

Oracle® Communications

Software Installation

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

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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 8.3.

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

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

1.2 References

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

1.3 Acronyms

An alphabetized list of acronyms used in this document.

Table 1. Acronyms

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

Acronym	Definition
TPD	Tekelec Platform Distribution
VM	Virtual Machine

1.4 Terminology

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

Each step has a checkbox for every command within the step that the technician should check to keep track of the progress of the procedure.

The title box describes the operations to be performed during that step.

Each command that the technician is to enter is in 10 point bold Courier font.

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:

- The user has taken assigned values from the Customer network and used them to compile XML files (see Appendix C for each NOAMP site's NE prior to attempting to execute this procedure).
- The user has at least an intermediate skill set with command prompt activities on an Open Systems computing environment such as Linux or TPD.

1.6 XML Files (for installing NE)

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

1.7 How to use this Document

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

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

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

Chapter 2. General Description

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

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

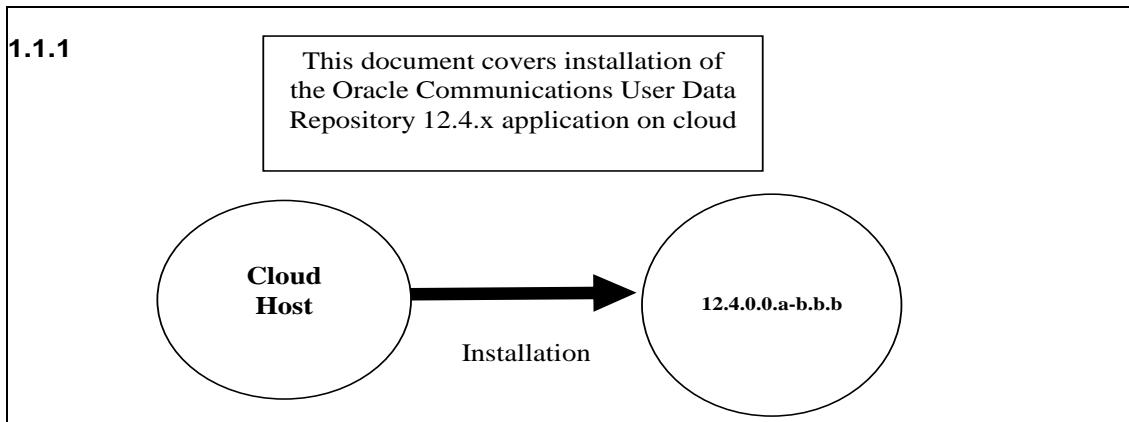


Figure 2. Example of Initial Application Installation Path

2.1 Required Materials

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

1. Target release Oracle Communications User Data Repository OVA Media
2. Target release Oracle Communications User Data Repository ISO Media only for ISO installs
3. Target release TPD Media only for ISO installs

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

This document and others referenced here can be acquired online from the Oracle Document Repository at the <http://docs.oracle.com/en/industries/communications/user-data-repository/index.html>

2.2 Installation Overview

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

2.3 Installation List of Procedures

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

Table 2. Installation Overview

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

Chapter 3. Pre-Installation Procedure

3.1 Verify Deployment Options and Cloud Resources

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

Procedure 1: Verify Deployment Options and Cloud Resources

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

Chapter 4. Cloud Creation

4.1 Deploy Oracle Communications User Data Repository Virtual Machines on VMware

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

Requirements:

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

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

Procedure 2: Deploy Oracle Communications User Data Repository Virtual Machines on VMware

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

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

4.2 Deploy Oracle User Data Repository Virtual Machines on OpenStack

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

Requirements:

- Section 3.1 has been completed

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

Procedure 3: Deploy User Data Repository Virtual Machines on OpenStack

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

Step	Procedure	Result
8. <input type="checkbox"/>	Create Virtual IPs	<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.

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

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

Step	Procedure	Result
9. <input type="checkbox"/>	Install Oracle Linux/KVM and create VMs	<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:

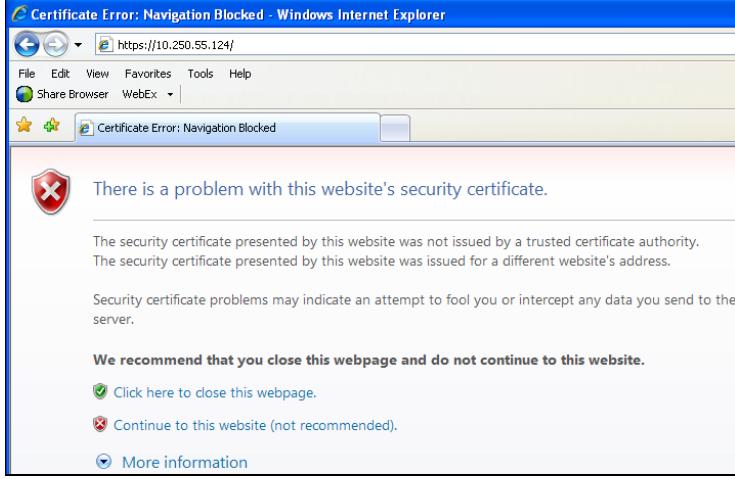
- Section Error! Reference source not found. Cloud Creation has been completed

Assumptions:

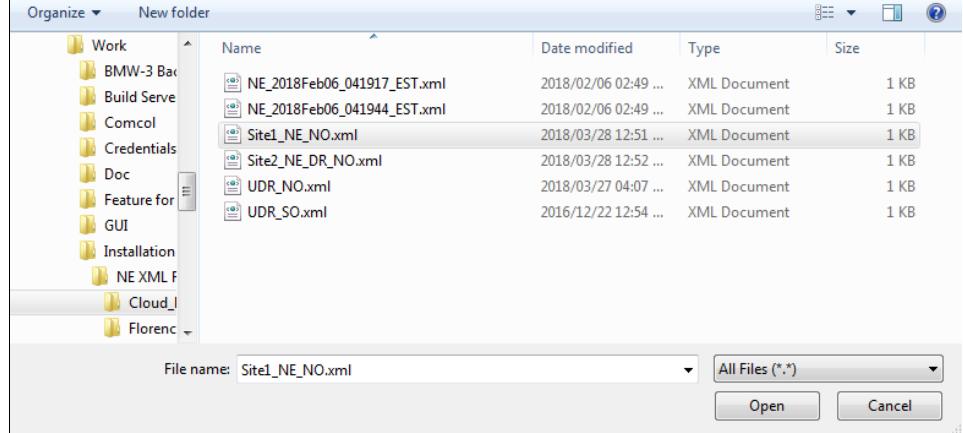
- This procedure assumes that the Oracle Communications User Data Repository Network Element XML file for the Primary Provisioning NOAMP site has previously been created, as described in Appendix E.
- This procedure assumes that the Network Element XML files are either on a USB flash drive or the laptop's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

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

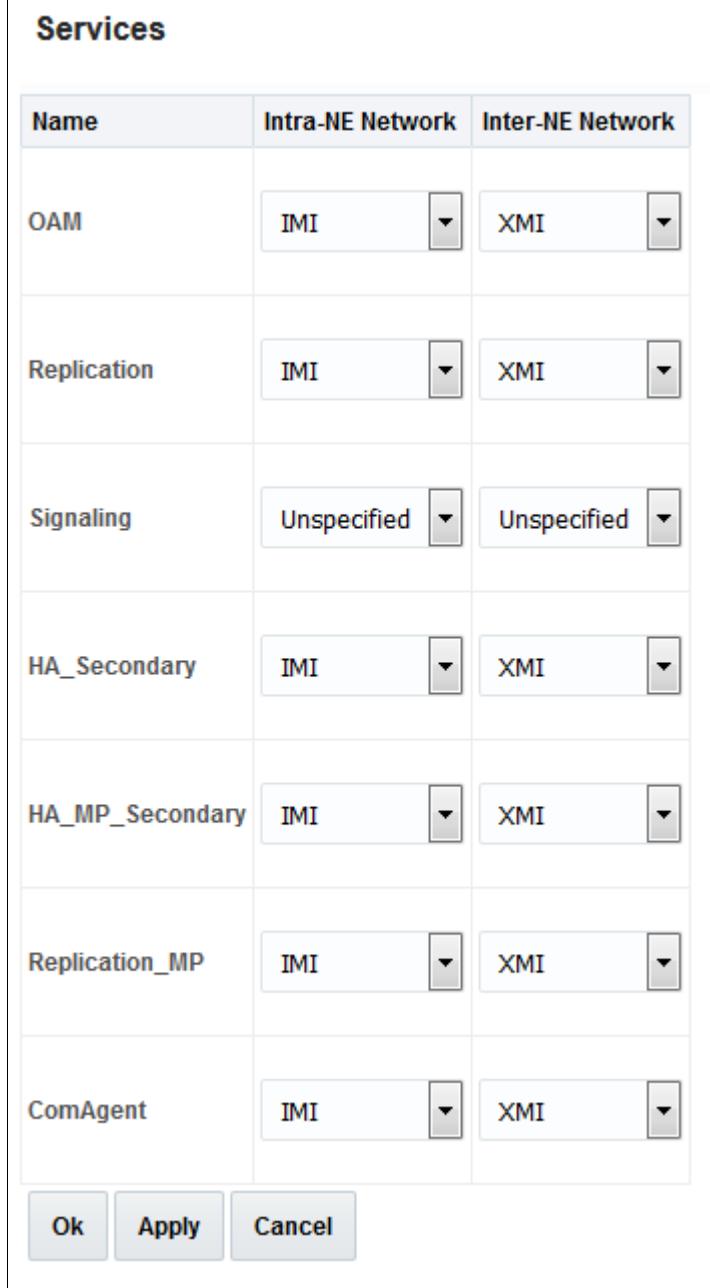
Procedure 5: Configure UDR-A Server (1st NOAMP only)

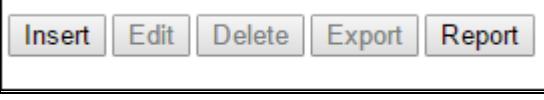
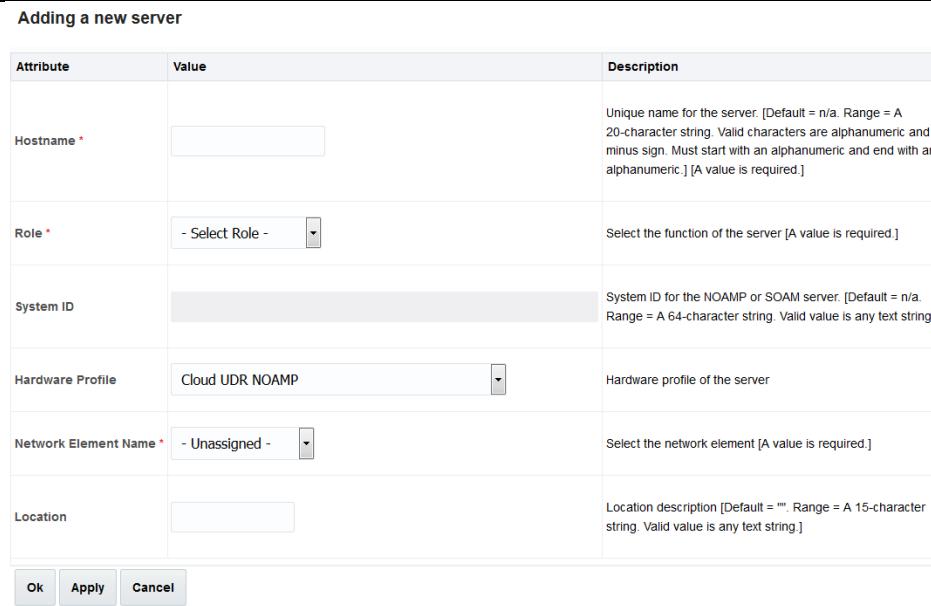
Step	Procedure	Result
1. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Launch an approved web browser and connect to the UDR Server A IP address</p> <p>NOTE: If presented with the security certificate warning screen, select the Continue to this website (not recommended)</p>	

Step	Procedure	Result
2. <input type="checkbox"/>	<p>UDR Server A:</p> <p>The login screen opens.</p> <p>Login to the GUI using the default user and password.</p>	
3. <input type="checkbox"/>	<p>UDR Server A:</p> <p>The Oracle Communications User Data Repository Main Menu displays.</p>	
4. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Configuring Network Element</p> <p>Navigate to Main Menu → Configuration → Networking → Networks</p>	
5. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Go to the Configuration / Networking / Networks screen.</p> <p>Click Browse (scroll to bottom left corner of screen).</p>	

Step	Procedure	Result																																	
6. <input type="checkbox"/>	<p>UDR Server A:</p> <p>NOTE: This step assumes that the XML files were previously prepared, as described in Appendix C.</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. 																																		
7. <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... Site1_NE_NO.xml Upload File </div> <p>Copyright © 2010, 2018, Oracle and/or its affiliates. All rights reserved.</p> </div>																																	
8. <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 message.</p>	<div style="display: flex; align-items: flex-start;"> <div style="border: 1px solid #ccc; padding: 5px; margin-right: 10px;"> i </div> <div> <p>Info</p> <p>• Network Element insert successful from /tmp/Site1_NE_NO.xml.</p> </div> </div> <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <p>Main Menu: Configuration -> Networking -> Networks</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Global</th> <th style="text-align: left; padding: 2px;">Site1_NE_NO</th> <th colspan="7" style="text-align: right; padding: 2px;">X</th> </tr> <tr> <th style="text-align: left; padding: 2px;">Network Name</th> <th style="text-align: left; padding: 2px;">Network Type</th> <th style="text-align: left; padding: 2px;">Default</th> <th style="text-align: left; padding: 2px;">Locked</th> <th style="text-align: left; padding: 2px;">Routed</th> <th style="text-align: left; padding: 2px;">VLAN</th> <th style="text-align: left; padding: 2px;">Configured Interfaces</th> <th style="text-align: left; padding: 2px;">Network</th> </tr> </thead> <tbody> <tr> <td style="text-align: left; padding: 2px;">xmi</td> <td style="text-align: left; padding: 2px;">OAM</td> <td style="text-align: left; padding: 2px;">Yes</td> <td style="text-align: left; padding: 2px;">Yes</td> <td style="text-align: left; padding: 2px;">Yes</td> <td style="text-align: left; padding: 2px;">3</td> <td style="text-align: left; padding: 2px;">0</td> <td style="text-align: left; padding: 2px;">10.10.1.0/24</td> </tr> <tr> <td style="text-align: left; padding: 2px;">imi</td> <td style="text-align: left; padding: 2px;">OAM</td> <td style="text-align: left; padding: 2px;">No</td> <td style="text-align: left; padding: 2px;">Yes</td> <td style="text-align: left; padding: 2px;">Yes</td> <td style="text-align: left; padding: 2px;">2</td> <td style="text-align: left; padding: 2px;">0</td> <td style="text-align: left; padding: 2px;">10.10.2.0/24</td> </tr> </tbody> </table> </div>	Global	Site1_NE_NO	X							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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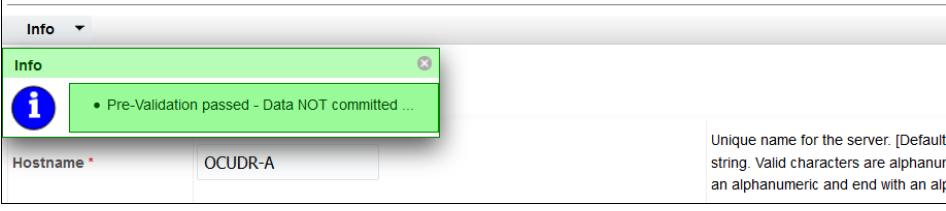
Step	Procedure	Result																								
10. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Click Edit (located at the bottom left corner of the page).</p>	<p>Main Menu: Configuration -> Networking -> Services</p> <p>Wed Feb 07</p> <table border="1"> <thead> <tr> <th data-bbox="621 308 1013 340">Name</th> <th data-bbox="1013 308 1323 340">Intra-NE Network</th> <th data-bbox="1323 308 1462 340">Inter-NE Network</th> </tr> </thead> <tbody> <tr> <td data-bbox="621 350 1013 382">OAM</td> <td data-bbox="1013 350 1323 382">imi</td> <td data-bbox="1323 350 1462 382">xmi</td> </tr> <tr> <td data-bbox="621 392 1013 424">Replication</td> <td data-bbox="1013 392 1323 424">imi</td> <td data-bbox="1323 392 1462 424">xmi</td> </tr> <tr> <td data-bbox="621 435 1013 466">Signaling</td> <td data-bbox="1013 435 1323 466">Unspecified</td> <td data-bbox="1323 435 1462 466">Unspecified</td> </tr> <tr> <td data-bbox="621 477 1013 508">HA_Secondary</td> <td data-bbox="1013 477 1323 508">imi</td> <td data-bbox="1323 477 1462 508">xmi</td> </tr> <tr> <td data-bbox="621 519 1013 551">HA_MP_Secondary</td> <td data-bbox="1013 519 1323 551">imi</td> <td data-bbox="1323 519 1462 551">xmi</td> </tr> <tr> <td data-bbox="621 561 1013 593">Replication_MP</td> <td data-bbox="1013 561 1323 593">imi</td> <td data-bbox="1323 561 1462 593">xmi</td> </tr> <tr> <td data-bbox="621 604 1013 635">ComAgent</td> <td data-bbox="1013 604 1323 635">imi</td> <td data-bbox="1323 604 1462 635">xmi</td> </tr> </tbody> </table> <p>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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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"> <thead> <tr> <th data-bbox="703 276 780 308">Name</th> <th data-bbox="948 276 1139 308">Intra-NE Network</th> <th data-bbox="1155 276 1362 308">Inter-NE Network</th> </tr> </thead> <tbody> <tr> <td data-bbox="703 382 780 413">OAM</td> <td data-bbox="948 382 1139 413">IMI</td> <td data-bbox="1155 382 1362 413">XMI</td> </tr> <tr> <td data-bbox="703 530 780 561">Replication</td> <td data-bbox="948 530 1139 561">IMI</td> <td data-bbox="1155 530 1362 561">XMI</td> </tr> <tr> <td data-bbox="703 677 780 709">Signaling</td> <td data-bbox="948 677 1139 709">Unspecified</td> <td data-bbox="1155 677 1362 709">Unspecified</td> </tr> <tr> <td data-bbox="703 825 780 857">HA_Secondary</td> <td data-bbox="948 825 1139 857">IMI</td> <td data-bbox="1155 825 1362 857">XMI</td> </tr> <tr> <td data-bbox="703 973 780 1005">HA_MP_Secondary</td> <td data-bbox="948 973 1139 1005">IMI</td> <td data-bbox="1155 973 1362 1005">XMI</td> </tr> <tr> <td data-bbox="703 1121 780 1153">Replication_MP</td> <td data-bbox="948 1121 1139 1153">IMI</td> <td data-bbox="1155 1121 1362 1153">XMI</td> </tr> <tr> <td data-bbox="703 1269 780 1300">ComAgent</td> <td data-bbox="948 1269 1139 1300">IMI</td> <td data-bbox="1155 1269 1362 1300">XMI</td> </tr> <tr> <td data-bbox="703 1374 780 1406"></td> <td data-bbox="703 1374 780 1406">Ok</td> <td data-bbox="796 1374 873 1406">Apply</td> <td data-bbox="915 1374 1013 1406">Cancel</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		Ok	Apply	Cancel
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12. <input type="checkbox"/>	UDR Server A: The Services configuration screen opens.	<table border="1"> <thead> <tr> <th data-bbox="584 213 992 244">Name</th> <th data-bbox="992 213 1286 244">Intra-NE Network</th> <th data-bbox="1286 213 1498 244">Inter-NE Network</th> </tr> </thead> <tbody> <tr> <td data-bbox="584 255 992 287">OAM</td><td data-bbox="992 255 1286 287">IMI</td><td data-bbox="1286 255 1498 287">XMI</td></tr> <tr> <td data-bbox="584 297 992 329">Replication</td><td data-bbox="992 297 1286 329">IMI</td><td data-bbox="1286 297 1498 329">XMI</td></tr> <tr> <td data-bbox="584 340 992 371">Signaling</td><td data-bbox="992 340 1286 371">Unspecified</td><td data-bbox="1286 340 1498 371">Unspecified</td></tr> <tr> <td data-bbox="584 382 992 413">HA_Secondary</td><td data-bbox="992 382 1286 413">IMI</td><td data-bbox="1286 382 1498 413">XMI</td></tr> <tr> <td data-bbox="584 424 992 456">HA_MP_Secondary</td><td data-bbox="992 424 1286 456">IMI</td><td data-bbox="1286 424 1498 456">XMI</td></tr> <tr> <td data-bbox="584 466 992 498">Replication_MP</td><td data-bbox="992 466 1286 498">IMI</td><td data-bbox="1286 466 1498 498">XMI</td></tr> <tr> <td data-bbox="584 508 992 540">ComAgent</td><td data-bbox="992 508 1286 540">IMI</td><td data-bbox="1286 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.	 <p>The dialog box contains the following fields:</p> <ul style="list-style-type: none"> Hostname: A text input field with a placeholder for a unique server name. Role: A dropdown menu labeled "- Select Role -". System ID: A text input field for the system ID. Hardware Profile: A dropdown menu set to "Cloud UDR NOAMP". Network Element Name: A dropdown menu labeled "- Unassigned -". Location: A text input field for the location description. <p>At the bottom are Ok, Apply, and Cancel buttons.</p>																								

Step	Procedure	Result							
16. <input type="checkbox"/>	UDR Server A: Enter the assigned hostname for the UDR-A Server.	<table border="1"> <thead> <tr> <th>Attribute</th><th>Value</th><th>Description</th></tr> </thead> <tbody> <tr> <td>Hostname *</td><td>OCUDR-A</td><td>Unique name for the server. string. Valid characters are aphanumeric and end with a dot.</td></tr> </tbody> </table>	Attribute	Value	Description	Hostname *	OCUDR-A	Unique name for the server. string. Valid characters are aphanumeric and end with a dot.	
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17. <input type="checkbox"/>	UDR Server A: Select NETWORK OAM&P for the server Role from the menu.	<table border="1"> <tr> <td>Role *</td> <td>NETWORK OAM&P</td> </tr> <tr> <td>System ID</td> <td> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block;"> - Select Role - NETWORK OAM&P </div> </td> </tr> <tr> <td>Hardware Profile</td> <td>Cloud UDR NOAMP</td> </tr> </table>	Role *	NETWORK OAM&P	System ID	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;"> - Select Role - NETWORK OAM&P </div>	Hardware Profile	Cloud UDR NOAMP	
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Hardware Profile	Cloud UDR NOAMP								
18. <input type="checkbox"/>	UDR Server A: Enter the System ID for the NOAMP Server.	<table border="1"> <tr> <td>System ID</td> <td>NOAMP</td> <td>System ID for the NOAMP or SOAM server. [Default = n/a. Range = A 64-character string. Valid value is any text string.]</td> </tr> </table>	System ID	NOAMP	System ID for the NOAMP or SOAM server. [Default = n/a. Range = A 64-character string. Valid value is any text string.]				
System ID	NOAMP	System ID for the NOAMP or SOAM server. [Default = n/a. Range = A 64-character string. Valid value is any text string.]							
19. <input type="checkbox"/>	UDR Server A: Select the Hardware Profile from the menu.	Select Hardware Profile: Cloud UDR NOAMP	<table border="1"> <tr> <td>Hardware Profile</td> <td>Cloud UDR NOAMP</td> <td>Hardware profile of the server</td> </tr> </table>	Hardware Profile	Cloud UDR NOAMP	Hardware profile of the server			
Hardware Profile	Cloud UDR NOAMP	Hardware profile of the server							
20. <input type="checkbox"/>	UDR Server A: Select the Network Element Name from the menu. NOTE: After the Network Element Name is selected, the Interfaces fields will be displayed.	<table border="1"> <tr> <td>Network Element Name *</td> <td>Site1_NE_NO</td> <td>Select the network element [A value is required.]</td> </tr> </table>	Network Element Name *	Site1_NE_NO	Select the network element [A value is required.]				
Network Element Name *	Site1_NE_NO	Select the network element [A value is required.]							
21. <input type="checkbox"/>	UDR Server A: Enter the site location. NOTE: Location is an optional field.	<table border="1"> <tr> <td>Location</td> <td>Morrisville_NC</td> <td>Location description [Default = "". Range = A 15-character string. Valid value is any text string.]</td> </tr> </table>	Location	Morrisville_NC	Location description [Default = "". Range = A 15-character string. Valid value is any text string.]				
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Step	Procedure	Result																							
22. <input type="checkbox"/>	<p>UDR Server A:</p> <p>1. Enter the IP Addresses for the Server.</p> <p>2. Set the Interface parameters according to deployment type.</p>	<p>OAM Interfaces [At least one interface is required.]:</p> <table border="1" data-bbox="556 219 1503 430"> <thead> <tr> <th data-bbox="556 219 687 251">Network</th><th data-bbox="687 219 1127 251">IP Address</th><th data-bbox="1127 219 1503 251">Interface</th></tr> </thead> <tbody> <tr> <td data-bbox="556 287 687 318">xmi (10.10.1.0/24)</td><td data-bbox="687 287 1127 318">10.10.1.57</td><td data-bbox="1127 287 1503 318">eth0 <input type="button" value="▼"/> <input type="checkbox"/> VLAN (3)</td></tr> <tr> <td data-bbox="556 392 687 424">imi (10.10.2.0/24)</td><td data-bbox="687 392 1127 424">10.10.2.156</td><td data-bbox="1127 392 1503 424">eth1 <input type="button" value="▼"/> <input type="checkbox"/> VLAN (2)</td></tr> </tbody> </table> <p>Enter the IP Addresses for XMI and IMI networks.</p> <p>Set the Interface device for XMI and IMI networks according to this VM guest's network adapter assignment as viewable in B.3 Step 3Error! Reference source not found. or C.7 Step 5.</p> <p>Leave the VLAN boxes unchecked.</p>	Network	IP Address	Interface	xmi (10.10.1.0/24)	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"/>	<p>UDR Server A:</p> <p>Click Add under NTP Servers and enter the address of the customer supplied NTP server.</p>	<table border="1" data-bbox="556 684 1503 925"> <thead> <tr> <th data-bbox="556 684 948 715">NTP Server IP Address</th><th data-bbox="948 684 1176 715">Prefer</th><th data-bbox="1176 684 1503 715">Add</th></tr> </thead> <tbody> <tr> <td data-bbox="556 730 948 762">10.240.15.7</td><td data-bbox="948 730 1176 762"><input type="checkbox"/></td><td data-bbox="1176 730 1503 762"><input type="button" value="Remove"/></td></tr> <tr> <td data-bbox="556 777 948 808">10.240.15.8</td><td data-bbox="948 777 1176 808"><input type="checkbox"/></td><td data-bbox="1176 777 1503 808"><input type="button" value="Remove"/></td></tr> <tr> <td data-bbox="556 823 948 855">10.240.15.9</td><td data-bbox="948 823 1176 855"><input type="checkbox"/></td><td data-bbox="1176 823 1503 855"><input type="button" value="Remove"/></td></tr> <tr> <td data-bbox="556 870 948 901">10.240.15.11</td><td data-bbox="948 870 1176 901"><input type="checkbox"/></td><td data-bbox="1176 870 1503 901"><input type="button" value="Remove"/></td></tr> </tbody> </table> <p>Set one or more NTP Server IP Address(es) to customer supplied NTP server(s). It is recommended to have minimum of 3 and up to 4 external NTP servers for reliable functioning of NTP service.</p> <table border="1" data-bbox="670 1058 1388 1262"> <thead> <tr> <th data-bbox="670 1058 1013 1089">NTP Servers:</th><th data-bbox="1013 1058 1388 1089"></th></tr> <tr> <th data-bbox="670 1104 1013 1136">NTP Server IP Address</th><th data-bbox="1013 1104 1388 1136">Prefer</th></tr> </thead> <tbody> <tr> <td data-bbox="670 1151 1013 1182"><input type="button" value="Add"/></td><td data-bbox="1013 1151 1388 1182"><input type="checkbox"/></td></tr> <tr> <td data-bbox="670 1197 1013 1229"></td><td data-bbox="1013 1197 1388 1229"><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 Servers:		NTP Server IP Address	Prefer	<input type="button" value="Add"/>	<input type="checkbox"/>		<input type="button" value="Remove"/>
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Step	Procedure	Result																
24. <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 -> Servers [Insert]</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>Add Remove</p> <p>OK Apply Cancel</p>	NTP Server IP Address	Prefer	192.168.56.180	<input type="checkbox"/>												
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192.168.56.180	<input type="checkbox"/>																	
25. <input type="checkbox"/>	<p>UDR Server A: If the values provided match the network ranges assigned to the NOAMP NE, the banner message shows that the data has been validated and committed to the DB.</p>	<p>Main Menu: Configuration -> Servers [Insert]</p> 																
26. <input type="checkbox"/>	<p>UDR Server A: Applying the Server Configuration File Navigate to Main Menu → Configuration → Servers</p>	<p>Main Menu: Configuration -> Servers</p> <table border="1"> <thead> <tr> <th colspan="5">Filter* <input type="button" value="▼"/></th> </tr> <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>	Filter* <input type="button" value="▼"/>					Hostname	Role	System ID	Server Group	Network Element	OCUDR-A	Network OAM&P	NOAMP		Site1_NE_NO	
Filter* <input type="button" value="▼"/>																		
Hostname	Role	System ID	Server Group	Network Element														
OCUDR-A	Network OAM&P	NOAMP		Site1_NE_NO														
27. <input type="checkbox"/>	<p>UDR Server A: The Configuration → Servers screen lists the added Server.</p>	<p>Main Menu: Configuration -> Servers</p> <p>Fri Apr 06 01:55:15 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> </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
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Step	Procedure	Result																	
28. <input type="checkbox"/>	<p>UDR Server A:</p> <ol style="list-style-type: none"> 1. Use the cursor to select the added Server. 2. The row containing the Server is highlighted in SKY BLUE. 3. Click Export. 	<p>Main Menu: Configuration -> Servers</p> <p>Fri Apr 06 01:55:15 2018 EDT</p> <table border="1"> <thead> <tr> <th data-bbox="556 276 670 297">Hostname</th><th data-bbox="670 276 752 297">Role</th><th data-bbox="752 276 833 297">System ID</th><th data-bbox="833 276 915 297">Server Group</th><th data-bbox="915 276 997 297">Network Element</th><th data-bbox="997 276 1078 297">Location</th><th data-bbox="1078 276 1160 297">Place</th><th data-bbox="1160 276 1241 297">Details</th></tr> </thead> <tbody> <tr> <td data-bbox="556 318 670 340">OCUDR-A</td><td data-bbox="670 318 752 340">Network OAM&P</td><td data-bbox="752 318 833 340">NOAMP</td><td data-bbox="833 318 915 340"></td><td data-bbox="915 318 997 340">Site1_NE_NC</td><td data-bbox="997 318 1078 340">Morrisville_NC</td><td data-bbox="1078 318 1160 340"></td><td data-bbox="1160 318 1241 340"></td><td data-bbox="1241 318 1486 340">xmi: 10.10.1.57 imi: 10.10.2.156</td></tr> </tbody> </table> <p style="text-align: center;">Insert Edit Delete Export Report</p>	Hostname	Role	System ID	Server Group	Network Element	Location	Place	Details	OCUDR-A	Network OAM&P	NOAMP		Site1_NE_NC	Morrisville_NC			xmi: 10.10.1.57 imi: 10.10.2.156
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OCUDR-A	Network OAM&P	NOAMP		Site1_NE_NC	Morrisville_NC			xmi: 10.10.1.57 imi: 10.10.2.156											
29. <input type="checkbox"/>	<p>UDR Server A:</p> <p>The user will receive a banner information message showing a download link for the Server configuration data.</p>	<p>Main Menu: Configuration -> Servers</p> <p>Fri Apr 06 01:57:56 2018 EDT</p> <table border="1"> <thead> <tr> <th data-bbox="556 551 670 572">Hostname</th><th data-bbox="670 551 752 572">Info</th><th data-bbox="752 551 833 572">Place</th><th data-bbox="833 551 915 572">Details</th></tr> </thead> <tbody> <tr> <td data-bbox="556 635 670 656">OCUDR-A</td><td data-bbox="670 635 752 656">  Exported server data in TKLCConfigData.OCUDR-A.sh may be downloaded </td><td data-bbox="833 635 915 656"></td><td data-bbox="915 635 997 656"></td><td data-bbox="997 635 1078 656"></td><td data-bbox="1078 635 1160 656"></td><td data-bbox="1160 635 1241 656"></td><td data-bbox="1241 635 1486 656">xmi: 10.10.1.57 imi: 10.10.2.156</td></tr> </tbody> </table> <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>	Hostname	Info	Place	Details	OCUDR-A	 Exported server data in TKLCConfigData.OCUDR-A.sh may be downloaded						xmi: 10.10.1.57 imi: 10.10.2.156					
Hostname	Info	Place	Details																
OCUDR-A	 Exported server data in TKLCConfigData.OCUDR-A.sh may be downloaded						xmi: 10.10.1.57 imi: 10.10.2.156												
30. <input type="checkbox"/>	<p>UDR Server A:</p> <ol style="list-style-type: none"> 4. Access the command prompt. 5. 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"/>	<p>UDR Server A:</p> <p>Switch to root user.</p>	<pre>[admusr@ UDR-A ~]\$ su - password: <root_password></pre>																	
32. <input type="checkbox"/>	<p>UDR Server A:</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> <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 execute it when found.</p>																	

Step	Procedure	Result
33. <input type="checkbox"/>	<p>UDR Server A: After the script completes, a broadcast message will be sent to the terminal. Ignore the output shown and press the ENTER key to return to the command prompt. NOTE: The user should be aware that the time to complete this step varies by server and may take from 3-20 minutes to complete.</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 done. Then, SSH into the UDR-A server. Output similar to that shown on the right may be observed</p>	<p>Wait about 9 minutes until the server reboot is done.</p> <p>Using an SSH client such as putty, ssh to the UDR-A server.</p> <pre>login as: admusr admusr@10.250.xx.yy's password: <admusr_password> Last login: Wed Mar 28 05:03:47 2018 from 10.178.25.81</pre> <p>NOTE: If the server isn't up, wait a few minutes and re-enter the ssh command. You can also try running the ping command to see if the server is up.</p>
37. <input type="checkbox"/>	<p>UDR Server A: 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:</p> <p>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>
		IF CONNECTIVITY TO THE NTP SERVER(S) CANNOT BE ESTABLISHED, STOP AND EXECUTE THE FOLLOWING STEPS:
<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 STEP35.</p>		
39. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Run the <code>alarmMgr</code> to verify the current health of the server</p>	<pre>\$ alarmMgr --alarmStatus</pre> <p>NOTE: This command should return no output on a healthy system.</p>
40. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Exit the SSH session for the UDR-A server</p>	<pre>\$ exit</pre>
THIS PROCEDURE HAS BEEN COMPLETED		

5.2 Create Configuration for Remaining Servers

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

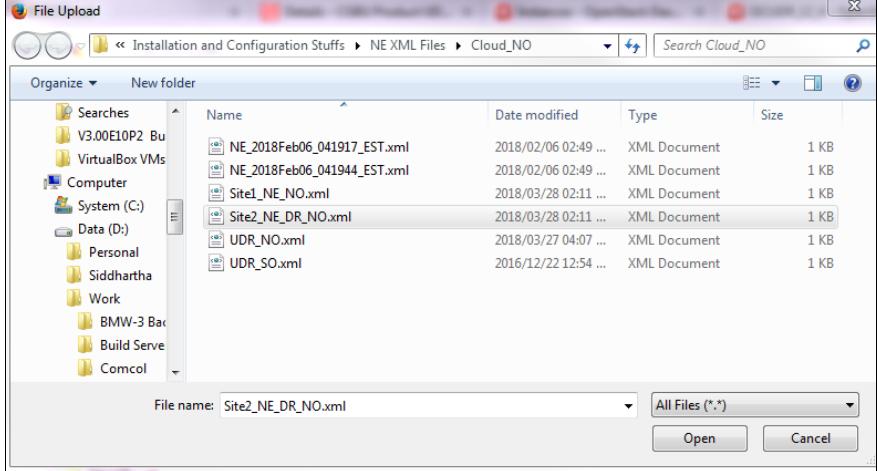
Requirements:

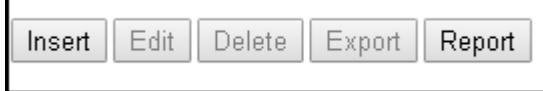
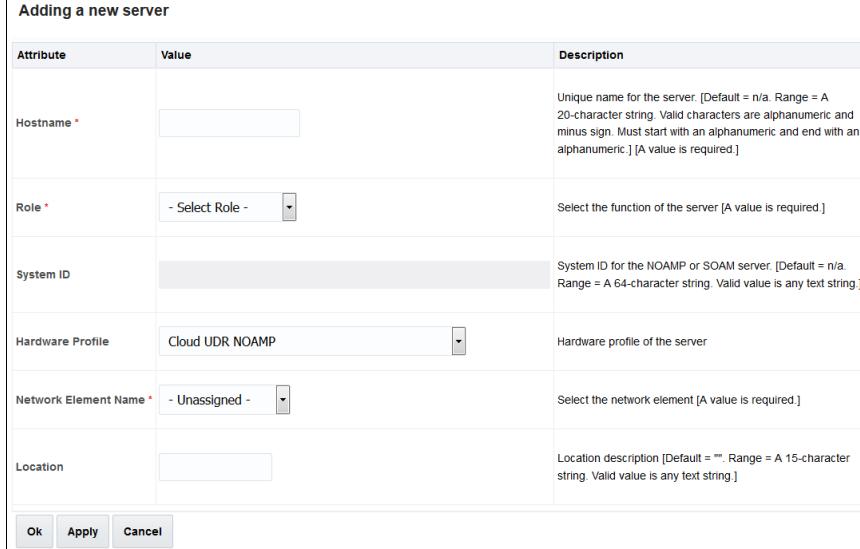
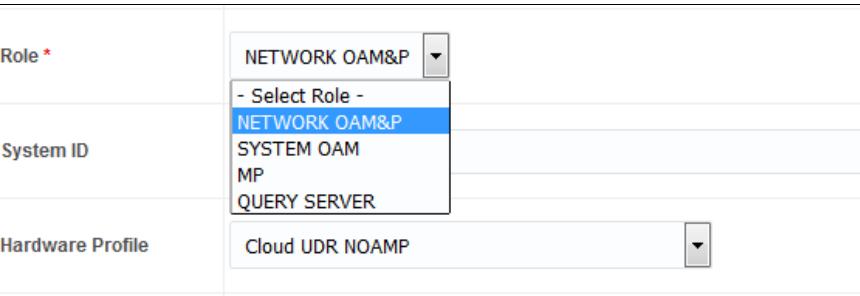
- Section 5.1 Configure UDR-A Server (1st NOAMP only) has been completed

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

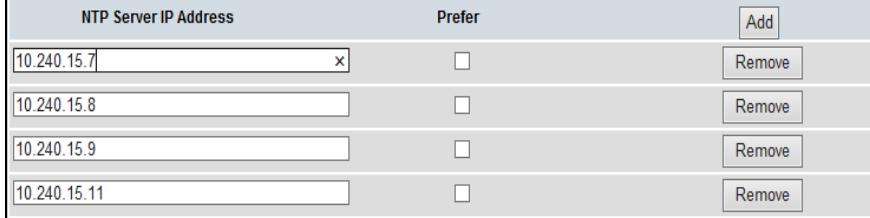
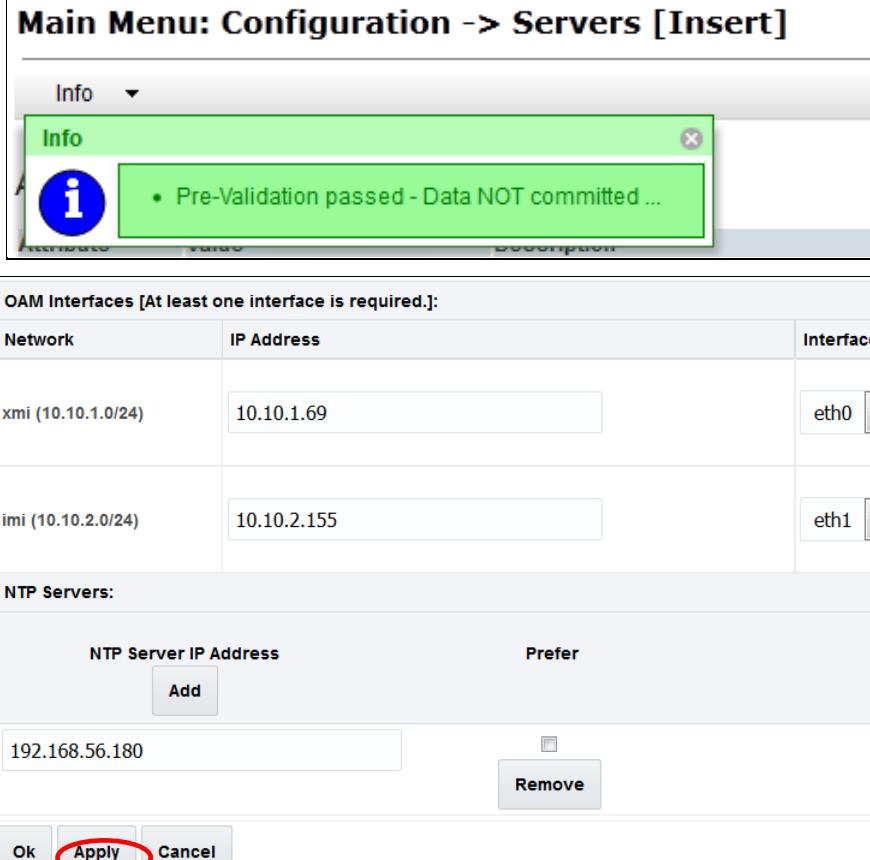
Procedure 6: Create Configuration for Remaining Servers

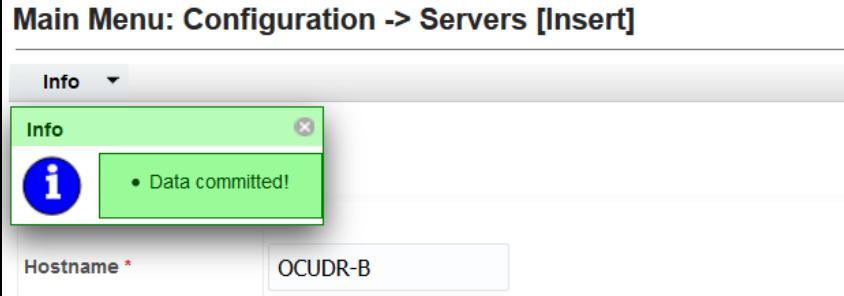
Step	Procedure	Result
1. <input type="checkbox"/>	<p>UDR Server A: Launch an approved web browser and connect to the UDR Server A IP address</p> <p>NOTE: Click Continue to this website (not recommended) if presented with the security certificate warning.</p> <p>Login to the GUI using the default user and password.</p>	
<p>For steps 4 – 8 add the remaining Network Elements one at a time. This includes the NO network Element for the DR elements (NO) if present. (DR elements can be uploaded during DR install)</p>		
2. <input type="checkbox"/>	<p>UDR Server A: Configuring Network Element</p> <p>Configure the Network Element. Navigate to Main Menu → Configuration → Network Elements</p>	
3. <input type="checkbox"/>	<p>UDR Server A: From the Configuration / Network Elements screen... Click Browse (scroll to bottom left corner of screen).</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 C.</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> <p>Browse... Site2_NE_DR_NO.xml Upload File</p> <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="flex: 1;">  </div> <div style="flex: 1; border: 1px solid #ccc; padding: 10px; margin-left: 10px;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Global</th> <th colspan="2">Site1_NE_NO</th> <th colspan="2">Site2_NE_DR_NO</th> <th colspan="2"></th> </tr> <tr> <th>Network Name</th> <th>Network Type</th> <th>Default</th> <th>Locked</th> <th>Routed</th> <th>VLAN</th> <th>Configur.</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> </div> </div>	Global		Site1_NE_NO		Site2_NE_DR_NO				Network Name	Network Type	Default	Locked	Routed	VLAN	Configur.	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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imi	OAM	No	Yes	Yes	2	2	10.10.2.0/24																											
<p>NOTE: The following steps need to run for all servers EXCEPT the first UDR-A server. These steps include a check box for UDR-A server. That check box is only referring to UDR-A servers that are not at the primary provisioning site, such as the UDR-A server at the Disaster Recovery (DR) site.</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;"> <p>Main Menu: Configuration -> Servers</p> <p>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.</p> <p>NOTE: System ID is not required for MP.</p>	<p>System ID</p> <p>NOAMP</p>	System ID for the NOAMP or SOAM server. [Default = n/a. Range = A 64-character string. Valid value is any text string.]									
		Mark the Check Box as addition is completed for each Server.										
		<input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B										
13. <input type="checkbox"/>	<p>UDR Server A: Select the correct Hardware Profile from the pull-down menu.</p>	NOAM Select Hardware Profile: Cloud UDR NOAM	<p>Hardware Profile</p> <p>Cloud UDR NOAMP</p>									
		Mark the Check Box as addition is completed for each Server.	Hardware profile of the server									
		<input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B										
14. <input type="checkbox"/>	<p>UDR Server A: Select the Network Element Name from the menu.</p> <p>NOTE: After the Network Element Name is selected, the Interfaces fields are displayed.</p>	<p>Network Element Name *</p> <p>Site1_NE_NO</p>	Select the network element [A value is required.]									
		<p>NOTE: NO and DR pairs have their own Network element.</p> <p>Mark the Check Box as addition is completed for each Server.</p>										
		<input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B										
15. <input type="checkbox"/>	<p>UDR Server A: Enter the site location.</p> <p>NOTE: Location is an optional field.</p>	<p>Location</p> <p>Morrisville_NC</p>	Location description [Default = ""]. Range = A 15-character string. Valid value is any text string.]									
		Mark the Check Box as addition is completed for each Server.										
		<input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B										
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 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>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>10.10.2.155</td> <td>eth1 <input type="button" value="▼"/> <input type="checkbox"/> VLAN (2)</td> </tr> </tbody> </table>	Network	IP Address	Interface	xmi (10.10.1.0/24)	10.10.1.69	eth0 <input type="button" value="▼"/> <input type="checkbox"/> VLAN (3)	imi (10.10.2.0/24)	10.10.2.155	eth1 <input type="button" value="▼"/> <input type="checkbox"/> VLAN (2)	<p>Enter the IP Addresses for XMI and IMI networks.</p> <p>Set the Interface device for XMI and IMI networks according to this VM guest's network adapter assignment as viewable in B.3 Step 3Error! Reference source not found. or C.7 Step 5.</p> <p>Leave the VLAN boxes unchecked.</p> <p>Mark the Check Box as addition is completed for each Server.</p>
Network	IP Address	Interface										
xmi (10.10.1.0/24)	10.10.1.69	eth0 <input type="button" value="▼"/> <input type="checkbox"/> VLAN (3)										
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		<input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B										

Step	Procedure	Result
17. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Click Add under NTP Servers and enter the addresses of the NTP servers.</p>	 <p>Set one or more NTP Server IP Addresses to customer supplied NTP servers. It is recommended to have minimum of 3 and up to 4 external NTP servers for reliable functioning of NTP service.</p> <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
18. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Click Info to see a banner with a message stating Pre-Validation passed.</p> <p>Click Apply.</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 provided match the network ranges assigned to the NE, click Info to see a banner message stating that the data has been validated and committed to the DB.	<p>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>																								
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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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																			
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
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																			
22. <input type="checkbox"/>	UDR Server A: 1. Use the cursor to select the added Server. 2. The row containing the Server is now be highlighted in SKY BLUE. 3. Click Export .	<p>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 style="text-align: center;"><input type="button"/> Insert <input type="button"/> Edit <input type="button"/> Delete <input type="button"/> Export <input type="button"/> 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
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																			
23. <input type="checkbox"/>	VMware client: Repeat this procedure to create configuration for each remaining server: Repeat this procedure to create configuration	Repeat this procedure to create configuration for each remaining server: <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B																								
THIS PROCEDURE HAS BEEN COMPLETED																										

5.3 Apply Configuration To Remaining Servers

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

Requirements:

- Section 5.2 Create Configuration for Remaining Servers has been completed

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

Procedure 7: Apply Configuration to Remaining Servers

Step	Procedure	Result
1. <input type="checkbox"/>	UDR Server A: Connect to the UDR-A Server terminal at the Primary UDR site	SSH to the Primary UDR-A XMI IP_address. Mark the Check Box as addition is completed for each Server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
2. <input type="checkbox"/>	UDR Server A: 1. Access the command prompt. 2. Log into the Primary UDR-A server as the admusr user.	<pre>login as: admusr admusr@10.250.xx.yy's password: <admusr_password> Last login: Mon Jul 30 10:33:19 2012 from 10.25.80.199 \$</pre> Mark the Check Box as addition is completed for each Server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
3. <input type="checkbox"/>	UDR Server A: Change directory into the file management space	<pre>[admusr@pc9040833-no-a ~]\$ cd /var/TKLC/db/filemgmt</pre> Mark the Check Box as addition is completed for each Server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
4. <input type="checkbox"/>	UDR Server A: Get a directory listing and find the desired servers configuration files .	<pre>[admusr@pc9040833-no-a ~]\$ ls -ltr TKLConfigData*.sh</pre> *** TRUNCATED OUTPUT *** <pre>-rw-rw-rw- 1 root root 1257 Aug 17 14:01 TKLConfigData.UDR-A .sh -rw-rw-rw- 1 root root 1311 Aug 17 14:30 TKLConfigData.NO-B.sh</pre> Mark the Check Box as addition is completed for each Server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
5. <input type="checkbox"/>	UDR Server A: Copy the configuration files found in the previous step to the appropriate target server based on the configuration file's server name.	<pre>[admusr@pc9040833-no-a ~]\$ scp -p <configuration_file-a> <Associated_Server_XMI_IP>:/tmp admusr@10.240.39.4's password: <admusr_password></pre> <pre>TKLConfigData.so-carync-a.sh 100% 1741 1.7KB/s 00:00 [root@no-mrsvnc-a filemgmt]\$</pre> Mark the Check Box as addition is completed for each Server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B

Step	Procedure	Result
6. <input type="checkbox"/>	UDR Server A: Connect to the target server which has received a configuration file copy in the previous step	<pre>[admusr@pc9040833-no-a ~]\$ ssh <Associated_Server_XMI_IP> admusr@192.168.1.10's password: <admusr_password></pre> 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"/>	Target Server: Copy the configuration file to the tmp directory.	Copy the server configuration file to the /var/tmp directory on the server, making sure to rename the file by omitting the server hostname from the file name. Example: <code>TKLCConfigData<.server_hostname>.sh translates to TKLCConfigData.sh</code> <pre>[admusr@hostname1326744539 ~]\$ sudo cp -p /tmp/TKLCConfigData.NO- B.sh /var/tmp/TKLCConfigData.sh [admusr@hostname1326744539 ~]\$</pre> NOTE: The server polls the /var/tmp directory for the presence of the configuration file and automatically execute it when found. Mark the Check Box as addition is completed for each Server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B
8. <input type="checkbox"/>	Target Server: After the script completes, a broadcast message is sent to the terminal. Ignore the output shown and press ENTER to return to the command prompt. NOTE: The user should be aware that the time to complete this step varies by server and may take from 3-20 minutes to complete.	*** NO OUTPUT FOR APPROXIMATELY 20 MINUTES *** <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> 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"/>	Target Server: Initiate a reboot of the Server.	<pre>[admusr@hostname1326744539 ~]\$ sudo reboot</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
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> <p>Connection to 192.168.1.16 closed by remote host.</p> <p>Connection to 192.168.1.16 closed.</p> <p>\$</p> <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
11. <input type="checkbox"/>	<p>UDR Server A: Wait until server reboot is done. Then, SSH into the target server using its XMI address. Output similar to that shown on the right may be observed</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 isn't up, wait a few minutes and re-enter the ssh command. You can also try running the "ping 192.168.1.xx" command to see if the server is up.</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 ntpq command to verify that the server has connectivity to the assigned Primary and Secondary 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 62 64 377 0.641 37.694 18.375 [root@pc9040725-no-a ~]\$</pre> <p>If offset value is in excess of five seconds, run the commands below to sync time manually:</p> <pre>\$ sudo service ntpd stop 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>
		<p>IF CONNECTIVITY TO THE NTP SERVERS CANNOT BE ESTABLISHED, STOP AND EXECUTE THE FOLLOWING STEPS:</p>
14. <input type="checkbox"/>	<p>Target Server: Run the alarmMgr command to verify the current health of the server</p>	<pre>\$ alarmMgr --alarmStatus</pre> <p>NOTE: This command should return no output on a healthy system.</p> <p>Mark the Check Box as addition is completed for each Server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p>
15. <input type="checkbox"/>	<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:</p> <p>Launch an approved web browser and connect to the UDR Server A IP address</p> <p>NOTE: Select Continue to this website (not recommended) if presented with the security certificate warning.</p> <p>Login to the GUI using the default user and password.</p>	
2. <input type="checkbox"/>	<p>UDR Server A</p> <p>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>Output similar to that shown below may be observed.</p> <div data-bbox="584 297 1421 1115" style="border: 1px solid black; padding: 5px;"> <p>Main Menu: Configuration -> Networking -> Networks [Insert]</p> <p>Info ▾</p> <p>Insert Network</p> <table border="1" data-bbox="584 445 1421 1072"> <thead> <tr> <th>Field</th> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Network Name *</td> <td>XSI1</td> <td>The name of this network. [Default = N/A. Range = Alphanumeric string up to 31 characters]</td> </tr> <tr> <td>Network Type</td> <td>Signaling</td> <td>The type of this network.</td> </tr> <tr> <td>VLAN ID</td> <td>4</td> <td>The VLAN ID to use for this network. If not set or set to 0, no VLAN ID is associated with this network.</td> </tr> <tr> <td>Network Address *</td> <td>10.10.3.0</td> <td>The network address of this network. [Default = N/A. Range = Valid Network Address]</td> </tr> <tr> <td>Netmask *</td> <td>255.255.255.0</td> <td>Subnetting to apply to servers within this network. [Default = N/A. Range = Valid Network Mask]</td> </tr> <tr> <td>Router IP</td> <td></td> <td>The IP address of a router on this network. If this is a default network, this will be the IP address of the router monitoring is enabled, this address will be the one monitored.</td> </tr> <tr> <td>Default Network</td> <td><input type="radio"/> Yes <input checked="" type="radio"/> No</td> <td>A selection indicating whether this is the network with a default gateway.</td> </tr> <tr> <td>Routed</td> <td><input checked="" type="radio"/> Yes <input type="radio"/> No</td> <td>Whether or not this network is routed outside its network element. If it is not assigned to a network element, this will be the default.</td> </tr> </tbody> </table> <p>Ok Apply Cancel</p> </div> <p>Enter all of the above fields for the XSI1 network according to the customer's network parameters. The default values for Network Element (Signalling), Default Network (No) and Routable (Yes) should be retained.</p> <p>ComAgent Service may be configured to run on XSI1. In such case, the XSI1 network shall be used for MP↔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>	Field	Value	Description	Network Name *	XSI1	The name of this network. [Default = N/A. Range = Alphanumeric string up to 31 characters]	Network Type	Signaling	The type of this network.	VLAN ID	4	The VLAN ID to use for this network. If not set or set to 0, no VLAN ID is associated with this network.	Network Address *	10.10.3.0	The network address of this network. [Default = N/A. Range = Valid Network Address]	Netmask *	255.255.255.0	Subnetting to apply to servers within this network. [Default = N/A. Range = Valid Network Mask]	Router IP		The IP address of a router on this network. If this is a default network, this will be the IP address of the router monitoring is enabled, this address will be the one monitored.	Default Network	<input type="radio"/> Yes <input checked="" type="radio"/> No	A selection indicating whether this is the network with a default gateway.	Routed	<input checked="" type="radio"/> Yes <input type="radio"/> No	Whether or not this network is routed outside its network element. If it is not assigned to a network element, this will be the default.	
Field	Value	Description																											
Network Name *	XSI1	The name of this network. [Default = N/A. Range = Alphanumeric string up to 31 characters]																											
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Network Address *	10.10.3.0	The network address of this network. [Default = N/A. Range = Valid Network Address]																											
Netmask *	255.255.255.0	Subnetting to apply to servers within this network. [Default = N/A. Range = Valid Network Mask]																											
Router IP		The IP address of a router on this network. If this is a default network, this will be the IP address of the router monitoring is enabled, this address will be the one monitored.																											
Default Network	<input type="radio"/> Yes <input checked="" type="radio"/> No	A selection indicating whether this is the network with a default gateway.																											
Routed	<input checked="" type="radio"/> Yes <input type="radio"/> No	Whether or not this network is routed outside its network element. If it is not assigned to a network element, this will be the default.																											
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 New XSI network is displayed along with a success message.		<p>Main Menu: Configuration -> Networking -> Networks</p> <div data-bbox="567 1685 1449 1833" style="border: 1px solid black; padding: 5px;"> <p>Info ▾</p> <p>Info</p> <ul style="list-style-type: none"> • Network 'XSI1' was successfully inserted. <table border="1" data-bbox="567 1727 1449 1833"> <thead> <tr> <th>Network Name</th> <th>Network Type</th> <th>Default</th> <th>Locked</th> <th>Routed</th> <th>VLAN</th> <th>Configured Interfaces</th> <th>Network</th> </tr> </thead> <tbody> <tr> <td>XSI1</td> <td>Signaling</td> <td>No</td> <td>No</td> <td>Yes</td> <td>4</td> <td>0</td> <td>10.10.3.0/24</td> </tr> </tbody> </table> </div>	Network Name	Network Type	Default	Locked	Routed	VLAN	Configured Interfaces	Network	XSI1	Signaling	No	No	Yes	4	0	10.10.3.0/24											
Network Name	Network Type	Default	Locked	Routed	VLAN	Configured Interfaces	Network																						
XSI1	Signaling	No	No	Yes	4	0	10.10.3.0/24																						

THIS PROCEDURE HAS BEEN COMPLETED

Chapter 6. OAM Pairing

6.1 OAM Pairing for Primary UDR Servers (1st NOAMP site only)

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

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

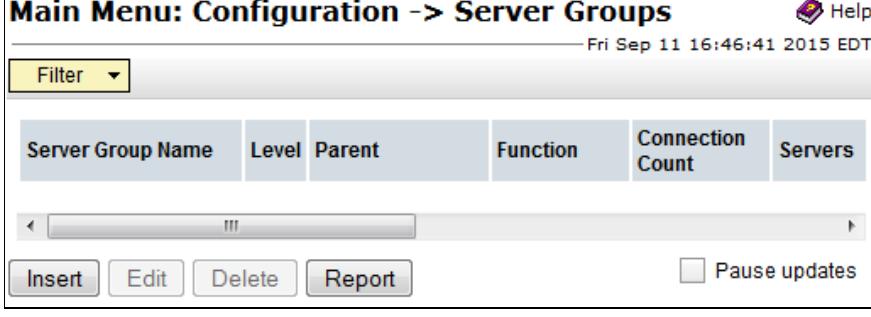
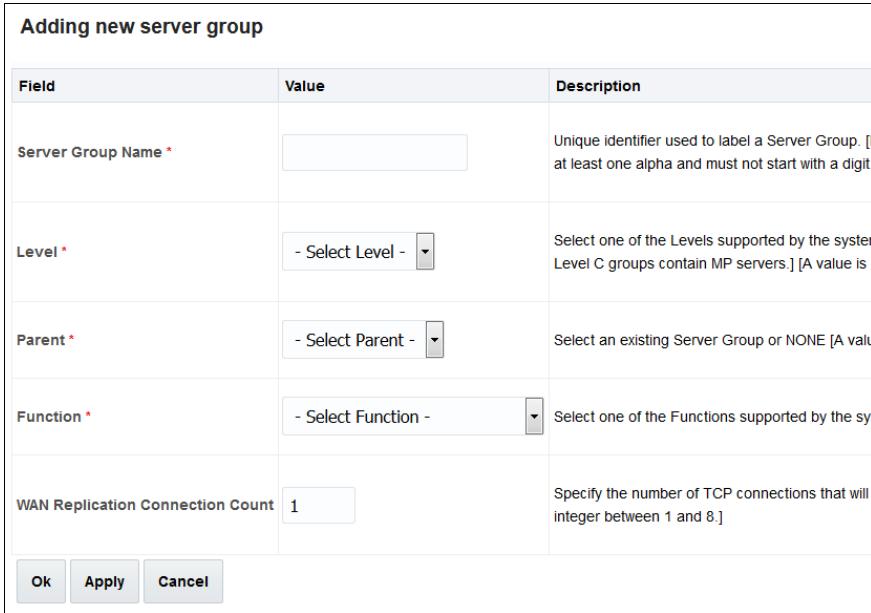
Requirements:

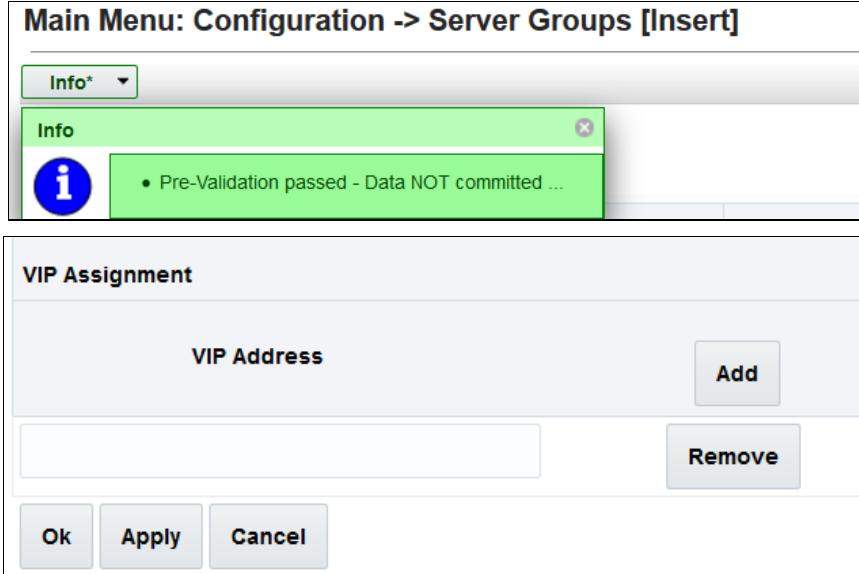
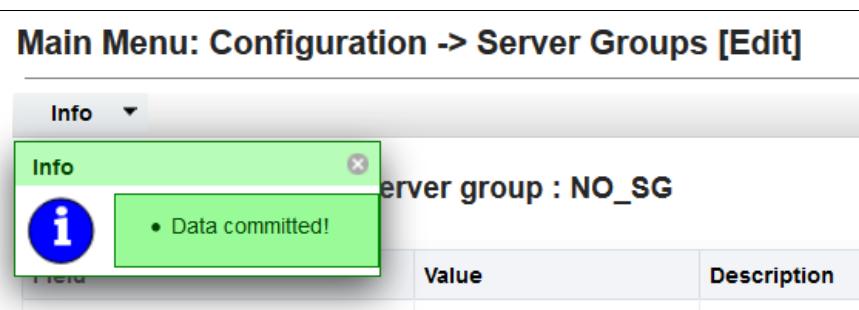
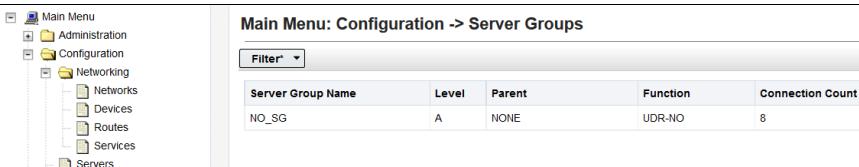
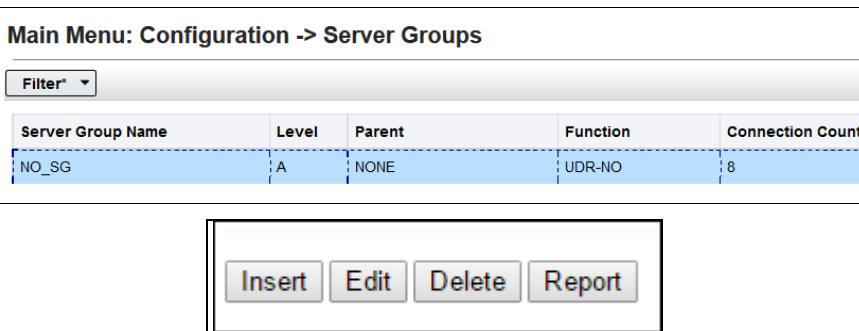
- Section 5.3 Apply Configuration To Remaining Servers has been completed

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

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

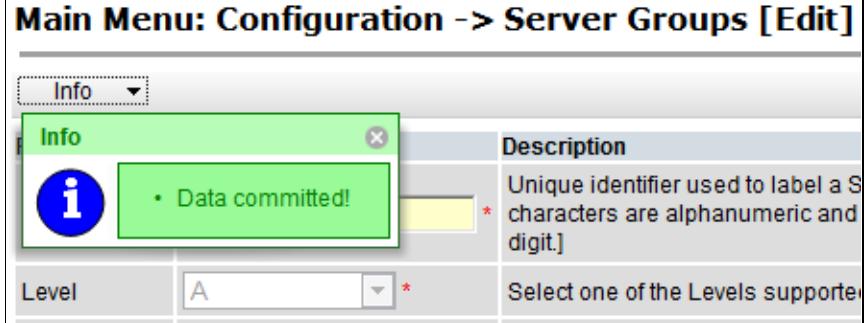
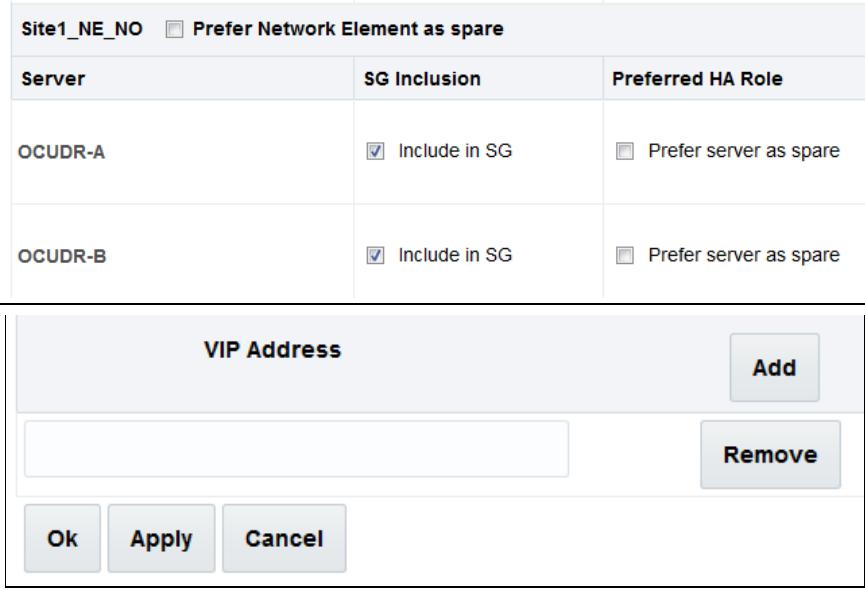
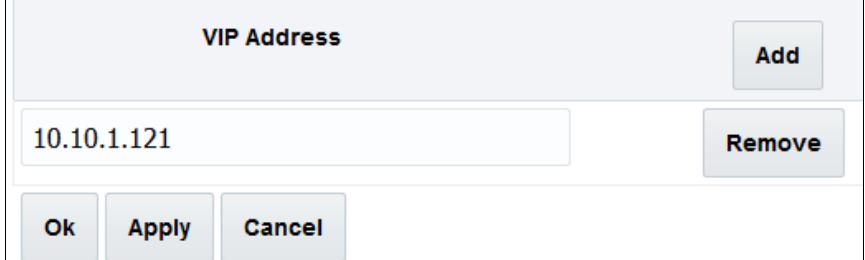
Step	Procedure	Result
1. <input type="checkbox"/>	UDR Server A: Launch an approved web browser and connect to the UDR Server A IP address	<p>NOTE: Select Continue to this website (not recommended) if presented with the "security certificate" warning.</p> <p>Login to the GUI using the default user and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

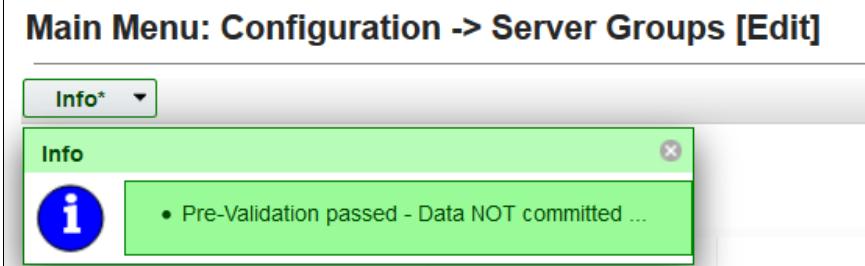
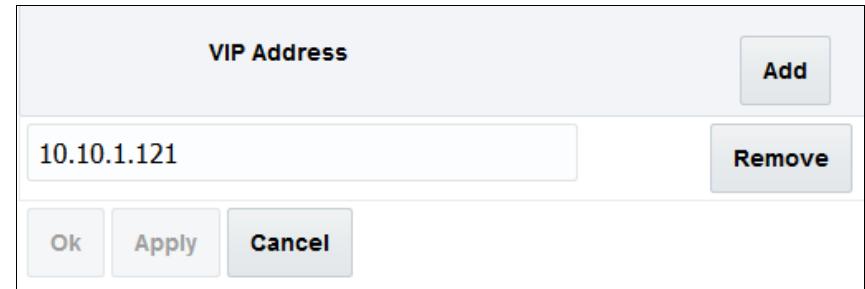
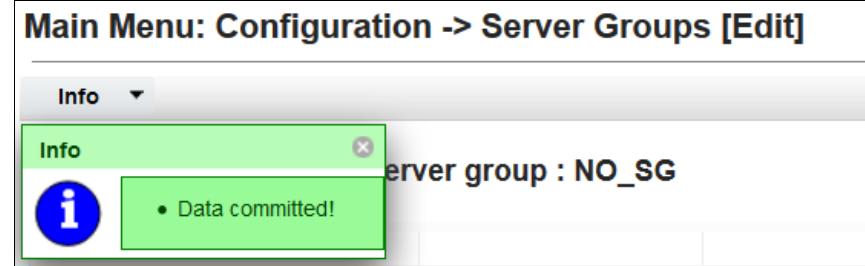
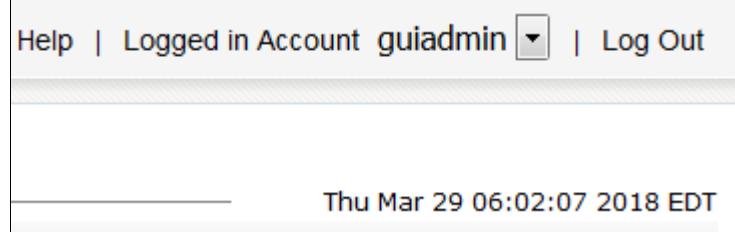
Step	Procedure	Result
3. <input type="checkbox"/>	UDR Server A: Click Insert located at the bottom left corner of the page. NOTE: Use the vertical scroll-bar to see the Insert button.	
4. <input type="checkbox"/>	UDR Server A: The Server Groups [Insert] screen opens.	
5. <input type="checkbox"/>	UDR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

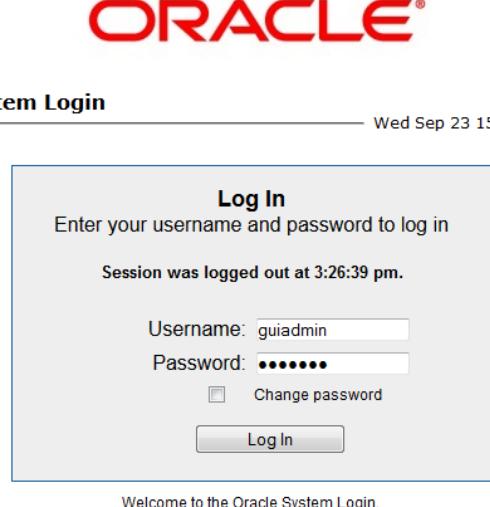
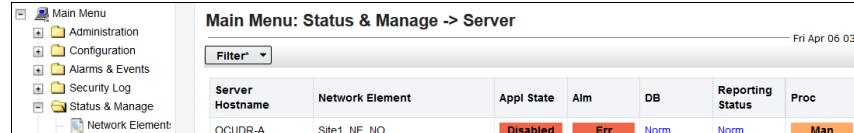
Step	Procedure	Result
10. <input type="checkbox"/>	UDR Server A: Click Info to see a banner message stating Pre-Validation passed. Click Apply .	
11. <input type="checkbox"/>	UDR Server A: Click Info to see a banner message stating Data committed.	
12. <input type="checkbox"/>	UDR Server A: Navigate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

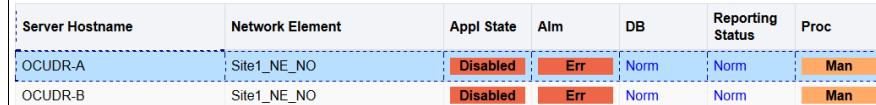
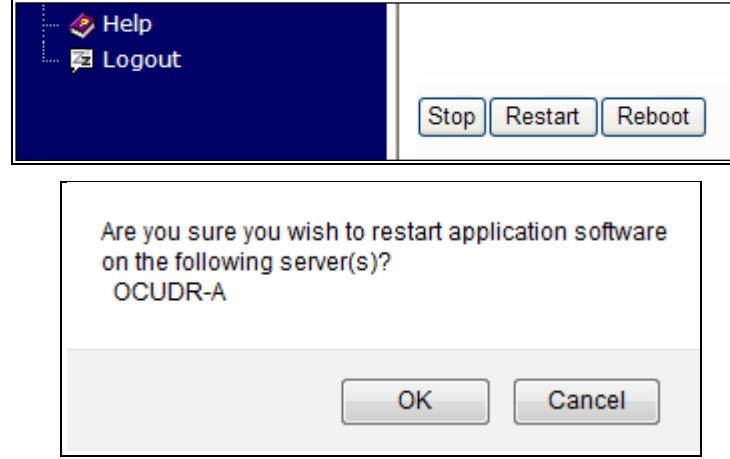
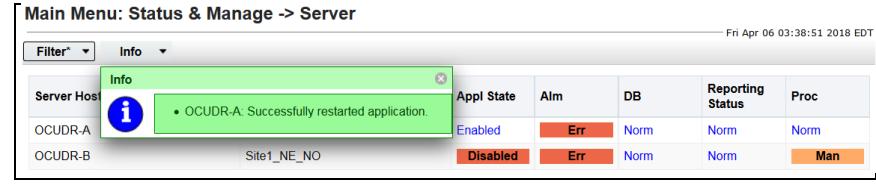
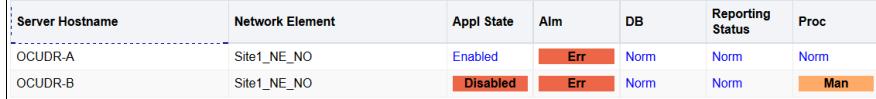
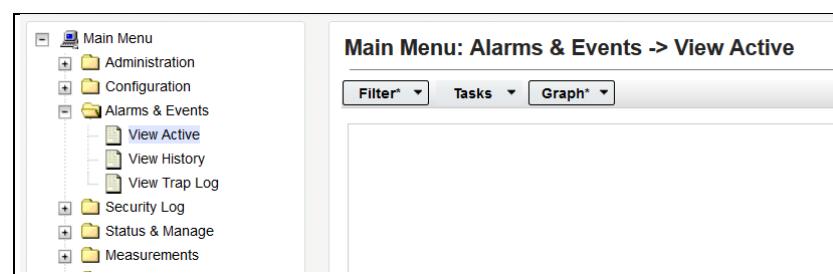
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14. <input type="checkbox"/>	<p>UDR Server A:</p> <p>The Server Groups [Edit] screen opens.</p>	<p>Main Menu: Configuration -> Server Groups [Edit]</p> <p>Modifying attributes of server group : NO_SG</p> <table border="1"> <thead> <tr> <th data-bbox="572 318 801 350">Field</th> <th data-bbox="801 318 1029 350">Value</th> <th data-bbox="1029 318 1421 350">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="572 371 801 403">Server Group Name *</td> <td data-bbox="801 371 1029 403">NO_SG</td> <td data-bbox="1029 371 1421 403">Unique identifier used to label a Server Group. [Default = n/a]</td> </tr> <tr> <td data-bbox="572 435 801 466">Level *</td> <td data-bbox="801 435 1029 466">A</td> <td data-bbox="1029 435 1421 466">Select one of the Levels supported by the system [A value is required.]</td> </tr> <tr> <td data-bbox="572 498 801 530">Parent *</td> <td data-bbox="801 498 1029 530">NONE</td> <td data-bbox="1029 498 1421 530">Select an existing Server Group [A value is required.]</td> </tr> <tr> <td data-bbox="572 561 801 593">Function *</td> <td data-bbox="801 561 1029 593">UDR-NO</td> <td data-bbox="1029 561 1421 593">Select one of the Functions supported by the system [A value is required.]</td> </tr> <tr> <td data-bbox="572 646 801 677">WAN Replication Connection Count</td> <td data-bbox="801 646 1029 677">8</td> <td data-bbox="1029 646 1421 677">Specify the number of TCP connections that will be used by this server group.</td> </tr> <tr> <td colspan="2" data-bbox="572 709 1029 741">Site1_NE_NO <input type="checkbox"/> Prefer Network Element as spare</td><td></td></tr> <tr> <td data-bbox="572 741 801 772">Server</td><td data-bbox="801 741 1029 772">SG Inclusion</td><td data-bbox="1029 741 1421 772">Preferred HA Role</td></tr> <tr> <td data-bbox="572 794 801 825">OCUDR-A</td><td data-bbox="801 794 1029 825"><input type="checkbox"/> Include in SG</td><td data-bbox="1029 794 1421 825"><input type="checkbox"/> Prefer server as spare</td></tr> <tr> <td data-bbox="572 857 801 889">OCUDR-B</td><td data-bbox="801 857 1029 889"><input type="checkbox"/> Include in SG</td><td data-bbox="1029 857 1421 889"><input type="checkbox"/> Prefer server as spare</td></tr> <tr> <td colspan="2" data-bbox="572 920 1029 952">Site2_NE_DR_NO <input type="checkbox"/> Prefer Network Element as spare</td><td></td></tr> <tr> <td data-bbox="572 952 801 984">Server</td><td data-bbox="801 952 1029 984">SG Inclusion</td><td data-bbox="1029 952 1421 984">Preferred HA Role</td></tr> <tr> <td data-bbox="572 1005 801 1036">DR-OCUDR-A</td><td data-bbox="801 1005 1029 1036"><input type="checkbox"/> Include in SG</td><td data-bbox="1029 1005 1421 1036"><input type="checkbox"/> Prefer server as spare</td></tr> <tr> <td data-bbox="572 1068 801 1100">DR-OCUDR-B</td><td data-bbox="801 1068 1029 1100"><input type="checkbox"/> Include in SG</td><td data-bbox="1029 1068 1421 1100"><input type="checkbox"/> Prefer server as spare</td></tr> <tr> <td colspan="2" data-bbox="572 1163 801 1195">VIP Assignment</td><td></td></tr> <tr> <td colspan="2" data-bbox="572 1216 1029 1248">VIP Address</td><td data-bbox="1029 1216 1421 1248"><input type="button" value="Add"/></td></tr> <tr> <td data-bbox="572 1279 801 1311"><input type="button" value="Ok"/></td><td data-bbox="801 1279 1029 1311"><input type="button" value="Apply"/></td><td data-bbox="1029 1279 1421 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 this 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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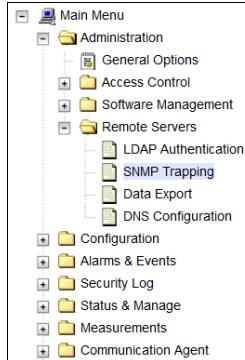
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15. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Check the boxes to include the “A” server and the “B” server into the UDR Server Group.</p> <p>NOTE: For Single Server Installation, only NO-A will be displayed; therefore only one box will be selected.</p> <p>If this is a Primary Site (Single site), then the DR Site does not appear here.</p>	<p>Site1_NE_NO <input type="checkbox"/> Prefer Network Element as spare</p> <table border="1"> <thead> <tr> <th data-bbox="572 240 796 270">Server</th> <th data-bbox="796 240 1008 270">SG Inclusion</th> <th data-bbox="1008 240 1416 270">Preferred HA Role</th> </tr> </thead> <tbody> <tr> <td data-bbox="572 304 796 367">OCUDR-A</td> <td data-bbox="796 304 1008 367"><input checked="" type="checkbox"/> Include in SG</td> <td data-bbox="1008 304 1416 367"><input type="checkbox"/> Prefer server as spare</td> </tr> <tr> <td data-bbox="572 409 796 473">OCUDR-B</td> <td data-bbox="796 409 1008 473"><input checked="" type="checkbox"/> Include in SG</td> <td data-bbox="1008 409 1416 473"><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="572 530 796 559">Server</th> <th data-bbox="796 530 1008 559">SG Inclusion</th> <th data-bbox="1008 530 1416 559">Preferred HA Role</th> </tr> </thead> <tbody> <tr> <td data-bbox="572 593 796 656">DR-OCUDR-A</td> <td data-bbox="796 593 1008 656"><input type="checkbox"/> Include in SG</td> <td data-bbox="1008 593 1416 656"><input type="checkbox"/> Prefer server as spare</td> </tr> <tr> <td data-bbox="572 699 796 762">DR-OCUDR-B</td> <td data-bbox="796 699 1008 762"><input type="checkbox"/> Include in SG</td> <td data-bbox="1008 699 1416 762"><input type="checkbox"/> Prefer server as spare</td> </tr> </tbody> </table> <p>VIP Assignment</p> <table border="1"> <thead> <tr> <th data-bbox="719 868 845 897">VIP Address</th> <th data-bbox="1160 868 1220 897">Add</th> </tr> </thead> <tbody> <tr> <td data-bbox="719 931 1041 973"></td> <td data-bbox="1160 931 1220 973">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
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16. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Click Info to see a banner message stating Pre-Validation passed.</p> <p>Click Apply.</p>	<p>Main Menu: Configuration -> Server Groups [Edit]</p> <p>Info</p> <p>Info</p> <ul style="list-style-type: none"> Pre-Validation passed - Data NOT committed ... <p>VIP Address</p> <table border="1"> <thead> <tr> <th data-bbox="719 1417 845 1446">VIP Address</th> <th data-bbox="1290 1417 1383 1446">Add</th> </tr> </thead> <tbody> <tr> <td data-bbox="719 1480 1139 1522"></td> <td data-bbox="1290 1480 1383 1522">Remove</td> </tr> </tbody> </table> <p>Ok Apply Cancel</p>	VIP Address	Add		Remove																		
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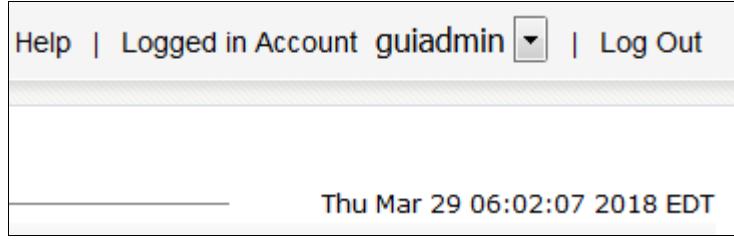
Step	Procedure	Result
17. <input type="checkbox"/>	UDR Server A: Click Info to see a banner message stating Data committed.	
18. <input type="checkbox"/>	UDR Server A: Click Add for the VIP Address. NOTE: VIP Address optional for Single Server Configuration.	
19. <input type="checkbox"/>	UDR Server A: Enter the VIP Address	

Step	Procedure	Result
20. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Click Info to see a banner message stating Pre-Validation passed.</p> <p>Click Apply.</p>	 
21. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Click Info to see a banner message stating Data committed.</p>	
22. <input type="checkbox"/>	<p>UDR Server A:</p> <p>Click the “Logout” link on the OAM A server GUI.</p>	 <p>Thu Mar 29 06:02:07 2018 EDT</p>
23. <input type="checkbox"/>	<p>IMPORTANT: Wait at least 5 minutes before proceeding on to the next step.</p>	<p>Now that the servers have been paired within a Server Group they must establish a master/slave relationship for High Availability (HA). It may take several minutes for this process to be completed.</p> <p>Note: Single Server Configuration will not need to establish the master/slave relationship for High Availability (HA).</p> <p>Allow a minimum of 5 minutes before continuing to the next Step.</p>

Step	Procedure	Result
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: Select Continue to this website (not recommended) if presented with the security certificate warning.</p> <p>Login to the GUI using the default user and password.</p>	
25. <input type="checkbox"/>	<p>UDR VIP: Restarting the UDR Server Application</p> <p>NOTE: 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> 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 should now be highlighted in SKY BLUE. 2. Click Restart (located at the bottom of the page). 3. Click OK on the confirmation dialogue box. <p>You are presented with a confirmation message (in the banner area) for UDR Server A stating: Successfully restarted application.</p> <p>NOTE: You may have to use the vertical scroll-bar in order to see the Restart button.</p>	<p>Normal Configuration:</p>  <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 & 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 Error! Reference source not found. to restart UDR Server B.</p>
30. <input type="checkbox"/>	<p>UDR VIP:</p> <p>Verifying the UDR Server Alarm status</p>	<p>Navigate to Main Menu → Alarms & Events → View Active</p> 

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31. <input type="checkbox"/>	<p>UDR VIP: Verify that the Event IDs are the only alarms present on the system.</p>	<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> <tr> <td></td><td></td><td></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> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>	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																		<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>									
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69	19820	2018-04-06 03:20:13.117 EDT	MAJOR	CAF	udrbe	Site1_NE_NO	OCUDR-A	CAF	UDR-RS-Sh-App																																																																																																																																																																																							
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32. <input type="checkbox"/>	<p>UDR VIP: Configuring SNMP for Traps from Individual Servers</p>	<p>Navigate to Main Menu → Administration → Remote Servers → SNMP Trapping</p> <div style="display: flex; justify-content: space-between;"> <div style="flex: 1;">  </div> <div style="flex: 2;"> <p>Main Menu: Administration > Remote Servers > SNMP</p> <p>SNMP Trap Configuration Insert for NO_SG</p> <p>Configuration Mode * <input checked="" type="radio"/> Global <input type="radio"/> Per-site</p> <p>Manager 1 10.250.54.12</p> </div> </div>																																																																																																																																																																																														

Step	Procedure	Result
33. <input type="checkbox"/>	<p>UDR VIP:</p> <ol style="list-style-type: none"> 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"/>	<p>UDR VIP:</p> <p>Click Logout on the server GUI.</p>	

THIS PROCEDURE HAS BEEN COMPLETED

6.2 OAM Pairing for DR Sites

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

The steps in this procedure are for all the DR UDR servers.

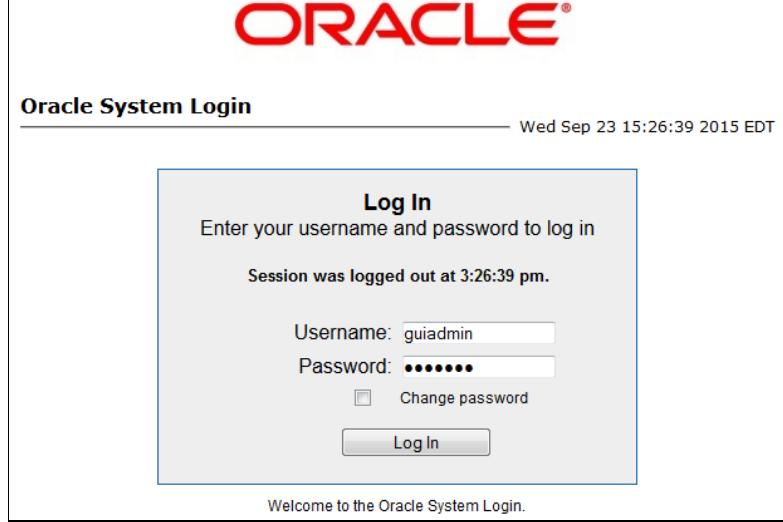
This procedure creates active/standby pair for the DR UDR Servers.

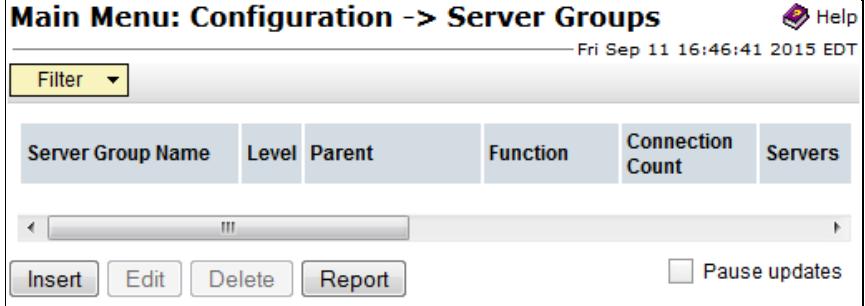
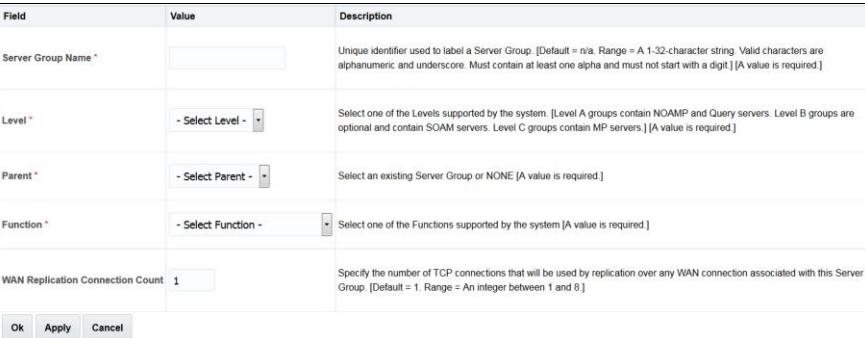
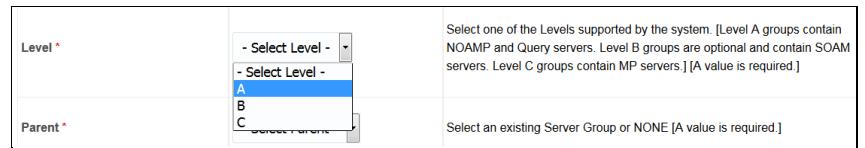
Requirements:

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

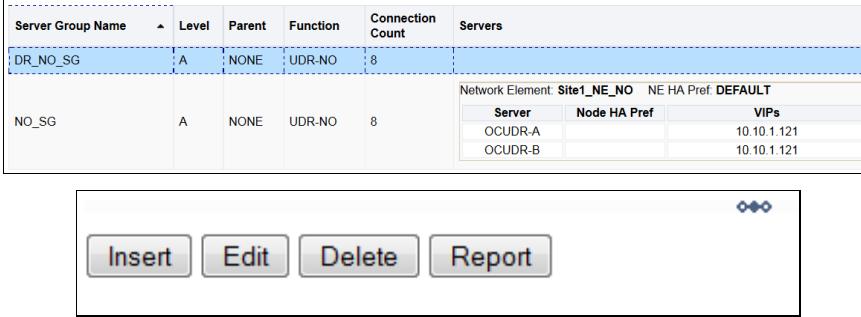
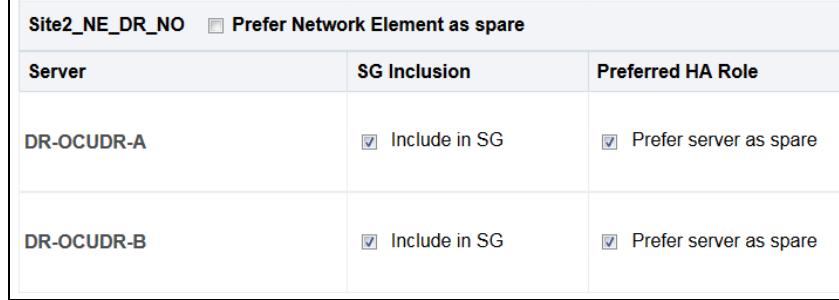
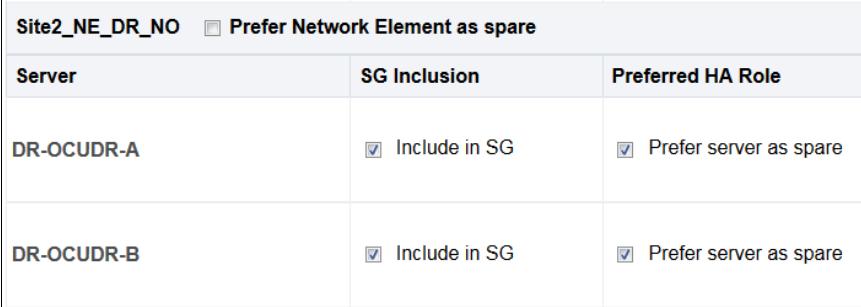
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

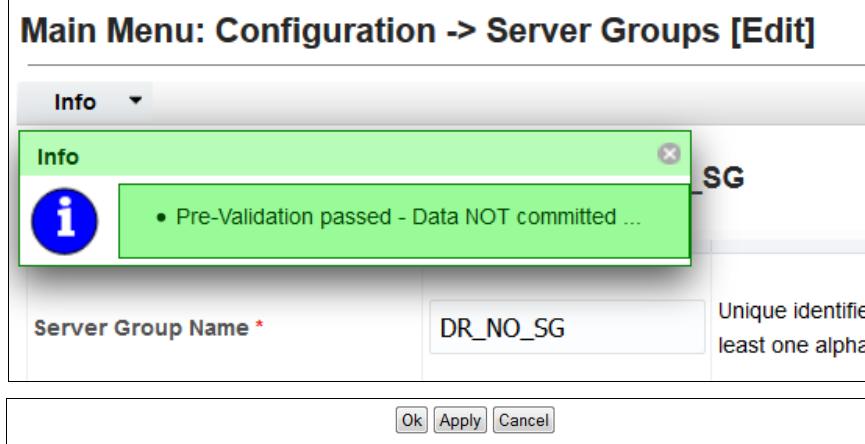
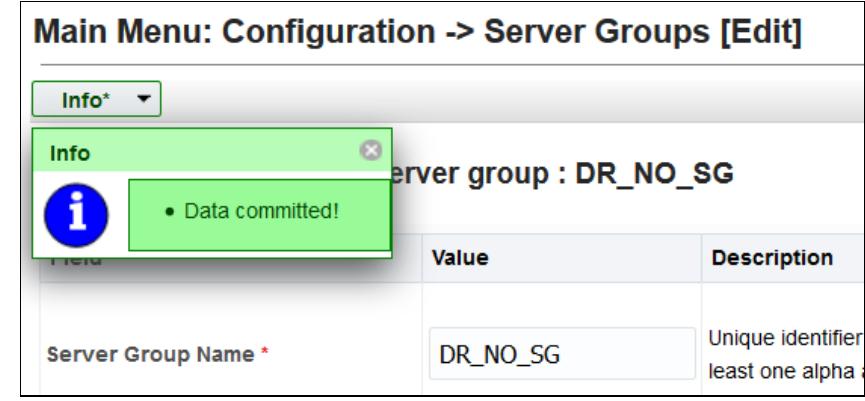
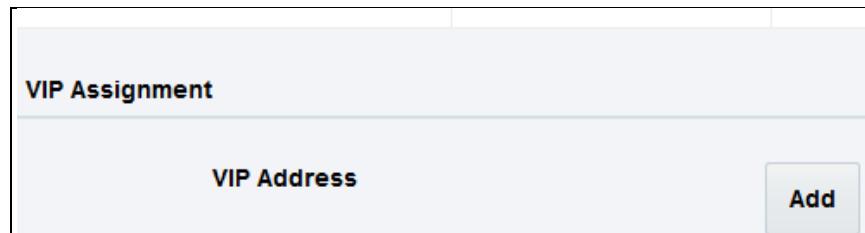
Procedure 10: OAM Pairing for DR Sites

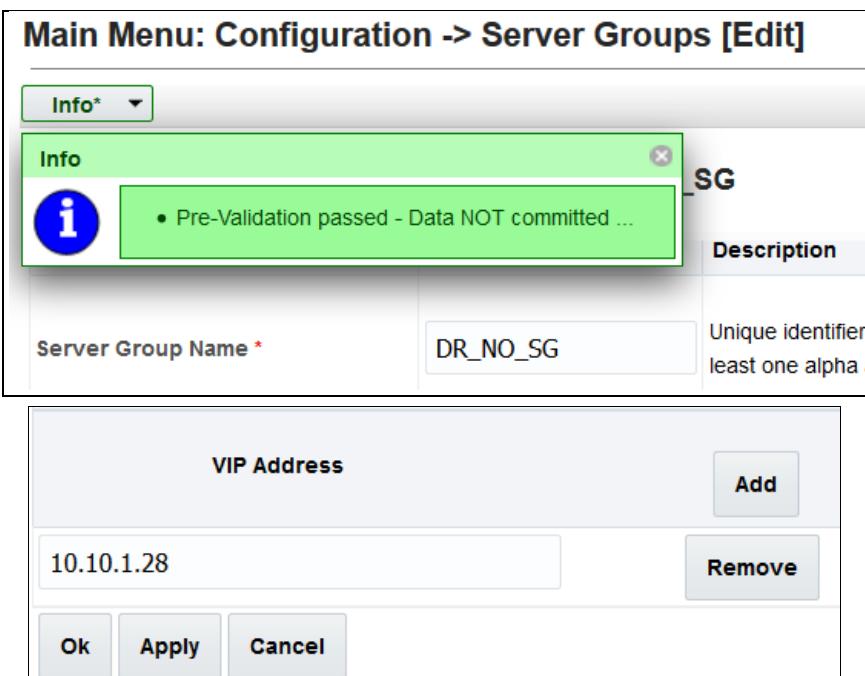
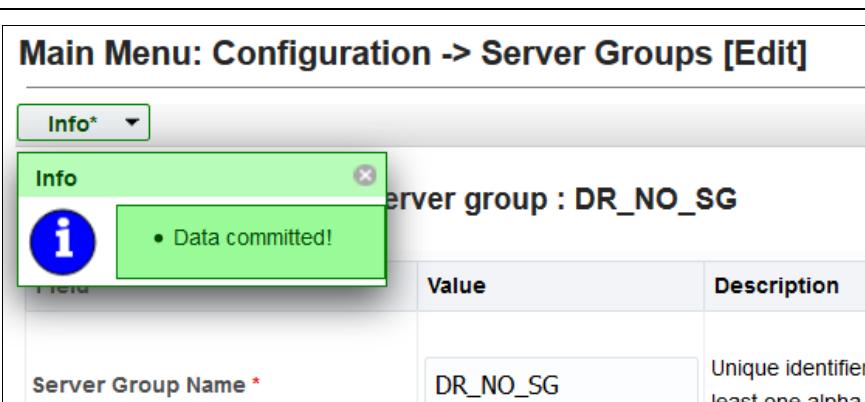
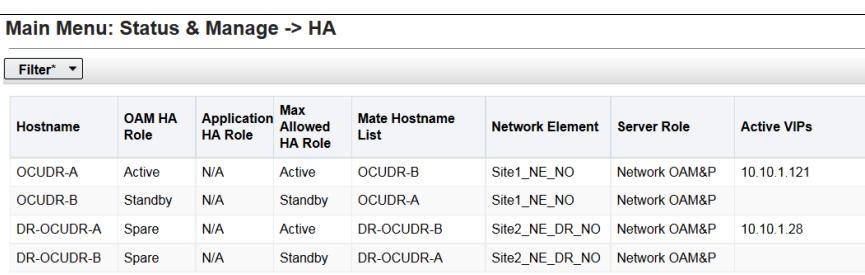
Step	Procedure	Result																																																	
1. <input type="checkbox"/>	<p>Active UDR VIP: Launch an approved web browser and connect to the UDR Server A IP address</p> <p>NOTE: Select Continue to this website (not recommended) if presented with the “security certificate” warning.</p> <p>Login to the GUI using the default user and password.</p>	 <p>ORACLE®</p> <p>Oracle System Login</p> <p>Wed Sep 23 15:26:39 2015 EDT</p> <p>Log In Enter your username and password to log in</p> <p>Session was logged out at 3:26:39 pm.</p> <p>Username: <input type="text" value="guiadmin"/> Password: <input type="password" value="*****"/> <input type="checkbox"/> Change password</p> <p>Log In</p> <p>Welcome to the Oracle System Login.</p>																																																	
2. <input type="checkbox"/>	<p>Active UDR VIP: For Primary UDR Standby server only:</p> <p>Mark the server forced standby</p> <p>Navigate to Main Menu → Status & Manage → HA</p> <p>Click Edit on bottom left</p> <p>Find the row for the Primary UDR Standby server and change Max Allowed HA Role to Standby.</p>	<p>NOTE: Do not perform this step for single server installations.</p> <p>Main Menu: Status & Manage -> HA</p> <p>Fri Apr 06 04:22:59 2018 EDT</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>Info*</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
Hostname	OAM HA Role	Application HA Role	Max Allowed HA Role	Mate Hostname List	Network Element	Server Role	Active VIPs																																												
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DR-OCUDR-B	Unavailable	Unavailable			Site2_NE_DR_NO	Network OAM&P																																													
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OCUDR-B	Standby	The maximum desired HA Role for OCUDR-B																																																	
3. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Navigate to Main Menu → Configuration → Server Groups</p>	<p>Main Menu: Configuration -> Server Groups</p> <p>Fri Apr 06 04:26:01 2018 EDT</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 Pref: DEFAULT Server Node HA Pref VIPs OCUDR-A 10.10.1.121 OCUDR-B 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 Pref: DEFAULT Server Node HA Pref VIPs OCUDR-A 10.10.1.121 OCUDR-B 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 correct group Level.	 <p>Use this setting for group level:</p> <ul style="list-style-type: none">For DR UDR server group: select A on the Level menu.
8. <input type="checkbox"/>	Active UDR VIP: Assign the correct Parent.	 <p>• Use this setting for parent: For DR UDR server group: select NONE on the Parent menu.</p>
9. <input type="checkbox"/>	Active UDR VIP: Assign the correct Function.	 <p>• Use this setting for function: For DR UDR server group: select UDR-NO on the Function menu.</p>

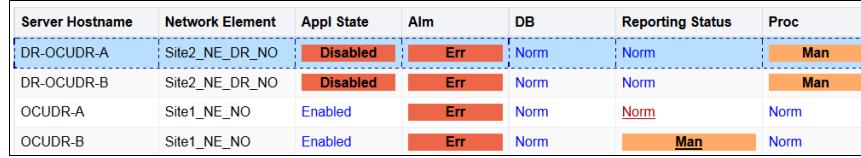
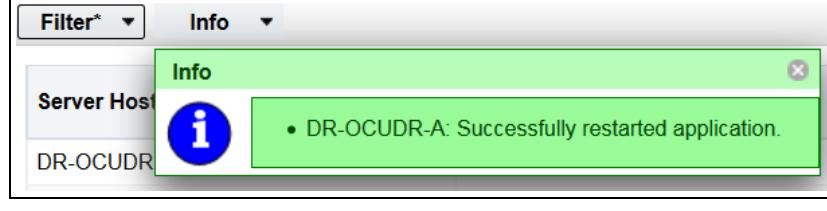
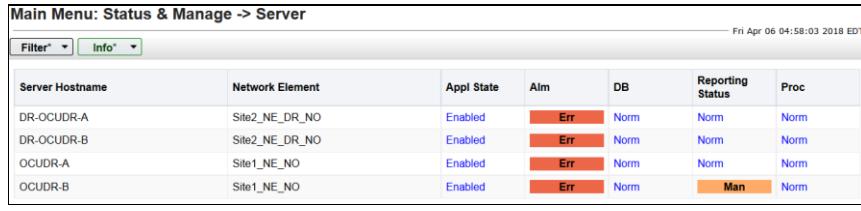
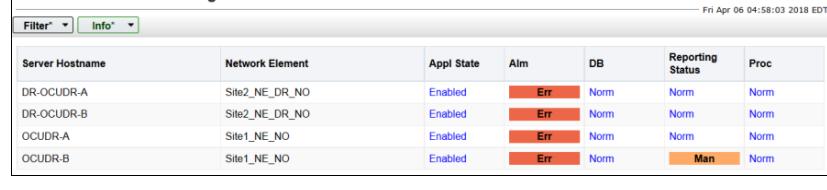
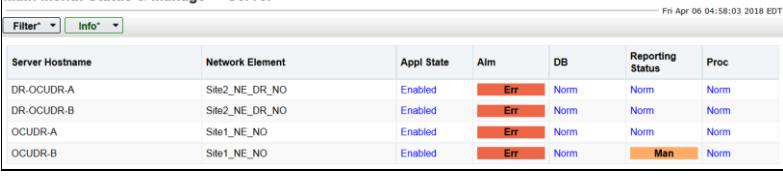
Step	Procedure	Result																					
10. <input type="checkbox"/>	Active UDR VIP: For DR UDR only: Enter 8 for the WAN Replication Connection Count.																						
11. <input type="checkbox"/>	Active UDR VIP: Click Info to see a banner with a message stating that Pre-Validation passed. Click Apply																						
12. <input type="checkbox"/>	Active UDR VIP: You see a banner with a message stating Data committed.																						
13. <input type="checkbox"/>	Active UDR VIP: Navigate to Main Menu → Configuration → Server Groups NOTE: Server Group entry is shown on the Server Groups configuration screen.	<p>Server Group Name: NO_SG</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></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	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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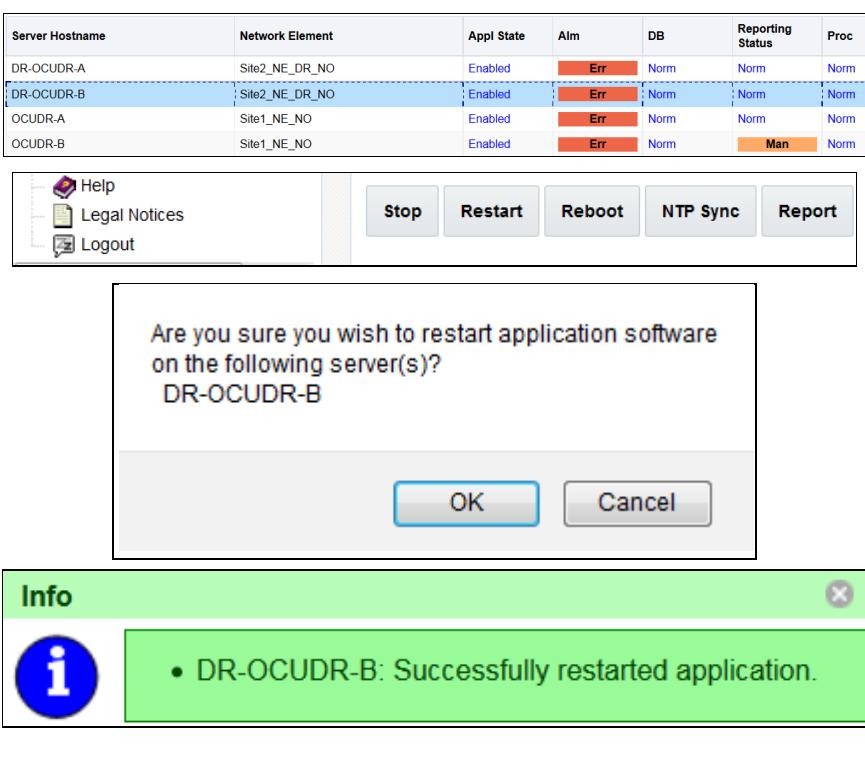
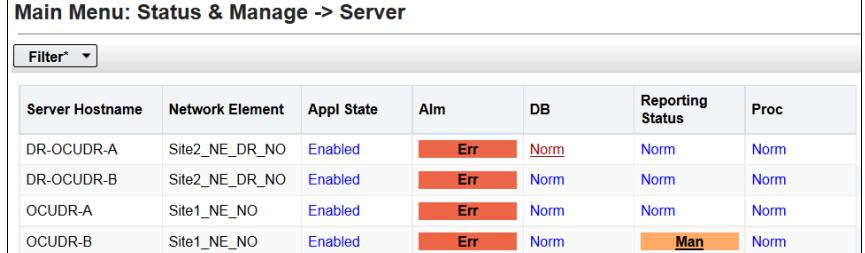
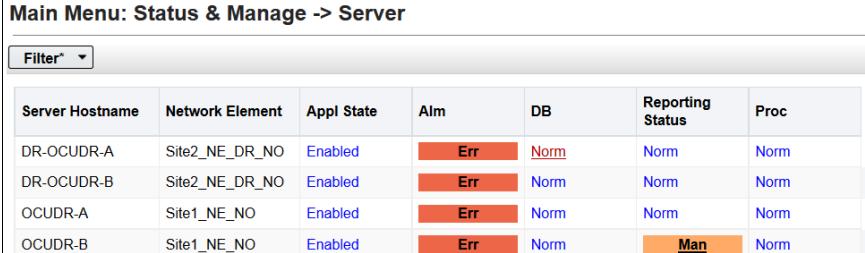
Step	Procedure	Result																								
14. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>1. Select the Server Group entry applied in Step 7. The line entry should now be highlighted in SKY BLUE.</p> <p>2. Click Edit (located at the bottom left corner of the page).</p> <p>NOTE: You may have to use the vertical scroll-bar in order to see the Edit button.</p>	 <p>The screenshot shows a table of server groups. One row is highlighted in blue, representing the selected group. Below the table, a detailed view of the selected group is shown, including a table of servers and their HA preferences.</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> <table border="1"> <thead> <tr> <th colspan="3">Network Element: Site1_NE_NO NE HA Pref: DEFAULT</th> </tr> <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>Buttons for Insert, Edit, Delete, and Report are visible at the bottom of the detailed view.</p>	Server Group Name	Level	Parent	Function	Connection Count	Servers	DR_NO_SG	A	NONE	UDR-NO	8		Network Element: Site1_NE_NO NE HA Pref: DEFAULT			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"/>	<p>Active UDR VIP:</p> <p>Select the "A server and the B server from the list of Servers.</p>	<p>Normal or Low Capacity Configuration:</p>  <p>The screenshot shows a configuration table for Site2_NE_DR_NO. It includes a header row and two data rows for servers DR-OCUDR-A and DR-OCUDR-B. Each row has checkboxes for "Include in SG" and "Prefer server as spare".</p> <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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16. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>For DR UDR servers only</p> <p>Check the Preferred Spare boxes next to the server names</p>	 <p>The screenshot shows a configuration table for Site2_NE_DR_NO with the "Prefer Network Element as spare" checkbox checked. It includes a header row and two data rows for servers DR-OCUDR-A and DR-OCUDR-B. Each row has checkboxes for "Include in SG" and "Prefer server as spare".</p> <table border="1"> <thead> <tr> <th colspan="3">Site2_NE_DR_NO <input checked="" 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> <p>NOTE: DR UDR is not accessible via their VIP unless they become the Active UDR. Individual servers in the DR UDR server group are always accessible by their XMI addresses.</p>	Site2_NE_DR_NO <input checked="" 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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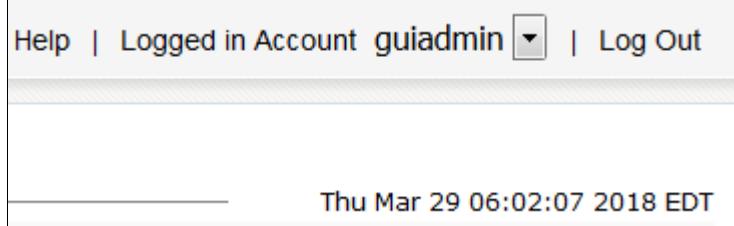
Step	Procedure	Result
17. <input type="checkbox"/>	Active UDR VIP: Click Info to see a banner message stating Pre-Validation passed. Click Apply .	
18. <input type="checkbox"/>	Active UDR VIP: Click Info to see a banner message stating Data committed.	
19. <input type="checkbox"/>	Active UDR VIP: Click Add for the VIP Address.	
20. <input type="checkbox"/>	Active UDR VIP: Enter the VIP Address	

Step	Procedure	Result
21. <input type="checkbox"/>	Active UDR VIP: Click Info to see a banner message stating Pre-Validation passed. Click Apply .	
22. <input type="checkbox"/>	Active UDR VIP: Click Info to see a banner message stating Data committed.	
23. <input type="checkbox"/>	IMPORTANT: Wait at least 5 minutes before proceeding on to the next Step.	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. NOTE: Single Server Configurations do not establish master/slave relationship for High Availability (HA). Allow a minimum of 5 minutes before continuing to the next Step.
24. <input type="checkbox"/>	Active UDR VIP: Navigate to Main Menu → Status & Manage → HA	

Step	Procedure	Result																																								
25. <input type="checkbox"/>	<p>Active UDR VIP: NOTE: DR UDR servers will have OAM MAX HA Role of Spare and no Active VIPs (shown in red)</p>	<p>Normal or Low Capacity Configuration:</p> <p>Main Menu: Status & Manage -> HA</p> <p>Filter* ▾</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>Standby</td> <td>OCUDR-A</td> <td>Site1_NE_NO</td> <td>Network OAM&P</td> <td></td> </tr> <tr> <td>DR-OCUDR-A</td> <td>Spare</td> <td>N/A</td> <td>Active</td> <td>DR-OCUDR-B</td> <td>Site2_NE_DR_NO</td> <td>Network OAM&P</td> <td>10.10.1.28</td> </tr> <tr> <td>DR-OCUDR-B</td> <td>Spare</td> <td>N/A</td> <td>Standby</td> <td>DR-OCUDR-A</td> <td>Site2_NE_DR_NO</td> <td>Network OAM&P</td> <td></td> </tr> </tbody> </table>	Hostname	OAM HA Role	Application HA Role	Max Allowed HA Role	Mate Hostname List	Network Element	Server Role	Active VIPs	OCUDR-A	Active	N/A	Active	OCUDR-B	Site1_NE_NO	Network OAM&P	10.10.1.121	OCUDR-B	Standby	N/A	Standby	OCUDR-A	Site1_NE_NO	Network OAM&P		DR-OCUDR-A	Spare	N/A	Active	DR-OCUDR-B	Site2_NE_DR_NO	Network OAM&P	10.10.1.28	DR-OCUDR-B	Spare	N/A	Standby	DR-OCUDR-A	Site2_NE_DR_NO	Network OAM&P	
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																																				
26. <input type="checkbox"/>	<p>Active UDR VIP: Restarting the OAM Server Application</p> <p>Navigate to Main Menu → Status & Manage → Server</p>	<p>Main Menu: Status & Manage -> Server</p> <p>Filter* ▾</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>	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 should now appear in the right panel. (Only A for single server installs) 2. Verify that the DB status shows Norm and the Proc status shows Man for both servers before proceeding to the next Step. (Only A server for single server configuration) 	<p>Normal or Low Capacity Configuration:</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> </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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DR-OCUDR-B	Site2_NE_DR_NO	Disabled	Err	Norm	Norm	Man																																				

Step	Procedure	Result
28. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>3. Using the mouse, select Server A. The line entry should now be highlighted in SKY BLUE.</p> <p>4. Click Restart (located at the bottom of the page).</p> <p>5. Click OK on the confirmation dialogue box.</p> <p>A confirmation message (in the banner area) for Server A stating: Successfully restarted application.</p> <p>NOTE: You may have to use the vertical scroll-bar in order to see the Restart button visible.</p>	<p>Normal or Low Capacity Configuration:</p>  <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p>Are you sure you wish to restart application software on the following server(s)?</p> <p>DR-OCUDR-A</p> <p>OK Cancel</p> </div> 
29. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Navigate to Main Menu → Status & Manage → Server</p>	
30. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Verify that the “Appl State” now shows “Enabled” and that the “Alm, DB, Reporting Status & Proc” columns all show “Norm” for OAM Server A before proceeding to the next Step.</p>	 <p>NOTE: If user chooses to refresh the Server status screen in advance of the default setting (15-30 sec.). This may be done by simply reselecting the Status & Manage → Server option from the Main menu on the left.</p>
31. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Navigate to Main Menu → Status & Manage → Server</p>	

Step	Procedure	Result																																			
Perform steps Error! Bookmark not defined. to Error! Bookmark not defined. for multiple server configurations only (not single server).																																					
32. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>1. Using the mouse, select Server B. The line entry should now be highlighted in SKY BLUE.</p> <p>2. Click Restart (located at the bottom of the page).</p> <p>3. Click OK on the confirmation dialogue box.</p> <p>A confirmation message (in the banner area) for Server B stating: "Successfully restarted application".</p> <p>NOTE: You may need to use the vertical scroll-bar in order to see the Restart dialogue button.</p>	 <p>The screenshot shows a table 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>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>Below the table is a banner with the message: "DR-OCUDR-B: Successfully restarted application." with an info icon.</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																															
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33. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Navigate to Main Menu → Status & Manage → Server</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>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																															
34. <input type="checkbox"/>	<p>Active UDR VIP:</p> <p>Verify that the Appl State shows Enabled and that the Alm, DB, Reporting Status & Proc columns all show Norm for Server B before proceeding to the next Step.</p>	 <p>The screenshot shows 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>Enabled</td> <td>Err</td> <td>Norm</td> <td>Norm</td> <td>Norm</td> </tr> <tr> <td>DR-OCUDR-B</td> <td>Site2_NE_DR_NO</td> <td>Enabled</td> <td>Err</td> <td>Norm</td> <td>Norm</td> <td>Norm</td> </tr> <tr> <td>OCUDR-A</td> <td>Site1_NE_NO</td> <td>Enabled</td> <td>Err</td> <td>Norm</td> <td>Norm</td> <td>Norm</td> </tr> <tr> <td>OCUDR-B</td> <td>Site1_NE_NO</td> <td>Enabled</td> <td>Err</td> <td>Norm</td> <td>Man</td> <td>Norm</td> </tr> </tbody> </table> <p>NOTE: If you want to refresh the Server status screen before the default setting (15 to 30 seconds). This is done by reselecting the Status & Manage → Server option from the Main menu on the left.</p>	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																															
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"> <thead> <tr> <th data-bbox="589 255 703 291">Hostname</th> <th data-bbox="703 255 964 291">Max Allowed HA Role</th> <th data-bbox="964 255 1421 291">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="589 333 703 369">OCUDR-A</td> <td data-bbox="703 333 964 369">Active</td> <td data-bbox="964 333 1421 369">The maximum desired HA Role for OCUDR-A</td> </tr> <tr> <td data-bbox="589 439 703 475">OCUDR-B</td> <td data-bbox="703 439 964 475">Active</td> <td data-bbox="964 439 1421 475">The maximum desired HA Role for OCUDR-B</td> </tr> <tr> <td data-bbox="589 544 703 580">DR-OCUDR-A</td> <td data-bbox="703 544 964 580">Active</td> <td data-bbox="964 544 1421 580">The maximum desired HA Role for DR-OCUDR-A</td> </tr> <tr> <td data-bbox="589 650 703 686">DR-OCUDR-B</td> <td data-bbox="703 650 964 686">Active</td> <td data-bbox="964 650 1421 686">The maximum desired HA Role for DR-OCUDR-B</td> </tr> </tbody> </table> <p data-bbox="613 734 768 770">Ok</p> <p data-bbox="687 734 768 770">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="580 1079 1034 1104">THIS PROCEDURE HAS BEEN COMPLETED</p>															

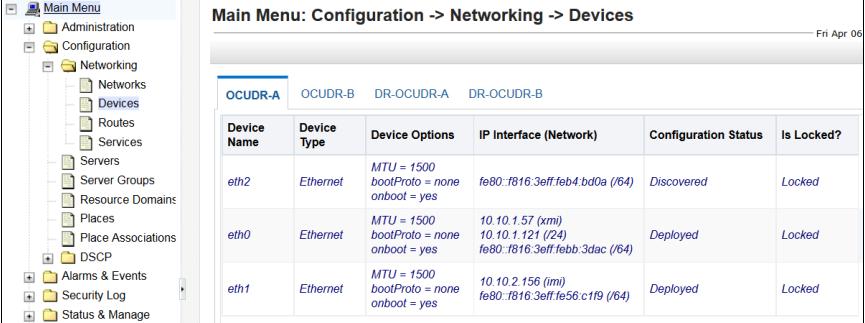
Chapter 7. Application Configuration

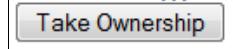
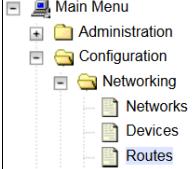
7.1 Configure UDR Signaling Routes (All NOAM Sites)

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

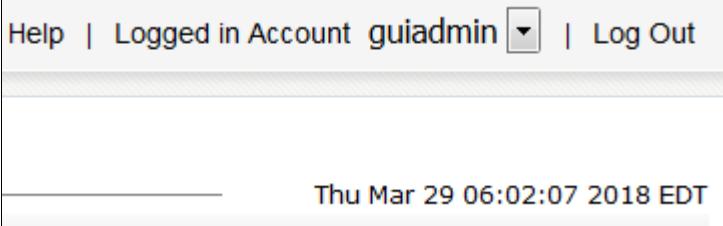
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

Procedure 11: Configure UDR Signaling Routes

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

Step	Procedure	Result																												
3. <input type="checkbox"/>	<p>Active UDR VIP: Select the xsi device for the UDR</p>	<p>Select the UDR tab.</p> <p>Select the XSI-1 device (recorded in B.3 Step 3Error! Reference source not found. or C.7 Step 5).</p> <p>Output similar to that shown below may be observed.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>OCUDR-A</th> <th>OCUDR-B</th> <th>DR-OCUDR-A</th> <th>DR-OCUDR-B</th> </tr> <tr> <th>Device Name</th> <th>Device Type</th> <th>Device Options</th> <th>IP Interface (Network)</th> <th>Configuration Status</th> <th>Is Locked?</th> </tr> </thead> <tbody> <tr> <td>eth2</td> <td>Ethernet</td> <td>MTU = 1500 bootProto = none onboot = yes</td> <td>fe80::f816:3eff:feb4:bd0a (/64)</td> <td>Discovered</td> <td>Locked</td> </tr> <tr> <td>eth0</td> <td>Ethernet</td> <td>MTU = 1500 bootProto = none onboot = yes</td> <td>10.10.1.57 (xmi) 10.10.1.121 (2/24) fe80::f816:3eff:febb:3dac (/64)</td> <td>Deployed</td> <td>Locked</td> </tr> <tr> <td>eth1</td> <td>Ethernet</td> <td>MTU = 1500 bootProto = none onboot = yes</td> <td>10.10.2.156 (imi) fe80::f816:3eff:fe56:c1f9 (/64)</td> <td>Deployed</td> <td>Locked</td> </tr> </tbody> </table> </div> <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>	OCUDR-A	OCUDR-B	DR-OCUDR-A	DR-OCUDR-B	Device Name	Device Type	Device Options	IP Interface (Network)	Configuration Status	Is Locked?	eth2	Ethernet	MTU = 1500 bootProto = none onboot = yes	fe80::f816:3eff:feb4:bd0a (/64)	Discovered	Locked	eth0	Ethernet	MTU = 1500 bootProto = none onboot = yes	10.10.1.57 (xmi) 10.10.1.121 (2/24) fe80::f816:3eff:febb:3dac (/64)	Deployed	Locked	eth1	Ethernet	MTU = 1500 bootProto = none onboot = yes	10.10.2.156 (imi) fe80::f816:3eff:fe56:c1f9 (/64)	Deployed	Locked
OCUDR-A	OCUDR-B	DR-OCUDR-A	DR-OCUDR-B																											
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4. <input type="checkbox"/>	<p>Active UDR VIP Edit the xsi device for the desired UDR</p>	<p>Click Take Ownership.</p> <div style="text-align: center; margin-top: 10px;">  </div> <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>																												
5. <input type="checkbox"/>	<p>Active UDR VIP Add the xsi device for the desired UDR Select Start On Boot "Enable" Click OK to apply changes.</p>																													
6. <input type="checkbox"/>	<p>Active UDR VIP: Repeat as required.</p>	<p>Repeat Steps 3 through 5 for each UDR and its Signaling networks.</p> <p>NOTE: Steps 7 through 9 are only needed for geo-redundant systems.</p>																												
7. <input type="checkbox"/>	<p>Active UDR VIP: Navigate to Main Menu → Configuration → Networking → Routes</p>	<div style="display: flex; align-items: center;"> <div style="flex: 1;">  </div> <div style="flex: 1; border: 1px solid #ccc; padding: 5px; margin-left: 10px;"> <p>Main Menu: Configuration -> Networking -> Routes</p> <p>Entire Network DR_NO_SG NO_SG</p> <p>OCUDR-A OCUDR-B DR-OCUDR-A DR-OCUDR-B</p> </div> </div>																												

Step	Procedure	Result																					
8. <input type="checkbox"/>	Active UDR VIP: Insert a route for the UDR or DR UDR Server group.	<p>1. Select the Server Group tab on the top line. 2. Click Entire Server Group on the line below Server Group line.</p> <p>Output similar to that shown below may be observed.</p> <div data-bbox="595 291 1395 502" style="border: 1px solid black; padding: 5px;"> <p>Main Menu: Configuration -> Networking -> Routes</p> <p>Fri Apr 06 05:14:47 2018 EDT</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Entire Network</td> <td>DR_NO_SG</td> <td>NO_SG</td> </tr> <tr> <td colspan="3" style="text-align: center;"> Entire Server Group OCUDR-A OCUDR-B </td> </tr> <tr> <td style="width: 15%;">Route Type</td> <td style="width: 15%;">Destination</td> <td style="width: 15%;">Netmask</td> <td style="width: 15%;">Gateway</td> <td style="width: 15%;">Scope Status</td> <td style="width: 15%;">Configuration Status</td> <td style="width: 15%;">Is Locked?</td> </tr> </table> </div> <p>3. Click Insert</p> <div data-bbox="938 559 1052 623" style="border: 1px solid black; padding: 2px; text-align: center;">  </div>	Entire Network	DR_NO_SG	NO_SG	Entire Server Group OCUDR-A OCUDR-B			Route Type	Destination	Netmask	Gateway	Scope Status	Configuration Status	Is Locked?								
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Entire Server Group OCUDR-A OCUDR-B																							
Route Type	Destination	Netmask	Gateway	Scope Status	Configuration Status	Is Locked?																	
9. <input type="checkbox"/>	Active UDR VIP: Add signaling route	<p>Main Menu: Configuration -> Networking -> Routes [Insert]</p> <p>Fri Mar 30 06:06:44 2018</p> <div data-bbox="579 749 1411 1446" style="border: 1px solid black; padding: 10px;"> <p>Insert Route on NO_SG</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 15%;">Field</th> <th style="width: 45%;">Value</th> <th style="width: 40%;">Description</th> </tr> <tr> <td>Route Type *</td> <td> <input type="radio"/> Net <input type="radio"/> Default <input type="radio"/> Host </td> <td>Select a route type. [Default = N/A. Options = Net, Default, Host. You can configure at most one IPv4 default route and one IPv6 default route on a given target machine.] [A value is required.] </td> </tr> <tr> <td>Device *</td> <td style="text-align: center;"> - Select Device - <div style="border: 1px solid black; padding: 2px; width: 150px; margin-left: 10px;"></div> </td> <td>Select the network device name through which traffic is being routed. The selection of AUTO will result in the device being selected automatically, if possible. [Default = N/A. Range = Provisioned devices on the selected server. [A value is required.] </td> </tr> <tr> <td>Destination</td> <td colspan="2"> <input type="text"/> The destination network address. [Default = N/A. Range = Valid Network Address of the network in dotted decimal (IPv4) or colon hex (IPv6) format.] </td> </tr> <tr> <td>Netmask</td> <td colspan="2"> <input type="text"/> A valid netmask for the network route destination IP address. [Default = N/A. Range = Valid Netmask for the network in prefix length (IPv4 or IPv6) or dotted decimal (IPv4) format.] </td> </tr> <tr> <td>Gateway IP *</td> <td colspan="2"> <input type="text"/> The IP address of the gateway for this route. [Default = N/A. Range = Valid IP address of the gateway in dotted decimal (IPv4) or colon hex (IPv6) format.] [A value is required.] </td> </tr> <tr> <td colspan="3" style="text-align: center;"> Ok Apply Cancel </td> </tr> </table> </div> <p>1. Set Route Type to Net 2. Set Device to XSI-1 device (recorded in B.3 Step 3Error! Reference source not found. or C.7 Step 5). 3. Enter Destination: This is the network address of the remote MP server group that will connect to Oracle Communications User Data Repository UDR for ComAgent service. 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>	Field	Value	Description	Route Type *	<input type="radio"/> Net <input type="radio"/> Default <input type="radio"/> Host	Select a route type. [Default = N/A. Options = Net, Default, Host. You can configure at most one IPv4 default route and one IPv6 default route on a given target machine.] [A value is required.]	Device *	- Select Device - <div style="border: 1px solid black; padding: 2px; width: 150px; margin-left: 10px;"></div>	Select the network device name through which traffic is being routed. The selection of AUTO will result in the device being selected automatically, if possible. [Default = N/A. Range = Provisioned devices on the selected server. [A value is required.]	Destination	<input type="text"/> The destination network address. [Default = N/A. Range = Valid Network Address of the network in dotted decimal (IPv4) or colon hex (IPv6) format.]		Netmask	<input type="text"/> A valid netmask for the network route destination IP address. [Default = N/A. Range = Valid Netmask for the network in prefix length (IPv4 or IPv6) or dotted decimal (IPv4) format.]		Gateway IP *	<input type="text"/> The IP address of the gateway for this route. [Default = N/A. Range = Valid IP address of the gateway in dotted decimal (IPv4) or colon hex (IPv6) format.] [A value is required.]		Ok Apply Cancel		
Field	Value	Description																					
Route Type *	<input type="radio"/> Net <input type="radio"/> Default <input type="radio"/> Host	Select a route type. [Default = N/A. Options = Net, Default, Host. You can configure at most one IPv4 default route and one IPv6 default route on a given target machine.] [A value is required.]																					
Device *	- Select Device - <div style="border: 1px solid black; padding: 2px; width: 150px; margin-left: 10px;"></div>	Select the network device name through which traffic is being routed. The selection of AUTO will result in the device being selected automatically, if possible. [Default = N/A. Range = Provisioned devices on the selected server. [A value is required.]																					
Destination	<input type="text"/> The destination network address. [Default = N/A. Range = Valid Network Address of the network in dotted decimal (IPv4) or colon hex (IPv6) format.]																						
Netmask	<input type="text"/> A valid netmask for the network route destination IP address. [Default = N/A. Range = Valid Netmask for the network in prefix length (IPv4 or IPv6) or dotted decimal (IPv4) format.]																						
Gateway IP *	<input type="text"/> The IP address of the gateway for this route. [Default = N/A. Range = Valid IP address of the gateway in dotted decimal (IPv4) or colon hex (IPv6) format.] [A value is required.]																						
Ok Apply Cancel																							

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

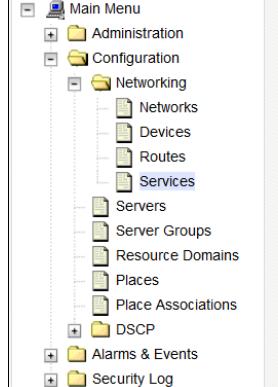
Requirements:

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

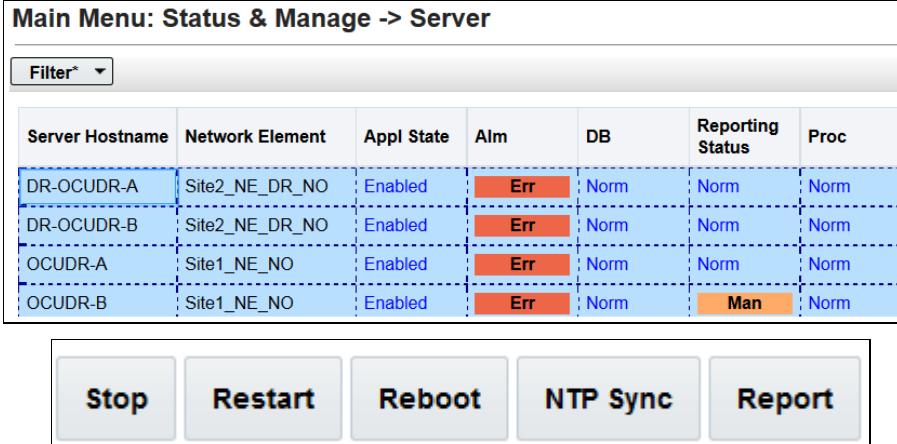
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

Procedure 12: Configure Services on Signaling Network

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

Step	Procedure	Result																								
2. <input type="checkbox"/>	<p>Active UDR VIP: Navigate to Main Menu → Configuration → Services</p>	 <p>Main Menu: Configuration > Networking > Services</p> <table border="1"> <thead> <tr> <th data-bbox="866 276 1462 308">Name</th> <th data-bbox="1462 276 1478 308">Intra-NE Network</th> <th data-bbox="1478 276 1494 308">Inter-NE Network</th> </tr> </thead> <tbody> <tr> <td data-bbox="866 308 1462 340">OAM</td> <td data-bbox="1462 308 1478 340">imi</td> <td data-bbox="1478 308 1494 340">xmi</td> </tr> <tr> <td data-bbox="866 340 1462 371">Replication</td> <td data-bbox="1462 340 1478 371">imi</td> <td data-bbox="1478 340 1494 371">xmi</td> </tr> <tr> <td data-bbox="866 371 1462 403">Signaling</td> <td data-bbox="1462 371 1478 403">Unspecified</td> <td data-bbox="1478 371 1494 403">Unspecified</td> </tr> <tr> <td data-bbox="866 403 1462 435">HA_Secondary</td> <td data-bbox="1462 403 1478 435">imi</td> <td data-bbox="1478 403 1494 435">xmi</td> </tr> <tr> <td data-bbox="866 435 1462 466">HA_MP_Secondary</td> <td data-bbox="1462 435 1478 466">imi</td> <td data-bbox="1478 435 1494 466">xmi</td> </tr> <tr> <td data-bbox="866 466 1462 498">Replication_MP</td> <td data-bbox="1462 466 1478 498">imi</td> <td data-bbox="1478 466 1494 498">xmi</td> </tr> <tr> <td data-bbox="866 498 1462 530">ComAgent</td> <td data-bbox="1462 498 1478 530">imi</td> <td data-bbox="1478 498 1494 530">xmi</td> </tr> </tbody> </table>	Name	Intra-NE Network	Inter-NE Network	OAM	imi	xmi	Replication	imi	xmi	Signaling	Unspecified	Unspecified	HA_Secondary	imi	xmi	HA_MP_Secondary	imi	xmi	Replication_MP	imi	xmi	ComAgent	imi	xmi
Name	Intra-NE Network	Inter-NE Network																								
OAM	imi	xmi																								
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HA_Secondary	imi	xmi																								
HA_MP_Secondary	imi	xmi																								
Replication_MP	imi	xmi																								
ComAgent	imi	xmi																								

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

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

7.3 Accept Installation

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

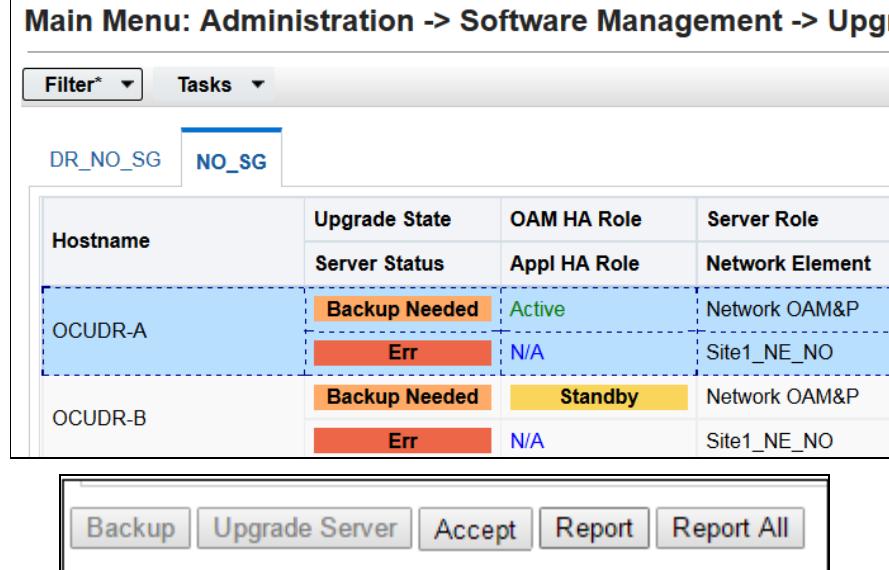
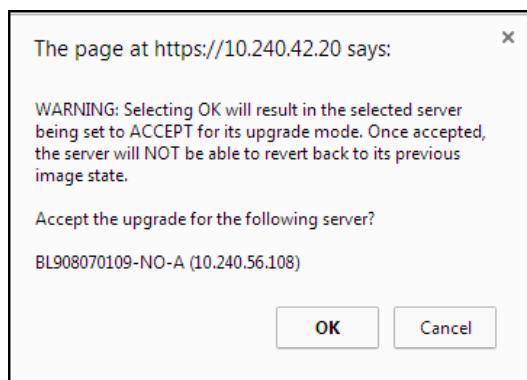
The upgrade needs either to be accepted or rejected before any subsequent upgrades are performed in the future.

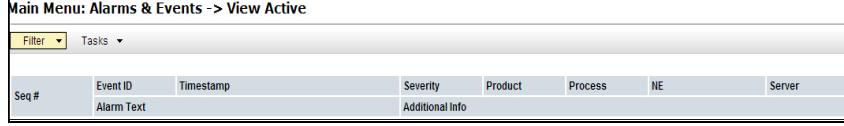
The Alarm 32532 (Server Upgrade Pending Accept/Reject) will be displayed for each server until one of these two actions (accept or reject) is performed.

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

Procedure 13: Accept Installation

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

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

Step	Procedure	Result
5. <input type="checkbox"/>	Active UDR VIP: Verify accept	Check that alarms are removed: 1. Navigate to Aarms & 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

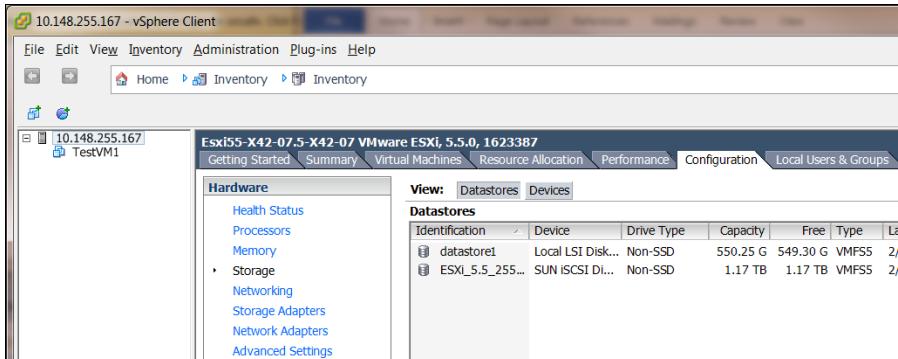
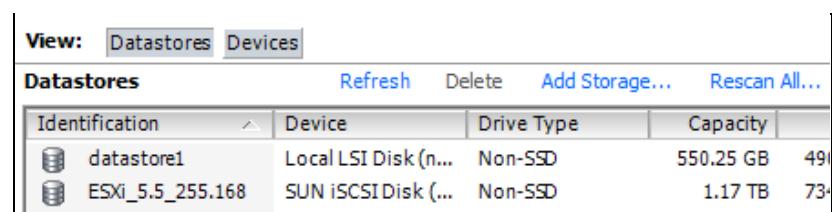
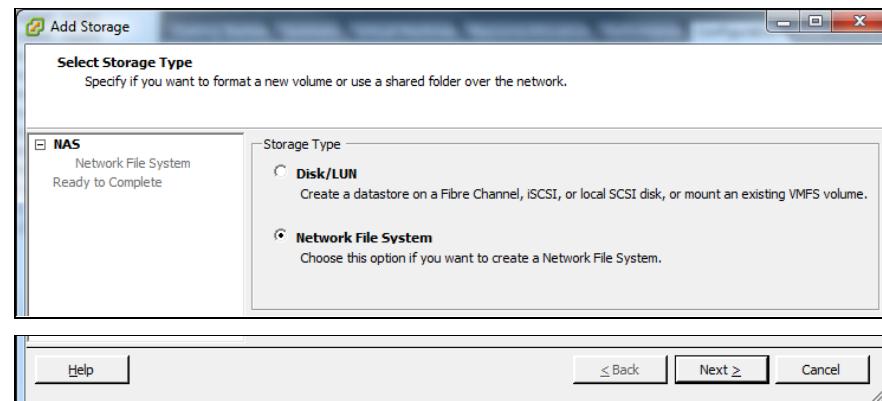
A.1 HOST DATASTORE CONFIGURATION USING VSPPHERE

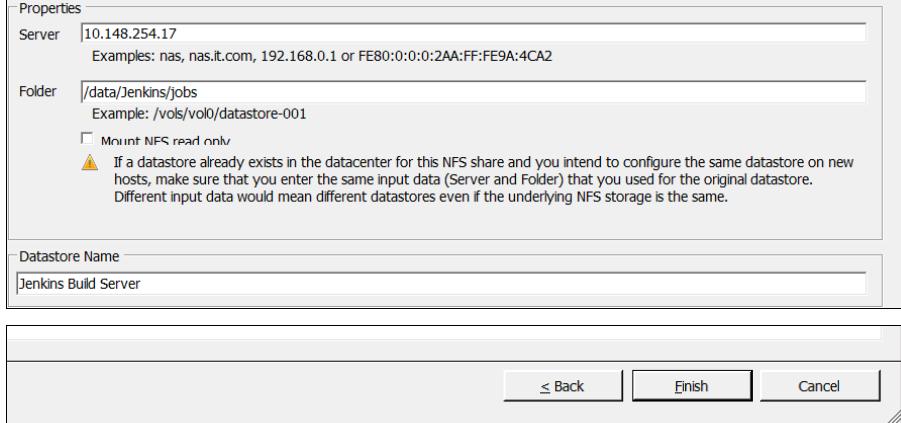
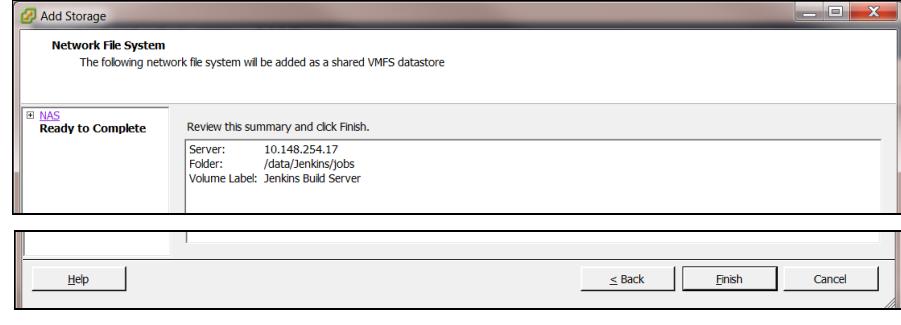
This procedure is executed to properly configure a datastore on the Host so that the appropriate storage is available for Oracle Communications User Data Repository component VMs. Steps and screenshots are taken from vSphere Client.

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

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

Procedure14: Host Datastore Configuration with vSphere

Step	Procedure	Details
1. <input type="checkbox"/>	Log into the Vmware client	<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="text"/></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: 1. Enter a Server IP, Folder, and Datastore Name in the provided fields according to the resource availability in your VMware host environment 2. Click Next	
6. <input type="checkbox"/>	VMware client: 1. Review the Datastore summary 2. Click Finish	

THIS PROCEDURE HAS BEEN COMPLETED

A.2 HOST NETWORKING CONFIGURATION USING VS SPHERE

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

To view the currently available Networks on the Host, select the **Summary** tab. In the example below several OAM and Signaling Networks have been configured. Each of these is associated with vSwitch on the Host and physical ethernet.

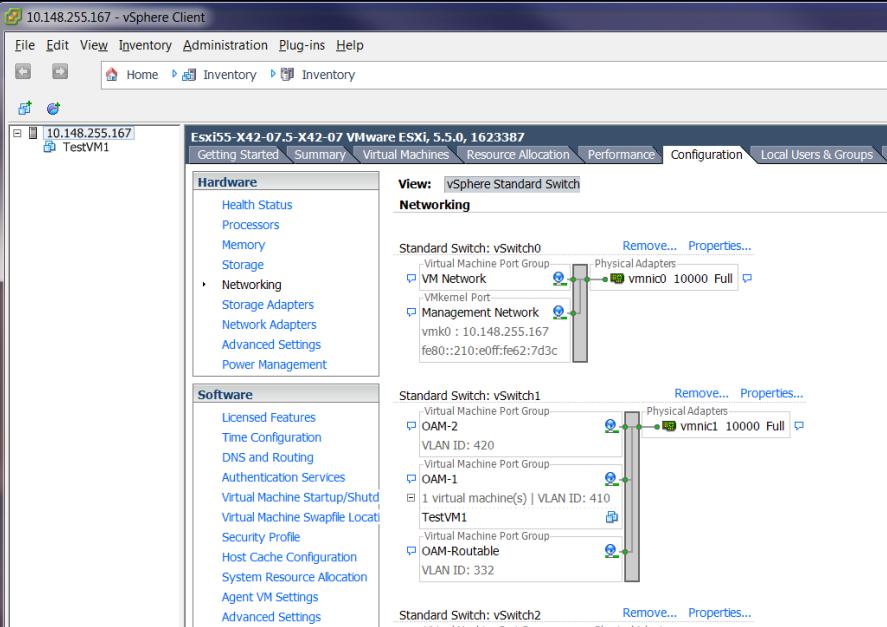
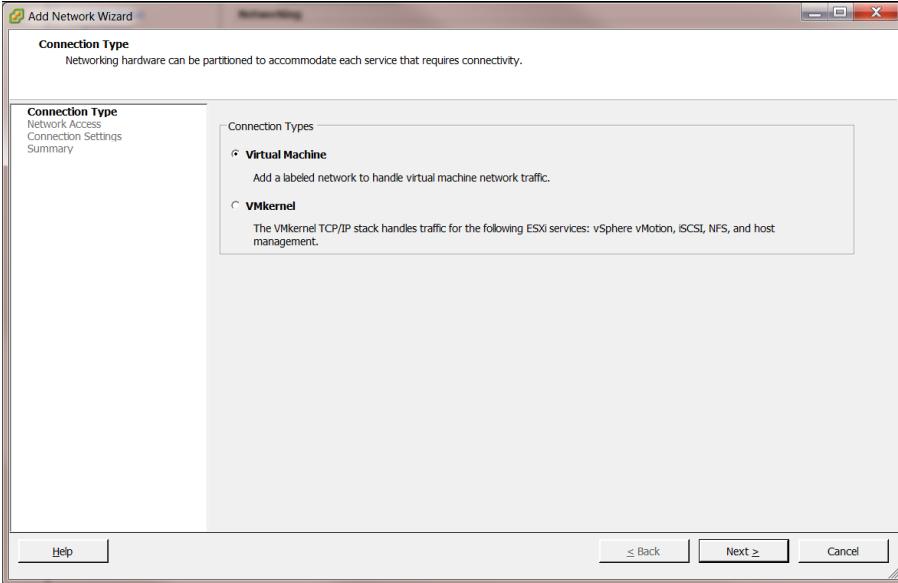
Oracle Communications User Data Repository VMs can be associated with up to 5 vLan Networks. All 5 vNICs should be created and configured in order to be available for the Guest. The expected vNICs correspond to the the following dedicated interfaces of the Oracle Communications User Data Repository and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

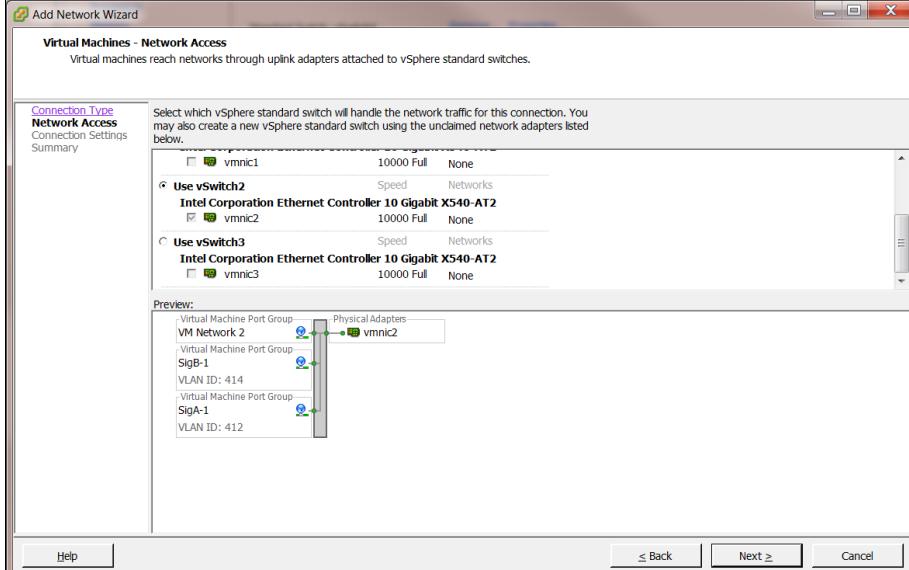
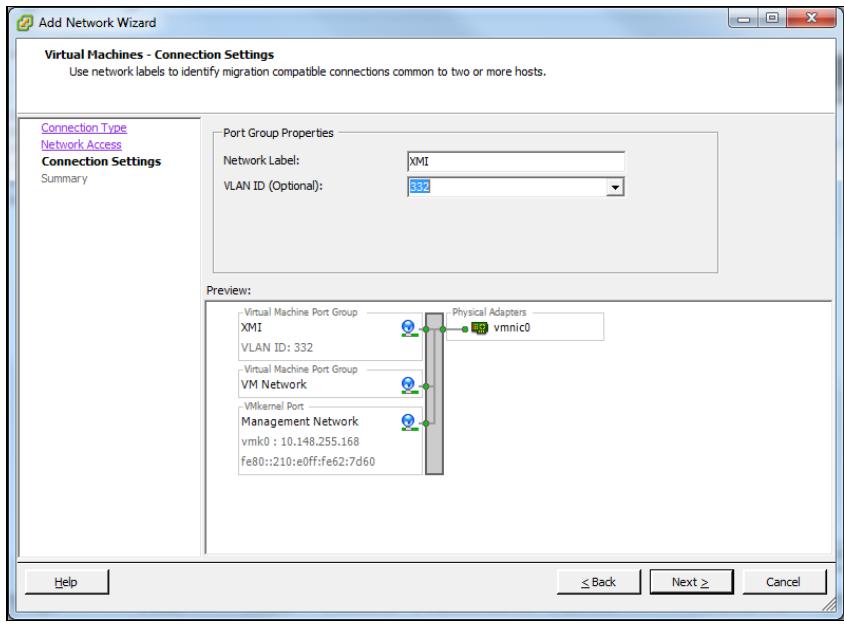
- XMI
OAM Management Interface for the application
- XSI1
Signaling Interface
- XSI2
Signaling Interface
- IMI
Replication Interface
- Guest Management
Reserved for Guest management activities.

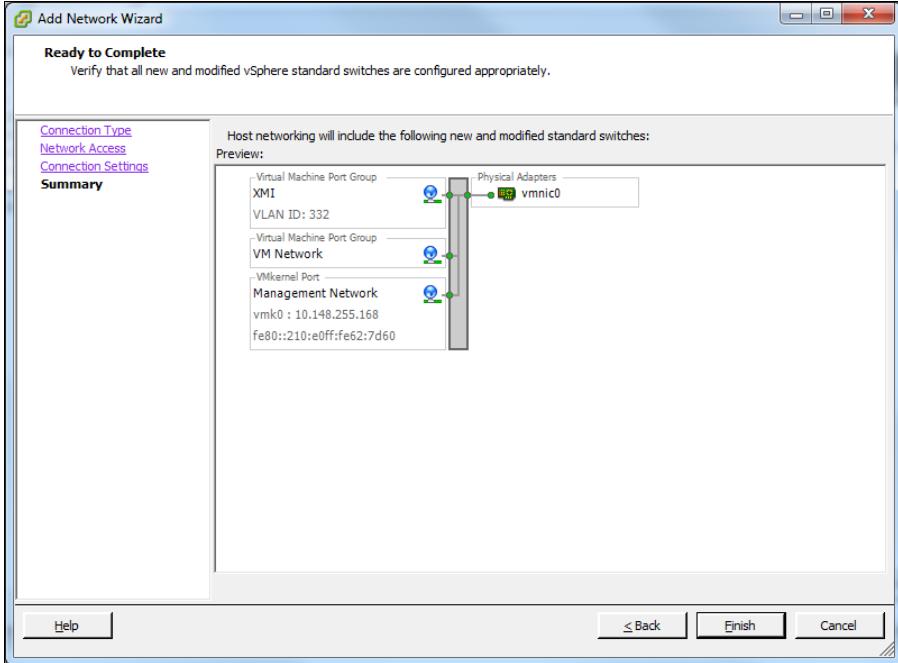
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

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

Procedure15: Host Networking Configuration with vSphere

Step	Procedure	Details
7. <input type="checkbox"/>	Log into the Vmware client	<div style="border: 1px solid #ccc; padding: 10px; width: fit-content; margin: auto;"> <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 will be used or referenced from within the Guest, ie XMI, IMI, XSI1, etc.</p>

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

THIS PROCEDURE HAS BEEN COMPLETED

Appendix B. VMware vSphere Oracle Communications User Data Repository Deployment

B.1 CREATE GUESTS FROM OVA

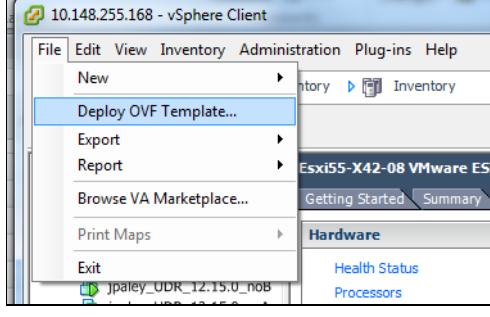
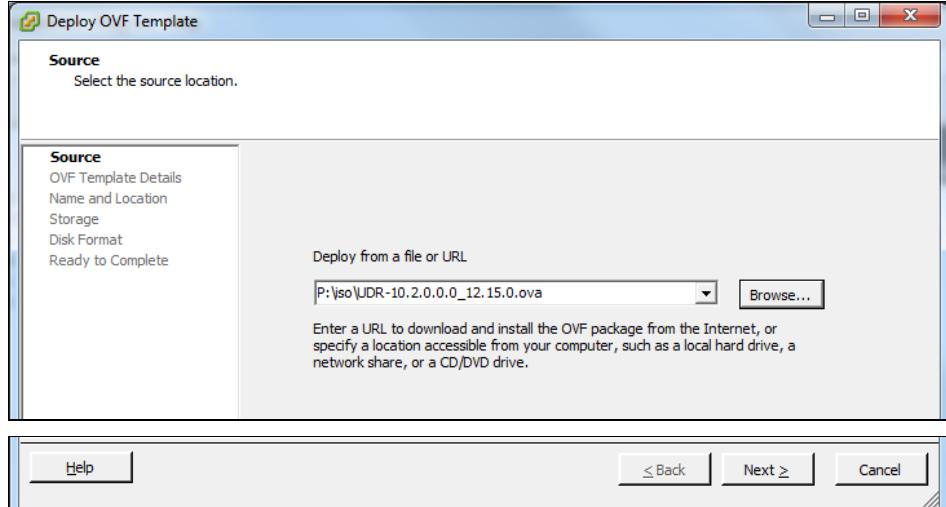
This procedure creates Oracle Communications User Data Repository virtual machines (guests) from OVA.

Needed material:

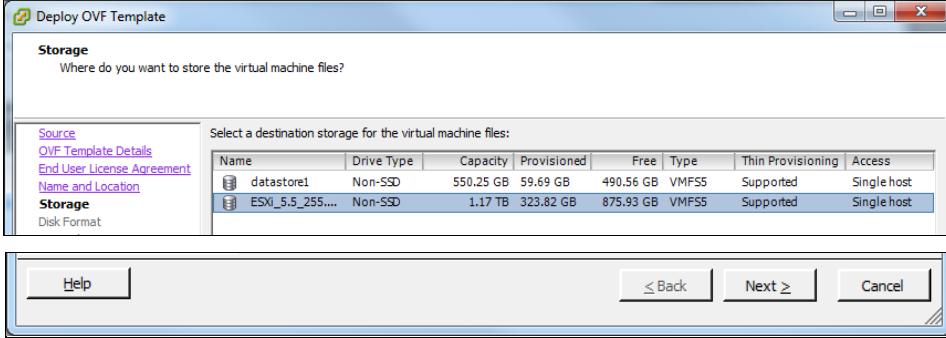
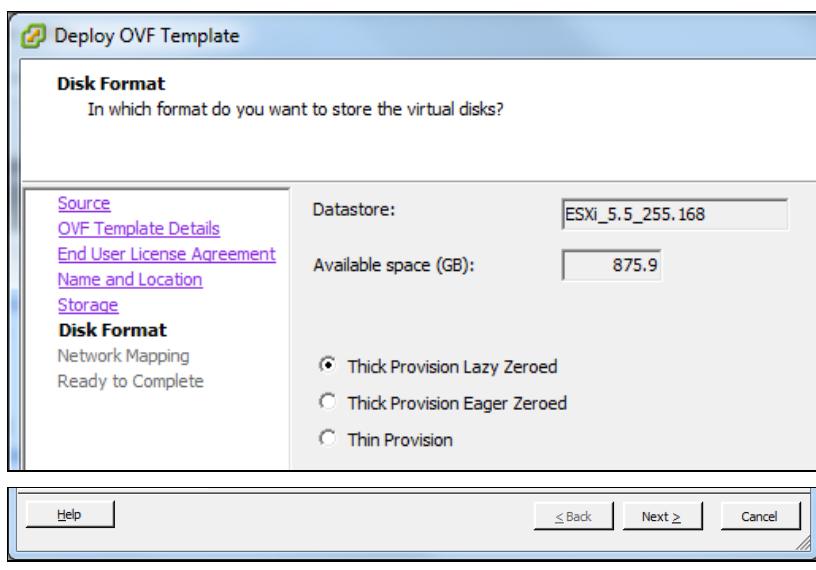
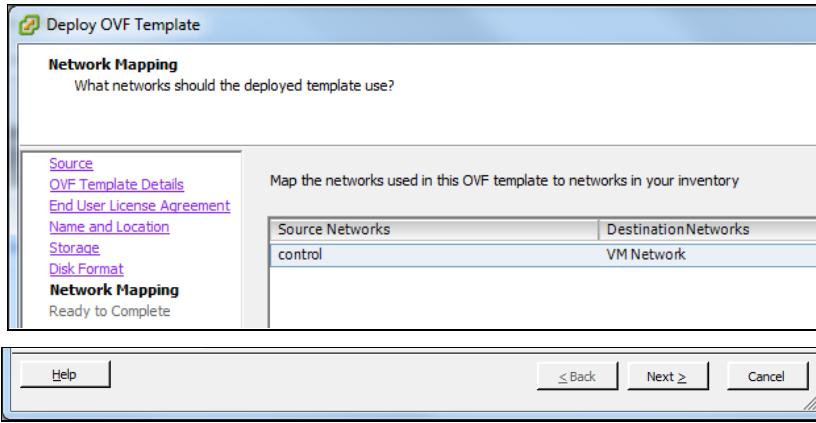
- Oracle Communications User Data Repository OVA

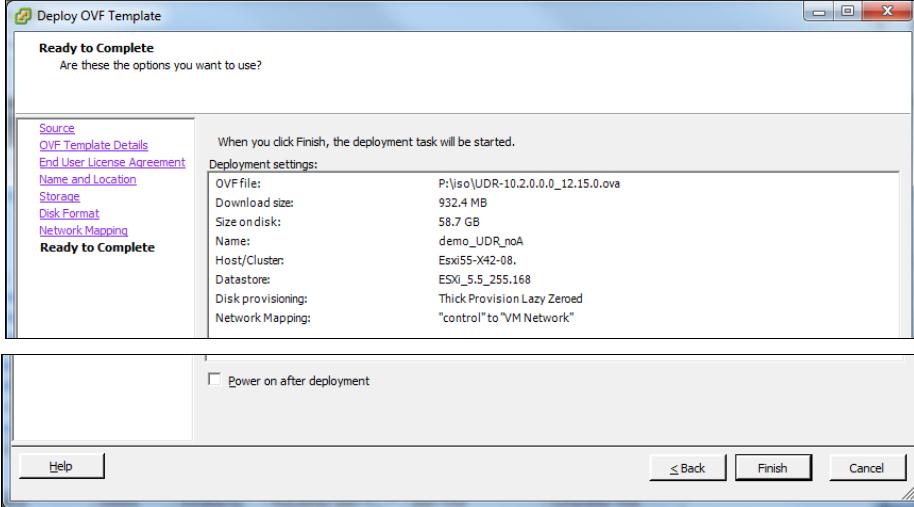
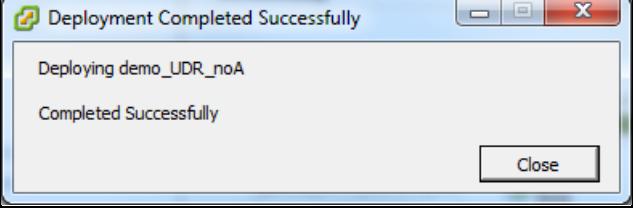
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

Procedure16: Deploy Oracle Communications User Data Repository OVA

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

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

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

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

THIS PROCEDURE HAS BEEN COMPLETED

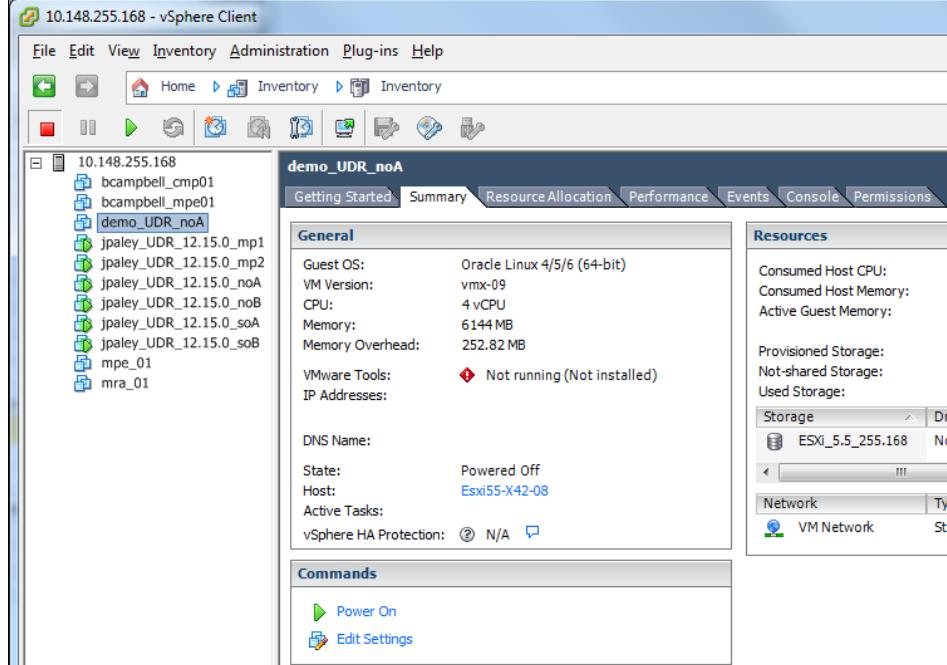
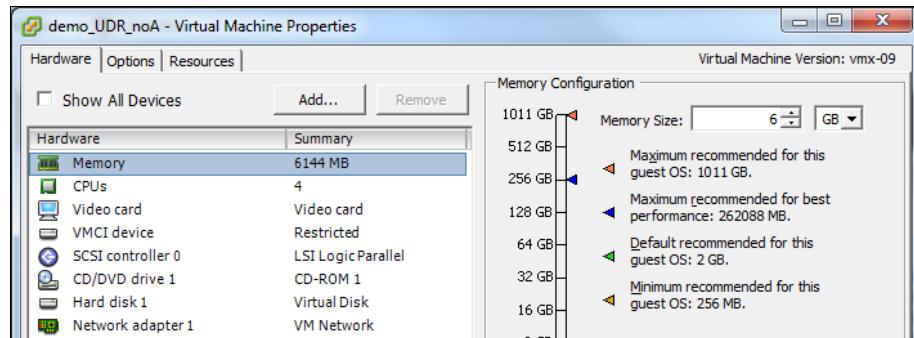
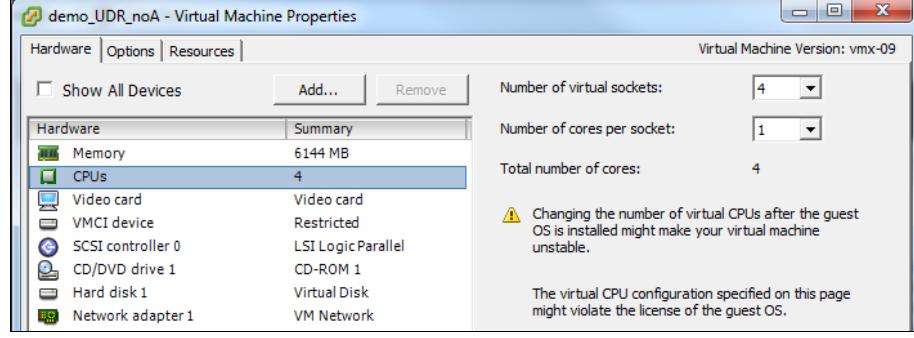
B.2 CONFIGURE GUEST RESOURCES

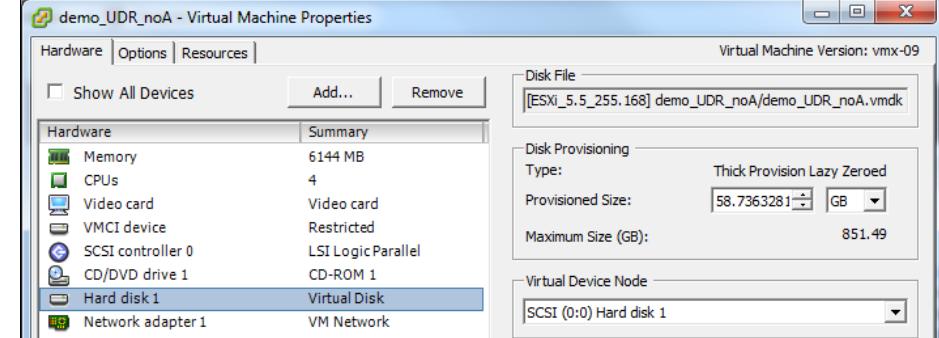
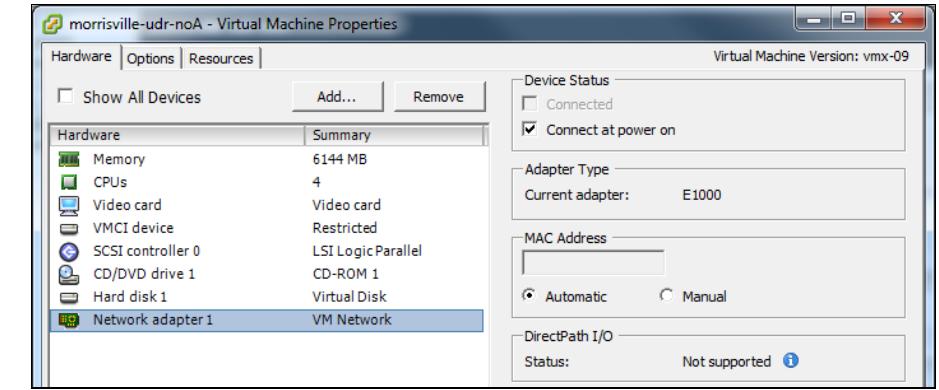
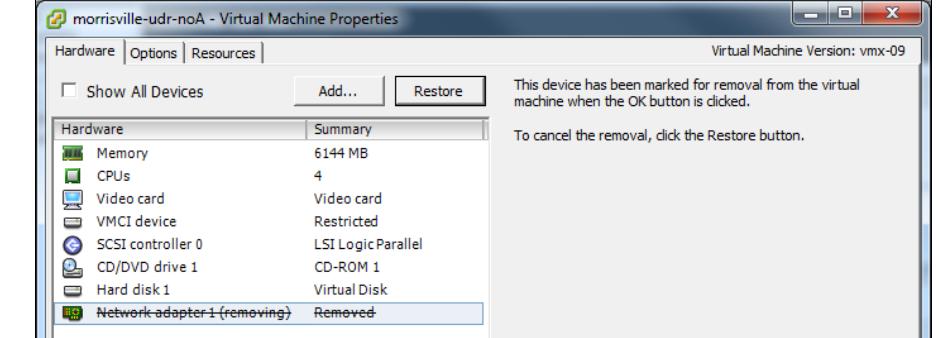
This procedure configures the required resource allocations and associations for Oracle Communications User Data Repository virtual machines (guests) and power them on.

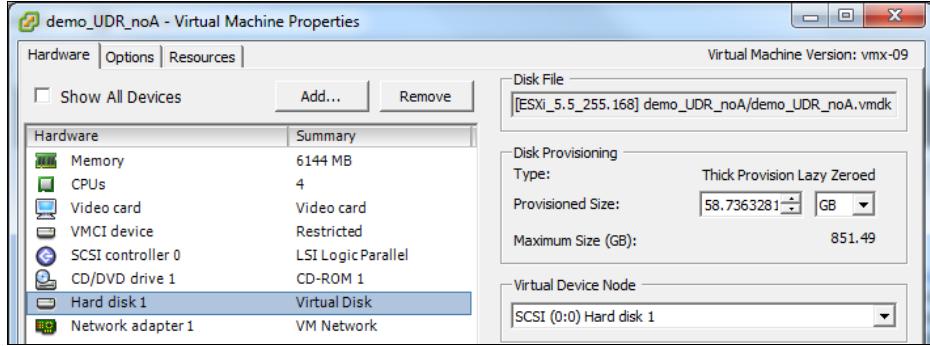
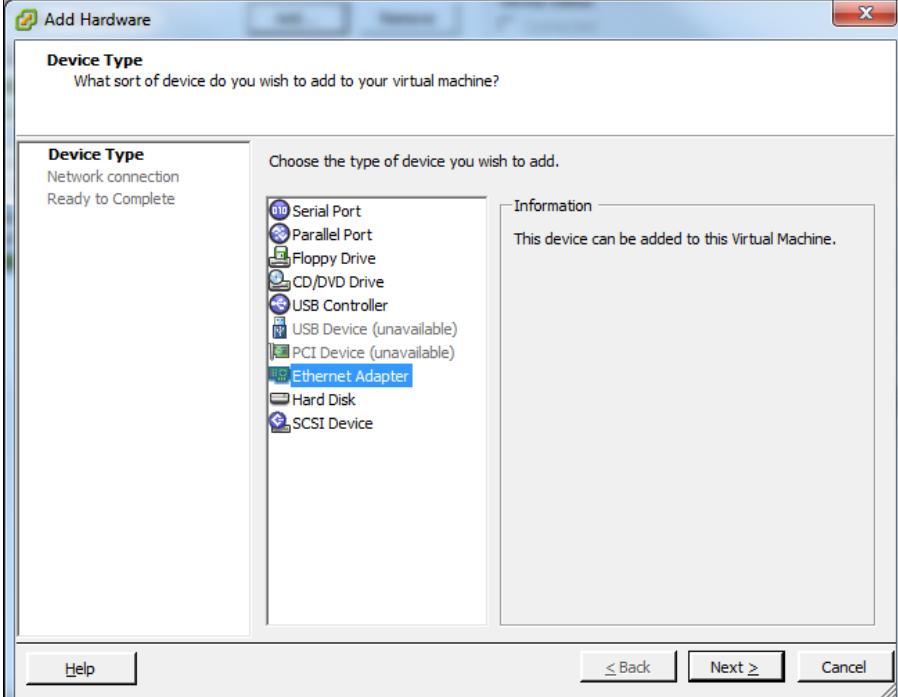
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

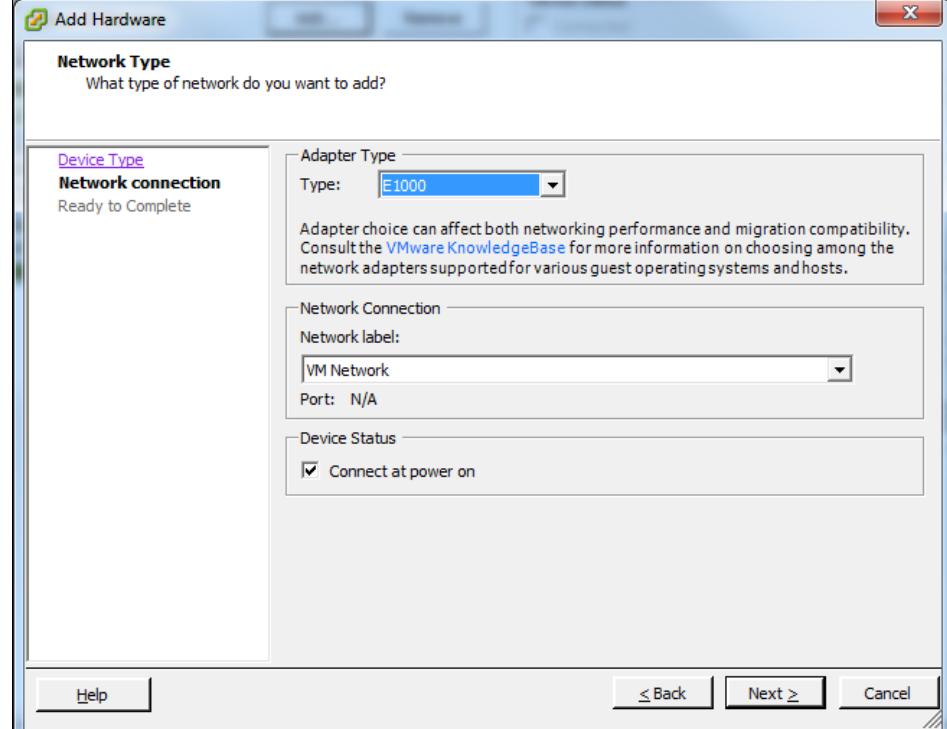
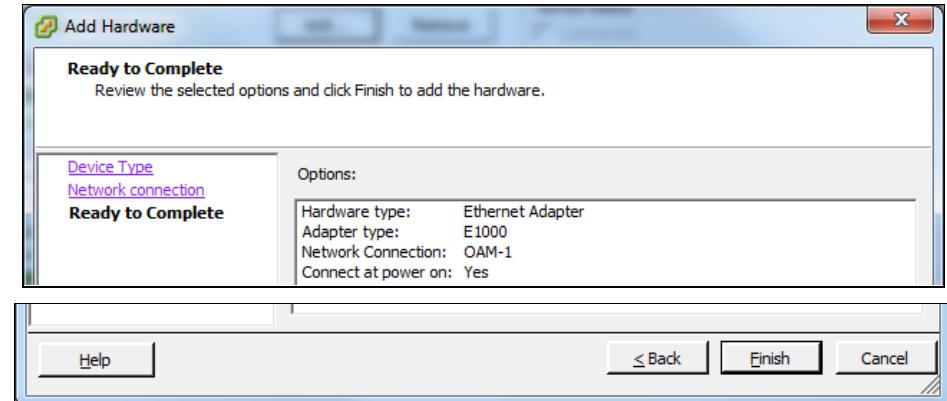
Procedure17: Configure Guest Resources

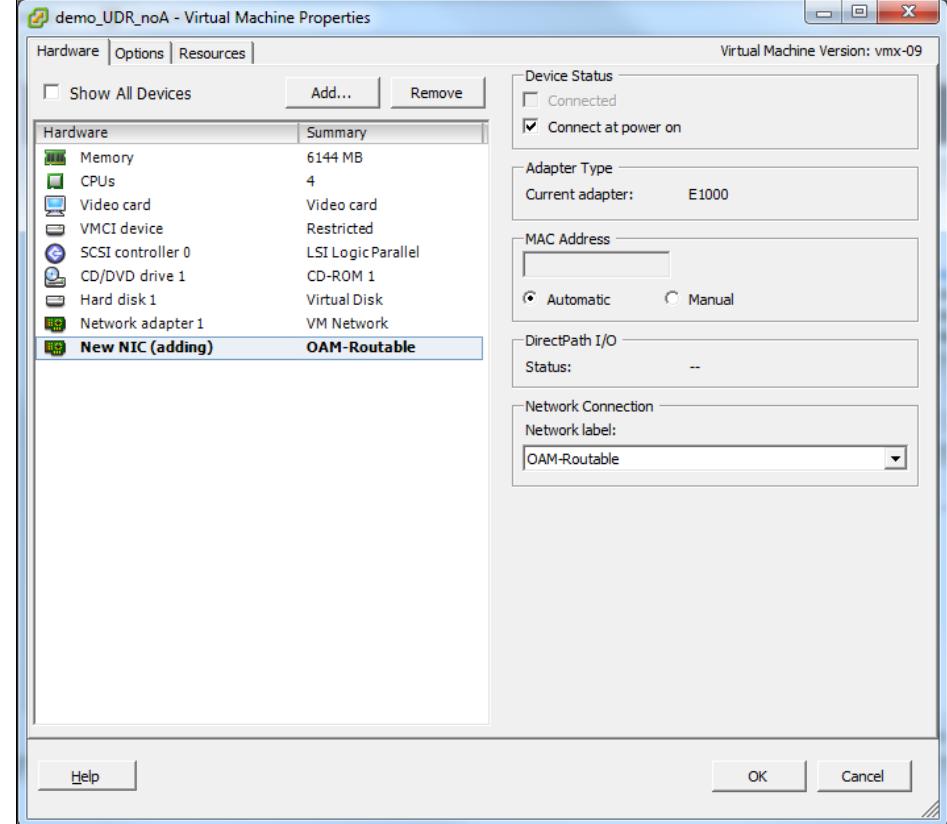
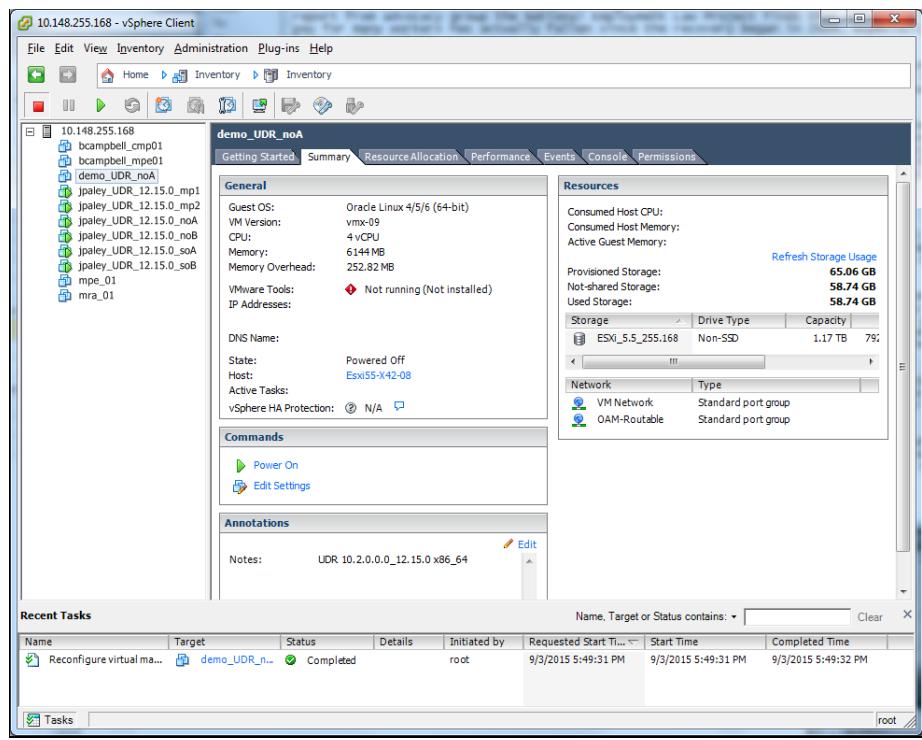
Step	Procedure	Result
1. <input type="checkbox"/>	VMware client: Log into the Vmware client	

Step	Procedure	Result
2. <input type="checkbox"/>	VMware client: 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 server's role 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]Error! reference source not found..	

Step	Procedure	Result				
5. <input type="checkbox"/>	VMware client: Select Hard disk 1 from the Hardware menu and adjust the Provisioned Size according to [1].					
6. <input type="checkbox"/>	VMware client: 1. Select any Network adapter that may exist by default 2. Click Remove tab					
7. <input type="checkbox"/>	VMware client: The network adapter will be crossed out and a removal message displayed					
8. <input type="checkbox"/>	VMware client: Take note of the order in which networks are added.	<p>NOTE: The order in which networks are added by the following steps affects their device order within the virtual machine. Care should be taken to add them in the order they appear for each server:</p> <table border="1" data-bbox="523 1469 850 1607"> <thead> <tr> <th data-bbox="523 1469 850 1512">UDR</th> </tr> </thead> <tbody> <tr> <td data-bbox="523 1512 850 1543">1. <input type="checkbox"/> XMI</td> </tr> <tr> <td data-bbox="523 1543 850 1575">2. <input type="checkbox"/> IMI</td> </tr> <tr> <td data-bbox="523 1575 850 1607">3. <input type="checkbox"/> XSI-1 (optional)</td> </tr> </tbody> </table>	UDR	1. <input type="checkbox"/> XMI	2. <input type="checkbox"/> IMI	3. <input type="checkbox"/> XSI-1 (optional)
UDR						
1. <input type="checkbox"/> XMI						
2. <input type="checkbox"/> IMI						
3. <input type="checkbox"/> XSI-1 (optional)						

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

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

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

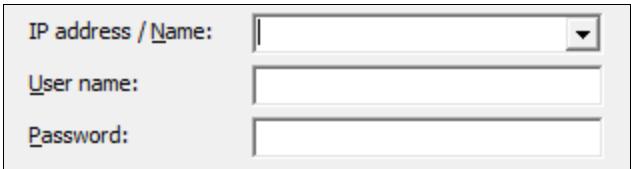
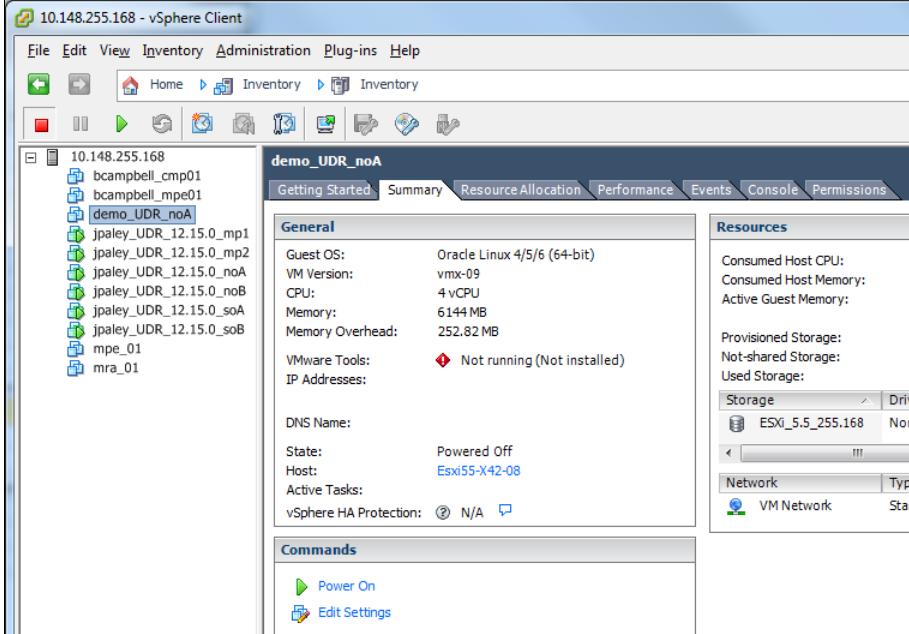
THIS PROCEDURE HAS BEEN COMPLETED

B.3 CONFIGURE GUEST NETWORK

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

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

Procedure18: Configure Guest OAM Network

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

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

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

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

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

Needed material:

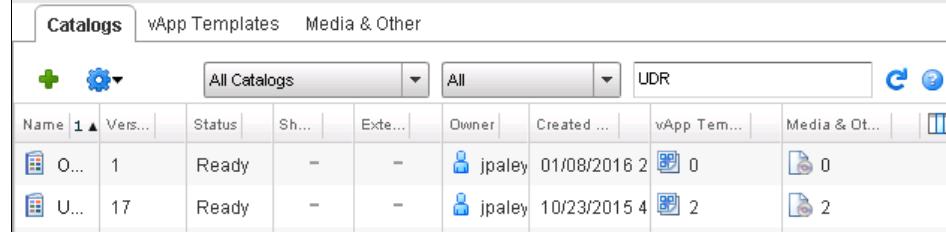
- Oracle Communications User Data Repository OVA

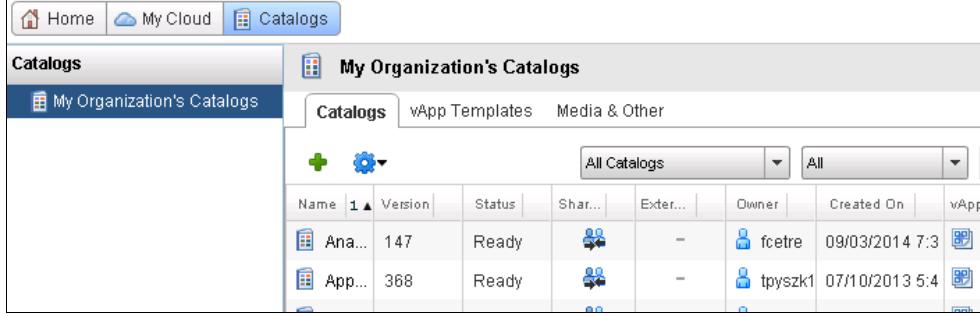
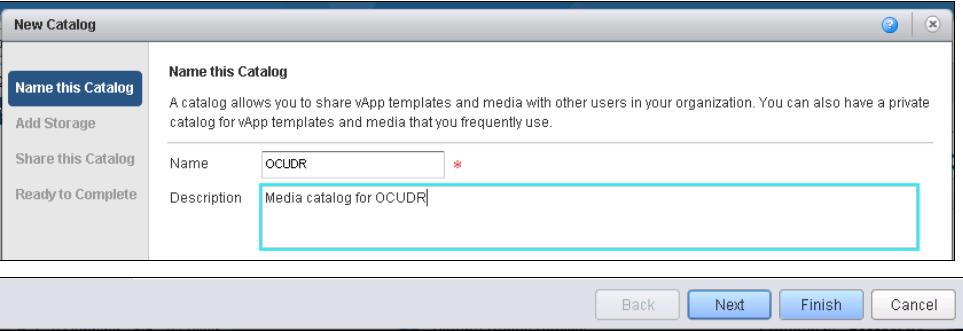
Optional material (required for ISO install only):

- Oracle Communications User Data Repository ISO
- TPD Platform ISO

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

Procedure19: vCloud Director Oracle Communications User Data Repository Media Upload

Step	Procedure	Result
1. <input type="checkbox"/>	Log into the VMware vCloud Director	
2. <input type="checkbox"/>	vCloud Director: Enter Oracle 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 yet exist, create one with the following two steps.</p>

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

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

THIS PROCEDURE HAS BEEN COMPLETED

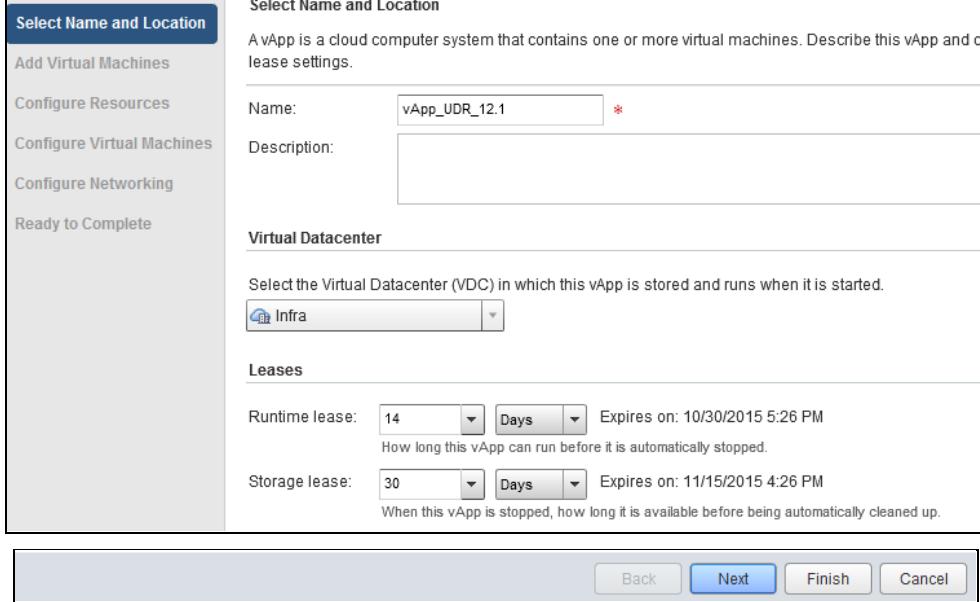
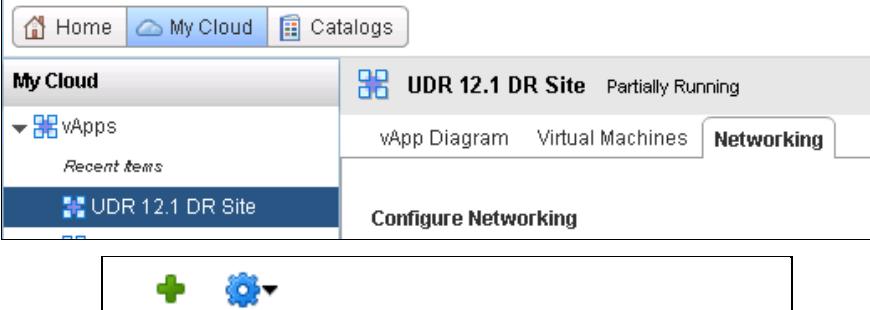
C.2 CREATE VAPP

This procedure creates and configure a new vApp virtual appliance.

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

Procedure20: Create vApp

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

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

Step	Procedure	Result
6. <input type="checkbox"/>	<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.</p> <p>Click Next.</p>	<div data-bbox="567 185 796 783"> <p>Network Type</p> <p>Network Specification</p> <p>General</p> <p>Ready to Complete</p> </div> <div data-bbox="812 185 1454 772"> <p>Network Specification</p> <p>Enter the network settings of the new vApp network below:</p> <p>Gateway address: <input type="text" value="192.168.2.1"/> *</p> <p>Network mask: <input type="text" value="255.255.255.0"/> *</p> <p>Primary DNS: <input type="text"/></p> <p>Secondary DNS: <input type="text"/></p> <p>DNS suffix: <input type="text"/></p> <p>Static IP pool:</p> <p>Enter an IP range (format: 192.168.1.2 - 192.168.1.100) or IP address and click Add.</p> <p><input type="text"/> <input type="button" value="Add"/></p> <p><input type="text" value="192.168.2.100 - 192.168.2.199"/> <input type="button" value="Modify"/> <input type="button" value="Remove"/></p> </div>
7. <input type="checkbox"/>	<p>vCloud Director: Enter a Name for your network using Error! reference source not found. as a guide.</p> <p>Click Next.</p>	<div data-bbox="633 819 845 1030"> <p>Network Type</p> <p>Network Specification</p> <p>General</p> <p>Ready to Complete</p> </div> <div data-bbox="878 819 1383 1030"> <p>General</p> <p>Enter a name and description for the new vApp network.</p> <p>Network name: <input type="text" value="XML"/></p> <p>Description: <input type="text"/></p> </div>
8. <input type="checkbox"/>	<p>vCloud Director: Review the network data</p> <p>Click Finish.</p>	<div data-bbox="641 1184 853 1607"> <p>Network Type</p> <p>Network Specification</p> <p>General</p> <p>Ready to Complete</p> </div> <div data-bbox="886 1184 1367 1607"> <p>Ready to Complete</p> <p>A new vApp network will be created with the following:</p> <p>Network name: Signal-1</p> <p>Description: <input type="text"/></p> <p>Primary DNS: <input type="text"/></p> <p>Secondary DNS: <input type="text"/></p> <p>Network mask: 255.255.255.0</p> <p>Gateway address: 192.168.2.1</p> <p>DNS suffix: <input type="text"/></p> <p>Static IP pool: 192.168.2.100 - 192.168.2.199</p> </div>

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

THIS PROCEDURE HAS BEEN COMPLETED

C.3 CREATE GUESTS FROM OVA

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

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

Procedure21: Create Guests from OVA with vCloud Director

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

Step	Procedure	Result																												
3. <input type="checkbox"/>	vCloud Director: Select icon on left to Add VM																													
4. <input type="checkbox"/>	vCloud Director: 1. Enter name in the search field and press Enter 2. Select Oracle Communications User Data Repository media name 3. Click Add . 4. Click Next .	<p>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>Look in: My Organization's Catalogs All UDR</p> <table border="1"> <thead> <tr> <th>Name</th> <th>OS</th> <th>Gold Ma...</th> <th>vApp</th> <th>Catalog</th> <th>Created On</th> <th>Disk Info</th> </tr> </thead> <tbody> <tr> <td>Meat6.0</td> <td>Other Linux</td> <td>-</td> <td>NPx OCUDR ME</td> <td>NPx-SPR</td> <td>10/19/2014 11:01 AM</td> <td>40.00 GB</td> </tr> <tr> <td>UDR-12.1.0.0.0_13.7.0</td> <td>Oracle Linux</td> <td>-</td> <td>UDR-12.1.0.0.0</td> <td>UDR</td> <td>01/08/2016 3:06 PM</td> <td>58.74 GB</td> </tr> <tr> <td>UDR_13.3.0</td> <td>Oracle Linux</td> <td>-</td> <td>UDR_13.3.0</td> <td>UDR</td> <td>11/03/2015 3:25 PM</td> <td>58.74 GB</td> </tr> </tbody> </table> <p>Add Remove 1-4 of 4</p> <p>NOTE: Multiple servers may be created at once using Add.</p> <p>Back Next Finish</p>	Name	OS	Gold Ma...	vApp	Catalog	Created On	Disk Info	Meat6.0	Other Linux	-	NPx OCUDR ME	NPx-SPR	10/19/2014 11:01 AM	40.00 GB	UDR-12.1.0.0.0_13.7.0	Oracle Linux	-	UDR-12.1.0.0.0	UDR	01/08/2016 3:06 PM	58.74 GB	UDR_13.3.0	Oracle Linux	-	UDR_13.3.0	UDR	11/03/2015 3:25 PM	58.74 GB
Name	OS	Gold Ma...	vApp	Catalog	Created On	Disk Info																								
Meat6.0	Other Linux	-	NPx OCUDR ME	NPx-SPR	10/19/2014 11:01 AM	40.00 GB																								
UDR-12.1.0.0.0_13.7.0	Oracle Linux	-	UDR-12.1.0.0.0	UDR	01/08/2016 3:06 PM	58.74 GB																								
UDR_13.3.0	Oracle Linux	-	UDR_13.3.0	UDR	11/03/2015 3:25 PM	58.74 GB																								
5. <input type="checkbox"/>	vCloud Director: 1. Check box to agree with license 2. Click Next	<input checked="" type="checkbox"/> I agree and accept the above license agreements. *																												
6. <input type="checkbox"/>	vCloud Director: 1. Rename virtual machines to reflect its location and role 2. Click Finish .	<p>Add Virtual Machines Accept Licenses 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> </tr> </thead> <tbody> <tr> <td>UDR-NO-A</td> <td>* (Any)</td> </tr> </tbody> </table> <p>Back Next Finish Cancel</p>	Virtual Machine	Storage Policy	UDR-NO-A	* (Any)																								
Virtual Machine	Storage Policy																													
UDR-NO-A	* (Any)																													

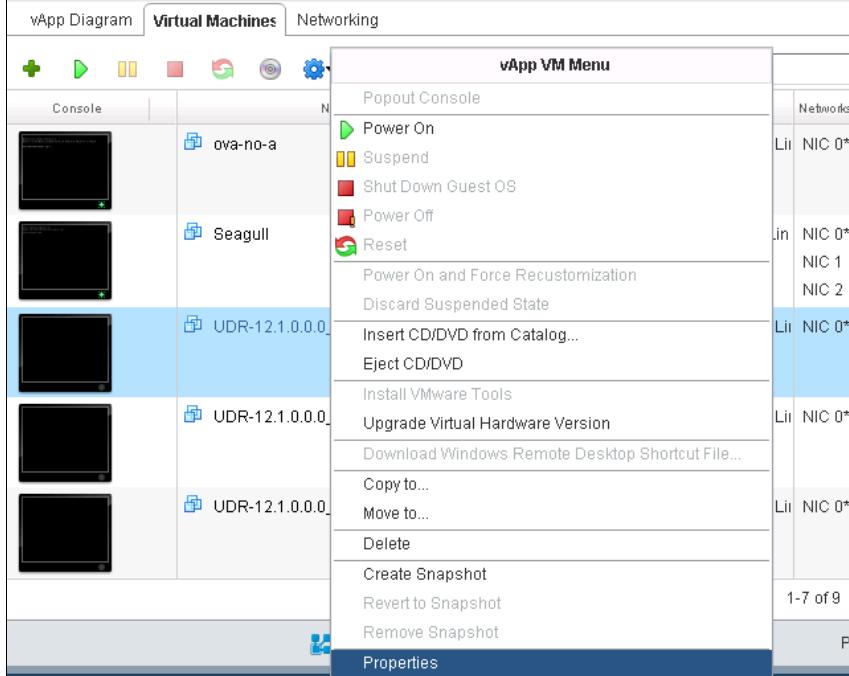
THIS PROCEDURE HAS BEEN COMPLETED

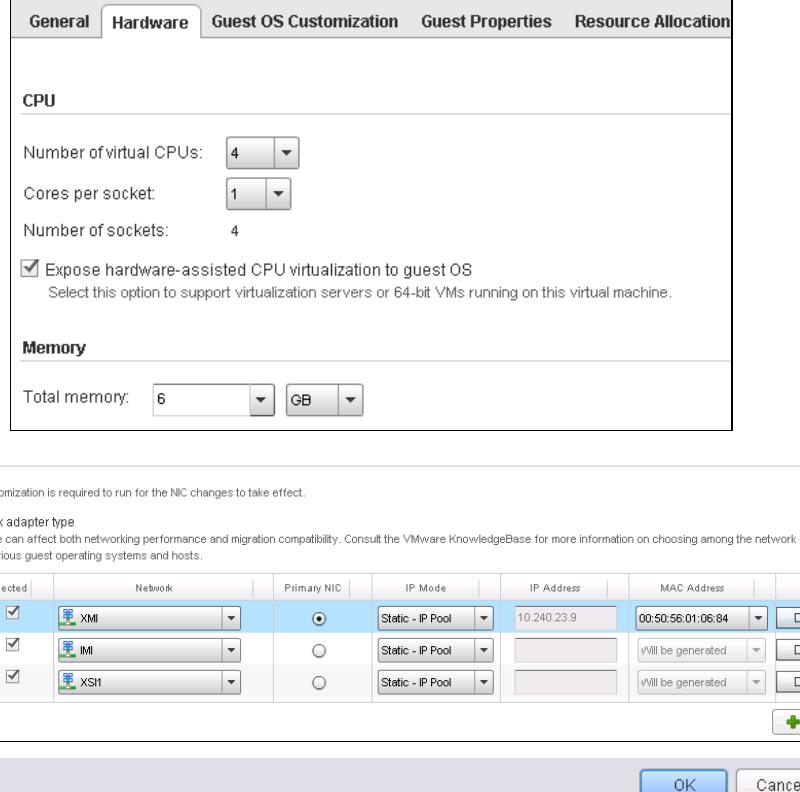
C.4 CONFIGURE GUEST RESOURCES

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

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

Procedure22: Configure Guests from OVA with vCloud Director

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

Step	Procedure	Result
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 server's role in [1]. 3. Check Expose hardware-assisted CPU virtualization box. 4. Adjust NICs to match the server's role in [1]. 5. Click OK. 	

THIS PROCEDURE HAS BEEN COMPLETED

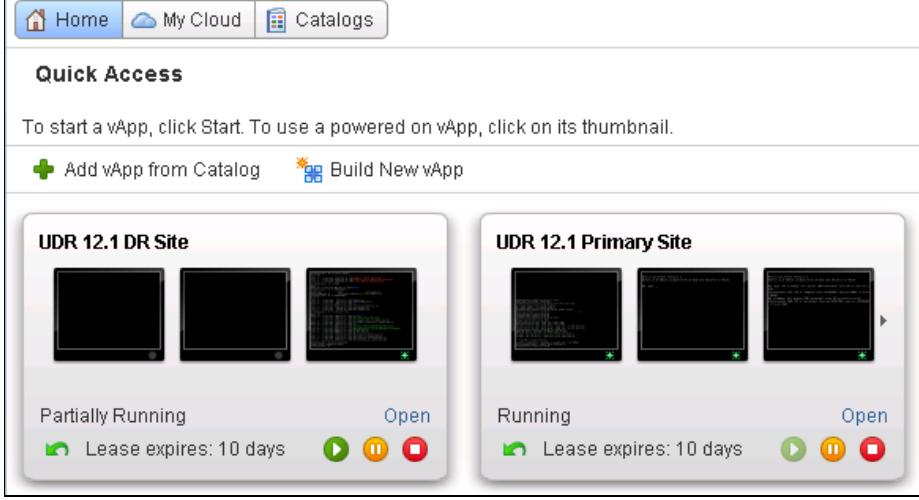
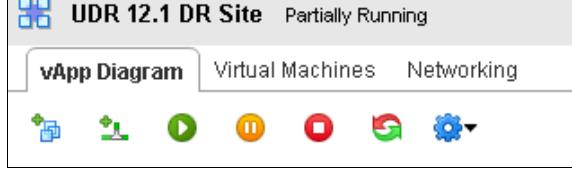
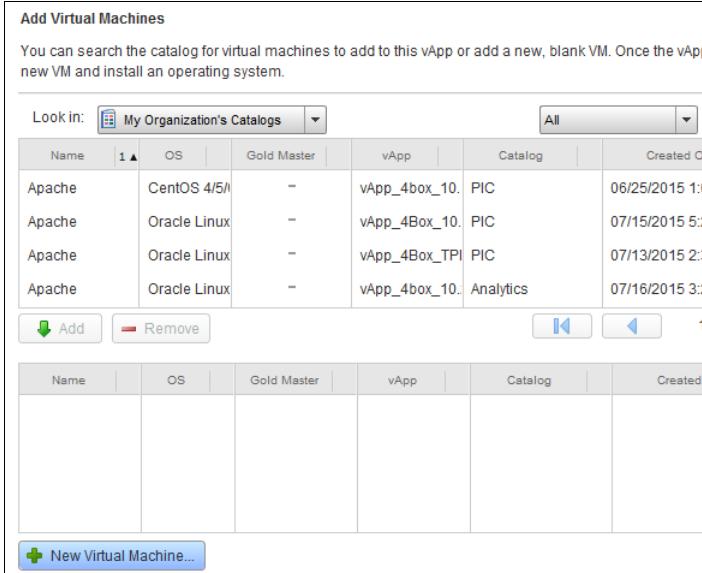
C.5 CREATE GUESTS FROM ISO

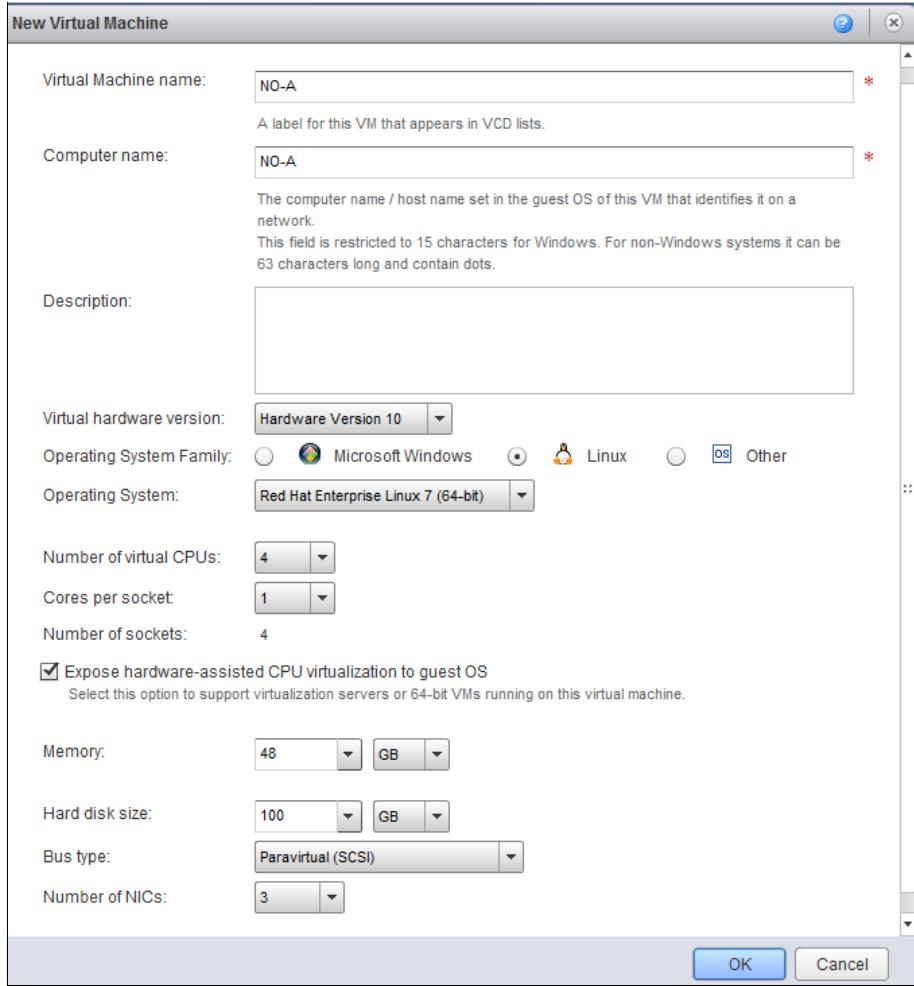
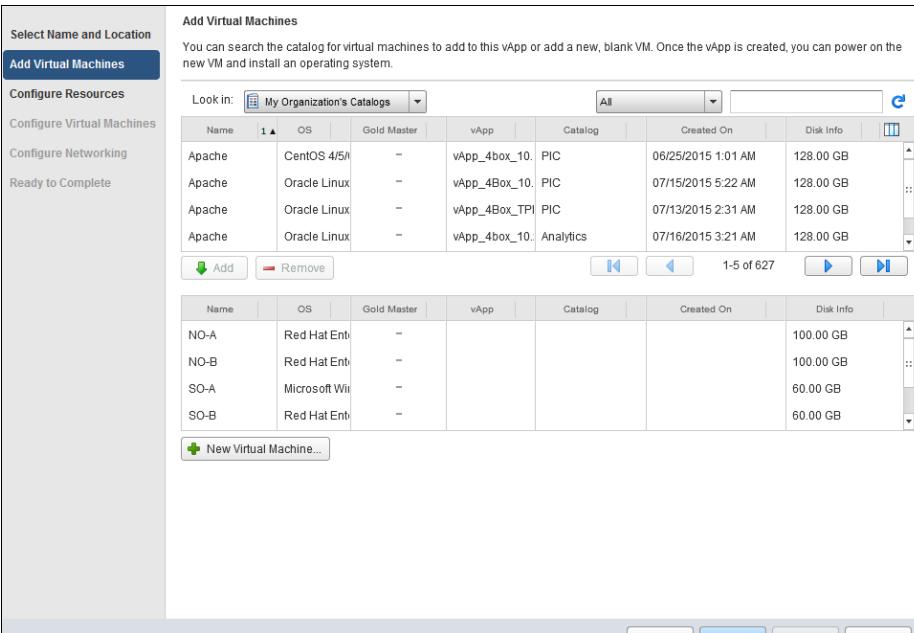
This procedure creates Oracle Communications User Data Repository virtual machines (guests) from ISO.

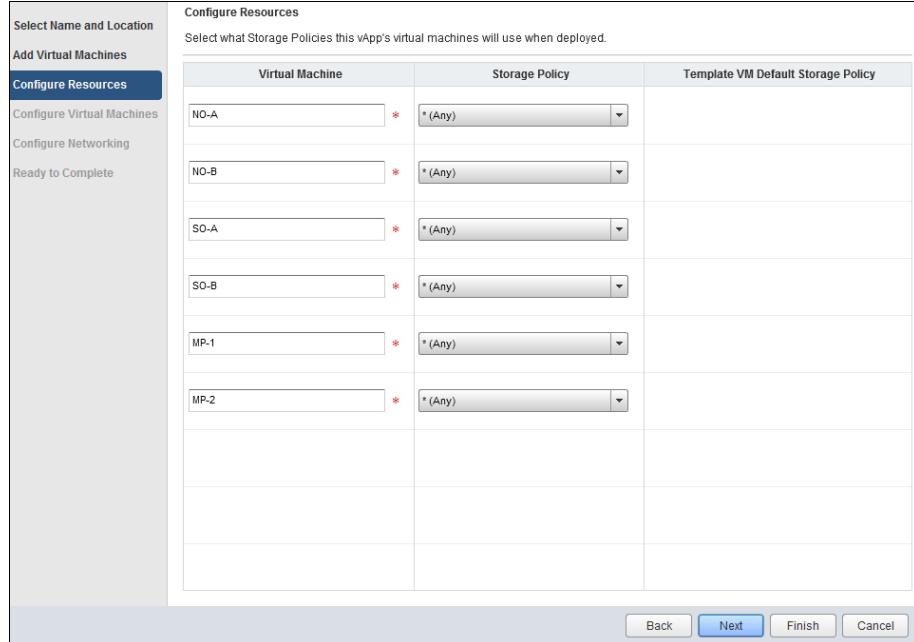
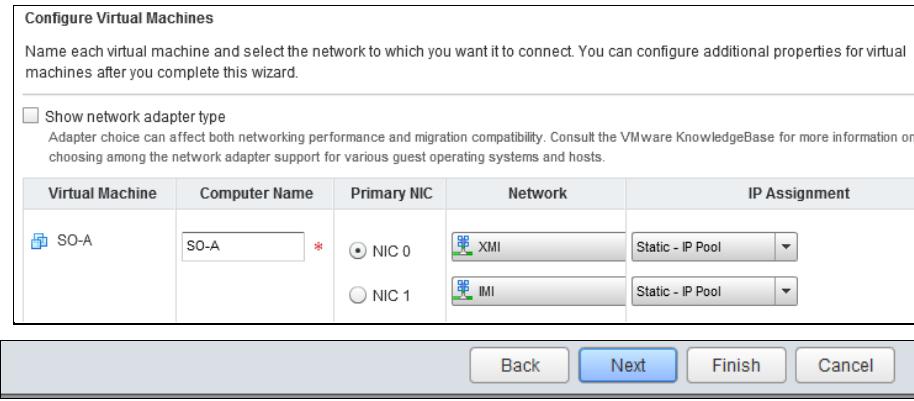
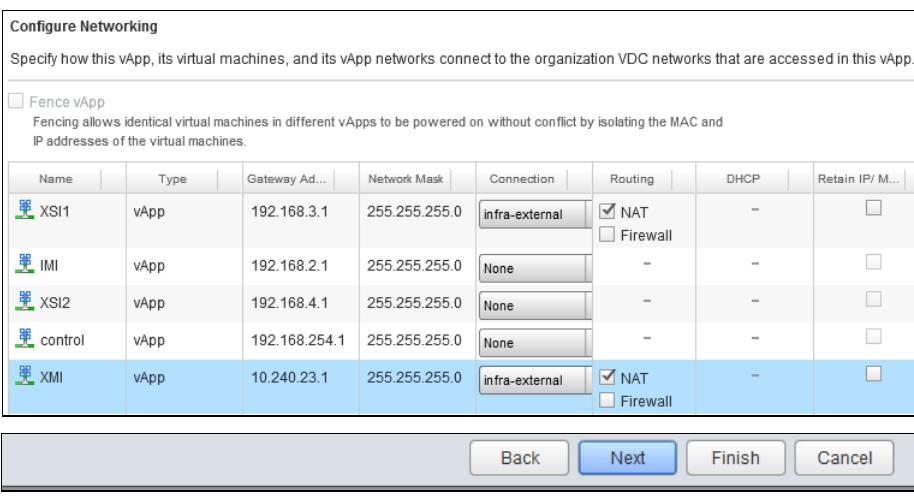
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

Procedure23: Create Guests from ISO with vCloud Director

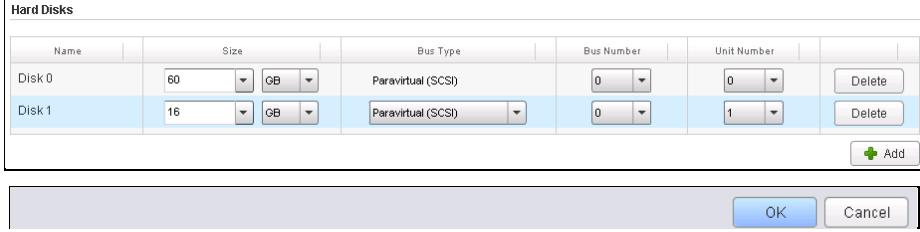
Step	Procedure	Result
1. <input type="checkbox"/>	Log into the VMware vCloud Director	

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 to create it.</p>																														
3. <input type="checkbox"/>	vCloud Director: Select icon on left to Add VM																															
4. <input type="checkbox"/>	vCloud Director: Click New Virtual Machine .	 <table border="1" data-bbox="657 1157 1359 1332"> <thead> <tr> <th>Name</th> <th>OS</th> <th>Gold Master</th> <th>vApp</th> <th>Catalog</th> <th>Created On</th> </tr> </thead> <tbody> <tr> <td>Apache</td> <td>CentOS 4/5/6</td> <td>-</td> <td>vApp_4box_10</td> <td>PIC</td> <td>06/25/2015 1:30</td> </tr> <tr> <td>Apache</td> <td>Oracle Linux</td> <td>-</td> <td>vApp_4Box_10</td> <td>PIC</td> <td>07/15/2015 5:23</td> </tr> <tr> <td>Apache</td> <td>Oracle Linux</td> <td>-</td> <td>vApp_4Box_TPI</td> <td>PIC</td> <td>07/13/2015 2:30</td> </tr> <tr> <td>Apache</td> <td>Oracle Linux</td> <td>-</td> <td>vApp_4box_10</td> <td>Analytics</td> <td>07/16/2015 3:30</td> </tr> </tbody> </table>	Name	OS	Gold Master	vApp	Catalog	Created On	Apache	CentOS 4/5/6	-	vApp_4box_10	PIC	06/25/2015 1:30	Apache	Oracle Linux	-	vApp_4Box_10	PIC	07/15/2015 5:23	Apache	Oracle Linux	-	vApp_4Box_TPI	PIC	07/13/2015 2:30	Apache	Oracle Linux	-	vApp_4box_10	Analytics	07/16/2015 3:30
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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 OCCUR Resource Profile[1]. 5. Click OK .																																																																							
6. <input type="checkbox"/>	vCloud Director: Click Next .	 <table border="1" data-bbox="714 1284 1449 1495"> <thead> <tr> <th>Name</th> <th>OS</th> <th>Gold Master</th> <th>vApp</th> <th>Catalog</th> <th>Created On</th> <th>Disk Info</th> </tr> </thead> <tbody> <tr> <td>Apache</td> <td>CentOS 4/5/6</td> <td>—</td> <td>vApp_4box_10</td> <td>PIC</td> <td>06/25/2015 1:01 AM</td> <td>128.00 GB</td> </tr> <tr> <td>Apache</td> <td>Oracle Linux</td> <td>—</td> <td>vApp_4Box_10</td> <td>PIC</td> <td>07/15/2015 5:22 AM</td> <td>128.00 GB</td> </tr> <tr> <td>Apache</td> <td>Oracle Linux</td> <td>—</td> <td>vApp_4Box_TPI</td> <td>PIC</td> <td>07/13/2015 2:31 AM</td> <td>128.00 GB</td> </tr> <tr> <td>Apache</td> <td>Oracle Linux</td> <td>—</td> <td>vApp_4box_10</td> <td>Analytics</td> <td>07/16/2015 3:21 AM</td> <td>128.00 GB</td> </tr> </tbody> </table> <table border="1" data-bbox="714 1495 1449 1622"> <thead> <tr> <th>Name</th> <th>OS</th> <th>Gold Master</th> <th>vApp</th> <th>Catalog</th> <th>Created On</th> <th>Disk Info</th> </tr> </thead> <tbody> <tr> <td>NO-A</td> <td>Red Hat Ent</td> <td>—</td> <td></td> <td></td> <td></td> <td>100.00 GB</td> </tr> <tr> <td>NO-B</td> <td>Red Hat Ent</td> <td>—</td> <td></td> <td></td> <td></td> <td>100.00 GB</td> </tr> <tr> <td>SO-A</td> <td>Microsoft Wil</td> <td>—</td> <td></td> <td></td> <td></td> <td>60.00 GB</td> </tr> <tr> <td>SO-B</td> <td>Red Hat Ent</td> <td>—</td> <td></td> <td></td> <td></td> <td>60.00 GB</td> </tr> </tbody> </table>	Name	OS	Gold Master	vApp	Catalog	Created On	Disk Info	Apache	CentOS 4/5/6	—	vApp_4box_10	PIC	06/25/2015 1:01 AM	128.00 GB	Apache	Oracle Linux	—	vApp_4Box_10	PIC	07/15/2015 5:22 AM	128.00 GB	Apache	Oracle Linux	—	vApp_4Box_TPI	PIC	07/13/2015 2:31 AM	128.00 GB	Apache	Oracle Linux	—	vApp_4box_10	Analytics	07/16/2015 3:21 AM	128.00 GB	Name	OS	Gold Master	vApp	Catalog	Created On	Disk Info	NO-A	Red Hat Ent	—				100.00 GB	NO-B	Red Hat Ent	—				100.00 GB	SO-A	Microsoft Wil	—				60.00 GB	SO-B	Red Hat Ent	—				60.00 GB
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SO-B	Red Hat Ent	—				60.00 GB																																																																		

Step	Procedure	Result
7. <input type="checkbox"/>	vCloud Director: Click Next .	
8. <input type="checkbox"/>	vCloud Director: 1. Select Networks and IP Assignments for VM according to the role given in Resource Profile [1]. 2. Click Next .	
9. <input type="checkbox"/>	vCloud Director: 1. For each external network (XMI, XSI): Set Connection to the network a cloud administrator has granted for external communication. 2. For each external network (XMI, XSI): Check NAT and Uncheck Firewall. 3. Click Next .	

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

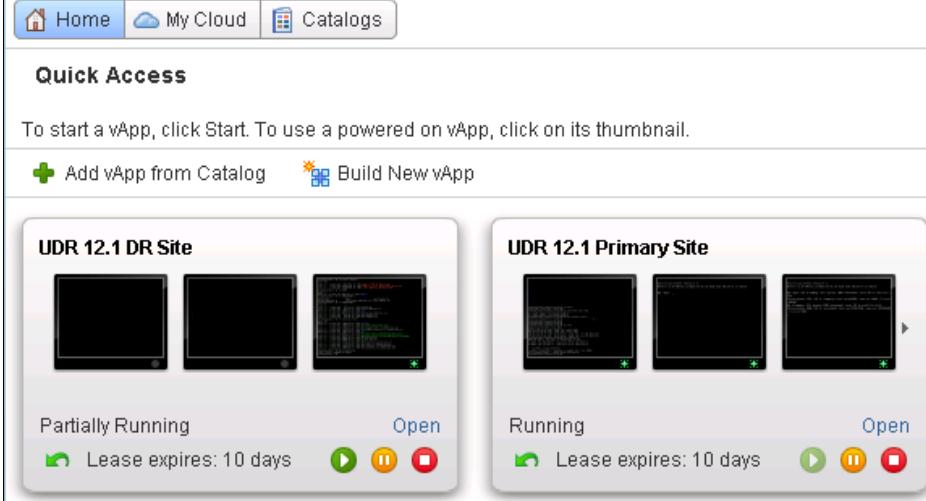
Step	Procedure	Result
13. <input type="checkbox"/>	vCloud Director: Only If the VM uses a second disk by [1]: 1. Click Add 2. Adjust size of Disk 1 to match VM profile [1]. 3. Click OK	 <p>THIS PROCEDURE HAS BEEN COMPLETED</p>

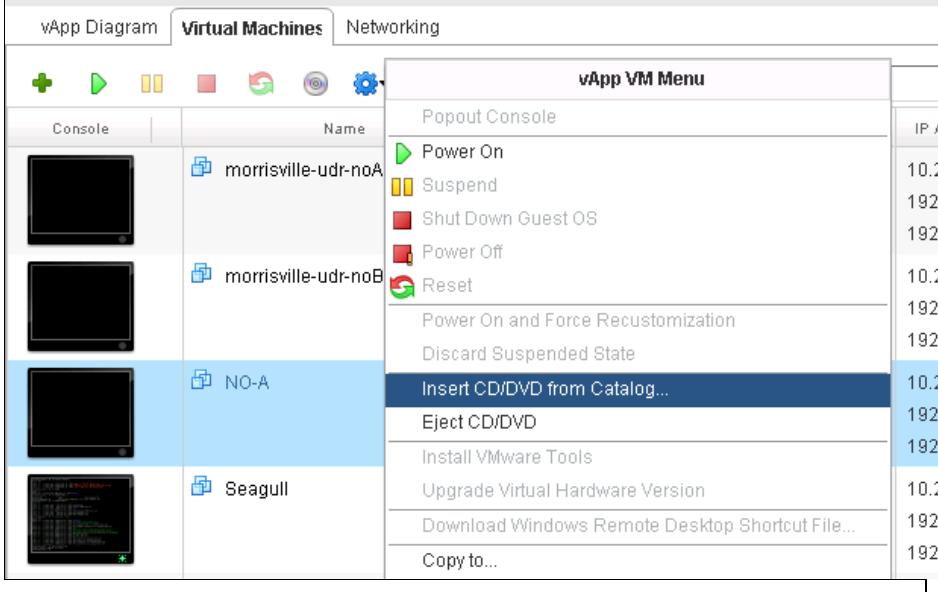
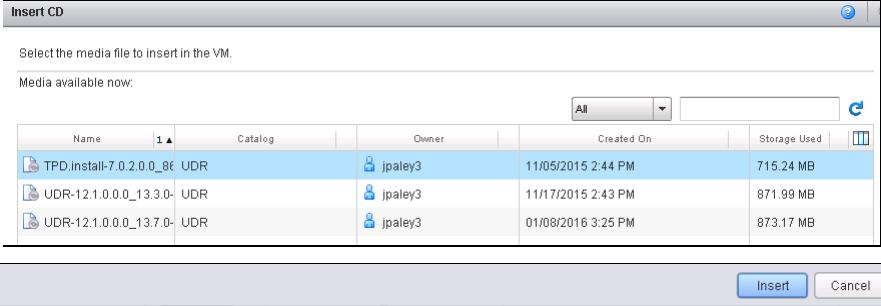
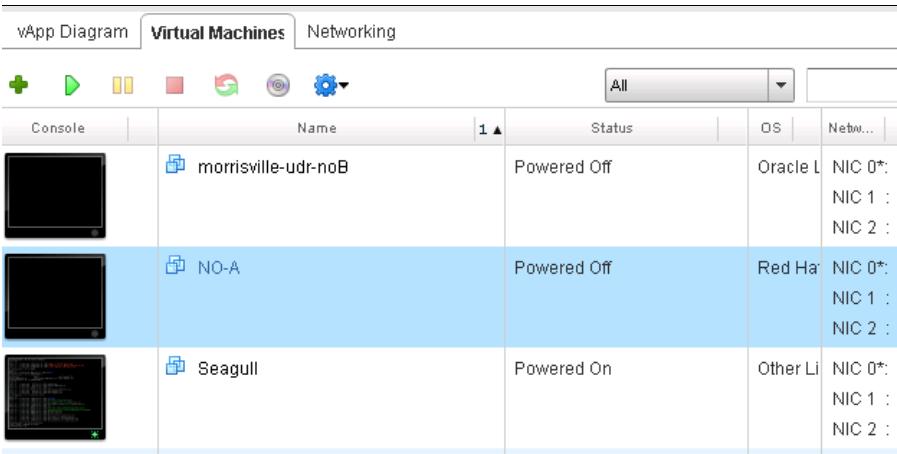
C.6 INSTALL GUESTS FROM ISO

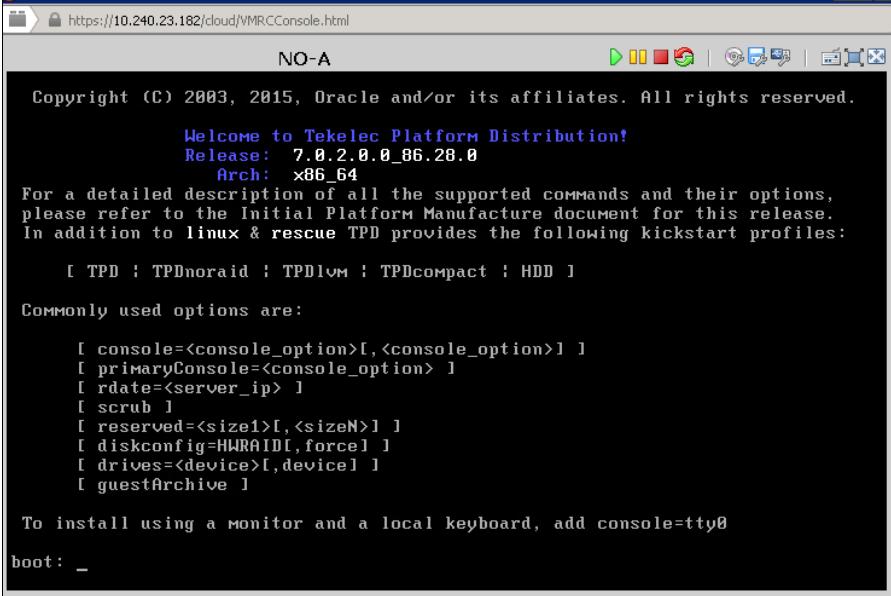
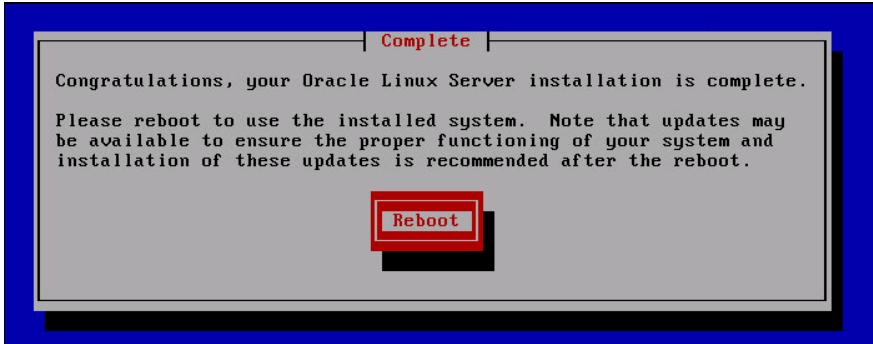
This procedure creates Oracle Communications User Data Repository virtual machines (guests) from ISO.

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

Procedure24: Install Guests from ISO with vCloud Director

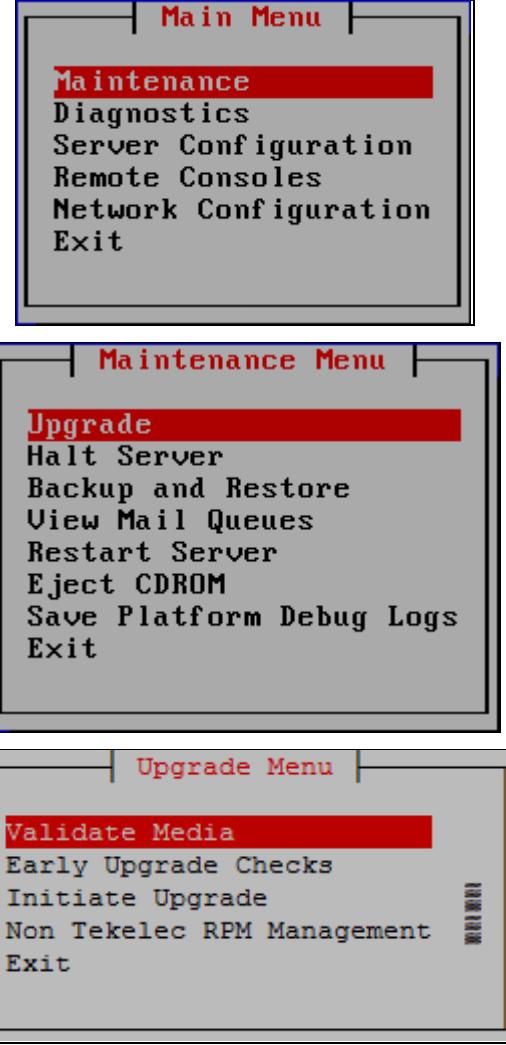
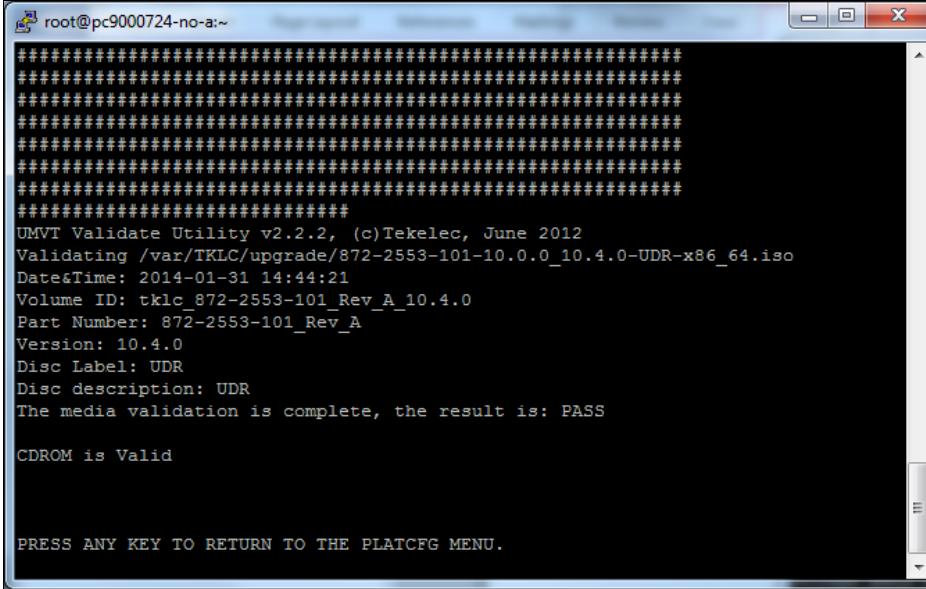
Step	Procedure	Result
1. <input type="checkbox"/>	Log into the VMware vCloud Director	
2. <input type="checkbox"/>	vCloud Director: Click Open for the Oracle Communications User Data Repository vApp then proceed to Step 5.	 <p>NOTE: Current vApps are listed on the Home Page. If a new vApp is required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

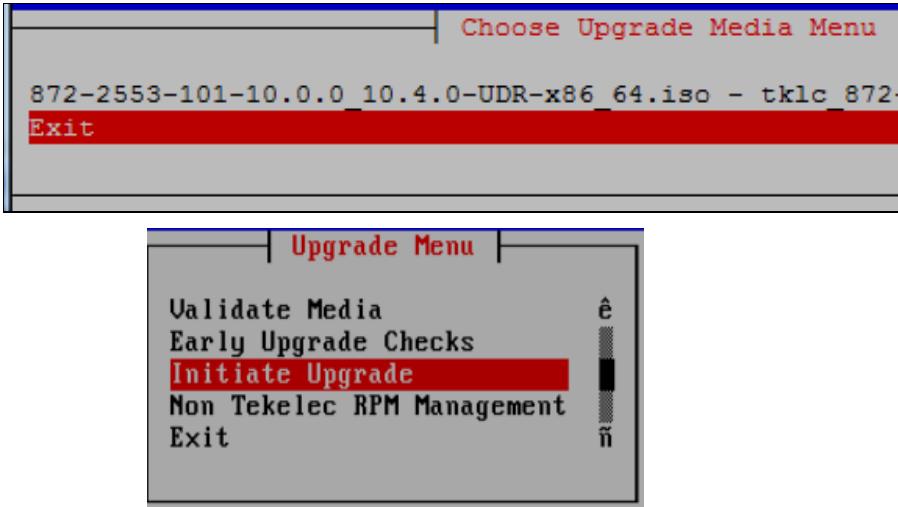
Step	Procedure	Result
3. <input type="checkbox"/>	vCloud Director: Navigate to → My Cloud → Virtual Machines	
4. <input type="checkbox"/>	vCloud Director: 1. Select the VM. 2. Click the Blue Gear icon. 3. Select Insert CD/DVD from Catalog .	
5. <input type="checkbox"/>	vCloud Director: 1. Select TPD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

Step	Procedure	Result
7. <input type="checkbox"/>	vCloud Director: Initiate operating system install by entering the given text into console boot prompt	 boot: TPDnoraid console=tty0
8. <input type="checkbox"/>	When installation completes, press Enter to reboot	 NOTE: Escape the console session with keyboard combination Ctrl-Alt
9. <input type="checkbox"/>	After reboot, log into console	Hostname:b6092a316785 login: root password:
10. <input type="checkbox"/>	Verify that the TPD release is 7.0.2.x	# getPlatRev 7.0.2.0-86.34.0
11. <input type="checkbox"/>	Run the alarmMgr command to verify health of the server before Application install.	# alarmMgr --alarmStatus NOTE: This command should return no 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 return no 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 with keyboard combination Ctrl-Alt

Step	Procedure	Result
19. <input type="checkbox"/>	vCloud Director: 1. Select the VM. 2. Click the Blue Gear icon. 3. Select Insert CD/DVD from Catalog.	
20. <input type="checkbox"/>	vCloud Director: 1. Select Oracle Communications User Data Repository ISO. 2. Click Insert	
21. <input type="checkbox"/>	VM Console: 1. Re-enter the console window 2. Login to the platcfg utility.	<pre data-bbox="621 1205 1155 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 shown 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="572 1269 1470 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 /mmt/upgrade/upgrade/pub_keys/MySQL_public_key.asc... Installing public key /mmt/upgrade/upgrade/pub_keys/RPM-GPG-KEY-redhat-beta... Installing public key /mmt/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 will appear as the server returns to a command prompt.	<p>*** TRUNCATED OUTPUT ***</p> <pre> ===== This system has been upgraded but the upgrade has not yet been accepted or rejected. Please accept or reject the upgrade soon. =====</pre> <p>VPATH=/opt/TKLCcomcol/runcm5.16:/opt/TKLCcomcol/cm5.16 PRODPATH= RELEASE=5.16 RUNID=00 VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr/TKLC/comagent-gui:/usr/TKLC/comagent:/usr/TKLC/udr PRODPATH=/opt/comcol/prod RUNID=00 [admusr@hostname1260476221 ~]\$</p>
30. <input type="checkbox"/>	VM Console: Verify successful upgrade.	<pre>\$ verifyUpgrade</pre> <p>NOTE: This command should return no output on a healthy system.</p>
31. <input type="checkbox"/>	VM Console: Verify that the Application release level shown matches the target release.	<pre>[admusr@ pc9000724-no-a ~]\$ appRev Install Time: Fri Feb 9 04:48:18 2018 Product Name: UDR Product Release: 12.4.0.0.0_16.14.0 Base Distro Product: TPD Base Distro Release: 7.5.0.0.0_88.45.0 Base Distro ISO: TPD.install-7.5.0.0.0_88.45.0-OracleLinux6.9-x86_64.iso ISO name: UDR-12.4.0.0.0_16.14.0-x86_64.iso OS: OracleLinux 6.9</pre>
32. <input type="checkbox"/>	Change directory	<pre>\$ cd /var/TKLC/backout</pre>
33. <input type="checkbox"/>	Perform upgrade acceptance.	<pre>\$ sudo ./accept</pre>

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

C.7 CONFIGURE GUESTS NETWORK

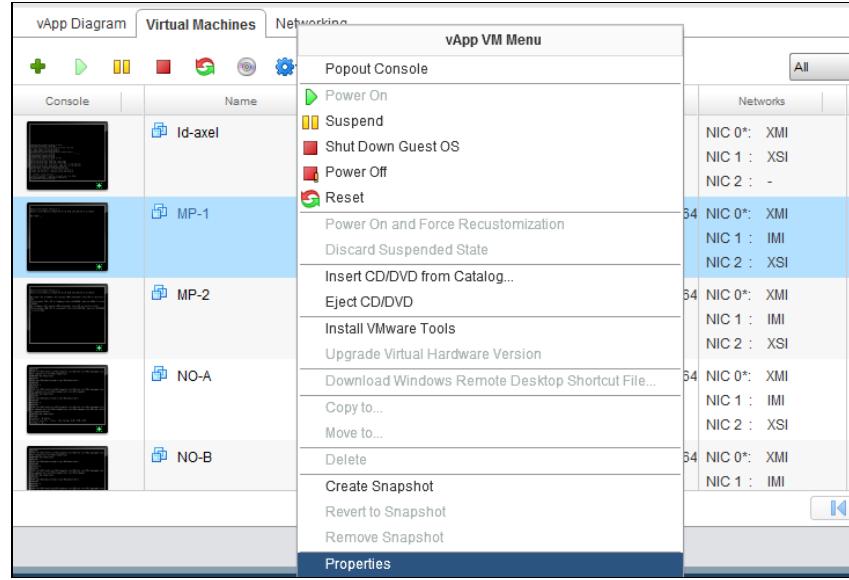
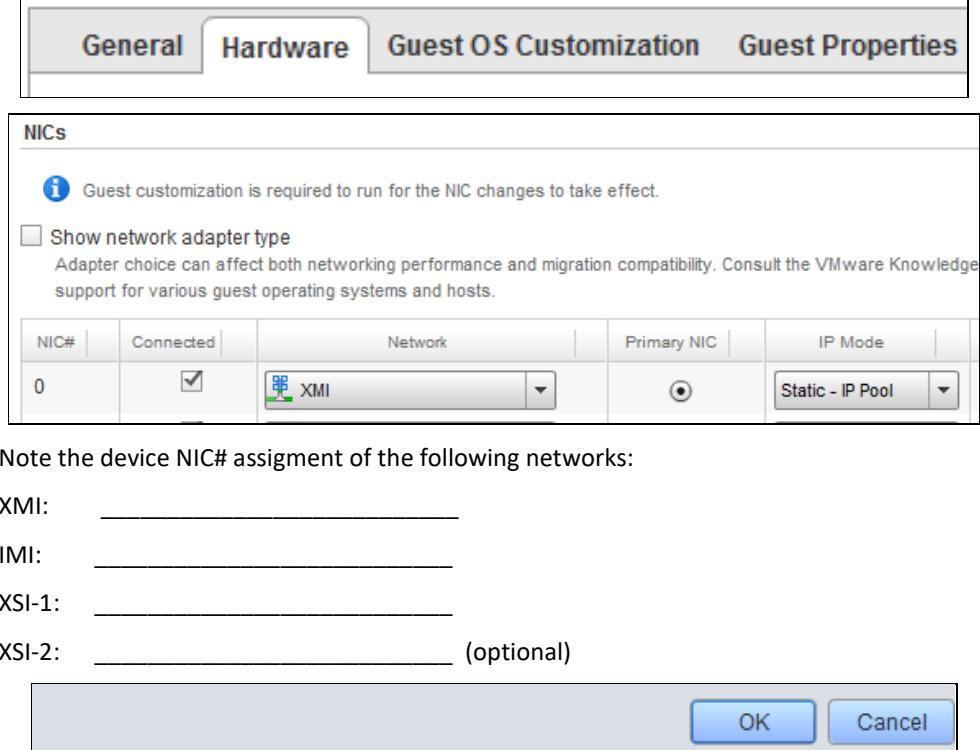
This procedure creates Oracle Communications User Data Repository virtual machines (guests) from ISO.

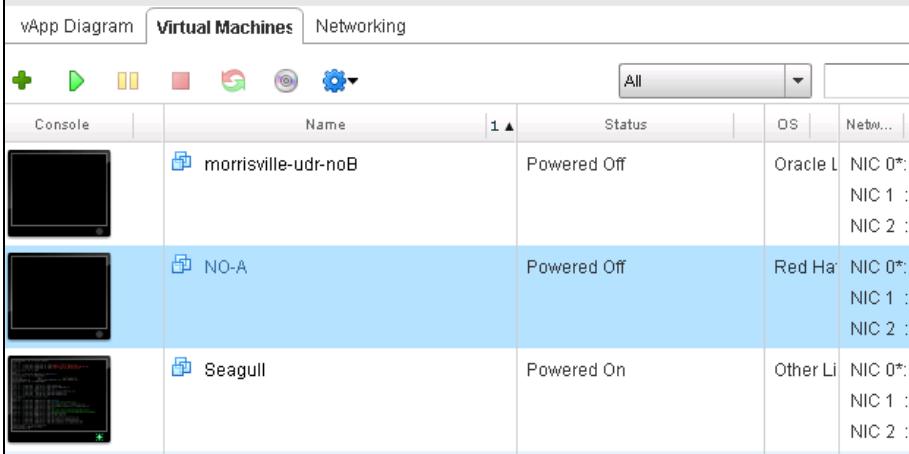
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

Procedure25: Configure Guest OAM Network

Step	Procedure	Result
1. <input type="checkbox"/>	Log into the VMware vCloud Director	
2. <input type="checkbox"/>	vCloud Director: Select Open hyperlink for the Oracle Communications User Data Repository vApp then proceed to Step 5.	

NOTE: Current vApps are listed on the Home Page. If a new vApp is required continue with the next step to create it.

Step	Procedure	Result
3. <input type="checkbox"/>	vCloud Director: Navigate to My Cloud → Virtual Machines	
4. <input type="checkbox"/>	vCloud Director: 1. Select the VM. 2. Click the Blue Gear icon. 3. Select Properties	
5. <input type="checkbox"/>	vCloud Director: 1. Select Hardware tab. 2. Note the NIC# assignment of application networks 3. Click Cancel	 <p>Note the device NIC# assignment of the following networks:</p> <p>XMI: _____</p> <p>IMI: _____</p> <p>XSI-1: _____</p> <p>XSI-2: _____ (optional)</p> <p>OK Cancel</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 & MP Servers):</p> <p>NOTE: Where ethX is the interface associated with the signaling network</p> <pre>\$ sudo netAdm add --device=eth2 --address=<Guest_XSI_IP_Address> --netmask=<XSI_Netmask> --onboot=yes --bootproto=none</pre> <p>NOTE: The network device may be different than shown here (eth2) if the order of network adapter insertion was other than shown. Refer to Step 5 for this assignment.</p>
10. <input type="checkbox"/>	VM Console: Repeat as required	Repeat Step 7 to add XS1-2 (eth3) if a second signaling network is in use. Adjust input parameter values accordingly
11. <input type="checkbox"/>	VM Console: Exit console	\$ exit NOTE: Press Ctrl-Alt keys 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. Please consult the latest documents from the vendor of your OpenStack distribution.

D.1 OPENSTACK IMAGE CREATION FROM OVA

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

Needed material:

- Oracle Communications User Data Repository OVAs

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

Procedure26: OpenStack Image Creation from OVA

Step	Procedure	Result
1. <input type="checkbox"/>	1. Login to OpenStack Controller Node using root user 2. Create /home/ova dir	login as: root root@100.65.218.136's password: <root_password> Last login: Thu Feb 9 21:10:59 2016 from 10.182.167.73 [root@pc12107008 ~]# mkdir -p /home/ova [root@pc12107008 ~]# cd /home/ova
2. <input type="checkbox"/>	Transfer OVA file this dir using sftp tool	[root@pc12107008 ova]# ll -rw-r--r-- 1 root root 1519329280 Feb 2 03:40 UDR-12.4.0.0.0_16.14.0.ova
3. <input type="checkbox"/>	Untar this ova file	[root@pc12107008 ova]# tar xvf UDR-12.4.0.0.0_16.14.0.ova UDR-16_14_0.ovf UDR-16_14_0.mf UDR-16_14_0.vmdk
4. <input type="checkbox"/>	Convert this vmdk file to qcow2 file	[root@pc12107008 ova]# qemu-img convert -O qcow2 UDR-16_14_0.vmdk UDR-16_14_0.qcow2

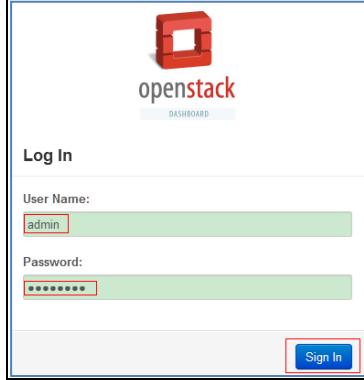
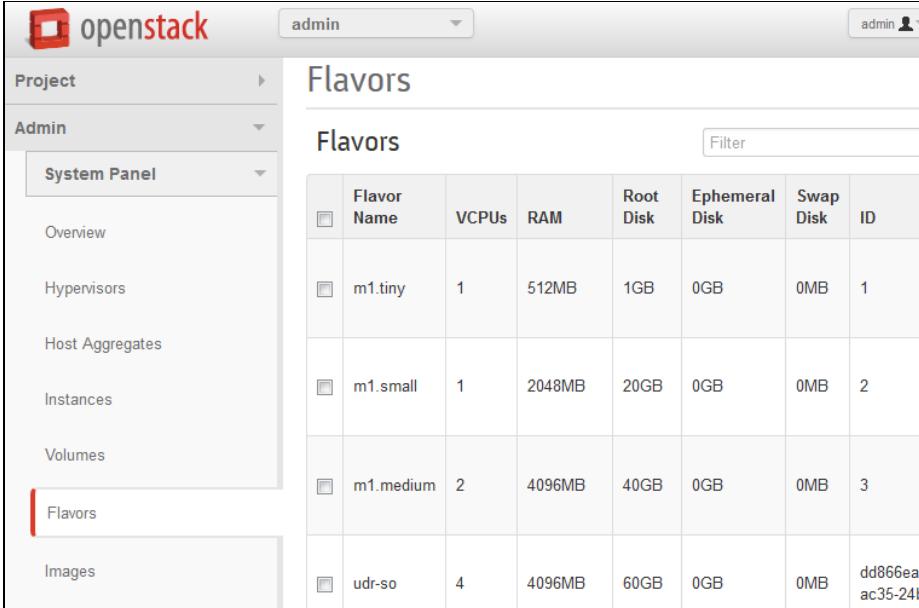
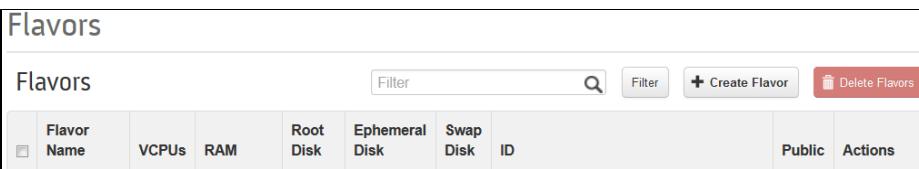
Step	Procedure	Result																
5. <input type="checkbox"/>	Import converted qcow2 file into OpenStack	<pre>[root@pc12107008 ova]# source /root/keystonerc_admin [root@pc12107008 ova(keystone_admin)]# time glance image-create --name UDR-16_14_0 --disk-format=qcow2 --container-format=bare --visibility=public-- file= UDR-16_14_0.qcow2 +-----+-----+ Property Value +-----+-----+ checksum 81e7f682231b108e29053e9516ff91ac container_format bare created_at 2018-02-9T06:56:51 deleted False deleted_at None disk_format qcow2 id ee0ffa59-356b-4b32-aea2-b0cdf9063653 is_public True min_disk 0 min_ram 0 name UDR-16_14_0 owner 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>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>admin</td> <td>UDR-16_14_0</td> <td>Image</td> <td>Active</td> <td>Public</td> <td>No</td> <td>QCOW2</td> <td>4.06 GB</td> </tr> </tbody> </table>	Owner	Name	Type	Status	Visibility	Protected	Disk Format	Size	admin	UDR-16_14_0	Image	Active	Public	No	QCOW2	4.06 GB
Owner	Name	Type	Status	Visibility	Protected	Disk Format	Size											
admin	UDR-16_14_0	Image	Active	Public	No	QCOW2	4.06 GB											
THIS PROCEDURE HAS BEEN COMPLETED																		

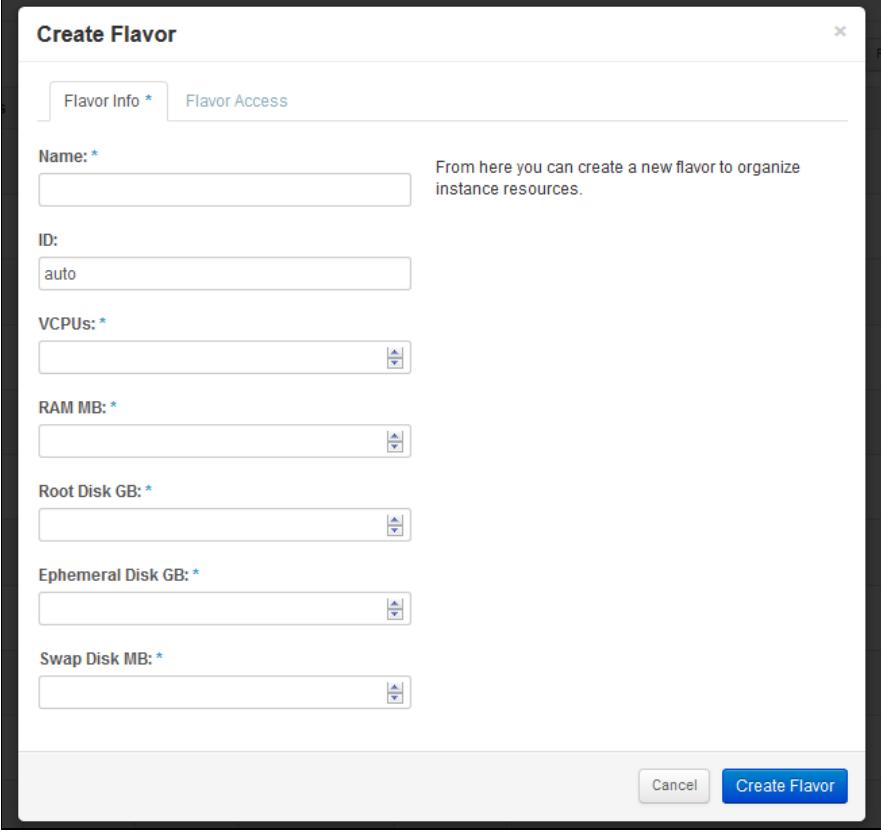
D.2 CREATE RESOURCE PROFILES (FLAVORS)

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

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

Procedure27: Create Resource Profiles (Flavors)

Step	Procedure	Result																																			
1. <input type="checkbox"/>	Login to the OpenStack GUI NOTE: Flavor Profile creation may require administrative privilege.																																				
2. <input type="checkbox"/>	Select Main Menu → Admin → System Panel → Flavors	 <table border="1"> <thead> <tr> <th>Flavor Name</th> <th>VCPUs</th> <th>RAM</th> <th>Root Disk</th> <th>Ephemeral Disk</th> <th>Swap Disk</th> <th>ID</th> </tr> </thead> <tbody> <tr> <td>m1.tiny</td> <td>1</td> <td>512MB</td> <td>1GB</td> <td>0GB</td> <td>0MB</td> <td>1</td> </tr> <tr> <td>m1.small</td> <td>1</td> <td>2048MB</td> <td>20GB</td> <td>0GB</td> <td>0MB</td> <td>2</td> </tr> <tr> <td>m1.medium</td> <td>2</td> <td>4096MB</td> <td>40GB</td> <td>0GB</td> <td>0MB</td> <td>3</td> </tr> <tr> <td>udr-so</td> <td>4</td> <td>4096MB</td> <td>60GB</td> <td>0GB</td> <td>0MB</td> <td>dd866ea6-ac35-24b</td> </tr> </tbody> </table>	Flavor Name	VCPUs	RAM	Root Disk	Ephemeral Disk	Swap Disk	ID	m1.tiny	1	512MB	1GB	0GB	0MB	1	m1.small	1	2048MB	20GB	0GB	0MB	2	m1.medium	2	4096MB	40GB	0GB	0MB	3	udr-so	4	4096MB	60GB	0GB	0MB	dd866ea6-ac35-24b
Flavor Name	VCPUs	RAM	Root Disk	Ephemeral Disk	Swap Disk	ID																															
m1.tiny	1	512MB	1GB	0GB	0MB	1																															
m1.small	1	2048MB	20GB	0GB	0MB	2																															
m1.medium	2	4096MB	40GB	0GB	0MB	3																															
udr-so	4	4096MB	60GB	0GB	0MB	dd866ea6-ac35-24b																															
3. <input type="checkbox"/>	Click Create Flavor																																				

Step	Procedure	Result
4. <input type="checkbox"/> Enter Flavor Details using Appendix G as a guide *	<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>	

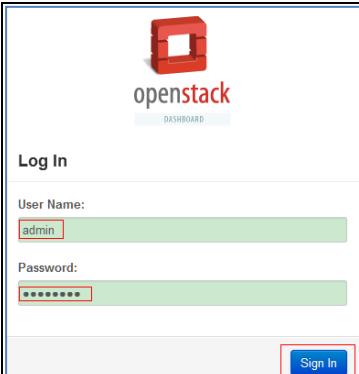
THIS PROCEDURE HAS BEEN COMPLETED

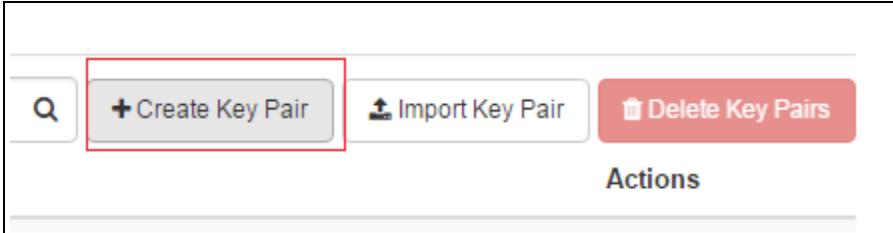
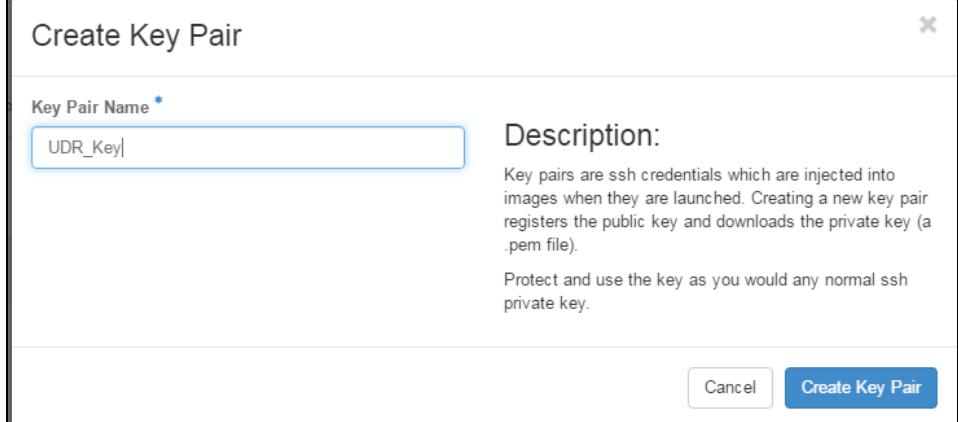
D.3 CREATE KEY PAIR

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

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

Procedure28: Create Key Pair

Step	Procedure	Result
1. <input type="checkbox"/> Login to the OpenStack GUI	<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 shall be used for SSH Access to VM Instances.

THIS PROCEDURE HAS BEEN COMPLETED

D.4 UPDATE UDR STACK YAML FILE

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

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

Procedure29: Create Key Pair

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

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

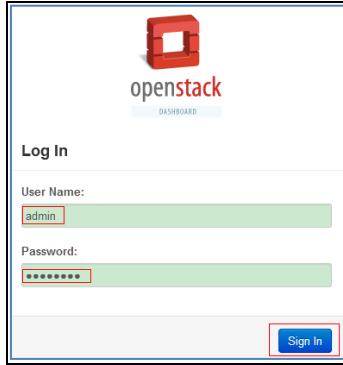
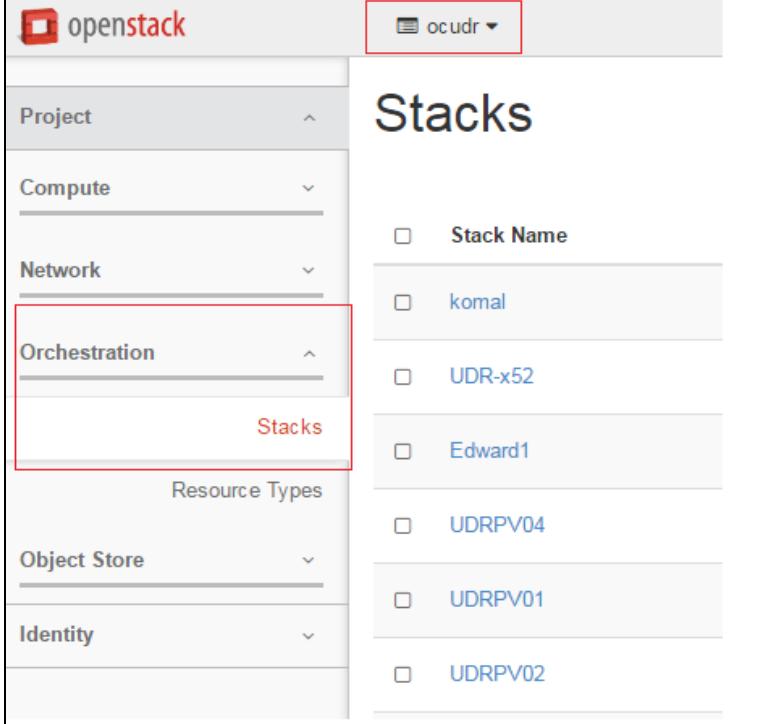
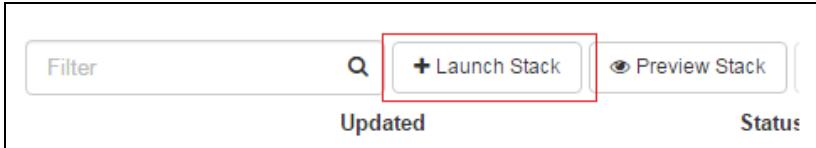
THIS PROCEDURE HAS BEEN COMPLETED

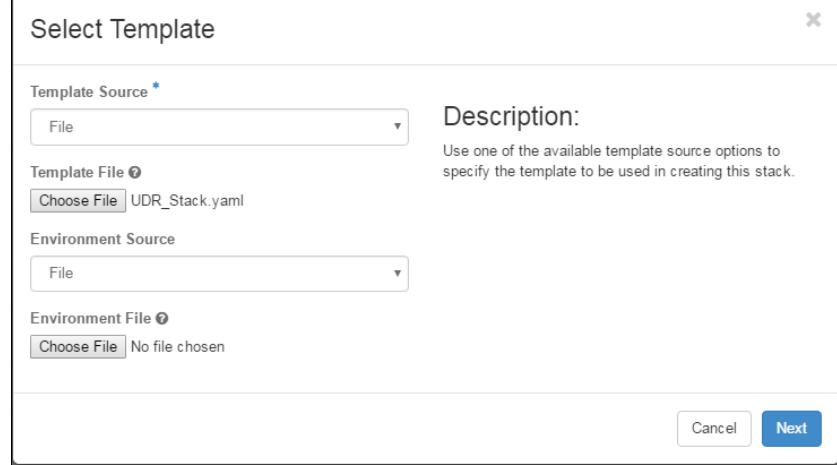
D.5 CREATE VM INSTANCES USING YAML FILE

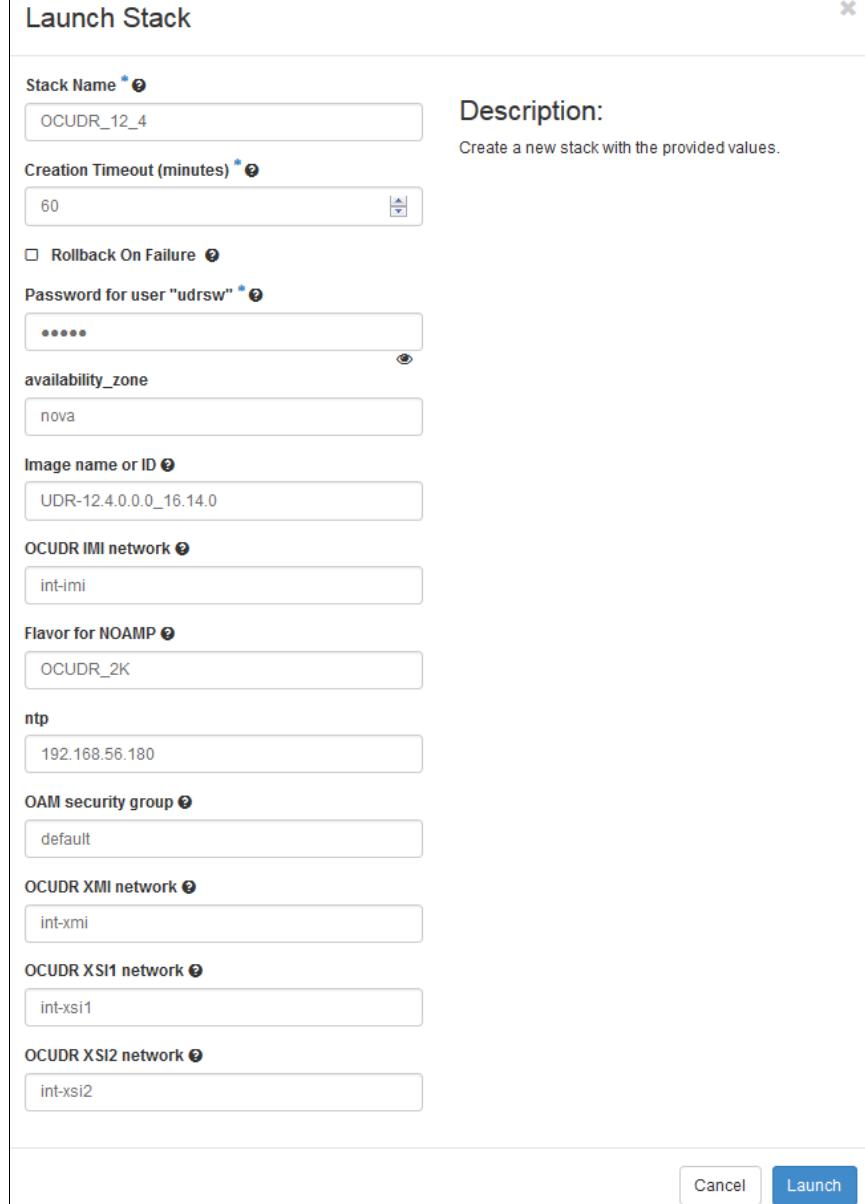
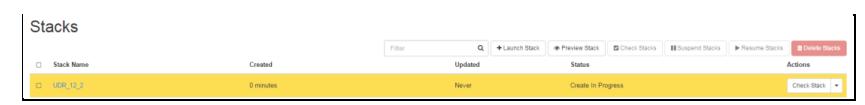
This procedure creates and configures all VM instances needed for UDR configuration.

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

Procedure30: Create VM Instances Using Yaml File

Step	Procedure	Result
1. <input type="checkbox"/>	Login to the OpenStack GUI	
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 *</p> <p>File</p> <p>Template File ⓘ</p> <p>Choose File UDR_Stack.yaml</p> <p>Environment Source</p> <p>File</p> <p>Environment File ⓘ</p> <p>Choose File No file chosen</p> <p>Description:</p> <p>Use one of the available template source options to specify the template to be used in creating this stack.</p> <p>Cancel Next</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	 <p>Launch Stack</p> <p>Description: Create a new stack with the provided values.</p> <p>Stack Name * OCUDR_12_4</p> <p>Creation Timeout (minutes) * 60</p> <p><input type="checkbox"/> Rollback On Failure</p> <p>Password for user "udrsw" * <input type="password"/> </p> <p>availability_zone nova</p> <p>Image name or ID UDR-12.4.0.0.0_16.14.0</p> <p>OCUDR IMI network int-im1</p> <p>Flavor for NOAMP OCUDR_2K</p> <p>ntp 192.168.56.180</p> <p>OAM security group default</p> <p>OCUDR XMI network int-xmi</p> <p>OCUDR XSI1 network int-xsi1</p> <p>OCUDR XSI2 network int-xsi2</p> <p>Cancel Launch</p>										
6. <input type="checkbox"/>	Wait for stack creation to finish.	 <p>Stacks</p> <table border="1"> <thead> <tr> <th>Stack Name</th> <th>Created</th> <th>Updated</th> <th>Status</th> <th>Actions</th> </tr> </thead> <tbody> <tr> <td>OCUDR_12_4</td> <td>0 minutes</td> <td>Never</td> <td>Create In Progress</td> <td>Check Stack</td> </tr> </tbody> </table>	Stack Name	Created	Updated	Status	Actions	OCUDR_12_4	0 minutes	Never	Create In Progress	Check Stack
Stack Name	Created	Updated	Status	Actions								
OCUDR_12_4	0 minutes	Never	Create In Progress	Check Stack								

THIS PROCEDURE HAS BEEN COMPLETED

D.6 EXTEND VM INSTANCE VOLUME SIZE

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

Important: The steps here only apply to servers where storage demands exceed the server's default size 60GB. The numbers here will vary depending on the unique needs of such deployments and specific hardware resource availability. This is to be taken as an example only. The suitability of these steps cannot be guaranteed across all deployment scenarios.

This procedure should be performed only under these conditions:

- UDR Instance with Resource Profile other than Lab Profile

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

Procedure31: Extend VM Instance Volume Size

Step	Procedure	Result
1. <input type="checkbox"/>	Login to the VM Instance as per D.10 Accessing VM Instance using SSH	hostnamea0c2d9aa8bce login: admusr
2. <input type="checkbox"/>	Switch to root user	# su - root password: <root_password>
3. <input type="checkbox"/>	Use fdisk to create new partition on /dev/vda NOTE: First cylinder of /dev/vda3 is calculated from End cylinder of /dev/vda2, say 124810 is the next of the End Cylinder of /dev/vda2	[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>

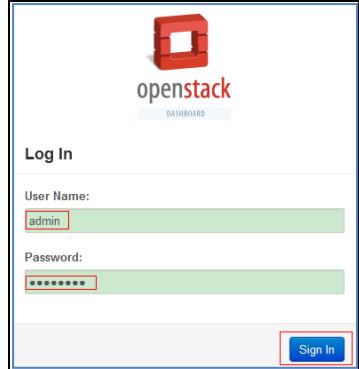
Step	Procedure	Result
9. <input type="checkbox"/>	Extend logical volumes for 7K or 12.5K profile	<pre># lvextend -L +115343360K /dev/vgroot/run_db # lvextend -L +104857600K /dev/vgroot/filemgmt # lvextend -L +6291456K /dev/vgroot/logs_process # lvextend -L +10485760K /dev/vgroot/apw_tmp # resize2fs /dev/mapper/vgroot-filemgmt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

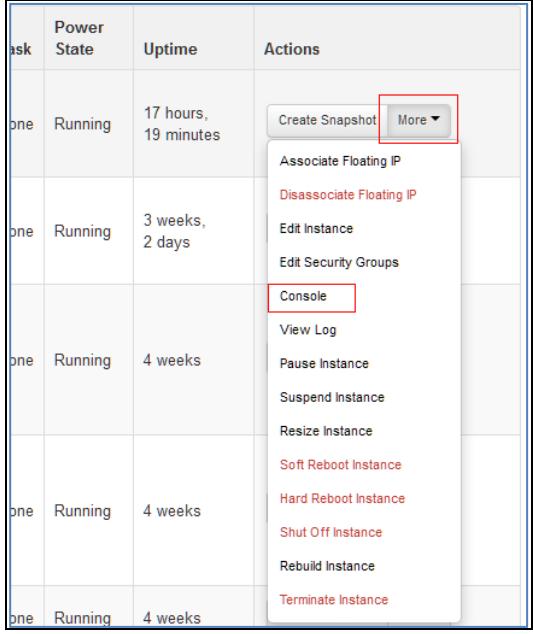
D.7 VM INSTANCE NETWORK CONFIGURATION

This procedure configures network interfaces for vm instance.

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

Procedure32: VM Instance Network Configuration

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

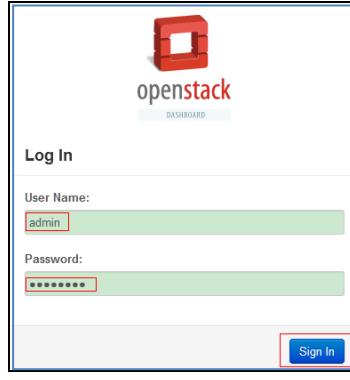
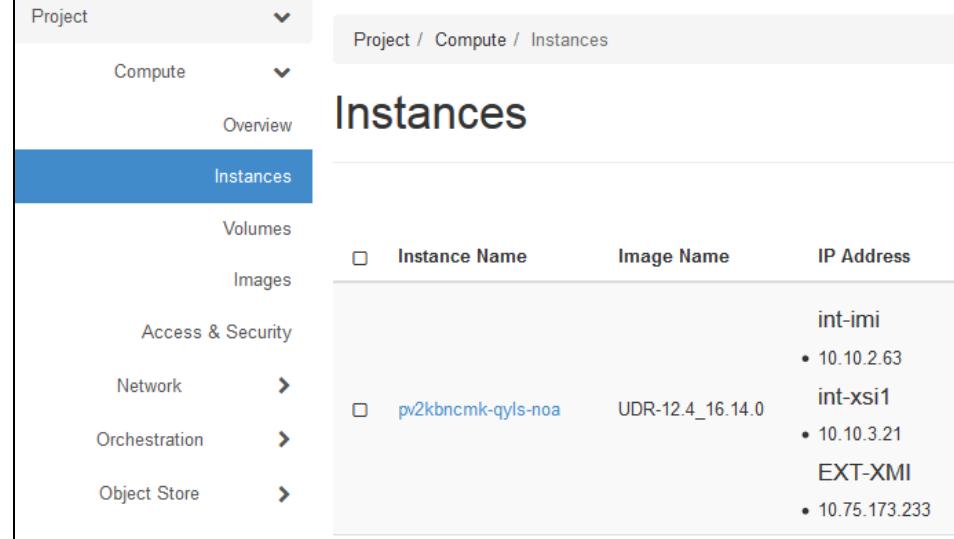
Step	Procedure	Result
2. <input type="checkbox"/>	Login VM instance from Project → Compute → Instances → More → Console	
3. <input type="checkbox"/>	Login to the VM with root user	hostnamea0c2d9aa8bce login: root password: <root_password>
4. <input type="checkbox"/>	Use netAdm to add device and set ip address (ISO installs only)	NOTE: This step is required only for ISO installs. [root@ hostnamea0c2d9aa8bce ~]# netAdm add --device=eth0 Interface eth0 added
5. <input type="checkbox"/>	Set ip address for this interface	[root@ hostnamea0c2d9aa8bce ~]# netAdm set --device=eth0 --onboot=yes \ --netmask=<netmask> --address=<ip_address> Interface eth0 updated
6. <input type="checkbox"/>	Add default router	[root@ hostnamea0c2d9aa8bce ~]# netAdm add --route=default --device=eth0 \ --gateway=10.240.174.1 Route to eth0 added
7. <input type="checkbox"/>	Add eth1 interface	[root@ hostnamea0c2d9aa8bce ~]# netAdm add --device=eth1 Interface eth1 added
8. <input type="checkbox"/>	Add eth2 interface	[root@hostnameb6092a316785 ~]# netAdm add --device=eth2 Interface eth2 added
THIS PROCEDURE HAS BEEN COMPLETED		

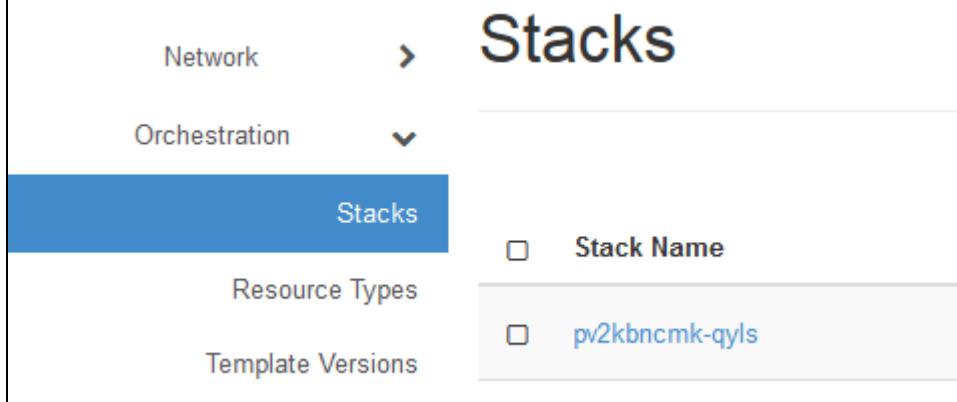
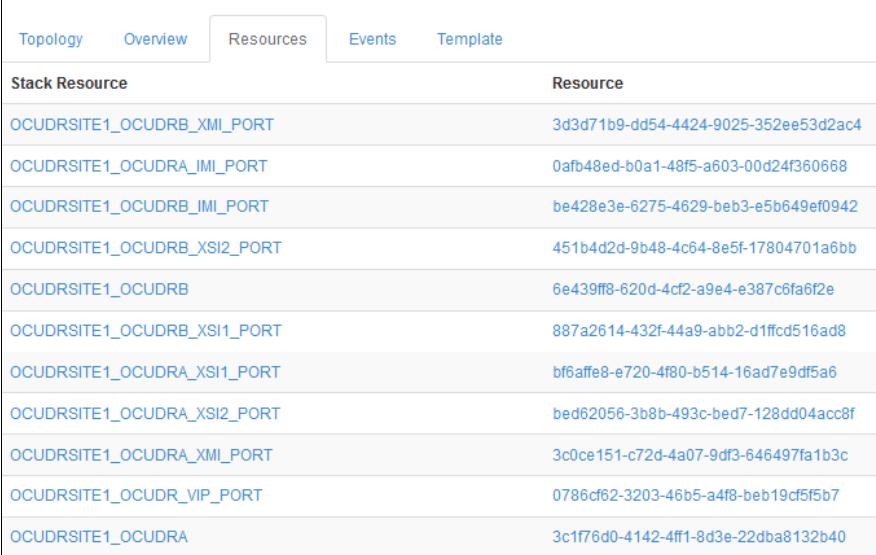
D.8 VIRTUAL IP ADDRESS ASSIGNMENT

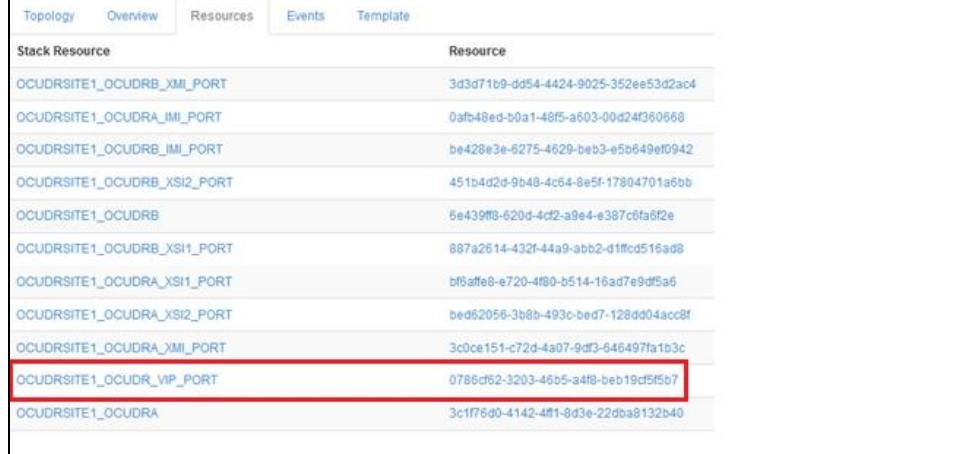
This procedure configures a VIP for a virtual machine. Administrative access to the OpenStack controller node is required.

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

Procedure33: Virtual IP Address Assignment

Step	Procedure	Result
1. <input type="checkbox"/>	Login to the OpenStack GUI	
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="556 671 796 699">Stack Resource</th> <th data-bbox="796 671 1432 699">Resource</th> </tr> </thead> <tbody> <tr> <td data-bbox="556 734 796 762">OCUDRSITE1_OCUDRB_XMI_PORT</td> <td data-bbox="796 734 1432 762">3d3d71b9-dd54-4424-9025-352ee53d2ac4</td> </tr> <tr> <td data-bbox="556 789 796 817">OCUDRSITE1_OCUDRA_IMI_PORT</td> <td data-bbox="796 789 1432 817">0afb48ed-b0a1-48f5-a603-00d24f360668</td> </tr> <tr> <td data-bbox="556 842 796 870">OCUDRSITE1_OCUDRB_IMI_PORT</td> <td data-bbox="796 842 1432 870">be428e3e-6275-4629-beb3-e5b649ef0942</td> </tr> <tr> <td data-bbox="556 895 796 922">OCUDRSITE1_OCUDRB_XSI2_PORT</td> <td data-bbox="796 895 1432 922">451b4d2d-9b48-4c64-8e5f-17804701a6bb</td> </tr> <tr> <td data-bbox="556 948 796 975">OCUDRSITE1_OCUDRB</td> <td data-bbox="796 948 1432 975">6e439ff8-620d-4cf2-a9e4-e387c6fa6f2e</td> </tr> <tr> <td data-bbox="556 1001 796 1028">OCUDRSITE1_OCUDRB_XSI1_PORT</td> <td data-bbox="796 1001 1432 1028">887a2614-432f-44a9-abb2-d1ffcd516ad8</td> </tr> <tr> <td data-bbox="556 1053 796 1081">OCUDRSITE1_OCUDRA_XSI1_PORT</td> <td data-bbox="796 1053 1432 1081">bf6affe8-e720-4f80-b514-16ad7e9df5a6</td> </tr> <tr> <td data-bbox="556 1106 796 1134">OCUDRSITE1_OCUDRA_XSI2_PORT</td> <td data-bbox="796 1106 1432 1134">bed62056-3b8b-493c-bed7-128dd04acc8f</td> </tr> <tr> <td data-bbox="556 1159 796 1186">OCUDRSITE1_OCUDRA_XMI_PORT</td> <td data-bbox="796 1159 1432 1186">3c0ce151-c72d-4a07-9df3-646497fa1b3c</td> </tr> <tr> <td data-bbox="556 1212 796 1239">OCUDRSITE1_OCUDR_VIP_PORT</td> <td data-bbox="796 1212 1432 1239">0786cf62-3203-46b5-a4f8-beb19cf5f5b7</td> </tr> <tr> <td data-bbox="556 1265 796 1292">OCUDRSITE1_OCUDRA</td> <td data-bbox="796 1265 1432 1292">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-9b48-4c64-8e5f-17804701a6bb	OCUDRSITE1_OCUDRB	6e439ff8-620d-4cf2-a9e4-e387c6fa6f2e	OCUDRSITE1_OCUDRB_XSI1_PORT	887a2614-432f-44a9-abb2-d1ffcd516ad8	OCUDRSITE1_OCUDRA_XSI1_PORT	bf6affe8-e720-4f80-b514-16ad7e9df5a6	OCUDRSITE1_OCUDRA_XSI2_PORT	bed62056-3b8b-493c-bed7-128dd04acc8f	OCUDRSITE1_OCUDRA_XMI_PORT	3c0ce151-c72d-4a07-9df3-646497fa1b3c	OCUDRSITE1_OCUDR_VIP_PORT	0786cf62-3203-46b5-a4f8-beb19cf5f5b7	OCUDRSITE1_OCUDRA	3c1f76d0-4142-4ff1-8d3e-22dba8132b40
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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: 1. Access the command prompt. 2. Log into the controller node as a priviledged user.	<pre>login as: <usr_name> root@10.250.xx.yy's password: <usr_password> Last login: Mon Jul 30 10:33:19 2012 from 10.25.80.199 [root@control01]#</pre>																								
9. <input type="checkbox"/>	OpenStack Controller node: Initialize environment variables	<pre>controller ~]# source keystonerc_udrsw</pre>																								

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

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

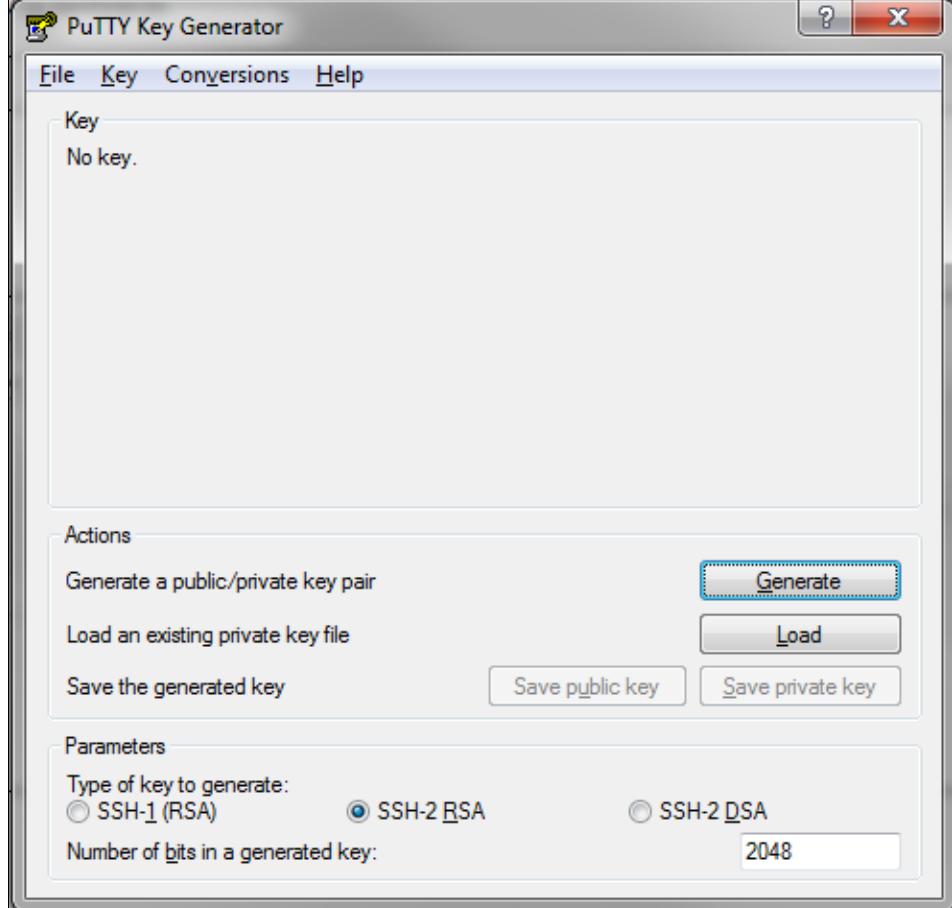
```
+-----+-----+
| Field           | Value          |
+-----+-----+
| admin_state_up | True           |
| allowed_address_pairs | {"ip_address": "10.240.221.36", "mac_address": "fa:16:3e:ce:18:2a"} |
| binding:host_id | compute05.labafrika |
| binding:profile | {}               |
| binding:vif_details | {"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 |
+-----+-----+
```

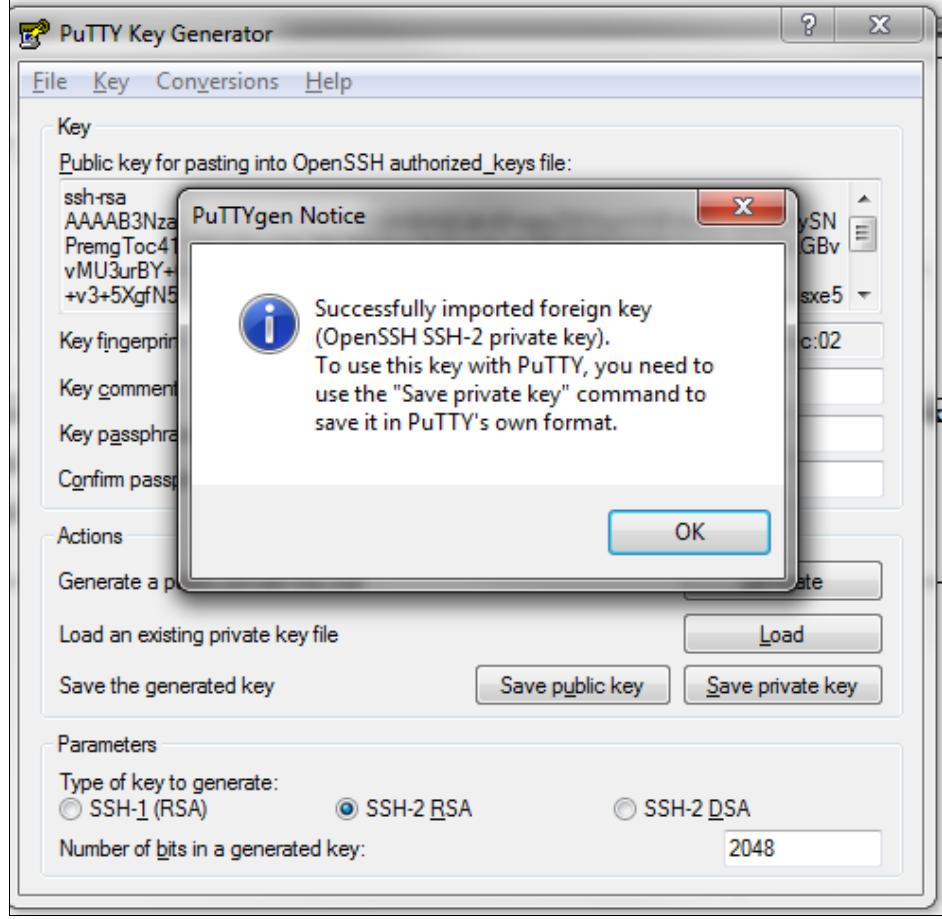
D.9 GENERATE PRIVATE KEY FOR SSH ACCESS

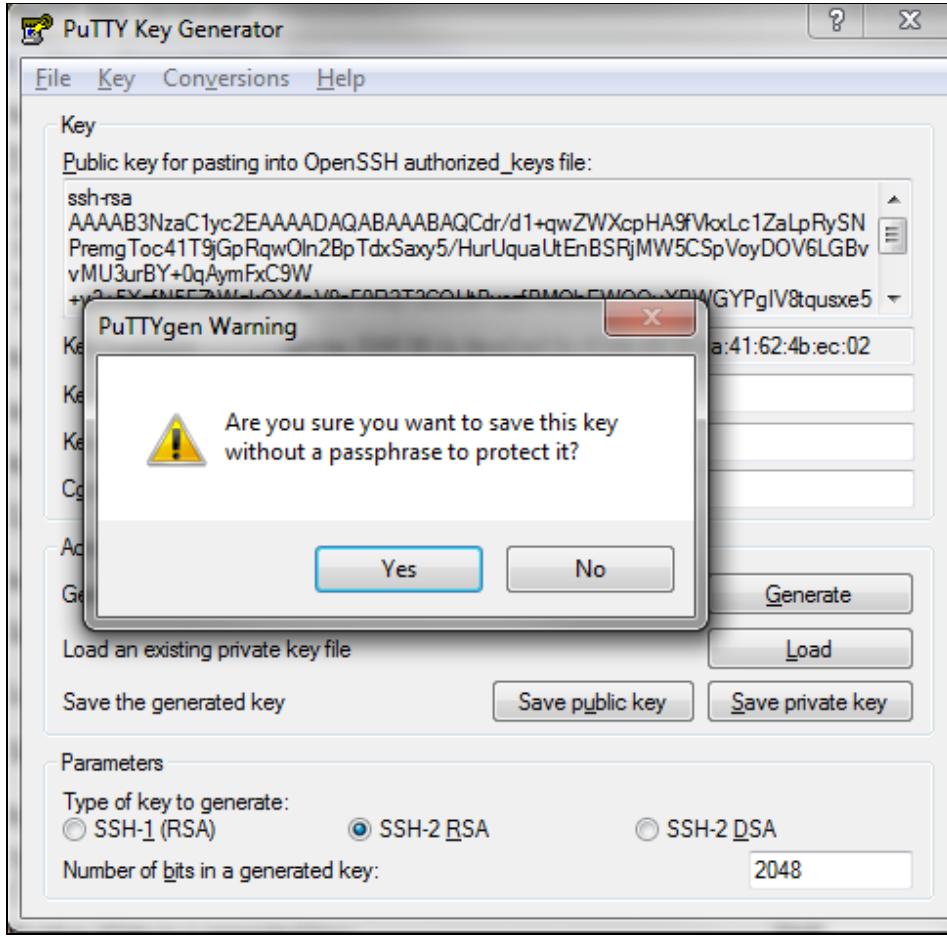
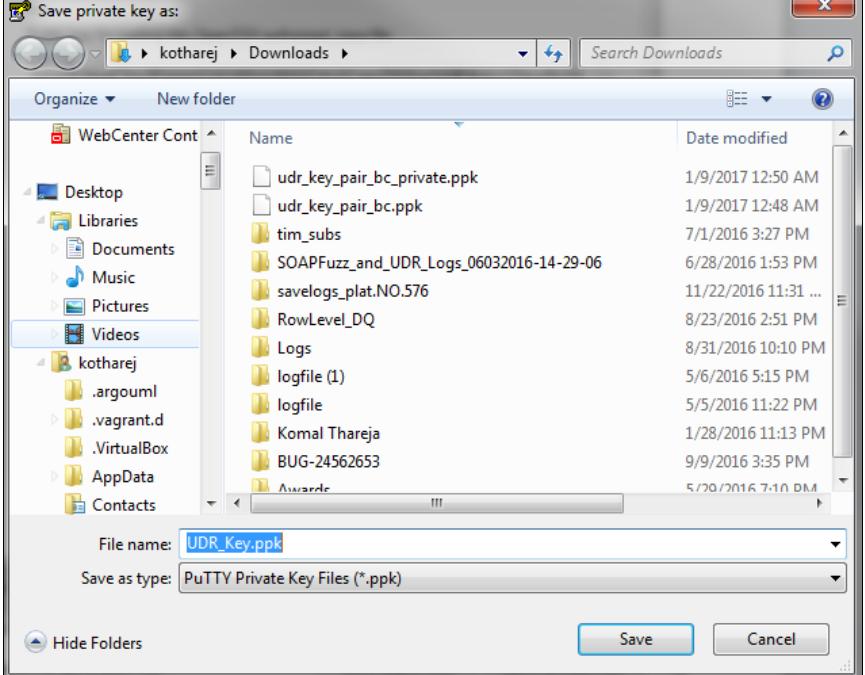
This procedure is used to generate Private Key to be used for accessing VM instance via SSH.

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

Procedure34: Generate Private Key for SSH Access

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

Step	Procedure	Result
2. <input type="checkbox"/> Load the Key file i.e *.pem generated in D.3 Create Key Pair	Click OK	 <p>The screenshot shows the Putty Key Generator interface. In the main window, there is a text area containing a public key for pasting into an authorized_keys file. Below this, there is a 'Key' section with fields for Key fingerprint, Key comment, and Key passphrase. Under 'Actions', there are buttons for 'Generate a public key', 'Load an existing private key file', and 'Save the generated key' (with 'Save public key' and 'Save private key' sub-options). In the bottom left, there are radio buttons for 'Type of key to generate': 'SSH-1 (RSA)' (unchecked), 'SSH-2 RSA' (checked), and 'SSH-2 DSA' (unchecked). The number of bits is set to 2048. A modal dialog box titled 'PuTTYgen Notice' is displayed in the center, stating: 'Successfully imported foreign key (OpenSSH SSH-2 private key). To use this key with PuTTY, you need to use the "Save private key" command to save it in PuTTY's own format.' It has an 'OK' button.</p>

Step	Procedure	Result
3. <input type="checkbox"/> Save the Private Key by click Save Private Key Click Yes Click Save		 

THIS PROCEDURE HAS BEEN COMPLETED

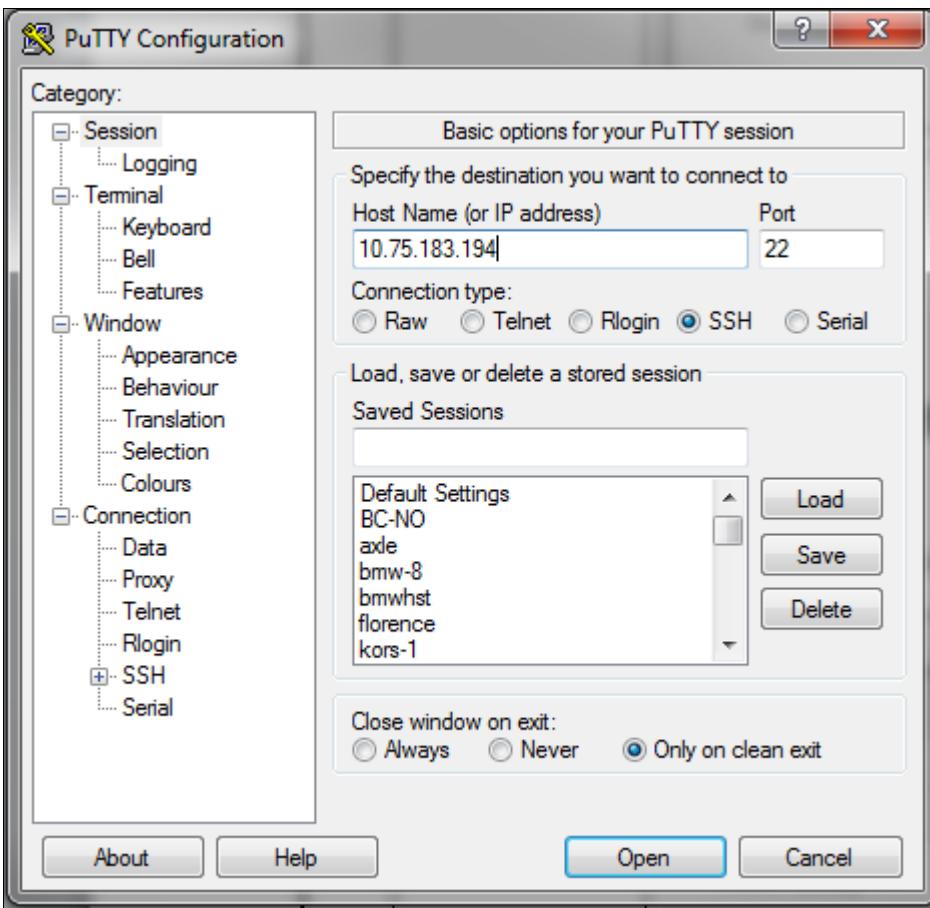
D.10 ACCESSING VM INSTANCE USING SSH

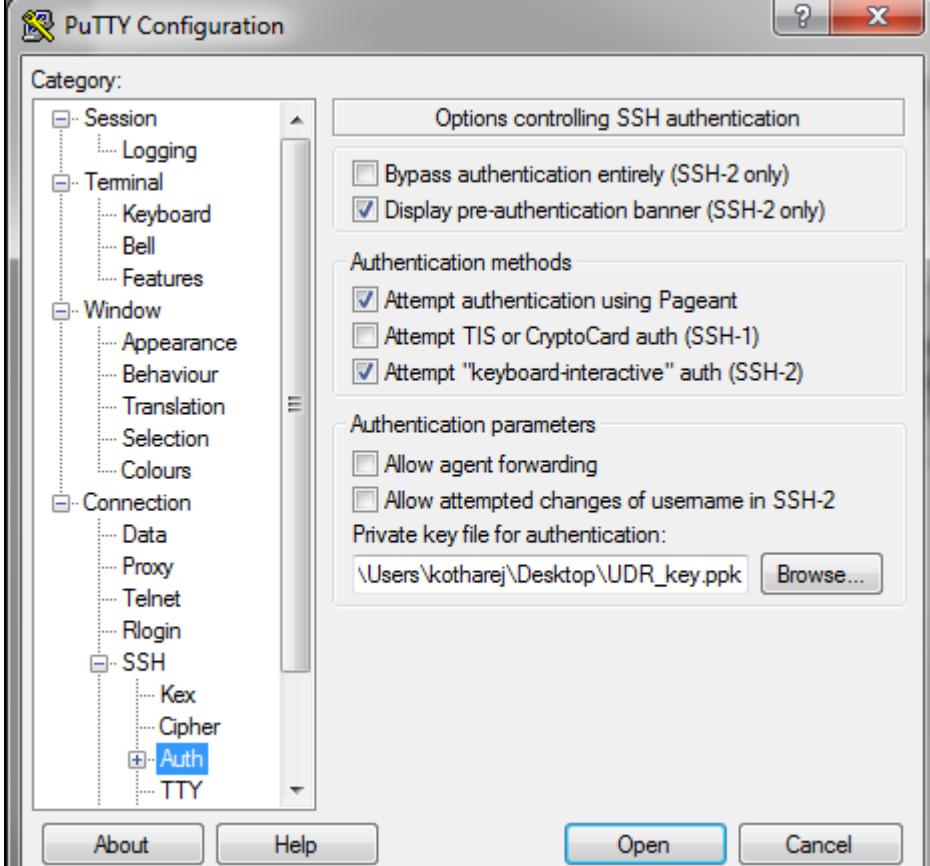
This procedure is used to access VM instance via SSH. This procedure assumes following:

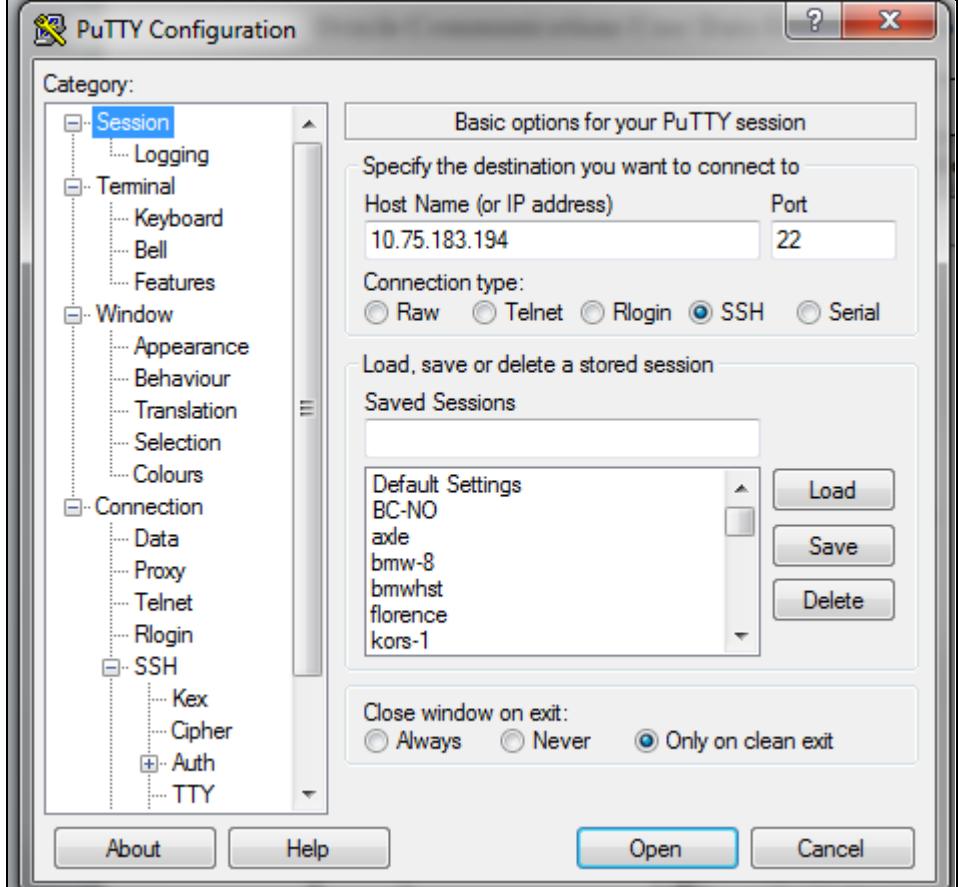
- Network configuration on VM instance is complete or floating IPs have been associated with VM instance
- Private Key has been generated as per D.9 Generate Private Key for SSH Access

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

Procedure35: SSH Access to VM Instance

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

Step	Procedure	Result
2. <input type="checkbox"/>	<p>Navigate to SSH → Auth</p> <p>Select the *.ppk file generated by D.9 Generate Private Key for SSH Access</p>	 The image shows the PuTTY Configuration dialog box. The 'Category' tree on the left is expanded to show 'Session', 'Terminal', 'Window', and 'Connection' sections. Under 'Connection', the 'SSH' section is expanded, and the 'Auth' item is selected and highlighted with a blue border. The main pane on the right contains several configuration groups: 'Options controlling SSH authentication' (checkbox for 'Bypass authentication entirely (SSH-2 only)' and checked checkbox for 'Display pre-authentication banner (SSH-2 only)'), 'Authentication methods' (checked checkboxes for 'Attempt authentication using Pageant', 'Attempt TIS or CryptoCard auth (SSH-1)', and 'Attempt "keyboard-interactive" auth (SSH-2)'), 'Authentication parameters' (checkboxes for 'Allow agent forwarding' and 'Allow attempted changes of username in SSH-2'), and a 'Private key file for authentication:' field containing the path '\Users\kotharej\Desktop\UDR_key.ppk' with a 'Browse...' button. At the bottom are 'About', 'Help', 'Open' (which is highlighted in blue), and 'Cancel' buttons.

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.

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

Procedure36: Clobber Database on VM Instance

Step	Procedure	Result
1. <input type="checkbox"/>	Login to the VM with admusr via SSH as per D.10 Accessing VM Instance using SSH	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=88)... ...getting current state... Current state: X (product under procmgr) WARNING: ABOUT TO DESTROY ALL PRODUCT DISK FILES !!!! Are you sure? [enter Y or N] y ...setting state 0... ...waiting for state 0... Current state is 0 ...taking down processes... processes down ...removing existing IPC resources... + md_ipcrm ... 852 resources ...clobbering runenv files... + rm -rf /var/TKLC/rundb/run</pre>
4. <input type="checkbox"/>	Run prod.start on instance After start, use pl to check process status, after first start, only a few processes start	<pre>[root@hostname2c6772f9819e ~]# prod.start_ [iqt -iiddToXML -DataDictPart > /var/TKLC/rundb/run/db/DataDictPart/20160527.055813.5460.DataDictPart.xml + edd.op --install --must-eq-current /var/TKLC/rundb/run/db/DataDictPart/20160527.055813.5460.DataDictPart.xml created: 20160527.055813.5460.DataDictPart.xml ...starting procmgr ... [root@hostname2c6772f9819e ~]# pl S pid procTag \$1 stat spawnTime N cmd Z 29470 cnha Up 05/27 01:59:29 1 cnha Z 29471 cmsoapa Up 05/27 01:59:29 1 cmsoapa Z 29473 idbsvc Up 05/27 01:59:29 1 idbsvc -M10 -ME204 -D40 -DE820 -U1 -S2 -L1 Z 29475 inetmerge Up 05/27 01:59:29 1 inetmerge Z 29477 raclerk Up 05/27 01:59:29 1 raclerk -r 3000 Z 29478 re.portmap Up 05/27 01:59:29 1 re.portmap -c100</pre>
5. <input type="checkbox"/>	Run prod.start -i again on instance, this time, all processes started	<pre>[root@hostname2c6772f9819e ~]# prod.start ...prod.start (RUNID=88)... ...getting current state... Current state: Z (product under procmgr) ...setting state X... ...waiting for state [XBA]... Current state is X [root@hostname2c6772f9819e ~]# pl S pid procTag \$1 stat spawnTime N cmd X 29586 Imsqld Up 05/27 02:00:25 1 Imsqld.start -force X 29587 ProcWatch Up 05/27 02:00:25 1 ProcWatch -L X 29589 apuSoapServer Up 05/27 02:00:25 1 tCMNDSIGCHK=1 apuSoapServer X 29591 cmplatalarm Up 05/27 02:00:25 1 cmplatalarm X 29593 cmsonmpsa Up 05/27 02:00:25 1 cmsonmpsa -R 1.3.6.1.4.1.323.5.3.32.1 X 29471 cmsoapa Up 05/27 01:59:29 1 cmsoapa X 29608 eclipseHelp Up 05/27 02:00:25 1 eclipseHelp X 29594 guiReqMapLoad Up 05/27 02:00:25 1 guiReqMapLoad X 29473 idbsvc Up 05/27 01:59:29 1 idbsvc -M10 -ME204 -D40 -DE820 -U1 -S2 -L1 X 29475 inetmerge Up 05/27 01:59:29 1 inetmerge X 29596 inetrep Up 05/27 02:00:25 1 inetrep X 29598 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>

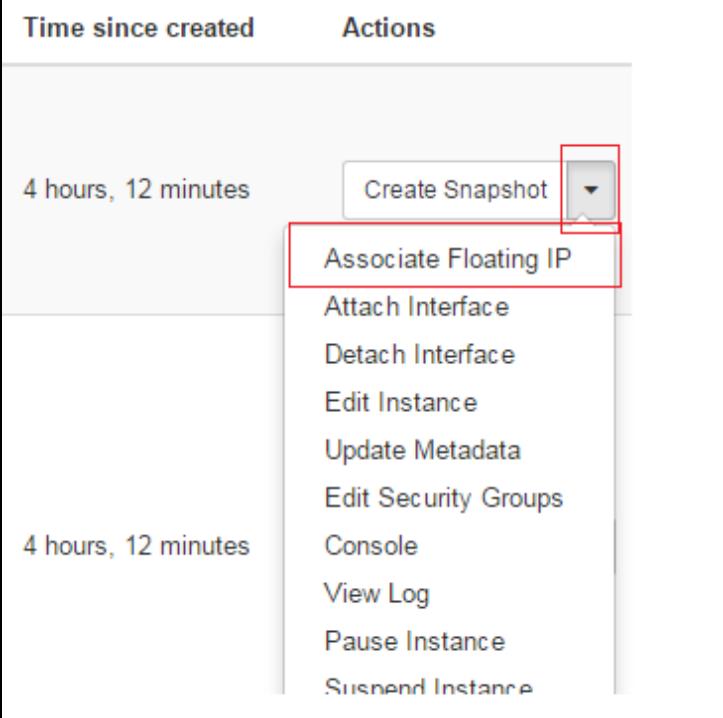
THIS PROCEDURE HAS BEEN COMPLETED

D.12 ASSOCIATING FLOATING IPS

This procedure associates Floating IP to vm instance.

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

Procedure37: Associate Floating IP

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

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

Appendix E. Same Network Element and Hardware Profiles

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

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

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

Example Network Element XML file:

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

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

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

Example Server Hardware Profile XML – Virtual Guest:

```
<profile>
  <serverType>Cloud UDR</serverType>
  <available>
    <device>eth0</device>
    <device>eth1</device>
    <device>eth2</device>
    <device>eth3</device>
  </available>
  <devices>
    <device>
      <name>eth0</name>
      <type>ETHERNET</type>
    </device>
    <device>
      <name>eth1</name>
      <type>ETHERNET</type>
    </device>
    <device>
      <name>eth2</name>
      <type>ETHERNET</type>
    </device>
    <device>
      <name>eth3</name>
      <type>ETHERNET</type>
    </device>
  </devices>
</profile>
```

Appendix F. High Availability Configurations

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

NOTES:

Non-HA configuration is for labs and demonstrations only.

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

The HA Max number of VMs was used for performance testing

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

Appendix G. Resource Profile

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

NOTES:

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

Appendix H. Network Device Assignments

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 value shown)

Appendix J. Install UDR on Oracle Linux OS via KVM

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

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

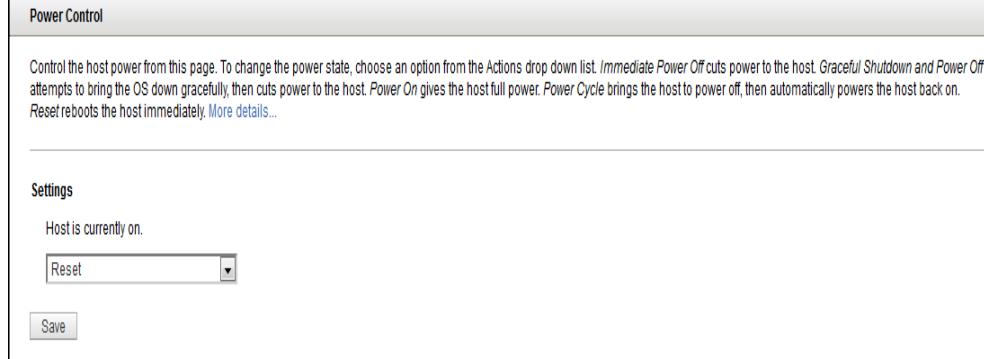
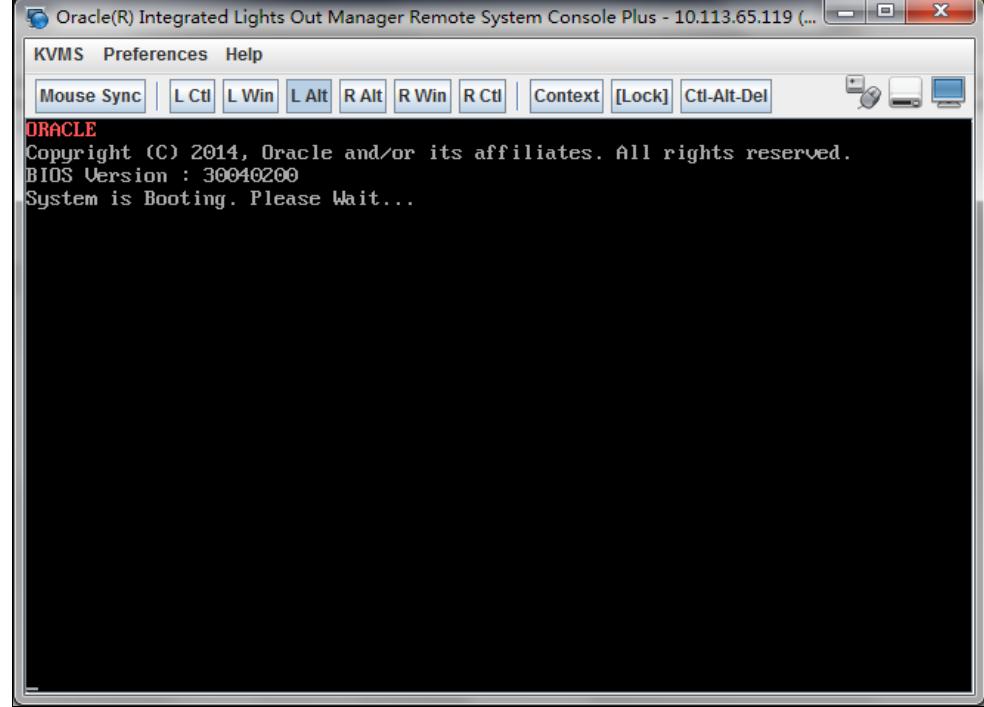
NOTE:

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

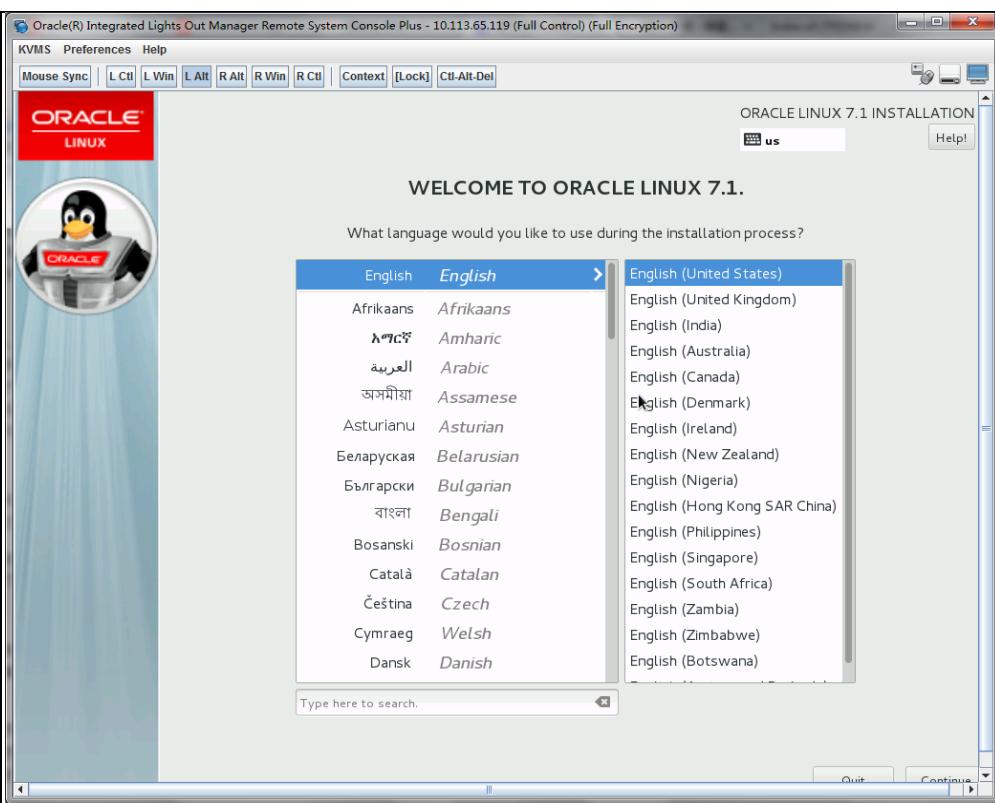
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

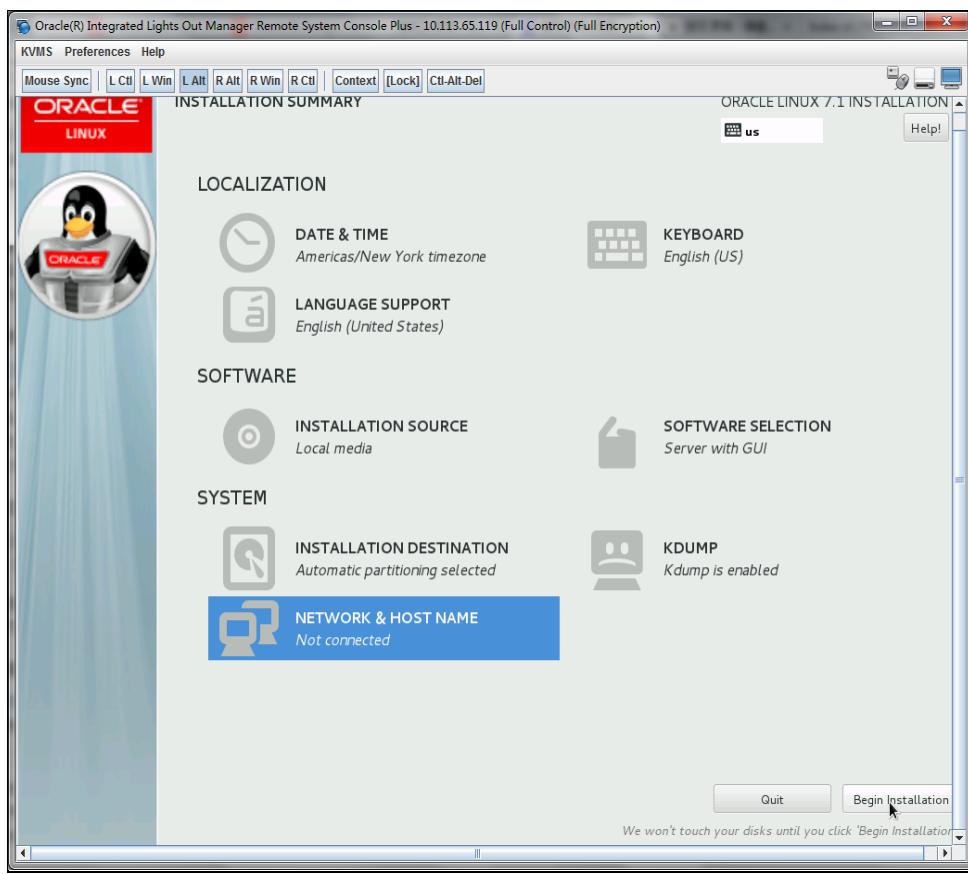
Procedure38: Install UDR on Oracle Linux/KVM

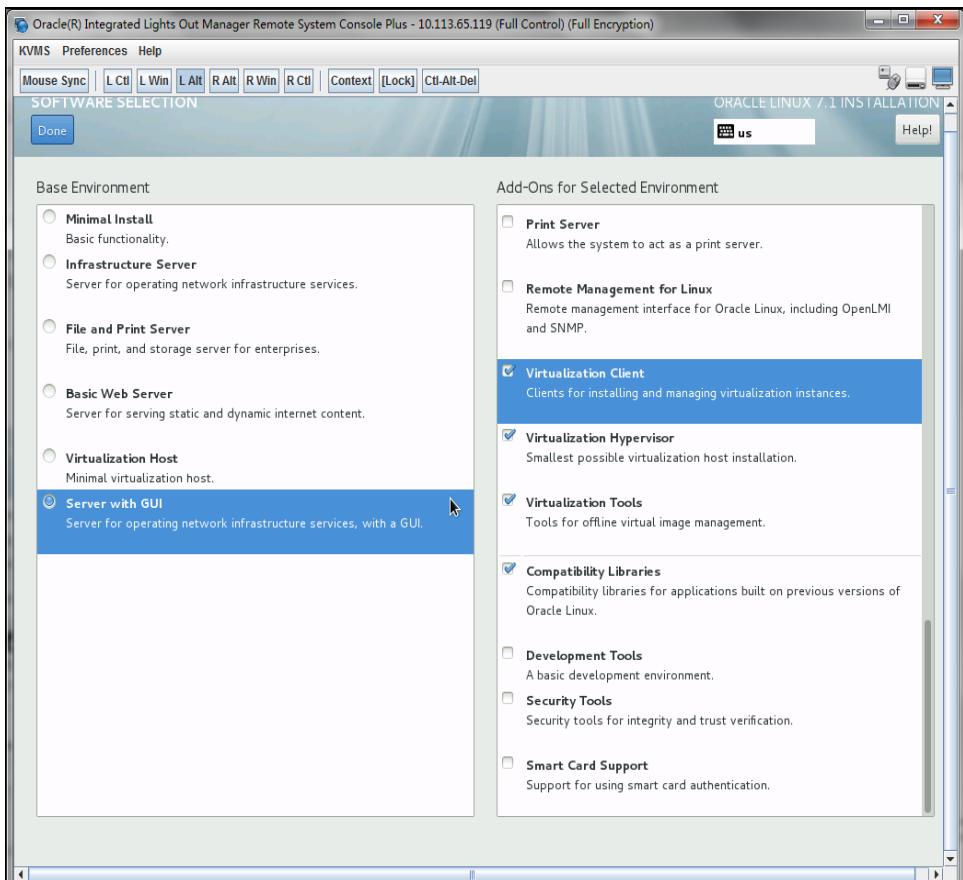
Step	Procedure	Result
1. <input type="checkbox"/>	For each Oracle X5-2 RMS, mount virtual media contains Oracle Linux OS software	Follow steps defined in Appendix C.3 Mounting Virtual Media on Oracle RMS Server of Error! Reference source not found.. to mount the Oracle Linux OS software ISO.

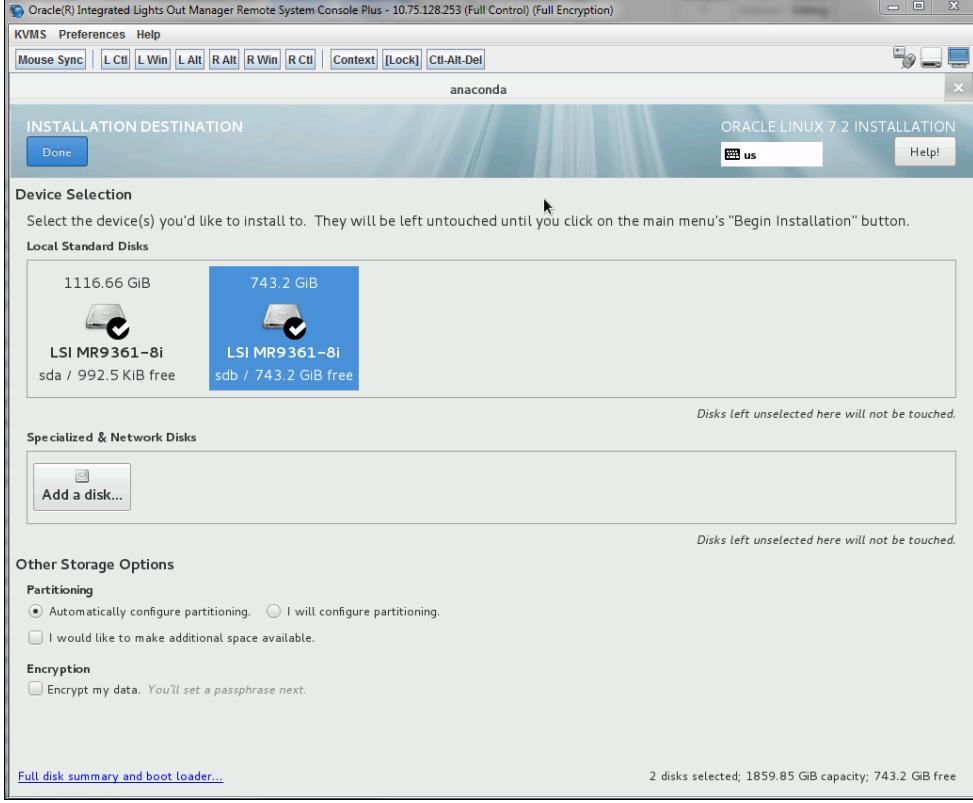
Step	Procedure	Result
2. <input type="checkbox"/> For each Oracle X5-2 RMS, reboot the host..	<p>1. Login to the X5-2 iLo GUI browser page and launch remote console</p> <p>2. In ILO GUI, navigate to Host Management → Power Control</p> <p>3. Select Reset</p> <p>4. Click Save to reboot host.</p> <p>In remote console window, you see that the host is rebooting. Wait for the reboot to complete.</p>	 

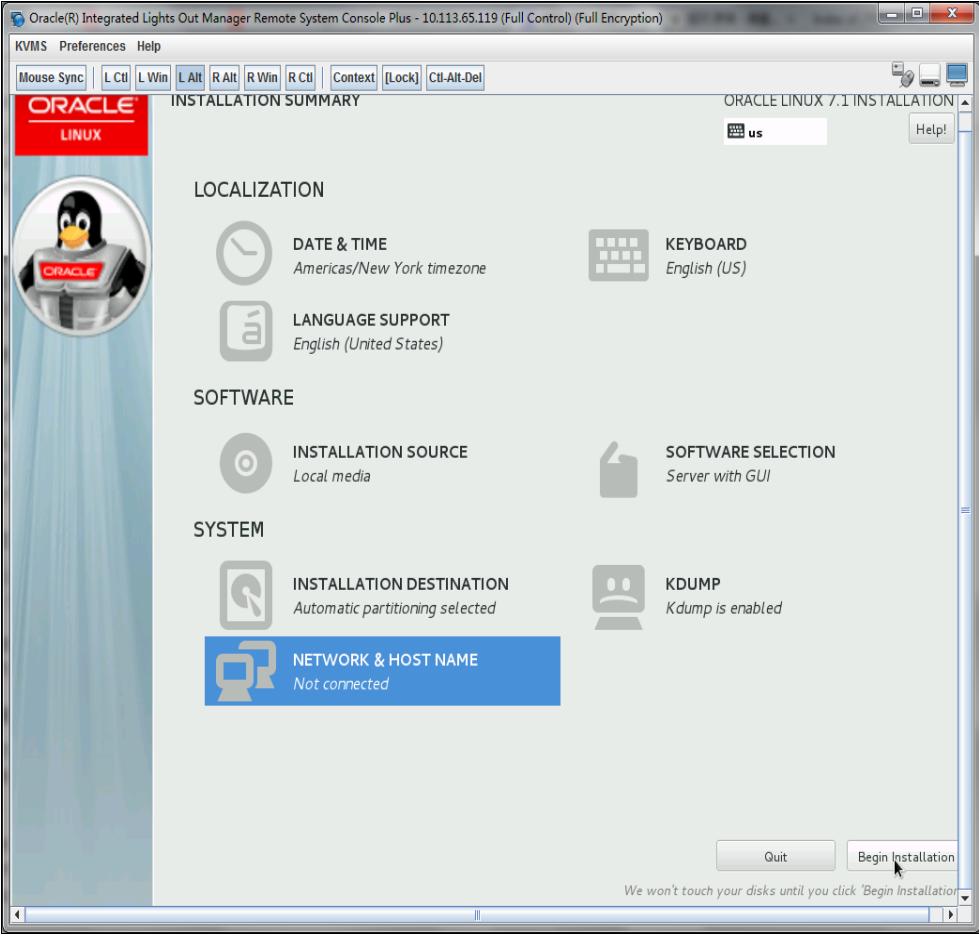
Step	Procedure	Result
3. <input type="checkbox"/> For each Oracle X5-2 RMS, initiate Oracle Linux Platform installation		<p>After the reboot is complete, the host boots with Oracle Linux installation ISO and the Oracle Linux GUI with the installation option opens.</p> <p>Select Install Oracle Linux 7.x.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

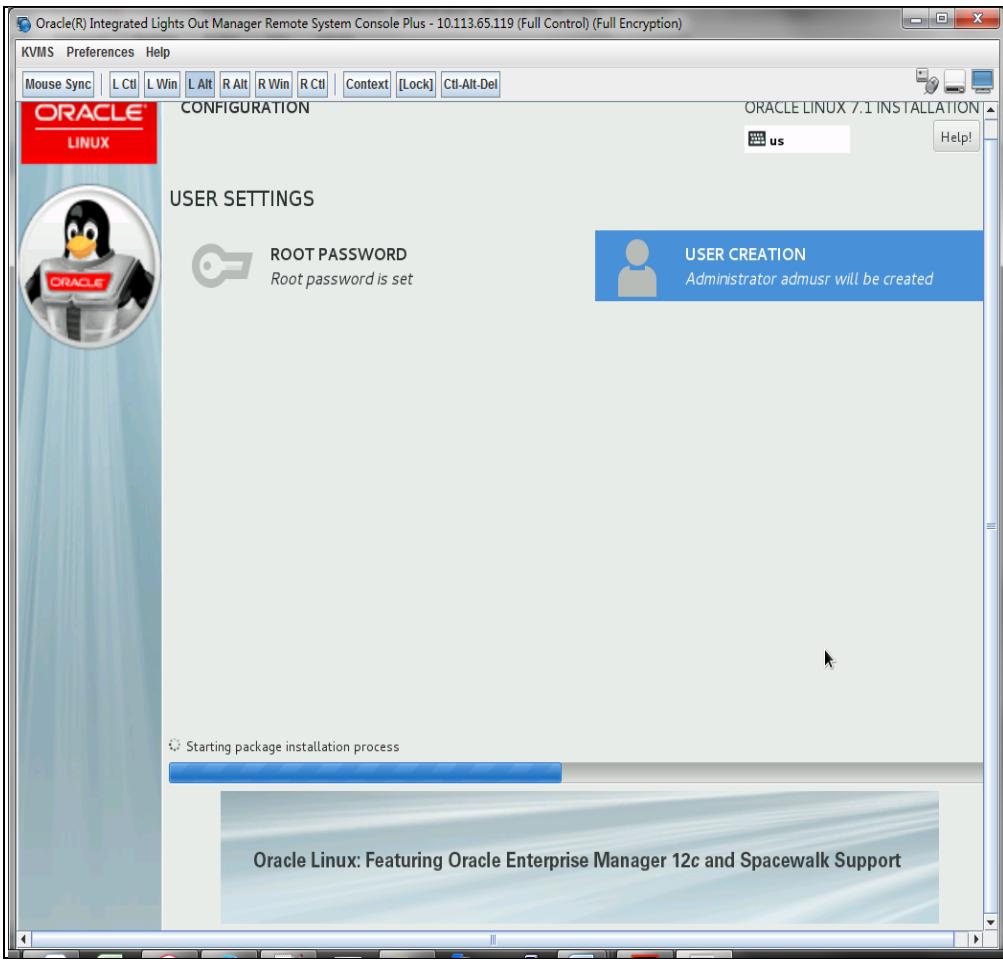
Step	Procedure	Result
4. <input type="checkbox"/> For each Oracle X5-2 RMS, select Oracle Linux OS language	<p>1. When prompted, select English as Oracle Linux OS language:</p>  <p>The screenshot shows the Oracle Linux 7.1 Installation welcome screen. The language selection dropdown is open, showing a list of languages. The 'English (United States)' option is selected. Other options in the list include English (United Kingdom), English (India), English (Australia), English (Canada), English (Denmark), English (Ireland), English (New Zealand), English (Nigeria), English (Hong Kong SAR China), English (Philippines), English (Singapore), English (South Africa), English (Zambia), English (Zimbabwe), and English (Botswana). A search bar at the bottom of the dropdown allows for searching by name.</p>	<p>2. Click Continue.</p>

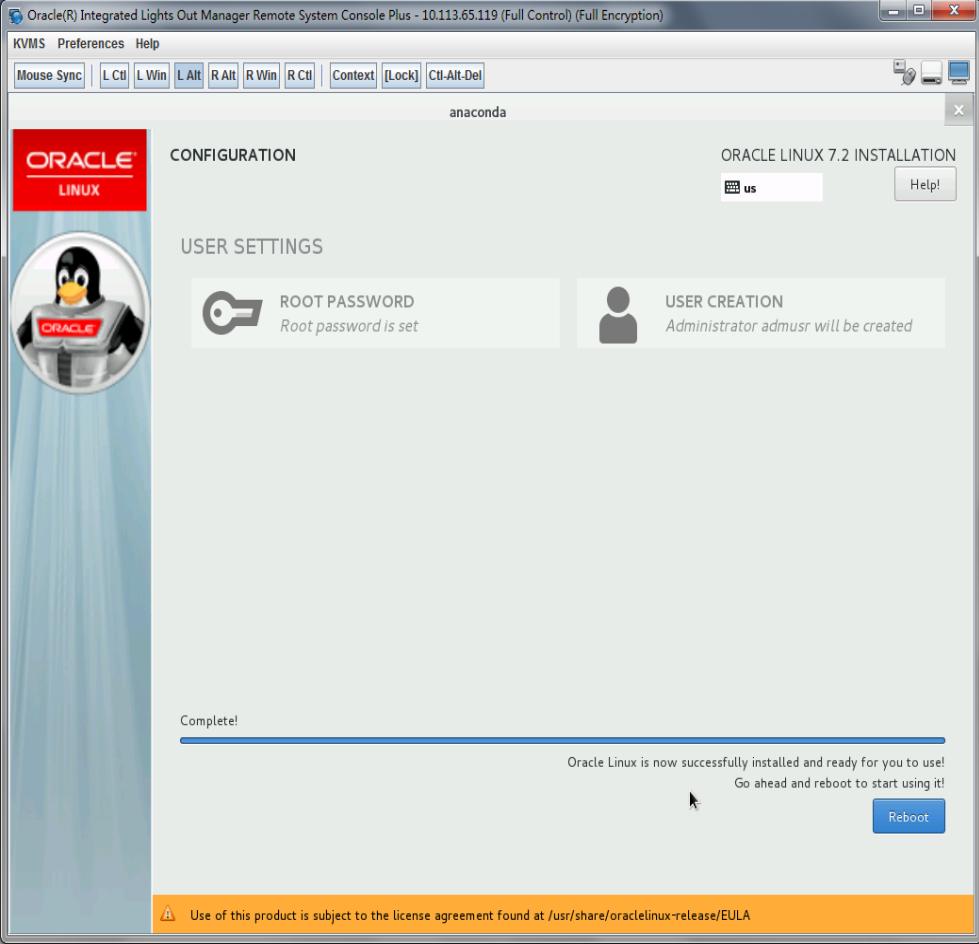
Step	Procedure	Result
5. <input type="checkbox"/> For each Oracle X5-2 RMS, setup time zone	The next page prompts you for Oracle Linux OS installation required information to start installation.	 <p>1. Navigate to LOCALIZATION → DATE & TIME. 2. Set time zone as Americas/New York. 3. Click Done to save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

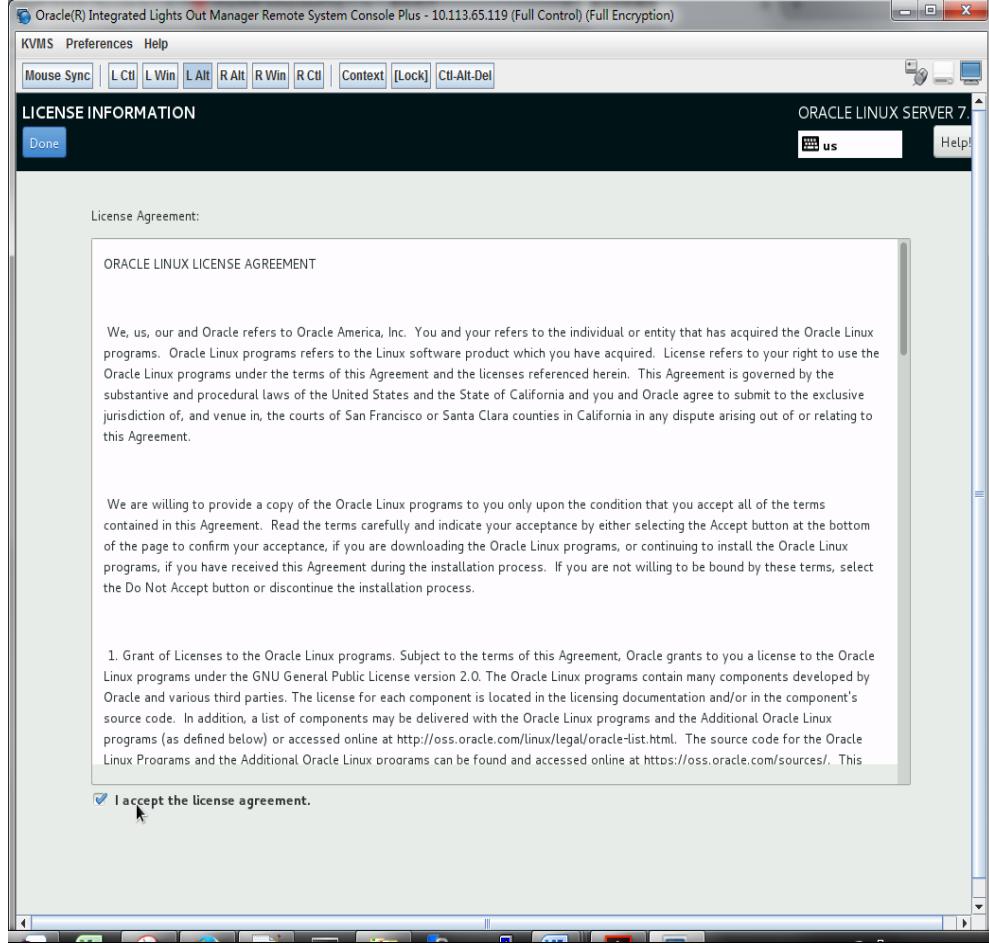
Step	Procedure	Result
6. <input type="checkbox"/> For each Oracle X5-2 RMS: Setup installation base environment	<p>Navigate to SOFTWARE → SOFTWARE SELECTION menu. Choose “Server with GUI” group, and make sure following add-ons are selected:</p> <ul style="list-style-type: none"> Virtualization Client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

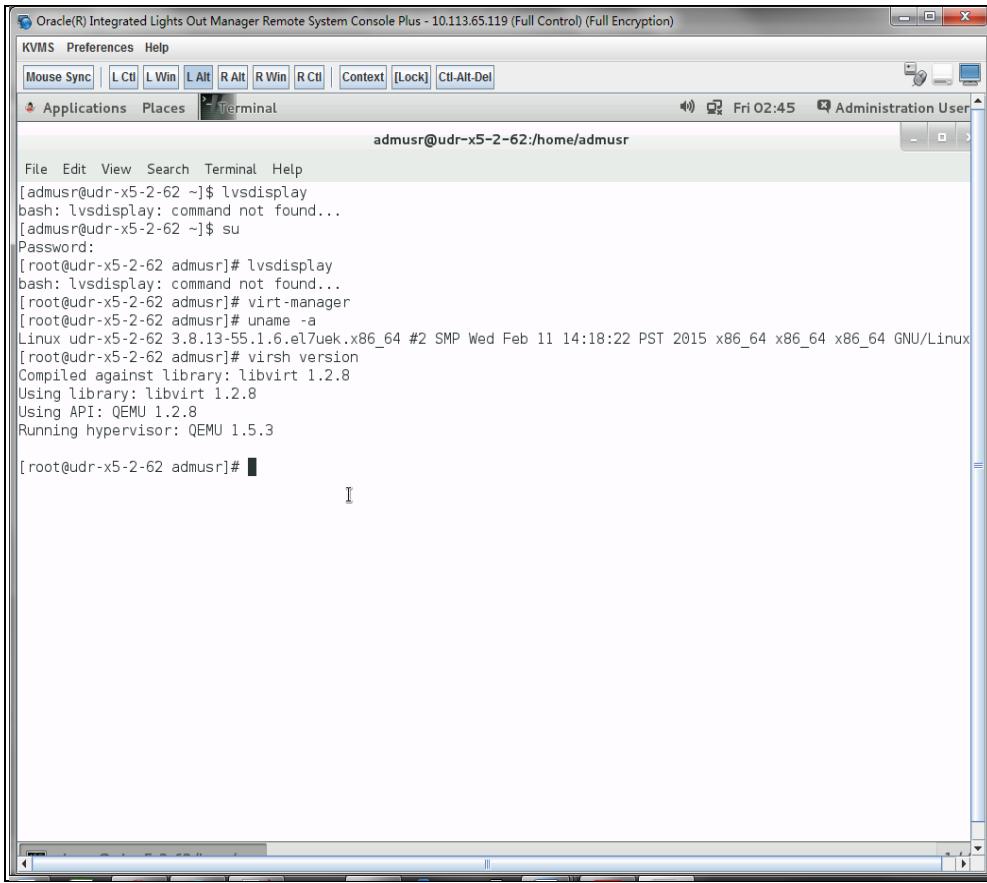
Step	Procedure	Result
7. <input type="checkbox"/> For each Oracle X5-2 RMS, setup installation destination	<p>1. Navigate to SYSTEM → INSTALLATION DESTINATION menu.</p> <p>2. Select sda and sdb.</p> <p>3. Choose Automatically configure partitioning.</p> <p>4. Click Done.</p>	

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 network at this time, network configuration is done after the Oracle Linux OS is installed.)</p>	 <p>Installation Summary</p> <p>LOCALIZATION</p> <ul style="list-style-type: none"> DATE & TIME: Americas/New York timezone KEYBOARD: English (US) LANGUAGE SUPPORT: English (United States) <p>SOFTWARE</p> <ul style="list-style-type: none"> INSTALLATION SOURCE: Local media SOFTWARE SELECTION: Server with GUI <p>SYSTEM</p> <ul style="list-style-type: none"> INSTALLATION DESTINATION: Automatic partitioning selected KDUMP: Kdump is enabled NETWORK & HOST NAME: Not connected <p>Begin Installation</p>

Step	Procedure	Result
9. <input type="checkbox"/> For each Oracle X5-2 RMS, create login credential	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>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 "ORACLE LINUX 7.1 INSTALLATION". On the left, there's a "USER SETTINGS" section with a penguin icon and a "ROOT PASSWORD" field showing "Root password is set". On the right, a "USER CREATION" section shows a user icon and the message "Administrator admusr will be created". A progress bar at the bottom indicates "Starting package installation process". The background features a blue and white abstract design with the text "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>LICENSE INFORMATION</p> <p>Done</p> <p>ORACLE LINUX SERVER 7.1</p> <p>us</p> <p>Help</p> <p>License Agreement:</p> <p>ORACLE LINUX LICENSE AGREEMENT</p> <p>We, us, our and Oracle refers to Oracle America, Inc. You and your refers to the individual or entity that has acquired the Oracle Linux programs. Oracle Linux programs refers to the Linux software product which you have acquired. License refers to your right to use the Oracle Linux programs under the terms of this Agreement and the licenses referenced herein. This Agreement is governed by the substantive and procedural laws of the United States and the State of California and you and Oracle agree to submit to the exclusive jurisdiction of, and venue in, the courts of San Francisco or Santa Clara counties in California in any dispute arising out of or relating to this Agreement.</p> <p>We are willing to provide a copy of the Oracle Linux programs to you only upon the condition that you accept all of the terms contained in this Agreement. Read the terms carefully and indicate your acceptance by either selecting the Accept button at the bottom of the page to confirm your acceptance, if you are downloading the Oracle Linux programs, or continuing to install the Oracle Linux programs, if you have received this Agreement during the installation process. If you are not willing to be bound by these terms, select the Do Not Accept button or discontinue the installation process.</p> <p>1. Grant of Licenses to the Oracle Linux programs. Subject to the terms of this Agreement, Oracle grants to you a license to the Oracle Linux programs under the GNU General Public License version 2.0. The Oracle Linux programs contain many components developed by Oracle and various third parties. The license for each component is located in the licensing documentation and/or in the component's source code. In addition, a list of components may be delivered with the Oracle Linux programs and the Additional Oracle Linux programs (as defined below) or accessed online at http://oss.oracle.com/linux/legal/oracle-list.html. The source code for the Oracle Linux Programs and the Additional Oracle Linux programs can be found and accessed online at https://oss.oracle.com/sources/. This</p> <p><input checked="" type="checkbox"/> I accept the license agreement.</p> <p>1. Select I accept the license agreement. 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'	<p>1. Edit <code>/etc/default/grub</code> to append <code>net.ifnames=0</code> to option <code>GRUB_CMDLINE_LINUX</code>:</p> <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> <p>2. Recreate the grub2 config file with following command:</p> <pre> # grub2-mkconfig -o /boot/grub2/grub.cfg </pre> <p>3. Restart host using <code>shutdown -r</code> command and verify that network interface have the ethx name pattern.</p>

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=<nic1>,<nic2> ONBOOT=yes NM_CONTROLLED=no BOOTPROTO=none BONDING_OPTS="mode=active-backup primary=<nic1> miimon=100"</pre> <p>2. Save the file and exit.</p> <p>3. Create device eth0 configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-<nic1> DEVICE=<nic1> TYPE=Ethernet ONBOOT=yes NM_CONTROLLED=no BOOTPROTO=none MASTER=bond0 SLAVE=yes</pre> <p>4. Save the file and exit.</p> <p>5. Create device eth1 configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-<nic2> DEVICE=<nic2> TYPE=Ethernet ONBOOT=yes NM_CONTROLLED=no BOOTPROTO=none MASTER=bond0 SLAVE=yes</pre> <p>6. Save the file and exit.</p> <p>7. Bring the devices into service:</p> <pre># ifup <nic1> # ifup <nic2> # ifup bond0</pre>
15. <input type="checkbox"/>	For each Oracle X5-2 RMS, create IMI bridge	<p>1. Create bond0.<imi_vlan> configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-bond0.<imi_vlan> 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"/>	<p>For each Oracle X5-2 RMS, Create bond1 device</p>	<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 xsi1 # ifup bond1.<xsi1_vlan></pre> <p>Perform similar operations to create network devices for xsi2.</p>
19. <input type="checkbox"/>	For each Oracle X5-2 RMS, set the host name	<p>Rename host by modifying /etc/hostname file:</p> <pre>[root@localhost network-scripts]# cat /etc/hostname udr-x5-2-62-017</pre> <p>Review host name change with following command:</p> <pre>[root@localhost network-scripts]# hostnamectl status Static hostname: udr-x5-2-62-017 Icon name: computer-server Chassis: server Machine ID: 17980a78ef7d440ca5a6900768903795 Boot ID: a2a5a649eea14d8ab7534aec962c6782 Operating System: Oracle Linux Server 7.2 CPE OS Name: cpe:/o:oracle:linux:7:2:server Kernel: Linux 3.8.13-98.7.1.el7uek.x86_64 Architecture: x86-64</pre>

Step	Procedure	Result
20. <input type="checkbox"/>	For each Oracle X5-2 RMS, set the NTP service	<p>Modify /etc/chrony.conf, comment out all server * entries and append your NTP server IP to the list with prepending server text:</p> <pre># Use public servers from the pool.ntp.org project. # Please consider joining the pool (http://www.pool.ntp.org/join.html). #server 0.rhel.pool.ntp.org iburst #server 1.rhel.pool.ntp.org iburst #server 2.rhel.pool.ntp.org iburst #server 3.rhel.pool.ntp.org iburst server 144.25.255.140</pre> <p>Force ntp to sync with newly added server:</p> <pre># ntpdate 144.25.255.140 # timedatectl</pre> <p>Verify time synced:</p> <pre>[root@udr-x5-2-62 log]# chronyc tracking Reference ID : 144.25.255.140 (144.25.255.140) Stratum : 3 Ref time (UTC) : Mon Feb 29 06:06:44 2016 System time : 1.692247748 seconds slow of NTP time Last offset : -3.862722397 seconds RMS offset : 3.862722397 seconds Frequency : 0.000 ppm fast Residual freq : -93.109 ppm Skew : 1000000.000 ppm Root delay : 0.178002 seconds Root dispersion : 30.041723 seconds Update interval : 0.0 seconds Leap status : Normal</pre>
21. <input type="checkbox"/>	For each Oracle X5-2 RMS: Create /home/ova dir	<pre>[root@pc9112020 ~]# mkdir -p /home/ova [root@pc9112020 ~]# cd /home/ova</pre>
22. <input type="checkbox"/>	Transfer OVA file this dir using sftp tool	<pre>[root@pc12107008 ova]# ll total 12322888 -rw-r--r--. 1 root root 1047767040 May 2 00:51 UDR-12.4.0.0.0_16.14.0.ova</pre>
23. <input type="checkbox"/>	Untar this ova file	<pre>[root@pc9112020 ova]# tar xvf UDR-12.4.0.0.0_16.14.0.ova UDR-16_14_0.ovf UDR-16_14_0.mf UDR-16_14_0.vmdk</pre>
24. <input type="checkbox"/>	Convert this vmdk file to	<pre>[root@pc9112020 ova]# qemu-img convert -O qcows2 DR- UDR-12.4.0.0.0_16.14.0.ova.vmdk UDRNO-16_14_0.qcow2</pre>

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

Appendix K. My Oracle Support

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

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

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

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

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

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

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

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

Appendix M. Create and install UDR VM via KVM GUI

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

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

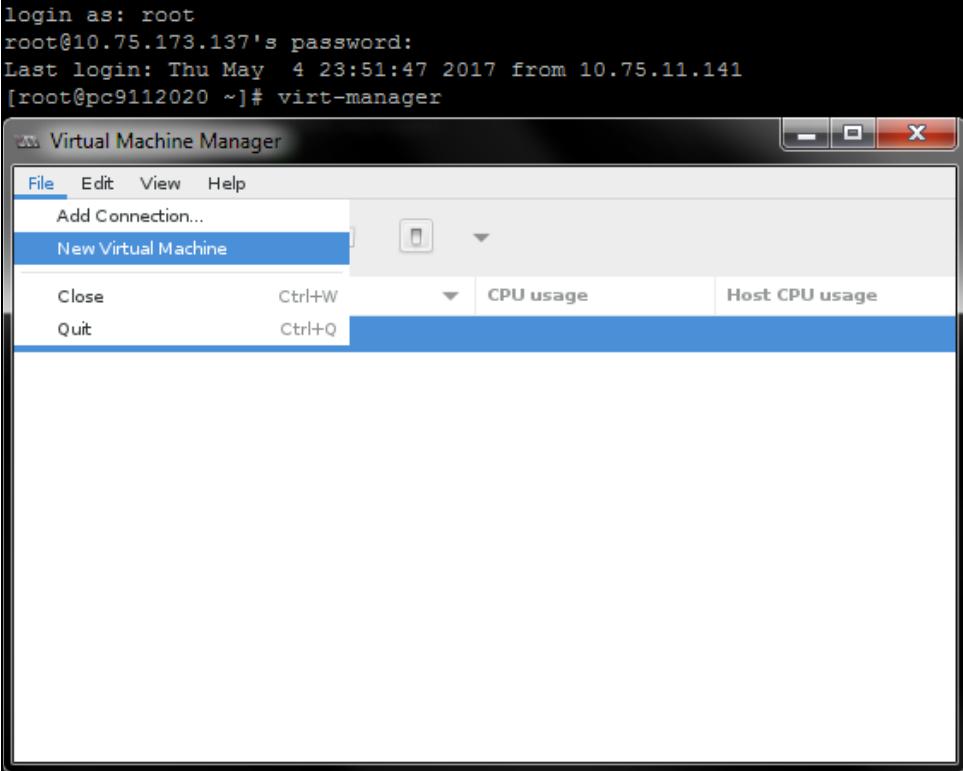
NOTE: This procedure needs to be done for each VM: NO, SO and MP

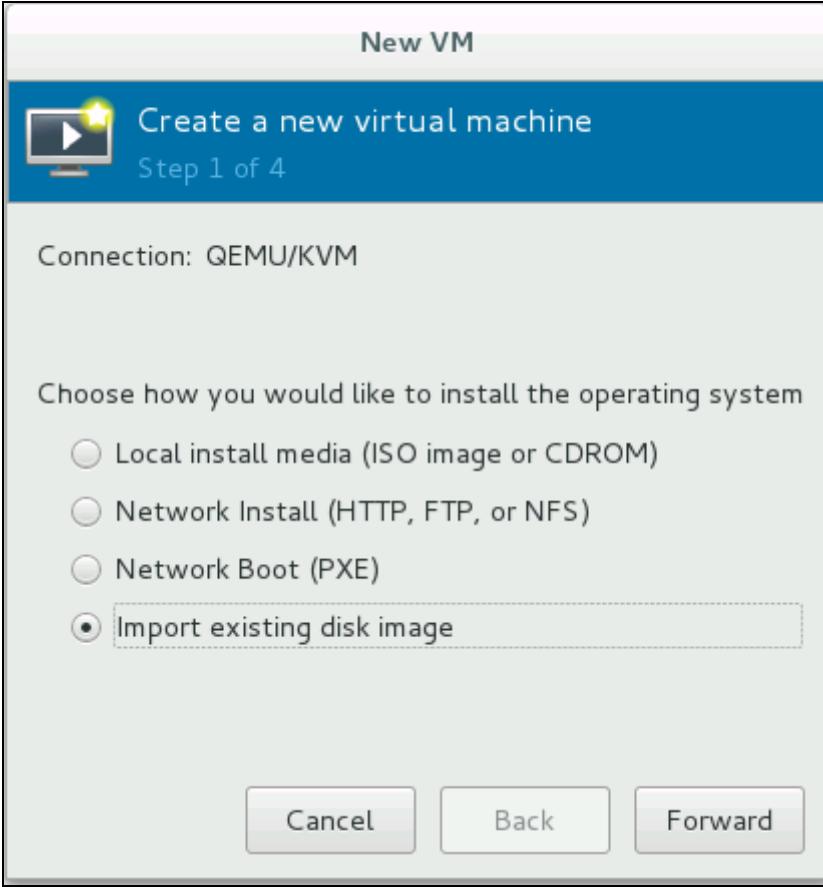
Requirements:

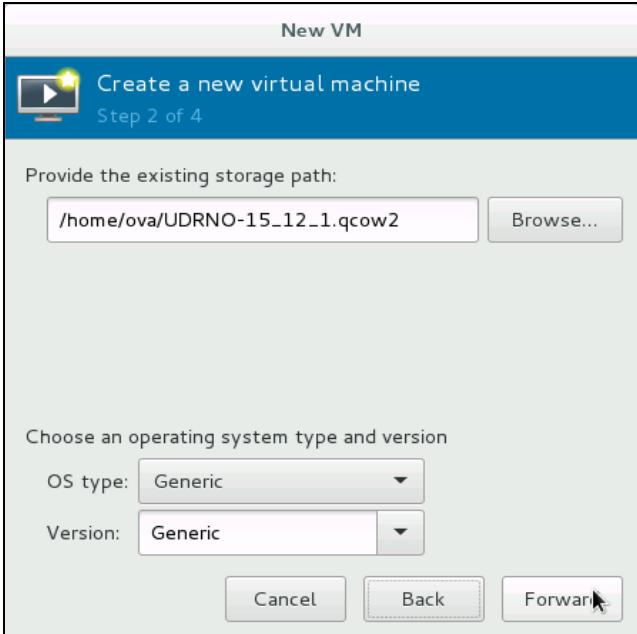
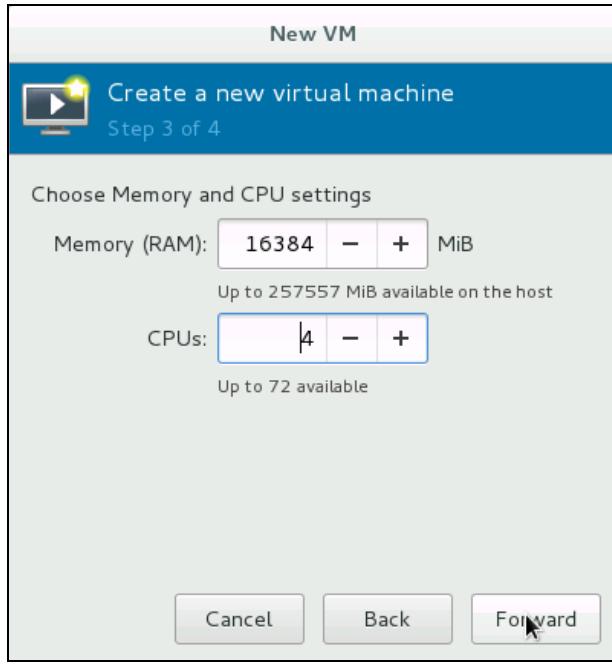
- [Appendix J Install UDR on Oracle Linux OS via KVM](#) Steps: 1 to 25 must be complete.

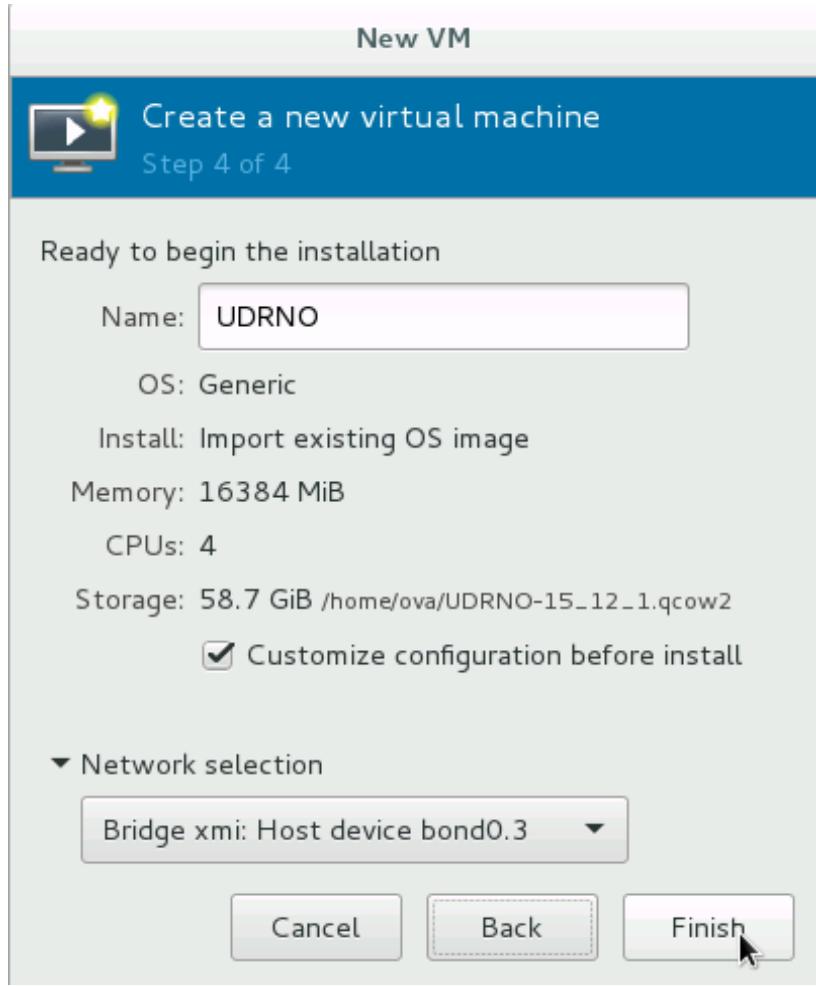
Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.

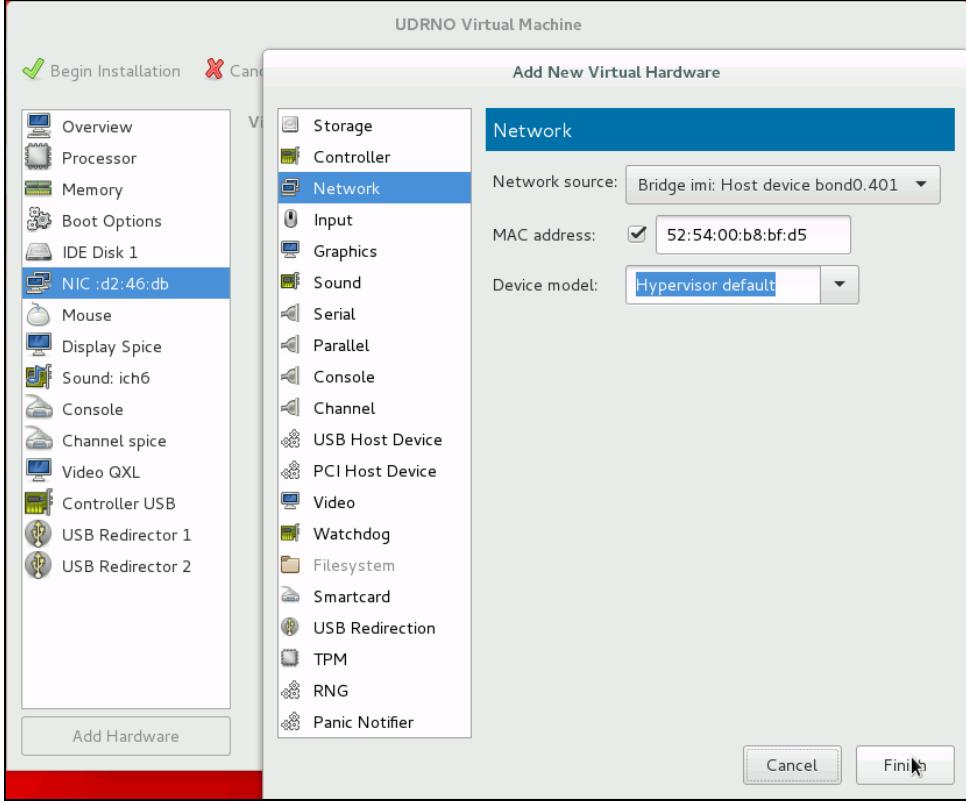
Procedure39: Create and Install UDR VMs via KVM GUI

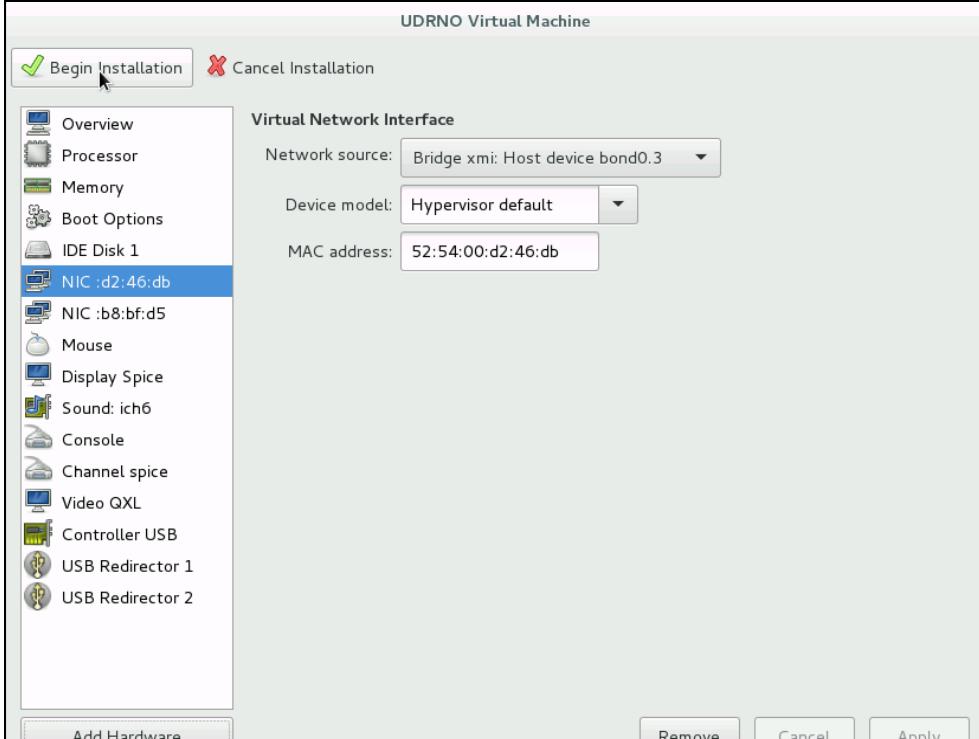
Step	Procedure	Result
1. <input type="checkbox"/>	Login to the host machine and open the Virtual Machine Manager	<p>Login to the host machine which has Oracle Linux installed and open the Virtual Machine Manager via command-line using command 'virt-manager' as shown below:</p> <p>NOTE: Make sure X11 forwarding is enabled before running virt-manager command on CLI.</p> <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 new Virtual Machine using the Virtual Manager GUI	<p>On Virtual Manager GUI,</p> <ol style="list-style-type: none"> 1. Navigate to File → New Virtual Machine. 2. Select Import existing disk image. 	 <p>The screenshot shows the 'Create a new virtual machine' wizard, Step 1 of 4. The title bar says 'New VM'. The main area is titled 'Create a new virtual machine' and 'Step 1 of 4'. It shows a connection type 'QEMU/KVM'. Below that, it says 'Choose how you would like to install the operating system'. There are four radio button options: '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, indicated by a yellow star icon next to the radio button. At the bottom 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 Step 24-25 in Appendix J) by browsing the location as below and Click Forward</p> 
4. <input type="checkbox"/>	Select RAM and vCPUs for VM	<p>For each VM, select the RAM and vCPUs as per the required resource profile. Refer to Appendix G.</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"/>	<p>Customize the network configuration</p> <ul style="list-style-type: none"> For NO and SO, choose IMI bridge only. For MP, add XSI1 along with IMI by repeating this step. <p>Click Finish.</p>	<p>On the next screen, click Add Hardware. Under Network, select the IMI bridge.</p> <ul style="list-style-type: none"> For NO and SO, choose IMI bridge only. For MP, add XSI1 along with IMI by repeating this step. <p>Click 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>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>Add Hardware</p> <p>Remove Cancel Apply</p>

THIS PROCEDURE HAS BEEN COMPLETED

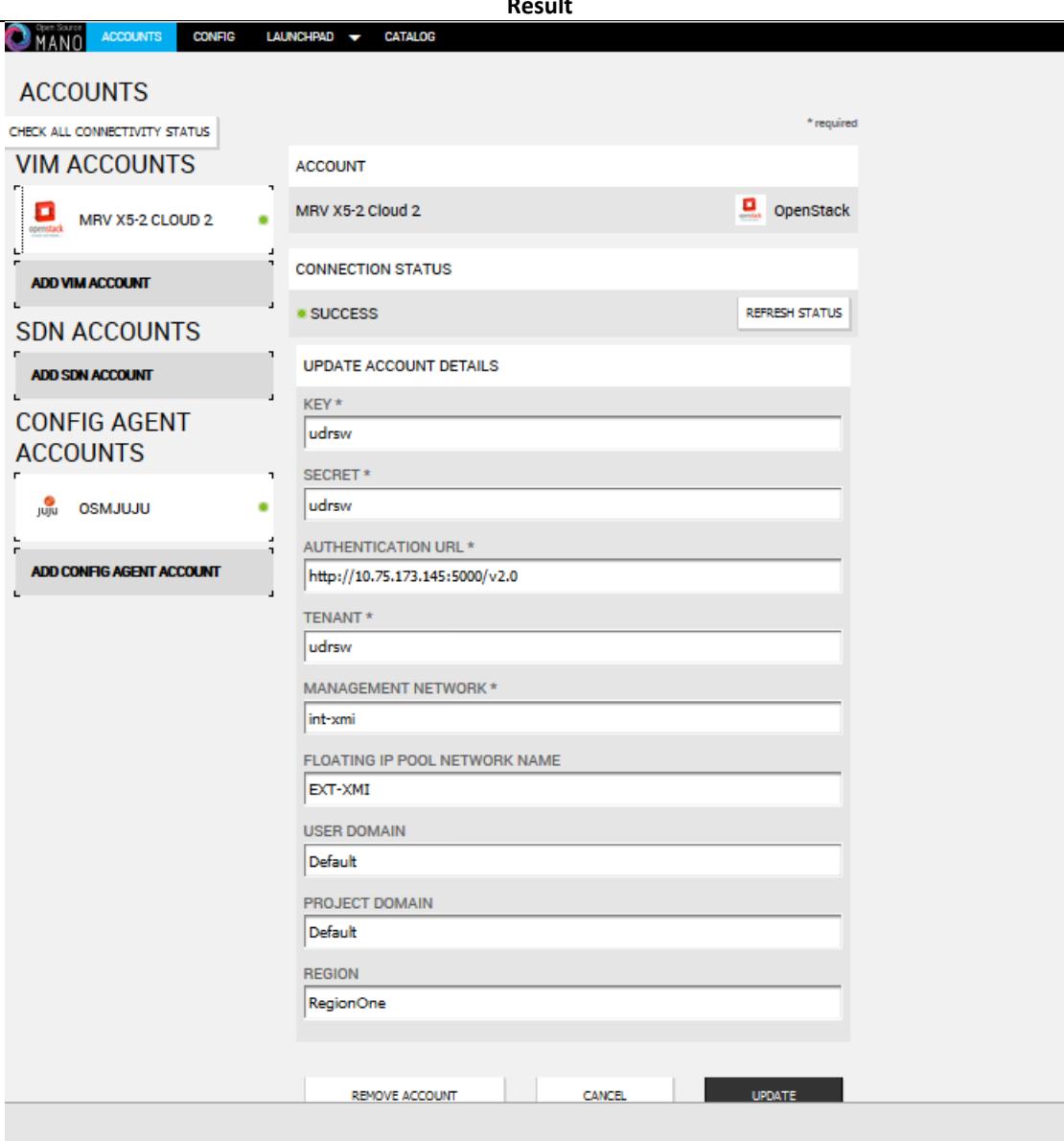
Appendix N. Orchestrating UDR Via OSM

Pre-requisites:

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

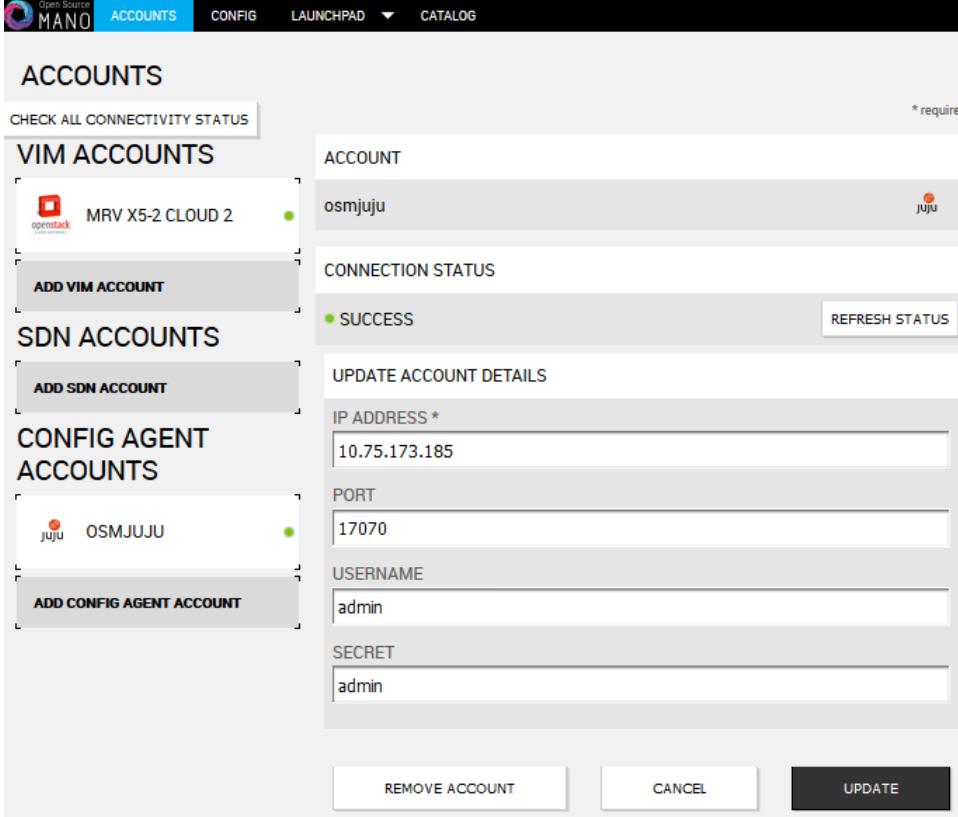
N.1 CONFIGURE OPENSTACK VIM TO RUN WITH OSM

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

Procedure	Result
Add the VIM details in the Account Tab -> VIM ACCOUNTS on OSM GUI.	

N.2 CONFIGURE CONFIG AGENT ACCOUNT (JUJU SERVER)

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

Procedure	Result
Add the CONFIG AGENT (juju) account details in the Account Tab -> 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. The CONFIG AGENT ACCOUNTS section is expanded, showing an 'osmjuju' account with a red 'juju' icon. The main panel shows a form for adding a new account. The 'ACCOUNT' field is 'osmjuju'. The 'CONNECTION STATUS' field shows 'SUCCESS'. 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 dark 'UPDATE' button.</p>

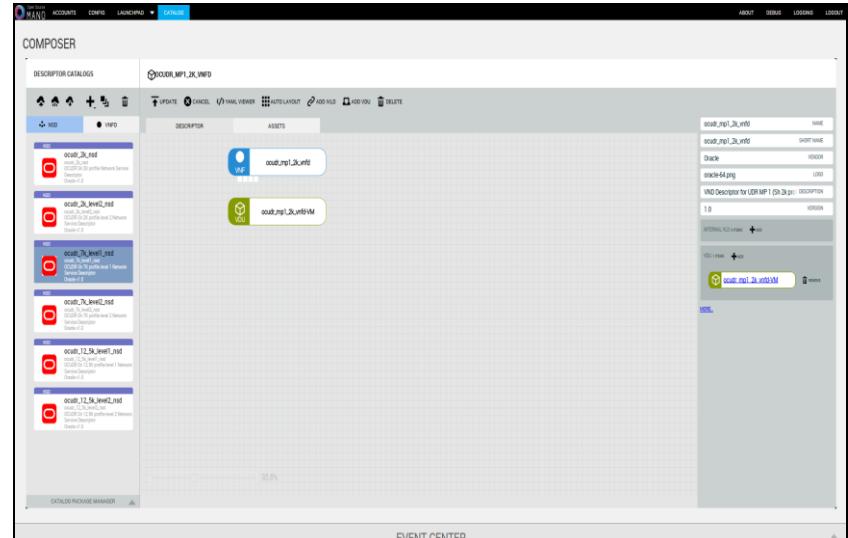
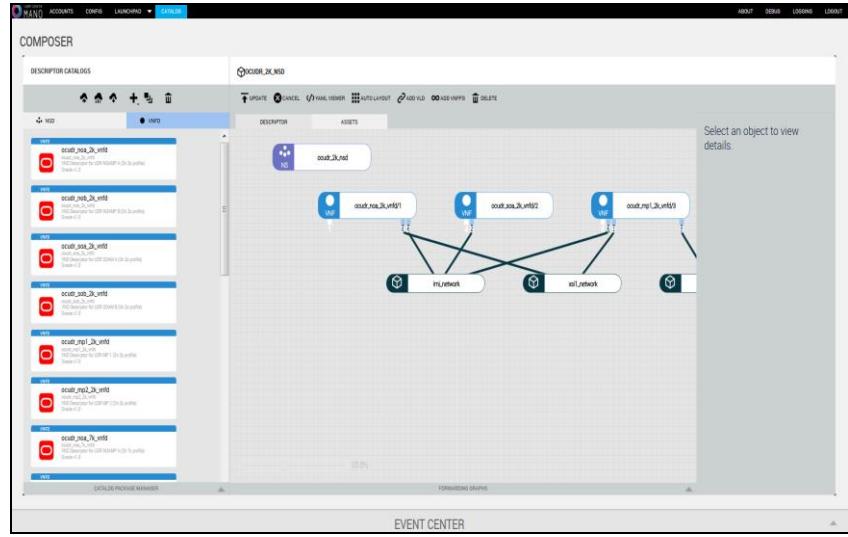
N.3 BUILD AND DEPLOY UDR NSD/VNFD PACKAGE

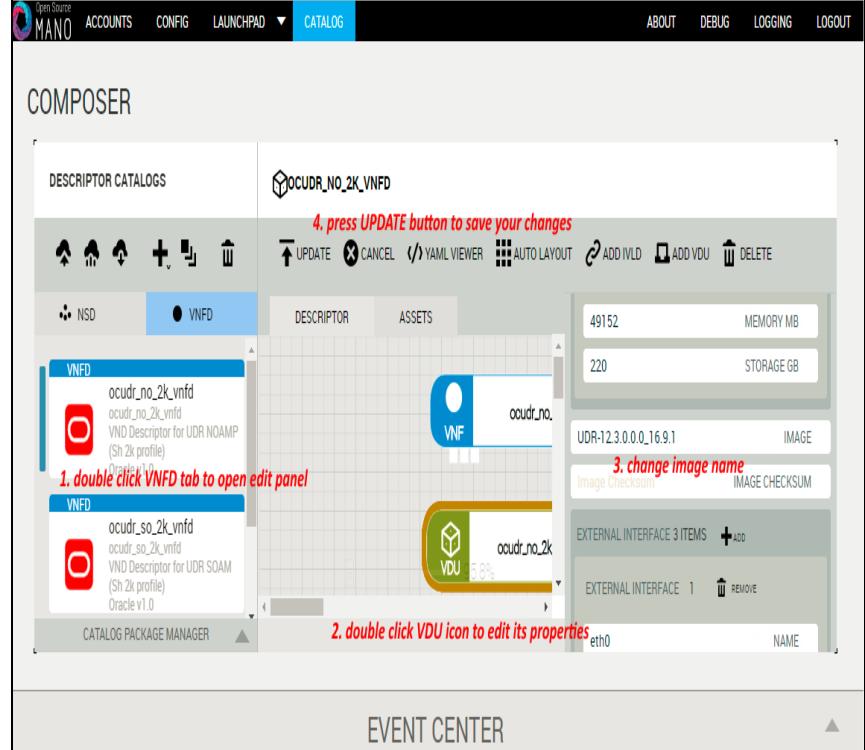
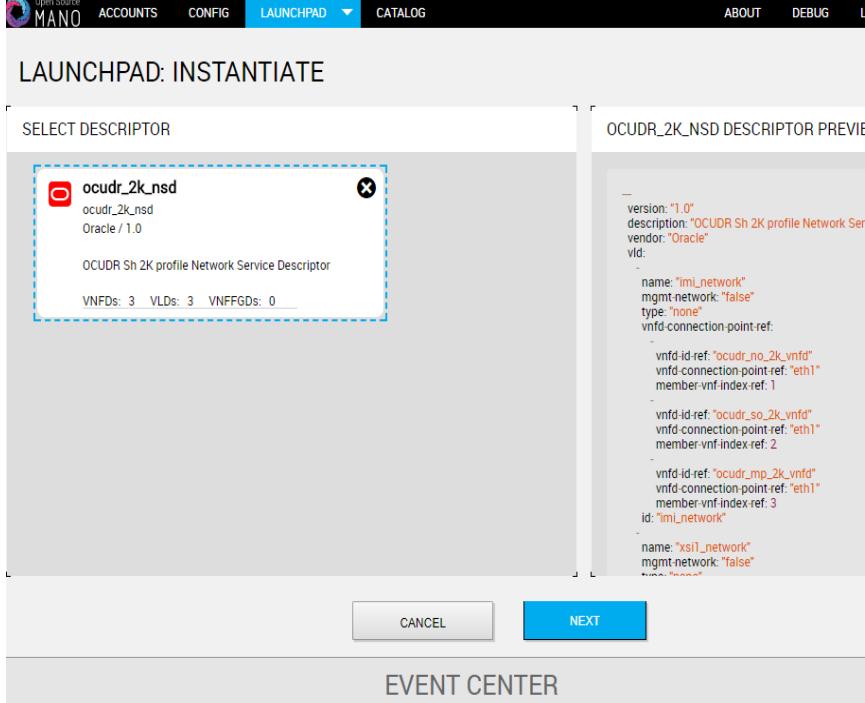
Build and Deploy scripts are attached below and should be run in order to upload UDR NSDs and VNFDs to OSM.

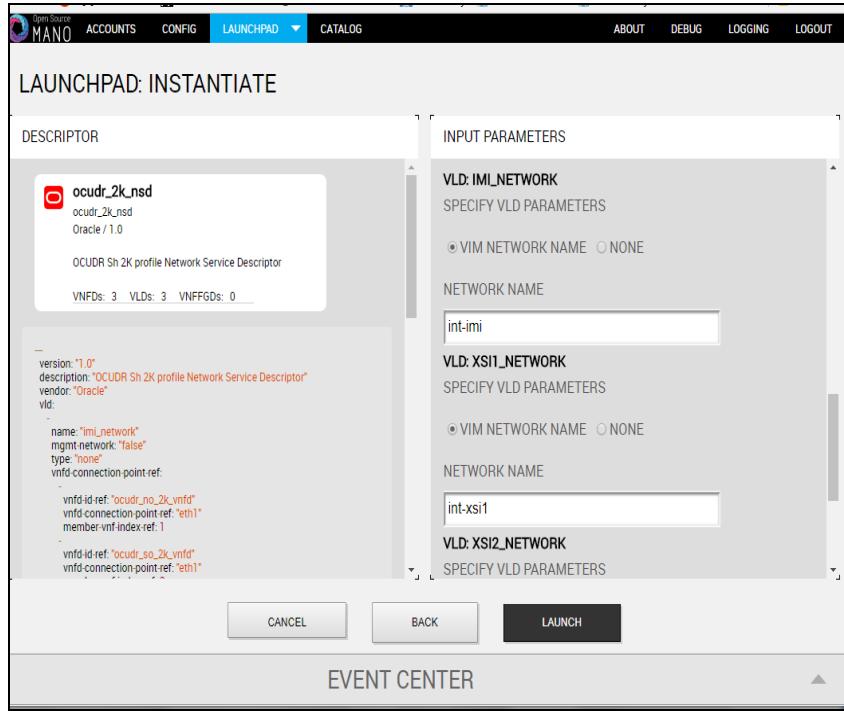
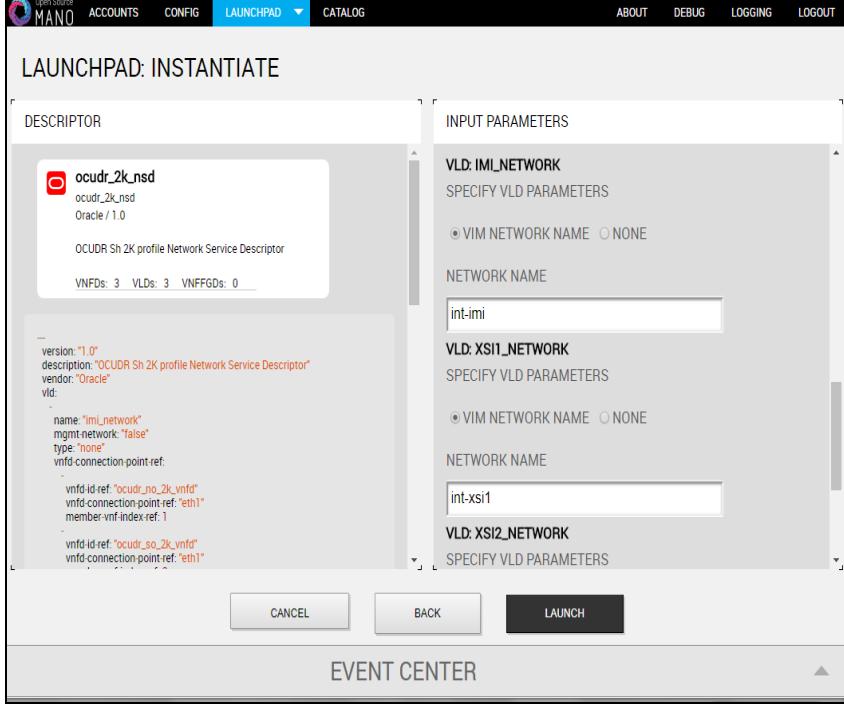
Procedure 11 SSH Logon to Juju Server and fetch build and deploy source scripts

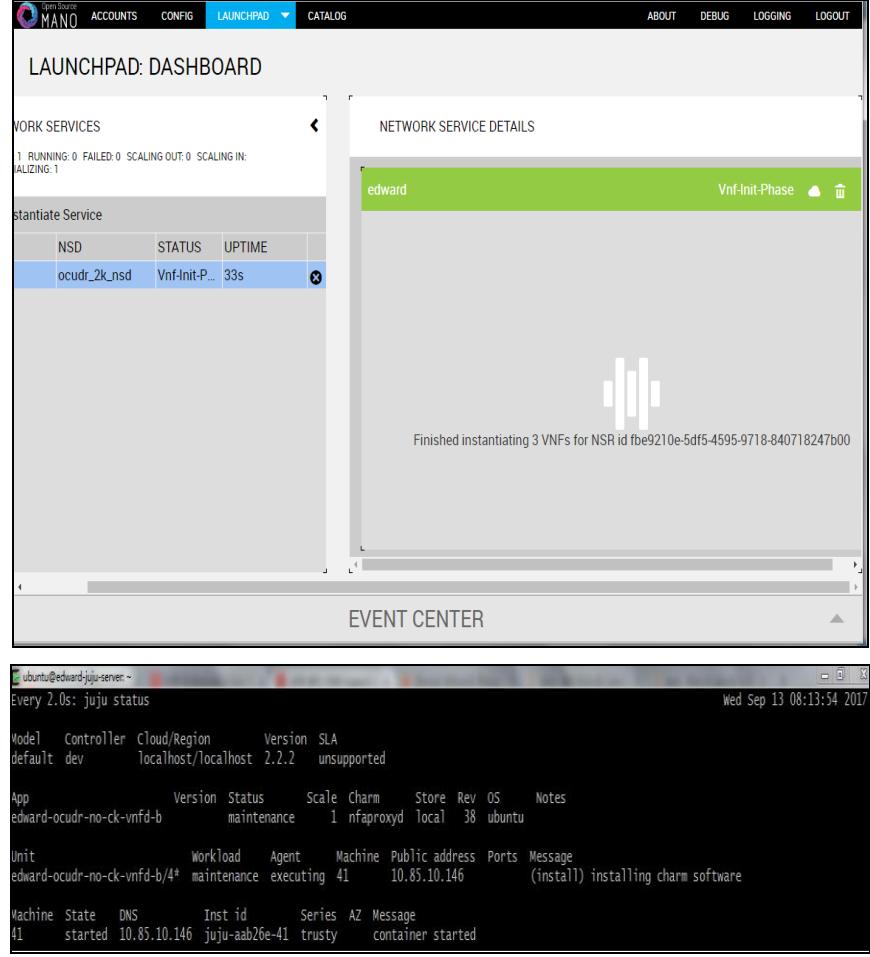
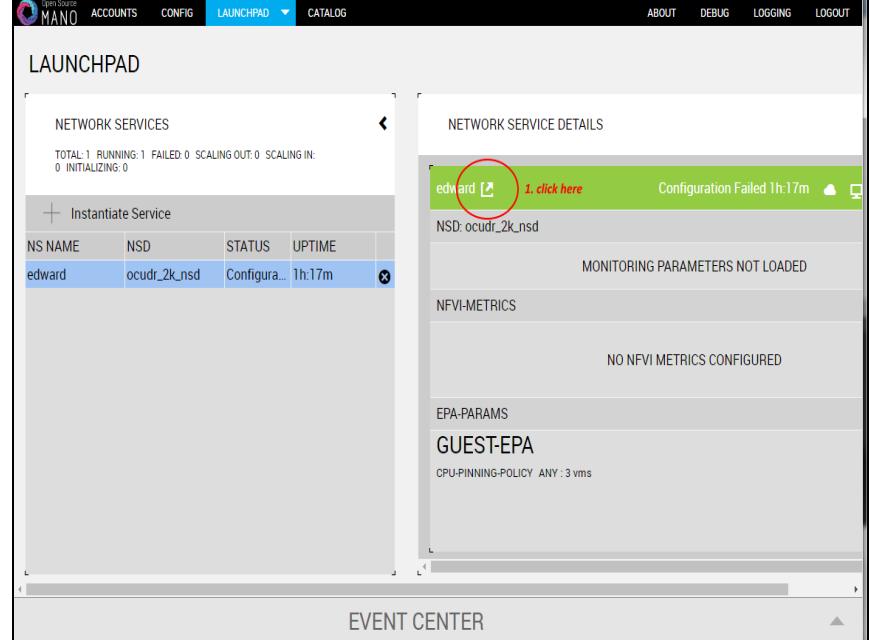
Step	Procedure	Result
1. <input type="checkbox"/>	SSH Logon to JUJU server and fetch the build and deploy source scripts	<p>1. Copy the qcow2 file made from the ova file of UDR image to the juju server.</p> <p>2. Run the following commands:</p> <pre>\$ sudo guestmount -a UDR-12.4.0.0.0_16.13.1.qcow2 -m /dev/mapper/vgroot_usr /mnt \$ sudo cp /mnt/TKLC/udr/cloud/OSM-support.tar.gz . \$ sudo guestunmount /mnt</pre> <p>3. These commands will extract osm-support.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 style="border: 1px solid black; padding: 2px; display: inline-block;">Extracted osm-support directory from qcow2 Image</p> <pre>ubuntu@edward-juju-server:~\$ cd osm-support/ ubuntu@edward-juju-server:~/osm-support\$ ls build build.sh charms deploy.sh doc nsd vnfd ubuntu@edward-juju-server:~/osm-support\$ </pre>
2. <input type="checkbox"/>	<p>Navigate to OSM-Support directory and Run the build script</p> <pre>\$./build.sh</pre> <p>NOTE: Monitor the console output make sure the build script is completed successfully</p>	<pre>ubuntu@edward-juju-server:~/osm-support\$./build.sh ocudr_soa_2k_vnf/ ocudr_soa_2k_vnf/ocudr_soa_2k_vnfd.yaml ocudr_soa_2k_vnf/README ocudr_soa_2k_vnf/icons/ ocudr_soa_2k_vnf/icons/oracle-64.png ocudr_soa_2k_vnf/checksums.txt ocudr_soa_2k_vnf/cloud_init/ ocudr_soa_2k_vnf/cloud_init/ocudr_soa_2k_vnfd-VM.init ocudr_sob_2k_vnf/ ocudr_nob_12_5k_vnf/cloud_init/ocudr_nob_12_5k_vnfd-VM.ini build: Composing into /home/ubuntu/osm-support/charms build: Destination charm directory: /home/ubuntu/osm-support/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 using the charm: proof: W: README.ex includes boilerplate: You can then bro address to configure the service. proof: W: README.ex includes boilerplate: - Upstream maili t information proof: W: README.ex includes boilerplate: - Feel free to a useful for users proof: I: all charms should provide at least one thing</pre>

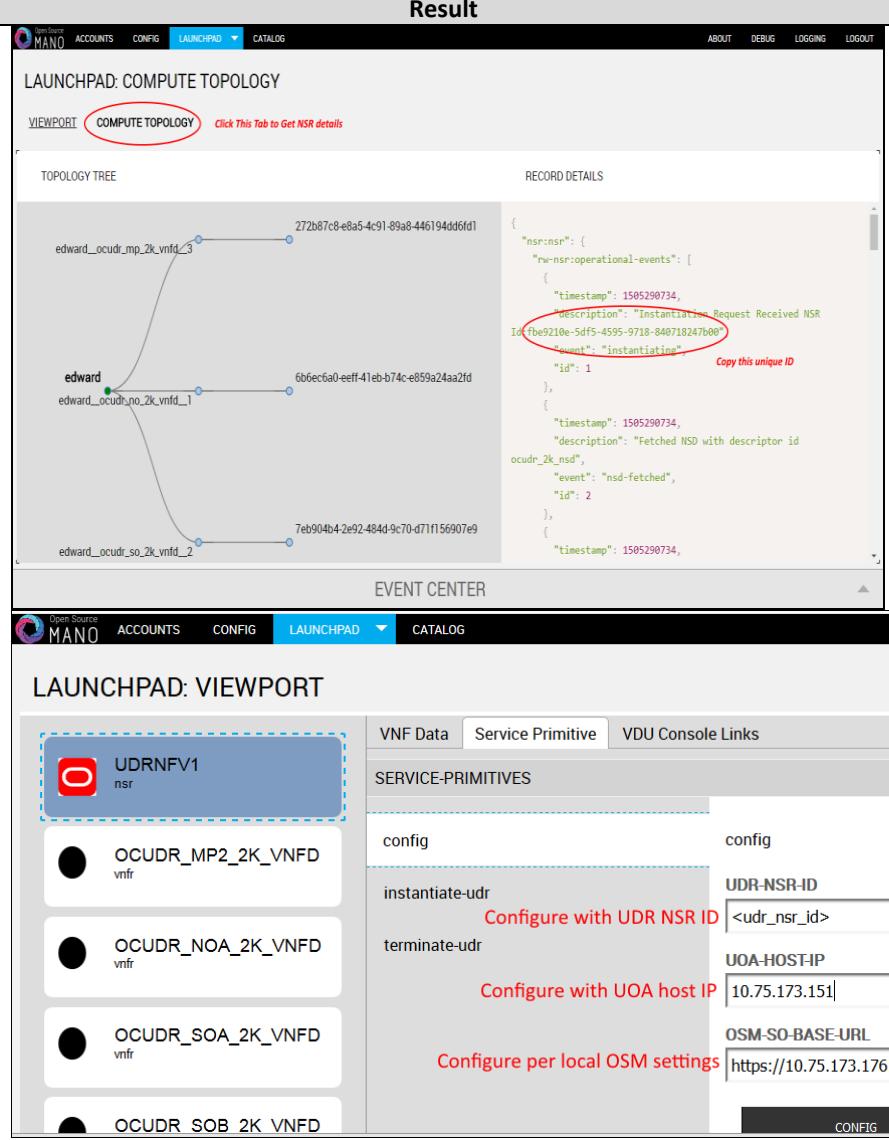
Step	Procedure	Result
		<pre>ocudr_12_5k_level1_ns/ ocudr_12_5k_level1_ns/README ocudr_12_5k_level1_ns/icons/ ocudr_12_5k_level1_ns/icons/oracle-64.png ocudr_12_5k_level1_ns/ocudr_12_5k_level1_nsd.yaml ocudr_12_5k_level1_ns/checksums.txt ocudr_12_5k_level2_ns/ ocudr_12_5k_level2_ns/README ocudr_12_5k_level2_ns/icons/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

Step	Procedure	Result
4	Logon to OSM GUI, verify that UDR NSD/VNFD has been uploaded successfully:	 

Step	Procedure	Result
3. <input type="checkbox"/> Optional Step: Change UDR image name	<p>1. Open The OSM GUI and browse to CATALOG Tab</p> <p>Follow the steps mentioned in the image to change UDR Image Name:</p> <p>2. Double Click VNFD Tab to open edit pane</p> <p>3. Double click VDU to edit its properties</p> <p>4. Change Image Name</p> <p>5. Click on Update button to save changes</p> <p>NOTE: UDR image name should match with the one you intend to use and an image with the same name should be available on openstack</p>	
6	<p>Open the OSM GUI. Browse to "LAUNCHPAD" tab and click "Instantiate Service" button, select "UDR_2k_nsd" and click "Next":</p>	

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

Step	Procedure	Result
8	<p>Wait for the instantiation operation to complete</p> <p>NOTE: In OSM Release Two, UDR NSR result can be incorrectly shown on GUI.</p> <p>To check the status correctly, logon to juju server and issue the command</p> <pre>\$watch juju status</pre> <p>The screen will show a message. Wait for the cleanup of the message. The cleanup of message indicates success. (Refer to the second figure in this step)</p>	 <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 edward-ocudr-no-ck-vnfd-b Version Status Scale Charm Store Rev OS Notes edward-ocudr-no-ck-vnfd-b/4* maintenance executing 41 10.85.10.146 (install) installing charm software 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-aab26e-41 trusty container started</pre>
9	<p>After instantiation is done, query UDR NSR ID from OSM GUI and configure the parameter of 'udr-nsr-id' in NO charm:</p> <p>Follow the steps in the image to Add UDR NSR ID in NO charm</p>	

Step	Procedure	Result
		 <p>LAUNCHPAD: COMPUTE TOPOLOGY</p> <p>VIEWPORT COMPUTE TOPOLOGY Click This Tab to Get NSR details</p> <p>TOPOLOGY TREE</p> <p>RECORD DETAILS</p> <pre>{ "nsr:nsr": ["rw-nsr:operational-events": [{ "timestamp": 1505290734, "description": "Initialization Request Received NSR Id: fbe9210e-5df5-4595-9718-840718247b00", "event": "instantiation", "id": 1 }, { "timestamp": 1505290734, "description": "Fetched NSD with descriptor id ocudr_2k_ns", "event": "nsd-fetched", "id": 2 }], "timestamp": 1505290734, "description": "Instantiation Request Received NSR Id: fbe9210e-5df5-4595-9718-840718247b00"] }</pre> <p>EVENT CENTER</p> <p>LAUNCHPAD: VIEWPORT</p> <p>VNF Data Service Primitive VDU Console Links</p> <p>SERVICE-PRIMITIVES</p> <p>config config</p> <p>instantiate-udr UDR-NSR-ID Configure with UDR NSR ID <udr_nsr_id></p> <p>terminate-udr UOA-HOST-IP Configure with UOA host IP 10.75.173.151</p> <p>OSM-SO-BASE-URL Configure per local OSM settings https://10.75.173.176:8</p> <p>CONFIG</p>

N.4 PERFORM ORCHESTRATION OPERATIONS VIA OSM

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

1. Instantiation
2. Termination

N.5 INstantiate UDR

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

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

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

OSMTEST162

OCUDR_NOA_2K_VNFD vnf Step 2 : Select instantiate-udr action

OCUDR_MP1_2K_VNFD vnf

OCUDR_SOA_2K_VNFD vnf

config

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

1

terminate-udr

config

INSTANTATE-UDR Step 4: instantiate-UDR

JOB LIST

config

ID 2 Hide Parameters

udr-rid: 1589038-9179-4064-8024-046460057e use-host-ip: 10.75.173.147

com-to-base-udr: https://10.75.173.176:8008

config

ID 1 Hide Parameters

udr-rid: 1589038-9179-4064-8024-046460057f use-host-ip: 10.75.173.151

com-to-base-udr: https://10.75.173.176:8008

EVENT CENTER

N.6 TERMINATE UDR

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

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

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

Appendix O. Orchestrating UDR via Tacker

Pre-requisites:

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

O.1 TACKER CONFIGURATION

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

```
[udr]

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

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

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

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

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

Configuration Options

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

O.2 INSTALL UDR TACKER SUPPORT SCRIPTS

Step	Procedure	Result
1. <input type="checkbox"/>	<p>SSH Logon to Tacker server</p> <p>1. Copy the qcow2 file made from the ova file of UDR image to the tacker server (controller Node).</p> <p>2. Run the following commands:</p> <pre>\$ sudo guestmount -a UDR- 12.4.0.0.0_ 16.13.1.qco w2 -m /dev/mapper /vgroot- plat_usr /mnt \$ sudo cp /mnt/TKLC/u dr/cloud/Ta cker- support.tar .gz ./ \$ sudo guestunmount /mnt</pre> <p>These commands will extract Tacker-support.tar.gz file from qcow2 image</p> <p>3. Untar the file to tacker-support directory</p>	<p>Copied Image on Tacker server:</p> <pre>[root@nj-x52-61 image]# ls -l UDR-12.4.0.0.0_16.13.0.qcow2 -rwxrwxrwx 1 root root 4345757696 Jan 24 18:05 UDR-12.4.0.0.0_16.13.0.qcow2 [root@nj-x52-61 image]#</pre> <p>Extracted tacker-support directory from qcow2 image</p> <pre>[root@nj-x52-61 tacker-support]# ls bin mgmt_driver requirements.txt vnf</pre>
2. <input type="checkbox"/>	<p>Browse to the directory where the tacker scripts are copied on the controller Node.</p>	<p>Run the following commands:</p> <ol style="list-style-type: none"> 1. sudo mkdir -p /usr/lib/python2.7/site-packages/tacker/vnfm/mgmt_drivers/udr 2. edit mgmt_driver/udr/udr.py to navigate to line 102: 3. level = str(self.cluster_info['options']['LEVEL']) 4. sudo cp mgmt_driver/udr/*.py /usr/lib/python2.7/site-packages/tacker/vnfm/mgmt_drivers/udr/ 5. sudo service openstack-tacker-server restart <p>NOTE: Change /usr/lib/python2.7/site-packages/tacker with the tacker script installation directory per local tacker installation path.</p>

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

0.3 PERFORM ORCHESTRATION OPERATIONS VIA TACKER

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

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

O.4 CREATE UDR VNF (INSTANTIATION)

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

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

Where:

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

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

Figure 4 Example of udrvnd-param.yaml

```
xmi_network: int-xmi
imi_network: int-imi
xsil_network: int-xsil
xsi2_network: int-xsi2image: UDR-
12.3.0.0.0_16.9.0.2
```

```
[root@nj-x52-61 tacker-support]# source ~/keystonerc_admin
[root@nj-x52-61 tacker-support(keystone_admin)]# tacker vnf-create --vnfd-name udr-2k-vnfd udrv1
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 | udrv1
| placement_attr | {"vim_name": "tacker"}
| status | PENDING_CREATE
| tenant_id | 45a69279f4be47d89556b5299bdec769
| updated_at |
| vim_id | 7ae4f37b-056b-45de-a131-62463bdfce6d
| vnfd_id | 0874def4-0ac5-4352-bc7a-cff6139d6df4
+-----+-----+
[root@nj-x52-61 tacker-support(keystone_admin)]#
```

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

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

O.5 DELETE UDR VNF (TERMINATION)

Issue the following command to delete UDR VNF:

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

```
[root@nj-x52-61 tacker-support]# source ~/keystonerc_admin
[root@nj-x52-61 tacker-support(keystone_admin)]# tacker vnf-delete udrv1
All specified vnf(s) delete initiated successfully
[root@nj-x52-61 tacker-support(keystone_admin)]#
```