <tr> <td data-bbox="605 1290 638 1311"><input type="button" value="Ok"/></td><td data-bbox="646 1290 711 1311"><input type="button" value="Apply"/></td><td data-bbox="719 1290 793 1311"><input type="button" value="Cancel"/></td></tr> </tbody> </table>	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 server group.	Site1_NE_NO <input type="checkbox"/> Prefer Network Element as spare			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	Site2_NE_DR_NO <input type="checkbox"/> Prefer Network Element 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	VIP Assignment			VIP Address		<input type="button" value="Add"/>	<input type="button" value="Ok"/>	<input type="button" value="Apply"/>	<input type="button" value="Cancel"/>
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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 server group.																																																			
Site1_NE_NO <input type="checkbox"/> Prefer Network Element as spare																																																					
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																																																			
Site2_NE_DR_NO <input type="checkbox"/> Prefer Network Element 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																																																			
VIP Assignment																																																					
VIP Address		<input type="button" value="Add"/>																																																			
<input type="button" value="Ok"/>	<input type="button" value="Apply"/>	<input type="button" value="Cancel"/>																																																			

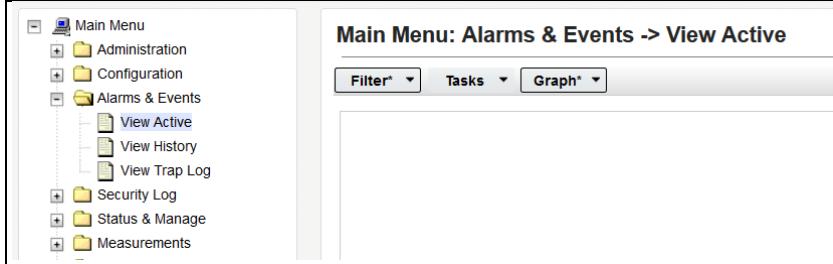
Step	Procedure	Result																						
15. <input type="checkbox"/>	<p>UDR Server A: Select the options to include the A server and the B server in the UDR server group.</p> <p>NOTE: For single server installation, only NO-A is displayed; therefore only one option is selected.</p> <p>If this is a primary site (single site), then the DR site is not listed.</p>	 <p>Site1_NE_NO <input type="checkbox"/> Prefer Network Element as spare</p> <table border="1"> <thead> <tr> <th data-bbox="577 240 784 283">Server</th> <th data-bbox="784 240 1111 283">SG Inclusion</th> <th data-bbox="1111 240 1442 283">Preferred HA Role</th> </tr> </thead> <tbody> <tr> <td data-bbox="577 325 784 367">OCUDR-A</td> <td data-bbox="784 325 1111 367"><input checked="" type="checkbox"/> Include in SG</td> <td data-bbox="1111 325 1442 367"><input type="checkbox"/> Prefer server as spare</td> </tr> <tr> <td data-bbox="577 409 784 451">OCUDR-B</td> <td data-bbox="784 409 1111 451"><input checked="" type="checkbox"/> Include in SG</td> <td data-bbox="1111 409 1442 451"><input type="checkbox"/> Prefer server as spare</td> </tr> </tbody> </table> <p>Site2_NE_DR_NO <input type="checkbox"/> Prefer Network Element as spare</p> <table border="1"> <thead> <tr> <th data-bbox="577 536 784 578">Server</th> <th data-bbox="784 536 1111 578">SG Inclusion</th> <th data-bbox="1111 536 1442 578">Preferred HA Role</th> </tr> </thead> <tbody> <tr> <td data-bbox="577 620 784 663">DR-OCUDR-A</td> <td data-bbox="784 620 1111 663"><input type="checkbox"/> Include in SG</td> <td data-bbox="1111 620 1442 663"><input type="checkbox"/> Prefer server as spare</td> </tr> <tr> <td data-bbox="577 705 784 747">DR-OCUDR-B</td> <td data-bbox="784 705 1111 747"><input type="checkbox"/> Include in SG</td> <td data-bbox="1111 705 1442 747"><input type="checkbox"/> Prefer server as spare</td> </tr> </tbody> </table> <p>VIP Assignment</p> <table border="1"> <thead> <tr> <th data-bbox="740 874 855 895">VIP Address</th> <th data-bbox="1181 874 1230 895">Add</th> </tr> </thead> <tbody> <tr> <td data-bbox="740 937 1051 979"></td> <td data-bbox="1181 937 1263 979">Remove</td> </tr> </tbody> </table> <p>Ok Apply Cancel</p>	Server	SG Inclusion	Preferred HA Role	OCUDR-A	<input checked="" type="checkbox"/> Include in SG	<input type="checkbox"/> Prefer server as spare	OCUDR-B	<input checked="" type="checkbox"/> Include in SG	<input type="checkbox"/> Prefer server as spare	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	VIP Address	Add		Remove
Server	SG Inclusion	Preferred HA Role																						
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DR-OCUDR-B	<input type="checkbox"/> Include in SG	<input type="checkbox"/> Prefer server as spare																						
VIP Address	Add																							
	Remove																							
16. <input type="checkbox"/>	<p>UDR Server A: Click Info to see a banner message stating Pre-Validation passed. Click Apply.</p>	<p>Main Menu: Configuration -> Server Groups [Edit]</p>  <p>Info</p> <p>• Pre-Validation passed - Data NOT committed ...</p> <p>VIP Address</p> <table border="1"> <thead> <tr> <th data-bbox="740 1465 855 1486">VIP Address</th> <th data-bbox="1181 1465 1230 1486">Add</th> </tr> </thead> <tbody> <tr> <td data-bbox="740 1529 1051 1571"></td> <td data-bbox="1181 1529 1263 1571">Remove</td> </tr> </tbody> </table> <p>Ok Apply Cancel</p>	VIP Address	Add		Remove																		
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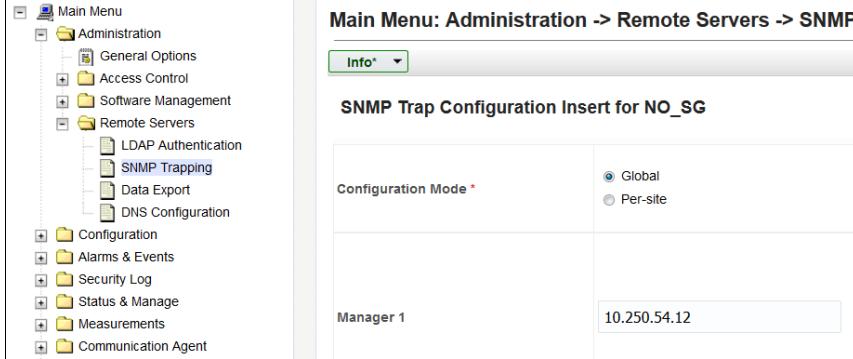
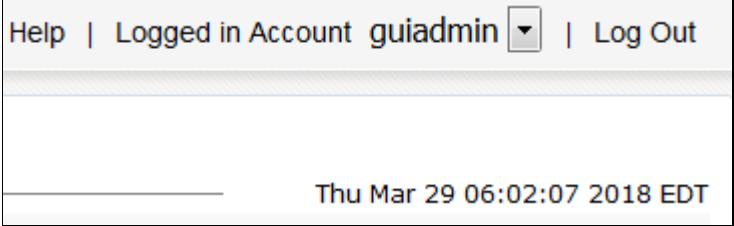
Step	Procedure	Result
17. <input type="checkbox"/>	UDR Server A: Click Info to see a banner message stating Data committed.	
18. <input type="checkbox"/>	UDR Server A: Click Add for the VIP Address. NOTE: VIP Address optional for Single Server Configuration.	
19. <input type="checkbox"/>	UDR Server A: Enter the VIP Address	

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

Step	Procedure	Result
24. <input type="checkbox"/>	<p>Active UDR VIP: Launch an approved web browser and connect to the UDR Server A IP address</p> <p>NOTE: Click Continue to this website (not recommended) if the security certificate warning displays.</p> <p>Login to the GUI using the default user and password.</p>	 <p>Welcome to the Oracle System Login.</p>
25. <input type="checkbox"/>	<p>UDR VIP: Restarting the UDR Server Application</p> <p>Navigate to Main Menu → Status & Manage → Server</p>	<p>Normal or Low Capacity Configuration:</p>  <p>Single Server Configuration:</p> 
26. <input type="checkbox"/>	<p>UDR VIP:</p> <ol style="list-style-type: none"> 1. The A and B servers are listed in the right panel. <p>NOTE: For single server, only the A server is listed.</p> <ol style="list-style-type: none"> 2. Verify that the DB status shows Norm and the Proc status shows Man for one or both servers before proceeding to the next Step. 	<p>Normal or Low Capacity Configuration:</p>  <p>Single Server Configuration:</p> 

Step	Procedure	Result
27. <input type="checkbox"/>	<p>UDR VIP:</p> <ol style="list-style-type: none"> 1. Using the mouse, select UDR Server A. The line entry is highlighted in sky blue. 2. Click Restart (located at the bottom of the page). 3. Click OK. <p>A confirmation message (in the banner area) for UDR Server A displays stating: Successfully restarted application.</p> <p>NOTE: Use the vertical scroll-bar to see the Restart button.</p>	<p>Normal Configuration:</p>  <p>Single Server Configuration:</p>   
28. <input type="checkbox"/>	<p>UDR VIP:</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>	 <p>NOTE: If you want to refresh the Server status screen before the default setting (15 to 30 seconds), this can be done by reselecting the Status & Manage → Server option from the Main menu.</p>
29. <input type="checkbox"/>	<p>UDR VIP:</p> <p>Restart UDR Server B.</p>	<p>NOTE: Do not perform this step for single server installations.</p> <p>Repeat steps 27 and 28 to restart UDR Server B.</p>

Step	Procedure	Result																																																																																																																																																																
30. <input type="checkbox"/>	UDR VIP: Verifying the UDR server alarm status	<p>Navigate to Main Menu → Alarms & Events → View Active</p> 																																																																																																																																																																
31. <input type="checkbox"/>	UDR VIP: Verify that the Event IDs are the only alarms present on the system.	<table border="1"> <thead> <tr> <th>Seq #</th> <th>Event ID</th> <th>Timestamp</th> <th>Severity</th> <th>Product</th> <th>Process</th> <th>NE</th> <th>Server</th> <th>Type</th> <th>Instance</th> </tr> </thead> <tbody> <tr> <td>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></td> <td>Communication Agent Routed Service Unavailable</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></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></td> <td>Communication Agent Routed Service Unavailable</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></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></td> <td>No Remote RAS Client Connections</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></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></td> <td>No Remote XSAS Client Connections</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Seq #</th> <th>Event ID</th> <th>Timestamp</th> <th>Severity</th> <th>Product</th> <th>Process</th> <th>NE</th> <th>Server</th> <th>Type</th> <th>Instance</th> </tr> </thead> <tbody> <tr> <td>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></td> <td>Communication Agent Routed Service Unavailable</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></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></td> <td>Provisioning Interfaces Disabled</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></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></td> <td>Communication Agent Routed Service Unavailable</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Verify that only the following Event IDs are the only alarms present:</p> <p>13075 Provisioning Interfaces Disabled 19820 Communicaton Agent Routed Service Unavailable</p> <p>NOTE: It may take a few minutes for residual process alarms to clear.</p>	Seq #	Event ID	Timestamp	Severity	Product	Process	NE	Server	Type	Instance	129	19820	2015-09-21 15:42:00.187 EDT	MAJOR	CAF	udrbe	NO_UDR_NE	no-b	CAF	UDR-RS-Sh-App			Communication Agent Routed Service Unavailable								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								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								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								Seq #	Event ID	Timestamp	Severity	Product	Process	NE	Server	Type	Instance	45	19820	2018-04-06 03:22:08.022 EDT	MAJOR	CAF	udrbe	Site1_NE_NO	OCUDR-B	CAF	UDR-RS-Sh-App			Communication Agent Routed Service Unavailable								79	13075	2018-04-06 03:20:18.023 EDT	CRITICAL	Provisioning	udrprov	Site1_NE_NO	OCUDR-A	PROV				Provisioning Interfaces Disabled								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							
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Step	Procedure	Result
32. <input type="checkbox"/>	UDR VIP: Configuring SNMP for Traps from Individual Servers	
33. <input type="checkbox"/>	UDR VIP: 1. Select Traps from Individual Servers. 2. Click OK located at the bottom in the center of the screen. 3. Verify that a banner message stating Data committed is received.	
34. <input type="checkbox"/>	UDR VIP: Click Logout on the server GUI.	

THIS PROCEDURE HAS BEEN COMPLETED

6.2 OAM Pairing for DR Sites

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.

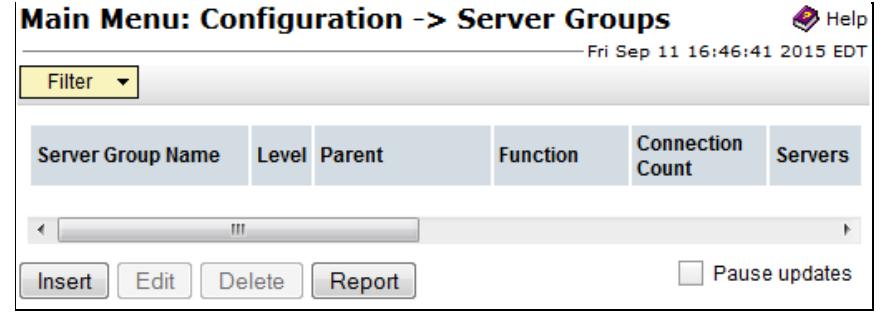
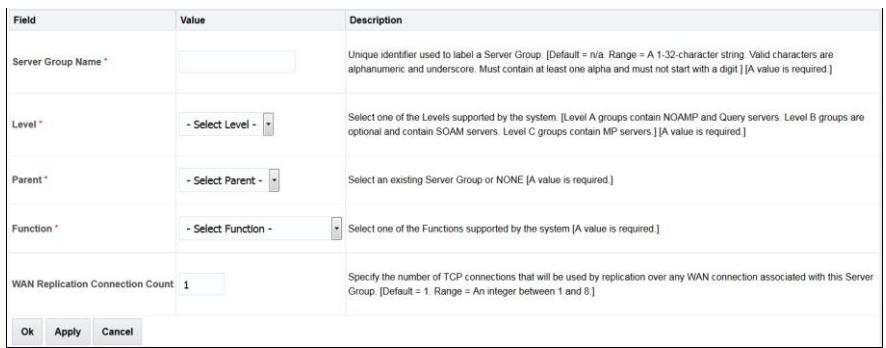
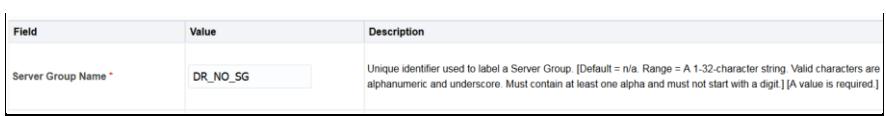
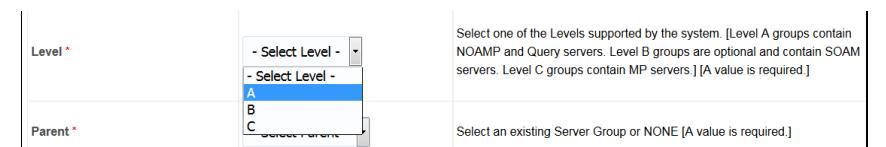
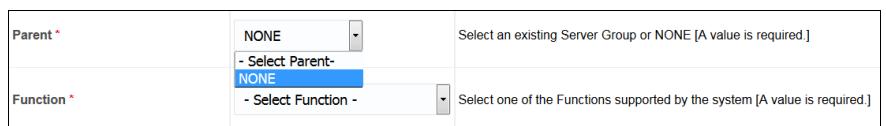
Requirements:

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

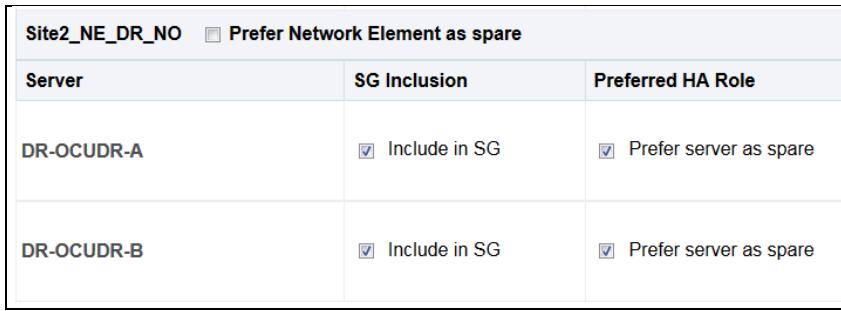
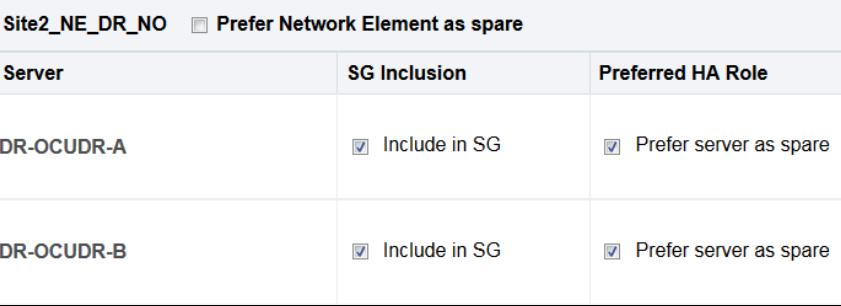
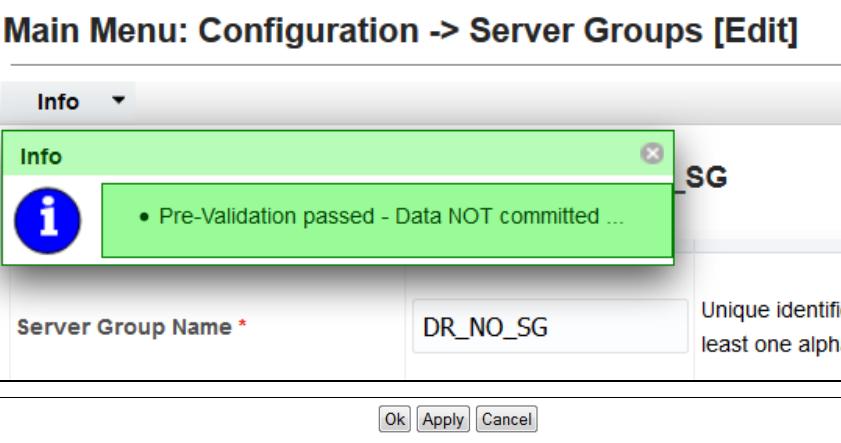
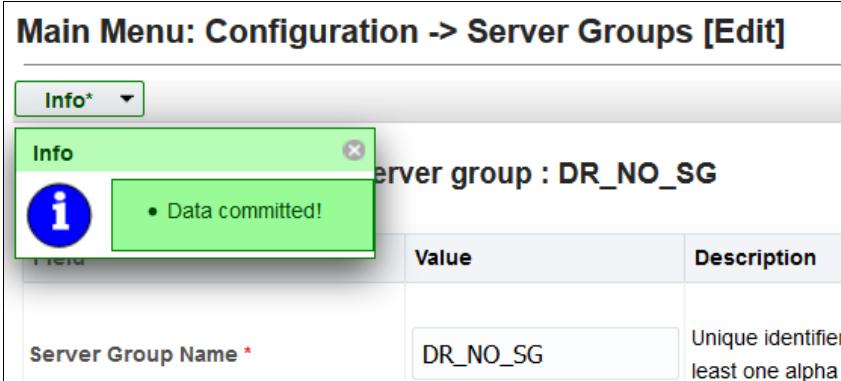
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

Procedure 10: OAM Pairing for DR Sites

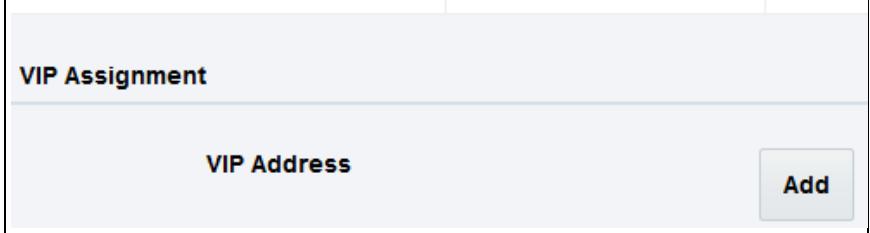
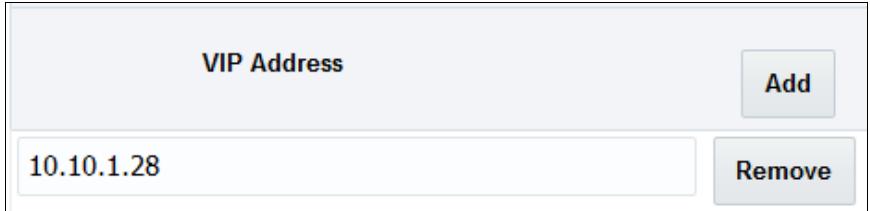
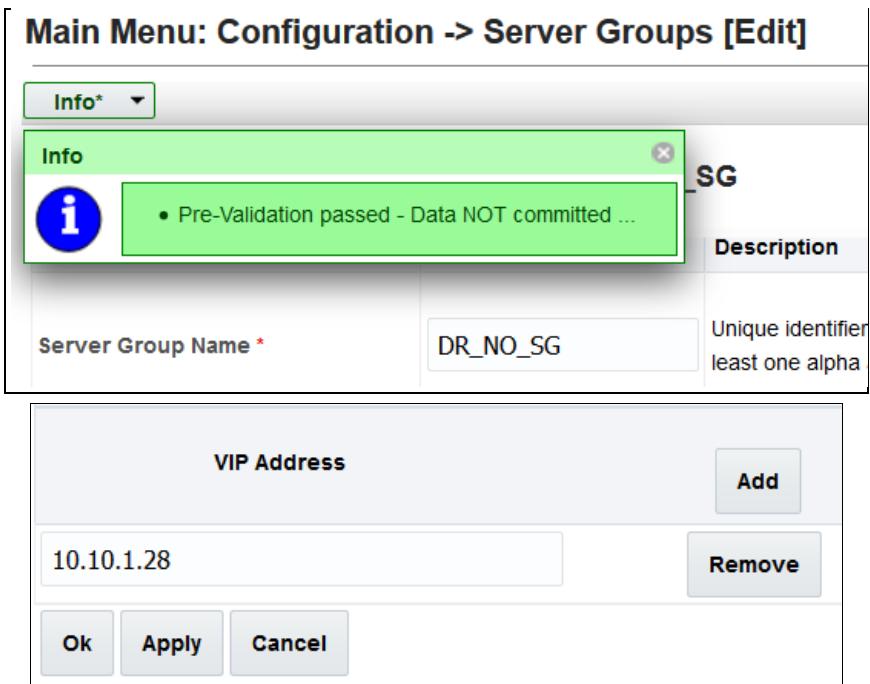
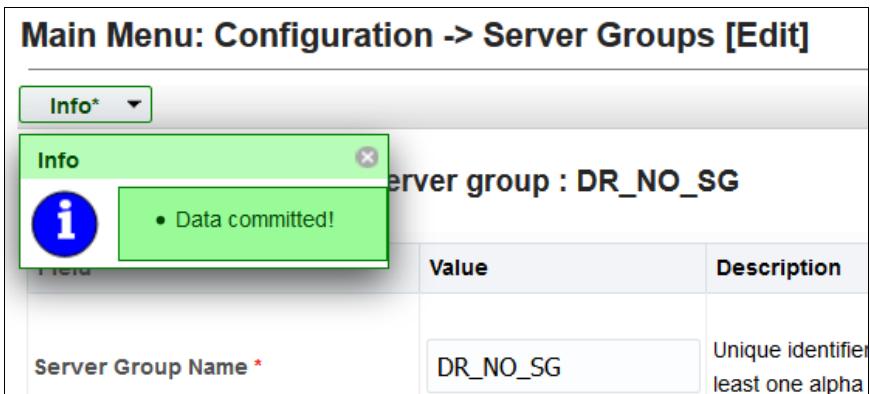
Step	Procedure	Result																																																	
1. <input type="checkbox"/>	<p>Active UDR VIP: Launch an approved web browser and connect to the UDR Server A IP address</p> <p>NOTE: Click Continue to this website (not recommended) if the security certificate warning displays.</p> <p>Login to the GUI using the default user and password.</p>																																																		
2. <input type="checkbox"/>	<p>Active UDR VIP: For primary UDR standby server only: Change the HA role to forced standby for the server.</p> <p>1. Navigate to Main Menu → Status & Manage → HA 2. Click Edit on bottom left 3. Find the row for the primary UDR standby server and change Max Allowed HA Role to Standby.</p>	<p>NOTE: Do not perform this step for single server installations.</p> <p>Main Menu: Status & Manage -> HA</p> <table border="1"> <thead> <tr> <th>Hostname</th> <th>OAM HA Role</th> <th>Application HA Role</th> <th>Max Allowed HA Role</th> <th>Mate Hostname List</th> <th>Network Element</th> <th>Server Role</th> <th>Active VIPs</th> </tr> </thead> <tbody> <tr> <td>OCUDR-A</td> <td>Active</td> <td>N/A</td> <td>Active</td> <td>OCUDR-B</td> <td>Site1_NE_NO</td> <td>Network OAM&P</td> <td>10.10.1.121</td> </tr> <tr> <td>OCUDR-B</td> <td>Standby</td> <td>N/A</td> <td>Active</td> <td>OCUDR-A</td> <td>Site1_NE_NO</td> <td>Network OAM&P</td> <td></td> </tr> <tr> <td>DR-OCUDR-A</td> <td>Unavailable</td> <td>Unavailable</td> <td></td> <td></td> <td>Site2_NE_DR_NO</td> <td>Network OAM&P</td> <td></td> </tr> <tr> <td>DR-OCUDR-B</td> <td>Unavailable</td> <td>Unavailable</td> <td></td> <td></td> <td>Site2_NE_DR_NO</td> <td>Network OAM&P</td> <td></td> </tr> </tbody> </table> <p>Main Menu: Status & Manage -> HA [Edit]</p> <p>Modifying HA attributes</p> <table border="1"> <thead> <tr> <th>Hostname</th> <th>Max Allowed HA Role</th> <th>Description</th> </tr> </thead> <tbody> <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>Standby</td> <td>The maximum desired HA Role for OCUDR-B</td> </tr> </tbody> </table> <p>Ok Cancel</p>	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	Active	OCUDR-A	Site1_NE_NO	Network OAM&P		DR-OCUDR-A	Unavailable	Unavailable			Site2_NE_DR_NO	Network OAM&P		DR-OCUDR-B	Unavailable	Unavailable			Site2_NE_DR_NO	Network OAM&P		Hostname	Max Allowed HA Role	Description	OCUDR-A	Active	The maximum desired HA Role for OCUDR-A	OCUDR-B	Standby	The maximum desired HA Role for OCUDR-B
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3. <input type="checkbox"/>	<p>Active UDR VIP: Navigate to Main Menu → Configuration → Server Groups</p>	<p>Main Menu</p> <ul style="list-style-type: none"> Administration Configuration <ul style="list-style-type: none"> Networking <ul style="list-style-type: none"> Networks Devices Routes Services Servers Server Groups Resource Domains <p>Main Menu: Configuration -> Server Groups</p> <table border="1"> <thead> <tr> <th>Server Group Name</th> <th>Level</th> <th>Parent</th> <th>Function</th> <th>Connection Count</th> <th>Servers</th> </tr> </thead> <tbody> <tr> <td>NO_SG</td> <td>A</td> <td>NONE</td> <td>UDR:NO</td> <td>8</td> <td> Network Element: Site1_NE_NO - NE HA Prof: DEFAULT Server: OCUDR-A OCUDR-B Node HA Prof: VIPs 10.10.1.121 10.10.1.121 </td> </tr> </tbody> </table>	Server Group Name	Level	Parent	Function	Connection Count	Servers	NO_SG	A	NONE	UDR:NO	8	Network Element: Site1_NE_NO - NE HA Prof: DEFAULT Server: OCUDR-A OCUDR-B Node HA Prof: VIPs 10.10.1.121 10.10.1.121																																					
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Step	Procedure	Result
4. <input type="checkbox"/>	Active UDR VIP: Click Insert located at the bottom left corner of the page. NOTE: Use the vertical scroll-bar to see the Insert button.	
5. <input type="checkbox"/>	Active UDR VIP: Configuring the DR UDR Server Group The Server Groups [Insert] page opens.	
6. <input type="checkbox"/>	Active UDR VIP: Enter the Server Group Name.	
7. <input type="checkbox"/>	Active UDR VIP: Assign the group Level.	 <p>Use this setting for group level:</p> <ul style="list-style-type: none"> For DR UDR server group: select A on the Level menu.
8. <input type="checkbox"/>	Active UDR VIP: Assign the Parent.	 <p>Use this setting for parent:</p> <p>For DR UDR server group: select NONE on the Parent menu.</p>
9. <input type="checkbox"/>	Active UDR VIP: Assign the Function.	 <p>Use this setting for function:</p> <p>For DR UDR server group: select UDR-NO on the Function menu.</p>

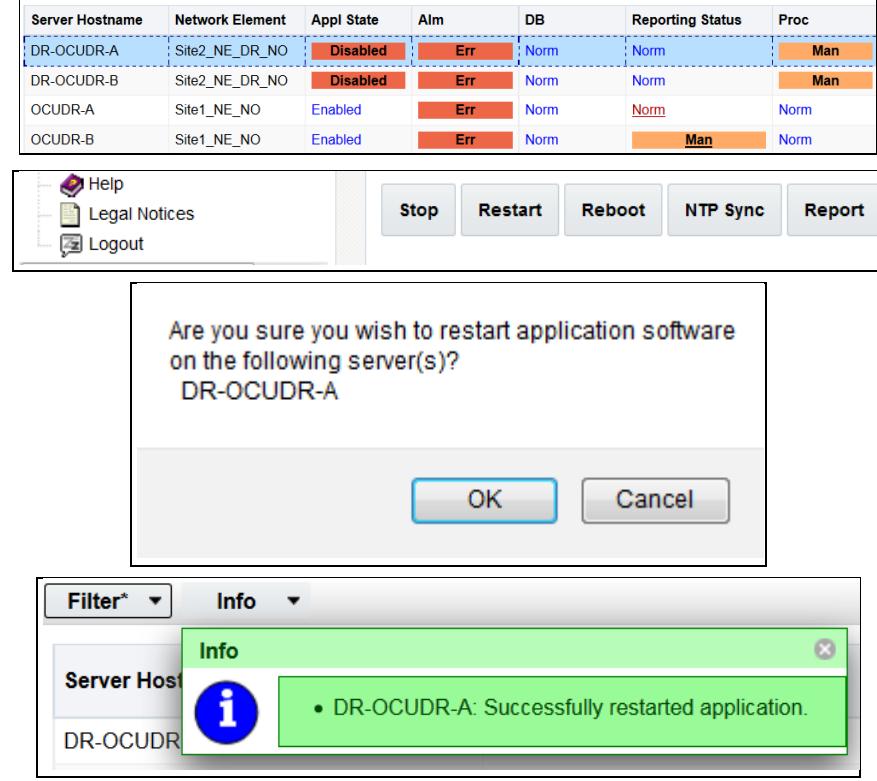
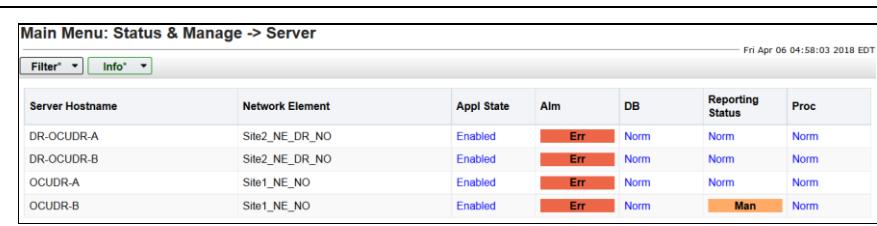
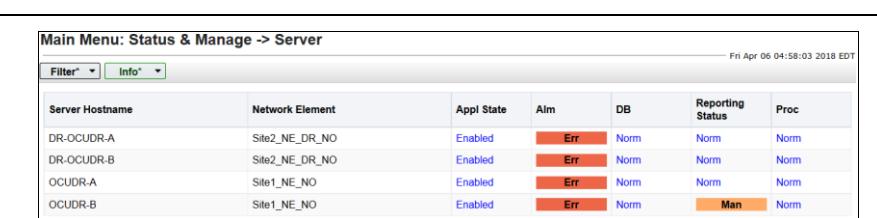
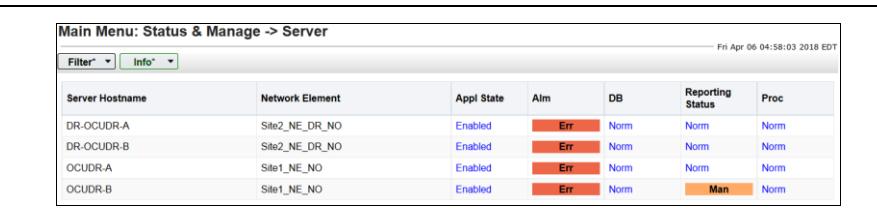
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10. <input type="checkbox"/>	Active UDR VIP: For DR UDR only: Enter 8 for the WAN Replication Connection Count.	<p>WAN Replication Connection Count <input type="text" value="8"/></p> <p>Specify the number of TCP connections that will be used by Group. [Default = 1. Range = An integer between 1 and 8.]</p>																					
11. <input type="checkbox"/>	Active UDR VIP: Click Info to see a banner with a message stating that Pre-Validation passed. Click Apply	<p>Main Menu: Configuration -> Server Groups [Insert]</p> <p>Info</p> <p>i • Pre-Validation passed - Data NOT committed ...</p> <p>Ok Apply Cancel</p>																					
12. <input type="checkbox"/>	Active UDR VIP: You see a banner with a message stating Data committed.	<p>Main Menu: Configuration -> Server Groups [Insert]</p> <p>Info</p> <p>i • Data committed!</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Value</th> <th>Description</th> </tr> </thead> </table>	Field	Value	Description																		
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13. <input type="checkbox"/>	Active UDR VIP: Navigate to Main Menu → Configuration → Server Groups NOTE: Server group entry is listed on the Server Groups configuration screen.	<p>Main Menu: Configuration -> Server Groups</p> <p>Filter* ▾</p> <table border="1"> <thead> <tr> <th>Server Group Name</th> <th>Level</th> <th>Parent</th> <th>Function</th> <th>Connection Count</th> <th>Servers</th> </tr> </thead> <tbody> <tr> <td>DR_NO_SG</td> <td>A</td> <td>NONE</td> <td>UDR-NO</td> <td>8</td> <td></td> </tr> </tbody> </table> <p>Network Element: Site1_NE_NO NE HA Pref: DEFAULT</p> <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <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> </tbody> </table>	Server Group Name	Level	Parent	Function	Connection Count	Servers	DR_NO_SG	A	NONE	UDR-NO	8		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"/>	Active UDR VIP: 1. Select the Server Group entry applied in Step 7. The line entry is highlighted in sky blue. 2. Click Edit (located at the bottom left corner of the page). NOTE: Use the vertical scroll-bar to see the Edit button.	<table border="1"> <thead> <tr> <th>Server Group Name</th> <th>Level</th> <th>Parent</th> <th>Function</th> <th>Connection Count</th> <th>Servers</th> </tr> </thead> <tbody> <tr> <td>DR_NO_SG</td> <td>A</td> <td>NONE</td> <td>UDR-NO</td> <td>8</td> <td></td> </tr> </tbody> </table> <p>Network Element: Site1_NE_NO NE HA Pref: DEFAULT</p> <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <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> </tbody> </table> <p>Insert Edit Delete Report</p>	Server Group Name	Level	Parent	Function	Connection Count	Servers	DR_NO_SG	A	NONE	UDR-NO	8		Server	Node HA Pref	VIPs	OCUDR-A		10.10.1.121	OCUDR-B		10.10.1.121
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15. <input type="checkbox"/>	Active UDR VIP: Select the A server and the B server from the list of servers.	Normal or Low Capacity Configuration:  <table border="1"> <thead> <tr> <th colspan="3">Site2_NE_DR_NO <input type="checkbox"/> Prefer Network Element as spare</th> </tr> <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>	Site2_NE_DR_NO <input type="checkbox"/> Prefer Network Element as spare			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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17. <input type="checkbox"/>	Active UDR VIP: Click Info to see a banner message stating Pre-Validation passed. Click Apply.	 <p>Main Menu: Configuration -> Server Groups [Edit]</p> <p>Info</p> <p>• Pre-Validation passed - Data NOT committed ...</p> <p>Server Group Name * DR_NO_SG Unique identifier least one alpha</p> <p>Ok Apply Cancel</p>												
18. <input type="checkbox"/>	Active UDR VIP: Click Info to see a banner message stating Data committed.	 <p>Main Menu: Configuration -> Server Groups [Edit]</p> <p>Info*</p> <p>• Data committed!</p> <p>Server group : DR_NO_SG</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>DR_NO_SG</td> <td>Unique identifier least one alpha</td> </tr> </tbody> </table>	Value	Description	DR_NO_SG	Unique identifier least one alpha								
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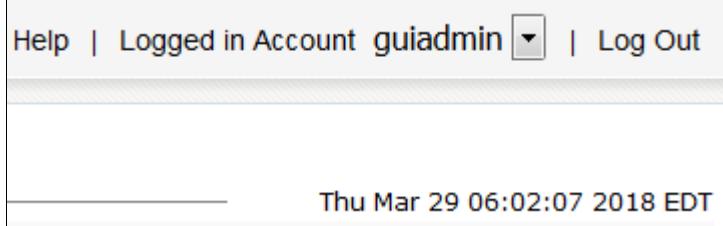


Step	Procedure	Result
19. <input type="checkbox"/>	Active UDR VIP: Click Add for the VIP Address.	
20. <input type="checkbox"/>	Active UDR VIP: Enter the VIP Address	
21. <input type="checkbox"/>	Active UDR VIP: Click Info to see a banner message stating Pre-Validation passed. Click Apply.	
22. <input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

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23. <input type="checkbox"/>	<p>IMPORTANT: Wait at least 5 minutes before proceeding on to the next Step.</p>	<p>Now that the servers are paired in a Server Group, they must establish a master/slave relationship for High Availability (HA). It may take several minutes for this process to be completed.</p> <p>NOTE: Single Server Configurations do not establish master/slave relationship for High Availability (HA).</p> <p>Allow a minimum of 5 minutes before continuing to the next Step.</p>																																								
24. <input type="checkbox"/>	<p>Active UDR VIP: Navigate to Main Menu → Status & Manage → HA</p>	<p>Main Menu: Status & Manage -> HA</p> <p>Filter* ▾</p> <table border="1"> <thead> <tr> <th data-bbox="567 502 682 551">Hostname</th><th data-bbox="682 502 796 551">OAM HA Role</th><th data-bbox="796 502 910 551">Application HA Role</th><th data-bbox="910 502 1024 551">Max Allowed HA Role</th><th data-bbox="1024 502 1139 551">Mate Hostname List</th><th data-bbox="1139 502 1253 551">Network Element</th><th data-bbox="1253 502 1367 551">Server Role</th><th data-bbox="1367 502 1465 551">Active VIPs</th></tr> </thead> <tbody> <tr> <td data-bbox="567 551 682 578">OCUDR-A</td><td data-bbox="682 551 796 578">Active</td><td data-bbox="796 551 910 578">N/A</td><td data-bbox="910 551 1024 578">Active</td><td data-bbox="1024 551 1139 578">OCUDR-B</td><td data-bbox="1139 551 1253 578">Site1_NE_NO</td><td data-bbox="1253 551 1367 578">Network OAM&P</td><td data-bbox="1367 551 1465 578">10.10.1.121</td></tr> <tr> <td data-bbox="567 578 682 606">OCUDR-B</td><td data-bbox="682 578 796 606">Standby</td><td data-bbox="796 578 910 606">N/A</td><td data-bbox="910 578 1024 606">Standby</td><td data-bbox="1024 578 1139 606">OCUDR-A</td><td data-bbox="1139 578 1253 606">Site1_NE_NO</td><td data-bbox="1253 578 1367 606">Network OAM&P</td><td data-bbox="1367 578 1465 606"></td></tr> <tr> <td data-bbox="567 606 682 633">DR-OCUDR-A</td><td data-bbox="682 606 796 633">Spare</td><td data-bbox="796 606 910 633">N/A</td><td data-bbox="910 606 1024 633">Active</td><td data-bbox="1024 606 1139 633">DR-OCUDR-B</td><td data-bbox="1139 606 1253 633">Site2_NE_DR_NO</td><td data-bbox="1253 606 1367 633">Network OAM&P</td><td data-bbox="1367 606 1465 633">10.10.1.28</td></tr> <tr> <td data-bbox="567 633 682 661">DR-OCUDR-B</td><td data-bbox="682 633 796 661">Spare</td><td data-bbox="796 633 910 661">N/A</td><td data-bbox="910 633 1024 661">Standby</td><td data-bbox="1024 633 1139 661">DR-OCUDR-A</td><td data-bbox="1139 633 1253 661">Site2_NE_DR_NO</td><td data-bbox="1253 633 1367 661">Network OAM&P</td><td data-bbox="1367 633 1465 661"></td></tr> </tbody> </table>	Hostname	OAM HA Role	Application HA Role	Max Allowed HA Role	Mate Hostname List	Network Element	Server Role	Active VIPs	OCUDR-A	Active	N/A	Active	OCUDR-B	Site1_NE_NO	Network OAM&P	10.10.1.121	OCUDR-B	Standby	N/A	Standby	OCUDR-A	Site1_NE_NO	Network OAM&P		DR-OCUDR-A	Spare	N/A	Active	DR-OCUDR-B	Site2_NE_DR_NO	Network OAM&P	10.10.1.28	DR-OCUDR-B	Spare	N/A	Standby	DR-OCUDR-A	Site2_NE_DR_NO	Network OAM&P	
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25. <input type="checkbox"/>	<p>Active UDR VIP: NOTE: DR UDR servers have an OAM MAX HA Role of Spare and no active VIPs</p>	<p>Normal or Low Capacity Configuration:</p> <p>Main Menu: Status & Manage -> HA</p> <p>Filter* ▾</p> <table border="1"> <thead> <tr> <th data-bbox="567 840 682 889">Hostname</th><th data-bbox="682 840 796 889">OAM HA Role</th><th data-bbox="796 840 910 889">Application HA Role</th><th data-bbox="910 840 1024 889">Max Allowed HA Role</th><th data-bbox="1024 840 1139 889">Mate Hostname List</th><th data-bbox="1139 840 1253 889">Network Element</th><th data-bbox="1253 840 1367 889">Server Role</th><th data-bbox="1367 840 1465 889">Active VIPs</th></tr> </thead> <tbody> <tr> <td data-bbox="567 889 682 916">OCUDR-A</td><td data-bbox="682 889 796 916">Active</td><td data-bbox="796 889 910 916">N/A</td><td data-bbox="910 889 1024 916">Active</td><td data-bbox="1024 889 1139 916">OCUDR-B</td><td data-bbox="1139 889 1253 916">Site1_NE_NO</td><td data-bbox="1253 889 1367 916">Network OAM&P</td><td data-bbox="1367 889 1465 916">10.10.1.121</td></tr> <tr> <td data-bbox="567 916 682 944">OCUDR-B</td><td data-bbox="682 916 796 944">Standby</td><td data-bbox="796 916 910 944">N/A</td><td data-bbox="910 916 1024 944">Standby</td><td data-bbox="1024 916 1139 944">OCUDR-A</td><td data-bbox="1139 916 1253 944">Site1_NE_NO</td><td data-bbox="1253 916 1367 944">Network OAM&P</td><td data-bbox="1367 916 1465 944"></td></tr> <tr> <td data-bbox="567 944 682 971">DR-OCUDR-A</td><td data-bbox="682 944 796 971">Spare</td><td data-bbox="796 944 910 971">N/A</td><td data-bbox="910 944 1024 971">Active</td><td data-bbox="1024 944 1139 971">DR-OCUDR-B</td><td data-bbox="1139 944 1253 971">Site2_NE_DR_NO</td><td data-bbox="1253 944 1367 971">Network OAM&P</td><td data-bbox="1367 944 1465 971">10.10.1.28</td></tr> <tr> <td data-bbox="567 971 682 998">DR-OCUDR-B</td><td data-bbox="682 971 796 998">Spare</td><td data-bbox="796 971 910 998">N/A</td><td data-bbox="910 971 1024 998">Standby</td><td data-bbox="1024 971 1139 998">DR-OCUDR-A</td><td data-bbox="1139 971 1253 998">Site2_NE_DR_NO</td><td data-bbox="1253 971 1367 998">Network OAM&P</td><td data-bbox="1367 971 1465 998"></td></tr> </tbody> </table>	Hostname	OAM HA Role	Application HA Role	Max Allowed HA Role	Mate Hostname List	Network Element	Server Role	Active VIPs	OCUDR-A	Active	N/A	Active	OCUDR-B	Site1_NE_NO	Network OAM&P	10.10.1.121	OCUDR-B	Standby	N/A	Standby	OCUDR-A	Site1_NE_NO	Network OAM&P		DR-OCUDR-A	Spare	N/A	Active	DR-OCUDR-B	Site2_NE_DR_NO	Network OAM&P	10.10.1.28	DR-OCUDR-B	Spare	N/A	Standby	DR-OCUDR-A	Site2_NE_DR_NO	Network OAM&P	
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26. <input type="checkbox"/>	<p>Active UDR VIP: Restarting the OAM Server Application Navigate to Main Menu → Status & Manage → Server</p>	<p>Main Menu: Status & Manage -> Server</p> <p>Filter* ▾</p> <table border="1"> <thead> <tr> <th data-bbox="567 1121 682 1170">Server Hostname</th><th data-bbox="682 1121 796 1170">Network Element</th><th data-bbox="796 1121 910 1170">Appl State</th><th data-bbox="910 1121 1024 1170">Alm</th><th data-bbox="1024 1121 1139 1170">DB</th><th data-bbox="1139 1121 1253 1170">Reporting Status</th><th data-bbox="1253 1121 1367 1170">Proc</th></tr> </thead> <tbody> <tr> <td data-bbox="567 1170 682 1197">DR-OCUDR-A</td><td data-bbox="682 1170 796 1197">Site2_NE_DR_NO</td><td data-bbox="796 1170 910 1197">Disabled</td><td data-bbox="910 1170 1024 1197">Err</td><td data-bbox="1024 1170 1139 1197">Norm</td><td data-bbox="1139 1170 1253 1197">Norm</td><td data-bbox="1253 1170 1367 1197">Man</td></tr> <tr> <td data-bbox="567 1197 682 1224">DR-OCUDR-B</td><td data-bbox="682 1197 796 1224">Site2_NE_DR_NO</td><td data-bbox="796 1197 910 1224">Disabled</td><td data-bbox="910 1197 1024 1224">Err</td><td data-bbox="1024 1197 1139 1224">Norm</td><td data-bbox="1139 1197 1253 1224">Norm</td><td data-bbox="1253 1197 1367 1224">Man</td></tr> <tr> <td data-bbox="567 1224 682 1252">OCUDR-A</td><td data-bbox="682 1224 796 1252">Site1_NE_NO</td><td data-bbox="796 1224 910 1252">Enabled</td><td data-bbox="910 1224 1024 1252">Err</td><td data-bbox="1024 1224 1139 1252">Norm</td><td data-bbox="1139 1224 1253 1252">Norm</td><td data-bbox="1253 1224 1367 1252">Norm</td></tr> <tr> <td data-bbox="567 1252 682 1279">OCUDR-B</td><td data-bbox="682 1252 796 1279">Site1_NE_NO</td><td data-bbox="796 1252 910 1279">Enabled</td><td data-bbox="910 1252 1024 1279">Err</td><td data-bbox="1024 1252 1139 1279">Norm</td><td data-bbox="1139 1252 1253 1279">Man</td><td data-bbox="1253 1252 1367 1279">Norm</td></tr> </tbody> </table>	Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc	DR-OCUDR-A	Site2_NE_DR_NO	Disabled	Err	Norm	Norm	Man	DR-OCUDR-B	Site2_NE_DR_NO	Disabled	Err	Norm	Norm	Man	OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm	OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm					
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OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm																																				
OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm																																				
27. <input type="checkbox"/>	<p>Active UDR VIP:</p> <ol style="list-style-type: none"> 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> <table border="1"> <thead> <tr> <th data-bbox="567 1353 682 1381">Server Hostname</th><th data-bbox="682 1353 796 1381">Network Element</th><th data-bbox="796 1353 910 1381">Appl State</th><th data-bbox="910 1353 1024 1381">Alm</th><th data-bbox="1024 1353 1139 1381">DB</th><th data-bbox="1139 1353 1253 1381">Reporting Status</th><th data-bbox="1253 1353 1367 1381">Proc</th></tr> </thead> <tbody> <tr> <td data-bbox="567 1381 682 1408">DR-OCUDR-A</td><td data-bbox="682 1381 796 1408">Site2_NE_DR_NO</td><td data-bbox="796 1381 910 1408">Disabled</td><td data-bbox="910 1381 1024 1408">Err</td><td data-bbox="1024 1381 1139 1408">Norm</td><td data-bbox="1139 1381 1253 1408">Norm</td><td data-bbox="1253 1381 1367 1408">Man</td></tr> <tr> <td data-bbox="567 1408 682 1436">DR-OCUDR-B</td><td data-bbox="682 1408 796 1436">Site2_NE_DR_NO</td><td data-bbox="796 1408 910 1436">Disabled</td><td data-bbox="910 1408 1024 1436">Err</td><td data-bbox="1024 1408 1139 1436">Norm</td><td data-bbox="1139 1408 1253 1436">Norm</td><td data-bbox="1253 1408 1367 1436">Man</td></tr> </tbody> </table> <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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Step	Procedure	Result																																			
28. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>3. Using the mouse, select Server A. The line entry is highlighted in sky blue.</p> <p>4. Click Restart (located at the bottom of the page).</p> <p>5. Click OK.</p> <p>A confirmation message (in the banner area) for Server A stating: Successfully restarted application.</p> <p>NOTE: Use the vertical scroll-bar to see the Restart button.</p>	<p>Normal or Low Capacity Configuration:</p>  <p>The screenshot shows a table of server status with the following data:</p> <table border="1"> <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> <p>Below the table is a navigation bar with links: Help, Legal Notices, Logout, Stop, Restart, Reboot, NTP Sync, and Report. A confirmation dialog box is displayed:</p> <p>Are you sure you wish to restart application software on the following server(s)? DR-OCUDR-A</p> <p>OK Cancel</p> <p>At the bottom, a green info banner is shown:</p> <p>Info</p> <p>Server Hostname: DR-OCUDR-A</p> <p>DR-OCUDR-A: Successfully restarted application.</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	OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm	OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm
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29. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Navigate to Main Menu → Status & Manage → Server</p>	<p>Main Menu: Status & Manage -> Server</p> <p>Fri Apr 06 04:58:03 2018 EDT</p>  <table border="1"> <thead> <tr> <th>Server Hostname</th> <th>Network Element</th> <th>Appl State</th> <th>Alm</th> <th>DB</th> <th>Reporting Status</th> <th>Proc</th> </tr> </thead> <tbody> <tr> <td>DR-OCUDR-A</td> <td>Site2_NE_DR_NO</td> <td>Enabled</td> <td>Err</td> <td>Norm</td> <td>Norm</td> <td>Norm</td> </tr> <tr> <td>DR-OCUDR-B</td> <td>Site2_NE_DR_NO</td> <td>Enabled</td> <td>Err</td> <td>Norm</td> <td>Norm</td> <td>Norm</td> </tr> <tr> <td>OCUDR-A</td> <td>Site1_NE_NO</td> <td>Enabled</td> <td>Err</td> <td>Norm</td> <td>Norm</td> <td>Norm</td> </tr> <tr> <td>OCUDR-B</td> <td>Site1_NE_NO</td> <td>Enabled</td> <td>Err</td> <td>Norm</td> <td>Man</td> <td>Norm</td> </tr> </tbody> </table>	Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc	DR-OCUDR-A	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm	DR-OCUDR-B	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm	OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm	OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm
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OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm																															
30. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Verify that the Appl State 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 & Manage -> Server</p> <p>Fri Apr 06 04:58:03 2018 EDT</p>  <table border="1"> <thead> <tr> <th>Server Hostname</th> <th>Network Element</th> <th>Appl State</th> <th>Alm</th> <th>DB</th> <th>Reporting Status</th> <th>Proc</th> </tr> </thead> <tbody> <tr> <td>DR-OCUDR-A</td> <td>Site2_NE_DR_NO</td> <td>Enabled</td> <td>Err</td> <td>Norm</td> <td>Norm</td> <td>Norm</td> </tr> <tr> <td>DR-OCUDR-B</td> <td>Site2_NE_DR_NO</td> <td>Enabled</td> <td>Err</td> <td>Norm</td> <td>Norm</td> <td>Norm</td> </tr> <tr> <td>OCUDR-A</td> <td>Site1_NE_NO</td> <td>Enabled</td> <td>Err</td> <td>Norm</td> <td>Norm</td> <td>Norm</td> </tr> <tr> <td>OCUDR-B</td> <td>Site1_NE_NO</td> <td>Enabled</td> <td>Err</td> <td>Norm</td> <td>Man</td> <td>Norm</td> </tr> </tbody> </table> <p>NOTE: To refresh the server status screen before the default setting (15 to 30 seconds). Select the Status & Manage → Server option from the Main menu on the left.</p>	Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc	DR-OCUDR-A	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm	DR-OCUDR-B	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm	OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm	OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm
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OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm																															
OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm																															
31. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Navigate to Main Menu → Status & Manage → Server</p>	<p>Main Menu: Status & Manage -> Server</p> <p>Fri Apr 06 04:58:03 2018 EDT</p>  <table border="1"> <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
Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc																															
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OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm																															
OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm																															

Step	Procedure	Result
Perform steps 32 to 35 for multiple server configurations only (not single server).		
32. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>1. Using the mouse, select Server B. The line entry is highlighted in sky blue.</p> <p>2. Click Restart (located at the bottom of the page).</p> <p>3. Click OK.</p> <p>A confirmation message displays in the banner area for server B stating: Successfully restarted application.</p> <p>NOTE: Use the vertical scroll-bar to see the Restart button.</p>	<p>The screenshot shows the 'Server' table with four rows: DR-OCUDR-A, DR-OCUDR-B, OCUDR-A, and OCUDR-B. DR-OCUDR-B is highlighted in blue. The 'Appl State' column for DR-OCUDR-B shows 'Enabled' with an 'Err' status. The 'Reporting Status' column for OCUDR-B shows 'Man'.</p> <p>Below the table is a 'Restart' dialog box with buttons for 'Stop', 'Restart', 'Reboot', 'NTP Sync', and 'Report'. The 'Restart' button is highlighted.</p> <p>A confirmation dialog box is displayed, asking 'Are you sure you wish to restart application software on the following server(s)? DR-OCUDR-B'. It has 'OK' and 'Cancel' buttons.</p> <p>At the bottom, a green 'Info' banner displays: '• DR-OCUDR-B: Successfully restarted application.'</p>
33. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Navigate to Main Menu → Status & Manage → Server</p>	<p>The screenshot shows the 'Server' table in the 'Status & Manage' menu. The columns are: Server Hostname, Network Element, Appl State, Alm, DB, Reporting Status, and Proc. DR-OCUDR-B has an 'Err' status in the Alm column. OCUDR-B has a 'Man' status in the Reporting Status column.</p>
34. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Verify that the Appl State shows Enabled and that the Alm, DB, Reporting Status and Proc columns all show Norm for Server B before proceeding to the next Step.</p>	<p>The screenshot shows the 'Server' table in the 'Status & Manage' menu. The columns are: Server Hostname, Network Element, Appl State, Alm, DB, Reporting Status, and Proc. DR-OCUDR-B has an 'Err' status in the Alm column. OCUDR-B has a 'Man' status in the Reporting Status column.</p> <p>NOTE: If you want to refresh the server status screen before the default setting (15 to 30 seconds). Select the Status & Manage → Server option from the Main menu on the left.</p>
Repeat all steps for each DR UDR site being installed.		

Step	Procedure	Result															
35. <input type="checkbox"/>	<p>Active UDR VIP: For primary UDR standby server only:</p> <p>Move the server back to Active</p> <p>Navigate to Main Menu → Status & Manage → HA[Edit]</p> <p>Find the row for the primary UDR standby server and change Max Allowed HA Role back to Active.</p>	<p>Modifying HA attributes</p> <table border="1" data-bbox="600 255 1437 720"> <thead> <tr> <th data-bbox="600 255 752 297">Hostname</th><th data-bbox="752 255 980 297">Max Allowed HA Role</th><th data-bbox="980 255 1437 297">Description</th></tr> </thead> <tbody> <tr> <td data-bbox="600 297 752 403">OCUDR-A</td><td data-bbox="752 297 980 403">Active</td><td data-bbox="980 297 1437 403">The maximum desired HA Role for OCUDR-A</td></tr> <tr> <td data-bbox="600 403 752 508">OCUDR-B</td><td data-bbox="752 403 980 508">Active</td><td data-bbox="980 403 1437 508">The maximum desired HA Role for OCUDR-B</td></tr> <tr> <td data-bbox="600 508 752 614">DR-OCUDR-A</td><td data-bbox="752 508 980 614">Active</td><td data-bbox="980 508 1437 614">The maximum desired HA Role for DR-OCUDR-A</td></tr> <tr> <td data-bbox="600 614 752 720">DR-OCUDR-B</td><td data-bbox="752 614 980 720">Active</td><td data-bbox="980 614 1437 720">The maximum desired HA Role for DR-OCUDR-B</td></tr> </tbody> </table> <p data-bbox="633 720 784 762">Ok</p> <p data-bbox="703 720 784 762">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>Active UDR VIP:</p> <p>Click Logout on the server GUI.</p>	 <p data-bbox="964 1009 1367 1036">Thu Mar 29 06:02:07 2018 EDT</p>															

THIS PROCEDURE HAS BEEN COMPLETED

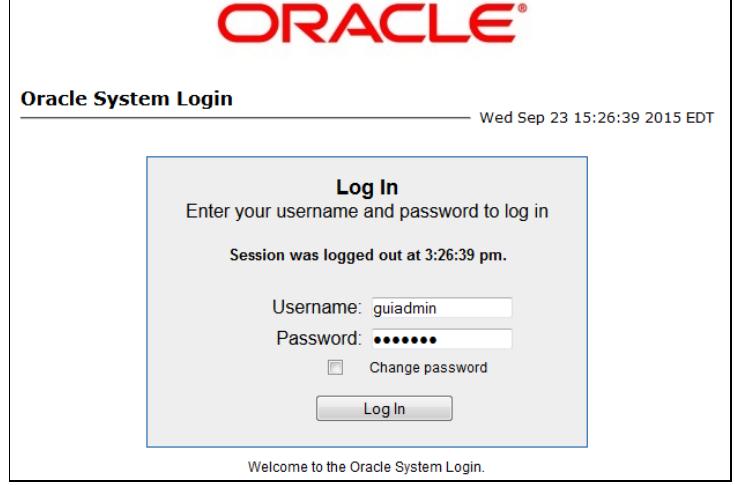
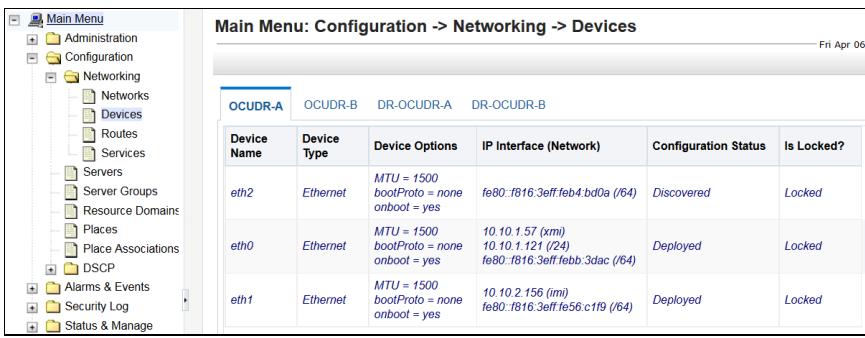
Chapter 7. Application Configuration

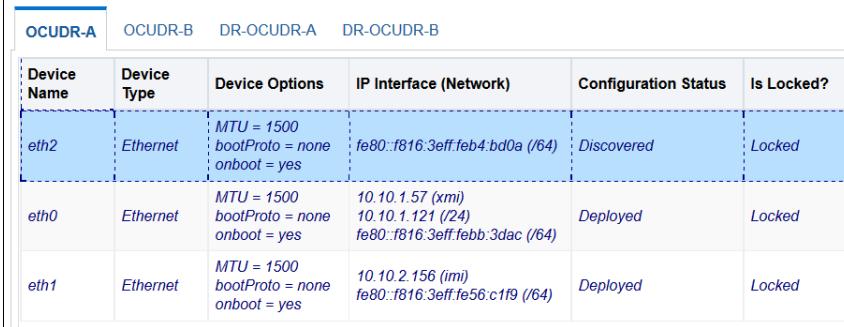
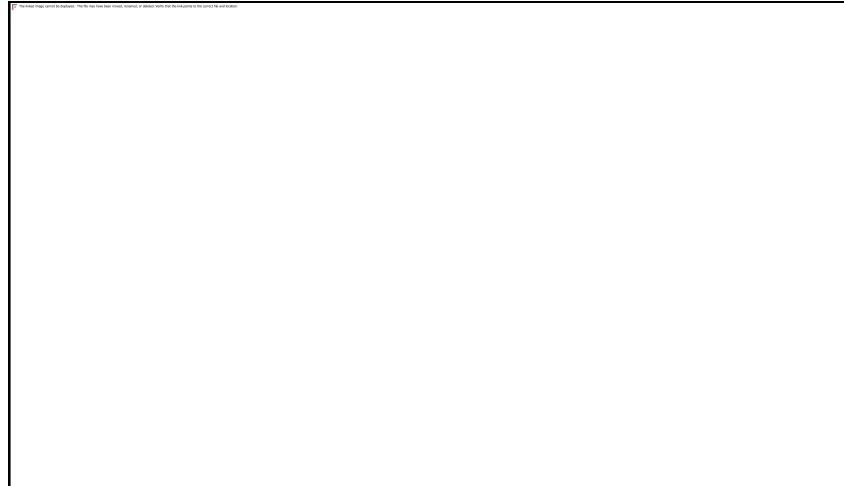
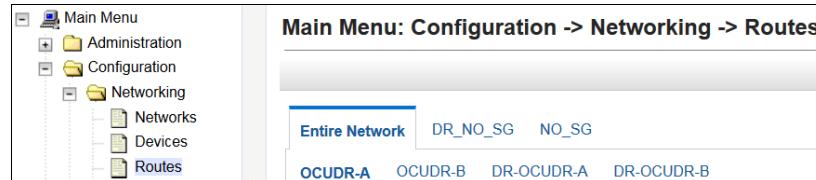
7.1 Configure UDR Signaling Routes (All NOAM Sites)

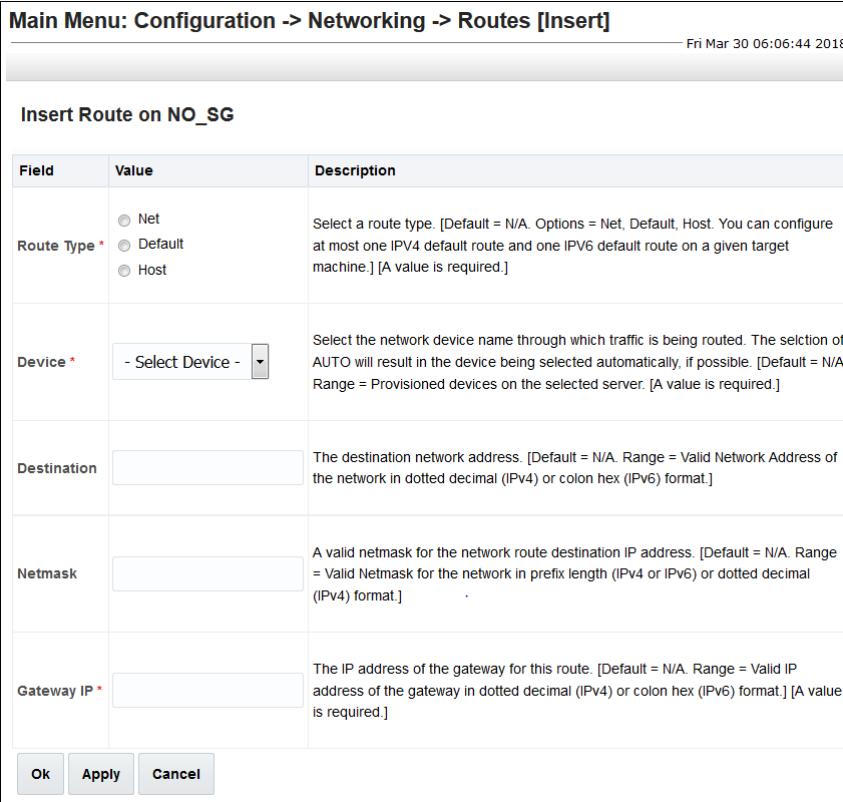
This procedure configures the XSI signaling route for the UDR and DR UDR Server Groups.

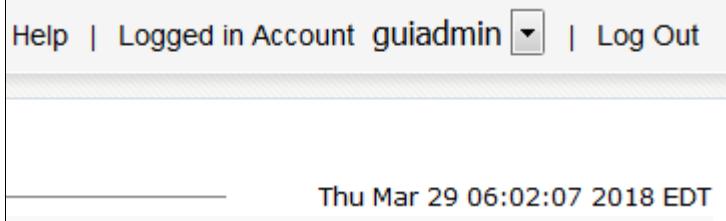
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

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>NOTE: Click Continue to this website (not recommended) if the security certificate warning displays.</p> <p>Login to the GUI using the default user and password.</p>	
2. <input type="checkbox"/>	<p>Active UDR VIP</p> <p>Navigate to Main Menu → Configuration → Networking → Devices</p>	 <p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR-A (XSI-1) <input type="checkbox"/> UDR-B (XSI-1)</p>

Step	Procedure	Result
3. <input type="checkbox"/>	Active UDR VIP: Select the xsi device for the UDR	Select the UDR tab. Select the XSI-1 device (recorded in B.3 Step 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"/>	Active UDR VIP Edit the xsi device for the UDR	Click Take Ownership .  Mark the check box as addition is completed for each server. <input type="checkbox"/> UDR-A (XSI-1) <input type="checkbox"/> UDR-B (XSI-1)
5. <input type="checkbox"/>	Active UDR VIP 1. Add the xsi device for the UDR 2. For Start On Boot, select Enable 3. Click OK to apply changes.	
6. <input type="checkbox"/>	Active UDR VIP: Repeat as required.	Repeat Steps 3 through 5 for each UDR and its Signaling networks. NOTE: Steps 7 through 9 are only needed for geo-redundant systems.
7. <input type="checkbox"/>	Active UDR VIP: Navigate to Main Menu → Configuration → Networking → Routes	

Step	Procedure	Result
8. <input type="checkbox"/>	Active UDR VIP: Insert a route for the UDR or DR UDR Server group.	1. Select the Server Group tab on the top line. 2. Click Entire Server Group on the line below Server Group line.  3. Click Insert 
9. <input type="checkbox"/>	Active UDR VIP: Add signaling route	 <p>1. Set Route Type to Net 2. Set Device to XSI-1 device (recorded in B.3 Step 3 or C.7 Step 5). 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. 4. Enter Netmask for the remote network. 5. Enter Gateway IP: This is the signaling network gateway for Oracle Communications User Data Repository. 6. Click Apply.</p>

Step	Procedure	Result
10. <input type="checkbox"/>	NOTES: Destination would be DR Site XSI1 Address if configuring Primary Site and vice-versa. Netmask would be DR Site XSI1 Address if configuring Primary Site and vice-versa. Gateway IP would be Primary Site XSI1 Gateway if configuring Primary Site and vice-versa.	
11. <input type="checkbox"/>	Active UDR VIP: Click Logout on the server GUI.	 Thu Mar 29 06:02:07 2018 EDT

THIS PROCEDURE HAS BEEN COMPLETED

7.2 Configure Services on Signaling Network

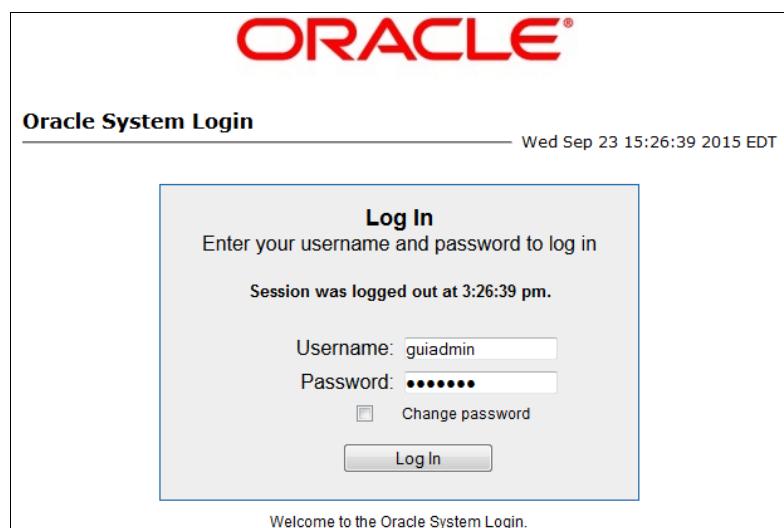
This procedure configures ComAgent communication between NOAMP and MP to use Signaling Network. This procedure also configures dual path HA heartbeat to use the XSI network.

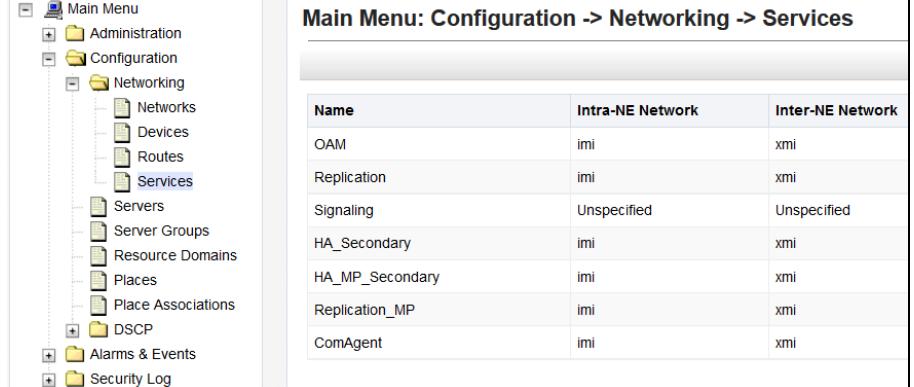
Requirements:

- 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"/>	Active UDR VIP: Launch an approved web browser and connect to the UDR Server A IP address NOTE: Click Continue to this website (not recommended) if the security certificate warning displays. Login to the GUI using the default user and password.	

Step	Procedure	Result																								
2. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Navigate to Main Menu → Configuration → Services</p>	 <p>Main Menu: Configuration > Networking > Services</p> <table border="1"> <thead> <tr> <th data-bbox="894 291 948 312">Name</th> <th data-bbox="1171 291 1302 312">Intra-NE Network</th> <th data-bbox="1351 291 1498 312">Inter-NE Network</th> </tr> </thead> <tbody> <tr> <td data-bbox="894 327 948 348">OAM</td> <td data-bbox="1171 327 1209 348">iml</td> <td data-bbox="1351 327 1388 348">xmi</td> </tr> <tr> <td data-bbox="894 363 948 384">Replication</td> <td data-bbox="1171 363 1209 384">iml</td> <td data-bbox="1351 363 1388 384">xmi</td> </tr> <tr> <td data-bbox="894 399 948 420">Signaling</td> <td data-bbox="1171 399 1258 420">Unspecified</td> <td data-bbox="1351 399 1449 420">Unspecified</td> </tr> <tr> <td data-bbox="894 435 948 456">HA_Secondary</td> <td data-bbox="1171 435 1209 456">iml</td> <td data-bbox="1351 435 1388 456">xmi</td> </tr> <tr> <td data-bbox="894 470 948 492">HA_MP_Secondary</td> <td data-bbox="1171 470 1209 492">iml</td> <td data-bbox="1351 470 1388 492">xmi</td> </tr> <tr> <td data-bbox="894 506 948 528">Replication_MP</td> <td data-bbox="1171 506 1209 528">iml</td> <td data-bbox="1351 506 1388 528">xmi</td> </tr> <tr> <td data-bbox="894 542 948 563">ComAgent</td> <td data-bbox="1171 542 1209 563">iml</td> <td data-bbox="1351 542 1388 563">xmi</td> </tr> </tbody> </table>	Name	Intra-NE Network	Inter-NE Network	OAM	iml	xmi	Replication	iml	xmi	Signaling	Unspecified	Unspecified	HA_Secondary	iml	xmi	HA_MP_Secondary	iml	xmi	Replication_MP	iml	xmi	ComAgent	iml	xmi
Name	Intra-NE Network	Inter-NE Network																								
OAM	iml	xmi																								
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HA_MP_Secondary	iml	xmi																								
Replication_MP	iml	xmi																								
ComAgent	iml	xmi																								

Step	Procedure	Result																										
3. <input type="checkbox"/>	Active UDR VIP: 1. Set two services values: Inter-NE HA_Secondary → XSI1 Inter-NE ComAgent → XSI1 2. Click Apply . 3. Click OK .	<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 black; padding: 10px; margin-top: 10px;"> You must restart all Servers to apply any services changes, ComAgent <div style="text-align: right; margin-top: 10px;"> OK Cancel </div> </div>	Name	Intra-NE Network	Inter-NE Network	OAM	imi	xmi	Replication	imi	xmi	Signaling	Unspecified	Unspecified	HA_Secondary	imi	XSI1	HA_MP_Secondary	imi	xmi	Replication_MP	imi	xmi	ComAgent	imi	xmi		
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HA_MP_Secondary	imi	xmi																										
Replication_MP	imi	xmi																										
ComAgent	imi	xmi																										
		UDR Servers must be restarted.																										

Step	Procedure	Result																																									
4. <input type="checkbox"/>	Active UDR VIP: 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>XSI1</td></tr> <tr> <td>HA_MP_Secondary</td><td>imi</td><td>xmi</td></tr> <tr> <td>Replication_MP</td><td>imi</td><td>xmi</td></tr> <tr> <td>ComAgent</td><td>imi</td><td>xmi</td></tr> </tbody> </table>	Name	Intra-NE Network	Inter-NE Network	OAM	imi	xmi	Replication	imi	xmi	Signaling	Unspecified	Unspecified	HA_Secondary	imi	XSI1	HA_MP_Secondary	imi	xmi	Replication_MP	imi	xmi	ComAgent	imi	xmi																	
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HA_MP_Secondary	imi	xmi																																									
Replication_MP	imi	xmi																																									
ComAgent	imi	xmi																																									
5. <input type="checkbox"/>	Reboot all UDR Servers	<p>Reboot all UDR servers either by</p> <ul style="list-style-type: none"> On the GUI for the active UDR, go to Status & Manage → Server screen and click Reboot. <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <p>Main Menu: Status & Manage -> Server</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Server Hostname</th> <th style="width: 15%;">Network Element</th> <th style="width: 15%;">Appl State</th> <th style="width: 15%;">Alm</th> <th style="width: 15%;">DB</th> <th style="width: 15%;">Reporting Status</th> <th style="width: 15%;">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 style="text-align: center; margin-top: 10px;"> Stop Restart Reboot NTP Sync Report </div> <ul style="list-style-type: none"> On the terminal of each server with the reboot command: <pre>\$ sudo reboot</pre> <p>NOTE: Perform this on all UDRs.</p> </div>	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-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm																																					
OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm																																					
THIS PROCEDURE HAS BEEN COMPLETED																																											

7.3 Accept Installation

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

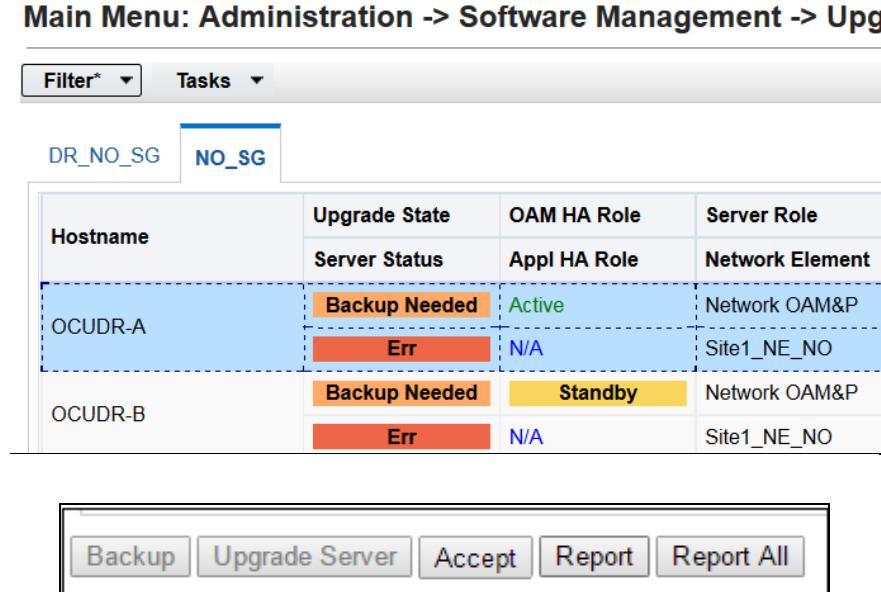
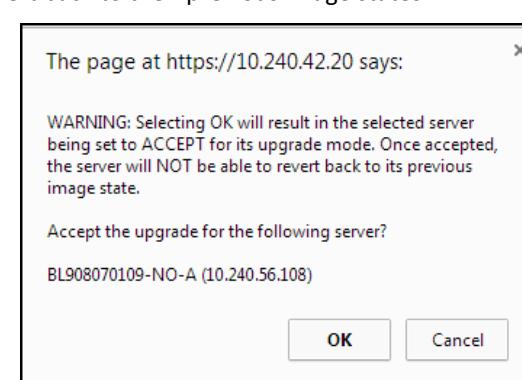
The upgrade needs either to be accepted or rejected before any subsequent upgrades are performed.

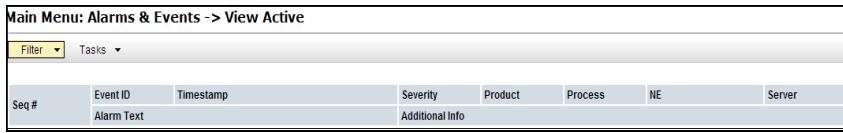
Alarm 32532 (Server Upgrade Pending Accept/Reject) displays for each server until one of these two actions (accept or reject) is performed.

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

Procedure 13: Accept Installation

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

Step	Procedure	Result
3. <input type="checkbox"/>	<p>Active UDR VIP (GUI): Accept upgrade for selected servers.</p> <p>Accept upgrade of selected servers:</p> <ol style="list-style-type: none"> Select the server where the upgrade has not been accepted. Click Accept.  <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>  <p>3. Click OK</p> <p>The Upgrade Administration screen re-displays.</p> <p>An Informational message indicates the servers where the upgrade was accepted.</p>	
4. <input type="checkbox"/>	<p>Active UDR VIP: Accept upgrade of the rest of the system</p> <p>1. Accept upgrade on all remaining servers in the system: 2. Repeat all sub-steps of step 3 of this procedure on remaining servers until the upgrade of all servers in the User Data Repository system has been accepted.</p> <p>Note: As the upgrade is accepted on each server the corresponding Alarm ID 32532 (Server Upgrade Pending Accept/Reject) is removed.</p>	

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

Appendix A. VMWare vSphere Environment setup

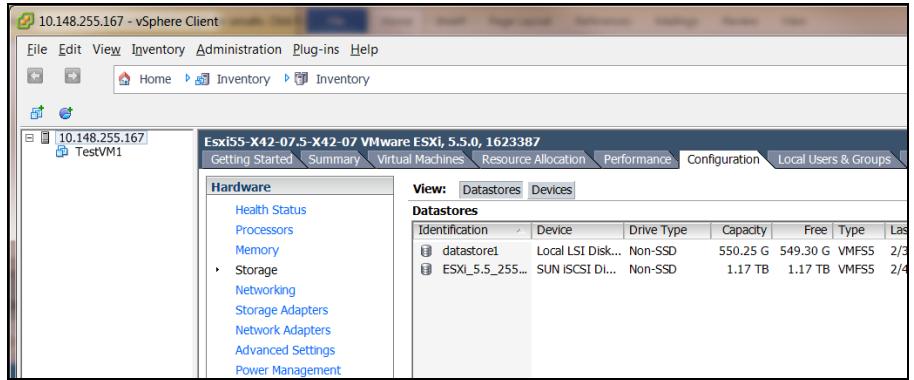
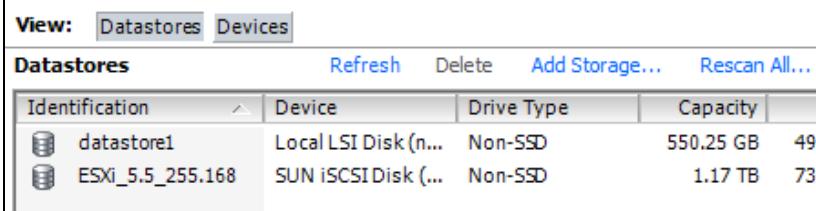
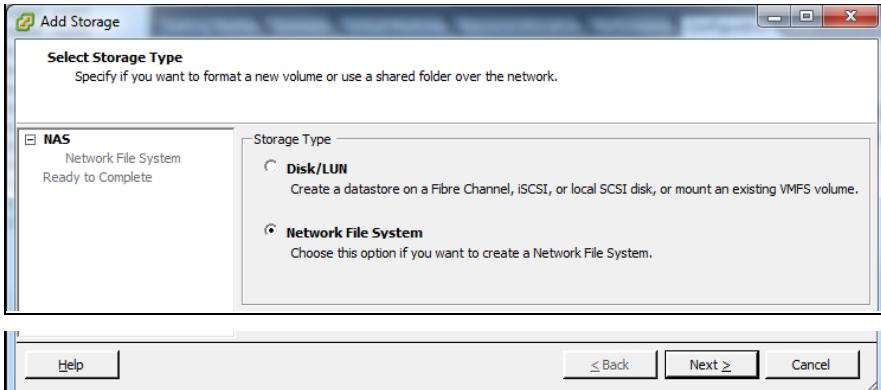
A.1 HOST DATASTORE CONFIGURATION USING VSPPHERE

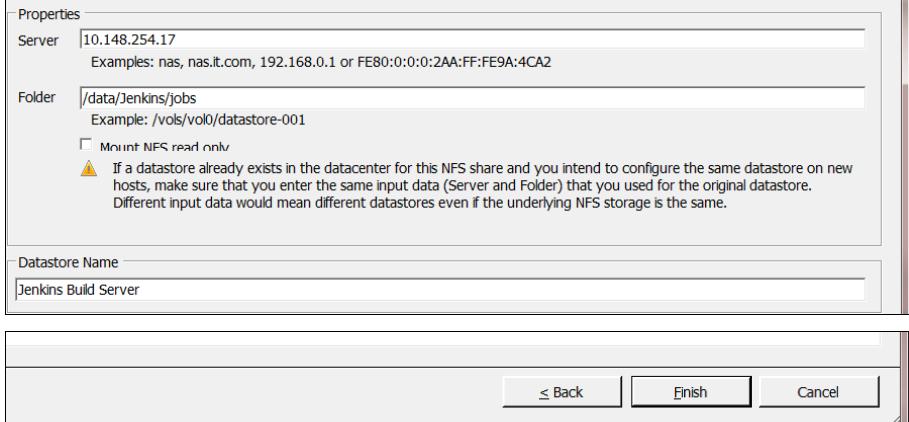
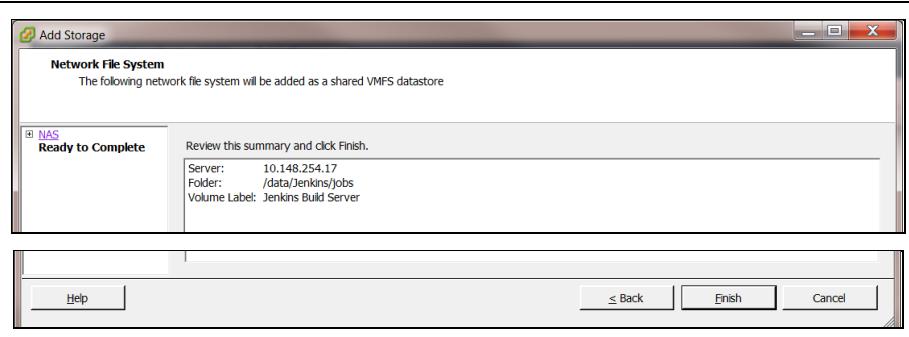
This procedure is performed to configure a datastore on the Host so that the appropriate storage is available for Oracle Communications User Data Repository component VMs. Steps and screenshots are taken from vSphere Client.

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	<div style="border: 1px solid #ccc; padding: 5px; width: fit-content;"> <p>IP address / Name: <input type="text"/></p> <p>User name: <input type="text"/></p> <p>Password: <input type="password"/></p> </div>
2. <input type="checkbox"/>	VMware client: 1. Select the Host on the left tree menu 2. Click the Configuration tab on right 3. Click Storage under Hardware menu	
3. <input type="checkbox"/>	VMware client: Click Add Storage	
4. <input type="checkbox"/>	VMware client: 1. Select Network File System storage type 2. Click Next	

Step	Procedure	Details
5. <input type="checkbox"/>	VMware client: <ol style="list-style-type: none"> 1. Enter a Server IP, Folder, and Datastore Name in the fields according to the resource availability in your VMware host environment 2. Click Next 	
6. <input type="checkbox"/>	VMware client: <ol style="list-style-type: none"> 1. Review the Datastore summary 2. Click Finish 	

THIS PROCEDURE HAS BEEN COMPLETED

A.2 HOST NETWORKING CONFIGURATION USING VSPPHERE

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.

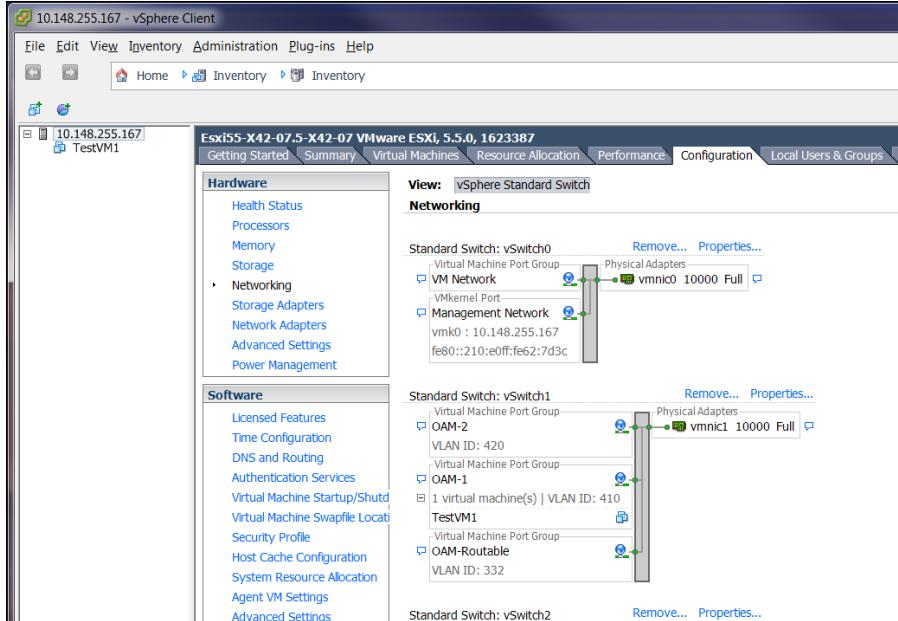
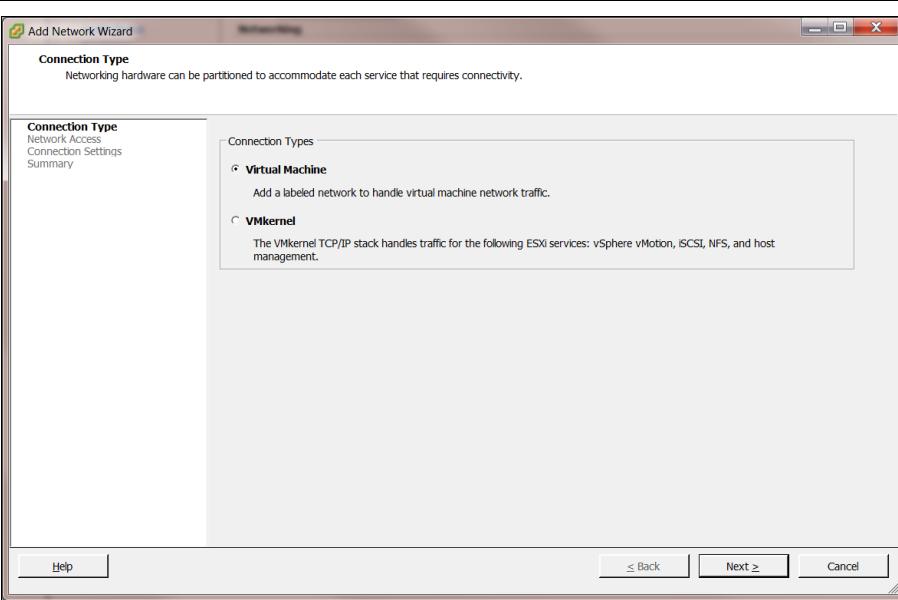
Oracle Communications User Data Repository VMs can be associated with up to 5 vLan Networks. All 5 vNICs must be created and configured in order to be available for the Guest. The expected vNICs correspond to the the following dedicated interfaces of the Oracle Communications User Data Repository and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

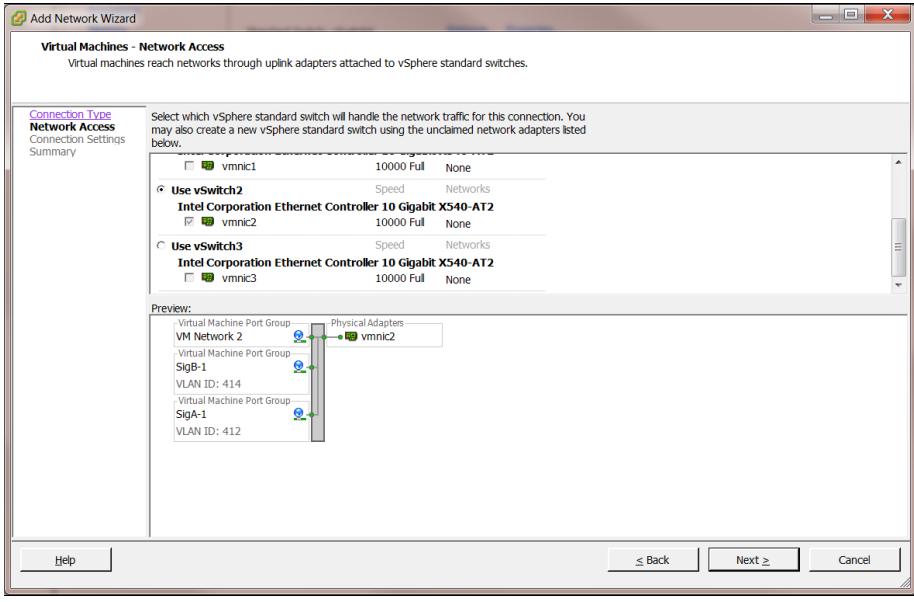
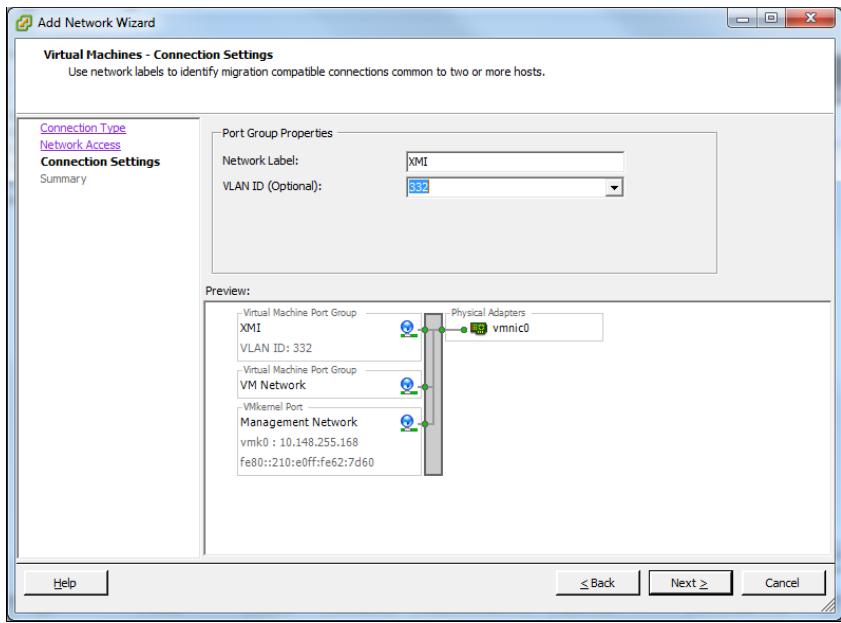
- XMI
OAM Management Interface for the application
- XSI1
Signaling Interface
- XSI2
Signaling Interface
- IMI
Replication Interface
- Guest Management
Reserved for Guest management activities.

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	<div style="border: 1px solid #ccc; padding: 10px; width: 100%;"> <p>IP address / Name: <input type="text"/></p> <p>User name: <input type="text"/></p> <p>Password: <input type="password"/></p> </div>
8. <input type="checkbox"/>	VMware client: 1. Select the Host on the left tree menu 2. Click Configuration tab on right 3. Click Networking under Hardware menu	
9. <input type="checkbox"/>	VMware client: 1. Select Add Networking from top 2. Select connection type Virtual Machine and click Next	

Step	Procedure	Details
10. <input type="checkbox"/>	VMware client: Select appropriate vSwitch type based on the Host hardware and click Next	
11. <input type="checkbox"/>	VMware client: Label the Network, enter its VLAN ID, click Next	 <p>NOTE: It is recommended that the name reflect how the Network is used or referenced from in the Guest, ie XMI, IMI, XSI1, and so on.</p>

Step	Procedure	Details
12. <input type="checkbox"/>	VMware client: Review values and click Finish	
13. <input type="checkbox"/>	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)
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix B. VMware vSphere Oracle Communications User Data Repository Deployment

B.1 CREATE GUESTS FROM OVA

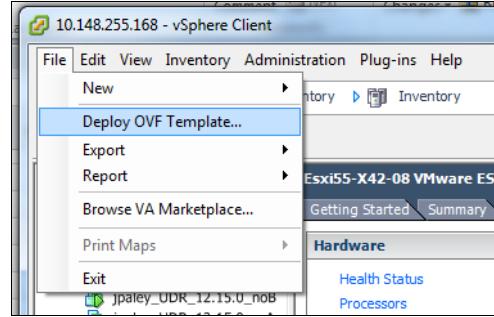
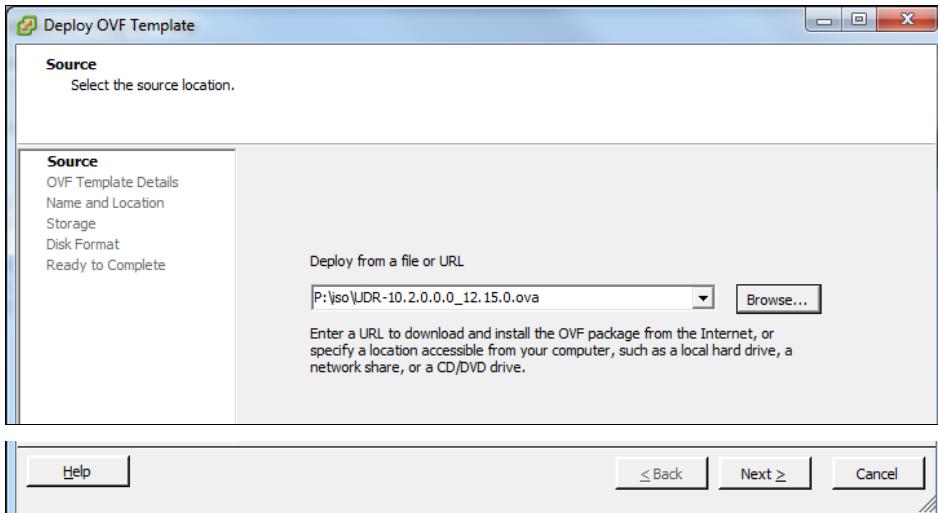
This procedure creates Oracle Communications User Data Repository virtual machines (guests) from OVA.

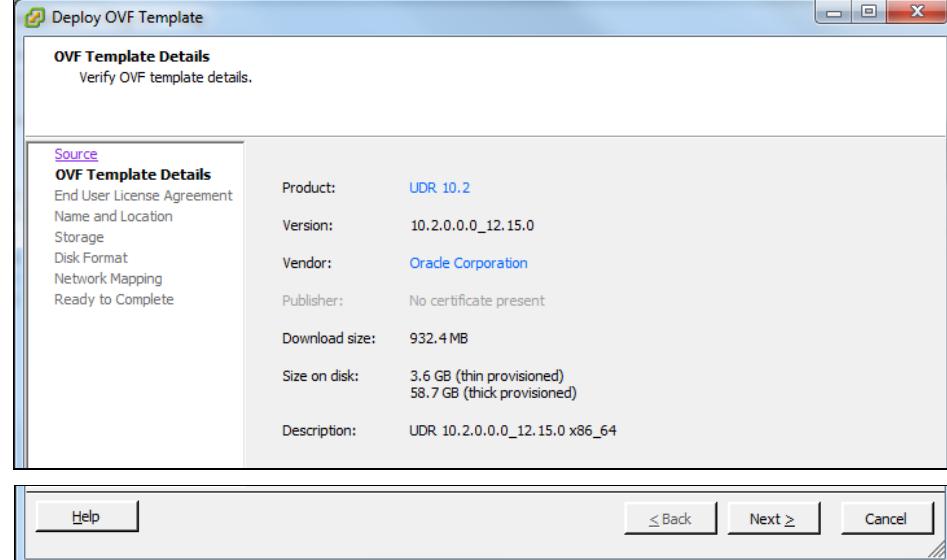
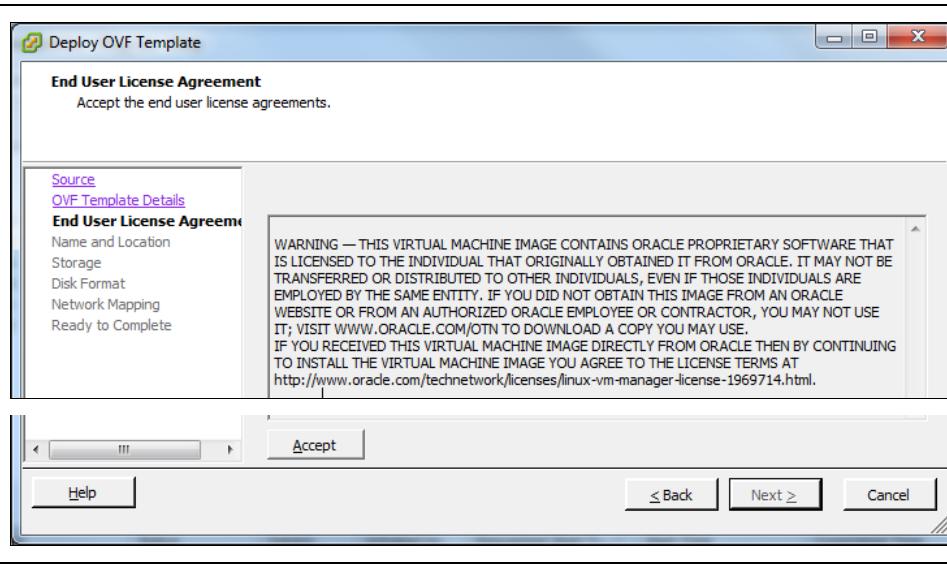
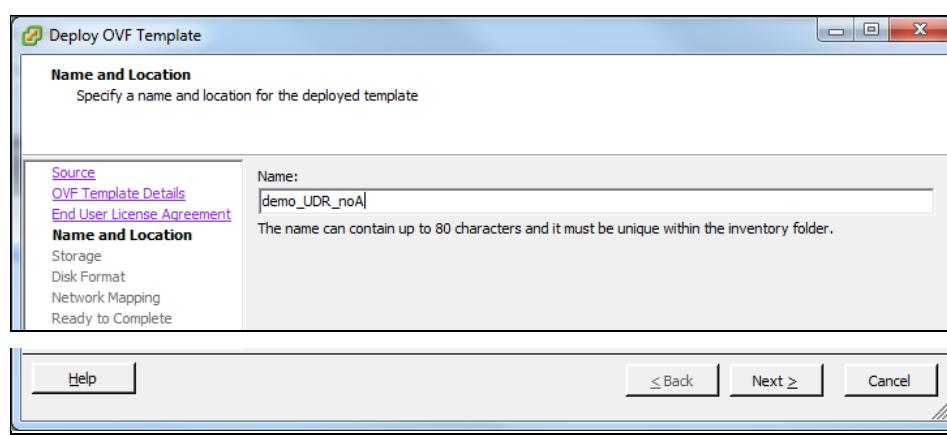
Needed material:

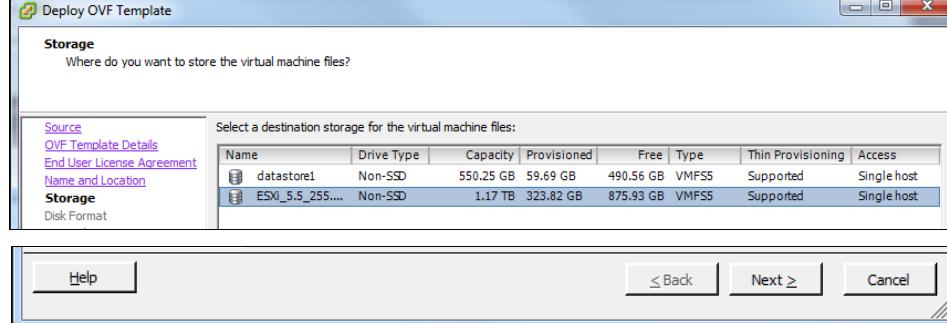
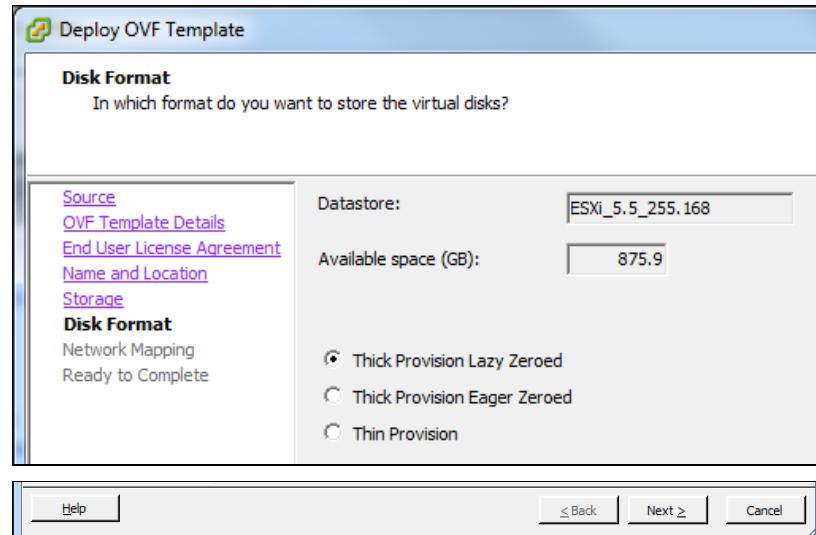
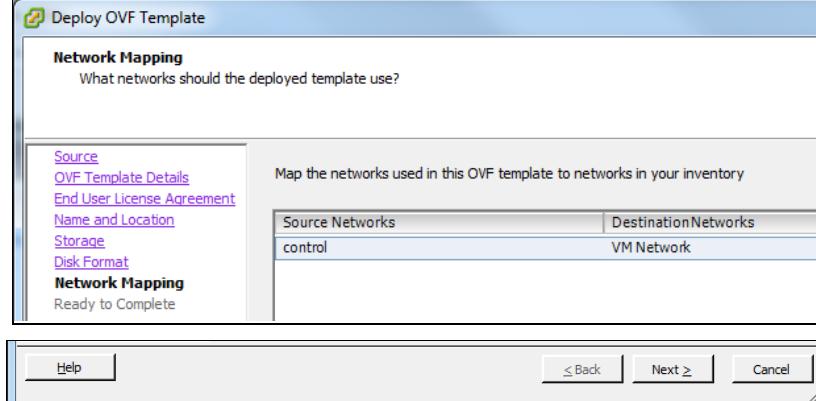
- Oracle Communications User Data Repository OVA

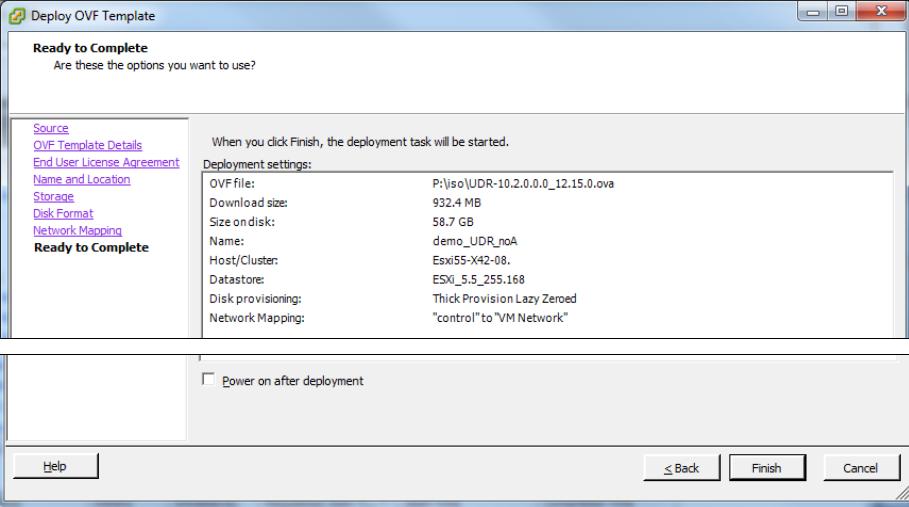
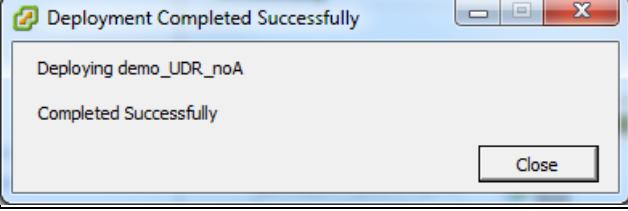
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

Procedure16: Deploy Oracle Communications User Data Repository OVA

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

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

Step	Procedure	Result
7. <input type="checkbox"/>	VMware client: Select destination storage for the virtual machine from the list of available data stores then click Next .	 <p>NOTE: For an upgradeable deployment, ensure the data store has enough free capacity to support the type of VM according to the profile selected from Oracle Communications User Data Repository Installation and Configuration Guide, E72453, latest revision.</p>
8. <input type="checkbox"/>	VMware client: Select Thick Provision Lazy Zeroed and click Next	
9. <input type="checkbox"/>	VMware client: Click Next	

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

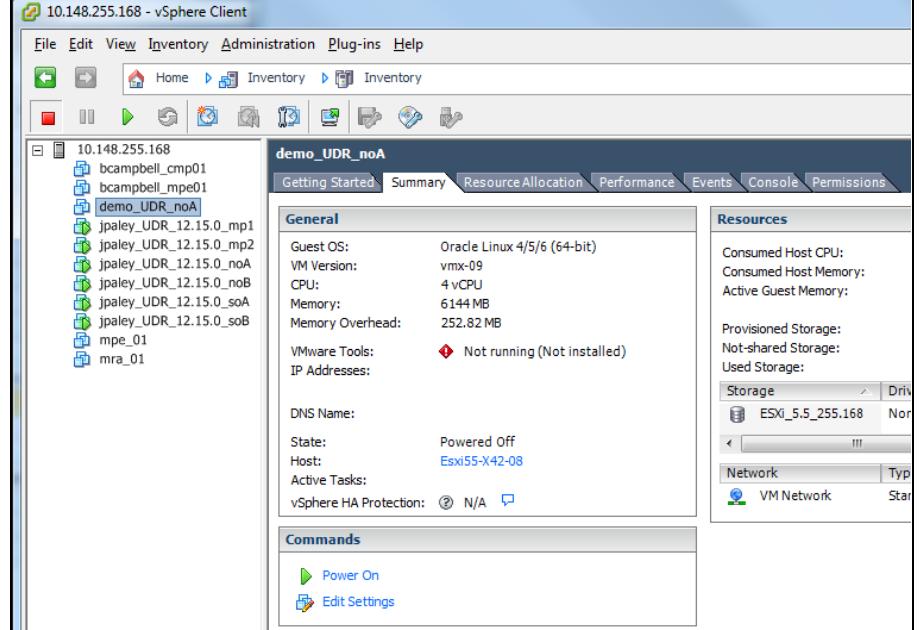
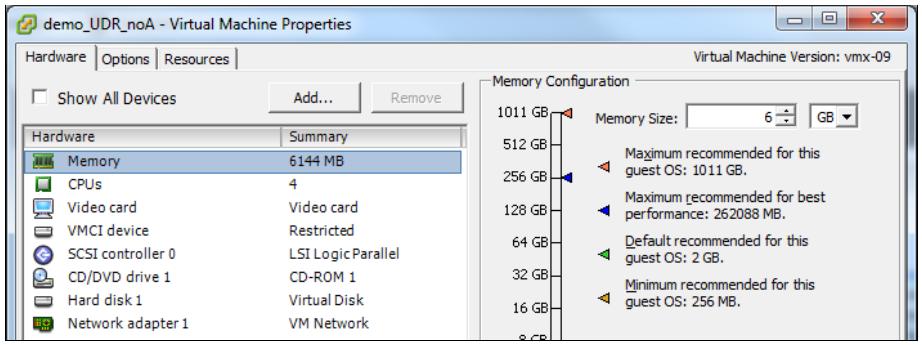
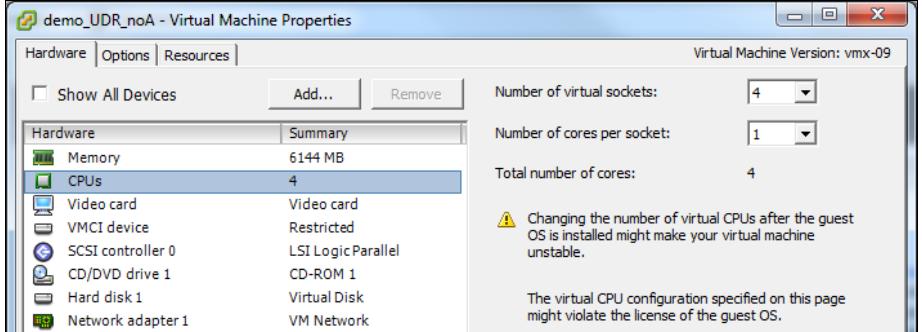
B.2 CONFIGURE GUEST RESOURCES

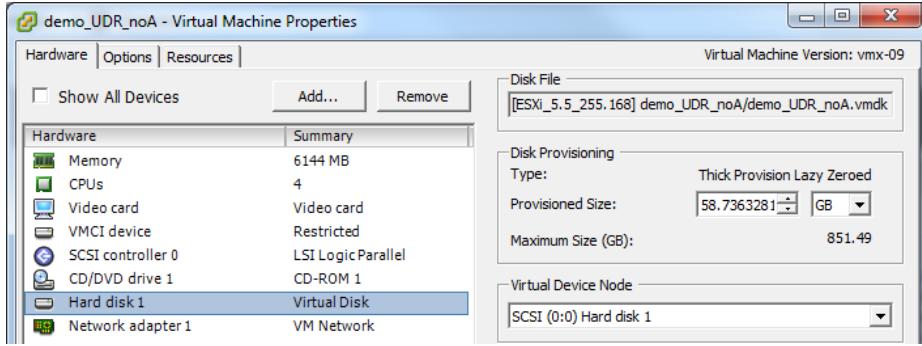
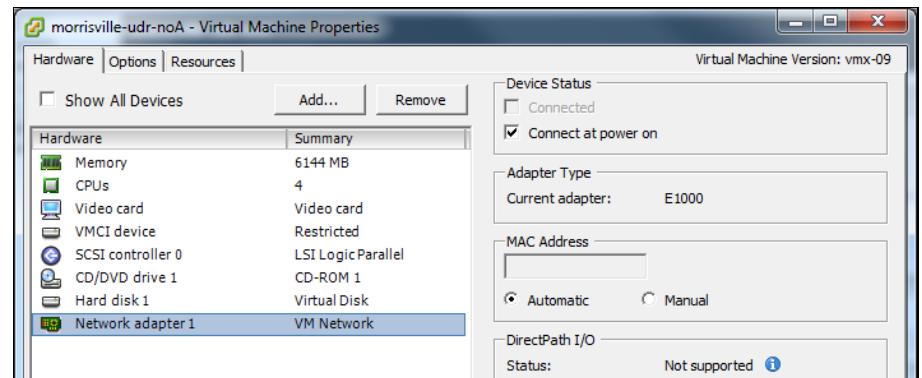
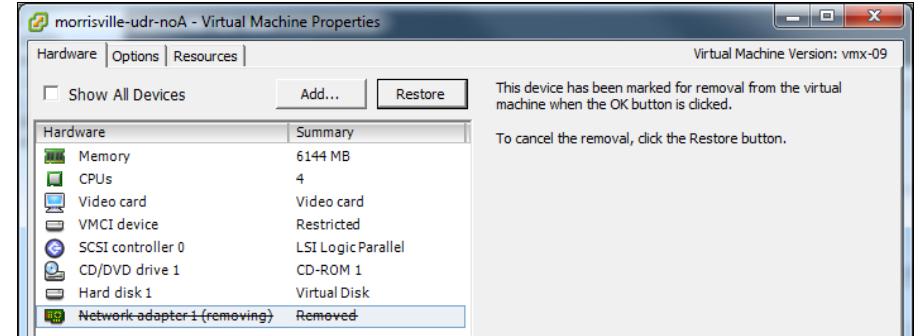
This procedure configures the required resource allocations and associations for Oracle Communications User Data Repository virtual machines (guests) and power them on.

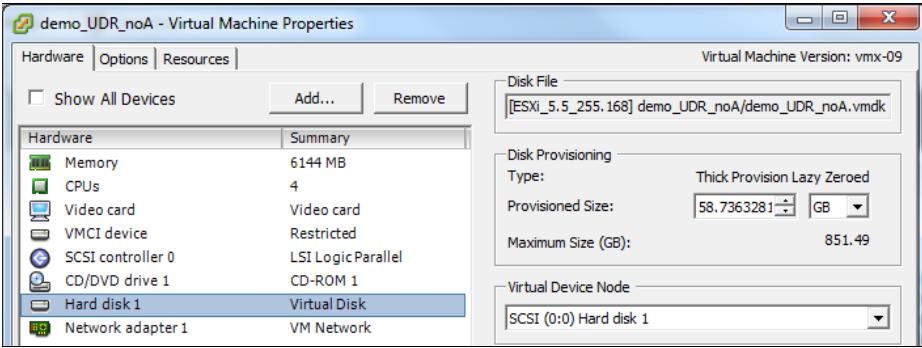
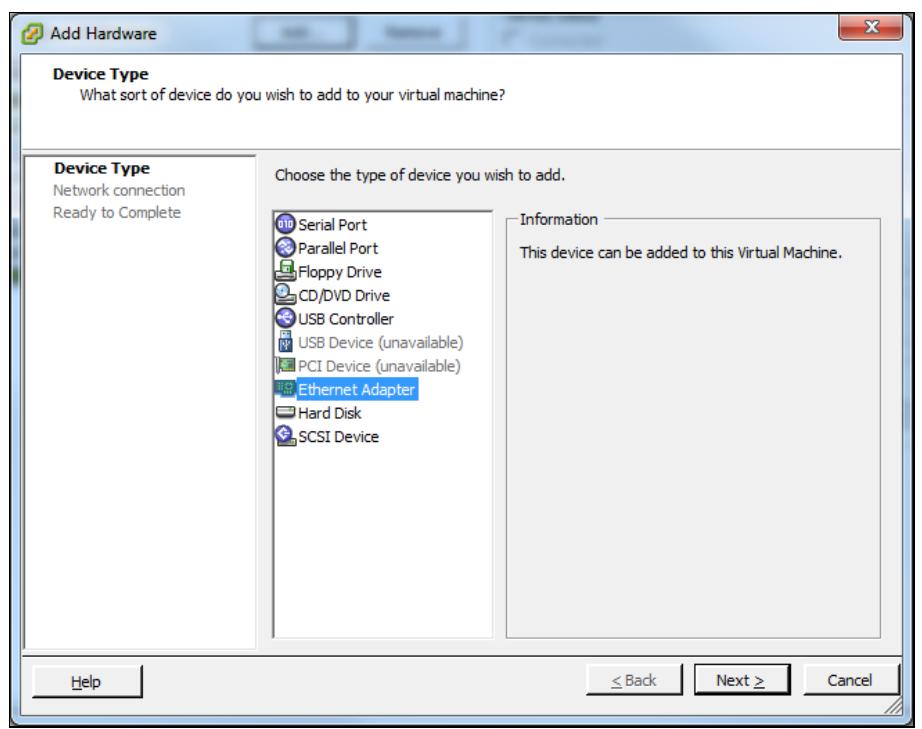
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

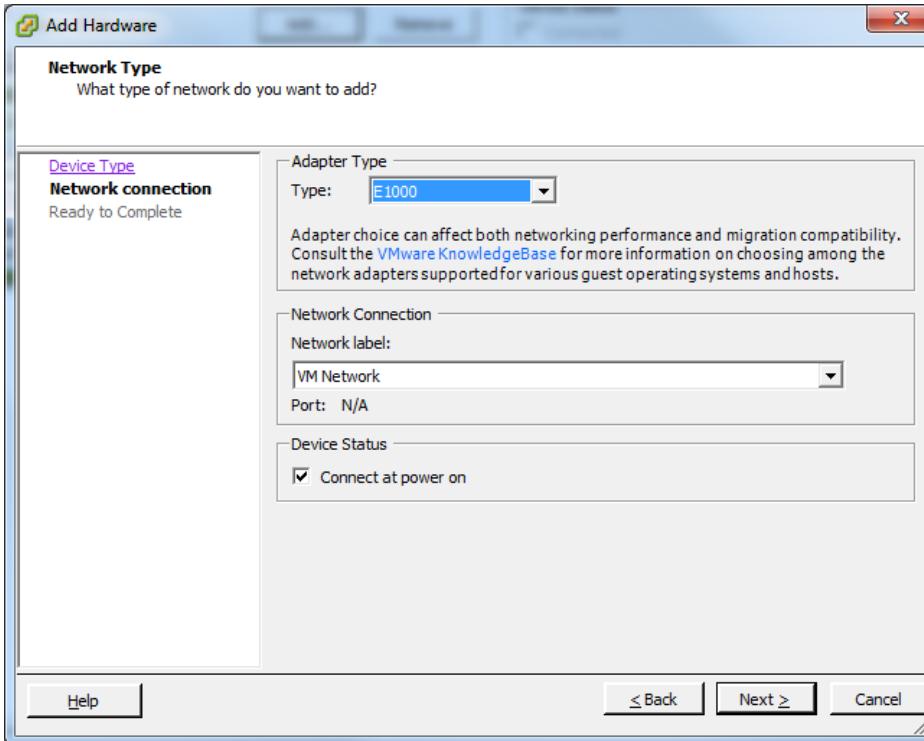
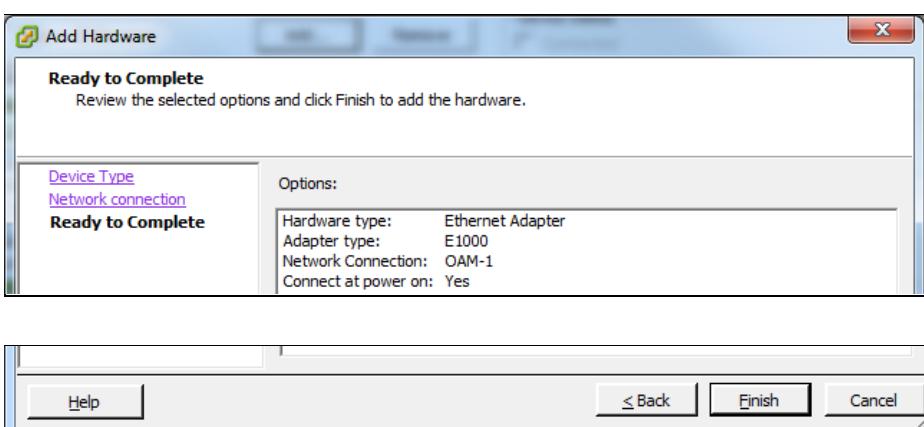
Procedure17: Configure Guest Resources

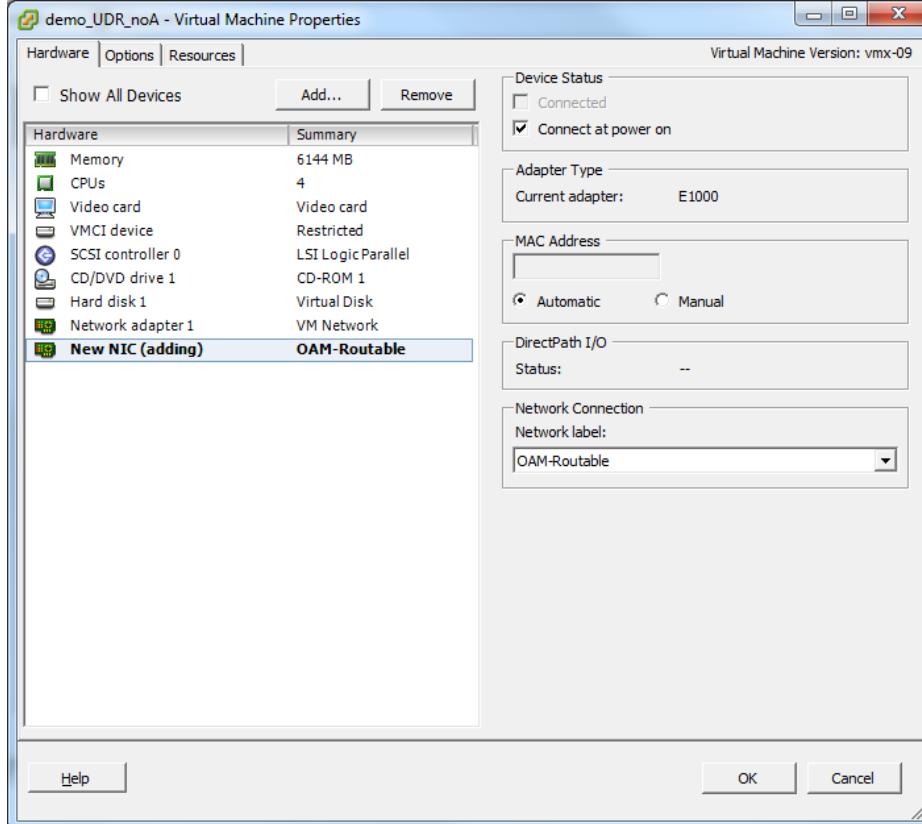
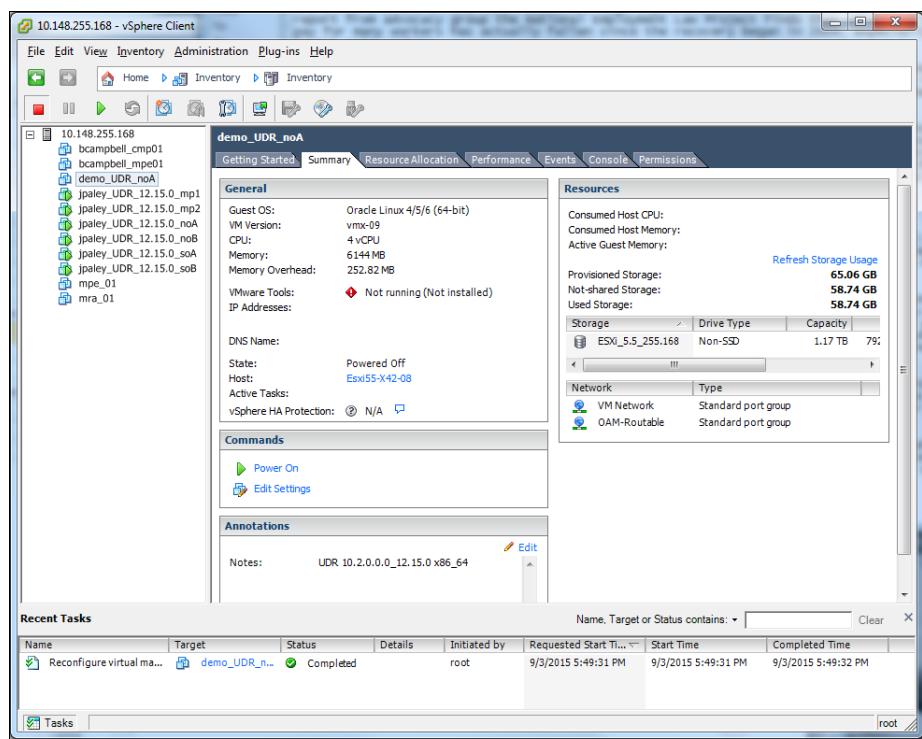
Step	Procedure	Result
1. <input type="checkbox"/>	VMware client: Log into the Vmware client	

Step	Procedure	Result
2. <input type="checkbox"/>	VMware client: 1. Select the Oracle Communications User Data Repository virtual machine from the left tree menu 2. Click Summary tab 3. Click Edit Settings under Commands	
3. <input type="checkbox"/>	VMware client: Select Memory from the Hardware menu and adjust Memory Size for the role of the server. UDR: 48 GB	
4. <input type="checkbox"/>	VMware client: Select CPUs from the Hardware menu and adjust the Number of virtual sockets according to [1].	

Step	Procedure	Result		
5. <input type="checkbox"/>	VMware client: Select Hard disk 1 from the Hardware menu and adjust the Provisioned Size according to [1].			
6. <input type="checkbox"/>	VMware client: 1. Select any Network adapter that may exist by default 2. Click Remove tab			
7. <input type="checkbox"/>	VMware client: The network adapter is crossed out and a removal message displayed			
8. <input type="checkbox"/>	VMware client: Take note of the order in which networks are added.	<p>NOTE: The order in which networks are added by the following steps affects their device order in the virtual machine. Add them in the order they appear for each server:</p> <table border="1" data-bbox="572 1501 910 1657"> <tr> <th data-bbox="572 1501 910 1543">UDR</th> </tr> <tr> <td data-bbox="572 1543 910 1657"> 1. <input type="checkbox"/> XMI 2. <input type="checkbox"/> IMI 3. <input type="checkbox"/> XSI-1 (optional) </td> </tr> </table>	UDR	1. <input type="checkbox"/> XMI 2. <input type="checkbox"/> IMI 3. <input type="checkbox"/> XSI-1 (optional)
UDR				
1. <input type="checkbox"/> XMI 2. <input type="checkbox"/> IMI 3. <input type="checkbox"/> XSI-1 (optional)				

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

Step	Procedure	Result
11. <input type="checkbox"/>	VMware client: 1. Select Adapter Type to conform to your virtual host 2. Select the Network Label to match the network type 3. Click Next	
12. <input type="checkbox"/>	VMware client: Confirm Option settings and click Finish	
13. <input type="checkbox"/>	VMware client: Repeat as required	Repeat Steps 9 through 12 to add every network required for the role of the server.

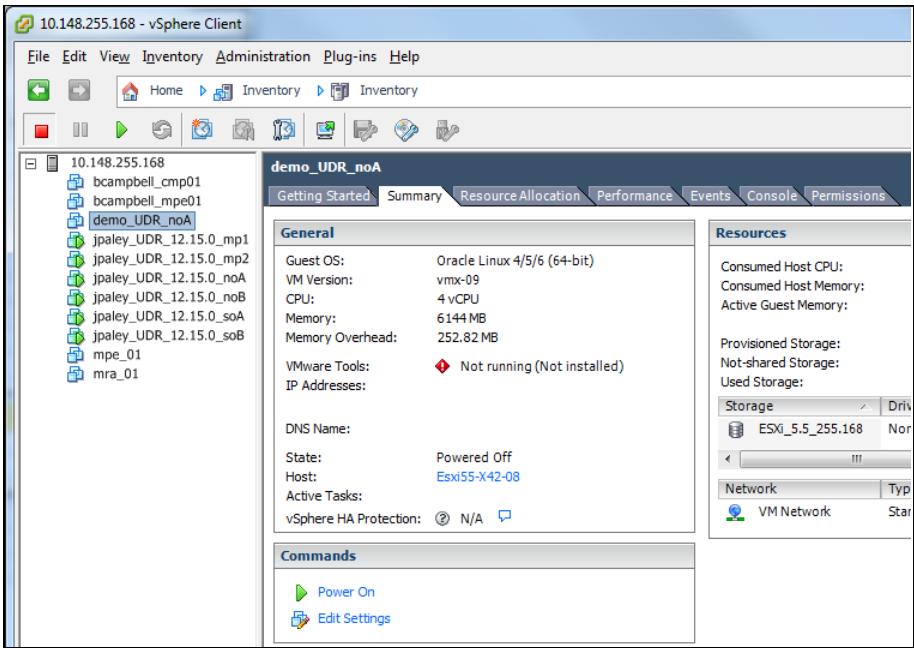
Step	Procedure	Result
14. <input type="checkbox"/>	<p>VMware client: After all networks are added, confirm their entry in the Hardware menu then click OK.</p>	
15. <input type="checkbox"/>	<p>VMware client: New devices and networks are listed on the Summary tab and Reconfigure task shows status Completed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

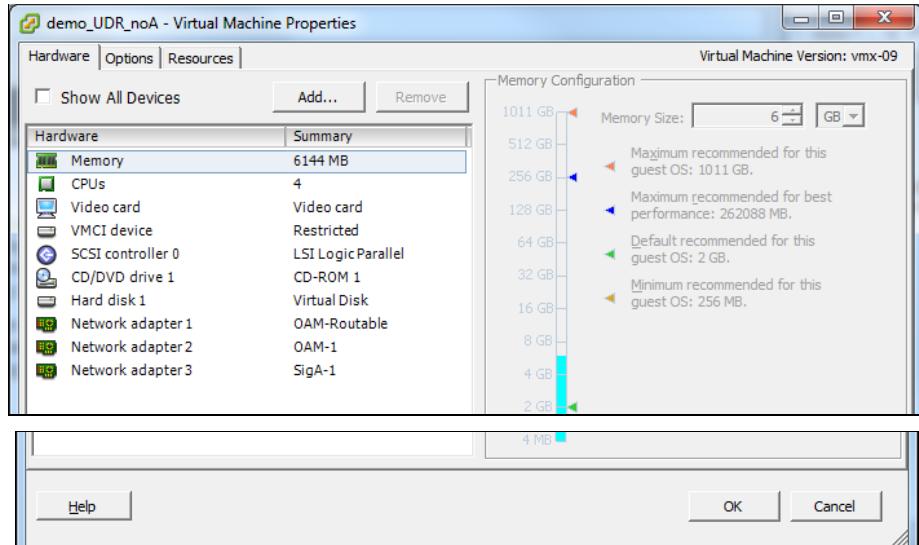
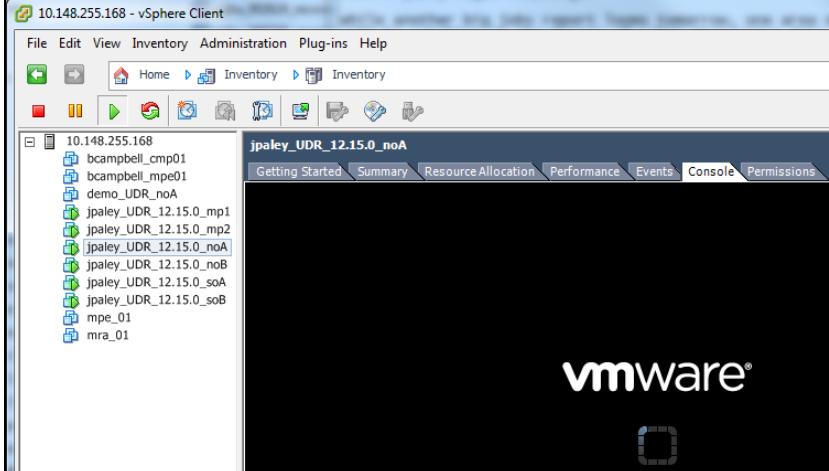
B.3 CONFIGURE GUEST NETWORK

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	<div style="border: 1px solid black; padding: 10px; width: fit-content;"> <p>IP address / Name: <input type="text"/></p> <p>User name: <input type="text"/></p> <p>Password: <input type="password"/></p> </div>
2. <input type="checkbox"/>	VMware client: 1. Select the Oracle Communications User Data Repository virtual machine from the left tree menu 2. Click the Summary tab 3. Click Edit Settings under Commands	

Step	Procedure	Result
3. <input type="checkbox"/> VMware client:	<p>1. Take note of the Network adapter assignment under Hardware tab for each application network.</p> <p>2. Click Cancel</p>	 <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"> • OAM (XMI) is on eth0 device • OAM-1 (IMI) is on eth1 device • Sig-A (XSI-1) is on eth2 device <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"/> VMware client:	<p>1. Click the Console tab</p> <p>2. Click inside the console window to bring focus there</p> <p>NOTE: Press Ctrl-Alt to escape from console.</p>	
5. <input type="checkbox"/> VM Console:	<p>Login to console as admusr</p>	<p>login as: admusr Password:</p>

Step	Procedure	Result
6. <input type="checkbox"/>	VM Console: Configure XMI network	1. Set the XMI device for routable OAM access: NOTE: Where ethX is the interface associated with the XMI network <code>\$ sudo netAdm add --device=eth0 --address=<Guest_XMI_IP_Address> --netmask=<XMI_Netmask> --onboot=yes --bootproto=none</code> 2. Add the default route for XMI: <code>\$ sudo netAdm add --route=default --gateway=<Gateway_XMI_IP_Address> --device=eth0</code> NOTE: The network device may be different than shown here (eth0) if the order of network adapter insertion was other than shown. Refer to Step 3 for this assignment.
7. <input type="checkbox"/>	VM Console: Configure XSI network	Set the XSI device for routable signaling network access (Only for NO and MP Servers): NOTE: Where ethX is the interface associated with the XSI network <code>\$ sudo netAdm add --device=eth2 --address=<Guest_XSI_IP_Address> --netmask=<XSI_Netmask> --onboot=yes --bootproto=none</code> NOTE: The network device may be different than shown here (eth2) if the order of network adapter insertion was other than shown. Refer to Step 3 for this assignment.
8. <input type="checkbox"/>	VM Console: 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"/>	VM Console: Exit console	<code>\$ exit</code> NOTE: Press Ctrl-Alt to escape from console.
THIS PROCEDURE HAS BEEN COMPLETED		

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

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

This procedure 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"/>	vCloud Director: Enter Oracle Communications User Data Repository catalog name in the search field and hit Enter.	
3. <input type="checkbox"/>	vCloud Director: Click the name for the appropriate catalog and proceed to Step 6	<p>NOTE: If a catalog for Oracle Communications User Data Repository does not exist, create one using steps 4 and 5.</p>

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

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

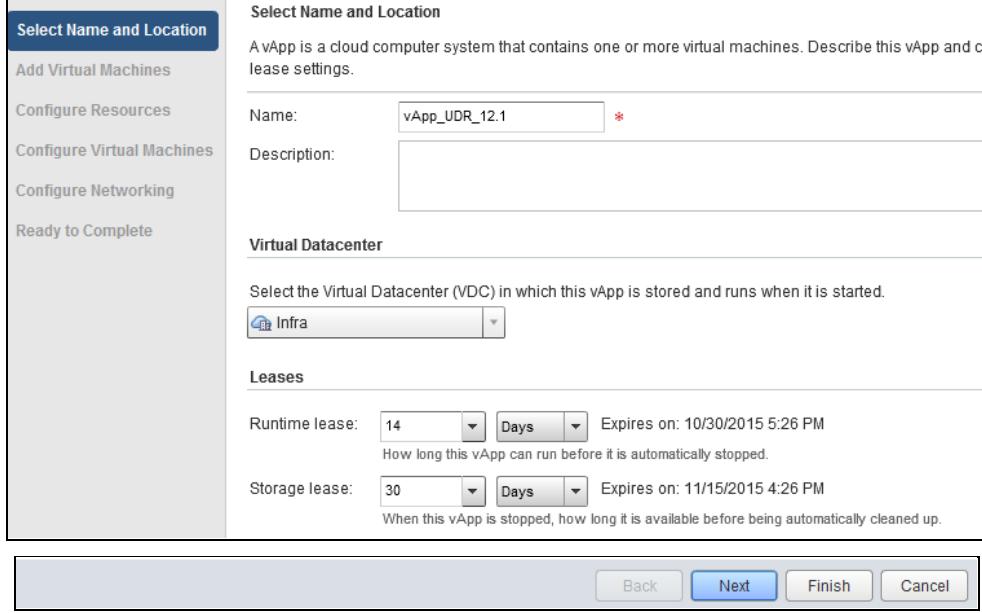
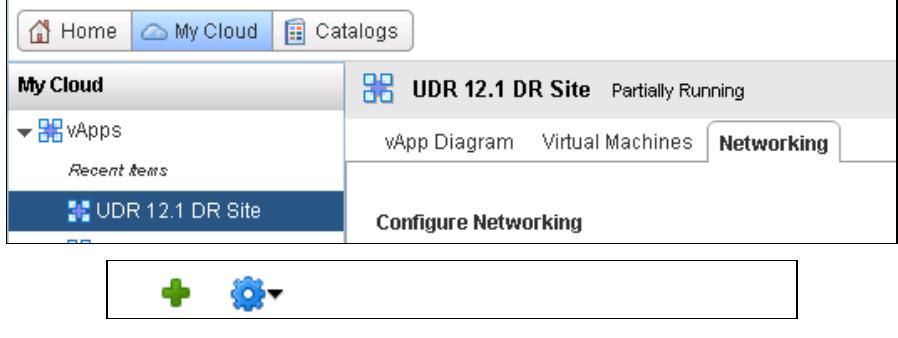
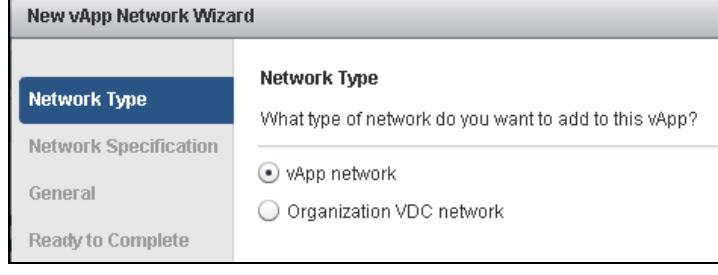
C.2 CREATE VAPP

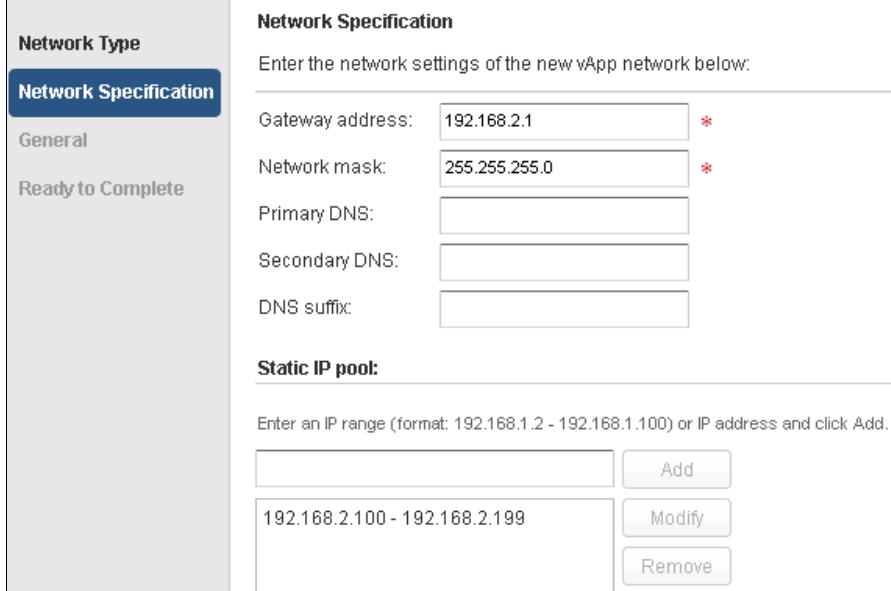
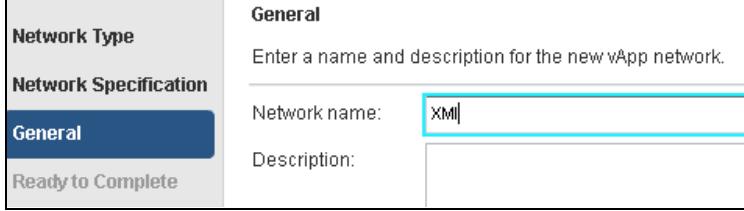
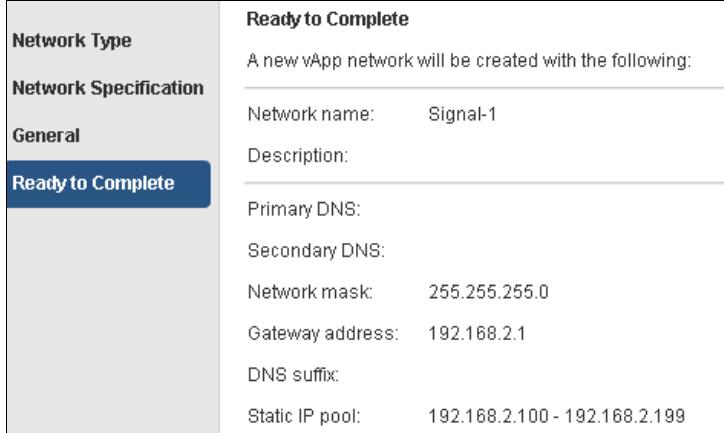
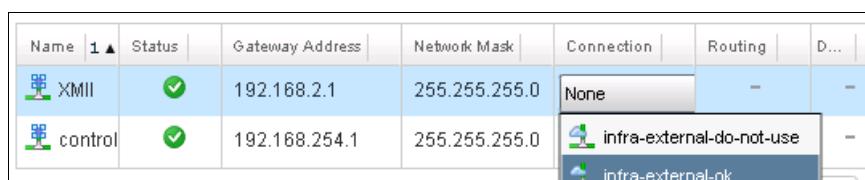
This procedure creates and configure a vApp virtual appliance.

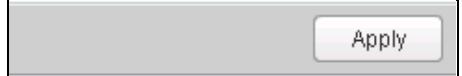
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

Procedure20: Create vApp

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

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

Step	Procedure	Result						
6. <input type="checkbox"/>	<p>vCloud Director: Enter parameters for your internal network. Be sure to have sufficient address space for the number of servers you expect to deploy. Click Next.</p>	 <p>Network Specification Enter the network settings of the new vApp network below:</p> <p>Gateway address: 192.168.2.1 * Network mask: 255.255.255.0 * Primary DNS: <input type="text"/> Secondary DNS: <input type="text"/> DNS suffix: <input type="text"/></p> <p>Static IP pool: Enter an IP range (format: 192.168.1.2 - 192.168.1.100) or IP address and click Add.</p> <table border="1"> <tr> <td><input type="text"/></td> <td>Add</td> </tr> <tr> <td>192.168.2.100 - 192.168.2.199</td> <td>Modify</td> </tr> <tr> <td colspan="2">Remove</td> </tr> </table>	<input type="text"/>	Add	192.168.2.100 - 192.168.2.199	Modify	Remove	
<input type="text"/>	Add							
192.168.2.100 - 192.168.2.199	Modify							
Remove								
7. <input type="checkbox"/>	<p>vCloud Director: Enter a Name for your network using [1] as a guide. Click Next.</p>	 <p>General Enter a name and description for the new vApp network.</p> <p>Network name: <input type="text" value="XMI"/> Description: <input type="text"/></p>						
8. <input type="checkbox"/>	<p>vCloud Director: Review the network data Click Finish.</p>	 <p>Ready to Complete A new vApp network will be created with the following:</p> <p>Network name: Signal-1 Description: Primary DNS: Secondary DNS: Network mask: 255.255.255.0 Gateway address: 192.168.2.1 DNS suffix: Static IP pool: 192.168.2.100 - 192.168.2.199</p>						
9. <input type="checkbox"/>	<p>vCloud Director: Back on the Networking tab.</p>	 <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"/>	vCloud Director: Click Apply .	

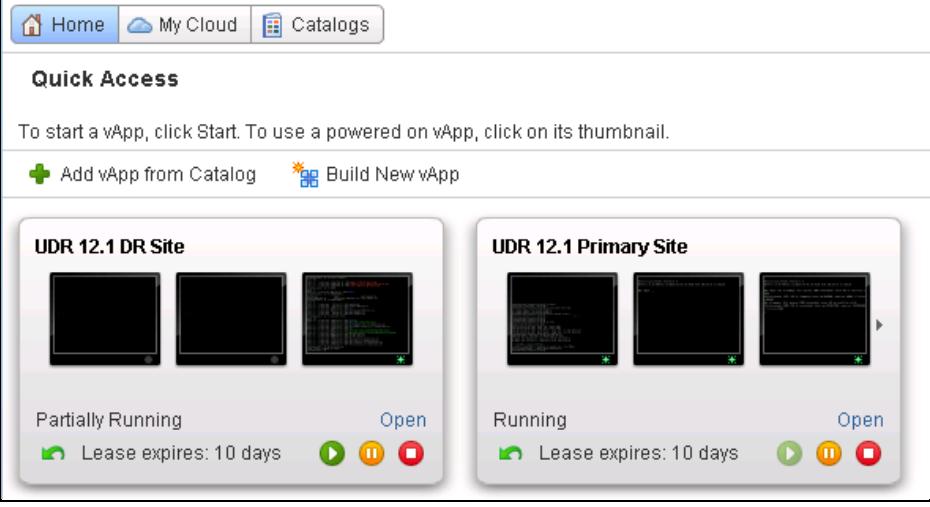
THIS PROCEDURE HAS BEEN COMPLETED

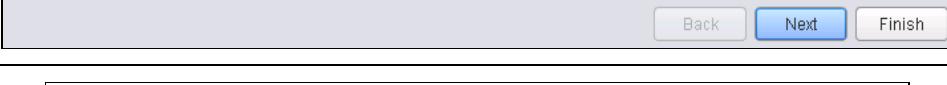
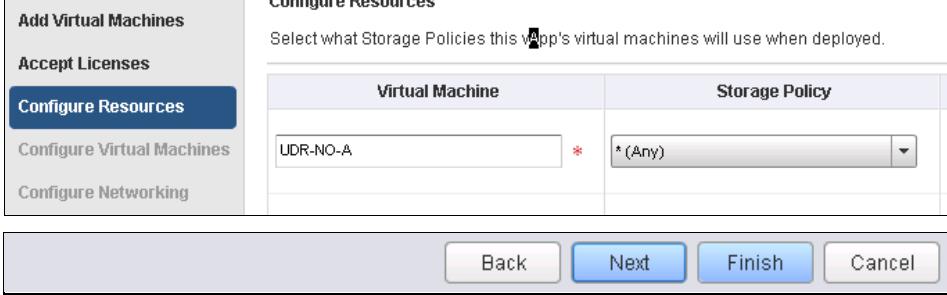
C.3 CREATE GUESTS FROM OVA

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

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

Step	Procedure	Result
4. <input type="checkbox"/>	vCloud Director: <ol style="list-style-type: none"> 1. Enter name in the search field and press Enter 2. Select Oracle Communications User Data Repository media name 3. Click Add. 4. Click Next. 	<p>Add Virtual Machines</p> <p>You can search the catalog for virtual machines to add to this vApp or add a new, blank VM. Once the vApp is created, you can power on the new VM and install an operating system.</p>  <p>NOTE: Multiple servers may be created at once using Add.</p> 
5. <input type="checkbox"/>	vCloud Director: <ol style="list-style-type: none"> 1. Select the license agreement 2. Click Next 	 <p><input checked="" type="checkbox"/> I agree and accept the above license agreements. *</p>
6. <input type="checkbox"/>	vCloud Director: <ol style="list-style-type: none"> 1. Rename virtual machines to reflect its location and role 2. Click Finish. 	 <p>THIS PROCEDURE HAS BEEN COMPLETED</p>

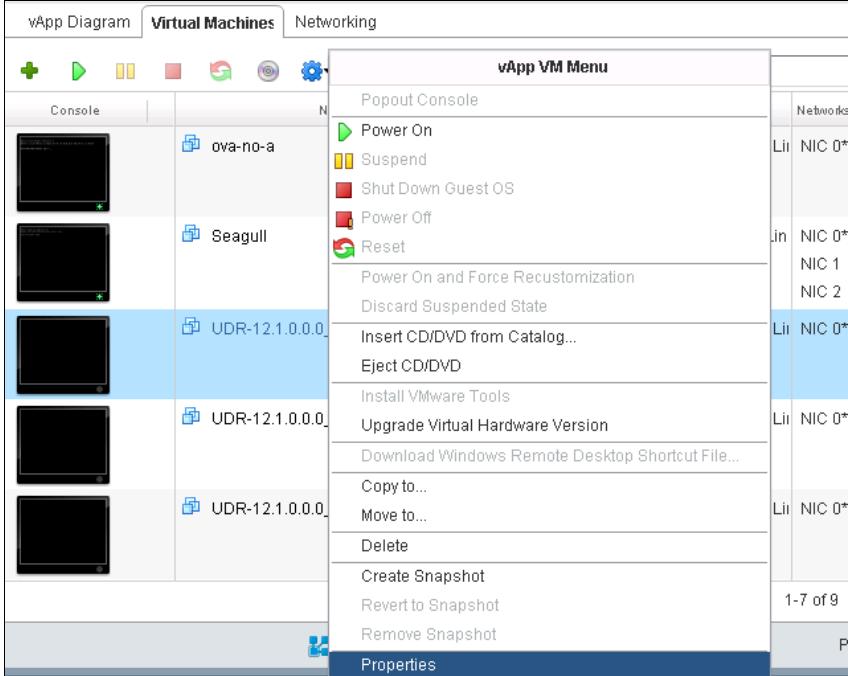
C.4 CONFIGURE GUEST RESOURCES

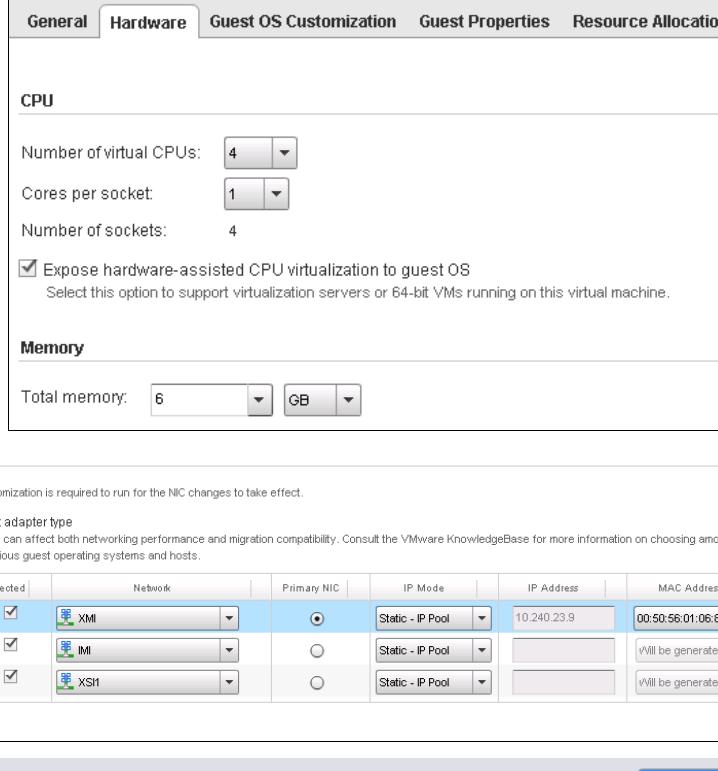
This procedure configures Oracle Communications User Data Repository virtual machines (guests) which have been created from OVA.

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

Step	Procedure	Result
5. <input type="checkbox"/>	<p>vCloud Director:</p> <ol style="list-style-type: none"> 1. Go to the Hardware tab. 2. Adjust the number of Virtual CPUs and Total Memory to match the role of the servers in [1]. 3. Select Expose hardware-assisted CPU virtualization to guest OS. 4. Adjust NICs to match the role of the server role in [1]. 5. Click OK. 	 <p>THIS PROCEDURE HAS BEEN COMPLETED</p>

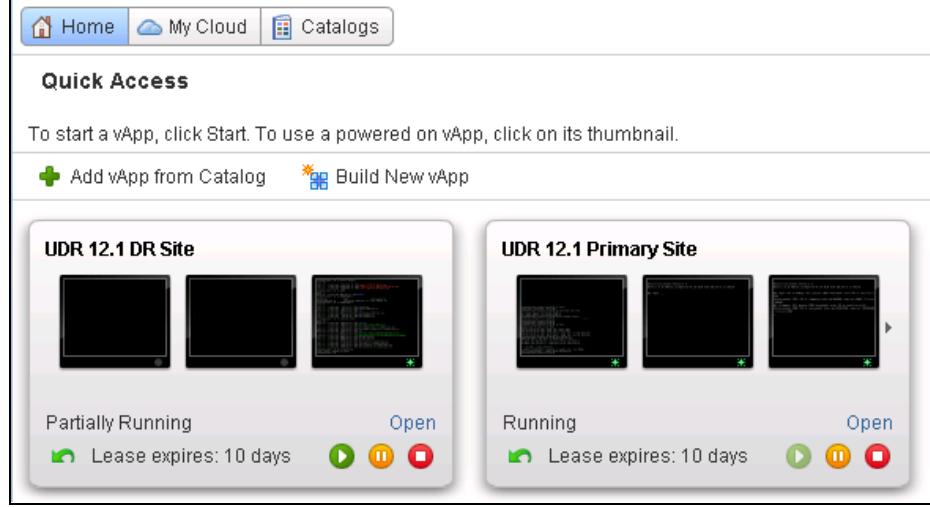
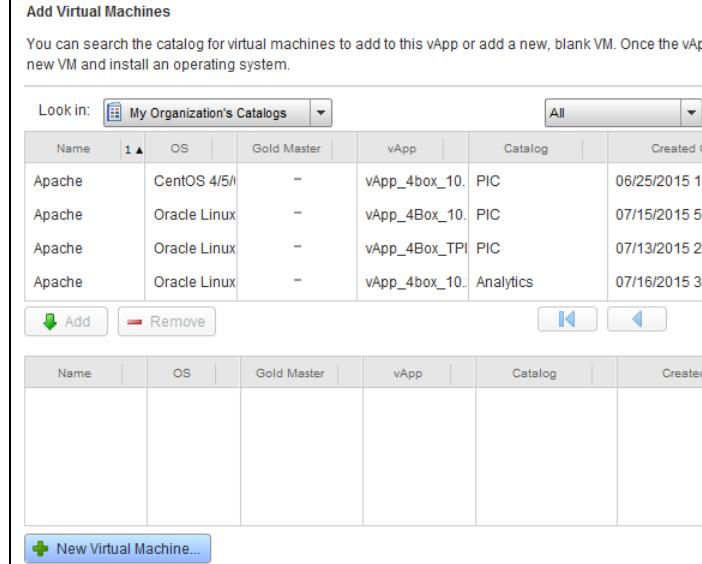
C.5 CREATE GUESTS FROM ISO

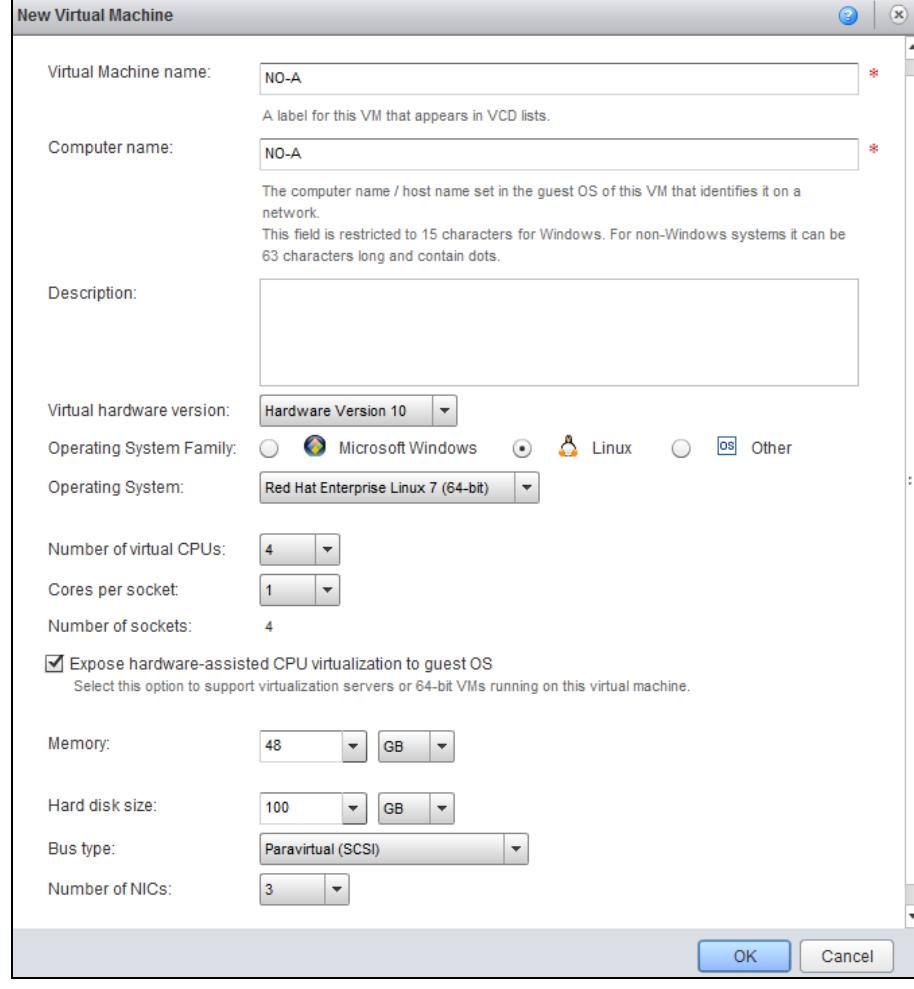
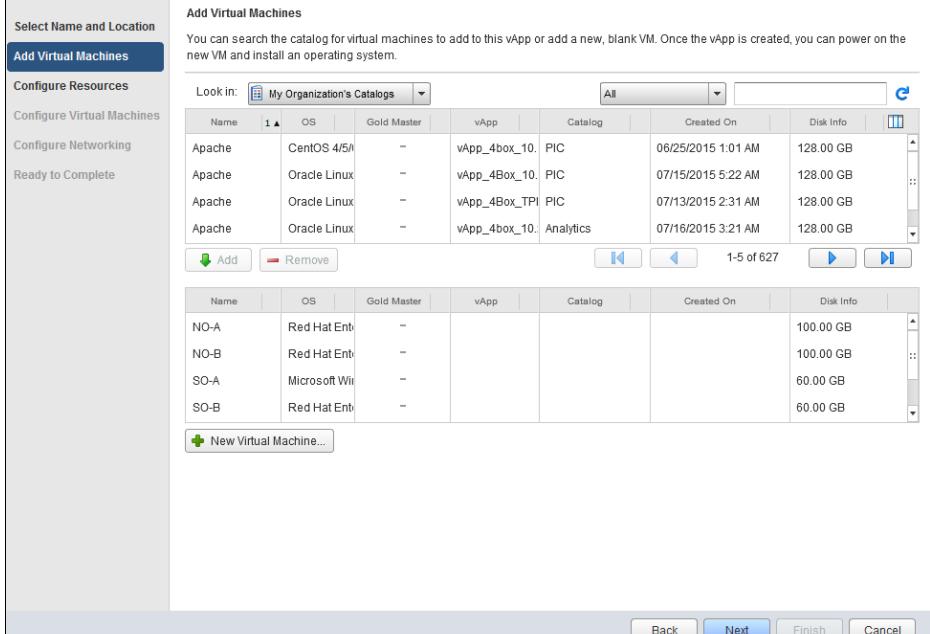
This procedure creates Oracle Communications User Data Repository virtual machines (guests) from ISO.

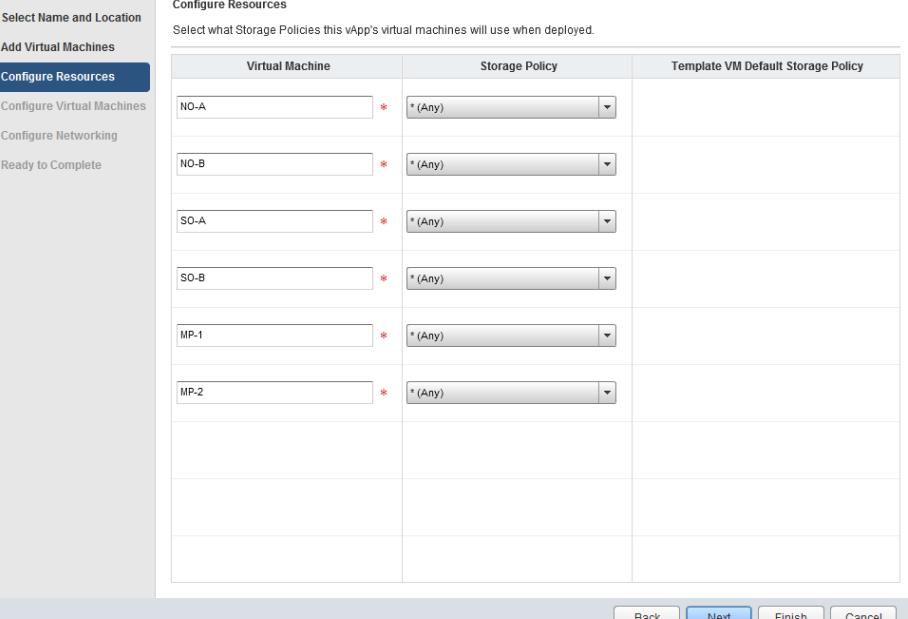
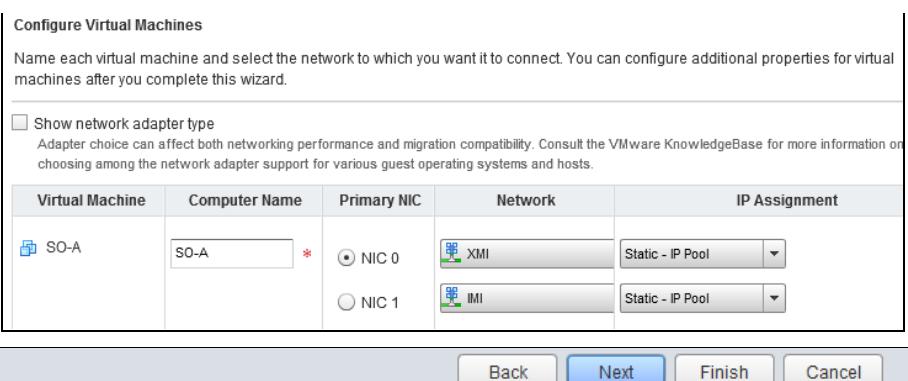
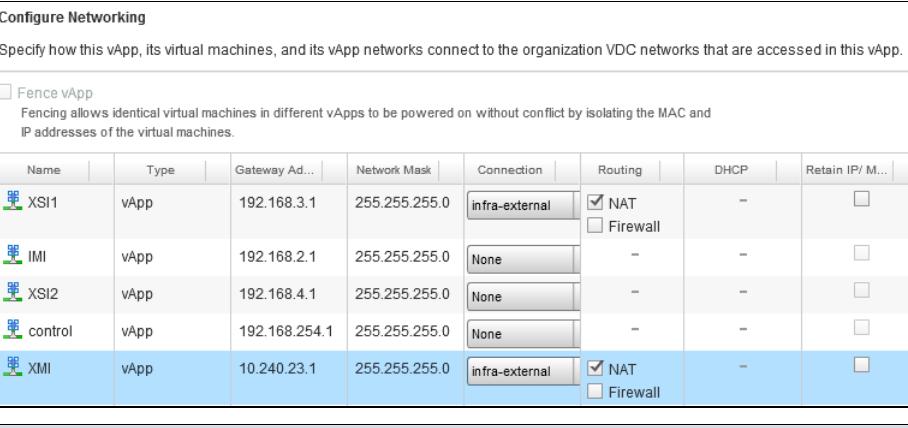
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

Procedure23: Create Guests from ISO with vCloud Director

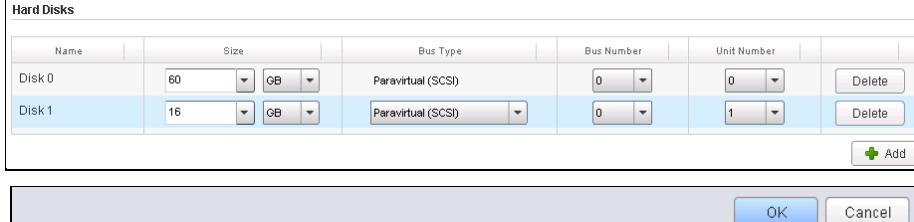
Step	Procedure	Result
1. <input type="checkbox"/>	Log into the VMware vCloud Director	

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

Step	Procedure	Result
5. <input type="checkbox"/>	vCloud Director: 1. Enter Name and Computer Name for VM. 2. Set Operating System Family to Linux . 3. Select Expose hardware-assisted CPU.... 4. Enter all resource parameters according to the role given in resource profile[1]. 5. Click OK .	
6. <input type="checkbox"/>	vCloud Director: Click Next .	

Step	Procedure	Result																																																
7. <input type="checkbox"/>	vCloud Director: Click Next .	 <p>Configure Resources</p> <p>Select what Storage Policies this vApp's virtual machines will use when deployed.</p> <table border="1"> <thead> <tr> <th>Virtual Machine</th> <th>Storage Policy</th> <th>Template VM Default Storage Policy</th> </tr> </thead> <tbody> <tr> <td>NO-A</td> <td>* (Any)</td> <td></td> </tr> <tr> <td>NO-B</td> <td>* (Any)</td> <td></td> </tr> <tr> <td>SO-A</td> <td>* (Any)</td> <td></td> </tr> <tr> <td>SO-B</td> <td>* (Any)</td> <td></td> </tr> <tr> <td>MP-1</td> <td>* (Any)</td> <td></td> </tr> <tr> <td>MP-2</td> <td>* (Any)</td> <td></td> </tr> </tbody> </table> <p>Back Next Finish Cancel</p>	Virtual Machine	Storage Policy	Template VM Default Storage Policy	NO-A	* (Any)		NO-B	* (Any)		SO-A	* (Any)		SO-B	* (Any)		MP-1	* (Any)		MP-2	* (Any)																												
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MP-2	* (Any)																																																	
8. <input type="checkbox"/>	vCloud Director: 1. Select Networks and IP Assignments for VM according to the role given in resource profile [1]. 2. Click Next .	 <p>Configure Virtual Machines</p> <p>Name each virtual machine and select the network to which you want it to connect. You can configure additional properties for virtual machines after you complete this wizard.</p> <p>Show network adapter type</p> <p>Adapter choice can affect both networking performance and migration compatibility. Consult the VMware KnowledgeBase for more information on choosing among the network adapter support for various guest operating systems and hosts.</p> <table border="1"> <thead> <tr> <th>Virtual Machine</th> <th>Computer Name</th> <th>Primary NIC</th> <th>Network</th> <th>IP Assignment</th> </tr> </thead> <tbody> <tr> <td>SO-A</td> <td>SO-A *</td> <td><input checked="" type="radio"/> NIC 0</td> <td>XMI</td> <td>Static - IP Pool</td> </tr> <tr> <td></td> <td></td> <td><input type="radio"/> NIC 1</td> <td>IMI</td> <td>Static - IP Pool</td> </tr> </tbody> </table> <p>Back Next Finish Cancel</p>	Virtual Machine	Computer Name	Primary NIC	Network	IP Assignment	SO-A	SO-A *	<input checked="" type="radio"/> NIC 0	XMI	Static - IP Pool			<input type="radio"/> NIC 1	IMI	Static - IP Pool																																	
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SO-A	SO-A *	<input checked="" type="radio"/> NIC 0	XMI	Static - IP Pool																																														
		<input type="radio"/> NIC 1	IMI	Static - IP Pool																																														
9. <input type="checkbox"/>	vCloud Director: 1. For each external network (XMI, XSI): Set Connection to the network a cloud administrator has granted for external communication. 2. For each external network (XMI, XSI): Check NAT and Uncheck Firewall. 3. Click Next .	 <p>Configure Networking</p> <p>Specify how this vApp, its virtual machines, and its vApp networks connect to the organization VDC networks that are accessed in this vApp.</p> <p>Fence vApp</p> <p>Fencing allows identical virtual machines in different vApps to be powered on without conflict by isolating the MAC and IP addresses of the virtual machines.</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Type</th> <th>Gateway Ad...</th> <th>Network Mask</th> <th>Connection</th> <th>Routing</th> <th>DHCP</th> <th>Retain IP/ M...</th> </tr> </thead> <tbody> <tr> <td>XSI1</td> <td>vApp</td> <td>192.168.3.1</td> <td>255.255.255.0</td> <td>infra-external</td> <td><input checked="" type="checkbox"/> NAT</td> <td>-</td> <td><input type="checkbox"/></td> </tr> <tr> <td>IMI</td> <td>vApp</td> <td>192.168.2.1</td> <td>255.255.255.0</td> <td>None</td> <td>-</td> <td>-</td> <td><input type="checkbox"/></td> </tr> <tr> <td>XSI2</td> <td>vApp</td> <td>192.168.4.1</td> <td>255.255.255.0</td> <td>None</td> <td>-</td> <td>-</td> <td><input type="checkbox"/></td> </tr> <tr> <td>control</td> <td>vApp</td> <td>192.168.254.1</td> <td>255.255.255.0</td> <td>None</td> <td>-</td> <td>-</td> <td><input type="checkbox"/></td> </tr> <tr> <td>XMI</td> <td>vApp</td> <td>10.240.23.1</td> <td>255.255.255.0</td> <td>infra-external</td> <td><input checked="" type="checkbox"/> NAT</td> <td>-</td> <td><input type="checkbox"/></td> </tr> </tbody> </table> <p>Back Next Finish Cancel</p>	Name	Type	Gateway Ad...	Network Mask	Connection	Routing	DHCP	Retain IP/ M...	XSI1	vApp	192.168.3.1	255.255.255.0	infra-external	<input checked="" type="checkbox"/> NAT	-	<input type="checkbox"/>	IMI	vApp	192.168.2.1	255.255.255.0	None	-	-	<input type="checkbox"/>	XSI2	vApp	192.168.4.1	255.255.255.0	None	-	-	<input type="checkbox"/>	control	vApp	192.168.254.1	255.255.255.0	None	-	-	<input type="checkbox"/>	XMI	vApp	10.240.23.1	255.255.255.0	infra-external	<input checked="" type="checkbox"/> NAT	-	<input type="checkbox"/>
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XSI2	vApp	192.168.4.1	255.255.255.0	None	-	-	<input type="checkbox"/>																																											
control	vApp	192.168.254.1	255.255.255.0	None	-	-	<input type="checkbox"/>																																											
XMI	vApp	10.240.23.1	255.255.255.0	infra-external	<input checked="" type="checkbox"/> NAT	-	<input type="checkbox"/>																																											

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

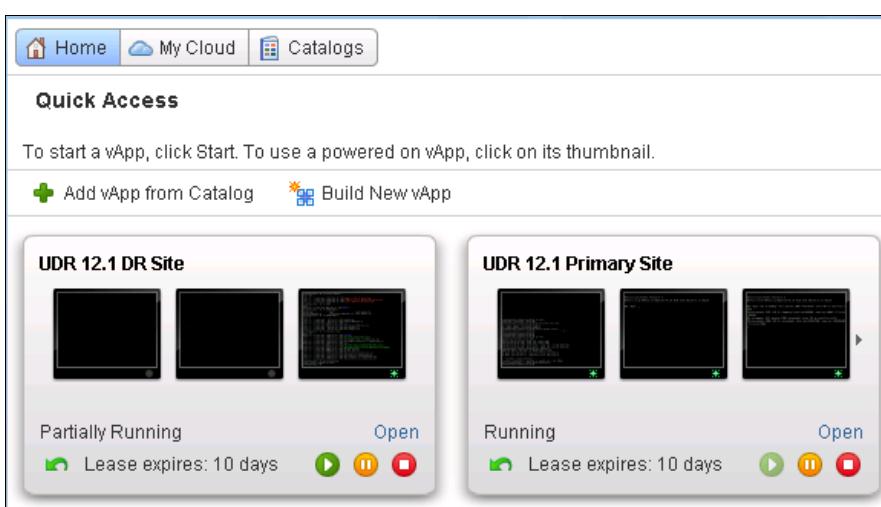
Step	Procedure	Result
13. <input type="checkbox"/>	<p>vCloud Director: Only If the VM uses a second disk by [1]:</p> <ol style="list-style-type: none"> 1. Click Add 2. Adjust size of Disk 1 to match VM profile [1]. 3. Click OK 	 <p>THIS PROCEDURE HAS BEEN COMPLETED</p>

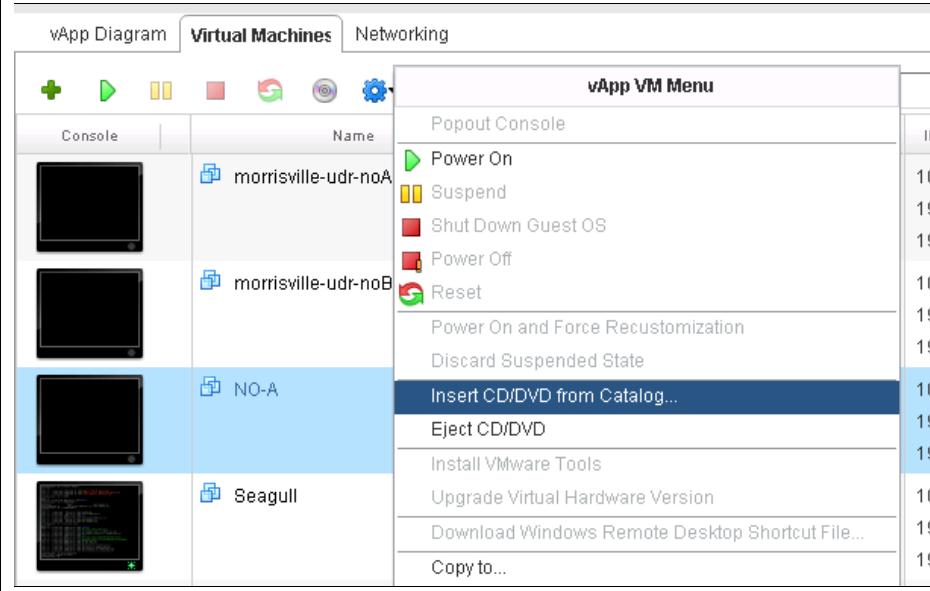
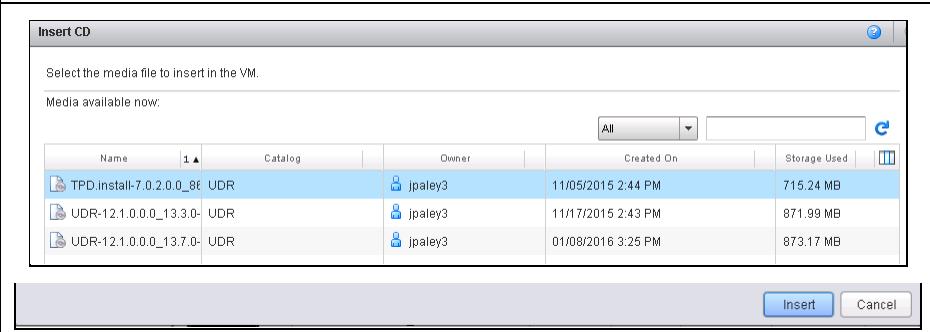
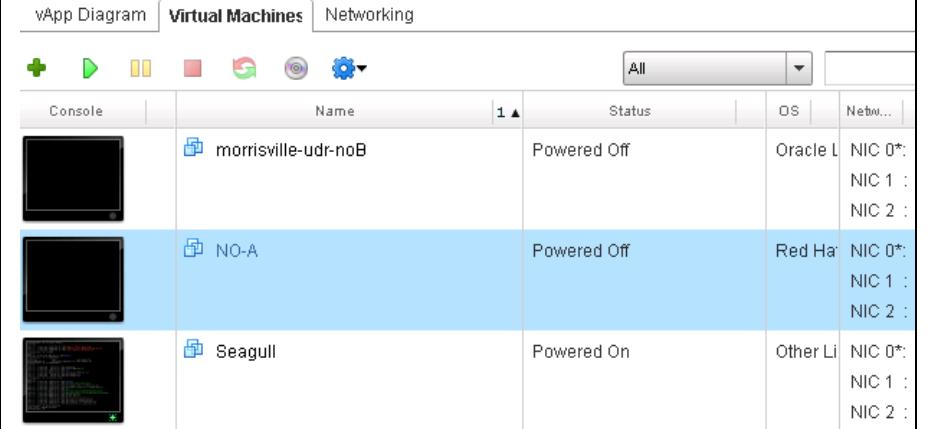
C.6 INSTALL GUESTS FROM ISO

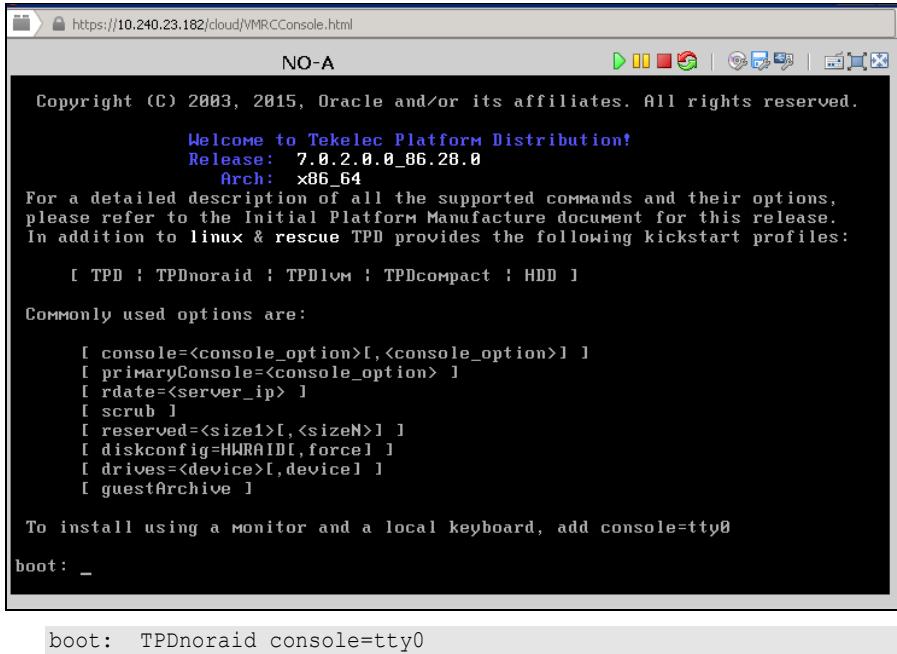
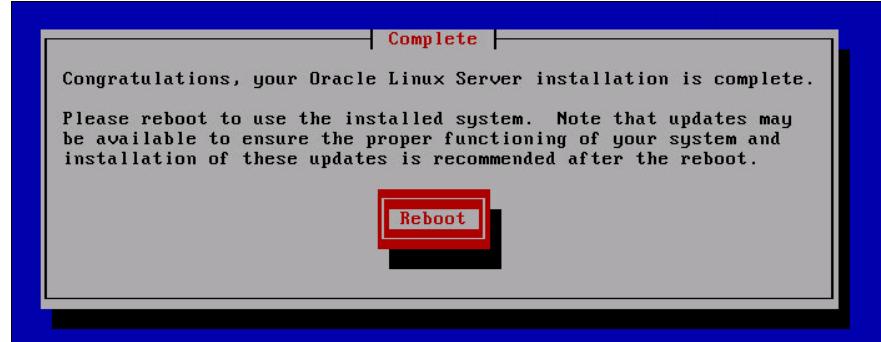
This procedure creates Oracle Communications User Data Repository virtual machines (guests) from ISO.

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

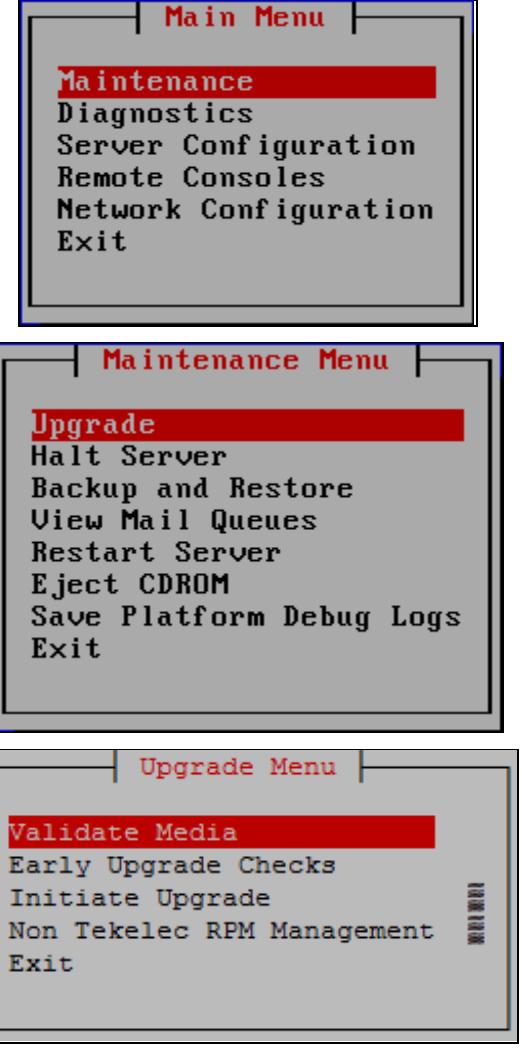
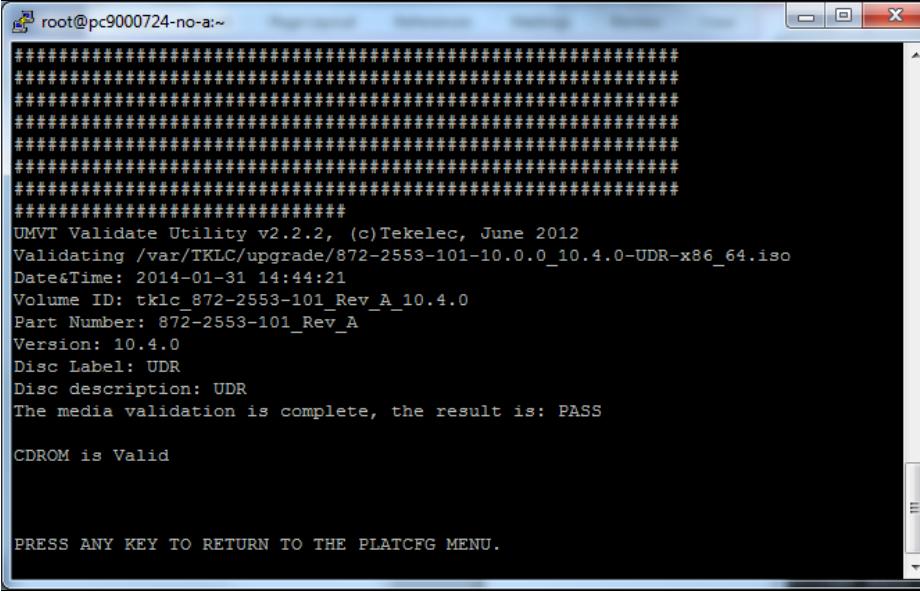
Step	Procedure	Result
1. <input type="checkbox"/>	Log into the VMware vCloud Director	
2. <input type="checkbox"/>	<p>vCloud Director: Click Open for the Oracle Communications User Data Repository vApp then proceed to Step 5.</p>	 <p>NOTE: Current vApps are listed on the Home Page. If a new vApp is required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

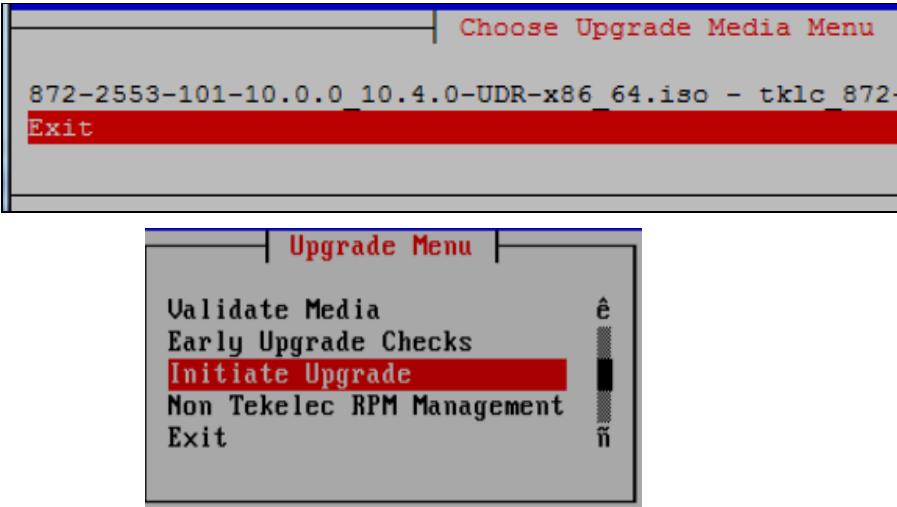
Step	Procedure	Result
4. <input type="checkbox"/>	vCloud Director: <ol style="list-style-type: none"> 1. Select the VM. 2. Click the Blue Gear icon. 3. Select Insert CD/DVD from Catalog. 	
5. <input type="checkbox"/>	vCloud Director: <ol style="list-style-type: none"> 1. Select TPD ISO. 2. Click Insert 	
6. <input type="checkbox"/>	vCloud Director: <ol style="list-style-type: none"> 1. Click the sky blue Play icon to start the VM 2. Click the Console to open the console window 	

Step	Procedure	Result
7. <input type="checkbox"/>	vCloud Director: Initiate operating system install by entering the given text into console boot prompt	
8. <input type="checkbox"/>	When installation completes, press Enter to reboot	
9. <input type="checkbox"/>	After reboot, log into console	Hostnameb6092a316785 login: root password:
10. <input type="checkbox"/>	Verify that the TPD release is 7.6.1.x	# getPlatRev 7.6.1.0.0-88.55.0
11. <input type="checkbox"/>	Run the alarmMgr command to verify health of the server before Application install.	# alarmMgr --alarmStatus NOTE: This command should not return output on a healthy system.
12. <input type="checkbox"/>	Run the verifyIPM as a secondary way to verify health of the server before Application install.	# verifyIPM NOTE: This command should not return output on a healthy system.
13. <input type="checkbox"/>	Create physical volume sdb	# pvcreate /dev/sdb Physical volume "/dev/sdb" successfully created

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

Step	Procedure	Result
19. <input type="checkbox"/>	vCloud Director: <ol style="list-style-type: none"> 1. Select the VM. 2. Click the Blue Gear icon. 3. Select Insert CD/DVD from Catalog. 	
20. <input type="checkbox"/>	vCloud Director: <ol style="list-style-type: none"> 1. Select Oracle Communications User Data Repository ISO. 2. Click Insert 	
21. <input type="checkbox"/>	VM Console: <ol style="list-style-type: none"> 1. Re-enter the console window 2. Login to the platcfg utility. 	<pre data-bbox="633 1205 1165 1235">[root@hostname1260476221 ~]# su - platcfg</pre>

Step	Procedure	Result
22. <input type="checkbox"/>	<p>VM Console:</p> <p>From the platcfg Main Menu, select each option, pressing Enter after each selection.</p>	
23. <input type="checkbox"/>	<p>VM Console:</p> <ol style="list-style-type: none"> 1. From the platcfg Main Menu, verify that the CDROM is Valid. 2. Press any key to return to platcfg menu. 	

Step	Procedure	Result
24. <input type="checkbox"/>	<p>VM Console: From the platcfg Main Menu, select each option, pressing the Enter after each selection.</p>	
25. <input type="checkbox"/>	<p>VM Console: Verify that the Application release level matches the target release. Press Enter.</p>	
26. <input type="checkbox"/>	<p>VM Console: Output similar to that shown on the right may be observed as the Application install progresses.</p>	<pre data-bbox="589 1269 1486 1881"> Determining if we should upgrade... Install product is TPD Install product record exists in /etc/tekelec.cfg Install products match Stopping cron service... Checking for stale RPM DB locks... Installing public key /mnt/upgrade/upgrade/pub_keys/MySQL_public_key.asc... Installing public key /mnt/upgrade/upgrade/pub_keys/RPM-GPG-KEY-redhat-beta... Installing public key /mnt/upgrade/upgrade/pub_keys/RPM-GPG-KEY-redhat-release... . Checking for any missing packages or files Checking for missing files... No missing files found. Checking if upgrade is supported Current platform version: 5.0.0-72.28.0 Target platform version: 5.0.0-72.28.0 Minimum supported version: 4.2.0-70.60.0 Upgrade from same release as current is supported Evaluate if there are any packages to upgrade Evaluating if there are packages to upgrade... </pre>

Step	Procedure	Result
27. <input type="checkbox"/>	VM Console: Output similar to that shown on the right may be observed as the server initiates a post-install reboot.	<pre>scsi7 : SCSI emulation for USB Mass Storage devices scsi8 : SCSI emulation for USB Mass Storage devices input: Intel(R) Multidevice as /class/input/input3 input: USB HID v1.01 Mouse [Intel(R) Multidevice] on usb-0000:00:1d.3-1 input: Intel(R) Multidevice as /class/input/input4 input: USB HID v1.01 Keyboard [Intel(R) Multidevice] on usb-0000:00:1d.3-1 Restarting system. . machine restart</pre>
28. <input type="checkbox"/>	VM Console: After the server has completed reboot, log into the server as admusr.	<pre>CentOS release 5.6 (Final) Kernel 2.6.18-238.19.1.el5prerel5.0.0_72.22.0 on an x86_64 hostname1260476221 login:admusr Password: <admusr_password></pre>
29. <input type="checkbox"/>	VM Console: Output similar to that shown on the right 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/runmc5.16:/opt/TKLCcomcol/cm5.16 PRODPATH= RELEASE=5.16 RUNID=00 VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr/TKLC /comagent-gui:/usr/TKLC/comagent:/usr/TKLC/udr PRODPATH=/opt/comcol/prod RUNID=00 [admusr@hostname1260476221 ~]\$</pre>
30. <input type="checkbox"/>	VM Console: Verify successful upgrade.	<pre>\$ verifyUpgrade</pre> <p>NOTE: This command should not return output on a healthy system.</p>
31. <input type="checkbox"/>	VM Console: 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>

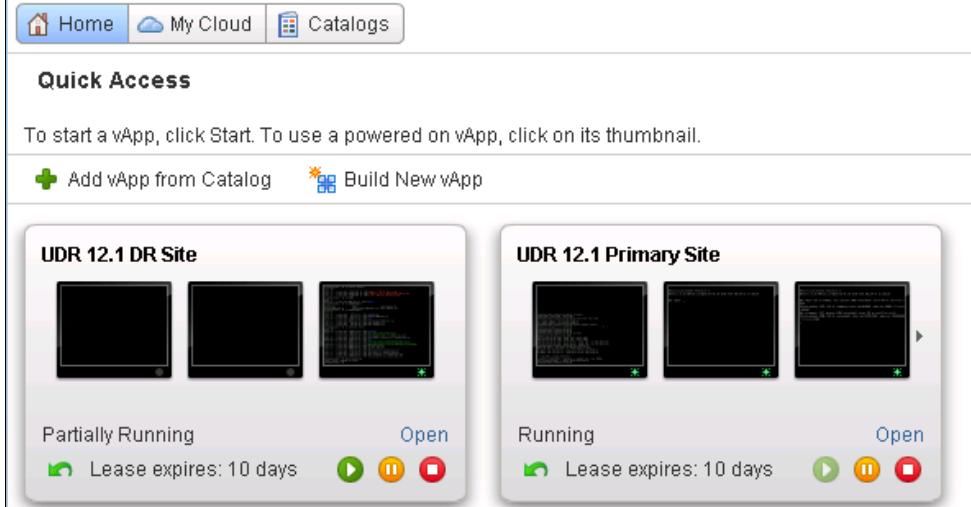
Step	Procedure	Result
34. <input type="checkbox"/>	VM Console: Reboot the server	Reboot the server: <pre>\$ sudo reboot</pre> Wait until the reboot completes and re-login with admusr credentials.
35. <input type="checkbox"/>	VM Console: Verify server health	Verify server health: <pre>\$ alarmMgr --alarmStatus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

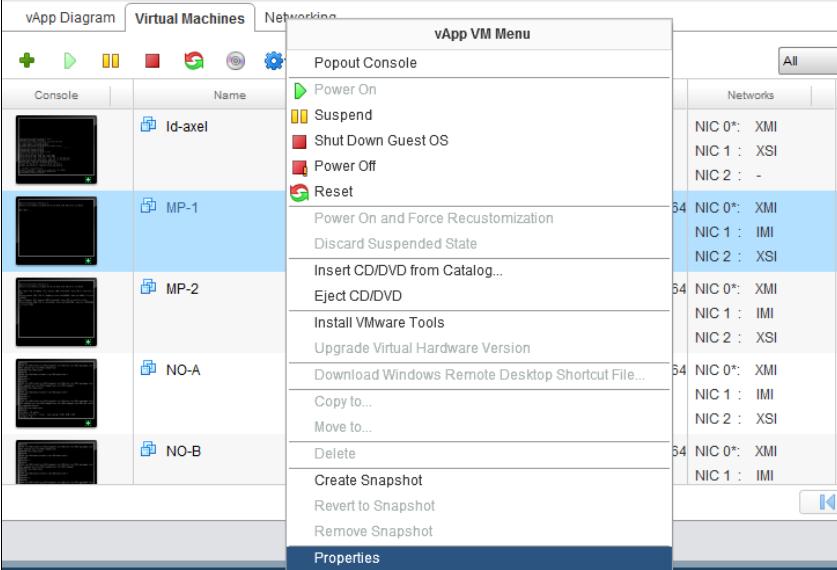
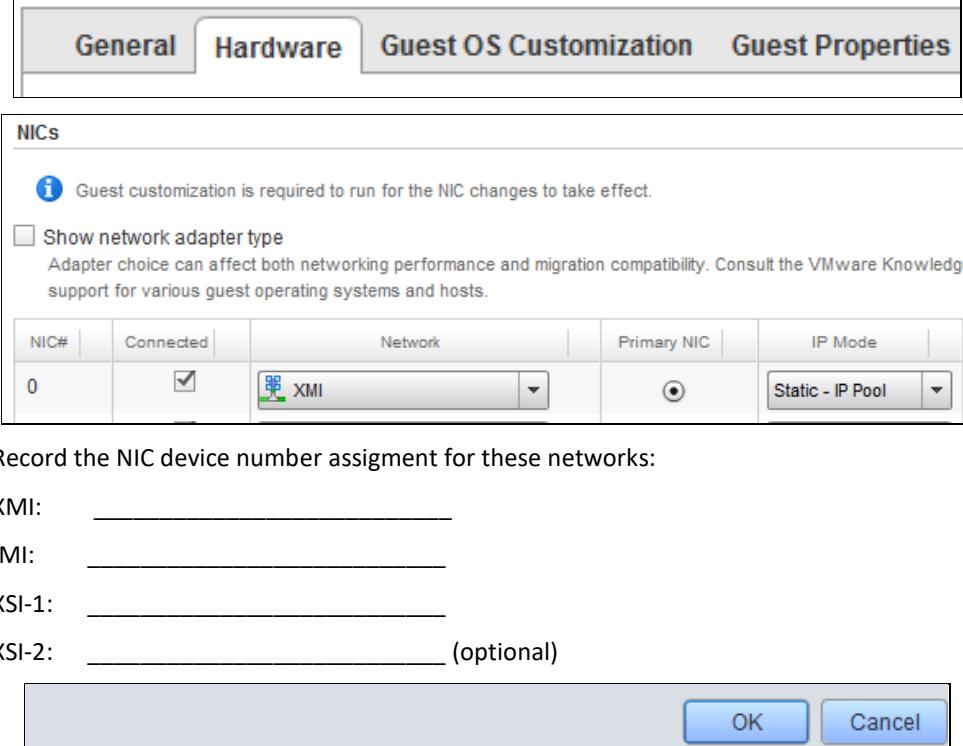
C.7 CONFIGURE GUESTS NETWORK

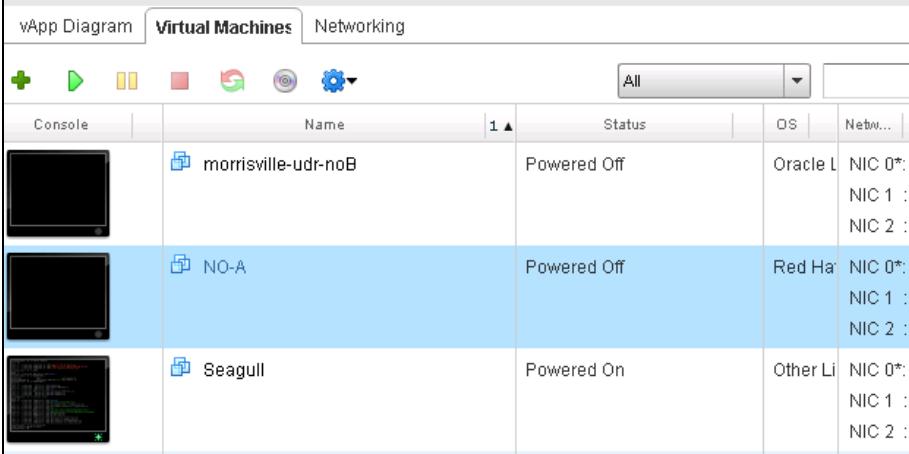
This procedure creates Oracle Communications User Data Repository virtual machines (guests) from ISO.

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

Step	Procedure	Result
3. <input type="checkbox"/>	vCloud Director: Navigate to My Cloud → Virtual Machines	
4. <input type="checkbox"/>	vCloud Director: 1. Select the VM. 2. Click the Blue Gear icon. 3. Select Properties	
5. <input type="checkbox"/>	vCloud Director: 1. Select Hardware tab. 2. Record the NIC number assignment of application networks 3. Click Cancel	 <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>

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

Appendix D. OpenStack Cloud Oracle Communications User Data Repository

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

IMPORTANT NOTE: The content of this appendix is for informational purposes only. Consult the latest documents from the vendor of your OpenStack distribution.

D.1 OPENSTACK IMAGE CREATION FROM OVA

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

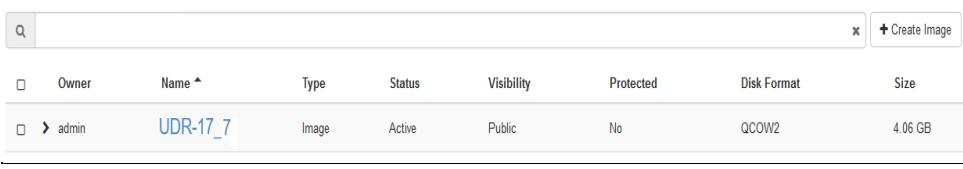
Needed material:

- 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_7_0.vmdk UDR-17_7_0.qcow2

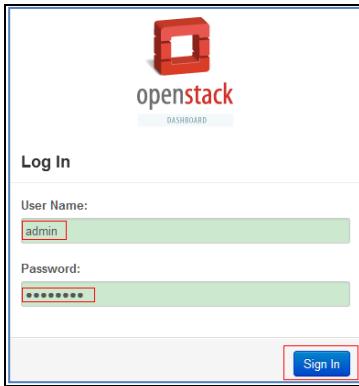
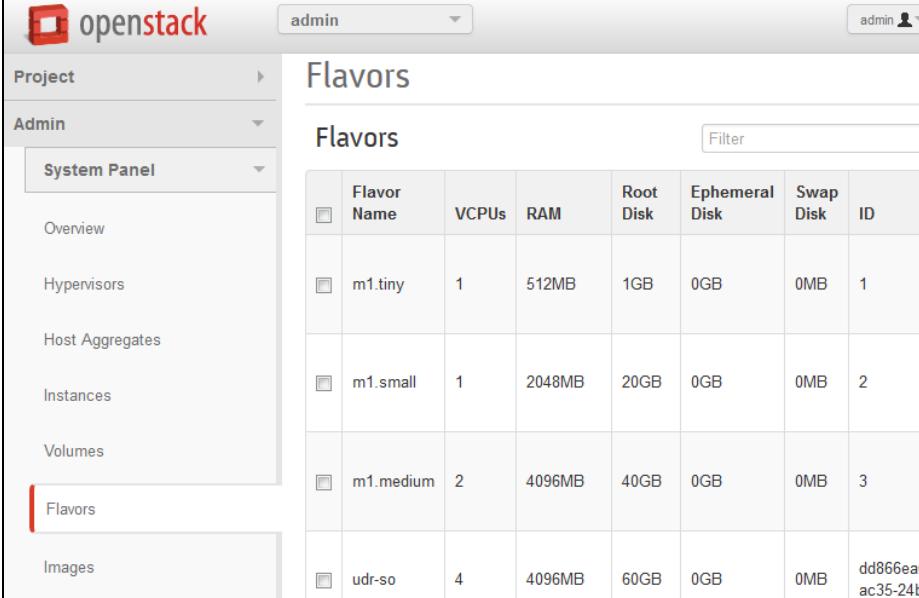
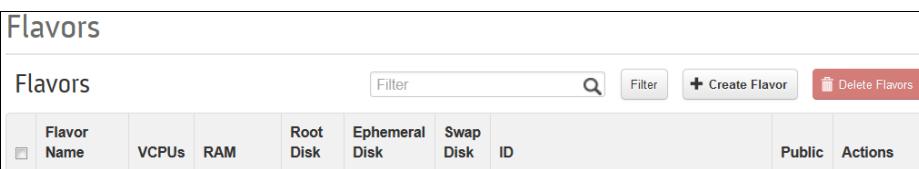
Step	Procedure	Result																		
5. <input type="checkbox"/>	Import converted qcow2 file into OpenStack	<pre>[root@pc12107008 ova]# source /root/keystonerc_admin [root@pc12107008 ova(keystone_admin)]# time glance image-create --name UDR-17_7_0 --disk-format=qcow2 --container-format=bare --visibility=public-- file= UDR-17_7_0.qcow2 +-----+-----+ 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 63efbaf70864562aa6440abfca60ca5 protected False size 3615227904 status active updated_at 2016-03-29T06:57:16 virtual_size None +-----+-----+ real 0m26.267s user 0m2.435s sys 0m2.691s</pre>																		
6. <input type="checkbox"/>	After image-create, this image could be seen from OpenStack GUI under Project → Images	 <table border="1"> <thead> <tr> <th></th> <th>Owner</th> <th>Name</th> <th>Type</th> <th>Status</th> <th>Visibility</th> <th>Protected</th> <th>Disk Format</th> <th>Size</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/></td> <td>admin</td> <td>UDR-17_7</td> <td>Image</td> <td>Active</td> <td>Public</td> <td>No</td> <td>QCOW2</td> <td>4.06 GB</td> </tr> </tbody> </table>		Owner	Name	Type	Status	Visibility	Protected	Disk Format	Size	<input type="checkbox"/>	admin	UDR-17_7	Image	Active	Public	No	QCOW2	4.06 GB
	Owner	Name	Type	Status	Visibility	Protected	Disk Format	Size												
<input type="checkbox"/>	admin	UDR-17_7	Image	Active	Public	No	QCOW2	4.06 GB												
THIS PROCEDURE HAS BEEN COMPLETED																				

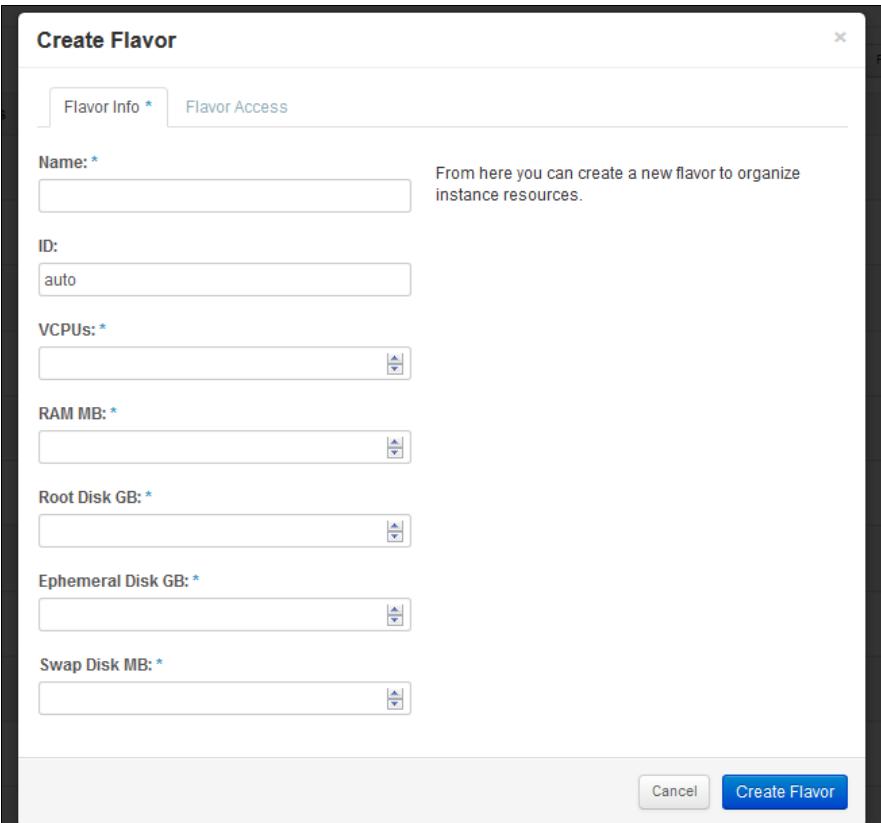
D.2 CREATE RESOURCE PROFILES (FLAVORS)

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

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 NOTE: Flavor profile creation may require administrative privilege.	
2. <input type="checkbox"/>	Select Main Menu → Admin → System Panel → Flavors	
3. <input type="checkbox"/>	Click Create Flavor	

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

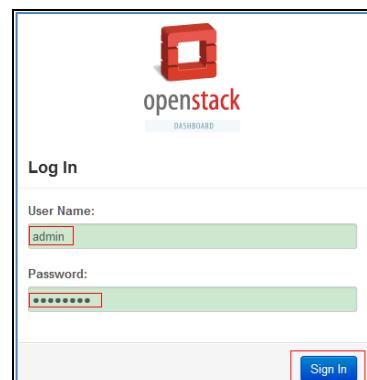
THIS PROCEDURE HAS BEEN COMPLETED

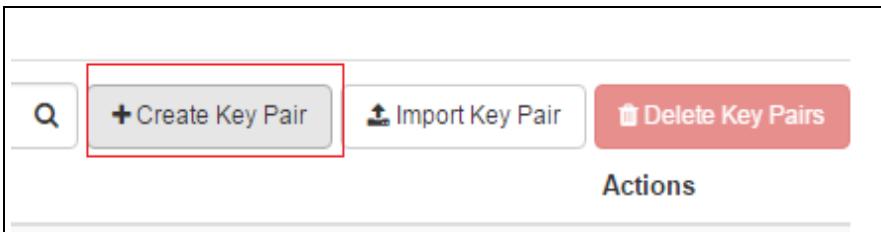
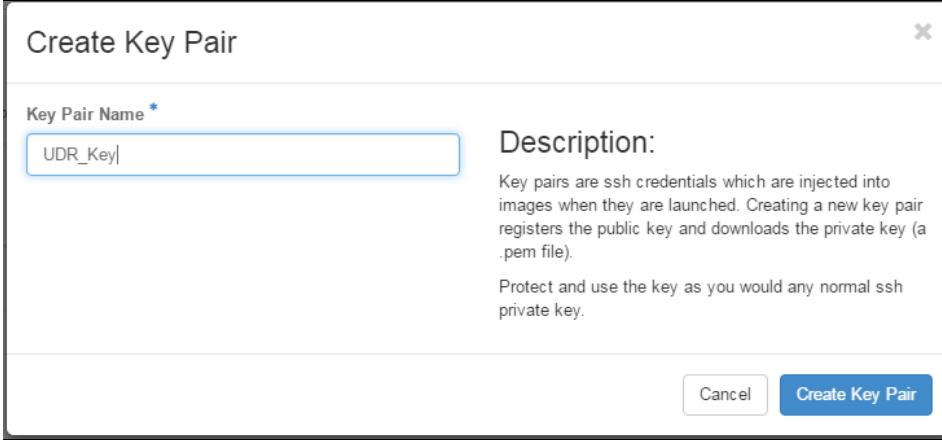
D.3 CREATE KEY PAIR

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>NOTE: Flavor profile creation may require administrative privilege.</p>	

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

D.4 UPDATE UDR STACK YAML FILE

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

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 UDR Heat Templates .
2. <input type="checkbox"/>	Update Image name or ID with the name of the UDR Qcow2 to be used	Change the deafult value. label: Image name or ID description: UDR Image to be used for launching UDR VM default: UDR-12.5.1.0.0_17.7.0

Step	Procedure	Result
3. <input type="checkbox"/>	Update the NTP Server IP	<p>Change the default value.</p> <p>label: NTP server</p> <p>description: IP address of the NTP server used for UDR VM syncing time</p> <p>default: 192.168.56.180</p>
4. <input type="checkbox"/>	Update the UDR flavor name if different	<p>Change the default value.</p> <p>label: Flavor for UDR</p> <p>description: Type of instance (flavor) to be used for launching UDR VM</p> <p>default: UDR</p>
5. <input type="checkbox"/>	Update the XMI Network name if different	<p>Change the default value.</p> <p>label: UDR XMI network</p> <p>description: Network name or ID to attach UDR XMI network to.</p> <p>default: xmi</p>
6. <input type="checkbox"/>	Update the IMI Network name if different	<p>Change the default value.</p> <p>label: UDR IMI network</p> <p>description: Private network name or ID to attach UDR IMI network to.</p> <p>default: imi</p>
7. <input type="checkbox"/>	Update the XSI1 Network name if different	<p>Change the default value.</p> <p>label: UDR XSI1 network</p> <p>description: Network name or ID to attach UDR XSI1 network to.</p> <p>default: xsi1</p>
8. <input type="checkbox"/>	Update the XSI2 Network name if different	<p>Change the default value.</p> <p>label: UDR XSI2 network</p> <p>description: Network name or ID to attach UDR XSI2 network to.</p> <p>default: xsi2</p>
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
THIS PROCEDURE HAS BEEN COMPLETED		

D.5 CREATE VM INSTANCES USING YAML FILE

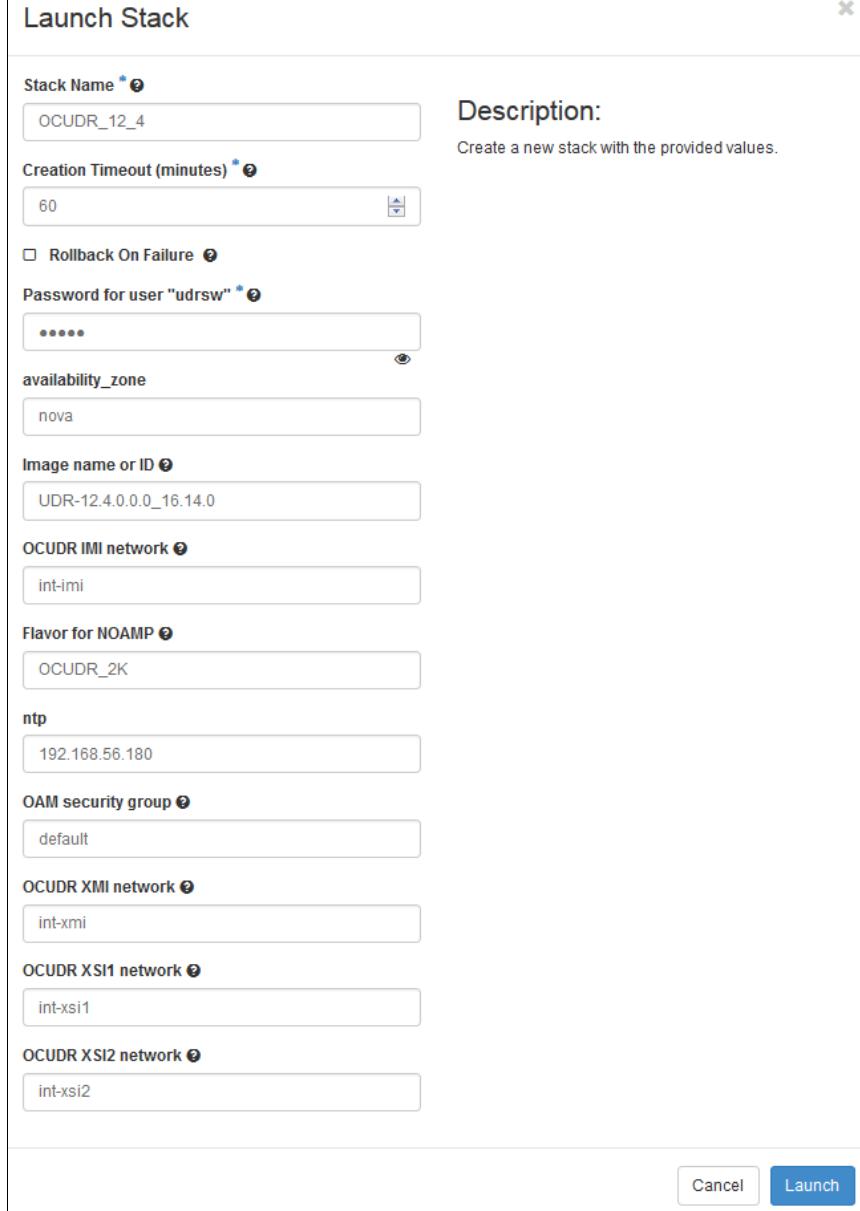
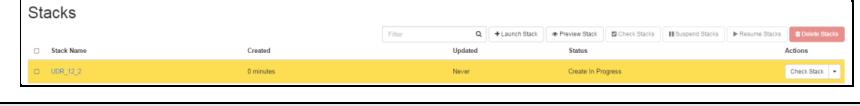
This procedure creates and configures all VM instances needed for UDR configuration.

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	
2. <input type="checkbox"/>	1. Select project, (for example, UDR). 2. Navigate to Project → Orchestration → Stacks to show all Stacks created under this project.	
3. <input type="checkbox"/>	Click Launch Stack	

Step	Procedure	Result
4. <input type="checkbox"/> Select the Template File and Click Next		<p>Select Template</p> <p>Template Source <small>*</small></p> <p>File</p> <p>Template File <small>?</small></p> <p>Choose File UDR_Stack.yaml</p> <p>Environment Source</p> <p>File</p> <p>Environment File <small>?</small></p> <p>Choose File No file chosen</p> <p><small>Description:</small> Use one of the available template source options to specify the template to be used in creating this stack.</p> <p><small>Cancel</small> <small>Next</small></p>

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	hostnamea0c2d9aa8bce login: admusr
2. <input type="checkbox"/>	Switch to root user	# su - root password: <root_password>
3. <input type="checkbox"/>	Use fdisk to create a partition on /dev/vda NOTE: First cylinder of /dev/vda3 is calculated from end cylinder of /dev/vda2, say 124810 is the next of the end cylinder of /dev/vda2	[root@hostnameb267a6968148 ~]#fdisk /dev/vda Command (m for help): p Disk /dev/vda: 171.8 GB, 171798691840 bytes 16 heads, 63 sectors/track, 332881 cylinders Units = cylinders of 1008 * 512 = 516096 bytes Sector size (logical/physical): 512 bytes / 512 bytes I/O size (minimum/optimal): 512 bytes / 512 bytes Disk identifier: 0x0008a531 Device Boot Start End Blocks Id System /dev/vda1 * 3 523 262144 83 Linux Partition 1 does not end on cylinder boundary. /dev/vda2 523 124809 62640128 8e Linux LVM Partition 2 does not end on cylinder boundary. Command (m for help): n Command action e extended p primary partition (1-4) p Partition number (1-4): 3 First cylinder (1-332881, default 1): 124810 Last cylinder, +cylinders or +size{K,M,G} (124810-332881, default 332881): Using default value 332881 Command (m for help): w The partition table has been altered! Calling ioctl() to re-read partition table. WARNING: Re-reading the partition table failed with error 16: Device or resource busy. The kernel still uses the old table. The new table will be used at the next reboot or after you run partprobe(8) or kpartx(8) Syncing disks.
4. <input type="checkbox"/>	Reboot instance	[root@hostnameb267a6968148 ~]# init 6

Step	Procedure	Result
5. <input type="checkbox"/>	After reboot, Login to the VM with admusr user and switch to root user D.10 Accessing VM Instance using SSH	<pre>hostnameb267a6968148 login: admusr # su - root password: <root_password></pre>
6. <input type="checkbox"/>	Create pv /dev/vda3	<pre>[root@hostnameb267a6968148 ~]# pvcreate /dev/vda3 Physical volume "/dev/vda3" successfully created</pre>
7. <input type="checkbox"/>	Extend vg vgroot on /dev/vda3	<pre>[root@hostnameb267a6968148 ~]# vgextend vgroot /dev/vda3 Volume group "vgroot" successfully extended</pre>
8. <input type="checkbox"/>	Extend logical volumes for 2K profile	<pre># lvextend -L +52428800K /dev/vgroot/run_db # lvextend -L +52428800K /dev/vgroot/filemgmt # lvextend -L +6291456K /dev/vgroot/logs_process # resize2fs /dev/mapper/vgroot-filemgmt # resize2fs /dev/mapper/vgroot-run_db # resize2fs /dev/mapper/vgroot-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>

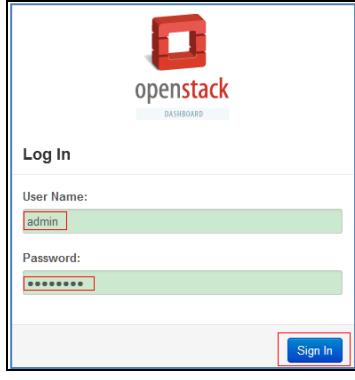
Step	Procedure	Result
9. <input type="checkbox"/>	Extend logical volumes for 7K or 12.5K profile	<pre> # lvextend -L +115343360K /dev/vgroot/run_db # lvextend -L +104857600K /dev/vgroot/filemgmt # lvextend -L +6291456K /dev/vgroot/logs_process # lvextend -L +10485760K /dev/vgroot/apw_tmp # resize2fs /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	[root@hostnameb267a6968148 ~]# init 6
THIS PROCEDURE HAS BEEN COMPLETED		

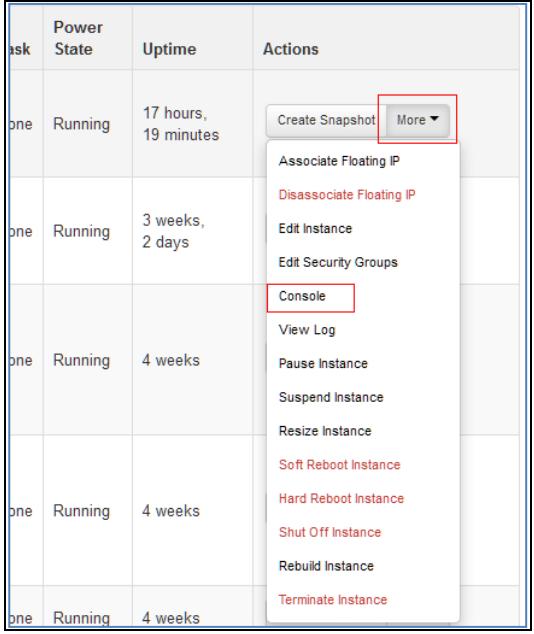
D.7 VM INSTANCE NETWORK CONFIGURATION

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	

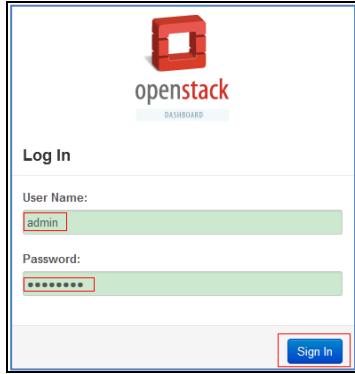
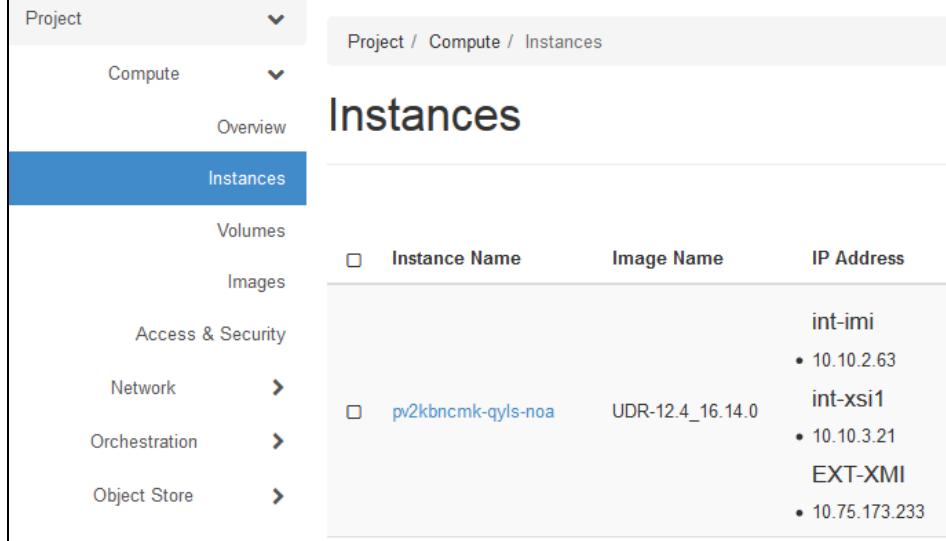
Step	Procedure	Result
2. <input type="checkbox"/>	Login VM instance from Project → Compute → Instances → More → Console	
3. <input type="checkbox"/>	Login to the VM with root user	hostnamea0c2d9aa8bce login: root password: <root_password>
4. <input type="checkbox"/>	Use netAdm to add device and set ip address (ISO installs only)	NOTE: This step is required only for ISO installs. <pre>[root@ hostnamea0c2d9aa8bce ~]# netAdm add --device=eth0 Interface eth0 added</pre>
5. <input type="checkbox"/>	Set ip address for this interface	<pre>[root@ hostnamea0c2d9aa8bce ~]# netAdm set --device=eth0 --onboot=yes \ --netmask=<netmask> --address=<ip_address> Interface eth0 updated</pre>
6. <input type="checkbox"/>	Add default router	<pre>[root@ hostnamea0c2d9aa8bce ~]# 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@ hostnamea0c2d9aa8bce ~]# netAdm add --device=eth1 Interface eth1 added</pre>
8. <input type="checkbox"/>	Add eth2 interface	<pre>[root@hostnameb6092a316785 ~]# netAdm add --device=eth2 Interface eth2 added</pre>
THIS PROCEDURE HAS BEEN COMPLETED		

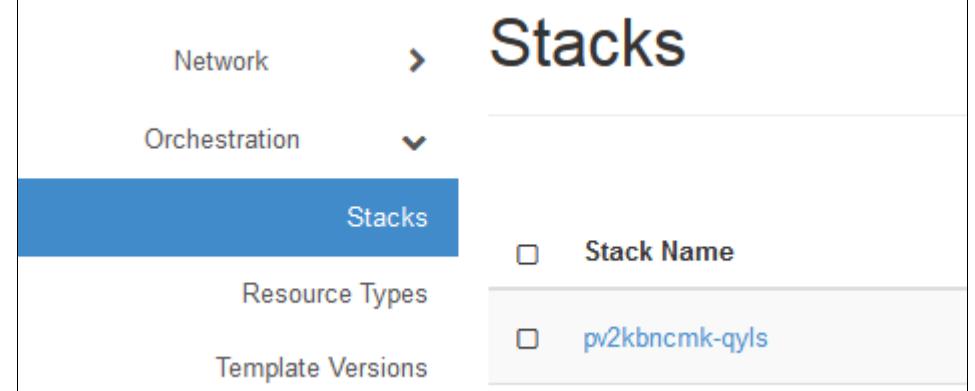
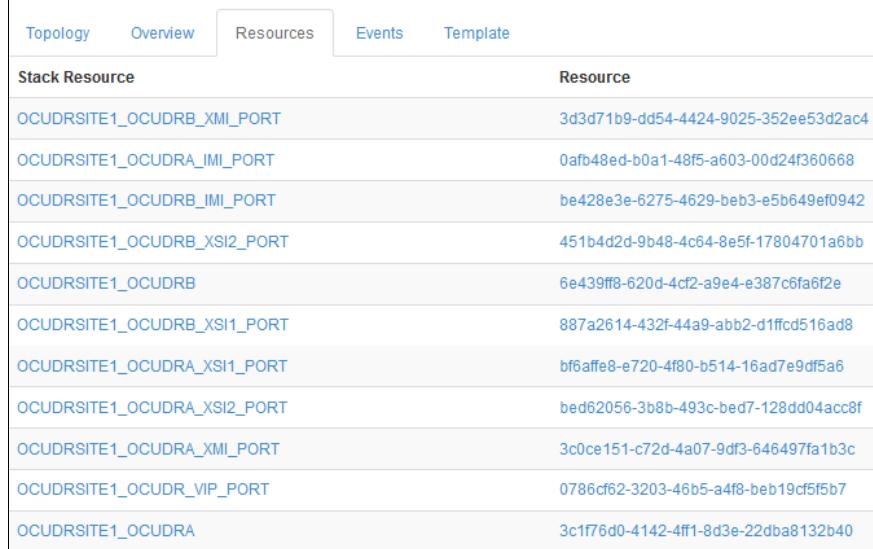
D.8 VIRTUAL IP ADDRESS ASSIGNMENT

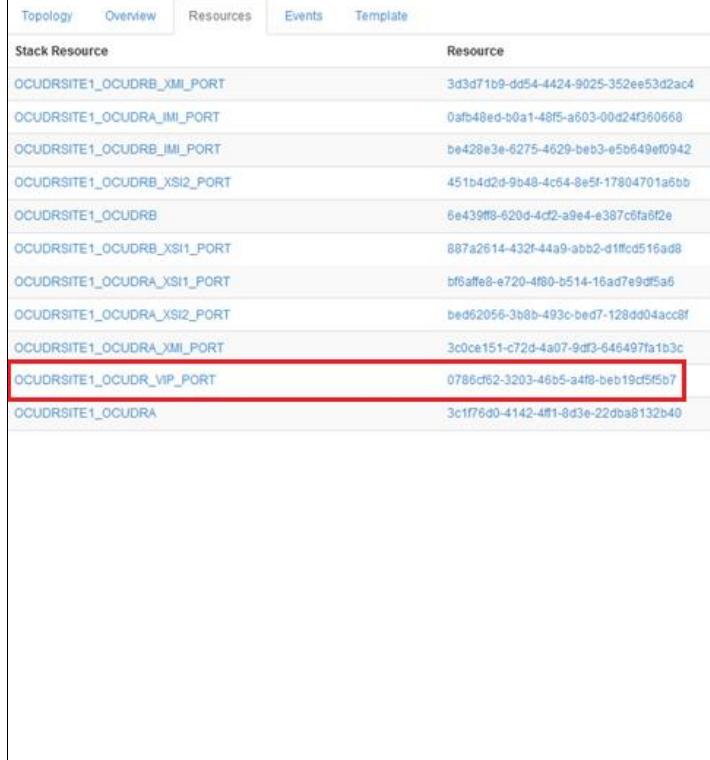
This procedure configures a VIP for a virtual machine. Administrative access to the OpenStack controller node is required.

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	
2. <input type="checkbox"/>	1. Select project, (for example: UDR). 2. Select Project → Compute → Instances to show all Instances created under this project:	
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"/>	1. Navigate to Project → Orchestration → Stacks 2. Select the Stack Name to see more detail																									
5. <input type="checkbox"/>	Select the Resource tab, find the VIP PORT for UDR servers.	 <table border="1"> <thead> <tr> <th data-bbox="564 677 784 699">Stack Resource</th> <th data-bbox="784 677 1437 699">Resource</th> </tr> </thead> <tbody> <tr> <td data-bbox="564 720 784 741">OCUDRSITE1_OCUDRB_XMI_PORT</td> <td data-bbox="784 720 1437 741">3d3d71b9-dd54-4424-9025-352ee53d2ac4</td> </tr> <tr> <td data-bbox="564 762 784 783">OCUDRSITE1_OCUDRA_IMI_PORT</td> <td data-bbox="784 762 1437 783">0afb48ed-b0a1-48f5-a603-00d24f360668</td> </tr> <tr> <td data-bbox="564 804 784 825">OCUDRSITE1_OCUDRB_IMI_PORT</td> <td data-bbox="784 804 1437 825">be428e3e-6275-4629-beb3-e5b649ef0942</td> </tr> <tr> <td data-bbox="564 846 784 868">OCUDRSITE1_OCUDRB_XSI2_PORT</td> <td data-bbox="784 846 1437 868">451b4d2d-9b48-4c64-8ef-17804701a6bb</td> </tr> <tr> <td data-bbox="564 889 784 910">OCUDRSITE1_OCUDRB</td> <td data-bbox="784 889 1437 910">6e439ff8-620d-4cf2-a9e4-e387c6fa6f2e</td> </tr> <tr> <td data-bbox="564 931 784 952">OCUDRSITE1_OCUDRB_XSI1_PORT</td> <td data-bbox="784 931 1437 952">887a2614-432f-44a9-abb2-d1ffcd516ad8</td> </tr> <tr> <td data-bbox="564 973 784 994">OCUDRSITE1_OCUDRA_XSI1_PORT</td> <td data-bbox="784 973 1437 994">bf6affe8-e720-4f80-b514-16ad7e9df5a6</td> </tr> <tr> <td data-bbox="564 1015 784 1036">OCUDRSITE1_OCUDRB_XSI2_PORT</td> <td data-bbox="784 1015 1437 1036">bed62056-3b8b-493c-bed7-128dd04acc8f</td> </tr> <tr> <td data-bbox="564 1058 784 1079">OCUDRSITE1_OCUDRA_XMI_PORT</td> <td data-bbox="784 1058 1437 1079">3c0ce151-c72d-4a07-9df3-646497fa1b3c</td> </tr> <tr> <td data-bbox="564 1100 784 1121">OCUDRSITE1_OCUDR_VIP_PORT</td> <td data-bbox="784 1100 1437 1121">0786cf62-3203-46b5-a4f8-beb19cf5f5b7</td> </tr> <tr> <td data-bbox="564 1142 784 1163">OCUDRSITE1_OCUDRA</td> <td data-bbox="784 1142 1437 1163">3c1f76d0-4142-4ff1-8d3e-22dba8132b40</td> </tr> </tbody> </table>	Stack Resource	Resource	OCUDRSITE1_OCUDRB_XMI_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-9b48-4c64-8ef-17804701a6bb	OCUDRSITE1_OCUDRB	6e439ff8-620d-4cf2-a9e4-e387c6fa6f2e	OCUDRSITE1_OCUDRB_XSI1_PORT	887a2614-432f-44a9-abb2-d1ffcd516ad8	OCUDRSITE1_OCUDRA_XSI1_PORT	bf6affe8-e720-4f80-b514-16ad7e9df5a6	OCUDRSITE1_OCUDRB_XSI2_PORT	bed62056-3b8b-493c-bed7-128dd04acc8f	OCUDRSITE1_OCUDRA_XMI_PORT	3c0ce151-c72d-4a07-9df3-646497fa1b3c	OCUDRSITE1_OCUDR_VIP_PORT	0786cf62-3203-46b5-a4f8-beb19cf5f5b7	OCUDRSITE1_OCUDRA	3c1f76d0-4142-4ff1-8d3e-22dba8132b40
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OCUDRSITE1_OCUDRB_XSI2_PORT	451b4d2d-9b48-4c64-8ef-17804701a6bb																									
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OCUDRSITE1_OCUDRB_XSI1_PORT	887a2614-432f-44a9-abb2-d1ffcd516ad8																									
OCUDRSITE1_OCUDRA_XSI1_PORT	bf6affe8-e720-4f80-b514-16ad7e9df5a6																									
OCUDRSITE1_OCUDRB_XSI2_PORT	bed62056-3b8b-493c-bed7-128dd04acc8f																									
OCUDRSITE1_OCUDRA_XMI_PORT	3c0ce151-c72d-4a07-9df3-646497fa1b3c																									
OCUDRSITE1_OCUDR_VIP_PORT	0786cf62-3203-46b5-a4f8-beb19cf5f5b7																									
OCUDRSITE1_OCUDRA	3c1f76d0-4142-4ff1-8d3e-22dba8132b40																									

Step	Procedure	Result																								
6. <input type="checkbox"/> Copy or record the Port ID for UDR		 <table border="1"> <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_IMI_PORT</td><td>0afb48ed-b0a1-48f5-a603-00d24f360668</td></tr> <tr><td>OCUDRSITE1_OCUDRB_IMI_PORT</td><td>be428e3e-6275-4629-beb3-e5b649ef0942</td></tr> <tr><td>OCUDRSITE1_OCUDRB_XSI2_PORT</td><td>45124d2d-9b48-4c54-8e5f-17804701a6bb</td></tr> <tr><td>OCUDRSITE1_OCUDRB</td><td>6e439ff8-620d-4cf2-a9e4-e387c0fa6f2e</td></tr> <tr><td>OCUDRSITE1_OCUDRB_XSI1_PORT</td><td>887a2614-432f-44a9-abb2-d1ffcd516ad8</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-beb19df5fb7</td></tr> <tr><td>OCUDRSITE1_OCUDRA</td><td>3c1f76d0-4142-4ff1-8d3e-22dba8132b40</td></tr> </tbody> </table>	Stack Resource	Resource	OCUDRSITE1_OCUDRB_XMI_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	45124d2d-9b48-4c54-8e5f-17804701a6bb	OCUDRSITE1_OCUDRB	6e439ff8-620d-4cf2-a9e4-e387c0fa6f2e	OCUDRSITE1_OCUDRB_XSI1_PORT	887a2614-432f-44a9-abb2-d1ffcd516ad8	OCUDRSITE1_OCUDRA_XSI1_PORT	bf6affe8-e720-4f80-b514-16ad7e9df5a6	OCUDRSITE1_OCUDRA_XSI2_PORT	bed62056-3b8b-493c-bed7-128dd04acc8f	OCUDRSITE1_OCUDRA_XMI_PORT	3c0ce151-c72d-4a07-9df3-646497fa1b3c	OCUDRSITE1_OCUDR_VIP_PORT	0786cf62-3203-46b5-a4f8-beb19df5fb7	OCUDRSITE1_OCUDRA	3c1f76d0-4142-4ff1-8d3e-22dba8132b40
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OCUDRSITE1_OCUDRB_XSI2_PORT	45124d2d-9b48-4c54-8e5f-17804701a6bb																									
OCUDRSITE1_OCUDRB	6e439ff8-620d-4cf2-a9e4-e387c0fa6f2e																									
OCUDRSITE1_OCUDRB_XSI1_PORT	887a2614-432f-44a9-abb2-d1ffcd516ad8																									
OCUDRSITE1_OCUDRA_XSI1_PORT	bf6affe8-e720-4f80-b514-16ad7e9df5a6																									
OCUDRSITE1_OCUDRA_XSI2_PORT	bed62056-3b8b-493c-bed7-128dd04acc8f																									
OCUDRSITE1_OCUDRA_XMI_PORT	3c0ce151-c72d-4a07-9df3-646497fa1b3c																									
OCUDRSITE1_OCUDR_VIP_PORT	0786cf62-3203-46b5-a4f8-beb19df5fb7																									
OCUDRSITE1_OCUDRA	3c1f76d0-4142-4ff1-8d3e-22dba8132b40																									
7. <input type="checkbox"/> Copy or record all required Port IDs for DR Site.		<p>Repeat Step 5 and Step 6 to copy or record the Port ID of both servers: DR-UDR-A and DR-UDR-B.</p> <p>DR-UDR-A: _____ DR-UDR-B: _____</p>																								
8. <input type="checkbox"/> OpenStack Controller node:	<p>1. Access the command prompt.</p> <p>2. Log into the controller node as a privilidged user.</p>	<pre>login as: <usr_name> root@10.250.xx.yy's password: <usr_password> Last login: Mon Jul 30 10:33:19 2012 from 10.25.80.199 [root@control01]#</pre>																								
9. <input type="checkbox"/> OpenStack Controller node:	<p>Initialize environment variables</p>	<pre>controller ~]# source keystonerc_udrsw</pre>																								

Step	Procedure	Result
10. <input type="checkbox"/>	OpenStack Controller node: 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"/>	OpenStack Controller node: Repeat if needed	Repeat Step 10 as required for any other server pairs requiring a VIP.
12. <input type="checkbox"/>	OpenStack Controller node: Confirm VIP association	VIP associations may be confirmed with the following command by Port ID: [root@control01 ~ (keystone_udrsw)]# neutron port-show <port_id> See Figure 3 for an example of the output.

THIS PROCEDURE HAS BEEN COMPLETED**Figure 3 Example port-show output.**

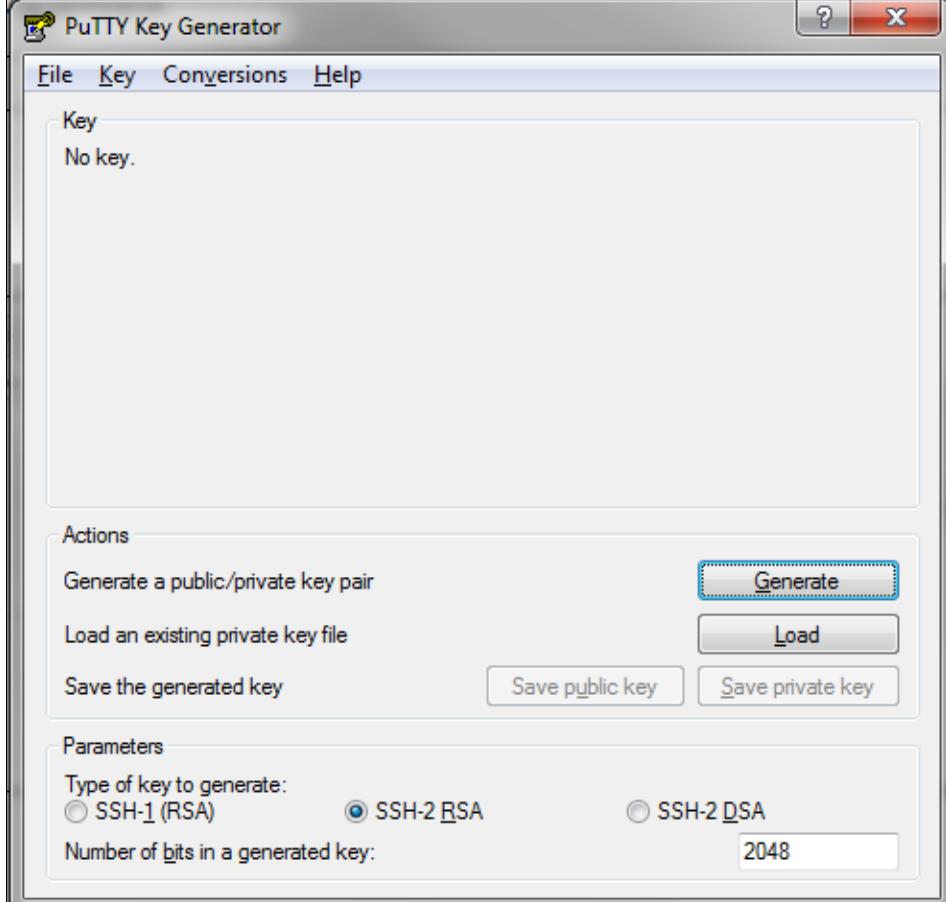
```
+-----+-----+
| Field           | Value
+-----+-----+
| admin_state_up | True
| allowed_address_pairs | {"ip_address": "10.240.221.36", "mac_address": "fa:16:3e:ce:18:2a"}
| binding:host_id | compute05.labafrika
| binding:profile | {}
| binding:vif_details | {"port_filter": true, "ovs_hybrid_plug": true}
| binding:vif_type | ovs
| binding:vnic_type | normal
| device_id       | 947457b4-46e8-43e7-8f14-79c816388e3d
| device_owner     | compute:Odds
| extra_dhcp_opts | 
| fixed_ips       | {"subnet_id": "23f28095-bdb6-4fab-b13e-281d726ef3eb", "ip_address": "10.240.221.38"}
| id              | aa14b554-d0a6-413d-b77c-63e11a3c9895
| mac_address     | fa:16:3e:ce:18:2a
| name             | 
| network_id      | 62027e77-7556-42b2-8070-ffbd61933877
| port_security_enabled | True
| security_groups  | 1e4bd44c-9ac2-4cd0-a56b-c094a52830c2
| status           | ACTIVE
| tenant_id        | d2fda814485247f795c23b9af2bc2e1c
+-----+-----+
```

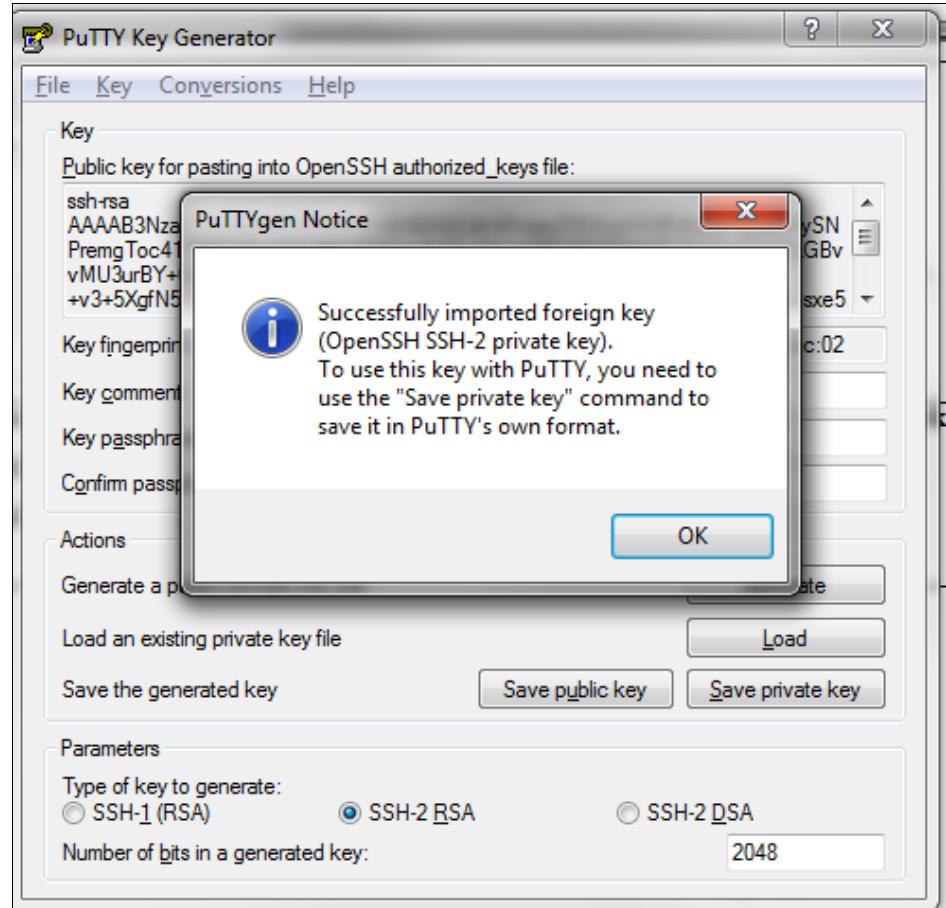
D.9 GENERATE PRIVATE KEY FOR SSH ACCESS

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"/> Load the key file i.e *.pem generated in D.3 Create Key Pair	Click OK	

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

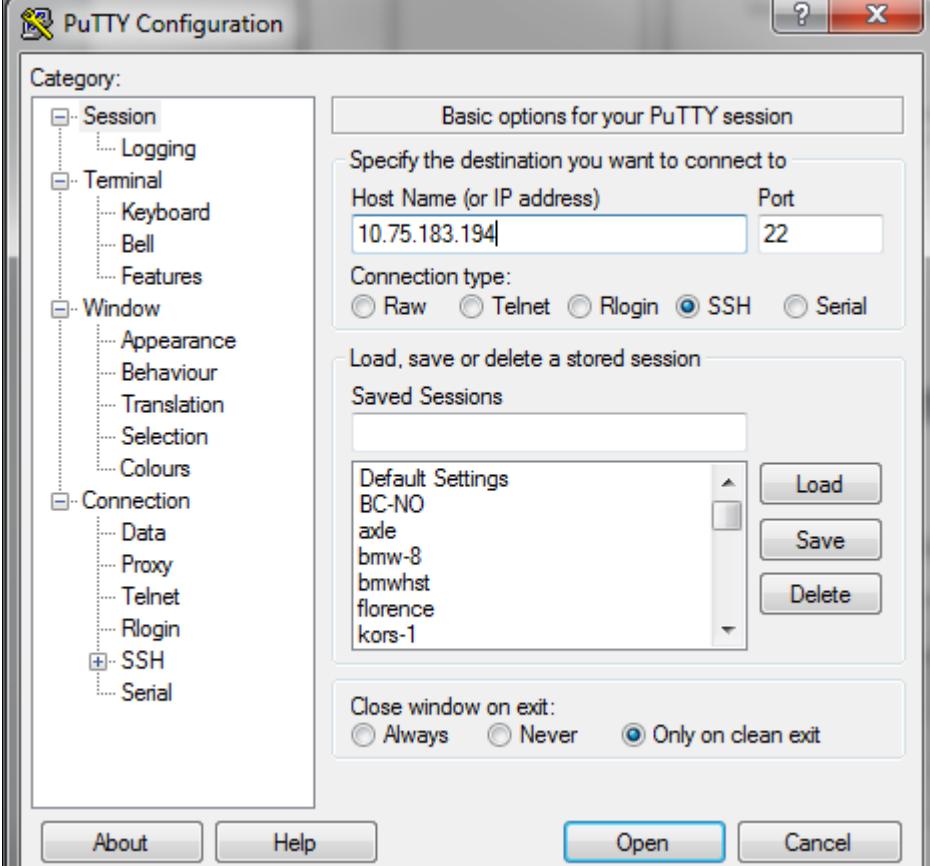
D.10 ACCESSING VM INSTANCE USING SSH

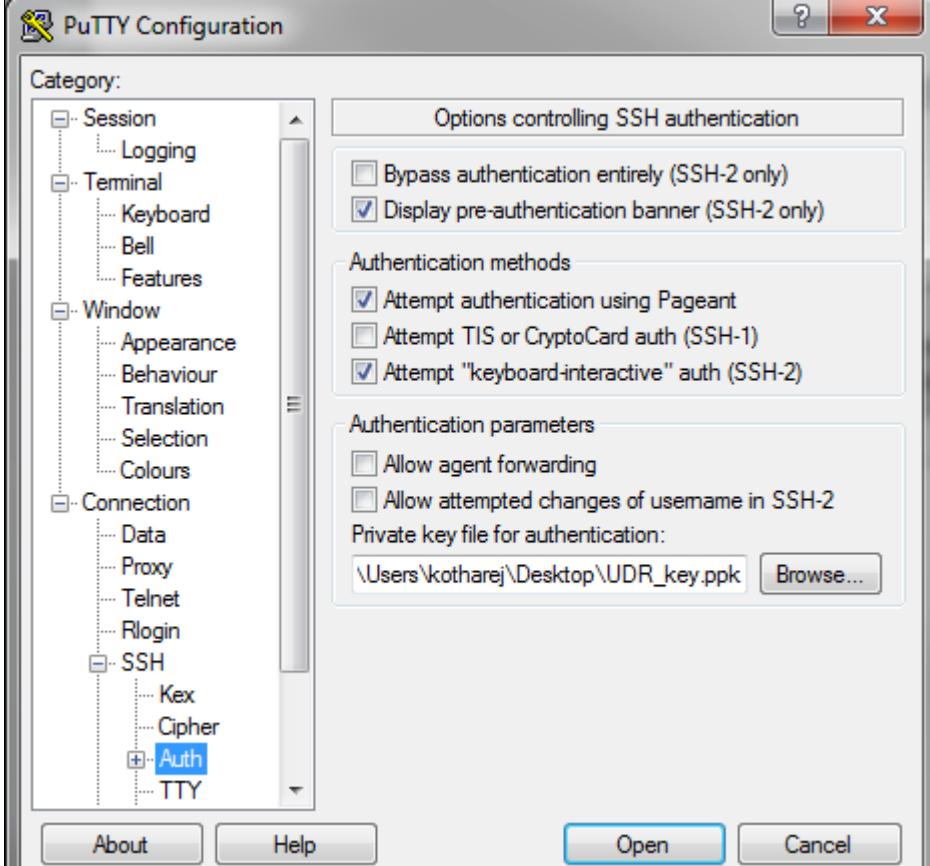
This procedure is used to access VM instance via SSH. This procedure assumes following:

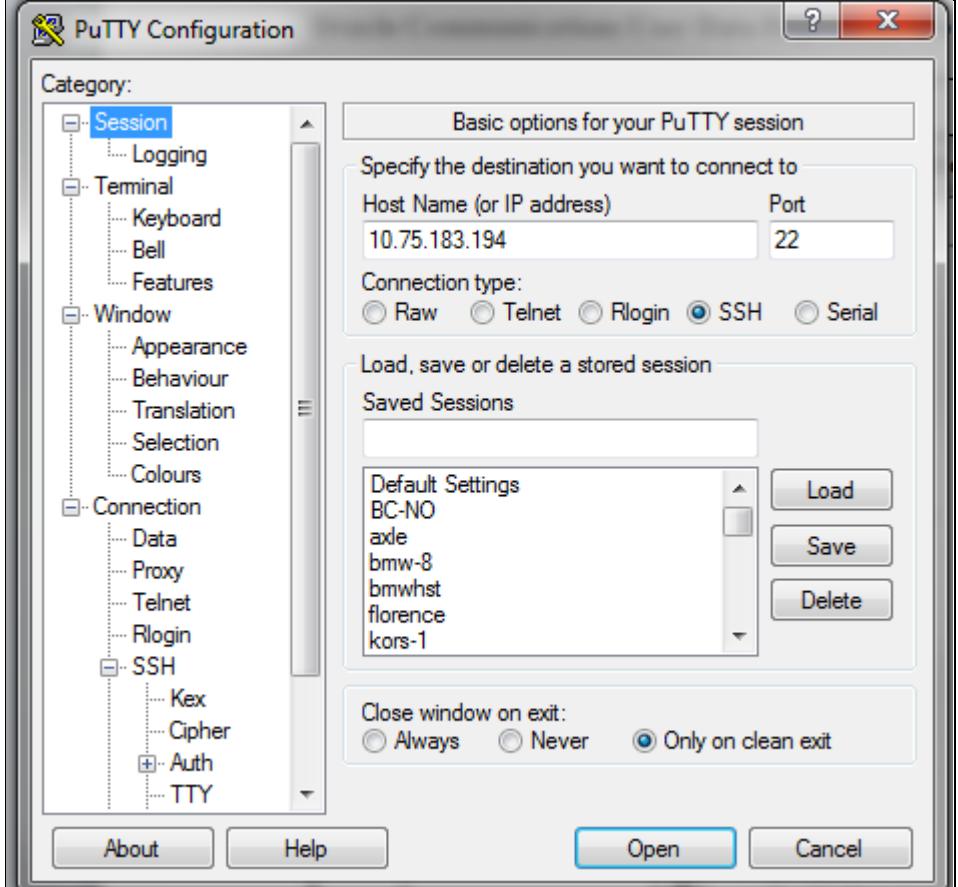
- Network configuration on VM instance is complete or floating IPs have been associated with VM instance
- Private Key has been generated as per D.9 Generate Private Key for SSH Access

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 SSH → Auth</p> <p>Select the *.ppk file generated by D.9 Generate Private Key for SSH Access</p>	

Step	Procedure	Result
3. <input type="checkbox"/>	From Session Category, click Open to launch the SSH connection Specify username admusr when prompted	 <p>THIS PROCEDURE HAS BEEN COMPLETED</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	hostnamea0c2d9aa8bce login: admusr
2. <input type="checkbox"/>	Switch to root user	# su - root password: <root_password>

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/TKLC/rundb/run</pre>
4. <input type="checkbox"/>	Run prod.start on instance After start, use pl to check process status, after first start, only a few processes start	<pre>[root@hostname2c6772f9819e ~]# prod.start * iqt -fiddToXML -DataDictPart > /var/TKLC/rundb/run/db/DataDictPart/28160527.055813.5460.DataDictPart.tmp * edd.op --install --must-eq-current /var/TKLC/rundb/run/db/DataDictPart/28160527.055813.5460.DataDictPart.tmp created: 28160527.055813.5460.DataDictPart.xml ...starting procmgr ... [root@hostname2c6772f9819e ~]# pl S pid procTag \$1 stat spawnTime N cmd Z 29470 cmha Up 05/27 01:59:29 1 cmha Z 29471 cmsoapa Up 05/27 01:59:29 1 cmsoapa Z 29473 idbsvc Up 05/27 01:59:29 1 idbsvc -H10 -HE204 -D40 -DE820 -V1 -S2 -L1 Z 29475 inetmerge Up 05/27 01:59:29 1 inetmerge Z 29477 raclerk Up 05/27 01:59:29 1 raclerk -r 3000 Z 29478 re.portmap Up 05/27 01:59:29 1 re.portmap -c100</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: Z (product under procmgr) ...setting state X... ...waiting for state [X]00... Current state is X [root@hostname2c6772f9819e ~]# pl S pid procTag \$1 stat spawnTime N cmd X 29586 Imysqld Up 05/27 02:00:25 1 Imysqld.start -force X 29587 ProcWatch Up 05/27 02:00:25 1 ProcWatch -L X 29589 apuSoapServer Up 05/27 02:00:25 1 tcmh0SIGCHK=1 apuSoapServer X 29470 cmha Up 05/27 01:59:29 1 cmha X 29591 cmplataalarm Up 05/27 02:00:25 1 cmplataalarm X 29593 cmsonnpsa Up 05/27 02:00:25 1 cmsonnpsa -R 1.3.6.1.4.1.323.5.3.32.1 X 29471 cmsoapa Up 05/27 01:59:29 1 cmsoapa X 29608 eclipseHelp Up 05/27 02:00:25 1 eclipseHelp X 29594 guiReqMapLoad Up 05/27 02:00:25 1 guiReqMapLoad X 29473 idbsvc Up 05/27 01:59:29 1 idbsvc -H10 -HE204 -D40 -DE820 -V1 -S2 -L1 X 29475 inetmerge Up 05/27 01:59:29 1 inetmerge X 29596 inetrep Up 05/27 02:00:25 1 inetrep X 29598 mldbhooks Up 05/27 02:00:25 1 mldbhooks X 29601 oampAgent Up 05/27 02:00:25 1 oampAgent X 29603 pm.watchdog Up 05/27 02:00:25 1 pm.watchdog X 29477 raclerk Up 05/27 01:59:29 1 raclerk -r 3000 X 29478 re.portmap Up 05/27 01:59:29 1 re.portmap -c100 X 29605 statclerk Up 05/27 02:00:25 1 statclerk -s -0 X 29607 vipmgr Up 05/27 02:00:25 1 vipmgr</pre>

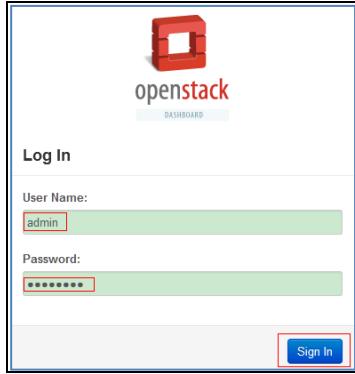
THIS PROCEDURE HAS BEEN COMPLETED

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 Project → Instances → More → Associate Floating IP	<table border="1" data-bbox="649 794 1307 1501"> <thead> <tr> <th data-bbox="649 794 910 825">Time since created</th> <th data-bbox="910 794 1307 825">Actions</th> </tr> </thead> <tbody> <tr> <td data-bbox="649 825 910 1121">4 hours, 12 minutes</td> <td data-bbox="910 825 1307 1121"> Create Snapshot  Associate Floating IP  Attach Interface Detach Interface Edit Instance Update Metadata Edit Security Groups Console View Log Pause Instance Suspend Instance </td></tr> <tr> <td data-bbox="649 1121 910 1501">4 hours, 12 minutes</td> <td data-bbox="910 1121 1307 1501"></td></tr> </tbody> </table>	Time since created	Actions	4 hours, 12 minutes	Create Snapshot  Associate Floating IP  Attach Interface Detach Interface Edit Instance Update Metadata Edit Security Groups Console View Log Pause Instance Suspend Instance	4 hours, 12 minutes	
Time since created	Actions							
4 hours, 12 minutes	Create Snapshot  Associate Floating IP  Attach Interface Detach Interface Edit Instance Update Metadata Edit Security Groups Console View Log Pause Instance Suspend Instance							
4 hours, 12 minutes								

Step	Procedure	Result
3. <input type="checkbox"/>	Select the IP Addresss and Port to be associated Click Associate	<p>Manage Floating IP Associations</p> <p>IP Address * 10.75.173.199 <input data-bbox="975 327 1003 363" type="button" value="+"/></p> <p>Port to be associated * OCUDR_12_4-noa: 10.10.1.20 <input data-bbox="975 418 1003 454" type="button" value="—"/></p> <p>Select the IP address you wish to associate with the selected instance or port.</p> <p><input data-bbox="1269 517 1339 544" type="button" value="Cancel"/> <input data-bbox="1367 517 1465 544" type="button" value="Associate"/></p>
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix E. Same Network Element and Hardware Profiles

In order to enter all the network information for a network element into an Appworks-based system, a specially formatted XML file needs to be 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> <?xml version="1.0"?> <nworkelement> <name>NO_UDR_NE</name> <networks> <network> <name>XMI</name> <vlanId>3</vlanId> <ip>10.2.0.0</ip> <mask>255.255.255.0</mask> <gateway>10.2.0.1</gateway> <isDefault>true</isDefault> </network> <network> <name>IMI</name> <vlanId>4</vlanId> <ip>10.3.0.0</ip> <mask>255.255.255.0</mask> <nonRoutable>true</nonRoutable> </network> </networks> </nworkelement> </pre>	<pre> <?xml version="1.0"?> <nworkelement> <name>SO_UDR_NE</name> <networks> <network> <name>XMI</name> <vlanId>3</vlanId> <ip>10.2.0.0</ip> <mask>255.255.255.0</mask> <gateway>10.2.0.1</gateway> <isDefault>true</isDefault> </network> <network> <name>IMI</name> <vlanId>4</vlanId> <ip>10.3.0.0</ip> <mask>255.255.255.0</mask> <nonRoutable>true</nonRoutable> </network> </networks> </nworkelement> </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

VM Name	VM Purpose	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

- 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).

NOTES:

Appendix H. Network Device Assignments

Product	Role	Interface Assignment						
		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.

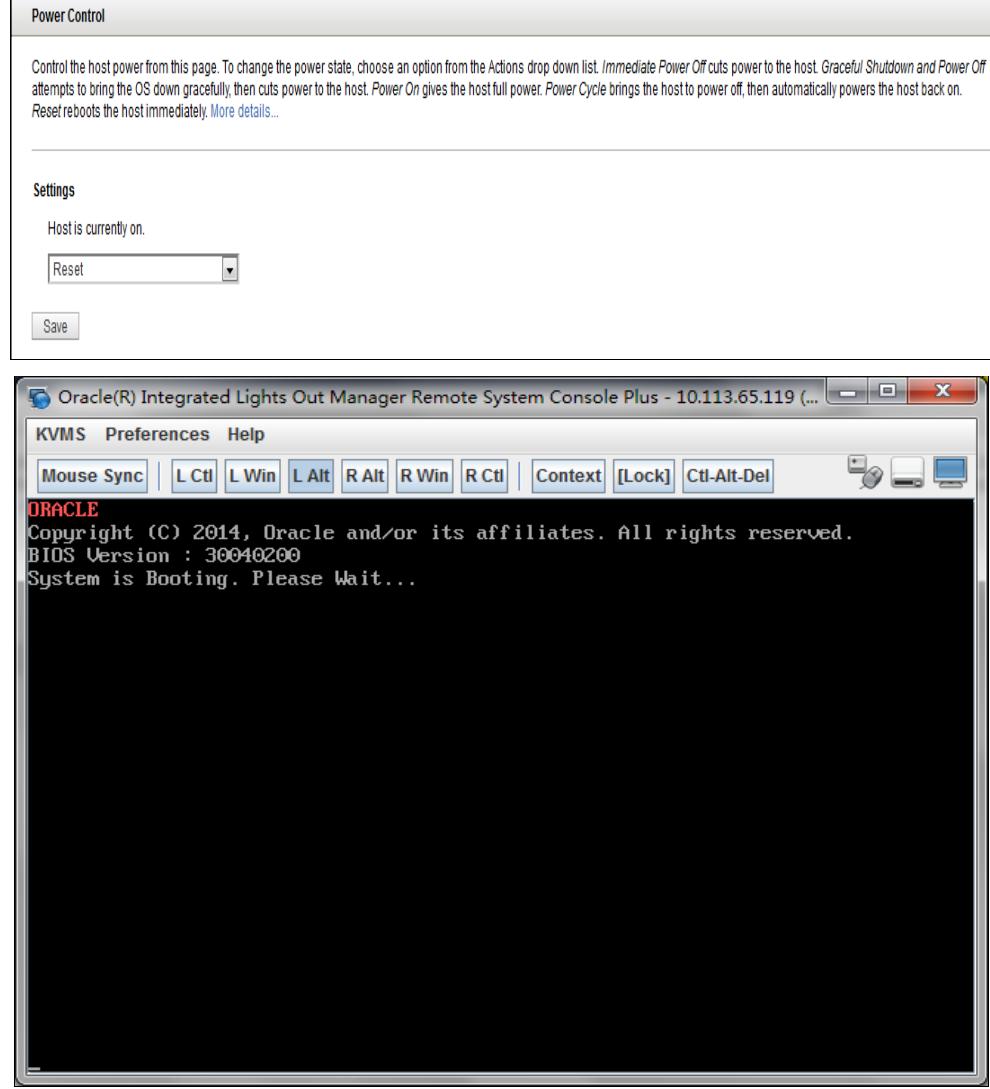
NOTE:

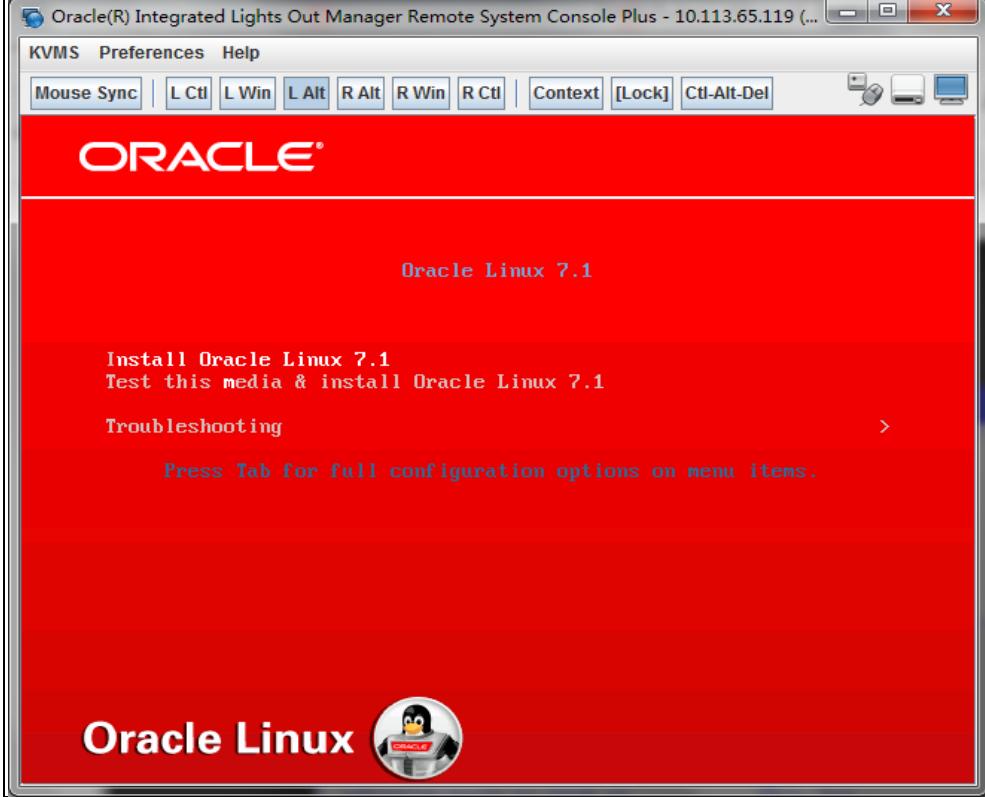
- This installation procedure only applies when installing UDR on Oracle Linux OS via direct KVM
- For the Oracle Linux OS, Oracle Linux 7.2 GA release is used and verified OK.

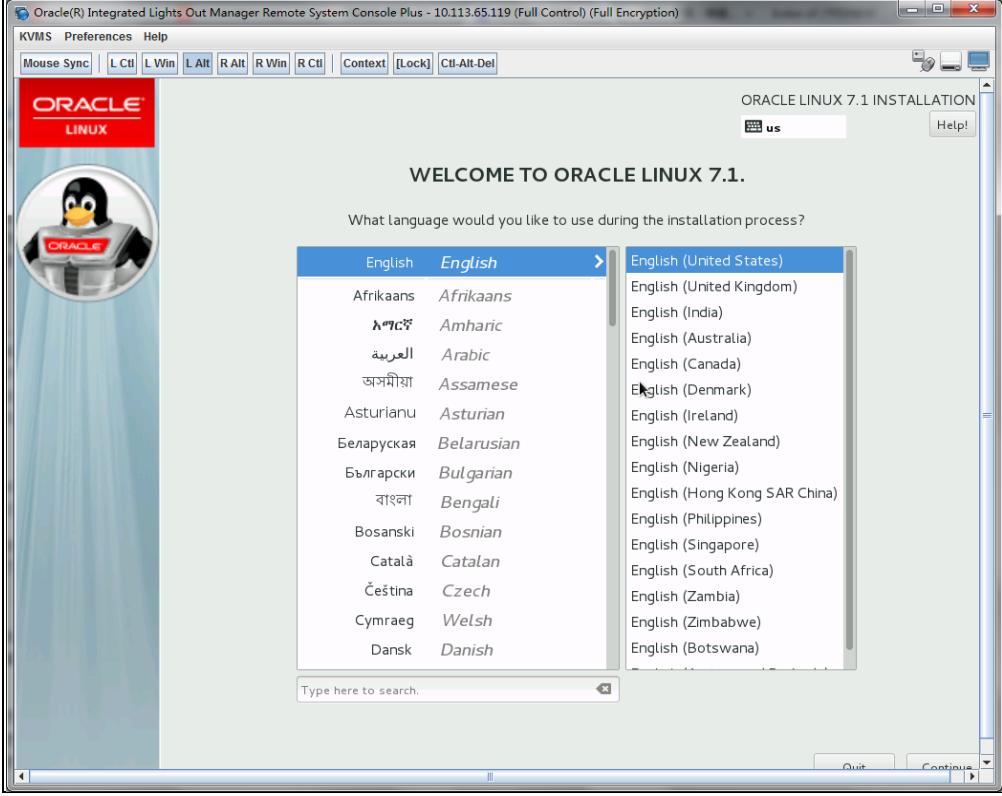
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

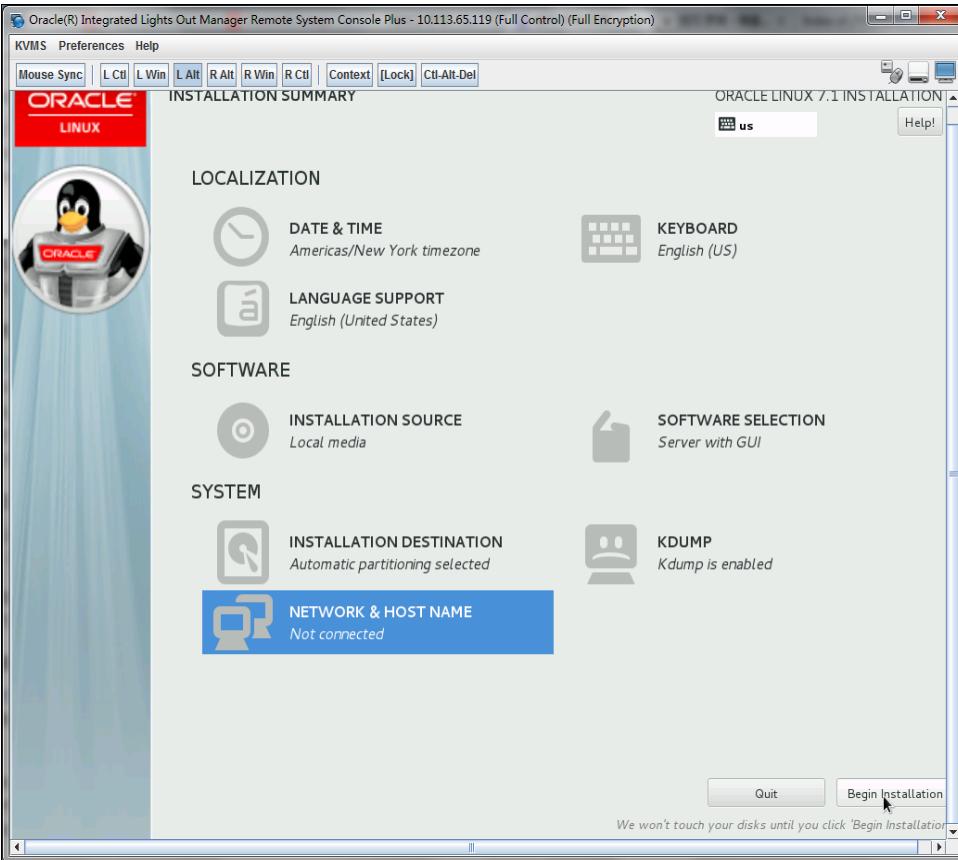
Procedure38: Install UDR on Oracle Linux/KVM

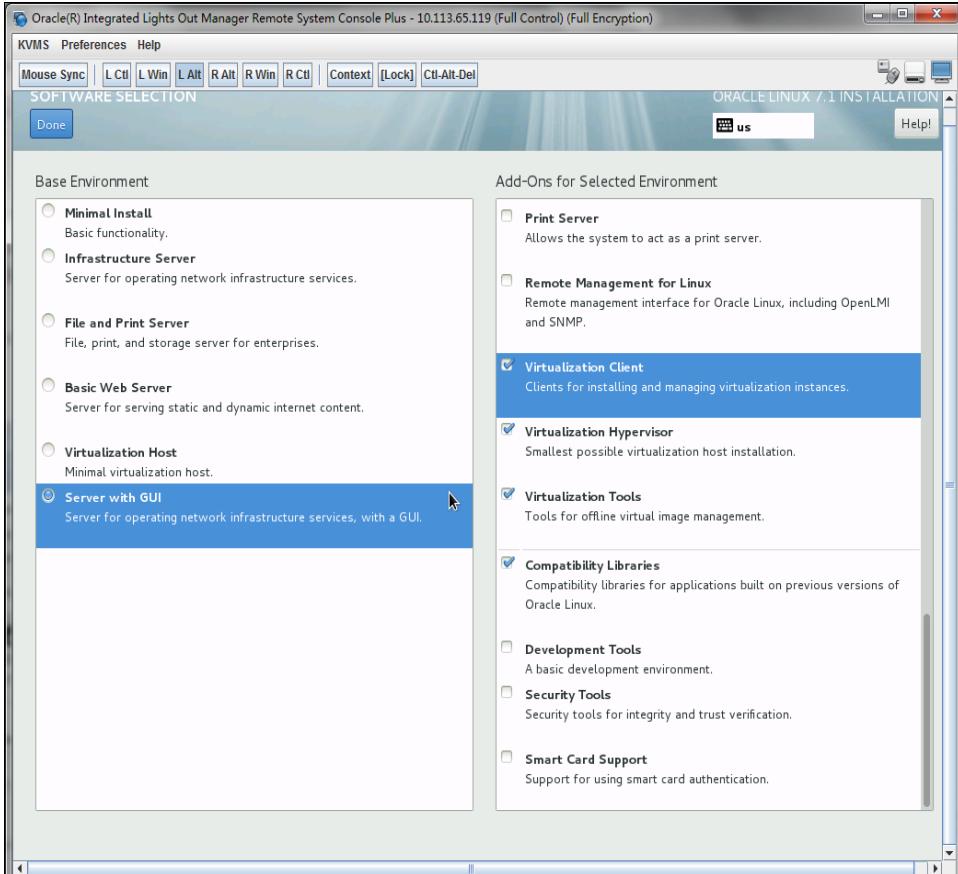
Step	Procedure	Result
1. <input type="checkbox"/>	For each Oracle X5-2 RMS, mount virtual media contains Oracle Linux OS software	Follow steps defined in Appendix C.3 Mounting Virtual Media on Oracle RMS Server of Error! Reference source not found.. to mount the Oracle Linux OS software ISO.

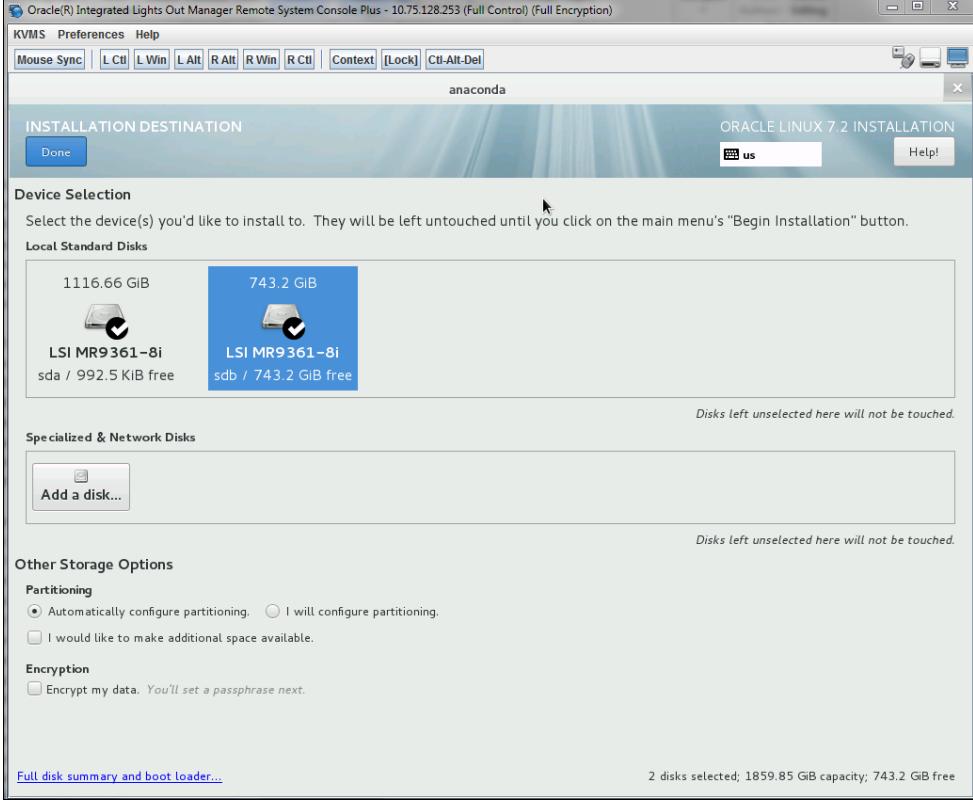
Step	Procedure	Result
2. <input type="checkbox"/>	<p>For each Oracle X5-2 RMS, reboot the host.</p>	<p>1. Login to the X5-2 iLo GUI browser page and launch remote console 2. In ILO GUI, navigate to Host Management → Power Control 3. Select Reset 4. Click Save to reboot host.</p> <p>In remote console window, you see that the host is rebooting. Wait for the reboot to complete.</p>  <p>The screenshot shows two windows. The top window is a 'Power Control' dialog box with instructions for changing host power states. The bottom window is a 'Oracle(R) Integrated Lights Out Manager Remote System Console Plus' window showing a host reboot. The console window displays the Oracle logo, copyright information, BIOS version, and a message 'System is Booting. Please Wait...'.</p>

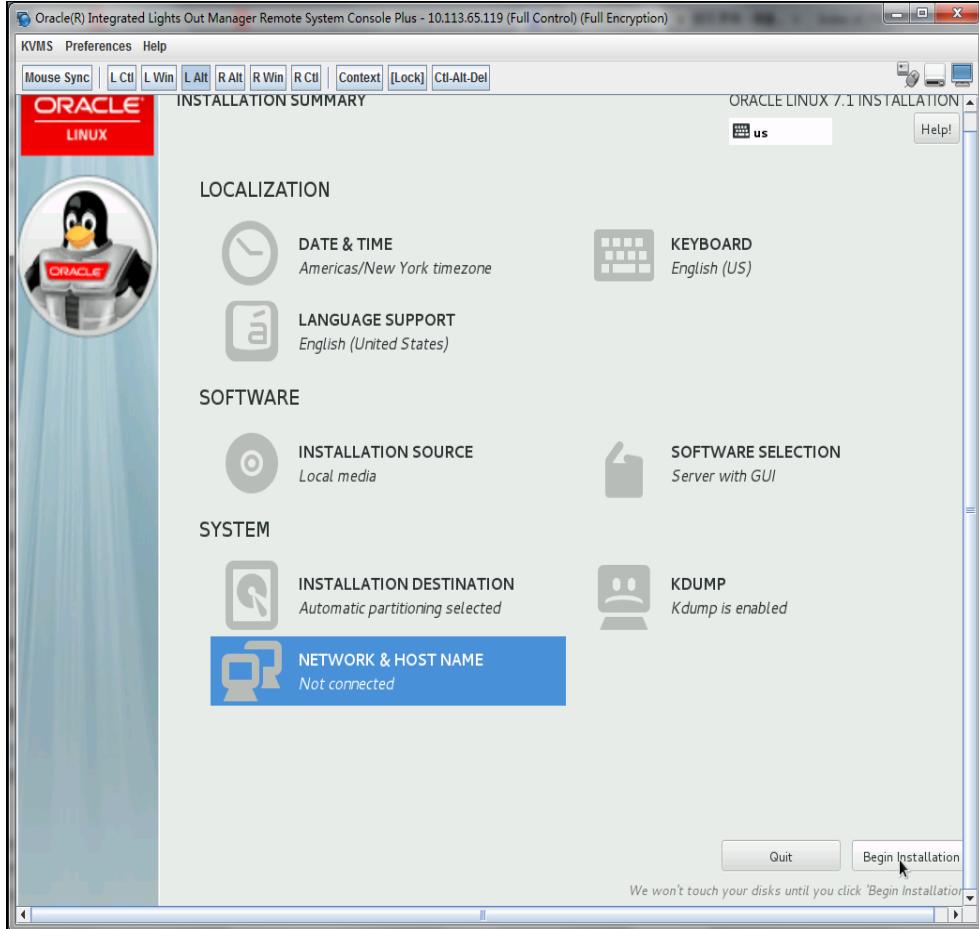
Step	Procedure	Result
3. <input type="checkbox"/> For each Oracle X5-2 RMS, initiate Oracle Linux Platform installation		<p>After the reboot is complete, the host boots with Oracle Linux installation ISO and the Oracle Linux GUI with the installation option opens.</p> <p>Select Install Oracle Linux 7.x.</p>  <p>The screenshot shows a red Oracle Linux 7.1 installation screen. At the top, it says 'ORACLE' and 'Oracle Linux 7.1'. In the center, there is a link 'Install Oracle Linux 7.1' with the sub-instruction 'Test this media & install Oracle Linux 7.1'. Below that is a 'Troubleshooting' link and a note 'Press Tab for full configuration options on menu items.' At the bottom, it says 'Oracle Linux' and features the Oracle Linux logo with a penguin.</p>

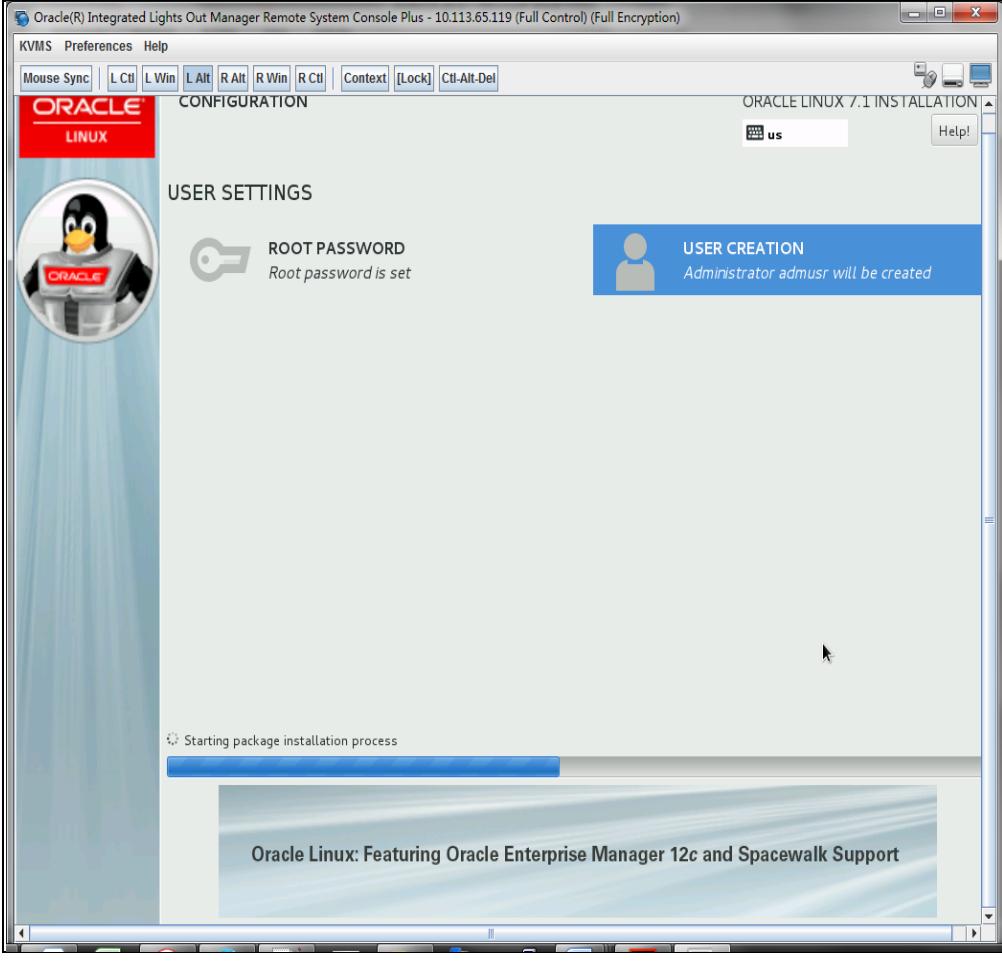
Step	Procedure	Result
4. <input type="checkbox"/> For each Oracle X5-2 RMS, select Oracle Linux OS language		<p>1. When prompted, select English as Oracle Linux OS language:</p>  <p>2. Click Continue.</p>

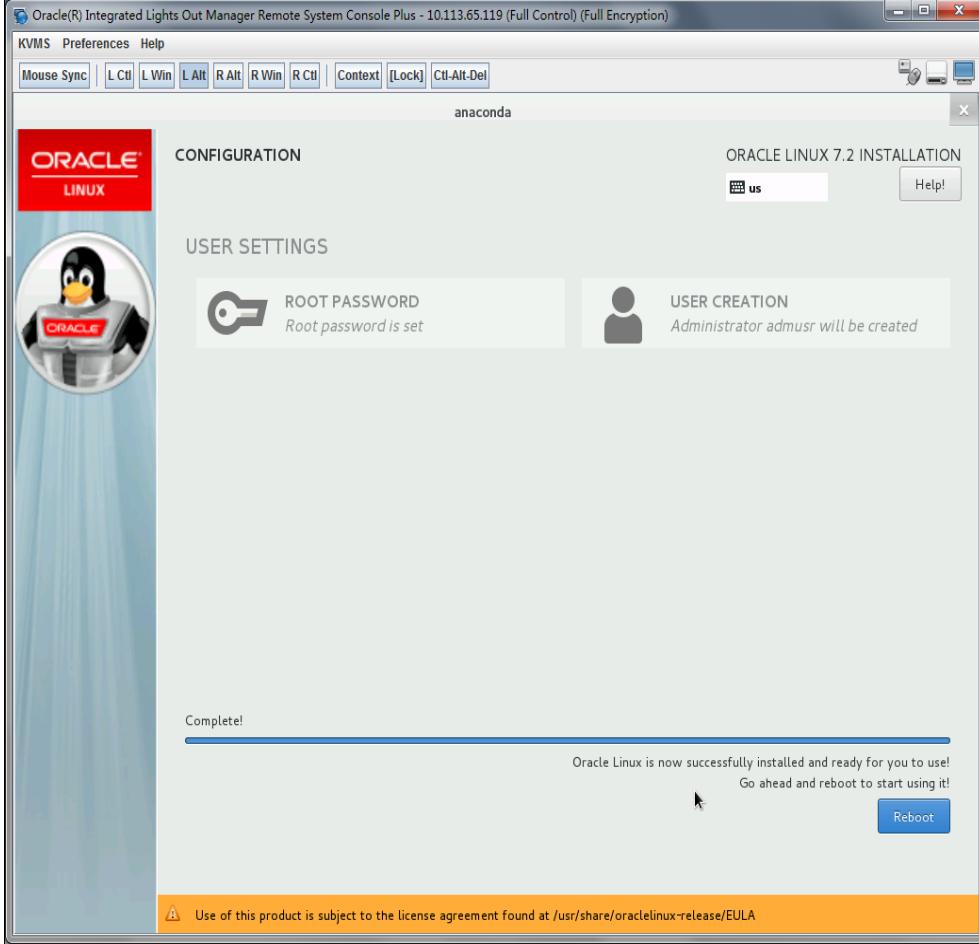
Step	Procedure	Result
5. <input type="checkbox"/> For each Oracle X5-2 RMS, setup time zone	The next page prompts you for Oracle Linux OS installation required information to start installation.	 <p>1. Navigate to LOCALIZATION → DATE & TIME. 2. Set time zone as Americas/New York. 3. Click Done to save the changes and return to the main configuration page.</p>

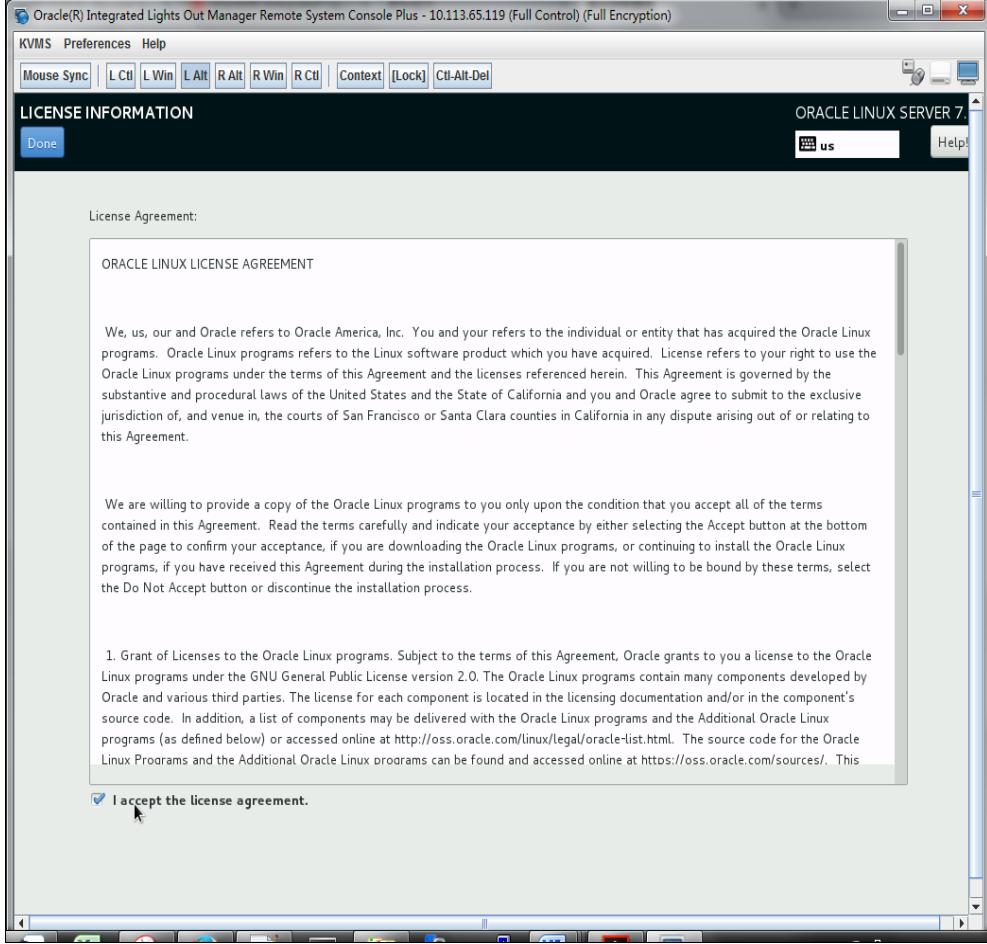
Step	Procedure	Result
6. <input type="checkbox"/> For each Oracle X5-2 RMS: Setup installation base environment	<p>1. Navigate to SOFTWARE → SOFTWARE SELECTION menu.</p> <p>2. Select Server with GUI, and verify that these add-ons are selected:</p> <ul style="list-style-type: none"> - Virtualization Client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

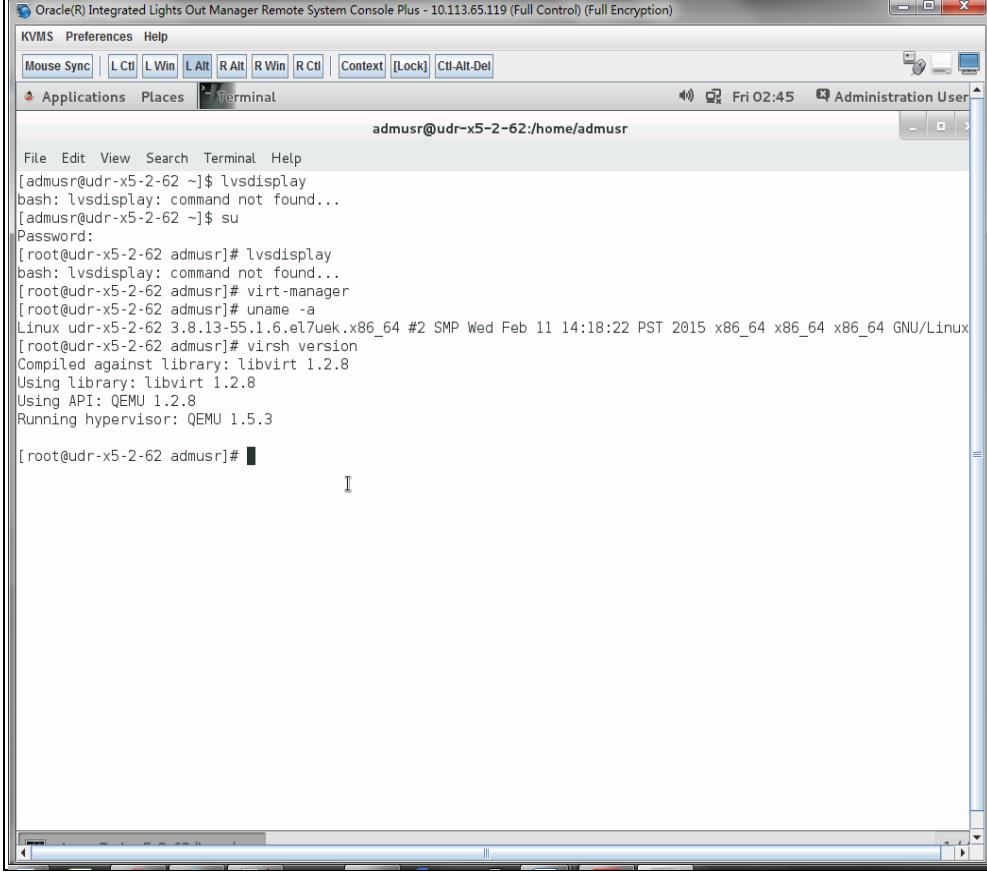
Step	Procedure	Result
7. <input type="checkbox"/>	For each Oracle X5-2 RMS, setup installation destination	<p>1. Navigate to SYSTEM → INSTALLATION DESTINATION menu.</p> <p>2. Select sda and sdb.</p> <p>3. Select Automatically configure partitioning.</p> <p>4. Click Done.</p> 

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 Begin Installation.</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 Integrated Lights Out Manager Remote System Console Plus interface. The title bar reads "Oracle(R) Integrated Lights Out Manager Remote System Console Plus - 10.113.65.119 (Full Control) (Full Encryption)". The menu bar includes KVMS, Preferences, and Help. The toolbar has buttons for Mouse Sync, L Ctrl, L Win, L Alt, R Alt, R Win, R Ctrl, Context, Lock, and Ctl-Alt-Del. The main window is titled "INSTALLATION SUMMARY" and shows the following sections:</p> <ul style="list-style-type: none"> LOCALIZATION: Includes DATE & TIME (Americas/New York timezone) and LANGUAGE SUPPORT (English (United States)). SOFTWARE: Includes INSTALLATION SOURCE (Local media) and SOFTWARE SELECTION (Server with GUI). SYSTEM: Includes INSTALLATION DESTINATION (Automatic partitioning selected) and KDUMP (Kdump is enabled). NETWORK & HOST NAME: Shows a blue status bar indicating "Not connected". <p>At the bottom right, there are "Quit" and "Begin Installation" buttons, with a note: "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>  <p>The screenshot shows the Oracle Integrated Lights Out Manager Remote System Console Plus interface. The title bar reads "Oracle(R) Integrated Lights Out Manager Remote System Console Plus - 10.113.65.119 (Full Control) (Full Encryption)". The menu bar includes "KVMS", "Preferences", and "Help". The toolbar has buttons for "Mouse Sync", "L Ctl", "L Win", "L Alt", "R Alt", "R Win", "R Ctl", "Context", "Lock", and "Ctl-Alt-Del". The main window is titled "CONFIGURATION" and "ORACLE LINUX 7.1 INSTALLATION". It displays "USER SETTINGS" on the left with a penguin icon and "USER CREATION" on the right, stating "Administrator admusr will be created". A progress bar at the bottom indicates "Starting package installation process". The status bar at the bottom of the window says "Oracle Linux: Featuring Oracle Enterprise Manager 12c and Spacewalk Support".</p>

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

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

Step	Procedure	Result
12. <input type="checkbox"/>	For each Oracle X5-2 RMS, verify kernel version and KVM version	<p>Open SSH console window and check following:</p>  <pre> [admusr@udr-x5-2-62 ~]\$ lvsdisplay bash: lvsdisplay: command not found... [admusr@udr-x5-2-62 ~]\$ su Password: [root@udr-x5-2-62 admusr]# lvsdisplay bash: lvsdisplay: command not found... [root@udr-x5-2-62 admusr]# virt-manager [root@udr-x5-2-62 admusr]# uname -a Linux udr-x5-2-62 3.8.13-55.1.6.el7uek.x86_64 #2 SMP Wed Feb 11 14:18:22 PST 2015 x86_64 x86_64 x86_64 GNU/Linux [root@udr-x5-2-62 admusr]# virsh version Compiled against library: libvirt 1.2.8 Using library: libvirt 1.2.8 Using API: QEMU 1.2.8 Running hypervisor: QEMU 1.5.3 [root@udr-x5-2-62 admusr]# </pre>
13. <input type="checkbox"/>	For each Oracle X5-2 RMS, change network interface name pattern to ethx	<ol style="list-style-type: none"> 1. Edit <code>/etc/default/grub</code> to append <code>net.ifnames=0</code> to option <code>GRUB_CMDLINE_LINUX</code>: <pre> [root@udr-x5-2-62-017 admusr]# cat /etc/default/grub GRUB_TIMEOUT=5 GRUB_DISTRIBUTOR="\$(sed 's, release .*\$,,g' /etc/system-release)" GRUB_DEFAULT=saved GRUB_DISABLE_SUBMENU=true GRUB_TERMINAL_OUTPUT="console" GRUB_CMDLINE_LINUX="crashkernel=auto rd.lvm.lv=ol00/root rd.lvm.lv=ol00/swap rhgb quiet net.ifnames=0 GRUB_DISABLE_RECOVERY="true" </pre> 2. Recreate the <code>grub2</code> config file with following command: <pre># grub2-mkconfig -o /boot/grub2/grub.cfg</pre> 3. Restart host using <code>shutdown -r</code> command and verify that network interface have the <code>ethx</code> name pattern.

Step	Procedure	Result
14. <input type="checkbox"/>	For each Oracle X5-2 RMS, Create bond0 device	<p>1. Create device bond0 configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-bond0 DEVICE=bond0 TYPE=Bonding BOND_INTERFACES=<n1>,<n2> ONBOOT=yes NM_CONTROLLED=no BOOTPROTO=none BONDING_OPTS="mode=active-backup primary=<n1> 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-<n1> DEVICE=<n1> 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-<n2> DEVICE=<n2> 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 <n1> # ifup <n2> # ifup bond0</pre>
15. <input type="checkbox"/>	For each Oracle X5-2 RMS, create IMI bridge	<p>1. Create bond0.<imi_vlan> configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-bond0.<imi_vlan> DEVICE=bond0.<imi_vlan> TYPE=Ethernet BOOTPROTO=none ONBOOT=yes NM_CONTROLLED=no BRIDGE=imi VLAN=yes</pre> <p>2. Create imi device configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-imi DEVICE=imi TYPE=Bridge BOOTPROTO=none ONBOOT=yes NM_CONTROLLED=no BRIDGE_INTERFACES=bond0.<imi_vlan></pre> <p>3. Bring the devices into service:</p> <pre># ifup bond0.<imi_vlan> # ifup imi</pre>

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

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

Step	Procedure	Result
18. <input type="checkbox"/>	For each Oracle X5-2 RMS, Create xsi1/xsi2 bridge	<p>Create device bond1.<xsi1_vlan> configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-bond1.<xsi1_vlan> BOOTPROTO=none VLAN=yes ONBOOT=yes TYPE=Ethernet DEVICE=bond1.<xsi1_vlan> BRIDGE=xsil NM_CONTROLLED=no</pre> <p>Create device xsi1 configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-xsil DEVICE=xsil TYPE=Bridge BOOTPROTO=none ONBOOT=yes NM_CONTROLLED=no BRIDGE_INTERFACES=bond1.<xsi1_vlan></pre> <p>Bring the devices into service:</p> <pre># ifup xsil # ifup bond1.<xsi1_vlan></pre> <p>Perform similar operations to create network devices for xsi2.</p>
19. <input type="checkbox"/>	For each Oracle X5-2 RMS, set the host name	<p>Rename host by modifying /etc/hostname file:</p> <pre>[root@localhost network-scripts]# cat /etc/hostname udr-x5-2-62-o17</pre> <p>Review host name change with following command:</p> <pre>[root@localhost network-scripts]# hostnamectl status Static hostname: udr-x5-2-62-o17 Icon name: computer-server Chassis: server Machine ID: 17980a78ef7d440ca5a6900768903795 Boot ID: a2a5a649eea14d8ab7534aec962c6782 Operating System: Oracle Linux Server 7.2 CPE OS Name: cpe:/o:oracle:linux:7:2:server Kernel: Linux 3.8.13-98.7.1.el7uek.x86_64 Architecture: x86-64</pre>

Step	Procedure	Result
20. <input type="checkbox"/>	For each Oracle X5-2 RMS, set the NTP service	<p>Modify <code>/etc/chrony.conf</code>, comment out all server * entries and append your NTP server IP to the list with prepending server text:</p> <pre># Use public servers from the pool.ntp.org project. # Please consider joining the pool (http://www.pool.ntp.org/join.html). #server 0.rhel.pool.ntp.org iburst #server 1.rhel.pool.ntp.org iburst #server 2.rhel.pool.ntp.org iburst #server 3.rhel.pool.ntp.org iburst server 144.25.255.140</pre> <p>Force ntp to sync with the added server:</p> <pre># ntpdate 144.25.255.140 # timedatectl</pre> <p>Verify time synced:</p> <pre>[root@udr-x5-2-62 log]# chronyc tracking Reference ID : 144.25.255.140 (144.25.255.140) Stratum : 3 Ref time (UTC) : Mon Feb 29 06:06:44 2016 System time : 1.692247748 seconds slow of NTP time Last offset : -3.862722397 seconds RMS offset : 3.862722397 seconds Frequency : 0.000 ppm fast Residual freq : -93.109 ppm Skew : 1000000.000 ppm Root delay : 0.178002 seconds Root dispersion : 30.041723 seconds Update interval : 0.0 seconds Leap status : Normal</pre>
21. <input type="checkbox"/>	For each Oracle X5-2 RMS: Create <code>/home/ova</code> dir	<pre>[root@pc9112020 ~]# mkdir -p /home/ova [root@pc9112020 ~]# cd /home/ova</pre>
22. <input type="checkbox"/>	Transfer OVA file this dir using sftp tool	<pre>[root@pc12107008 ova]# ll total 12322888 -rw-r--r--. 1 root root 1047767040 May 2 00:51 UDR-12.5.1.0.0_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 qcows2 file	
25. <input type="checkbox"/>	Copy the qcows2 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 qcows2 files	<p>Configure storage qcows2 files as per corresponding VMs. Refer Appendix G to get the required storage.</p> <p>Run the following command for each VM to set the storage:</p> <pre>qemu-img resize <NO_qcow2_filename>.qcow2 <storage_in_gigabytes>G</pre> <p>Run the command for a VM if storage required is 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>Appendix J Install UDR on Oracle Linux OS via KVM</p> <p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR</p>
28. <input type="checkbox"/>	For each UDR VMs: Add the network device	<p>Login to each VM created and add the network devices:</p> <p>UDR:</p> <pre># netAdm add --device=eth0 # netAdm add --device=eth1 # netAdm add --device=eth2</pre> <p>NOTE: eth0 is XMI, eth1 is IMI and eth2 is XSI1 and eth3 is XSI2 (create eth3 if XSI2 is required).</p>
29. <input type="checkbox"/>	For each UDR VMs: Configure XMI network address	<p>Set XMI network address for each UDR VM:</p> <pre># netAdm set --device=eth0 --onboot=yes --netmask=<XMI_netmask> --address=<XMI_network_address> # netAdm add --device=eth0 --route=default --gateway=<XMI_gateway></pre>
30. <input type="checkbox"/>	For each UDR VMs: Configure NTP service	<p>Use Step 5 to 6 of Appendix L.6 Configure TVOE Server (Hostname, Time Zone, SNMP, NTP, etc) in [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>
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix K. My Oracle Support

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

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

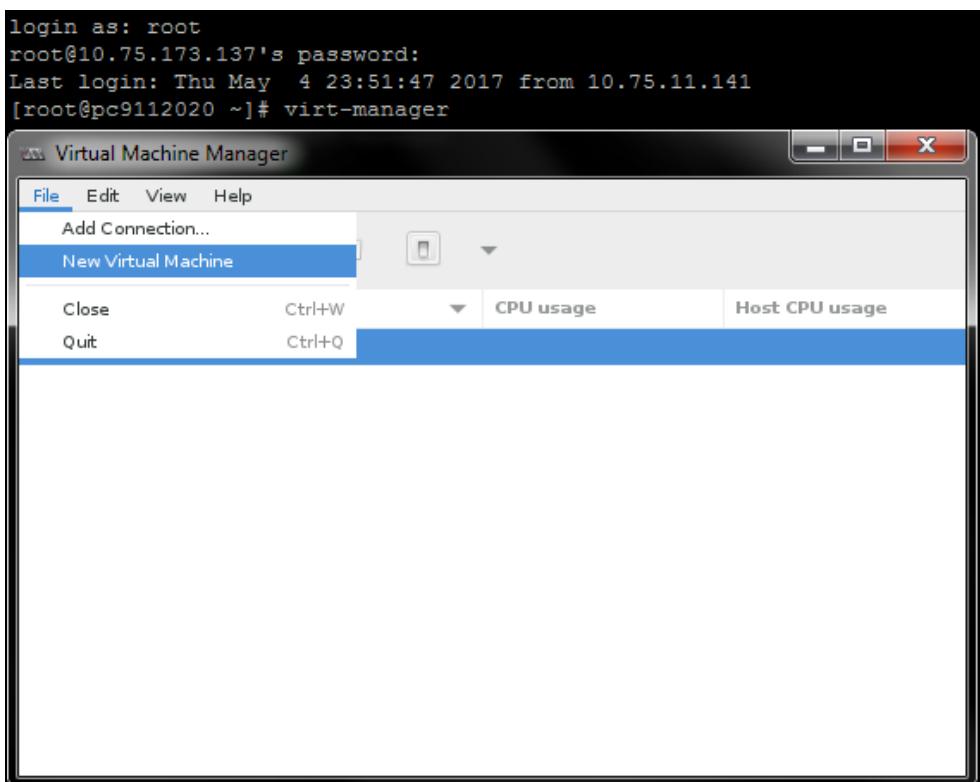
NOTE: This procedure needs to be done for each VM: NO, SO and MP

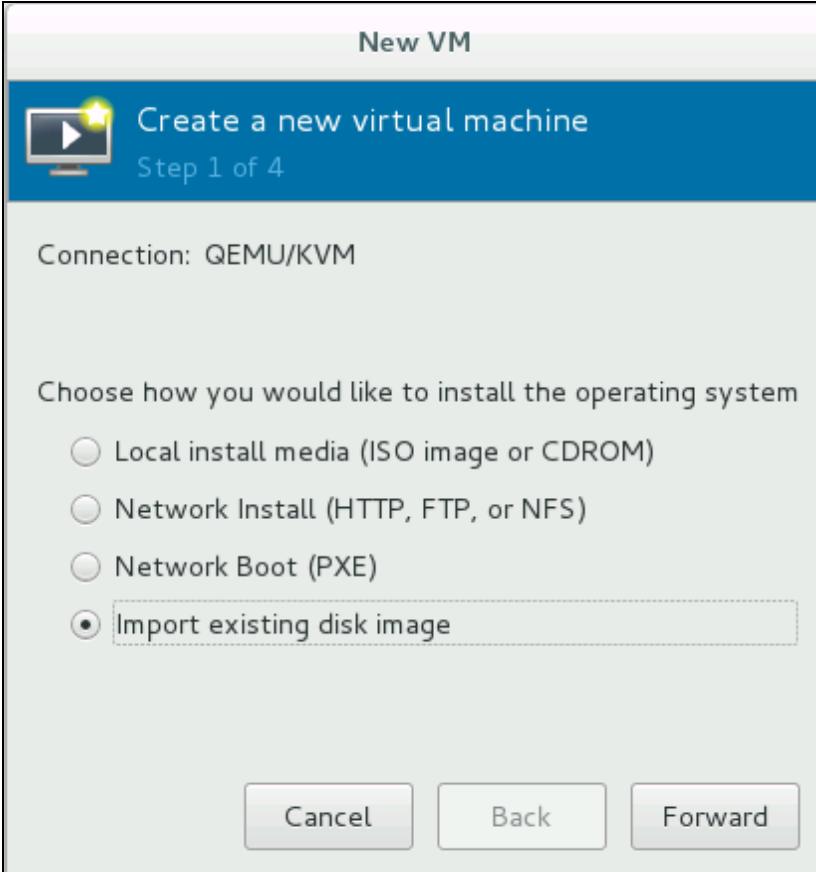
Requirements:

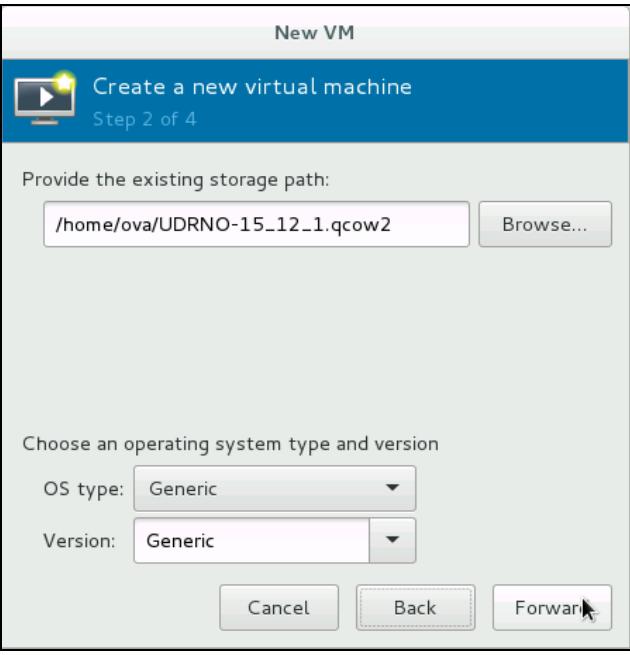
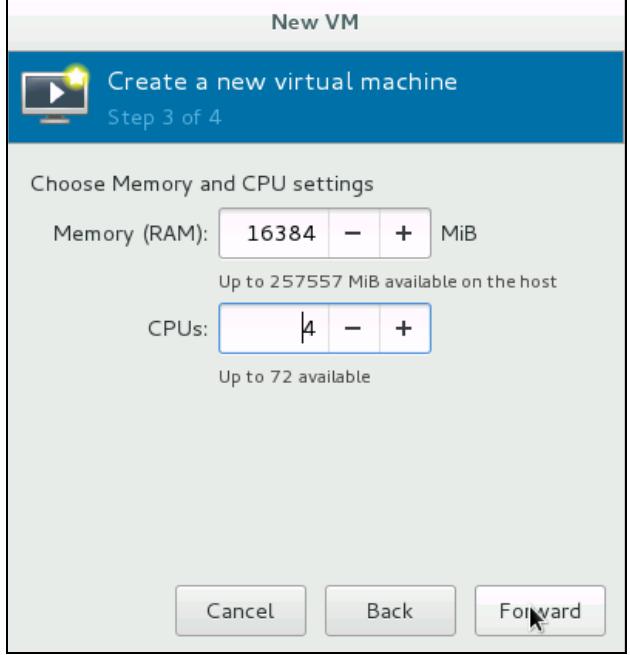
- [Appendix J Install UDR on Oracle Linux OS via KVM](#) Steps: 1 to 25 must be complete.

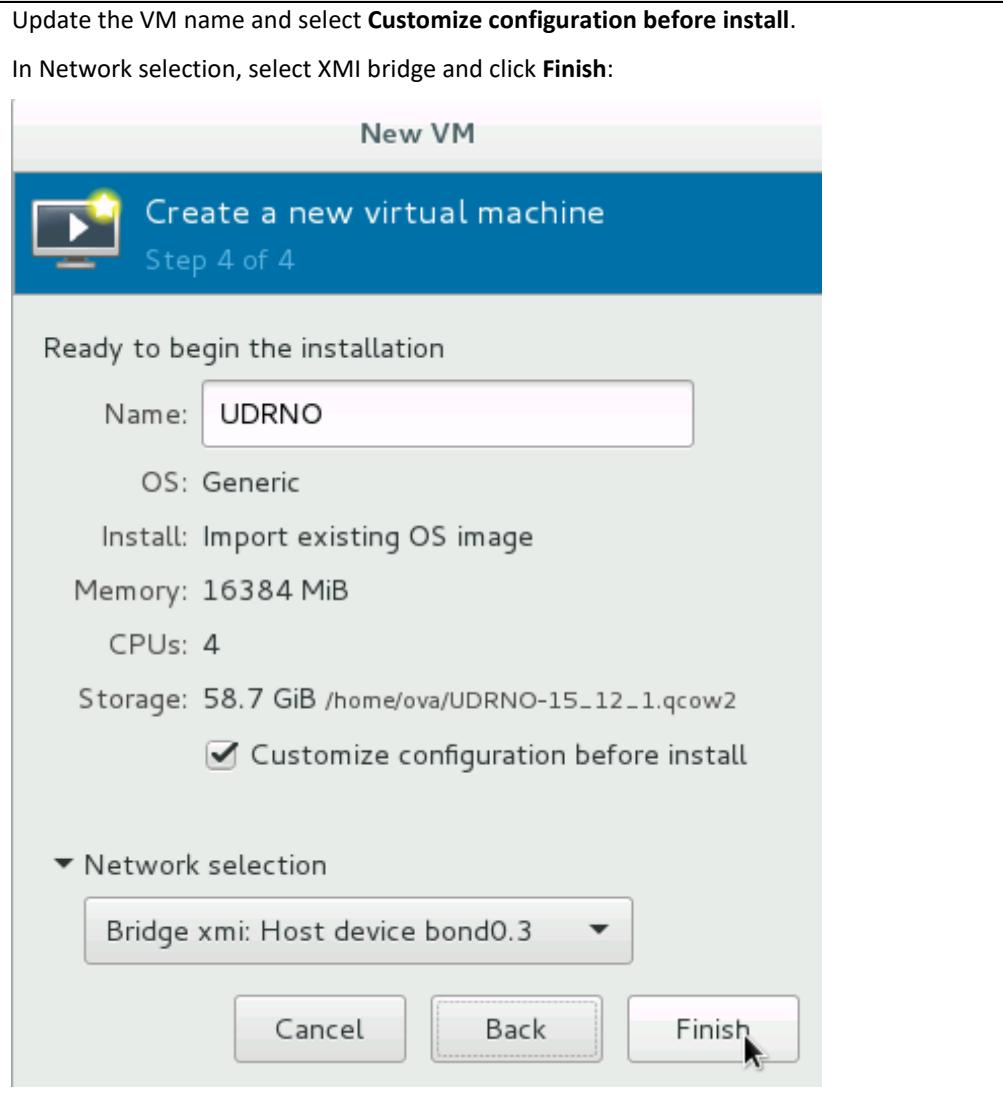
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

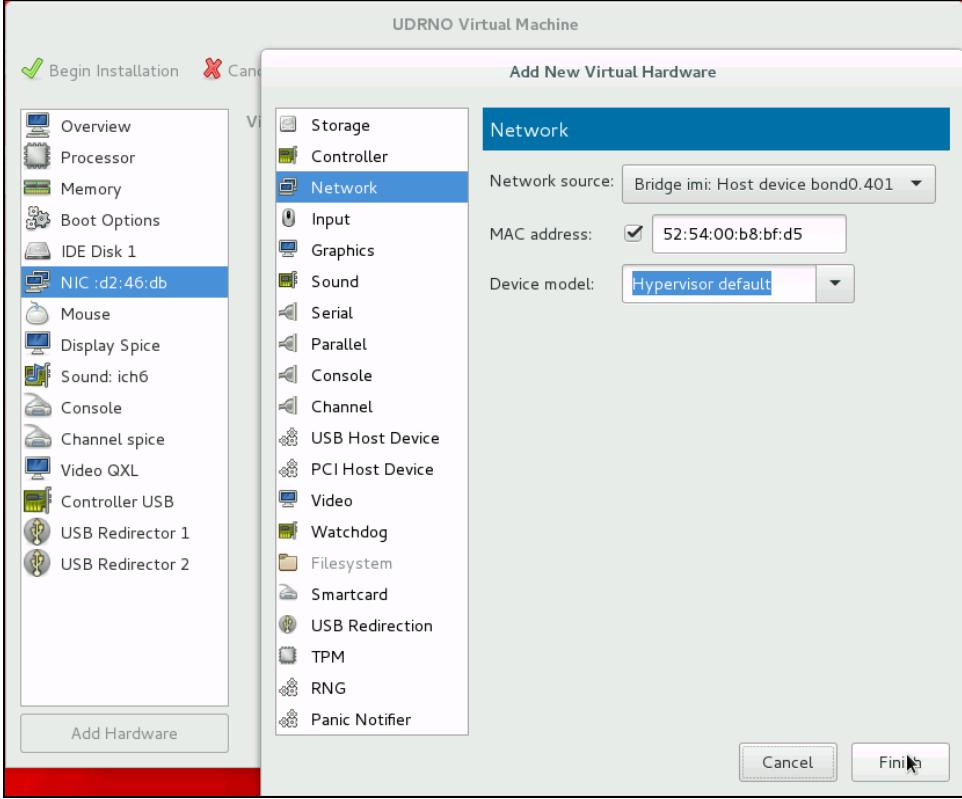
Procedure39: Create and Install UDR VMs via KVM GUI

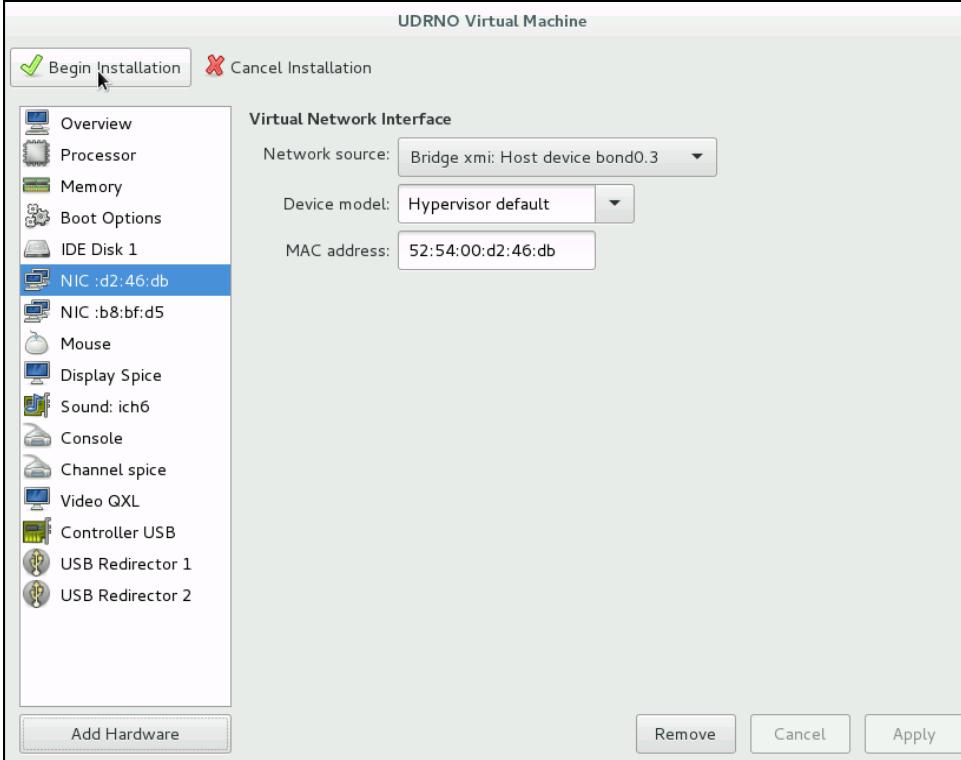
Step	Procedure	Result
1. <input type="checkbox"/>	Login to the host machine and open the Virtual Machine Manager	<p>Login to the host machine which has Oracle Linux installed and open the Virtual Machine Manager via command-line using <code>virt-manager</code> command.</p> <p>NOTE: Verify that X11 forwarding 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> 

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"> 1. Navigate to File → New Virtual Machine. 2. Select Import existing disk image. 	 <p>The screenshot shows the 'Create a new virtual machine' dialog box. At the top, it says 'New VM' and 'Create a new virtual machine Step 1 of 4'. Below that, it says 'Connection: QEMU/KVM'. The main area is titled 'Choose how you would like to install the operating system'. There are four radio buttons: 'Local install media (ISO image or CDROM)', 'Network Install (HTTP, FTP, or NFS)', 'Network Boot (PXE)', and 'Import existing disk image'. The 'Import existing disk image' option is selected and highlighted with a dashed border. At the bottom, there are 'Cancel', 'Back', and 'Forward' buttons.</p>

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

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

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

Step	Procedure	Result
7. <input type="checkbox"/>	Verify and begin installation	<p>After adding all bridges, verify and begin the VM installation:</p>  <p>UDRNO Virtual Machine</p> <p>Begin Installation Cancel Installation</p> <p>Virtual Network Interface</p> <p>Network source: Bridge xmi: Host device bond0.3</p> <p>Device model: Hypervisor default</p> <p>MAC address: 52:54:00:d2:46:db</p> <p>Overview Processor Memory Boot Options IDE Disk 1 NIC :d2:46:db NIC :b8:bf:d5 Mouse Display Spice Sound: ich6 Console Channel spice Video QXL Controller USB USB Redirector 1 USB Redirector 2</p> <p>Add Hardware Remove Cancel Apply</p> <p>THIS PROCEDURE HAS BEEN COMPLETED</p>

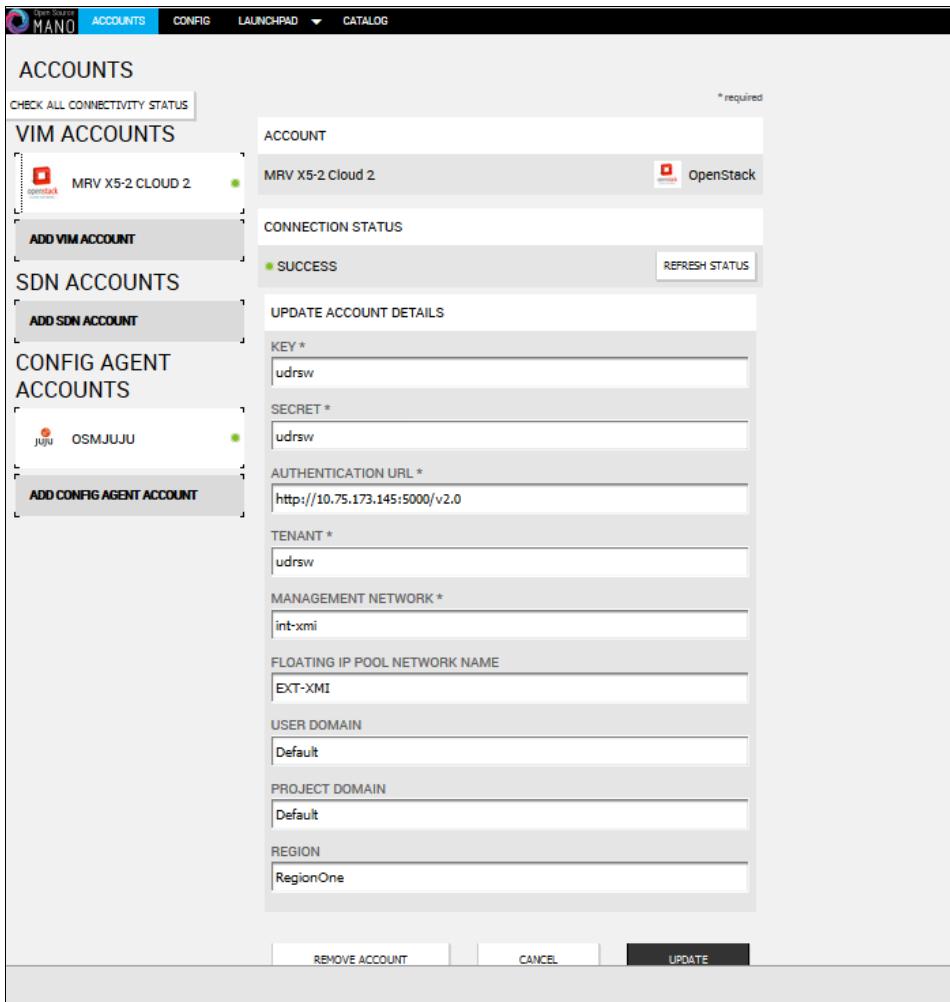
Appendix N. Orchestrating UDR Via OSM

Pre-requisites:

- OSM Relase Two must be successfully installed.
- A standalone Juju server must be successfully bootstrapped .

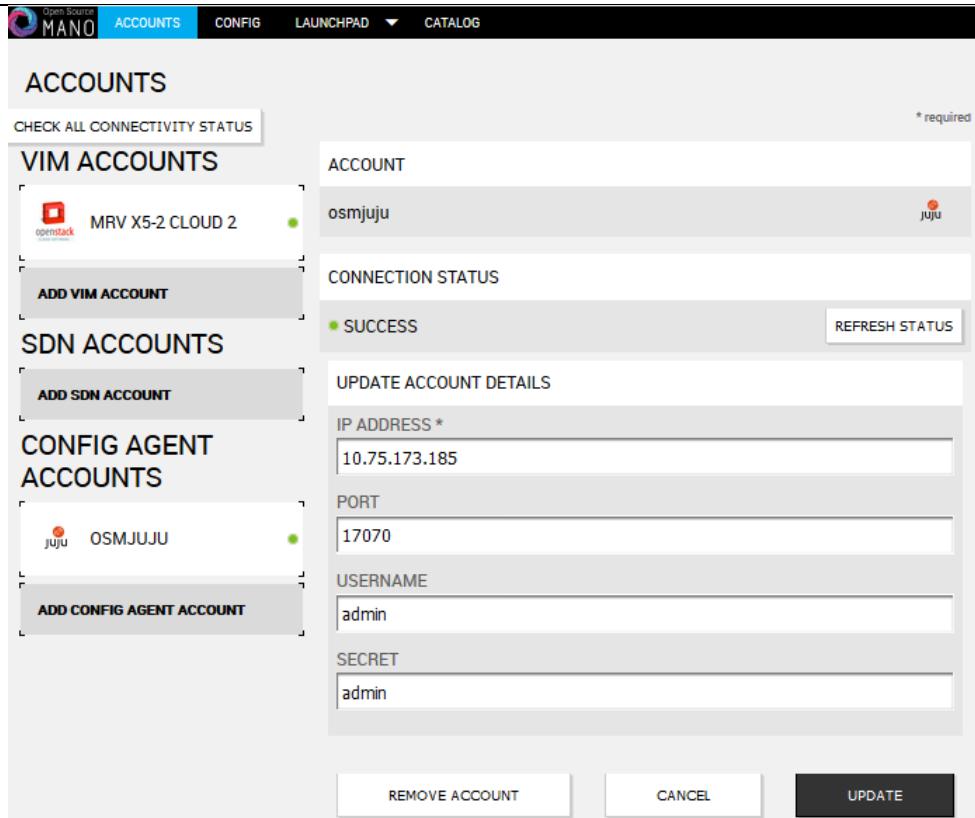
N.1 CONFIGURE OPENSTACK VIM TO RUN WITH OSM

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
<p>Add the VIM details on the Account → VIM ACCOUNTS on OSM GUI.</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.

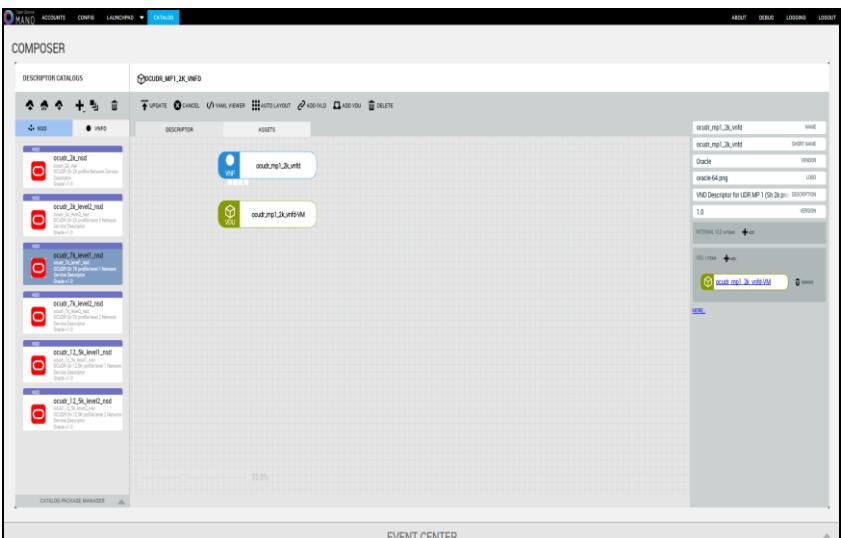
Procedure	Result
Add the CONFIG AGENT (Juju) account details in the Account → CONFIG AGENT ACCOUNTS on OSM GUI.	 <p>The screenshot shows the OSM GUI Accounts page. The left sidebar lists 'VIM ACCOUNTS', 'SDN ACCOUNTS', and 'CONFIG AGENT ACCOUNTS'. Under 'CONFIG AGENT ACCOUNTS', there is a list with an entry 'juju OSMJUJU' and a 'ADD CONFIG AGENT ACCOUNT' button. The main panel shows an 'ACCOUNT' section with 'osmjuju' and a 'juju' icon. Below it is a 'CONNECTION STATUS' section with a 'SUCCESS' status and a 'REFRESH STATUS' button. The 'UPDATE ACCOUNT DETAILS' section contains fields for 'IP ADDRESS *' (10.75.173.185), 'PORT' (17070), 'USERNAME' (admin), and 'SECRET' (admin). At the bottom are 'REMOVE ACCOUNT', 'CANCEL', and a large 'UPDATE' button.</p>

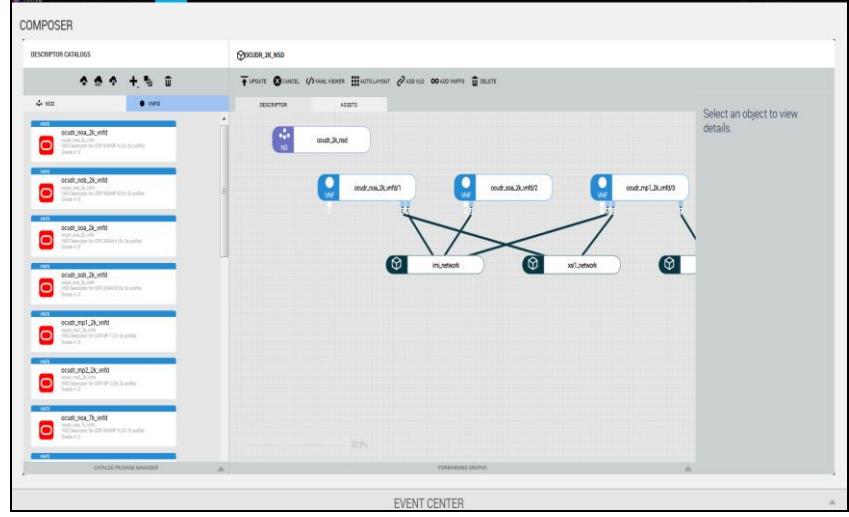
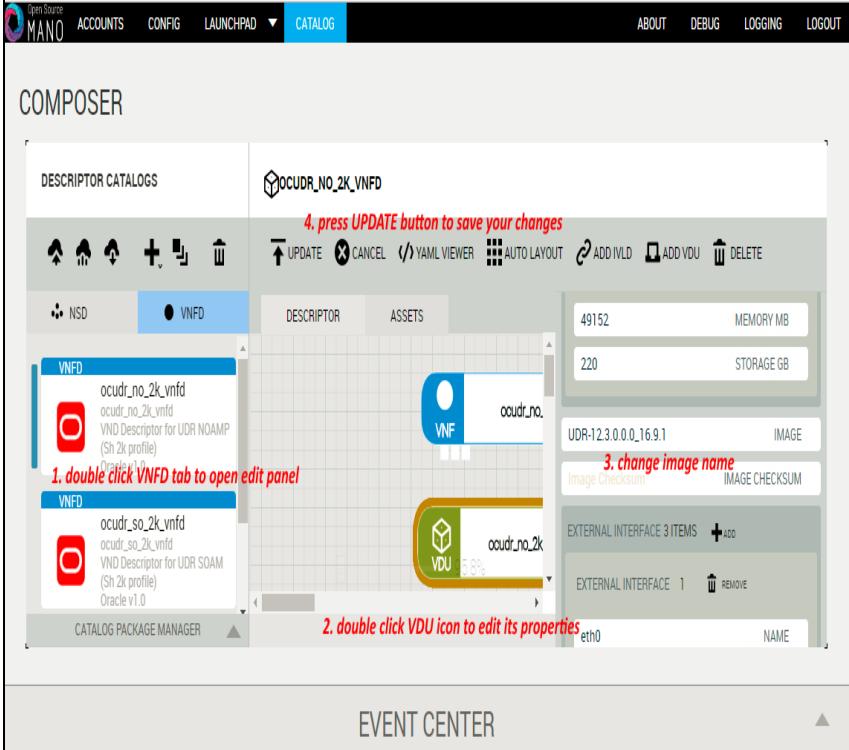
N.3 BUILD AND DEPLOY UDR NSD/VNFD PACKAGE

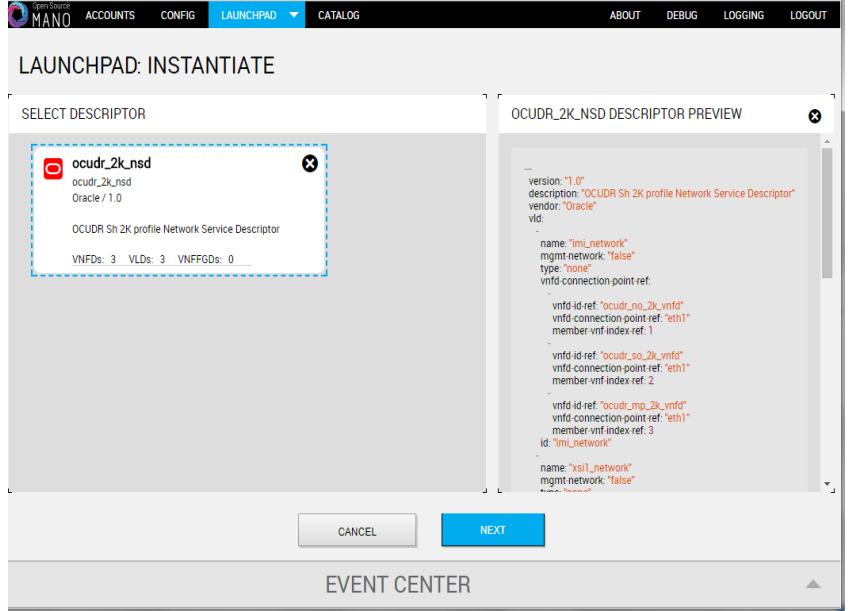
Build and deploy scripts must be run in order to upload UDR NSDs and VNFDs to OSM.

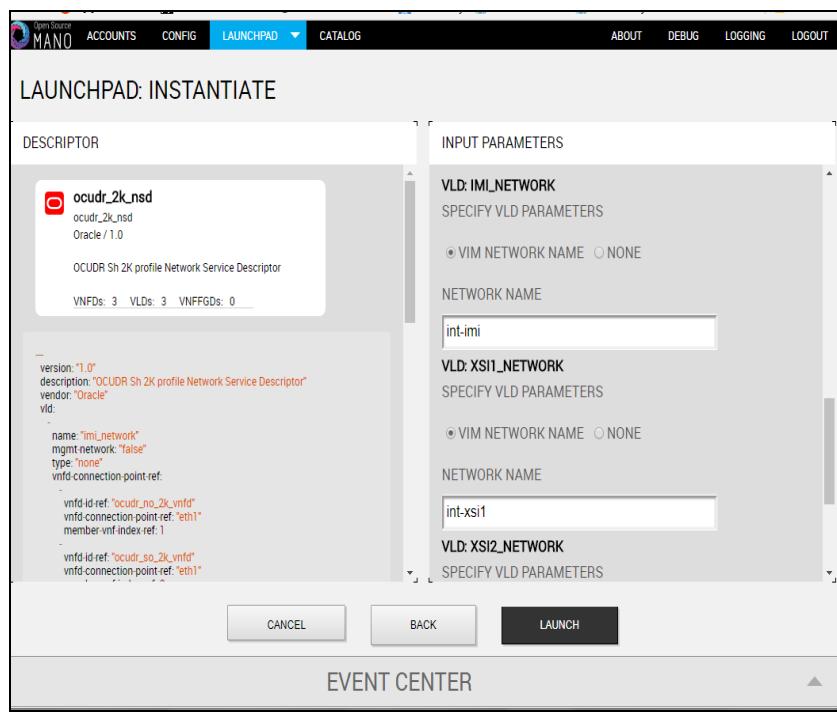
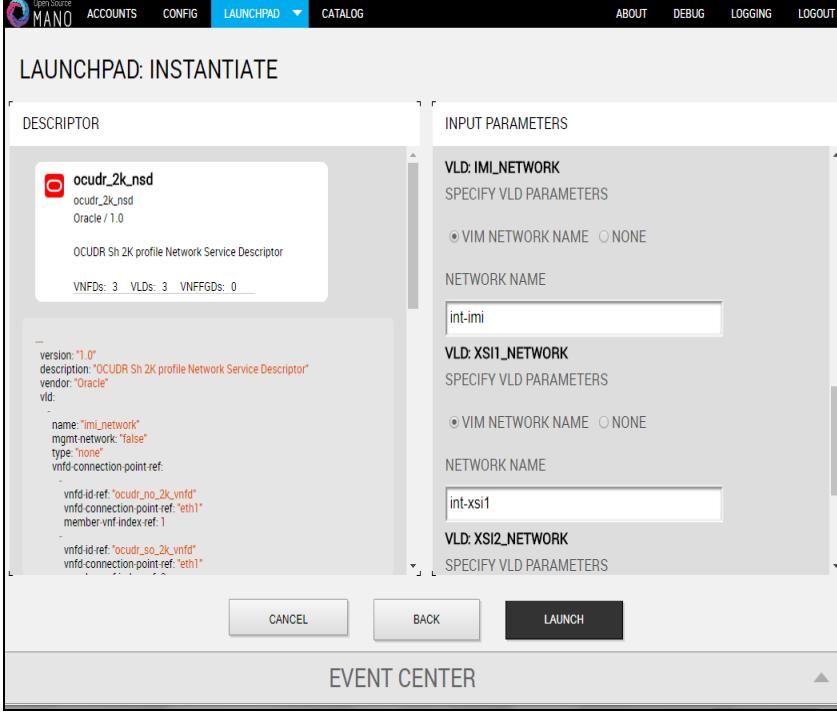
Procedure 11 SSH Logon to Juju Server and fetch build and deploy source scripts

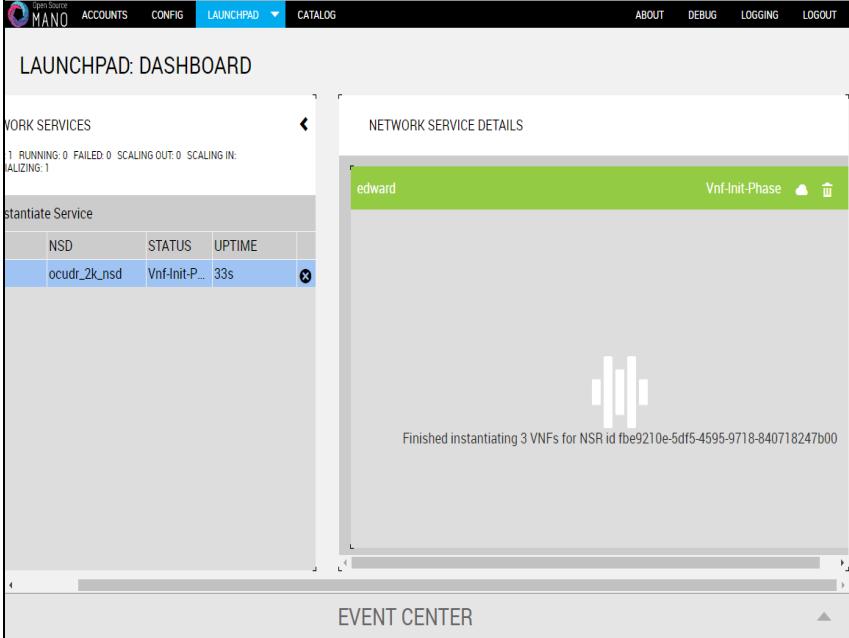
Step	Procedure	Result
1. <input type="checkbox"/>	SSH Logon to Juju server and fetch the build and deploy source scripts	<p>1. Copy the qcow2 file made from the ova file of UDR image to the Juju server.</p> <p>2. Run the following commands:</p> <pre>\$ sudo guestmount -a UDR-12.5.1.0.0_17.7.0.qcow2 -m /dev/mapper/vgroot-plat_usr /mnt \$ sudo cp /mnt/TKLC/udr/cloud/OSM-support.tar.gz . \$ 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-12.4.0.0.0_16.13.0.qcow2 -rw-r--r-- 1 ubuntu ubuntu 4345757696 Jan 23 09:57 UDR-12.4.0.0.0_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>NOTE: 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.init build: Composing into /home/ubuntu/osm-support/charms build: Destination charm directory: /home/ubuntu/osm-support/charms/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 instructions for the charm. proof: W: README.ex includes boilerplate: You can then bring this address to configure the service. proof: W: README.ex includes boilerplate: - Upstream mailing list information proof: W: README.ex includes boilerplate: - Feel free to add useful for users proof: I: all charms should provide at least one thing</pre>

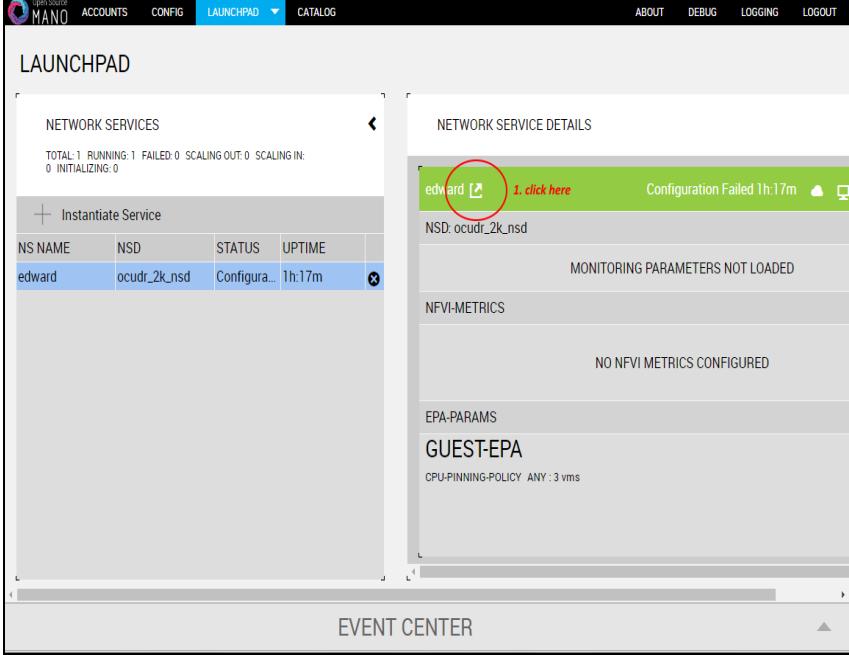
Step	Procedure	Result
		<pre data-bbox="592 217 1346 587">ocudr_12_5k_level1_ns/ ocudr_12_5k_level1_ns/README ocudr_12_5k_level1_ns/icons/ ocudr_12_5k_level1_ns/icons/oracle-64.png ocudr_12_5k_level1_ns/ocudr_12_5k_level1_ns.yaml ocudr_12_5k_level1_ns/checksums.txt ocudr_12_5k_level2_ns/ ocudr_12_5k_level2_ns/README 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_ns.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>Pre-requisite: OSM host IP is required to run deploy.sh, Open the deploy script with an editor and change the env variable of OSM_HOSTNAME to your OSM host IP before running deploy.sh.</p> <pre data-bbox="372 1146 535 1167">./deploy.sh</pre>	<pre data-bbox="592 618 1395 819">ubuntu@edward-juju-server:~/osm-support\$./deploy.sh failed to delete vnf vnf ocudr_noa_2k_vnfd failed to delete vnf vnf ocudr_nob_2k_vnfd failed to delete vnf vnf ocudr_soa_2k_vnfd failed to delete vnf vnf ocudr_sob_2k_vnfd failed to delete vnf vnf ocudr_mpl_2k_vnfd failed to delete vnf vnf ocudr_mp2_2k_vnfd</pre>
4. <input type="checkbox"/>	Logon to OSM GUI, verify that UDR NSD/VNFD has been uploaded successfully:	

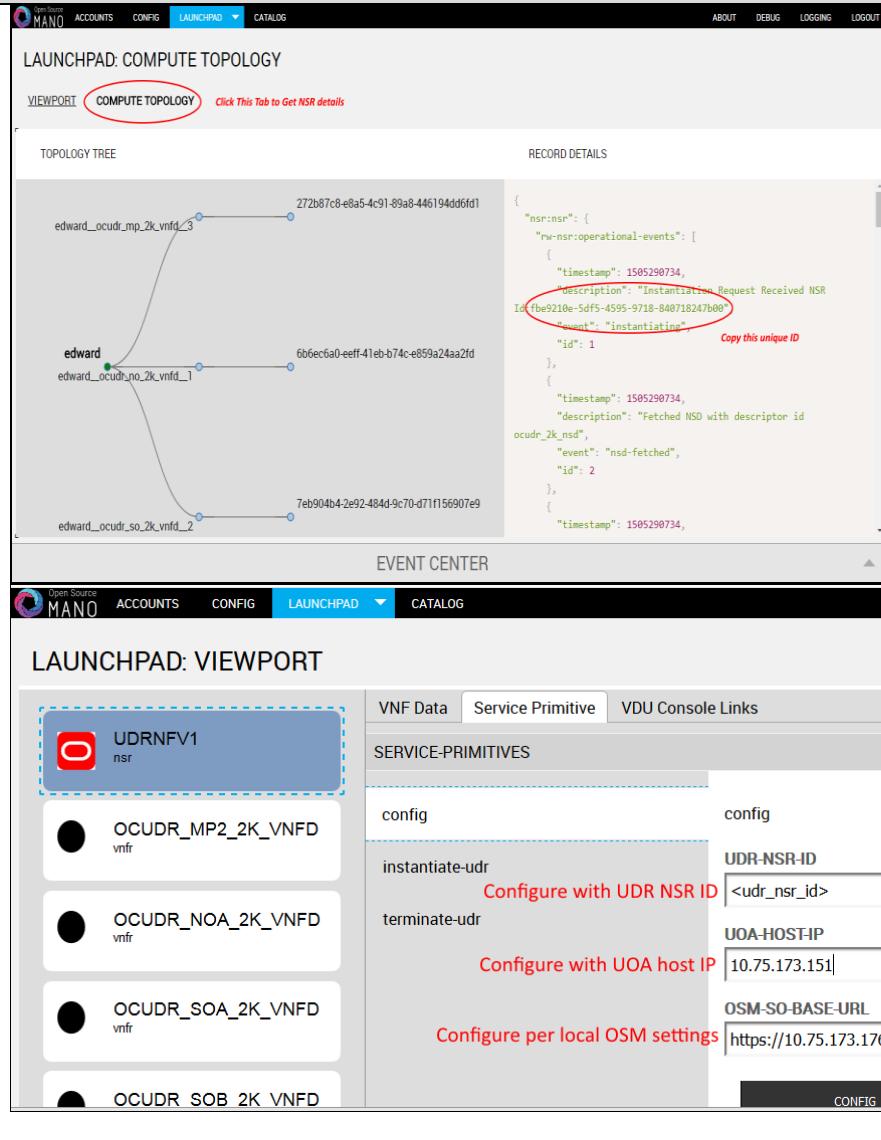
Step	Procedure	Result
		
5. <input type="checkbox"/>	<p>Optional Step: Change UDR image name</p> <ol style="list-style-type: none"> 1. Open The OSM GUI and select CATALOG. Follow the steps in the image to change UDR Image Name: 2. Double click VNFD to open edit pane 3. Double click VDU to edit its properties 4. Change the image name 5. Click Update to save changes <p>NOTE: 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"/>	1. Open the OSM GUI. 2. Click LAUNCHPAD 3. Click Instantiate Service 4. Select UDR_2k_nsd . 5. Click Next .	 <p>LAUNCHPAD: INSTANTIATE</p> <p>SELECT DESCRIPTOR</p> <p>ocudr_2k_nsd</p> <p>ocudr_2k_nsd Oracle / 1.0</p> <p>OCUDR Sh 2K profile Network Service Descriptor</p> <p>VNFs: 3 VLDs: 3 VNFFGDs: 0</p> <p>OCUDR_2K_NSD DESCRIPTOR PREVIEW</p> <pre> version: "1.0" description: "OCUDR Sh 2K profile Network Service Descriptor" vendor: "Oracle" vld: name: "im1_network" mgmtNetwork: "false" type: "home" vnfConnectionPointRef: vnfIdRef: "ocudr_no_2k_vnfd" vnfConnectionPointRef: "eth1" memberVnfIndexRef: 1 vnfIdRef: "ocudr_so_2k_vnfd" vnfConnectionPointRef: "eth1" memberVnfIndexRef: 2 vnfIdRef: "ocudr_mp_2k_vnfd" vnfConnectionPointRef: "eth1" memberVnfIndexRef: 3 id: "im1_network" name: "xg11_network" mgmtNetwork: "false" </pre> <p>CANCEL NEXT</p> <p>EVENT CENTER</p>

Step	Procedure	Result
7. <input type="checkbox"/>	Enter the required information and click Launch , enter the instance name.	<p>NOTE: Enter the VLD:*_network: VLD:IMI_NETWORK → int-im, 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>NOTE: In OSM Release 2, UDR NSR information may be incorrectly shown on GUI.</p> <p>To verify the status, logon 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>  <p>Ubuntu terminal showing the output of the 'juju status' command, which lists the 'edward' model with its components and their status.</p> <pre>ubuntu@edward-juju-server:~\$ Every 2.0s: juju status Wed Sep 13 08:13:54 2017 Model Controller Cloud/Region Version SLA default dev localhost/localhost 2.2.2 unsupported App Version Status Scale Charm Store Rev OS Notes edward-ocudr-no-ck-vnfd-b maintenance 1 nfaproxyd local 38 ubuntu Unit Workload Agent Machine Public address Ports Message edward-ocudr-no-ck-vnfd-b/4* maintenance executing 41 10.85.10.146 (install) installing charm software Machine State DNS Inst id Series AZ Message 41 started 10.85.10.146 juju-aah26e-41 trusty container started</pre>

Step	Procedure	Result
9. <input type="checkbox"/>	<p>After instantiation is complete, query UDR NSR ID from OSM GUI and configure the parameter of <code>udr-nsr-id</code> in NO charm.</p> <p>Follow the steps in the image to Add UDR NSR ID in NO charm</p>	

Step	Procedure	Result										
		 <p>LAUNCHPAD: COMPUTE TOPOLOGY</p> <p>VIEWPORT COMPUTE TOPOLOGY <i>Click This Tab to Get NSR details</i></p> <p>TOPOLOGY TREE</p> <p>edward_ocudr_mp_2k_vnfd_3 → 272b87c8-e8a5-4c91-89a8-446194dd6fd1</p> <p>edward_ocudr_no_2k_vnfd_1 → 6b6ec6a0-eeff-41eb-b74c-e859a24aa2fd</p> <p>edward_ocudr_so_2k_vnfd_2 → 7eb904b4-2e92-484d-9c70-d71f156907e9</p> <p>RECORD DETAILS</p> <pre>{ "nsr:nsr": { "rw-nsr:operational-events": [{ "timestamp": 1505290734, "description": "Instantiation Request Received NSR Id: 10e9210e-5df5-495-9718-840718247b06", "event": "instantiating" }, { "timestamp": 1505290734, "description": "Fetched NSD with descriptor id ocudr_2k_nsd", "event": "nsd-fetched", "id": 2 }], "timestamp": 1505290734 } }</pre> <p>EVENT CENTER</p> <p>LAUNCHPAD: VIEWPORT</p> <p>VNF Data Service Primitive VDU Console Links</p> <p>SERVICE-PRIMITIVES</p> <table border="1"> <tr> <td>config</td> <td>config</td> </tr> <tr> <td>instantiate-udr</td> <td>Configure with UDR NSR ID <i><udr_nsr_id></i></td> </tr> <tr> <td>terminate-udr</td> <td>Configure with UOA host IP <i>10.75.173.151</i></td> </tr> <tr> <td></td> <td>Configure per local OSM settings <i>https://10.75.173.176</i></td> </tr> <tr> <td></td> <td>CONFIG</td> </tr> </table>	config	config	instantiate-udr	Configure with UDR NSR ID <i><udr_nsr_id></i>	terminate-udr	Configure with UOA host IP <i>10.75.173.151</i>		Configure per local OSM settings <i>https://10.75.173.176</i>		CONFIG
config	config											
instantiate-udr	Configure with UDR NSR ID <i><udr_nsr_id></i>											
terminate-udr	Configure with UOA host IP <i>10.75.173.151</i>											
	Configure per local OSM settings <i>https://10.75.173.176</i>											
	CONFIG											

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**

LAUNCHPAD:VIEWPORT

VIEWPORT COMPUTE TOPOLOGY

SELECT RECORD OCUDR_NOA_2K_VNFD Step 1: Click on Service Primitive Tab

VNF Data Service Primitive VDU Console Links

OCUDR_NOA_2K_VNFD int Step 2: Select instantiate-udr action

instantiate-udr Step 3: provide appropriate level-id required

LEVELID 1

instantiate-udr Step 4: instantiate-UDR

JOB LIST

config 0.1 Hide Parameters

udr-vnf-id: 1568833a-9774-4096-0232-6940440057fe use-host-ip: 10.75.173.147
com-or-base-uit: https://10.75.173.176:8008

config 0.1 Hide Parameters

udr-vnf-id: 1568833a-9774-4096-0232-6940440057fe use-host-ip: 10.75.173.151
com-or-base-uit: https://10.75.173.176:8008

EVENT CENTER

N.6 TERMINATE UDR

1. Navigate to **Launchpad** → **Viewport** → **UDR_NO_VM**
2. Click the Service Primitive ab
3. Select **terminate-udr** action
4. Click **terminate-udr**

The screenshot shows the 'LAUNCHPAD: VIEWPORT' interface. In the 'VIEWPORT' tab, there is a list of 'SELECT RECORD' items: 'DEV1', 'OCUDR_MP1_2K_VNFD vnf', 'OCUDR_NOA_2K_VNFD vnf' (which is highlighted with a blue box), and 'OCUDR_SOA_2K_VNFD vnf'. The 'Service Primitive' tab is selected. In the 'SERVICE-PRIMITIVES' section, the 'instantiate-udr' primitive is listed, and the 'terminate-udr' primitive is selected. A red box highlights the 'TERMINATE-UDR' button. The status bar at the bottom indicates 'Step 2: Select terminate-udr action' and 'Step 3: TERMINATE UDR'.

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

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

The screenshot shows the 'LAUNCHPAD: DASHBOARD' interface. On the left, the 'WORK SERVICES' section shows 1 RUNNING, 0 FAILED, 0 SCALING OUT, 0 SCALING IN, and 1 INITIALIZING. The 'instantiate Service' table shows a row for 'ocudr_2k_nsr' with 'Vnf-Init-P...' status and 33s uptime. On the right, the 'NETWORK SERVICE DETAILS' section shows a table with a single row for 'edward' with 'Vnf-Init-Phase' status. A red arrow points to the delete icon (a trash can) in the 'edward' row, with the text 'Click on the delete button to remove UDR-NSR and VNFDs from openstack'. The status bar at the bottom indicates 'Finished instantiating 3 VNFS for NSR id fbe9210e-5df5-4595-9718-840718247b00'.

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"/> SSH Logon to Tacker server 1. Copy the qcow2 file made from the ova file of UDR image to the tacker server (controller Node). 2. Run the following commands: <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> These commands extract Tacker-support.tar.gz file from qcow2 image 3. Untar the file to tacker-support directory	<p>Copied Image on Tacker server:</p> <pre>[root@nj-x52-61 image]# ls -l UDR-12.4.0.0.0_16.13.0.qcow2 -rwxrwxrwx 1 root root 4345757696 Jan 24 18:05 UDR-12.4.0.0.0_16.13.0.qcow2 [root@nj-x52-61 image]#</pre> <p>Extracted tacker-support directory from qcow2 image</p> <pre>[root@nj-x52-61 tacker-support]# ls bin mgmt_driver requirements.txt vnfd</pre>	

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"> 1. <code>sudo mkdir -p /usr/lib/python2.7/site-packages/tacker/vnfm/mgmt_drivers/udr</code> 2. <code>edit mgmt_driver/udr/udr.py</code> to navigate to line 102: 3. <code>level = str(self.cluster_info['options']['LEVEL'])</code> 4. <code>sudo cp mgmt_driver/udr/*.py /usr/lib/python2.7/site-packages/tacker/vnfm/mgmt_drivers/udr/</code> 5. <code>sudo service openstack-tacker-server restart</code> <p>NOTE: 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	<p>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:</p> <pre>echo 'ifconfig eth0 mtu 1450' >> /etc/rc.d/rc.local before each occurrence of 'init 6', like following: echo 'ifconfig eth0 mtu 1450' >> /etc/rc.d/rc.local init 6</pre> <p>2. Source keystone rc file of openstack:</p> <pre>source ~/keystonerc_admin</pre> <p>3. Deploy the updated VNFD file with following command:</p> <pre>tacker vnfd-create --vnfd-file vnfd/udr-2k-vnfd.yaml udrvvnfd</pre> <p>4. Verify that VNFD is deployed successfully.</p> <pre>[root@nj-x52-61 tacker-support]# vim vnfd/udr-2k-vnfd.yaml [root@nj-x52-61 tacker-support]# tacker vnfd-create --vnfd-file vnfd/udr-2k-vnfd.yaml udrvvnfd 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 udrv-2k-vnfd Created a new vnfd: +-----+ Field Value +-----+ created_at 2018-02-05 03:47:24.167240 description Demo with udr cluster id 0874def4-0ac5-4352-bc7a-cff6139d6df4 name udr-2k-vnfd service_types vnfd template_source onboarded tenant_id 45a69279f4be47d89556b5299bdec769 updated_at +-----+ [root@nj-x52-61 tacker-support(keystone_admin)]#</pre>

O.3 PERFORM ORCHESTRATION OPERATIONS VIA TACKER

After the succesfull 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 udrvnd <udr_vnf_name> --param-file udrvnd-param.yaml
```

Where:

- udr_vnf_name is replaced with the name you specify for udr vnf.
- udrvnd-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 udrvnd-param.yaml

```
xmi_network: int-xmi
imi_network: int-imi
xsil_network: int-xsil
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 udrvnd
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 | udrvnd
| 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 udrvnd
All specified vnf(s) delete initiated successfully
[root@nj-x52-61 tacker-support(keystone_admin)]#
```