

Diameter Signal Routing User Data Repository Cloud Installation and Configuration Guide for Release 14.2.0.0.0

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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 9.2.0.

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

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

1.2 References

- [1] Oracle Communications User Data Repository Cloud Resource Profile, E67495, latest revision
- [2] Oracle Communications User Data Repository Installation and Configuration Guide, E72453, latest revision
- [3] Oracle Communications User Data Repository Cloud Disaster Recovery Guide, F88180-01, latest revision

1.3 Acronyms

An alphabetized list of acronyms used in this document.

Table 1. Acronyms

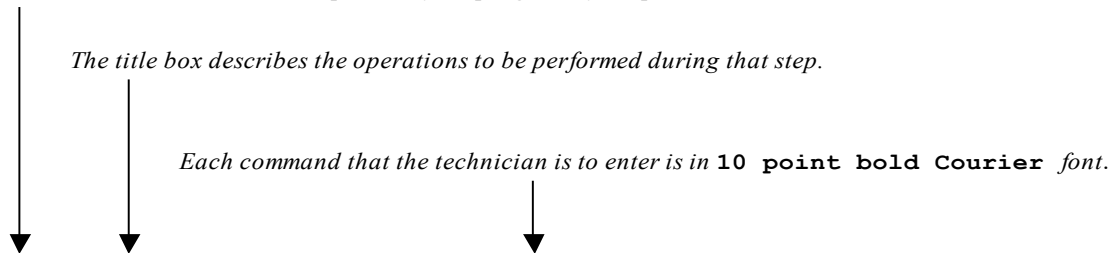
| Acronym | Definition |
|---------|-----------------------------------------------------------|
| BIOS | Basic Input Output System |
| CD | Compact Disk |
| UDR | User Data Repository |
| ESXi | Elastic Sky X Integrated |
| FABR | Full Address Based Resolution |
| iDIH | Integrated Diameter Intelligence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

| Acronym | Definition |
|---------|-------------------------------|
| TPD | Tekelec Platform Distribution |
| VM | Virtual Machine |

1.4 Terminology

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

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



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

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

1.5 Assumptions

This procedure assumes that:

- You have the assigned values from the network and used the values to compile XML files (see Appendix C) for each NOAMP NE site before performing this procedure.
- You have at least an intermediate skill set with command prompt activities on an Open Systems computing environment such as Linux or TPD.

1.6 XML Files (for installing NE)

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

1.7 How to use this Document

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

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

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

Chapter 2. General Description

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

Figure 2 show the Oracle Communications User Data Repository installation paths. The general timeline for all processes to perform a software installation/configuration and upgrade is also included below.

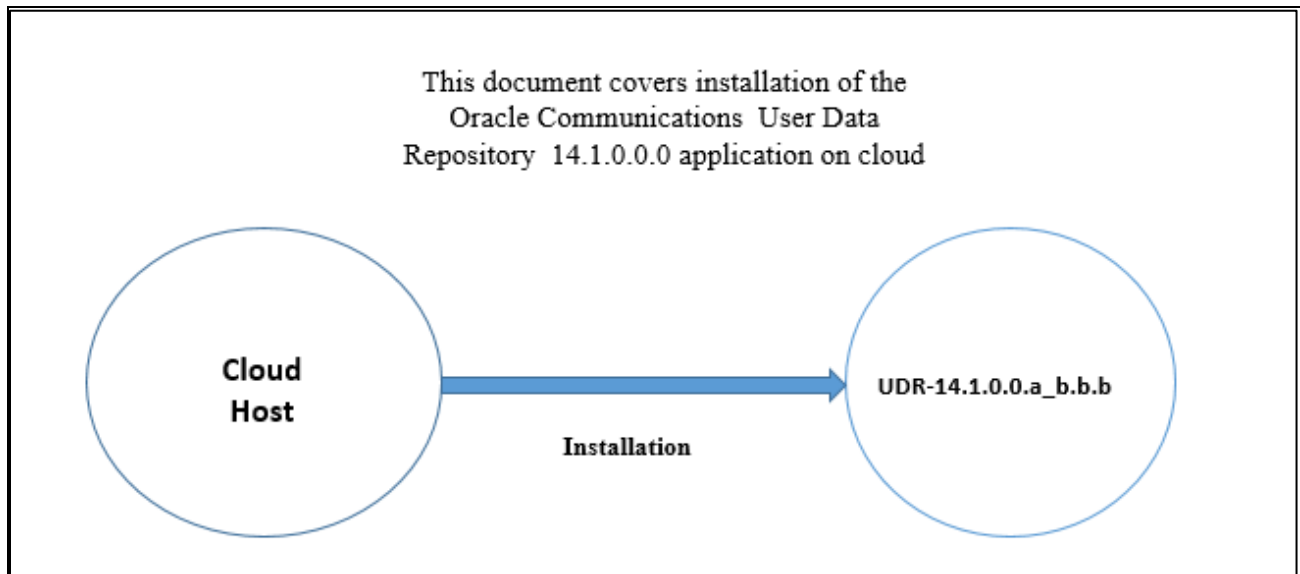


Figure 2. Example of Initial Application Installation Path

2.1 Required Materials

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

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

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

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

2.2 Installation Overview

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

2.3 Installation List of Procedures

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

Table 2. Installation Overview

| Procedure | Phase | Elapsed Time (Minutes) | |
|---------------------|------------------------------------------------------------------------------------------------------|------------------------|------|
| | | This Step | Cum. |
| 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 0 to configure storage and host networking for hosting Oracle Communications User Data Repository.</p> |
| THIS PROCEDURE HAS BEEN COMPLETED | | |

Chapter 4. Cloud Creation

4.1 Deploy Oracle Communications User Data Repository Virtual Machines on VMware

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

Requirements:

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

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

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

| Step | Procedure | Result |
|-----------------------------|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> | Ready Installation media | <ul style="list-style-type: none"> If using vSphere client, place installation media (OVA, or ISO) onto your local machine. If using vCloud Director, upload installation media using Appendix C.1: vCloud Director Oracle Communications User Data Repository Media Upload |
| 2. <input type="checkbox"/> | Create vApp | <ul style="list-style-type: none"> If using vCloud Director, follow: 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</p> |
| THIS PROCEDURE HAS BEEN COMPLETED | | |

4.2 Deploy Oracle User Data Repository Virtual Machines on OpenStack

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

Requirements:

- Section 3.1 has been completed

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

Procedure 3: Deploy User Data Repository Virtual Machines on OpenStack

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

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

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

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

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

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

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

Chapter 5. Oracle Communications User Data Repository Server Configuration

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

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

Requirements:

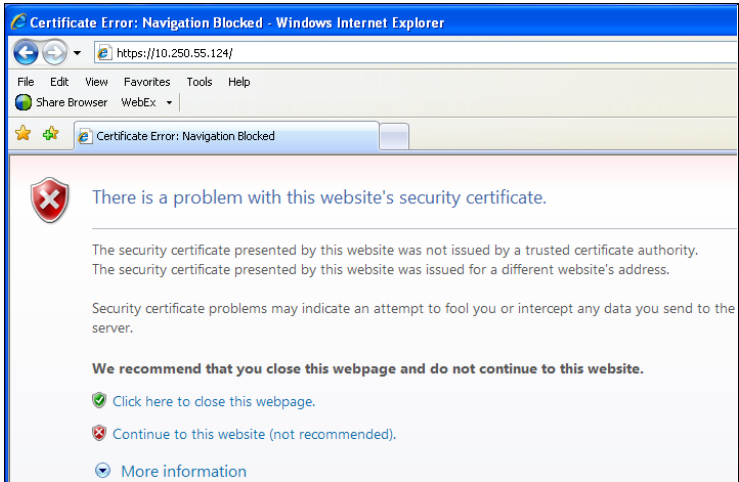

- Chapter 4 Cloud Creation has been completed

Assumptions:

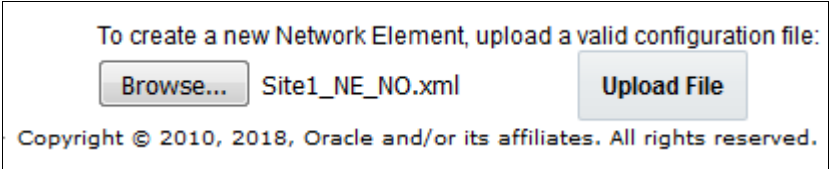
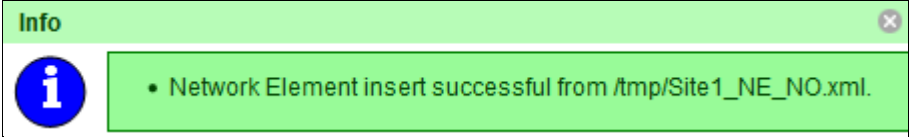
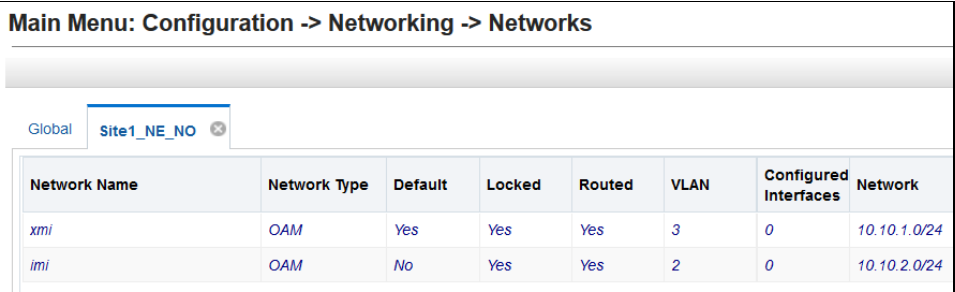
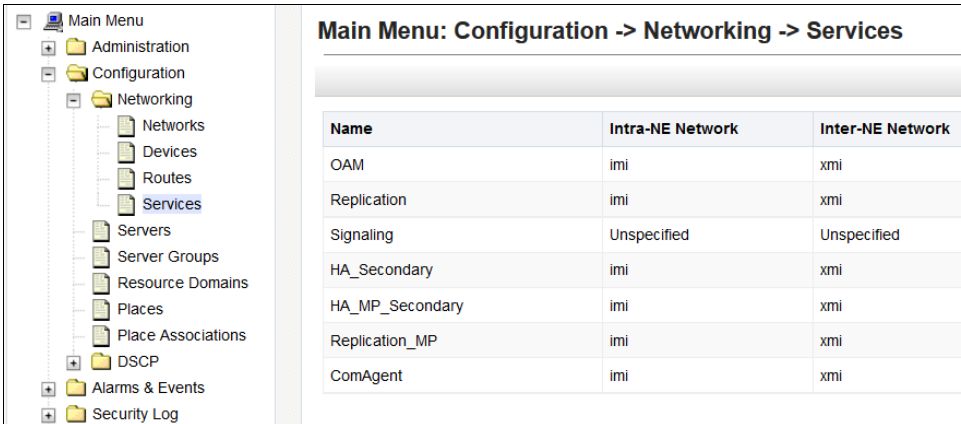
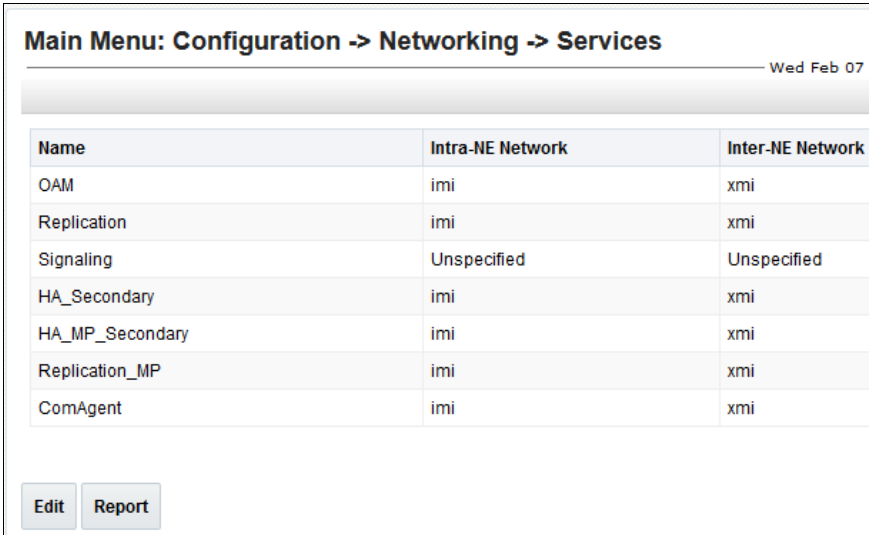
- This procedure assumes that the Oracle Communications User Data Repository Network Element XML file for the Primary Provisioning NOAMP site has previously been created, as described in Appendix E.
- This procedure assumes that the Network Element XML files are either on a USB flash drive or the hard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

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

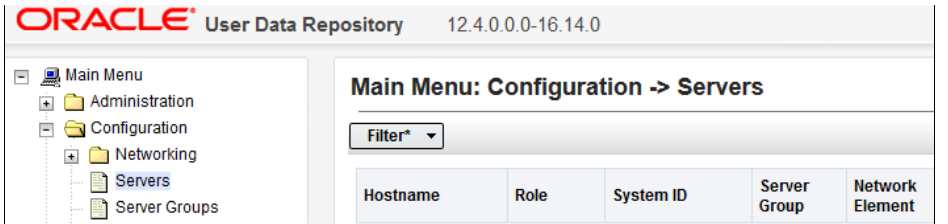
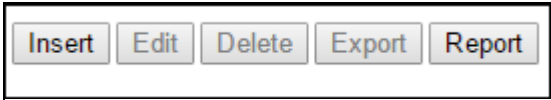
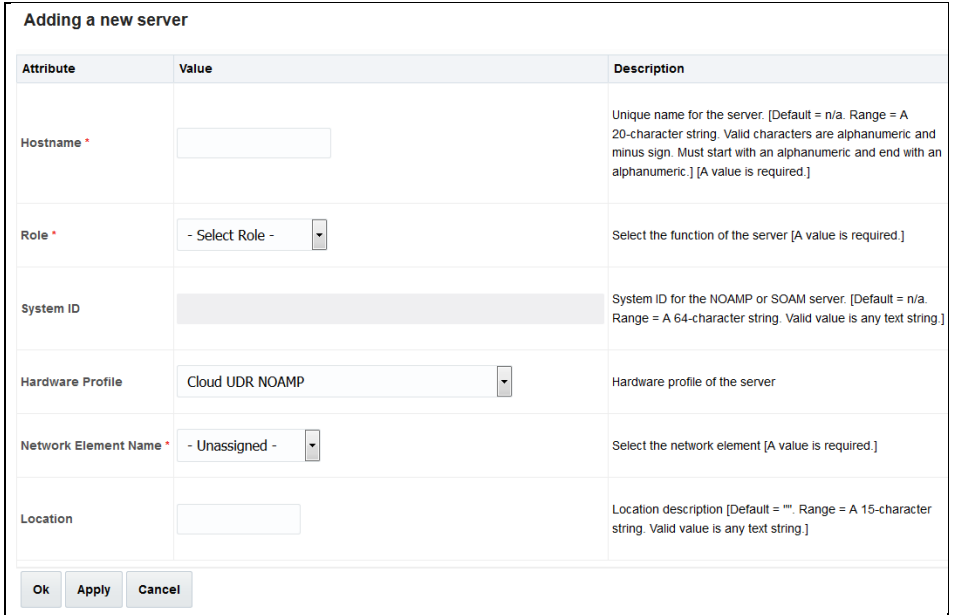
Procedure 5: Configure UDR-A Server (1st NOAMP only)

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

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

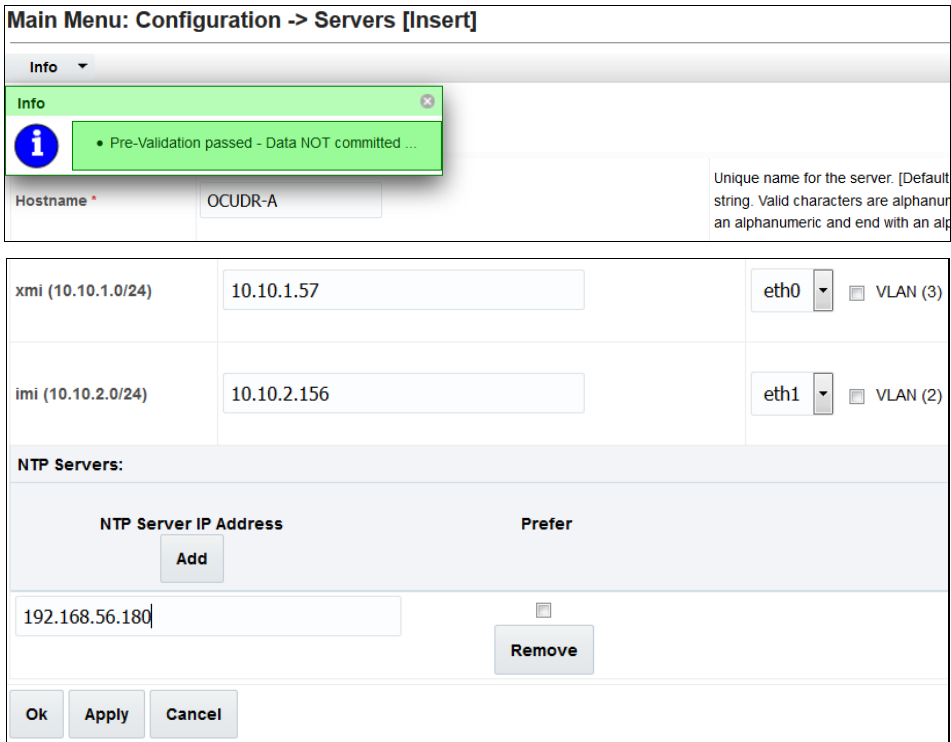

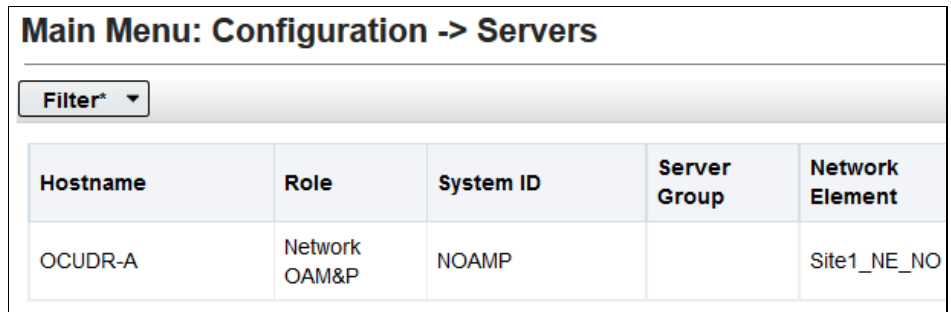
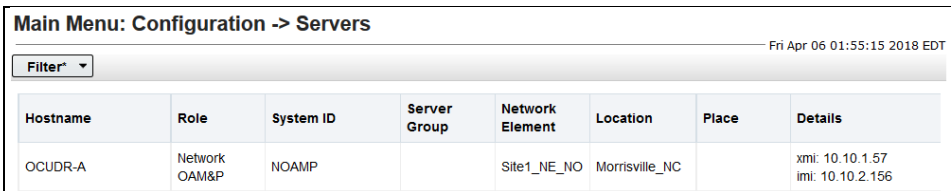
| Step | Procedure | Result |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7. <input type="checkbox"/> | UDR Server A: Click Upload File (bottom left corner of screen). |  |
| 8. <input type="checkbox"/> | UDR Server A: If the values in the XML file pass validation rules, a banner message displays showing that the data has been successfully committed to the DB. NOTE You may have to left mouse click the Info banner option to see the message. |   |
| 9. <input type="checkbox"/> | Navigate to Main Menu → Configuration → Networking → Services |  |
| 10. <input type="checkbox"/> | UDR Server A: Click Edit (located at the bottom left corner of the page). |  |

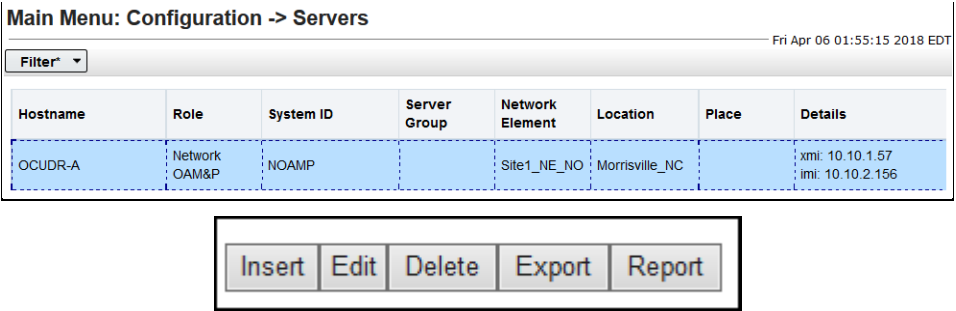
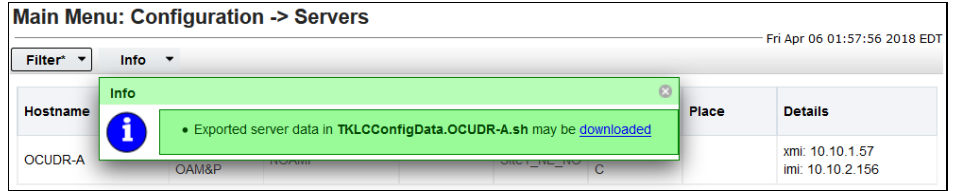
| Step | Procedure | Result | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------|------------------|-----|--------------------------------------|--------------------------------------|-------------|--------------------------------------|--------------------------------------|-----------|----------------------------------------------|----------------------------------------------|--------------|--------------------------------------|--------------------------------------|-----------------|--------------------------------------|--------------------------------------|----------------|--------------------------------------|--------------------------------------|----------|--------------------------------------|--------------------------------------|
| 11. <input type="checkbox"/> | UDR Server A: 1. Set the services values (see Note section). 2. Click Apply . 3. Click OK . | <div> <h3>Services</h3> <table> <thead> <tr> <th>Name</th><th>Intra-NE Network</th><th>Inter-NE Network</th></tr> </thead> <tbody> <tr> <td>OAM</td><td>IMI <input type="button" value="v"/></td><td>XMI <input type="button" value="v"/></td></tr> <tr> <td>Replication</td><td>IMI <input type="button" value="v"/></td><td>XMI <input type="button" value="v"/></td></tr> <tr> <td>Signaling</td><td>Unspecified <input type="button" value="v"/></td><td>Unspecified <input type="button" value="v"/></td></tr> <tr> <td>HA_Secondary</td><td>IMI <input type="button" value="v"/></td><td>XMI <input type="button" value="v"/></td></tr> <tr> <td>HA_MP_Secondary</td><td>IMI <input type="button" value="v"/></td><td>XMI <input type="button" value="v"/></td></tr> <tr> <td>Replication_MP</td><td>IMI <input type="button" value="v"/></td><td>XMI <input type="button" value="v"/></td></tr> <tr> <td>ComAgent</td><td>IMI <input type="button" value="v"/></td><td>XMI <input type="button" value="v"/></td></tr> </tbody> </table> <div> <input type="button" value="Ok"/> <input type="button" value="Apply"/> <input type="button" value="Cancel"/> </div> </div> <p>NOTE: Servers do not need to be restarted if this is a fresh installation.</p> | Name | Intra-NE Network | Inter-NE Network | OAM | IMI <input type="button" value="v"/> | XMI <input type="button" value="v"/> | Replication | IMI <input type="button" value="v"/> | XMI <input type="button" value="v"/> | Signaling | Unspecified <input type="button" value="v"/> | Unspecified <input type="button" value="v"/> | HA_Secondary | IMI <input type="button" value="v"/> | XMI <input type="button" value="v"/> | HA_MP_Secondary | IMI <input type="button" value="v"/> | XMI <input type="button" value="v"/> | Replication_MP | IMI <input type="button" value="v"/> | XMI <input type="button" value="v"/> | ComAgent | IMI <input type="button" value="v"/> | XMI <input type="button" value="v"/> |
| Name | Intra-NE Network | Inter-NE Network | | | | | | | | | | | | | | | | | | | | | | | | |
| OAM | IMI <input type="button" value="v"/> | XMI <input type="button" value="v"/> | | | | | | | | | | | | | | | | | | | | | | | | |
| Replication | IMI <input type="button" value="v"/> | XMI <input type="button" value="v"/> | | | | | | | | | | | | | | | | | | | | | | | | |
| Signaling | Unspecified <input type="button" value="v"/> | Unspecified <input type="button" value="v"/> | | | | | | | | | | | | | | | | | | | | | | | | |
| HA_Secondary | IMI <input type="button" value="v"/> | XMI <input type="button" value="v"/> | | | | | | | | | | | | | | | | | | | | | | | | |
| HA_MP_Secondary | IMI <input type="button" value="v"/> | XMI <input type="button" value="v"/> | | | | | | | | | | | | | | | | | | | | | | | | |
| Replication_MP | IMI <input type="button" value="v"/> | XMI <input type="button" value="v"/> | | | | | | | | | | | | | | | | | | | | | | | | |
| ComAgent | IMI <input type="button" value="v"/> | XMI <input type="button" value="v"/> | | | | | | | | | | | | | | | | | | | | | | | | |

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


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

| Step | Procedure | Result | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------|-----------|------------------------------------------|-----------------------------------------|--------------------------------------------------------------------------|------------------------------------------|------------------------------------------|----------------------------------------|------------------------------------------|--------------------------|---------------------------------------|-------------------------------------------|--------------------------|---------------------------------------|-----------------------|--------|----------------------|--------------------------|------------------------------------|--|---------------------------------------|--|
| 22. <input type="checkbox"/> | UDR Server A: 1. Enter the IP Addresses for the Server. 2. Set the Interface parameters according to to deployment type. | <div>OAM Interfaces [At least one interface is required.]:</div> <table><thead><tr><th>Network</th><th>IP Address</th><th>Interface</th></tr></thead><tbody><tr><td>xmi (10.10.1.0/24)</td><td><input type="text" value="10.10.1.57"/></td><td>eth0 <input type="checkbox"/> VLAN (3)</td></tr><tr><td>imi (10.10.2.0/24)</td><td><input type="text" value="10.10.2.156"/></td><td>eth1 <input type="checkbox"/> VLAN (2)</td></tr></tbody></table> <p>1. Enter the IP Addresses for XMI and IMI networks. 2. Set the Interface device for XMI and IMI networks according to the network adapter assignment for the VM guest as viewable in B.3 Step 3 or C.7 Step 5. 3. Leave the VLANs unselected</p> | Network | IP Address | Interface | xmi (10.10.1.0/24) | <input type="text" value="10.10.1.57"/> | eth0 <input type="checkbox"/> VLAN (3) | imi (10.10.2.0/24) | <input type="text" value="10.10.2.156"/> | eth1 <input type="checkbox"/> VLAN (2) | | | | | | | | | | | | | | |
| Network | IP Address | Interface | | | | | | | | | | | | | | | | | | | | | | | |
| xmi (10.10.1.0/24) | <input type="text" value="10.10.1.57"/> | eth0 <input type="checkbox"/> VLAN (3) | | | | | | | | | | | | | | | | | | | | | | | |
| imi (10.10.2.0/24) | <input type="text" value="10.10.2.156"/> | eth1 <input type="checkbox"/> VLAN (2) | | | | | | | | | | | | | | | | | | | | | | | |
| 23. <input type="checkbox"/> | UDR Server A: Click Add under NTP Servers and enter the address of the supplied NTP server. | <div><table><thead><tr><th>NTP Server IP Address</th><th>Prefer</th><th></th></tr></thead><tbody><tr><td><input type="text" value="10.240.15.7"/></td><td><input type="checkbox"/></td><td><input type="button" value="Add"/> <input type="button" value="Remove"/></td></tr><tr><td><input type="text" value="10.240.15.8"/></td><td><input type="checkbox"/></td><td><input type="button" value="Remove"/></td></tr><tr><td><input type="text" value="10.240.15.9"/></td><td><input type="checkbox"/></td><td><input type="button" value="Remove"/></td></tr><tr><td><input type="text" value="10.240.15.11"/></td><td><input type="checkbox"/></td><td><input type="button" value="Remove"/></td></tr></tbody></table><p>Set one ore more NTP Server IP Addresses to the supplied NTP servers. It is recommended to have minimum of 3 and up to 4 external NTP servers for reliable functioning of NTP service.</p><div>NTP Servers:<table><thead><tr><th>NTP Server IP Address</th><th>Prefer</th></tr></thead><tbody><tr><td><input type="text"/></td><td><input type="checkbox"/></td></tr><tr><td colspan="2"><input type="button" value="Add"/></td></tr><tr><td colspan="2"><input type="button" value="Remove"/></td></tr></tbody></table></div></div> | NTP Server IP Address | Prefer | | <input type="text" value="10.240.15.7"/> | <input type="checkbox"/> | <input type="button" value="Add"/> <input type="button" value="Remove"/> | <input type="text" value="10.240.15.8"/> | <input type="checkbox"/> | <input type="button" value="Remove"/> | <input type="text" value="10.240.15.9"/> | <input type="checkbox"/> | <input type="button" value="Remove"/> | <input type="text" value="10.240.15.11"/> | <input type="checkbox"/> | <input type="button" value="Remove"/> | NTP Server IP Address | Prefer | <input type="text"/> | <input type="checkbox"/> | <input type="button" value="Add"/> | | <input type="button" value="Remove"/> | |
| NTP Server IP Address | Prefer | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="text" value="10.240.15.7"/> | <input type="checkbox"/> | <input type="button" value="Add"/> <input type="button" value="Remove"/> | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="text" value="10.240.15.8"/> | <input type="checkbox"/> | <input type="button" value="Remove"/> | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="text" value="10.240.15.9"/> | <input type="checkbox"/> | <input type="button" value="Remove"/> | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="text" value="10.240.15.11"/> | <input type="checkbox"/> | <input type="button" value="Remove"/> | | | | | | | | | | | | | | | | | | | | | | | |
| NTP Server IP Address | Prefer | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="text"/> | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="button" value="Add"/> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="button" value="Remove"/> | | | | | | | | | | | | | | | | | | | | | | | | | |

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

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

| Step | Procedure | Result |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 33. <input type="checkbox"/> | <p>UDR Server A:</p> <p>After the script completes, a broadcast message is sent to the terminal.</p> <p>Ignore the output and press ENTER to return to the command prompt.</p> <p>NOTE: The time to complete this step varies by server and may take from 3 to 20 minutes to complete.</p> | <p>*** NO OUTPUT FOR approximately 3 to 20 MINUTES ***</p> <pre>Broadcast message from root (Fri Mar 30 01:47:58 2018): Server configuration completed successfully! See /var/TKLC/appw/logs/Process/install.log for details. Please remove the USB flash drive if connected and reboot the server. <ENTER></pre> |
| 34. <input type="checkbox"/> | <p>UDR Server A:</p> <p>Configure the time zone.</p> | <pre># set_ini_tz.pl <time zone></pre> <p>NOTE: The following command example uses America/New_York time zone. Replace, as appropriate, with the time zone you have selected for this installation. For UTC, use Etc/UTC.</p> <pre># set_ini_tz.pl "America/New_York"</pre> |
| 35. <input type="checkbox"/> | <p>UDR Server A:</p> <p>Initiate a reboot of the UDR Server.</p> | <pre># reboot</pre> |
| 36. <input type="checkbox"/> | <p>UDR Server A:</p> <p>Wait until server reboot is complete. Then, SSH into the UDR-A server.</p> | <p>Wait approximately 9 minutes until the server reboot is complete.</p> <p>Using an SSH client such as putty, ssh to the UDR-A server.</p> <pre>login as: admusr admusr@10.250.xx.yy's password: <admusr_password> Last login: Wed Mar 28 05:03:47 2018 from 10.178.25.81</pre> <p>NOTE: If the server is not up, wait a few minutes and re-enter the ssh command. You can also try running the ping command to see if the server is up.</p> |
| 37. <input type="checkbox"/> | <p>UDR Server A:</p> <p>Verify that the XMI and IMI IP addresses entered in Step 22 have been applied</p> | <pre>\$ ifconfig grep in grep -v inet6</pre> <p>Example:</p> <pre>eth0 Link encap:Ethernet HWaddr FA:16:3E:3C:8D:DE inet addr:10.10.1.57 Bcast:10.10.1.255 Mask:255.255.255.0 eth1 Link encap:Ethernet HWaddr FA:16:3E:EF:4D:EF inet addr:10.10.2.156 Bcast:10.10.2.255 Mask:255.255.255.0</pre> <p>NOTE: The XMI and IMI addresses for the server are verified by reviewing the server configuration using the Oracle Communications User Data Repository GUI.</p> <ol style="list-style-type: none"> 1. Navigate to Main Menu → Configuration → Servers 2. Scroll to line entry containing the hostname for the servers. |

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

5.2 Create Configuration for Remaining Servers


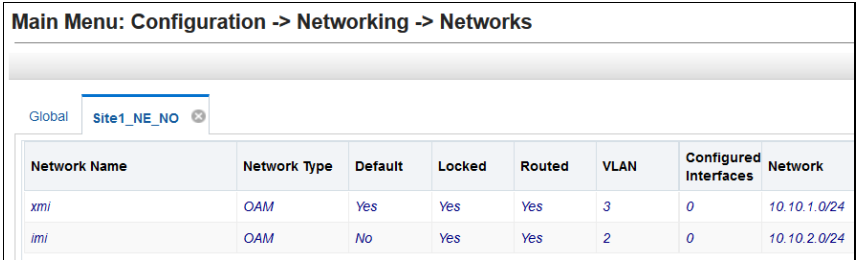
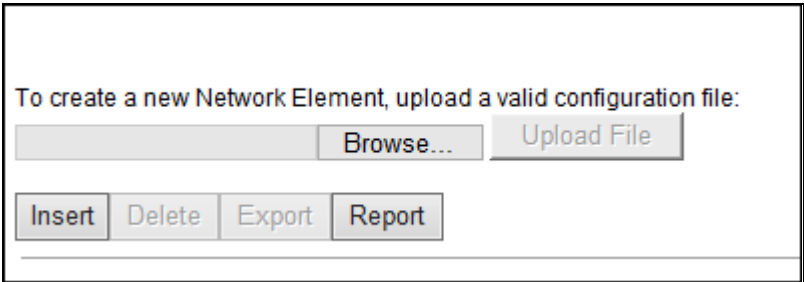
This procedure is used to create and configure all Oracle Communications User Data Repository Servers (Primary and DR Servers) except the first UDR-A server.

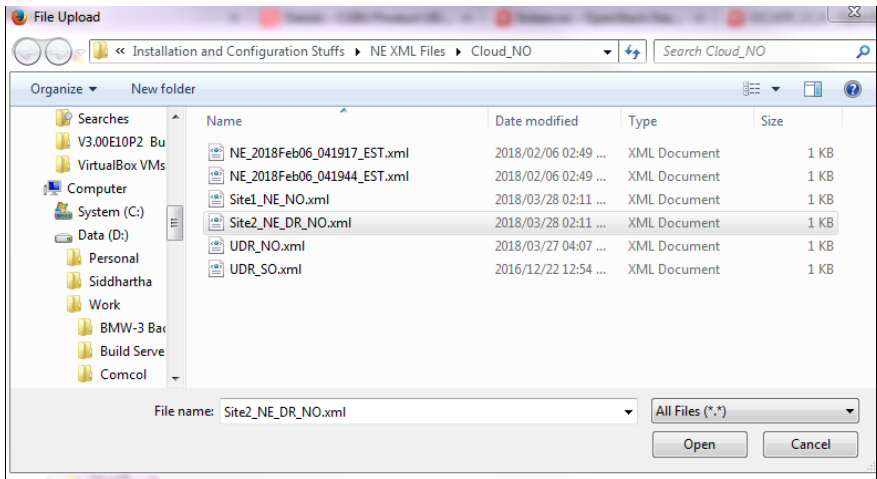
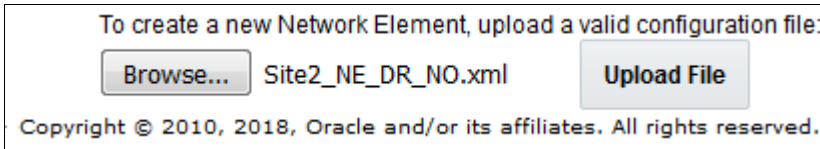
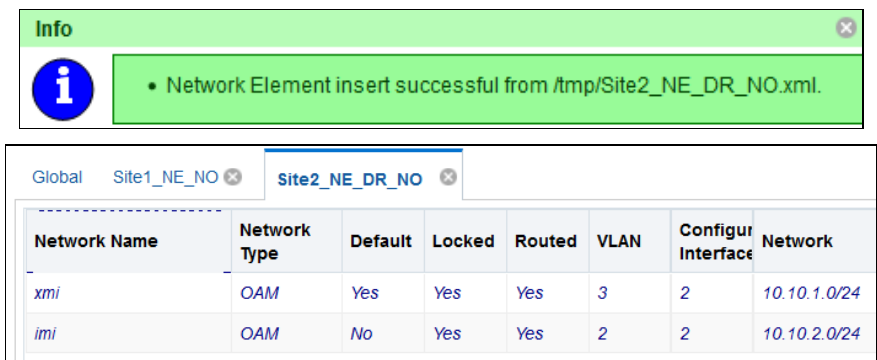
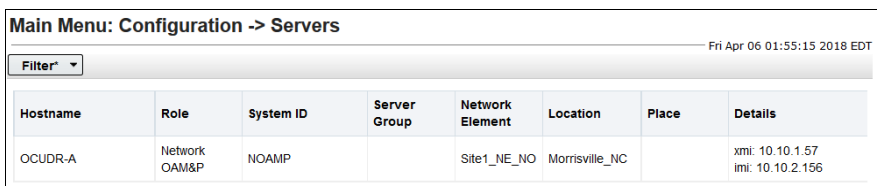
Requirements:

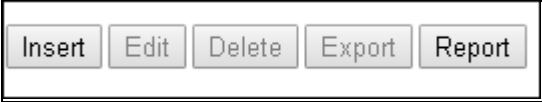
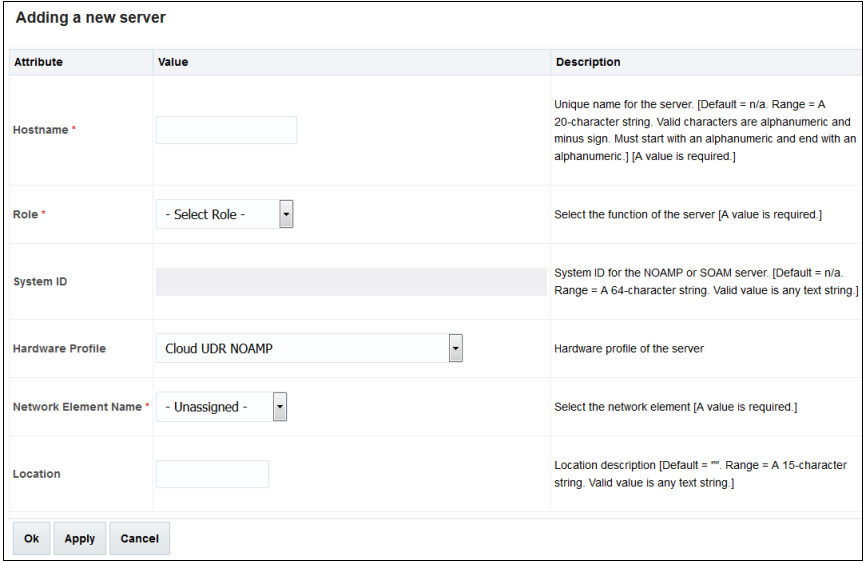
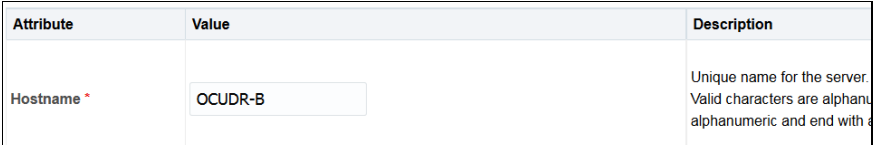
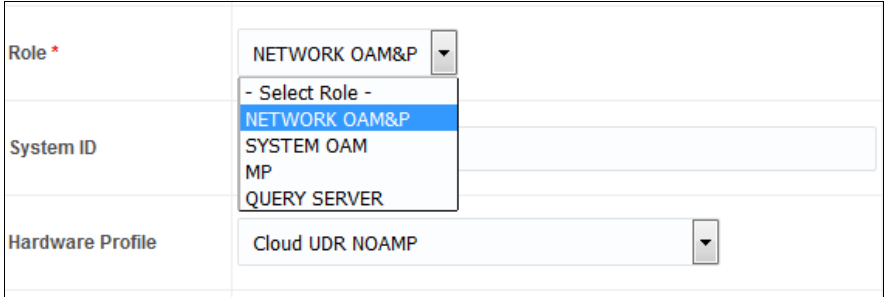
- Section 5.1 Configure UDR-A Server (1st NOAMP only) has been completed

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

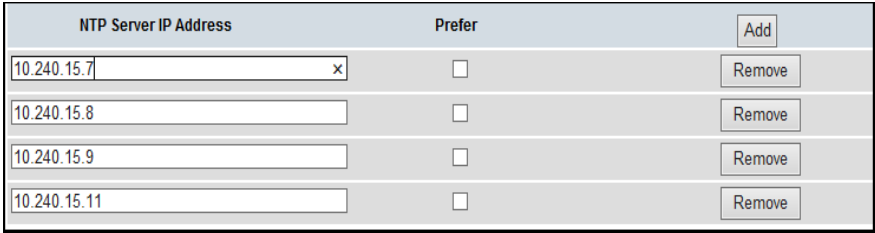
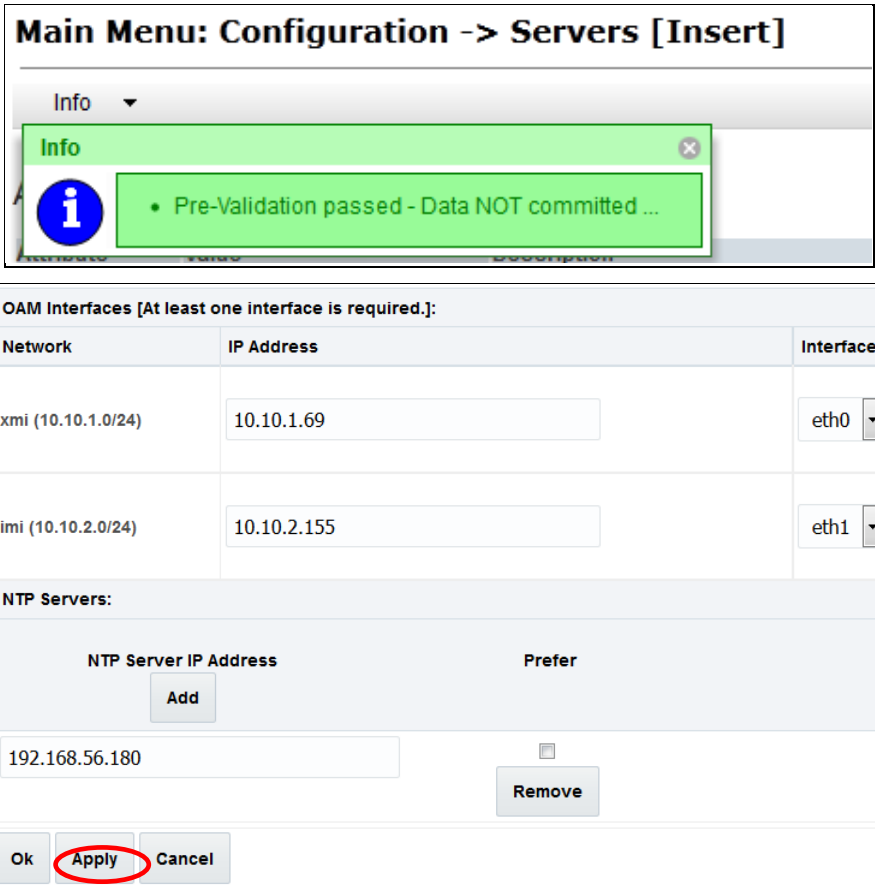
Procedure 6: Create Configuration for Remaining Servers

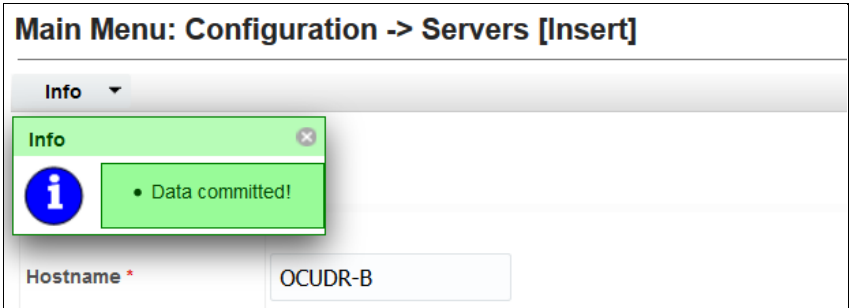
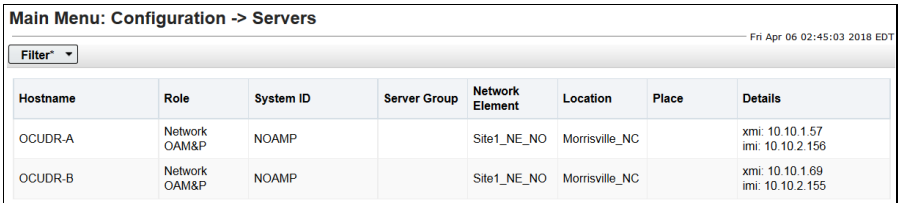
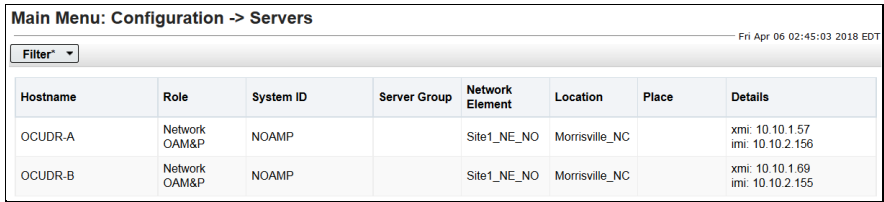
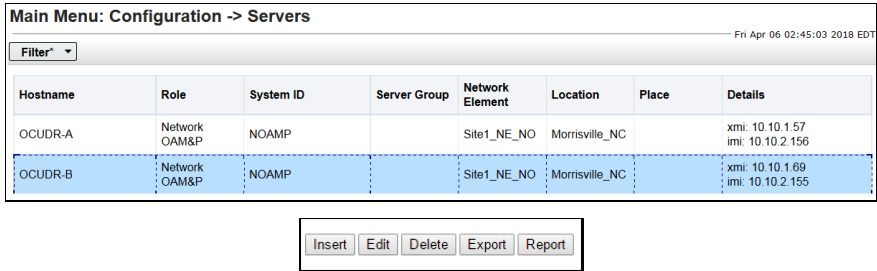
| Step | Procedure | Result |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------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

| Step | Procedure | Result | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|---------|--------------------|--------------|------|--------------------|---------|-----|-----|-----|-----|-----|---|---|--------------|-----|-----|----|-----|-----|---|---|--------------|
| 4. <input type="checkbox"/> | UDR Server A: NOTE: This step assumes that the xml files were previously prepared, as described inAppendix C. 1. Select the location containing the site .xml file. 2. Select the .xml file and click the Open . |  | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. <input type="checkbox"/> | UDR Server A: Click Upload File (bottom left corner of screen). |  | | | | | | | | | | | | | | | | | | | | | | | | |
| 6. <input type="checkbox"/> | UDR Server A: If the values in the XML file pass validation rules, a banner message displays showing that the data has been successfully committed to the DB. NOTE: You may have to left mouse click the Info banner option to see the banner message. |  <table><tr><th>Network Name</th><th>Network Type</th><th>Default</th><th>Locked</th><th>Routed</th><th>VLAN</th><th>Configur Interface</th><th>Network</th></tr><tr><td>xmi</td><td>OAM</td><td>Yes</td><td>Yes</td><td>Yes</td><td>3</td><td>2</td><td>10.10.1.0/24</td></tr><tr><td>imi</td><td>OAM</td><td>No</td><td>Yes</td><td>Yes</td><td>2</td><td>2</td><td>10.10.2.0/24</td></tr></table> | Network Name | Network Type | Default | Locked | Routed | VLAN | Configur Interface | Network | xmi | OAM | Yes | Yes | Yes | 3 | 2 | 10.10.1.0/24 | imi | OAM | No | Yes | Yes | 2 | 2 | 10.10.2.0/24 |
| Network Name | Network Type | Default | Locked | Routed | VLAN | Configur Interface | Network | | | | | | | | | | | | | | | | | | | |
| xmi | OAM | Yes | Yes | Yes | 3 | 2 | 10.10.1.0/24 | | | | | | | | | | | | | | | | | | | |
| imi | OAM | No | Yes | Yes | 2 | 2 | 10.10.2.0/24 | | | | | | | | | | | | | | | | | | | |
| NOTE: The following must be run for all servers except the first UDR-A server. These steps include a check box for UDR-A server. That check box refers to UDR-A servers that are not at the primary provisioning site, such as the UDR-A server at the disaster recovery (DR) site. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7. <input type="checkbox"/> | UDR Server A: Navigate to Main Menu → Configuration → Servers |  <p>Mark the check box as addition is completed for each server.</p> <div><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</div> | | | | | | | | | | | | | | | | | | | | | | | | |

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

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

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

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

5.3 Apply Configuration To Remaining Servers

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

Requirements:

- Section 5.2 Create Configuration for Remaining Servers has been completed


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

Procedure 7: Apply Configuration to Remaining Servers

| Step | Procedure | Result |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> | UDR Server A: Connect to the UDR-A Server terminal at the Primary UDR site | SSH to the Primary UDR-A XMI IP_address. Mark the check box as addition is completed for each server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B |
| 2. <input type="checkbox"/> | UDR Server A: 1. Access the command prompt. 2. Log into the Primary UDR-A server as the admusr user. | <pre>login as: admusr admusr@10.250.xx.yy's password: <admusr_password> 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 configuration files for the servers. | <pre>[admusr@pc9040833-no-a ~]\$ ls -ltr TKLCCConfigData*.sh *** TRUNCATED OUTPUT *** -rw-rw-rw- 1 root root 1257 Aug 17 14:01 TKLCCConfigData.UDR-A .sh -rw-rw-rw- 1 root root 1311 Aug 17 14:30 TKLCCConfigData.NO-B.sh</pre> Mark the check box as addition is completed for each server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B |
| 5. <input type="checkbox"/> | UDR Server A: Copy the configuration files found in the previous step to the target server based on the server name of the configuration file. | <pre>[admusr@pc9040833-no-a ~]\$ scp -p <configuration_file-a> <Associated_Server_XMI_IP>:/tmp admusr@10.240.39.4's password: <admusr_password> TKLCCConfigData.so-carync-a.sh 100% 1741 1.7KB/s 00:00 [root@no-mrsvnc-a filemgmt]\$</pre> Mark the check box as addition is completed for each server. <input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B |

| Step | Procedure | Result |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6. <input type="checkbox"/> | UDR Server A: Connect to the target server which has received a configuration file copy in the previous step | <pre>[admusr@pc9040833-no-a ~]\$ ssh <Associated_Server_XMI_IP > admusr@192.168.1.10's password: <admusr_password></pre> <p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p> |
| 7. <input type="checkbox"/> | Target Server: Copy the configuration file to the tmp directory. | <p>Copy the server configuration file to the /var/tmp directory on the server, making sure to rename the file by omitting the server hostname from the file name.</p> <p>Example:</p> <pre>TKLCConfigData<.server_hostname>.sh translates to TKLCConfigData.sh</pre> <pre>[admusr@hostname1326744539 ~]\$ sudo cp -p /tmp/TKLCConfigData.NO-B.sh /var/tmp/TKLCConfigData.sh [admusr@hostname1326744539 ~]\$</pre> <p>NOTE: The server polls the /var/tmp directory for the presence of the configuration file and automatically runs the file when it is found.</p> <p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p> |
| 8. <input type="checkbox"/> | Target Server: After the script completes, a broadcast message is sent to the terminal. Ignore the output and press ENTER to return to the command prompt. NOTE: The time to complete this step varies by server and may take from approximately 3 to 20 minutes to complete. | <p>*** THERE IS NO OUTPUT FOR APPROXIMATELY 20 MINUTES ***</p> <pre>Broadcast message from root (Thu Dec 1 09:41:24 2011): Server configuration completed successfully! See /var/TKLC/appw/logs/Process/install.log for details. Please remove the USB flash drive if connected and reboot the server. <ENTER></pre> <pre>[admusr@hostname1326744539 ~]\$</pre> <p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p> |
| 9. <input type="checkbox"/> | Target Server: Initiate a reboot of the Server. | <pre>[admusr@hostname1326744539 ~]\$ sudo reboot</pre> <p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p> |

| Step | Procedure | Result |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10. <input type="checkbox"/> | UDR Server A: The SSH session for the target server was terminated by previous step. | <p>The previous step causes the ssh session for the server to close and you are returned to the UDR server console prompt.</p> <pre>Connection to 192.168.1.16 closed by remote host. Connection to 192.168.1.16 closed. \$</pre> <p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p> |
| 11. <input type="checkbox"/> | UDR Server A: Wait until server reboot is complete. Then, SSH into the target server using its XMI address. | <p>Wait approximately 10 minutes until the server reboot is complete.</p> <p>Using an SSH client such as putty, ssh to the target server using admusr credentials and the <XMI IP Address>.</p> <pre>[admusr@pc9040833-no-a ~]\$ ssh 192.168.1.xx admusr@192.168.1.20's password: <admusr_password></pre> <p>NOTE: If the server is not up, wait a few minutes and re-enter the ssh command. You can also run the ping command to see if the server is up.</p> <p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p> |
| 12. <input type="checkbox"/> | Target Server: Verify that the XMI and IMI IP addresses entered in Section 5.2 Step 16 have been applied | <pre>\$ ifconfig grep in grep -v inet6 eth0 Link encap:Ethernet HWaddr FA:16:3E:BB:3D:AC inet addr:10.10.1.57 Bcast:10.10.1.255 Mask:255.255.255.0 eth1 Link encap:Ethernet HWaddr FA:16:3E:56:C1:F9 inet addr:10.10.2.156 Bcast:10.10.2.255 Mask:255.255.255.0 eth2 Link encap:Ethernet HWaddr FA:16:3E:B4:BD:0A lo Link encap:Local Loopback inet addr:127.0.0.1 Mask:255.0.0.0</pre> <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.</p> <p>Navigate to Main Menu → Configuration → Servers.</p> <p>Scroll to line containing the hostname for the server.</p> <p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p> |

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

5.4 Configure XSI Networks


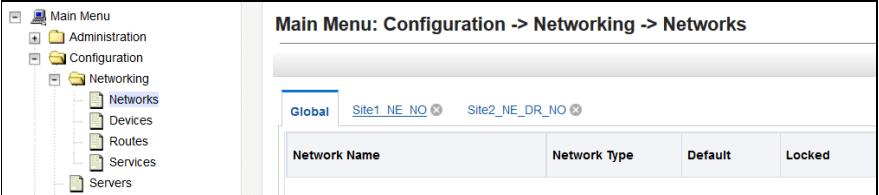
This procedure configures the XSI networks used on UDR to support signaling traffic.

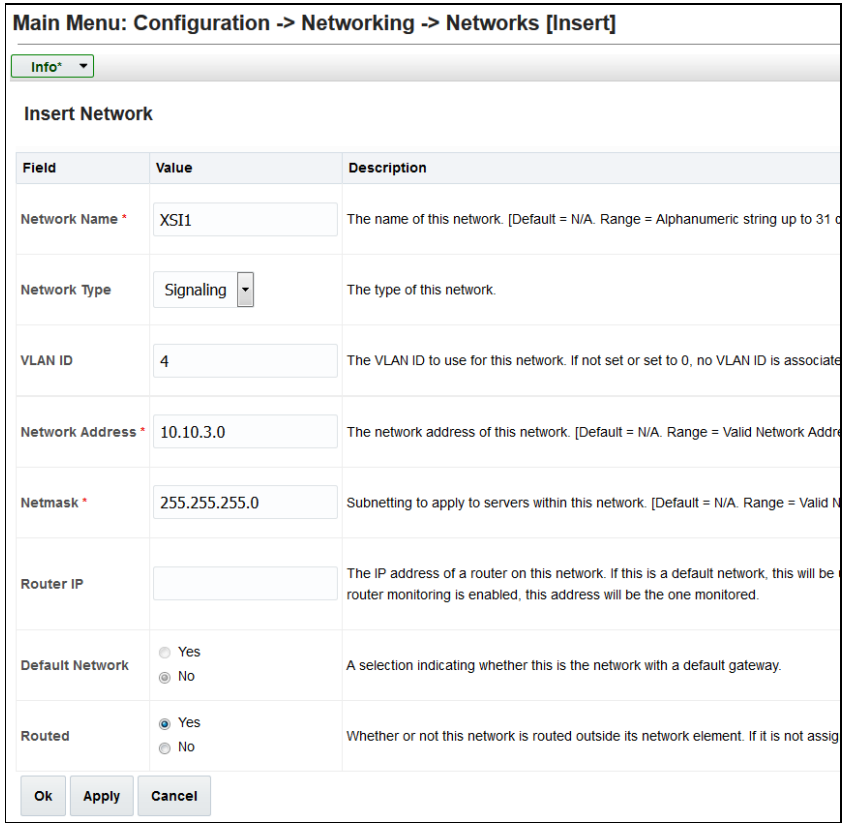
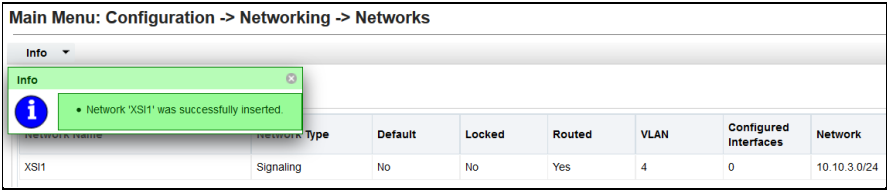
Requirements:

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

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

Procedure 8: Configure XSI Networks

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

| Step | Procedure | Result |
|------------------------------------------|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. <input type="checkbox"/> | UDR Server A Add the XSI1 network | <p>Click Insert.</p>  <p>Enter all of the fields for the XSI1 network according to the network parameters. Retain the default values for Network Element (Signalling), Default Network (No) and Routable (Yes).</p> <p>ComAgent Service may be configured to run on XSI1. In this case, the XSI1 network is used for MP to NOAMP ComAgent Traffic.</p> <p>NOTE: Network names can be overloaded to support multiple subnets. When defining network for ComAgent Service, use same network name for Primary and DR Site.</p> <p>NOTE: VLANs are not used in the context of this document, though VLAN ID is a required field on this screen. Enter any number in the valid range.</p> |
| 4. <input type="checkbox"/> | UDR Server A Repeat as required | Repeat Step 3 of this procedure to Insert additional signaling networks(XSI2, etc) if applicable. |
| 5. <input type="checkbox"/> | UDR Server A XSI network is displayed along with a success message. |  |
| THIS PROCEDURE HAS BEEN COMPLETED | | |

Chapter 6. OAM Pairing

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

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


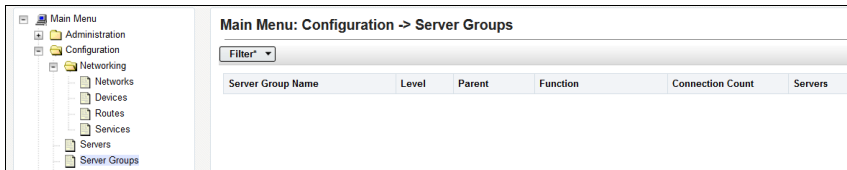
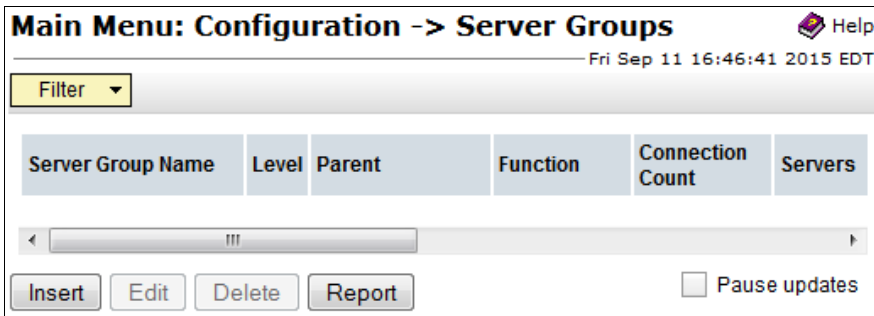
This procedure creates an active, standby pair for the UDR servers at the Primary Provisioning Site.

Requirements:

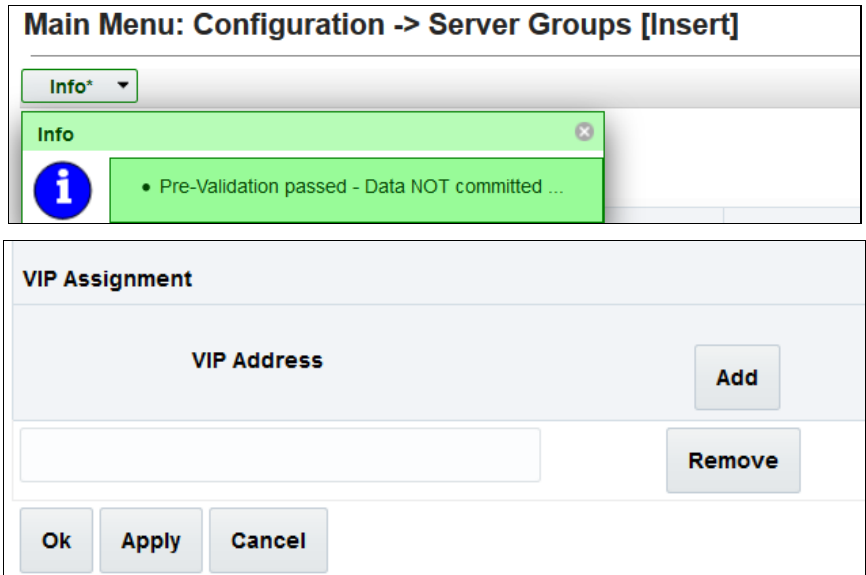
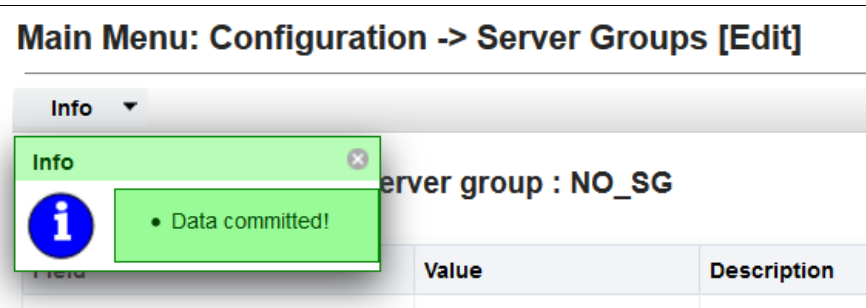
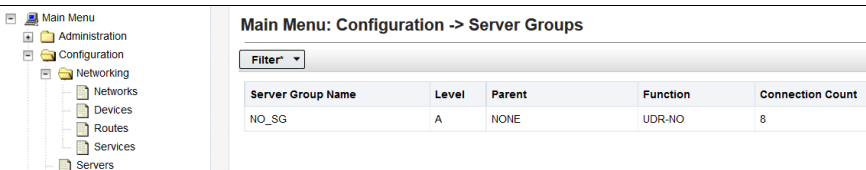
- Section 5.3 Apply Configuration To Remaining Servers has been completed

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

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

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

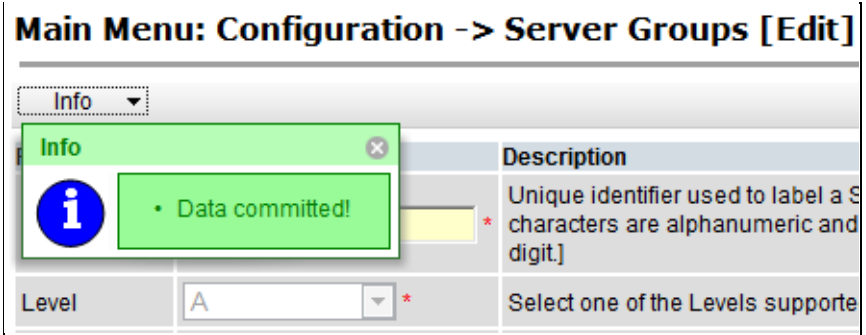
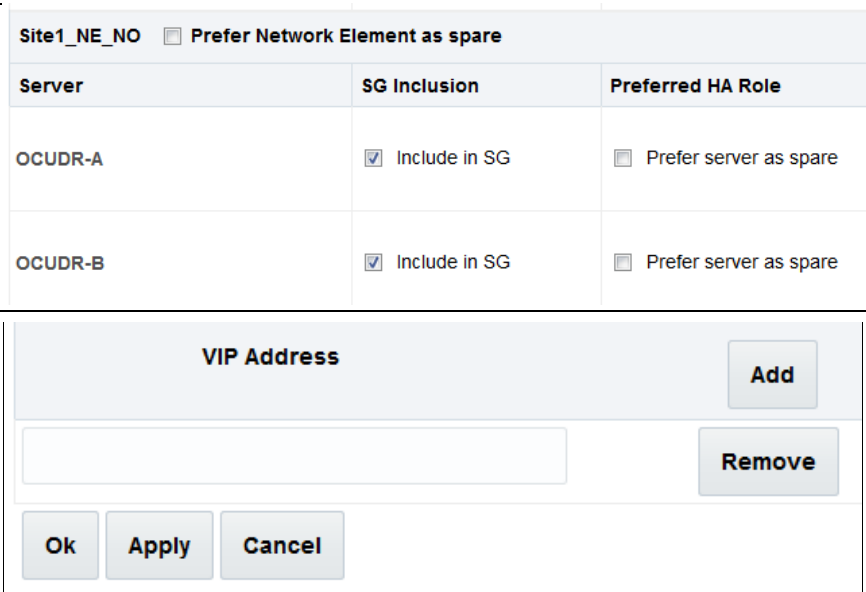

| Step | Procedure | Result | | | | | | | | | | | | | | | | | | |
|----------------------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------------------|-------------------------------------------------------------------------------------------------------------|----------|-------------------|----------------------------------------------------------------|------------|---------------------|----------------------------------------------------------------------------|----------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| 4. <input type="checkbox"/> | UDR Server A: The Server Groups [Insert] screen opens. | <p>Adding new server group</p> <table border="1"> <thead> <tr> <th>Field</th><th>Value</th><th>Description</th></tr> </thead> <tbody> <tr> <td>Server Group Name *</td><td><input type="text"/></td><td>Unique identifier used to label a Server Group. [Default = n/a. Range = A 1-32-character string, at least one alpha and must not start with a digit.] [A value is required.]</td></tr> <tr> <td>Level *</td><td>- Select Level -</td><td>Select one of the Levels supported by the system. Level C groups contain MP servers. [A value is required.]</td></tr> <tr> <td>Parent *</td><td>- Select Parent -</td><td>Select an existing Server Group or NONE [A value is required.]</td></tr> <tr> <td>Function *</td><td>- Select Function -</td><td>Select one of the Functions supported by the system [A value is required.]</td></tr> <tr> <td>WAN Replication Connection Count</td><td><input type="text" value="1"/></td><td>Specify the number of TCP connections that will be used for WAN replication. [A value is required. Integer between 1 and 8.]</td></tr> </tbody> </table> <p>Ok Apply Cancel</p> | Field | Value | Description | Server Group Name * | <input type="text"/> | Unique identifier used to label a Server Group. [Default = n/a. Range = A 1-32-character string, at least one alpha and must not start with a digit.] [A value is required.] | Level * | - Select Level - | Select one of the Levels supported by the system. Level C groups contain MP servers. [A value is required.] | Parent * | - Select Parent - | Select an existing Server Group or NONE [A value is required.] | Function * | - Select Function - | Select one of the Functions supported by the system [A value is required.] | WAN Replication Connection Count | <input type="text" value="1"/> | Specify the number of TCP connections that will be used for WAN replication. [A value is required. Integer between 1 and 8.] |
| Field | Value | Description | | | | | | | | | | | | | | | | | | |
| Server Group Name * | <input type="text"/> | Unique identifier used to label a Server Group. [Default = n/a. Range = A 1-32-character string, at least one alpha and must not start with a digit.] [A value is required.] | | | | | | | | | | | | | | | | | | |
| Level * | - Select Level - | Select one of the Levels supported by the system. Level C groups contain MP servers. [A value is required.] | | | | | | | | | | | | | | | | | | |
| Parent * | - Select Parent - | Select an existing Server Group or NONE [A value is required.] | | | | | | | | | | | | | | | | | | |
| Function * | - Select Function - | Select one of the Functions supported by the system [A value is required.] | | | | | | | | | | | | | | | | | | |
| WAN Replication Connection Count | <input type="text" value="1"/> | Specify the number of TCP connections that will be used for WAN replication. [A value is required. Integer between 1 and 8.] | | | | | | | | | | | | | | | | | | |
| 5. <input type="checkbox"/> | UDR Server A: Enter the Server Group Name. | <table border="1"> <thead> <tr> <th>Field</th><th>Value</th><th>Description</th></tr> </thead> <tbody> <tr> <td>Server Group Name *</td><td><input type="text" value="NO_SG"/></td><td>Unique identifier used to label a Server Group. [Default = n/a. Range = A 1-32-character string, at least one alpha and must not start with a digit.] [A value is required.]</td></tr> </tbody> </table> | Field | Value | Description | Server Group Name * | <input type="text" value="NO_SG"/> | Unique identifier used to label a Server Group. [Default = n/a. Range = A 1-32-character string, at least one alpha and must not start with a digit.] [A value is required.] | | | | | | | | | | | | |
| Field | Value | Description | | | | | | | | | | | | | | | | | | |
| Server Group Name * | <input type="text" value="NO_SG"/> | Unique identifier used to label a Server Group. [Default = n/a. Range = A 1-32-character string, at least one alpha and must not start with a digit.] [A value is required.] | | | | | | | | | | | | | | | | | | |
| 6. <input type="checkbox"/> | UDR Server A: Select A on the Level menu. | <table border="1"> <tbody> <tr> <td>Level *</td> <td> <div>- Select Level -</div> <div>- Select Level -</div> <div>A</div> </td> <td>Select one of the Levels supported by the system. B groups are optional and contain SOAM servers.</td> </tr> </tbody> </table> | Level * | <div>- Select Level -</div> <div>- Select Level -</div> <div>A</div> | Select one of the Levels supported by the system. B groups are optional and contain SOAM servers. | | | | | | | | | | | | | | | |
| Level * | <div>- Select Level -</div> <div>- Select Level -</div> <div>A</div> | Select one of the Levels supported by the system. B groups are optional and contain SOAM servers. | | | | | | | | | | | | | | | | | | |
| 7. <input type="checkbox"/> | UDR Server A: Select None on the Parent menu. | <table border="1"> <tbody> <tr> <td>Parent *</td> <td> <div>- Select Parent-</div> <div>- Select Parent-</div> <div>NONE</div> </td> <td>Select an existing Server Group or NONE [A value is required.]</td> </tr> <tr> <td>Function *</td> <td>- Select Function -</td> <td>Select one of the Functions supported by the system [A value is required.]</td> </tr> </tbody> </table> | Parent * | <div>- Select Parent-</div> <div>- Select Parent-</div> <div>NONE</div> | Select an existing Server Group or NONE [A value is required.] | Function * | - Select Function - | Select one of the Functions supported by the system [A value is required.] | | | | | | | | | | | | |
| Parent * | <div>- Select Parent-</div> <div>- Select Parent-</div> <div>NONE</div> | Select an existing Server Group or NONE [A value is required.] | | | | | | | | | | | | | | | | | | |
| Function * | - Select Function - | Select one of the Functions supported by the system [A value is required.] | | | | | | | | | | | | | | | | | | |
| 8. <input type="checkbox"/> | UDR Server A: Select UDR-NO on the Function menu. | <table border="1"> <tbody> <tr> <td>Function *</td> <td> <div>UDR-NO</div> </td> <td></td> </tr> </tbody> </table> | Function * | <div>UDR-NO</div> | | | | | | | | | | | | | | | | |
| Function * | <div>UDR-NO</div> | | | | | | | | | | | | | | | | | | | |
| 9. <input type="checkbox"/> | UDR Server A: Enter 8 for WAN Replication Connection Count. | <table border="1"> <tbody> <tr> <td>WAN Replication Connection Count</td> <td><input type="text" value="8"/></td> <td>Specify the number of TCP connections that will be used for WAN replication. [A value is required. Integer between 1 and 8.]</td> </tr> </tbody> </table> | WAN Replication Connection Count | <input type="text" value="8"/> | Specify the number of TCP connections that will be used for WAN replication. [A value is required. Integer between 1 and 8.] | | | | | | | | | | | | | | | |
| WAN Replication Connection Count | <input type="text" value="8"/> | Specify the number of TCP connections that will be used for WAN replication. [A value is required. Integer between 1 and 8.] | | | | | | | | | | | | | | | | | | |

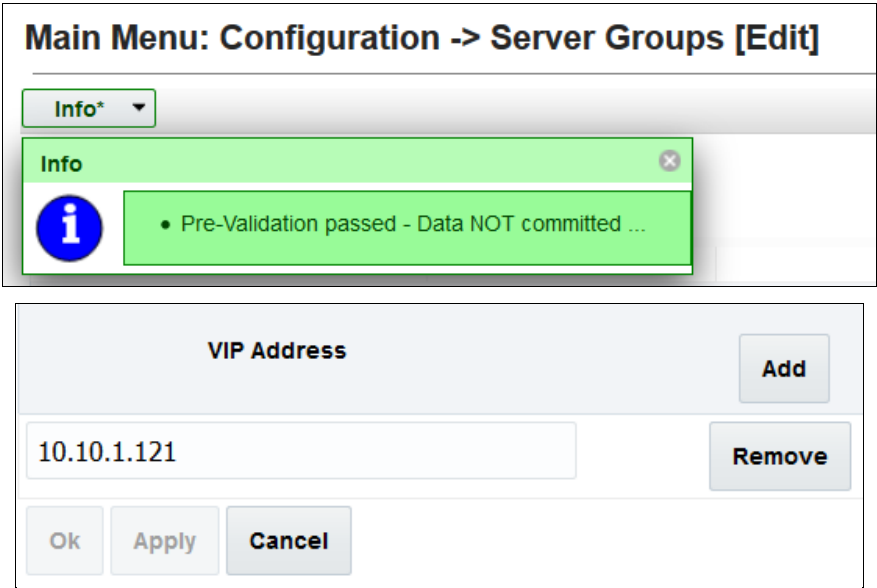
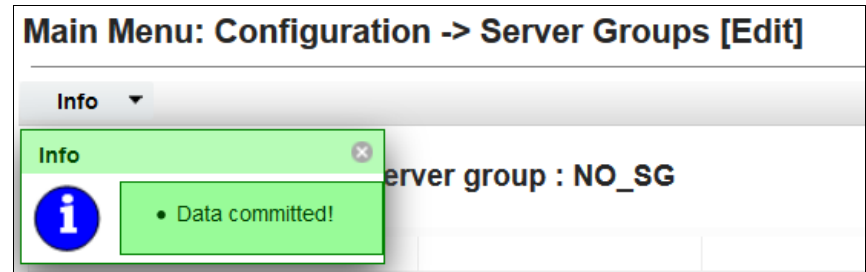
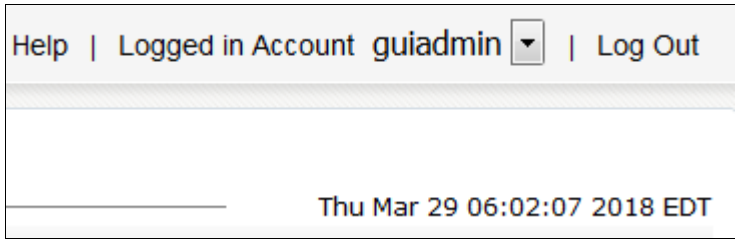
| Step | Procedure | Result | | | | | | | | | | |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------|--------|----------|------------------|-------|---|------|--------|---|
| 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 |  <table><thead><tr><th>Server Group Name</th><th>Level</th><th>Parent</th><th>Function</th><th>Connection Count</th></tr></thead><tbody><tr><td>NO_SG</td><td>A</td><td>NONE</td><td>UDR-NO</td><td>8</td></tr></tbody></table> | Server Group Name | Level | Parent | Function | Connection Count | NO_SG | A | NONE | UDR-NO | 8 |
| Server Group Name | Level | Parent | Function | Connection Count | | | | | | | | |
| NO_SG | A | NONE | UDR-NO | 8 | | | | | | | | |


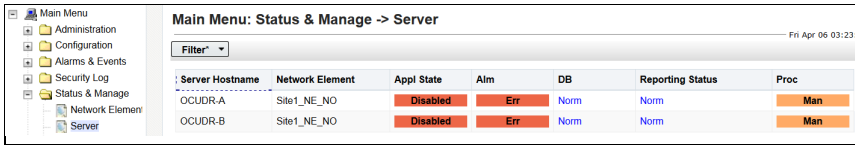
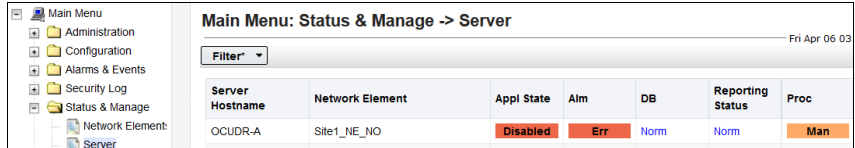
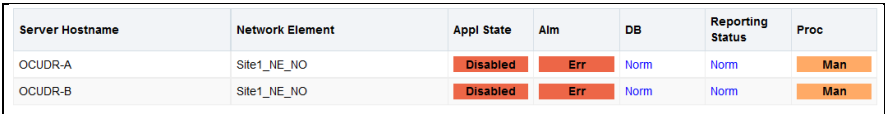
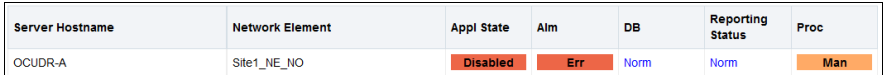
| Step | Procedure | Result | | | | | | | | | | |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------|--------|----------|------------------|-------|---|------|--------|---|
| 13. <input type="checkbox"/> | <p>UDR Server A:</p> <ol style="list-style-type: none">1. Select the Server Group entry just added. The line entry is highlighted in sky blue.2. Click Edit (located at the bottom left corner of the page). <p>NOTE: You may need to use the vertical scroll-bar to see the Edit.</p> | <div><p>Main Menu: Configuration -> Server Groups</p><div><div>Filter* ▼</div><table><tr><th>Server Group Name</th><th>Level</th><th>Parent</th><th>Function</th><th>Connection Count</th></tr><tr><td>NO_SG</td><td>A</td><td>NONE</td><td>UDR-NO</td><td>8</td></tr></table></div><div><div>Insert</div><div>Edit</div><div>Delete</div><div>Report</div></div></div> | Server Group Name | Level | Parent | Function | Connection Count | NO_SG | A | NONE | UDR-NO | 8 |
| Server Group Name | Level | Parent | Function | Connection Count | | | | | | | | |
| NO_SG | A | NONE | UDR-NO | 8 | | | | | | | | |



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

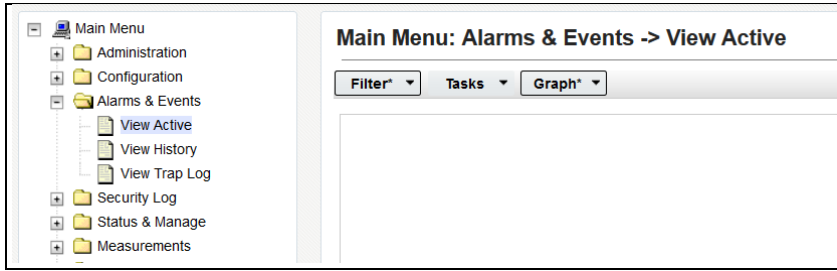
| Step | Procedure | Result |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 15. <input type="checkbox"/> | <p>UDR Server A:</p> <p>Select the options to include the A server and the B server in the UDR server group.</p> <p>NOTE: For single server installation, only NO-A is displayed; therefore only one option is selected.</p> <p>If this is a primary site (single site), then the DR site is not listed.</p> | |
| 16. <input type="checkbox"/> | <p>UDR Server A:</p> <p>Click Info to see a banner message stating Pre-Validation passed.</p> <p>Click Apply.</p> | |

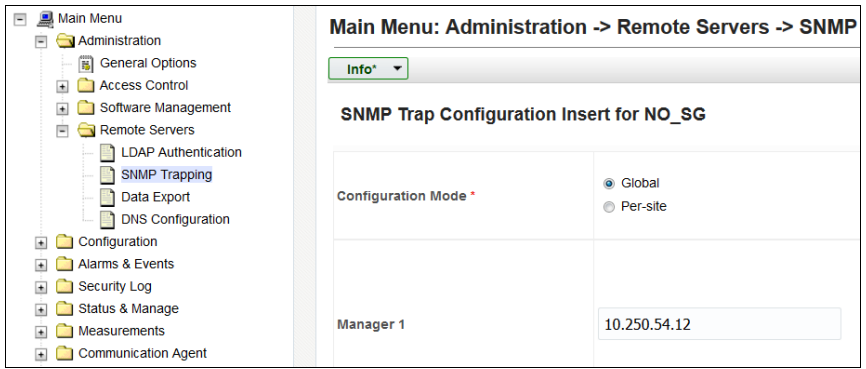
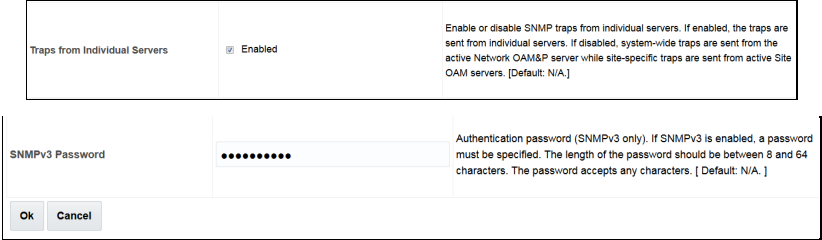

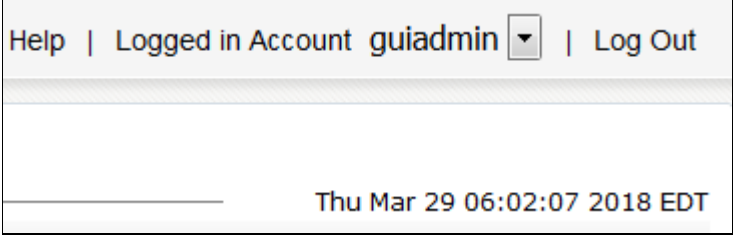
| Step | Procedure | Result |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 17. <input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

| Step | Procedure | Result |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 20. <input type="checkbox"/> | UDR Server A: Click Info to see a banner message stating Pre-Validation passed. Click Apply . |  |
| 21. <input type="checkbox"/> | UDR Server A: Click Info to see a banner message stating Data committed. |  |
| 22. <input type="checkbox"/> | UDR Server A: Click Logout on the OAM A server GUI. |  |
| 23. <input type="checkbox"/> | IMPORTANT: <i>Wait at least 5 minutes before proceeding on to the next step.</i> | <p>Now that the servers have been paired in a Server Group they must establish a master/slave relationship for High Availability (HA). It may take several minutes for this process to be completed.</p> <p>NOTE: Single server configuration is not needed to establish the master/slave relationship for High Availability (HA).</p> <p>Allow a minimum of 5 minutes before continuing to the next Step.</p> |

| Step | Procedure | Result |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 24. <input type="checkbox"/> | <p>Active UDR VIP:</p> <p>Launch an approved web browser and connect to the UDR Server A IP address</p> <p>NOTE: Click Continue to this website (not recommended) if the security certificate warning displays.</p> <p>Login to the GUI using the default user and password.</p> |  |
| 25. <input type="checkbox"/> | <p>UDR VIP:</p> <p>Restarting the UDR Server Application</p> <p>Navigate to Main Menu → Status & Manage → Server</p> | <p>Normal or Low Capacity Configuration:</p>  <p>Single Server Configuration:</p>  |
| 26. <input type="checkbox"/> | <p>UDR VIP:</p> <ol style="list-style-type: none"> The A and B servers are listed in the right panel. <p>NOTE: For single server, only the A server is listed.</p> <ol style="list-style-type: none"> 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">Using the mouse, select UDR Server A. The line entry is highlighted in sky blue.Click Restart (located at the bottom of the page).Click OK. <p>A confirmation message (in the banner area) for UDR Server A displays stating: Successfully restarted application.</p> <p>NOTE: Use the vertical scroll-bar to see the Restart button.</p> | <p>Normal Configuration:</p> <table><tr><th>Server Hostname</th><th>Network Element</th><th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr><tr><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr><tr><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr></table> <p>Single Server Configuration:</p> <table><tr><th>Server Hostname</th><th>Network Element</th><th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr><tr><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr></table> <div><div> Help  Logout</div><div><div>Stop</div><div>Restart</div><div>Reboot</div></div></div> <div><p>Are you sure you wish to restart application software on the following server(s)? OCUDR-A</p><div><div>OK</div><div>Cancel</div></div></div> <p>Main Menu: Status & Manage -> Server</p> <div><div>Filter</div><div>Info</div><div><div>Info</div><div>• OCUDR-A: Successfully restarted application.</div></div><table><tr><th>Server Host</th><th>Network Element</th><th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr><tr><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr></table></div> <p>Fri Apr 06 03:38:51 2018 EDT</p> | Server Hostname | Network Element | Appl State | Alm | DB | Reporting Status | Proc | OCUDR-A | Site1_NE_NO | Disabled | Err | Norm | Norm | Man | OCUDR-B | Site1_NE_NO | Disabled | Err | Norm | Norm | Man | Server Hostname | Network Element | Appl State | Alm | DB | Reporting Status | Proc | OCUDR-A | Site1_NE_NO | Disabled | Err | Norm | Norm | Man | Server Host | Network Element | Appl State | Alm | DB | Reporting Status | Proc | OCUDR-A | Site1_NE_NO | Enabled | Err | Norm | Norm | Norm | OCUDR-B | Site1_NE_NO | Disabled | Err | Norm | Norm | Man |
| Server Hostname | Network Element | Appl State | Alm | DB | Reporting Status | Proc | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDR-A | Site1_NE_NO | Disabled | Err | Norm | Norm | Man | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDR-B | Site1_NE_NO | Disabled | Err | Norm | Norm | Man | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Server Hostname | Network Element | Appl State | Alm | DB | Reporting Status | Proc | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDR-A | Site1_NE_NO | Disabled | Err | Norm | Norm | Man | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Server Host | Network Element | Appl State | Alm | DB | Reporting Status | Proc | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDR-A | Site1_NE_NO | Enabled | Err | Norm | Norm | Norm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDR-B | Site1_NE_NO | Disabled | Err | Norm | Norm | Man | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28. <input type="checkbox"/> | <p>UDR VIP:</p> <p>Verify that the Appl State shows Enabled and that the DB, Reporting Status and Proc status columns all show Norm for UDR Server A before proceeding to the next Step.</p> | <table><tr><th>Server Hostname</th><th>Network Element</th><th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr><tr><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr></table> <p>NOTE: If you want to refresh the Server status screen before the default setting (15 to 30 seconds), this can be done by reselecting the Status & Manage → Server option from the Main menu.</p> | Server Hostname | Network Element | Appl State | Alm | DB | Reporting Status | Proc | OCUDR-A | Site1_NE_NO | Enabled | Err | Norm | Norm | Norm | OCUDR-B | Site1_NE_NO | Disabled | Err | Norm | Norm | Man | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Server Hostname | Network Element | Appl State | Alm | DB | Reporting Status | Proc | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDR-A | Site1_NE_NO | Enabled | Err | Norm | Norm | Norm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDR-B | Site1_NE_NO | Disabled | Err | Norm | Norm | Man | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29. <input type="checkbox"/> | <p>UDR VIP:</p> <p>Restart UDR Server B.</p> | <p>NOTE: Do not perform this step for single server installations.</p> <p>Repeat steps 27 and 28 to restart UDR Server B.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Step | Procedure | Result | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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----------------------------------------------------------------|--|--|--|--|--|--|----|-------|-----------------------------|-------|-----|-------|-------------|---------|-----|---------------|------------------------------------------------|--|--|-------------------------------------------|--|--|--|--|--|--|
| 30. <input type="checkbox"/> | UDR VIP: Verifying the UDR server alarm status | Navigate to Main Menu → Alarms & Events → View Active  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31. <input type="checkbox"/> | UDR VIP: Verify that the Event IDs are the only alarms present on the system. | <table><tr><th>Seq #</th><th>Event ID</th><th>Timestamp</th><th>Severity</th><th>Product</th><th>Process</th><th>NE</th><th>Server</th><th>Type</th><th>Instance</th></tr><tr><td colspan="3">Alarm Text</td><td colspan="7">Additional Info</td></tr><tr><td>129</td><td>19820</td><td>2015-09-21 15:42:00.187 EDT</td><td>MAJOR</td><td>CAF</td><td>udrbe</td><td>NO_UDR_NE</td><td>no-b</td><td>CAF</td><td>UDR-RS-Sh-App</td></tr><tr><td colspan="3">Communication Agent Routed Service Unavailable</td><td colspan="7">GN_INFO/WRN ^^ [26801:ComAgentStack.C:2826]</td></tr><tr><td>309</td><td>19820</td><td>2015-09-21 15:14:54.295 EDT</td><td>MAJOR</td><td>CAF</td><td>udrbe</td><td>NO_UDR_NE</td><td>no-a</td><td>CAF</td><td>UDR-RS-Sh-App</td></tr><tr><td colspan="3">Communication Agent Routed Service Unavailable</td><td colspan="7">GN_INFO/WRN ^^ [16353:ComAgentStack.C:2826]</td></tr><tr><td>266</td><td>13001</td><td>2015-09-21 15:14:48.842 EDT</td><td>MAJOR</td><td>Provisioning</td><td>udrprov</td><td>NO_UDR_NE</td><td>no-a</td><td>PROV</td><td>REST</td></tr><tr><td colspan="3">No Remote RAS Client Connections</td><td colspan="7">GN_NOTENAB/WRN No remote provisioning RAS clients are connected. ^^ [16365... More...</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 colspan="3">No Remote XSAS Client Connections</td><td colspan="7">GN_NOTENAB/WRN No remote provisioning XSAS clients are connected. ^^ [1636... More...</td></tr></table> <table><tr><th>Seq #</th><th>Event ID</th><th>Timestamp</th><th>Severity</th><th>Product</th><th>Process</th><th>NE</th><th>Server</th><th>Type</th><th>Instance</th></tr><tr><td colspan="3">Alarm Text</td><td colspan="7">Additional Info</td></tr><tr><td>45</td><td>19820</td><td>2018-04-06 03:22:08.022 EDT</td><td>MAJOR</td><td>CAF</td><td>udrbe</td><td>Site1_NE_NO</td><td>OCUDR-B</td><td>CAF</td><td>UDR-RS-Sh-App</td></tr><tr><td colspan="3">Communication Agent Routed Service Unavailable</td><td colspan="7">GN_INFO/WRN ^^ [31511:ComAgentStack.C:3025]</td></tr><tr><td>79</td><td>13075</td><td>2018-04-06 03:20:18.023 EDT</td><td>CRITICAL</td><td>Provisioning</td><td>udrprov</td><td>Site1_NE_NO</td><td>OCUDR-A</td><td>PROV</td><td></td></tr><tr><td colspan="3">Provisioning Interfaces Disabled</td><td colspan="7">GN_NOTENAB/WRN SOAP and REST interfaces are disabled ^^ [945:ProvControll... More...</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 colspan="3">Communication Agent Routed Service Unavailable</td><td colspan="7">GN_INFO/WRN ^^ [577:ComAgentStack.C:3025]</td></tr></table> Verify that only the following Event IDs are the only alarms present: 13075 Provisioning Interfaces Disabled 19820 Communicaton Agent Routed Service Unavailable NOTE: It may take a few minutes for residual process alarms to clear. | Seq # | Event ID | Timestamp | Severity | Product | Process | NE | Server | Type | Instance | Alarm Text | | | Additional Info | | | | | | | 129 | 19820 | 2015-09-21 15:42:00.187 EDT | MAJOR | CAF | udrbe | NO_UDR_NE | no-b | CAF | UDR-RS-Sh-App | Communication Agent Routed Service Unavailable | | | GN_INFO/WRN ^^ [26801:ComAgentStack.C:2826] | | | | | | | 309 | 19820 | 2015-09-21 15:14:54.295 EDT | MAJOR | CAF | udrbe | NO_UDR_NE | no-a | CAF | UDR-RS-Sh-App | Communication Agent Routed Service Unavailable | | | GN_INFO/WRN ^^ [16353:ComAgentStack.C:2826] | | | | | | | 266 | 13001 | 2015-09-21 15:14:48.842 EDT | MAJOR | Provisioning | udrprov | NO_UDR_NE | no-a | PROV | REST | No Remote RAS Client Connections | | | GN_NOTENAB/WRN No remote provisioning RAS clients are connected. ^^ [16365... More... | | | | | | | 265 | 13027 | 2015-09-21 15:14:47.841 EDT | MAJOR | Provisioning | udrprov | NO_UDR_NE | no-a | PROV | SOAP | No Remote XSAS Client Connections | | | GN_NOTENAB/WRN No remote provisioning XSAS clients are connected. ^^ [1636... More... | | | | | | | Seq # | Event ID | Timestamp | Severity | Product | Process | NE | Server | Type | Instance | Alarm Text | | | Additional Info | | | | | | | 45 | 19820 | 2018-04-06 03:22:08.022 EDT | MAJOR | CAF | udrbe | Site1_NE_NO | OCUDR-B | CAF | UDR-RS-Sh-App | Communication Agent Routed Service Unavailable | | | GN_INFO/WRN ^^ [31511:ComAgentStack.C:3025] | | | | | | | 79 | 13075 | 2018-04-06 03:20:18.023 EDT | CRITICAL | Provisioning | udrprov | Site1_NE_NO | OCUDR-A | PROV | | Provisioning Interfaces Disabled | | | GN_NOTENAB/WRN SOAP and REST interfaces are disabled ^^ [945:ProvControll... More... | | | | | | | 69 | 19820 | 2018-04-06 03:20:13.117 EDT | MAJOR | CAF | udrbe | Site1_NE_NO | OCUDR-A | CAF | UDR-RS-Sh-App | Communication Agent Routed Service Unavailable | | | GN_INFO/WRN ^^ [577:ComAgentStack.C:3025] | | | | | | |
| Seq # | Event ID | Timestamp | Severity | Product | Process | NE | Server | Type | Instance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Alarm Text | | | Additional Info | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 129 | 19820 | 2015-09-21 15:42:00.187 EDT | MAJOR | CAF | udrbe | NO_UDR_NE | no-b | CAF | UDR-RS-Sh-App | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Communication Agent Routed Service Unavailable | | | GN_INFO/WRN ^^ [26801:ComAgentStack.C:2826] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 309 | 19820 | 2015-09-21 15:14:54.295 EDT | MAJOR | CAF | udrbe | NO_UDR_NE | no-a | CAF | UDR-RS-Sh-App | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Communication Agent Routed Service Unavailable | | | GN_INFO/WRN ^^ [16353:ComAgentStack.C:2826] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 266 | 13001 | 2015-09-21 15:14:48.842 EDT | MAJOR | Provisioning | udrprov | NO_UDR_NE | no-a | PROV | REST | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No Remote RAS Client Connections | | | GN_NOTENAB/WRN No remote provisioning RAS clients are connected. ^^ [16365... More... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 265 | 13027 | 2015-09-21 15:14:47.841 EDT | MAJOR | Provisioning | udrprov | NO_UDR_NE | no-a | PROV | SOAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No Remote XSAS Client Connections | | | GN_NOTENAB/WRN No remote provisioning XSAS clients are connected. ^^ [1636... More... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Seq # | Event ID | Timestamp | Severity | Product | Process | NE | Server | Type | Instance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Alarm Text | | | Additional Info | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | 19820 | 2018-04-06 03:22:08.022 EDT | MAJOR | CAF | udrbe | Site1_NE_NO | OCUDR-B | CAF | UDR-RS-Sh-App | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Communication Agent Routed Service Unavailable | | | GN_INFO/WRN ^^ [31511:ComAgentStack.C:3025] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 79 | 13075 | 2018-04-06 03:20:18.023 EDT | CRITICAL | Provisioning | udrprov | Site1_NE_NO | OCUDR-A | PROV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Provisioning Interfaces Disabled | | | GN_NOTENAB/WRN SOAP and REST interfaces are disabled ^^ [945:ProvControll... More... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 69 | 19820 | 2018-04-06 03:20:13.117 EDT | MAJOR | CAF | udrbe | Site1_NE_NO | OCUDR-A | CAF | UDR-RS-Sh-App | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Communication Agent Routed Service Unavailable | | | GN_INFO/WRN ^^ [577:ComAgentStack.C:3025] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Step | Procedure | Result |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 32. <input type="checkbox"/> | UDR VIP: Configuring SNMP for Traps from Individual Servers | Navigate to Main Menu → Administration → Remote Servers → SNMP Trapping  |
| 33. <input type="checkbox"/> | UDR VIP: 1. Select Traps from Individual Servers . 2. Click OK located at the bottom in the center of the screen. 3. Verify that a banner message stating Data committed is received. |   |
| 34. <input type="checkbox"/> | UDR VIP: Click Logout on the server GUI. |  |
| THIS PROCEDURE HAS BEEN COMPLETED | | |

6.2 OAM Pairing for DR Sites

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

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

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

Note: *If DR site VIP is not visible in GUI, please use below solution.*

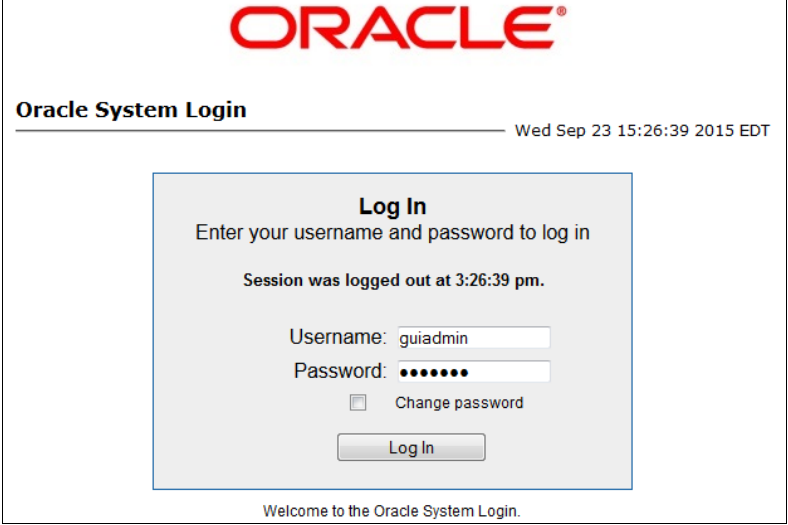
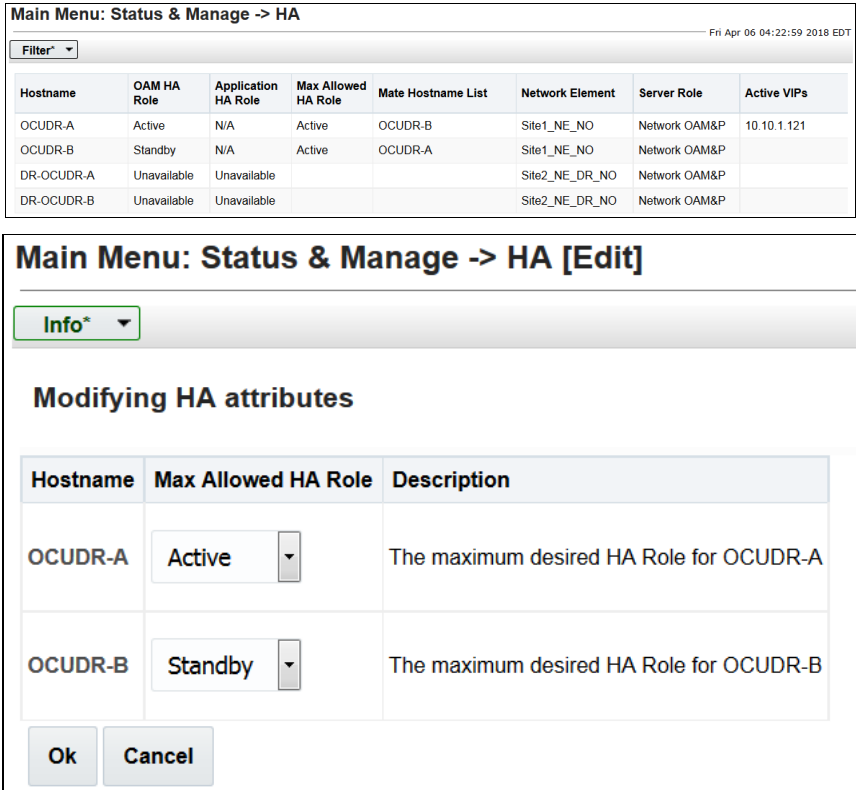
Solution: *Modify the parameter "enableNonActiveSite" to "Yes" instead of "No" in the "HaVipDef" table for DR NOAMs*

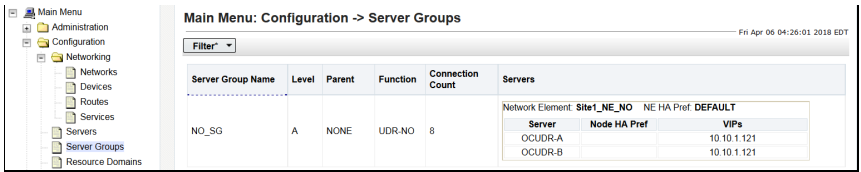
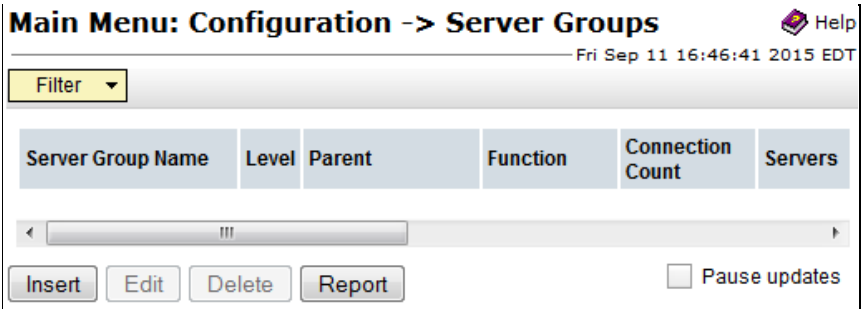
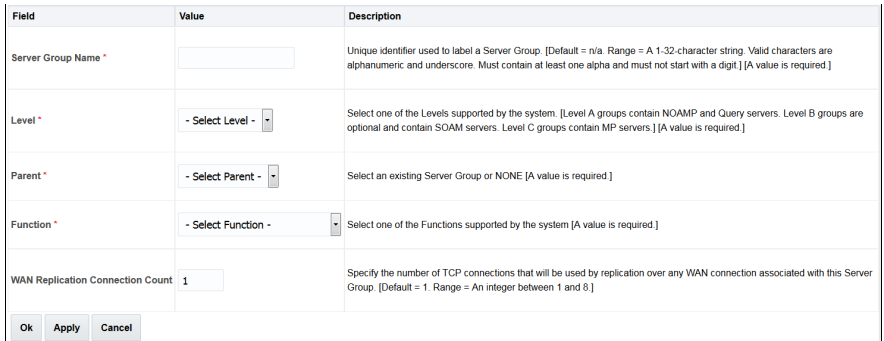
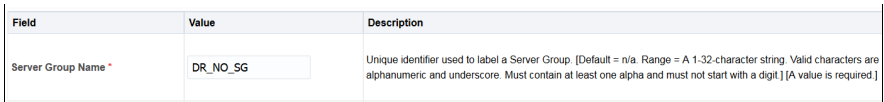
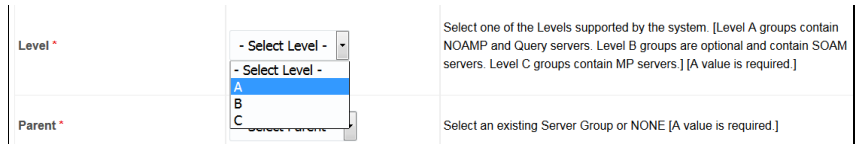
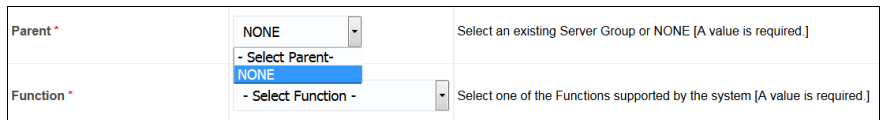
Requirements:

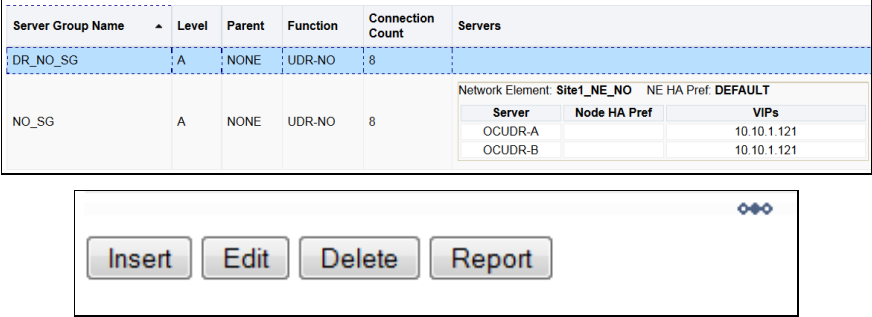
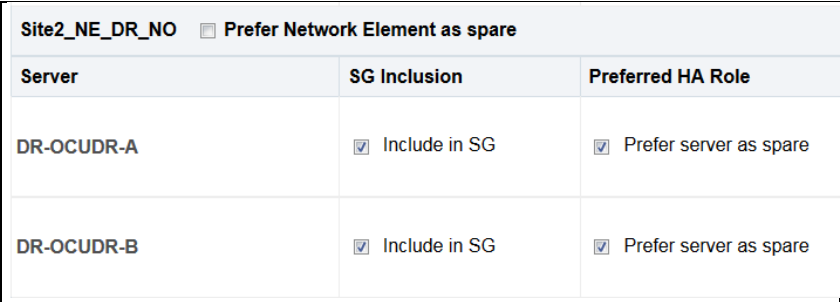
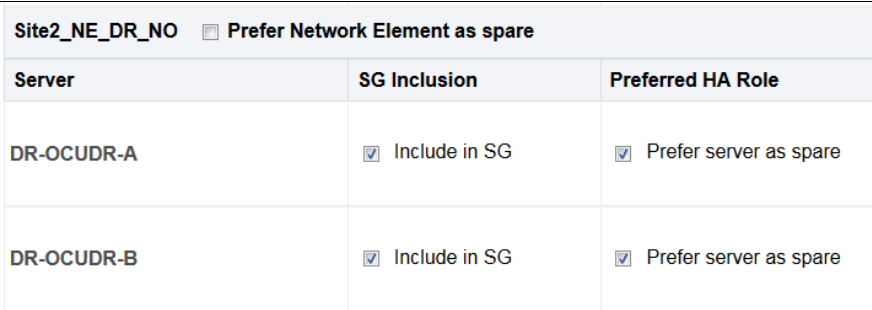
- Chapter 5 Oracle Communications User Data Repository Server Configuration has been completed
- Section 6.1 OAM Pairing for Primary UDR Servers (1st NOAMP site only) has been completed

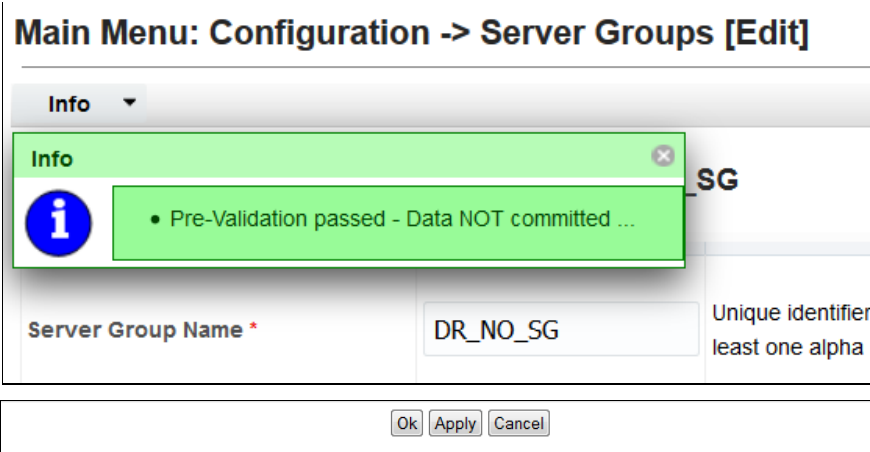
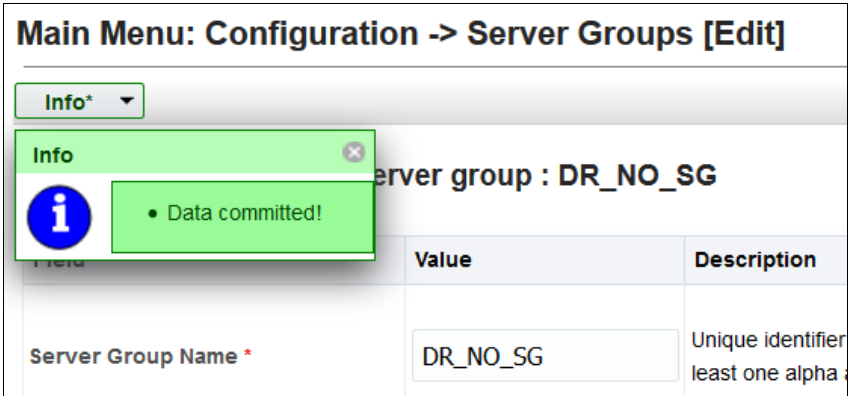
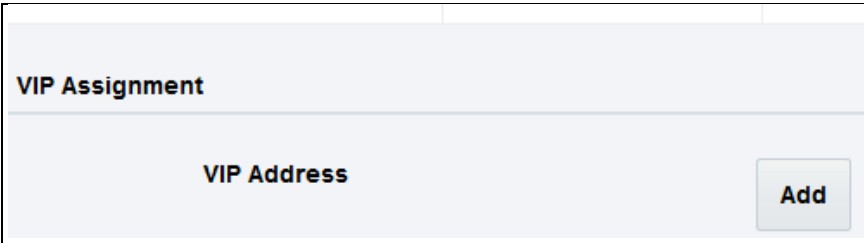
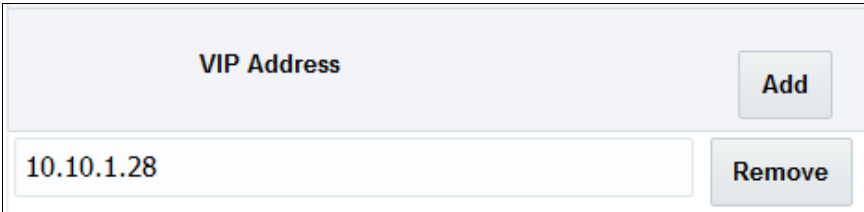
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

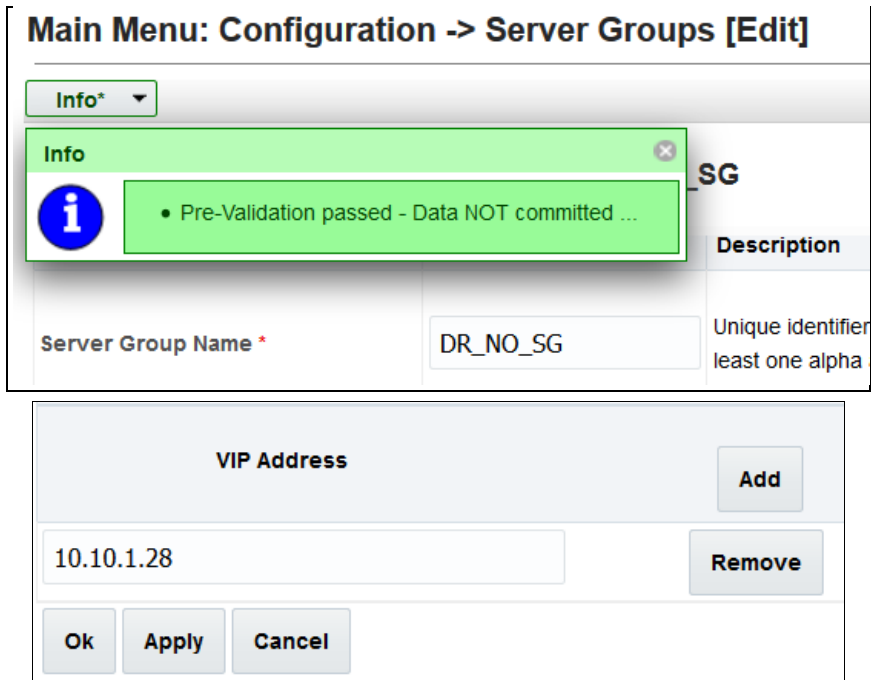
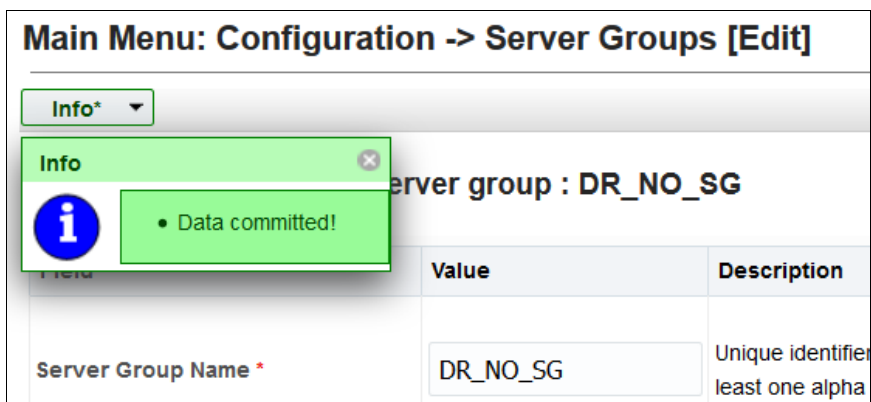
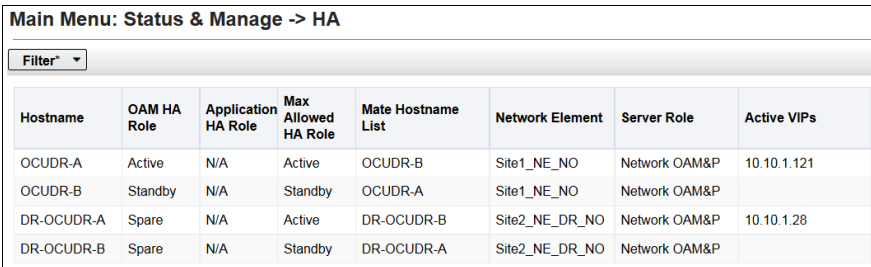
Procedure 10: OAM Pairing for DR Sites

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

| Step | Procedure | Result |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. <input type="checkbox"/> | Active UDR VIP: Navigate to Main Menu → Configuration → Server Groups |  |
| 4. <input type="checkbox"/> | Active UDR VIP: Click Insert located at the bottom left corner of the page. NOTE: Use the vertical scroll-bar to see the Insert button. |  |
| 5. <input type="checkbox"/> | Active UDR VIP: Configuring the DR UDR Server Group The Server Groups [Insert] page opens. |  |
| 6. <input type="checkbox"/> | Active UDR VIP: Enter the Server Group Name. |  |
| 7. <input type="checkbox"/> | Active UDR VIP: Assign the group Level. |  Use this setting for group level: <ul style="list-style-type: none"> For DR UDR server group: select A on the Level menu. |
| 8. <input type="checkbox"/> | Active UDR VIP: Assign the Parent. |  <ul style="list-style-type: none"> Use this setting for parent: For DR UDR server group: select NONE on the Parent menu. |

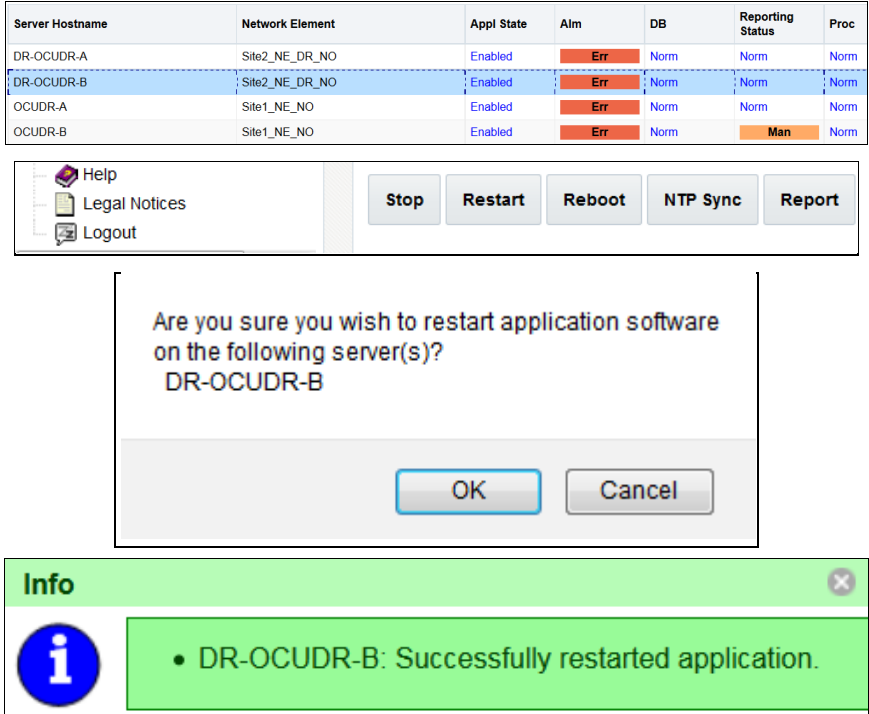
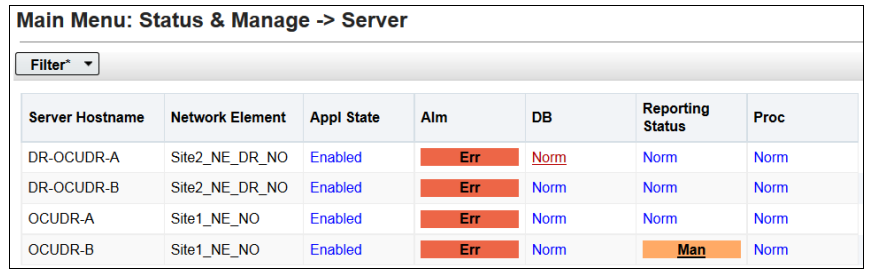
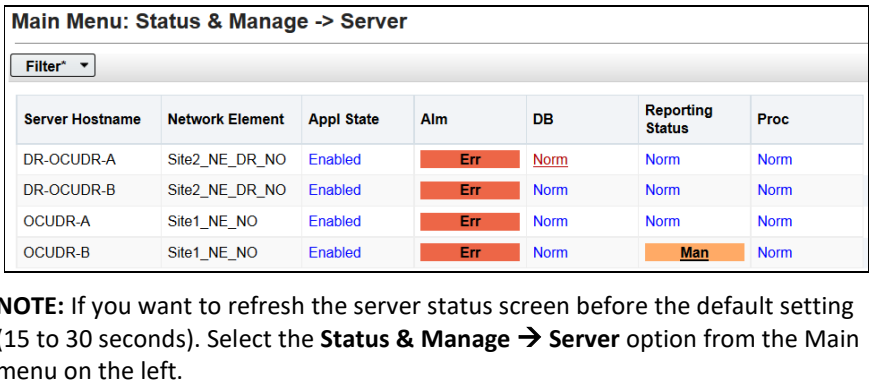
| Step | Procedure | Result |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14. <input type="checkbox"/> | <p>Active UDR VIP:</p> <ol style="list-style-type: none"> 1. Select the Server Group entry applied in Step 7. The line entry is highlighted in sky blue. 2. Click Edit (located at the bottom left corner of the page). <p>NOTE: Use the vertical scroll-bar to see the Edit button.</p> |  <p>The screenshot shows a table with columns: Server Group Name, Level, Parent, Function, Connection Count, and Servers. The 'DR_NO_SG' row is highlighted in sky blue. Below the table, there are buttons for 'Insert', 'Edit', 'Delete', and 'Report'. The 'Edit' button is highlighted.</p> |
| 15. <input type="checkbox"/> | <p>Active UDR VIP:</p> <p>Select the A server and the B server from the list of servers.</p> | <p>Normal or Low Capacity Configuration:</p>  <p>The screenshot shows a configuration page for 'Site2_NE_DR_NO' with a checkbox 'Prefer Network Element as spare'. Below this is a table with columns: Server, SG Inclusion, and Preferred HA Role. The table lists two servers: DR-OCUDR-A and DR-OCUDR-B. Both servers have 'Include in SG' checked under SG Inclusion and 'Prefer server as spare' checked under Preferred HA Role.</p> |
| 16. <input type="checkbox"/> | <p>Active UDR VIP:</p> <p>For DR UDR servers only</p> <p>Select the preferred spare options.</p> |  <p>The screenshot shows a configuration page for 'Site2_NE_DR_NO' with a checkbox 'Prefer Network Element as spare'. Below this is a table with columns: Server, SG Inclusion, and Preferred HA Role. The table lists two servers: DR-OCUDR-A and DR-OCUDR-B. Both servers have 'Include in SG' checked under SG Inclusion and 'Prefer server as spare' checked under Preferred HA Role.</p> <p>NOTE: DR UDR is not accessible via their VIP unless they become the active UDR. Individual servers in the DR UDR server group are always accessible by their XMI addresses.</p> |

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

| Step | Procedure | Result | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------|---------------------|---------------------|--------------------|-----------------|-------------|-------------|---------|--------|-----|--------|---------|-------------|---------------|-------------|---------|---------|-----|---------|---------|-------------|---------------|--|------------|-------|-----|--------|------------|----------------|---------------|------------|------------|-------|-----|---------|------------|----------------|---------------|--|
| 21. <input type="checkbox"/> | Active UDR VIP: Click Info to see a banner message stating Pre-Validation passed. Click Apply . |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22. <input type="checkbox"/> | Active UDR VIP: Click Info to see a banner message stating Data committed. |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23. <input type="checkbox"/> | IMPORTANT:Wait at least 5 minutes before proceeding on to the next Step. | 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 |  <table><thead><tr><th>Hostname</th><th>OAM HA Role</th><th>Application HA Role</th><th>Max Allowed HA Role</th><th>Mate Hostname List</th><th>Network Element</th><th>Server Role</th><th>Active VIPs</th></tr></thead><tbody><tr><td>OCUDR-A</td><td>Active</td><td>N/A</td><td>Active</td><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Network OAM&P</td><td>10.10.1.121</td></tr><tr><td>OCUDR-B</td><td>Standby</td><td>N/A</td><td>Standby</td><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Network OAM&P</td><td></td></tr><tr><td>DR-OCUDR-A</td><td>Spare</td><td>N/A</td><td>Active</td><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Network OAM&P</td><td>10.10.1.28</td></tr><tr><td>DR-OCUDR-B</td><td>Spare</td><td>N/A</td><td>Standby</td><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Network OAM&P</td><td></td></tr></tbody></table> | Hostname | OAM HA Role | Application HA Role | Max Allowed HA Role | Mate Hostname List | Network Element | Server Role | Active VIPs | OCUDR-A | Active | N/A | Active | OCUDR-B | Site1_NE_NO | Network OAM&P | 10.10.1.121 | OCUDR-B | Standby | N/A | Standby | OCUDR-A | Site1_NE_NO | Network OAM&P | | DR-OCUDR-A | Spare | N/A | Active | DR-OCUDR-B | Site2_NE_DR_NO | Network OAM&P | 10.10.1.28 | DR-OCUDR-B | Spare | N/A | Standby | DR-OCUDR-A | Site2_NE_DR_NO | Network OAM&P | |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Step | Procedure | Result | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------|---------------------|---------------------|--------------------|------------------|-------------|-------------|----------------|----------|-----|--------|---------|-------------|---------------|----------------|----------|---------|------|---------|---------|-------------|---------------|---------|------------|-------|------|--------|------------|----------------|---------------|------------|------------|-------|------|---------|------------|----------------|---------------|--|
| 25. <input type="checkbox"/> | <p>Active UDR VIP:</p> <p>NOTE: DR UDR servers have an OAM MAX HA Role of Spare and no active VIPs</p> | <p>Normal or Low Capacity Configuration:</p> <div><p>Main Menu: Status & Manage -> HA</p><div><div>Filter* ▼</div><table><thead><tr><th>Hostname</th><th>OAM HA Role</th><th>Application HA Role</th><th>Max Allowed HA Role</th><th>Mate Hostname List</th><th>Network Element</th><th>Server Role</th><th>Active VIPs</th></tr></thead><tbody><tr><td>OCUDR-A</td><td>Active</td><td>N/A</td><td>Active</td><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Network OAM&P</td><td>10.10.1.121</td></tr><tr><td>OCUDR-B</td><td>Standby</td><td>N/A</td><td>Standby</td><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Network OAM&P</td><td></td></tr><tr><td>DR-OCUDR-A</td><td>Spare</td><td>N/A</td><td>Active</td><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Network OAM&P</td><td>10.10.1.28</td></tr><tr><td>DR-OCUDR-B</td><td>Spare</td><td>N/A</td><td>Standby</td><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Network OAM&P</td><td></td></tr></tbody></table></div></div> | Hostname | OAM HA Role | Application HA Role | Max Allowed HA Role | Mate Hostname List | Network Element | Server Role | Active VIPs | OCUDR-A | Active | N/A | Active | OCUDR-B | Site1_NE_NO | Network OAM&P | 10.10.1.121 | OCUDR-B | Standby | N/A | Standby | OCUDR-A | Site1_NE_NO | Network OAM&P | | DR-OCUDR-A | Spare | N/A | Active | DR-OCUDR-B | Site2_NE_DR_NO | Network OAM&P | 10.10.1.28 | DR-OCUDR-B | Spare | N/A | Standby | DR-OCUDR-A | Site2_NE_DR_NO | Network OAM&P | |
| 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:</p> <p>Restarting the OAM Server Application</p> <p>Navigate to Main Menu → Status & Manage → Server</p> | <div><p>Main Menu: Status & Manage -> Server</p><div><div>Filter* ▼</div><table><thead><tr><th>Server Hostname</th><th>Network Element</th><th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr></thead><tbody><tr><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr><tr><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr><tr><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Man</td><td>Norm</td></tr></tbody></table></div></div> | 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 | | | | | |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27. <input type="checkbox"/> | <p>Active UDR VIP:</p> <p>1. The A and B servers are listed in the right panel. (Only A for single server installs)</p> <p>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> | <p>Normal or Low Capacity Configuration:</p> <div><table><thead><tr><th>Server Hostname</th><th>Network Element</th><th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr></thead><tbody><tr><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr><tr><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr></tbody></table></div> <p>Single Server Configuration:</p> | Server Hostname | Network Element | Appl State | Alm | DB | Reporting Status | Proc | DR-OCUDR-A | Site2_NE_DR_NO | Disabled | Err | Norm | Norm | Man | DR-OCUDR-B | Site2_NE_DR_NO | Disabled | Err | Norm | Norm | Man | | | | | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Step | Procedure | Result | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|------------------|------|----|------------------|------|------------|----------------|----------|-----|------|------|------|------------|----------------|----------|-----|------|------|------|---------|-------------|---------|-----|------|------|------|---------|-------------|---------|-----|------|-----|------|
| 28. <input type="checkbox"/> | <p>Active UDR VIP:</p> <p>3. UsinXSg the mouse, select Server A. The line entry is highlighted in sky blue.</p> <p>4. Click Restart (located at the bottom of the page).</p> <p>5. Click OK.</p> <p>A confirmation message (in the banner area) for Server A stating: Successfully restarted application.</p> <p>NOTE: Use the vertical scroll-bar to see the Restart button.</p> | <p>Normal or Low Capacity Configuration:</p> <table><thead><tr><th>Server Hostname</th><th>Network Element</th><th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr></thead><tbody><tr><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr><tr><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Disabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Man</td></tr><tr><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Man</td><td>Norm</td></tr></tbody></table> <div><div> Help Legal Notices Logout</div><div><div>Stop</div><div>Restart</div><div>Reboot</div><div>NTP Sync</div><div>Report</div></div></div> <div><div>Are you sure you wish to restart application software on the following server(s)? DR-OCUDR-A</div><div><div>OK</div><div>Cancel</div></div></div> <div><div>Filter* Info</div><div><div>Server Host</div><div>DR-OCUDR</div></div><div><div>Info</div><div>• DR-OCUDR-A: Successfully restarted application.</div></div></div> | Server Hostname | Network Element | Appl State | Alm | DB | Reporting Status | Proc | DR-OCUDR-A | Site2_NE_DR_NO | Disabled | Err | Norm | Norm | Man | DR-OCUDR-B | Site2_NE_DR_NO | Disabled | Err | Norm | Norm | Man | OCUDR-A | Site1_NE_NO | Enabled | Err | Norm | Norm | Norm | OCUDR-B | Site1_NE_NO | Enabled | Err | Norm | Man | Norm |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29. <input type="checkbox"/> | <p>Active UDR VIP:</p> <p>Navigate to Main Menu → Status & Manage → Server</p> | <div><div>Main Menu: Status & Manage → Server</div><div>Fri Apr 06 04:58:03 2018 EDT</div><div><div>Filter* Info</div><table><thead><tr><th>Server Hostname</th><th>Network Element</th><th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr></thead><tbody><tr><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Man</td><td>Norm</td></tr></tbody></table></div></div> | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30. <input type="checkbox"/> | <p>Active UDR VIP:</p> <p>Verify that the Appl State shows Enabled and that the Alm, DB, Reporting Status and Proc columns all show Norm for OAM Server A before proceeding to the next Step.</p> | <div><div>Main Menu: Status & Manage → Server</div><div>Fri Apr 06 04:58:03 2018 EDT</div><div><div>Filter* Info</div><table><thead><tr><th>Server Hostname</th><th>Network Element</th><th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr></thead><tbody><tr><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Man</td><td>Norm</td></tr></tbody></table></div></div> <p>NOTE: To refresh the server status screen before the default setting (15 to 30 seconds). Select the Status & Manage → Server option from the Main menu on the left.</p> | Server Hostname | Network Element | Appl State | Alm | DB | Reporting Status | Proc | DR-OCUDR-A | Site2_NE_DR_NO | Enabled | Err | Norm | Norm | Norm | DR-OCUDR-B | Site2_NE_DR_NO | Enabled | Err | Norm | Norm | Norm | OCUDR-A | Site1_NE_NO | Enabled | Err | Norm | Norm | Norm | OCUDR-B | Site1_NE_NO | Enabled | Err | Norm | Man | Norm |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31. <input type="checkbox"/> | <p>Active UDR VIP:</p> <p>Navigate to Main Menu → Status & Manage → Server</p> | <div><div>Main Menu: Status & Manage → Server</div><div>Fri Apr 06 04:58:03 2018 EDT</div><div><div>Filter* Info</div><table><thead><tr><th>Server Hostname</th><th>Network Element</th><th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr></thead><tbody><tr><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Man</td><td>Norm</td></tr></tbody></table></div></div> | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Step | Procedure | Result |
|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Perform steps 32 to 35 for multiple server configurations only (not single server). | | |
| 32. <input type="checkbox"/> | <p>Active UDR VIP:</p> <ol style="list-style-type: none"> Using the mouse, select Server B. The line entry is highlighted in sky blue. Click Restart (located at the bottom of the page). Click OK. <p>A confirmation message displays in the banner area for server B stating: Successfully restarted application.</p> <p>NOTE: Use the vertical scroll-bar to see the Restart button.</p> |  |
| 33. <input type="checkbox"/> | <p>Active UDR VIP:</p> <p>Navigate to Main Menu → Status & Manage → Server</p> |  |
| 34. <input type="checkbox"/> | <p>Active UDR VIP:</p> <p>Verify that the Appl State shows Enabled and that the Alm, DB, Reporting Status and Proc columns all show Norm for Server B before proceeding to the next Step.</p> |  <p>NOTE: If you want to refresh the server status screen before the default setting (15 to 30 seconds). Select the Status & Manage → Server option from the Main menu on the left.</p> |
| Repeat all steps for each DR UDR site being installed. | | |

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

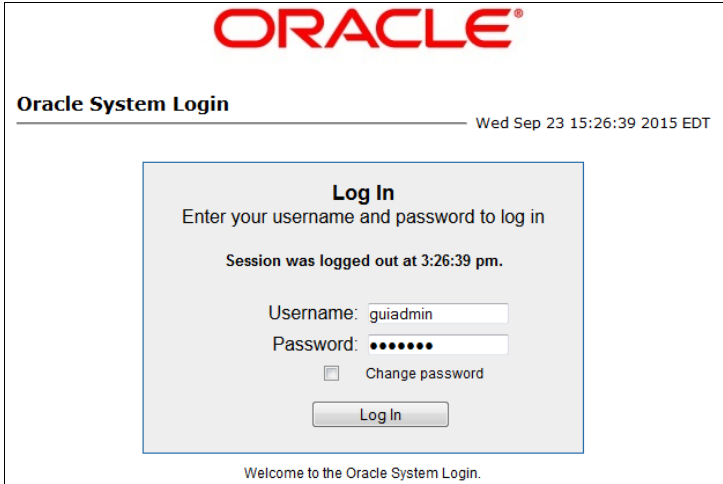
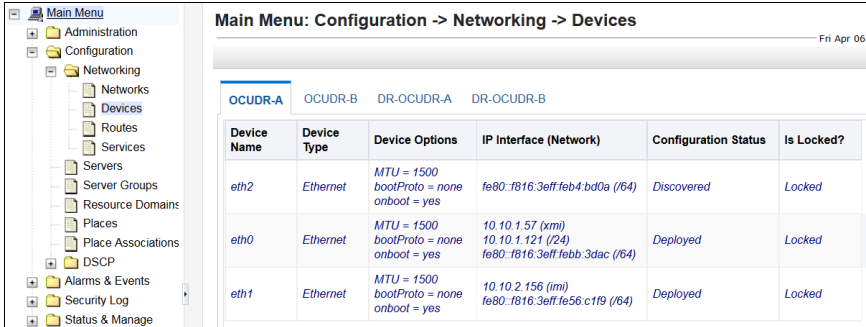
Chapter 7. Application Configuration

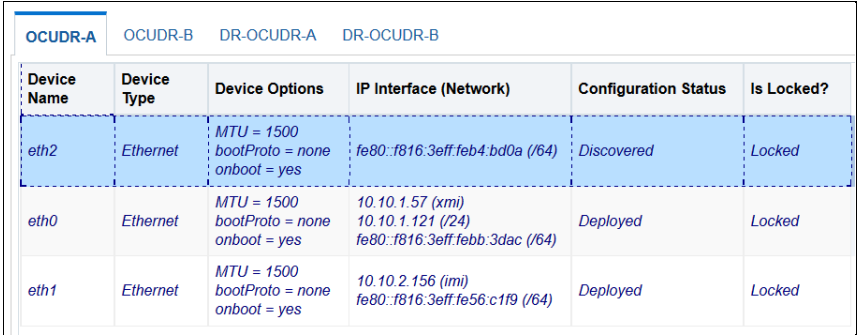
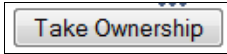
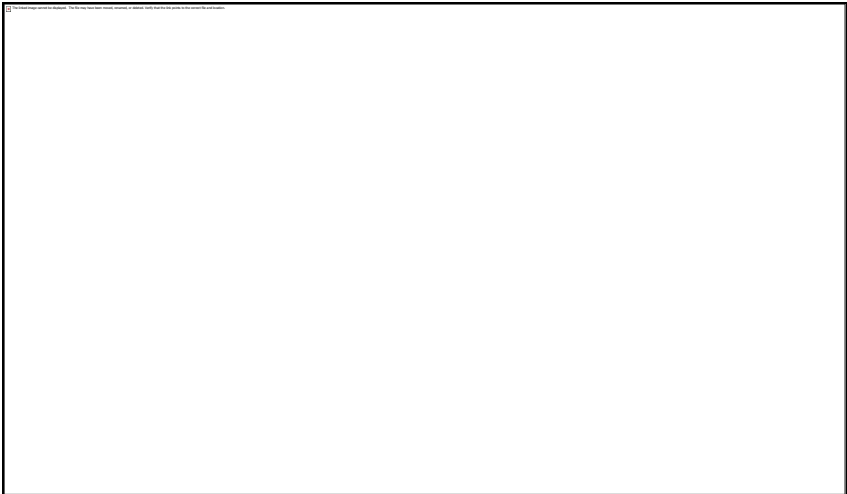
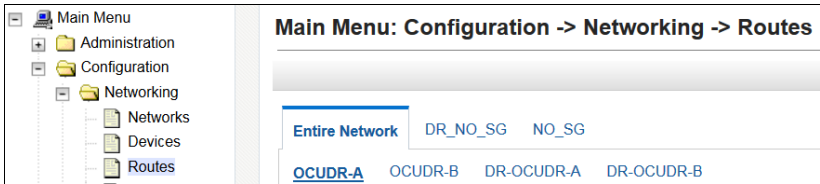
7.1 Configure UDR Signaling Routes (All NOAM Sites)

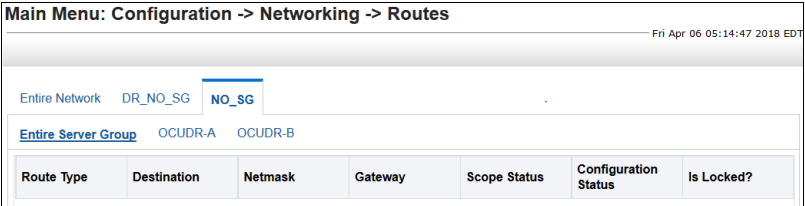

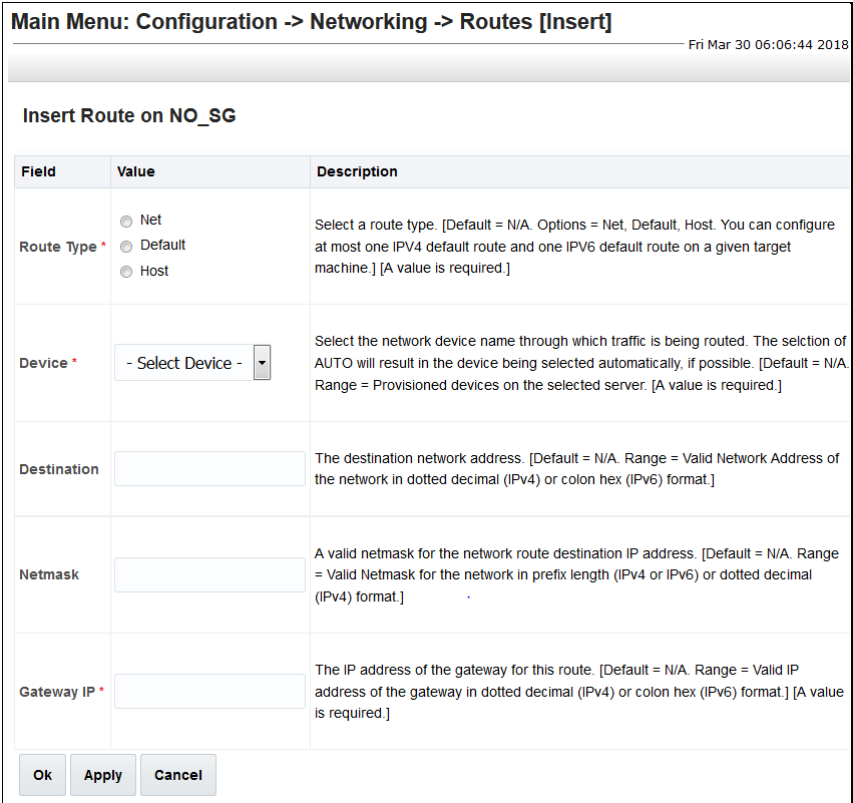
This procedure configures the XSI signaling route for the UDR and DR UDR Server Groups.

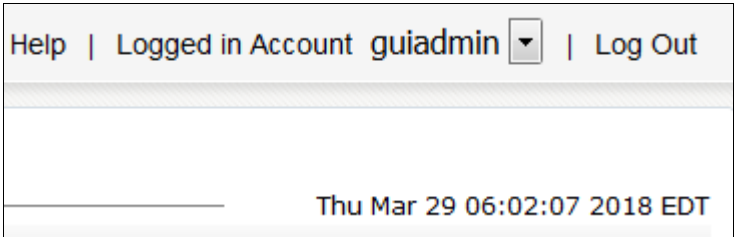
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

Procedure 11: Configure UDR Signaling Routes

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

| Step | Procedure | Result |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. <input type="checkbox"/> | Active UDR VIP: Select the xsi device for the UDR | Select the UDR tab. Select the XSI-1 device (recorded in B.3 Step 3 or C.7 Step 5).  Mark the check box as addition is completed for each server. <input type="checkbox"/> UDR-A (XSI-1) <input type="checkbox"/> UDR-B (XSI-1) |
| 4. <input type="checkbox"/> | Active UDR VIP Edit the xsi device for the UDR | Click Take Ownership .  Mark the check box as addition is completed for each server. <input type="checkbox"/> UDR-A (XSI-1) <input type="checkbox"/> UDR-B (XSI-1) |
| 5. <input type="checkbox"/> | Active UDR VIP 1. Add the xsi device for the UDR 2. For Start On Boot, select Enable 3. Click OK to apply changes. |  |
| 6. <input type="checkbox"/> | Active UDR VIP: Repeat as required. | Repeat Steps 3 throughg 5 for each UDR and its Signaling networks. NOTE: Steps 7 throughg 9 are only needed for geo-redundant systems. |
| 7. <input type="checkbox"/> | Active UDR VIP: Navigate to Main Menu → Configuration → Networking → Routes |  |

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

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

7.2 Configure Services on Signaling Network

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

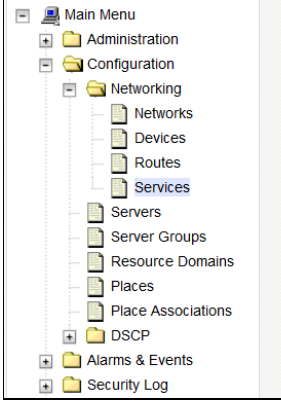
Requirements:

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

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

Procedure 12: Configure Services on Signaling Network

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

| Step | Procedure | Result | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------|------------------|-----|-----|-----|-------------|-----|-----|-----------|-------------|-------------|--------------|-----|-----|-----------------|-----|-----|----------------|-----|-----|----------|-----|-----|
| 2. <input type="checkbox"/> | Active UDR VIP: Navigate to Main Menu → Configuration → Services |  <p>Main Menu: Configuration -> Networking -> Services</p> <table> <thead> <tr> <th>Name</th><th>Intra-NE Network</th><th>Inter-NE Network</th></tr> </thead> <tbody> <tr> <td>OAM</td><td>imi</td><td>xmi</td></tr> <tr> <td>Replication</td><td>imi</td><td>xmi</td></tr> <tr> <td>Signaling</td><td>Unspecified</td><td>Unspecified</td></tr> <tr> <td>HA_Secondary</td><td>imi</td><td>xmi</td></tr> <tr> <td>HA_MP_Secondary</td><td>imi</td><td>xmi</td></tr> <tr> <td>Replication_MP</td><td>imi</td><td>xmi</td></tr> <tr> <td>ComAgent</td><td>imi</td><td>xmi</td></tr> </tbody> </table> | Name | Intra-NE Network | Inter-NE Network | OAM | imi | xmi | Replication | imi | xmi | Signaling | Unspecified | Unspecified | HA_Secondary | imi | xmi | HA_MP_Secondary | imi | xmi | Replication_MP | imi | xmi | ComAgent | imi | xmi |
| Name | Intra-NE Network | Inter-NE Network | | | | | | | | | | | | | | | | | | | | | | | | |
| OAM | imi | xmi | | | | | | | | | | | | | | | | | | | | | | | | |
| Replication | imi | xmi | | | | | | | | | | | | | | | | | | | | | | | | |
| Signaling | Unspecified | Unspecified | | | | | | | | | | | | | | | | | | | | | | | | |
| HA_Secondary | imi | xmi | | | | | | | | | | | | | | | | | | | | | | | | |
| HA_MP_Secondary | imi | xmi | | | | | | | | | | | | | | | | | | | | | | | | |
| Replication_MP | imi | xmi | | | | | | | | | | | | | | | | | | | | | | | | |
| ComAgent | imi | xmi | | | | | | | | | | | | | | | | | | | | | | | | |

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

| Step | Procedure | Result | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------|------------------|------|-----|------------------|-------------|------------|----------------|-----------|-------------|-------------|--------------|------|------------|-----------------|---------|-----|----------------|------|------|----------|-------------|---------|-----|------|------|------|---------|-------------|---------|-----|------|-----|------|
| 4. <input type="checkbox"/> | Active UDR VIP: The Services configuration screen opens. | <table><thead><tr><th>Name</th><th>Intra-NE Network</th><th>Inter-NE Network</th></tr></thead><tbody><tr><td>OAM</td><td>imi</td><td>xmi</td></tr><tr><td>Replication</td><td>imi</td><td>xmi</td></tr><tr><td>Signaling</td><td>Unspecified</td><td>Unspecified</td></tr><tr><td>HA_Secondary</td><td>imi</td><td>XSI1</td></tr><tr><td>HA_MP_Secondary</td><td>imi</td><td>xmi</td></tr><tr><td>Replication_MP</td><td>imi</td><td>xmi</td></tr><tr><td>ComAgent</td><td>imi</td><td>xmi</td></tr></tbody></table> | Name | Intra-NE Network | Inter-NE Network | OAM | imi | xmi | Replication | imi | xmi | Signaling | Unspecified | Unspecified | HA_Secondary | imi | XSI1 | HA_MP_Secondary | imi | xmi | Replication_MP | imi | xmi | ComAgent | imi | xmi | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. <input type="checkbox"/> | Reboot all UDR Servers | <p>Reboot all UDR servers either by</p> <ul style="list-style-type: none">On the GUI for the active UDR, go to Status & Manage → Server screen and click Reboot. <div><p>Main Menu: Status & Manage -> Server</p><div><div>Filter* ▼</div><table><thead><tr><th>Server Hostname</th><th>Network Element</th><th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th><th>Proc</th></tr></thead><tbody><tr><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Man</td><td>Norm</td></tr></tbody></table><div><div>Stop</div><div>Restart</div><div>Reboot</div><div>NTP Sync</div><div>Report</div></div></div></div> <ul style="list-style-type: none">On the terminal of each server with the reboot command:<pre>\$ sudo reboot</pre> <p>NOTE: Perform this on all UDRs.</p> | 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


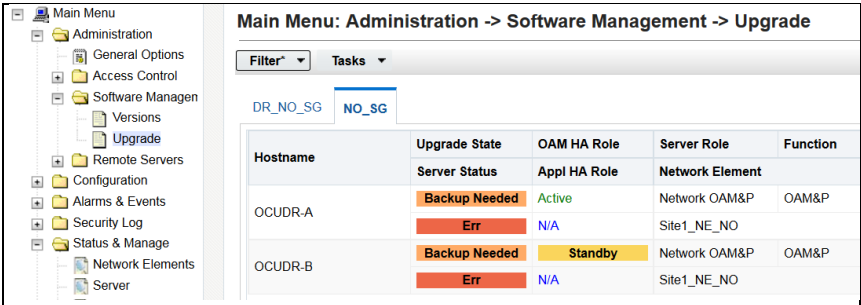
This procedure accepts the installation/upgrade on any servers that have not been accepted. Depending on the manner of installation, there may not be any servers that require acceptance at this point in installation.

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

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

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

Procedure 13: Accept Installation

| Step | Procedure | Result |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> | <p>Active UDR VIP:</p> <p>Launch an approved web browser and connect to the UDR Server A IP address</p> <p>NOTE: Click Continue to this website (not recommended) if the security certificate warning displays.</p> <p>Login to the GUI using the default user and password.</p> |  <p>The screenshot shows the Oracle System Login page. At the top is the Oracle logo. Below it is the title 'Oracle System Login' and a timestamp 'Wed Sep 23 15:26:39 2015 EDT'. In the center is a 'Log In' box with the text 'Enter your username and password to log in'. Below this, it says 'Session was logged out at 3:26:39 pm.' There are input fields for 'Username' (containing 'guiadmin') and 'Password' (masked with dots). A 'Change password' checkbox is present. A 'Log In' button is at the bottom of the box. At the very bottom of the page, it says 'Welcome to the Oracle System Login.'</p> |
| 2. <input type="checkbox"/> | <p>Active UDR VIP:</p> <p>Navigate to Main Menu → Administration → Software Management → Upgrade</p> |  <p>The screenshot shows the 'Main Menu: Administration -> Software Management -> Upgrade' page. On the left is a tree view of the Main Menu with categories like Administration, Access Control, Software Management, Remote Servers, Configuration, Alarms & Events, Security Log, Status & Manage, Network Elements, and Server. The 'Upgrade' option under 'Software Management' is selected. The main area shows a table with columns: Hostname, Upgrade State, OAM HA Role, Server Role, and Function. The table has two rows: OCUDR-A and OCUDR-B. OCUDR-A has 'Backup Needed' (orange), 'Active' (green), 'Network OAM&P', and 'OAM&P'. OCUDR-B has 'Backup Needed' (orange), 'Standby' (yellow), 'Network OAM&P', and 'OAM&P'. There are also 'Err' (red) labels in the 'Server Status' column for both hosts.</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 where the upgrade has not been accepted.2. Click Accept. <div><p>Main Menu: Administration -> Software Management -> Upgrade</p><div><div>Filter*</div><div>Tasks</div></div><div><div>DR_NO_SG</div><div>NO_SG</div></div><table><thead><tr><th rowspan="2">Hostname</th><th>Upgrade State</th><th>OAM HA Role</th><th>Server Role</th></tr><tr><th>Server Status</th><th>Appl HA Role</th><th>Network Element</th></tr></thead><tbody><tr><td rowspan="2">OCUDR-A</td><td>Backup Needed</td><td>Active</td><td>Network OAM&P</td></tr><tr><td>Err</td><td>N/A</td><td>Site1_NE_NO</td></tr><tr><td rowspan="2">OCUDR-B</td><td>Backup Needed</td><td>Standby</td><td>Network OAM&P</td></tr><tr><td>Err</td><td>N/A</td><td>Site1_NE_NO</td></tr></tbody></table><div><div>Backup</div><div>Upgrade Server</div><div>Accept</div><div>Report</div><div>Report All</div></div></div> <p>A confirmation dialog warns that after the upgrade is accepted, the servers are not able to revert back to their previous image states.</p> <div><div>The page at https://10.240.42.20 says:</div><div>WARNING: Selecting OK will result in the selected server being set to ACCEPT for its upgrade mode. Once accepted, the server will NOT be able to revert back to its previous image state.</div><div>Accept the upgrade for the following server?</div><div>BL908070109-NO-A (10.240.56.108)</div><div><div>OK</div><div>Cancel</div></div></div> <p>3. Click OK</p> <p>The Upgrade Administration screen re-displays.</p> <p>An Informational message indicates the servers where the upgrade was accepted.</p> | Hostname | Upgrade State | OAM HA Role | Server Role | Server Status | Appl HA Role | Network Element | OCUDR-A | Backup Needed | Active | Network OAM&P | Err | N/A | Site1_NE_NO | OCUDR-B | Backup Needed | Standby | Network OAM&P | Err | N/A | Site1_NE_NO |
| Hostname | Upgrade State | OAM HA Role | | Server Role | | | | | | | | | | | | | | | | | | | |
| | Server Status | Appl HA Role | Network Element | | | | | | | | | | | | | | | | | | | | |
| OCUDR-A | Backup Needed | Active | Network OAM&P | | | | | | | | | | | | | | | | | | | | |
| | Err | N/A | Site1_NE_NO | | | | | | | | | | | | | | | | | | | | |
| OCUDR-B | Backup Needed | Standby | Network OAM&P | | | | | | | | | | | | | | | | | | | | |
| | Err | N/A | Site1_NE_NO | | | | | | | | | | | | | | | | | | | | |
| 4. <input type="checkbox"/> | Active UDR VIP: Accept upgrade of the rest of the system | <ol style="list-style-type: none">1. Accept upgrade on all remaining servers in the system:2. Repeat all sub-steps of step 3 of this procedure on remaining servers until the upgrade of all servers in the User Data Repository system has been accepted. <p>Note: As the upgrade is accepted on each server the corresponding Alarm ID 32532 (Server Upgrade Pending Accept/Reject) is removed.</p> | | | | | | | | | | | | | | | | | | | | | |

| Step | Procedure | Result | | | | | | | | | | | | | | | | |
|-----------------------------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------|-----------|----------|---------|---------|----|--------|--|------------|--|-----------------|--|--|--|--|
| 5. <input type="checkbox"/> | Active UDR VIP: Verify accept | <p>Check that alarms are removed:</p> <p>1. Navigate to Alarms & Events > View Active</p> <div><div>Main Menu: Alarms & Events -> View Active</div><div><div>Filter ▾Tasks ▾</div><table><tr><th>Seq #</th><th>Event ID</th><th>Timestamp</th><th>Severity</th><th>Product</th><th>Process</th><th>NE</th><th>Server</th></tr><tr><td></td><td colspan="2">Alarm Text</td><td colspan="5">Additional Info</td></tr></table></div></div> <p>2. Verify that Alarm ID 32532 (Server Upgrade Pending Accept/Reject) is not displayed under active alarms on User Data Repository system</p> | Seq # | Event ID | Timestamp | Severity | Product | Process | NE | Server | | Alarm Text | | Additional Info | | | | |
| Seq # | Event ID | Timestamp | Severity | Product | Process | NE | Server | | | | | | | | | | | |
| | Alarm Text | | Additional Info | | | | | | | | | | | | | | | |
| THIS PROCEDURE HAS BEEN COMPLETED | | | | | | | | | | | | | | | | | | |

Configuration of UDR for EIR, FABR, MNP and SFAPP features

After finishing installation and configuration of UDR, we need to configure the UDR for below features by executing the loader at Active NOAMP server.

These loaders are present under “/usr/TKLC/udr/prod/maint/loaders/upgrade” path .

| Feature | Loader name | Description |
|-------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MNP | enablevMNPsec | This loader will enable MNP feature |
| Split feature | enableSplitFeature | This loader will enable Split feature |
| MNP with Split | enableMNPwithSplit | This loader will configure SEC for MNP with Split. To enable MNP feature with feature ,execute this loader along with “enableSplitFeature” loader |
| Enum | enableMNPwithENUM | Configure and enable Enum as per old Schema |
| Enum | enableENUMSec | Configure and enable Enum as per New Schema |
| FABR | enableFabrSec | Configure and enable FABR use case |
| EIR | enableEIRSec | Configure and enable EIR use case |
| MNP with Split , ENUM and SFAPP/DSA | enableMNPwithSplit_Enum_SFAPP | This is common loader which will enable all the features MNP/SPLIT/ENUM/SFAPP/DSA |
| SFAPP/DSA | enableSecurityApp | This loader will enable SFAPP/DSA feature |
| Shared Memory Handling | enableCriticalShMemThManagement | This feature will enable Shared memory management which is used for SFAPP/DSA feature . This will act as safe guard when memory is going beyond Critical threshold memory |
| Set Shared memory threshold values | enableShMemThresholdsValues | This loader will set the threshold values for Minor and Major threshold |
| Disable Shared Memory Handling | disableCriticalShMemThManagement | This will disable the Shared memory management which is used for SFAPP/DSA feature |
| Split feature | disableSplitFeature | This loader will disable Split feature |

Appendix A. VMWare vSphere Environment setup


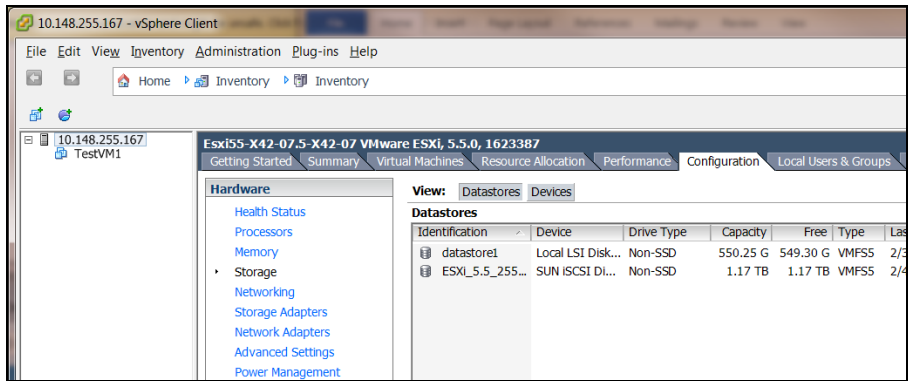
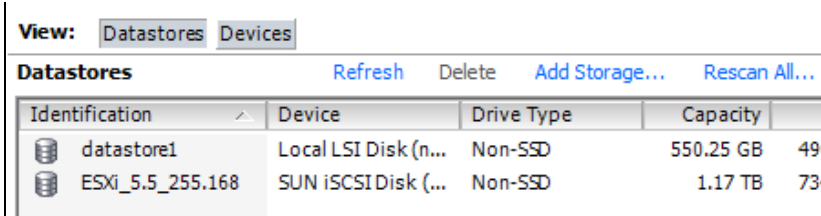
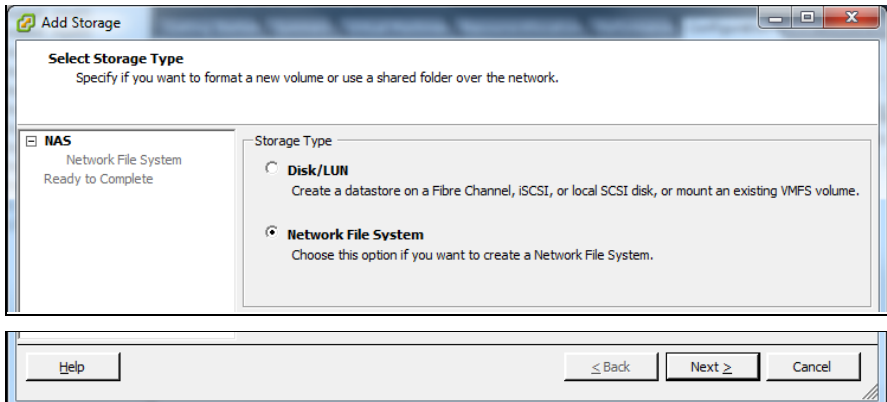
A.1 HOST DATASTORE CONFIGURATION USING VSPHERE

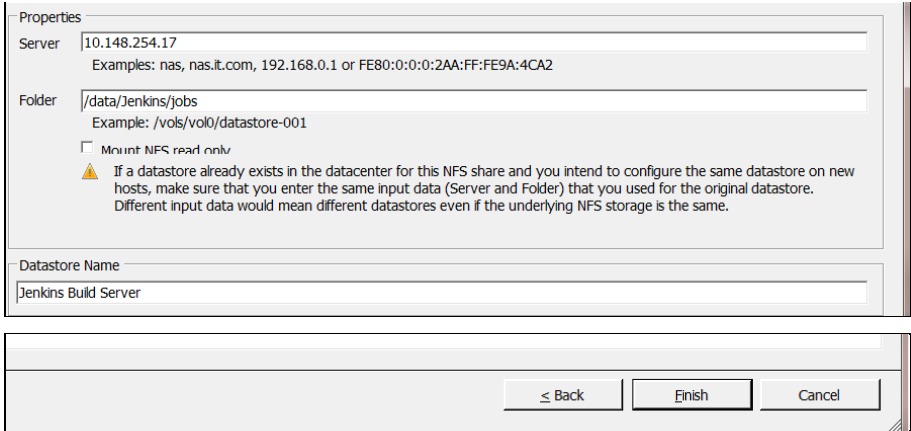
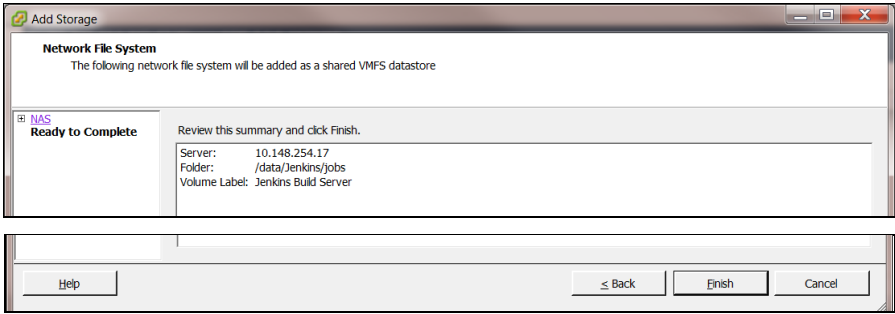
This procedure is performed to configure a datastore on the Host so that the appropriate storage is available for Oracle Communications User Data Repository component VMs. Steps and screenshots are taken from vSphere Client.

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

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

Procedure14: Host Datastore Configuration with vSphere

| Step | Procedure | Details |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> | Log into the VMware client |  |
| 2. <input type="checkbox"/> | 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 fields according to the resource availability in your VMware host environment 2. Click Next |  |
| 6. <input type="checkbox"/> | VMware client: 1. Review the Datastore summary 2. Click Finish |  |
| THIS PROCEDURE HAS BEEN COMPLETED | | |

A.2 HOST NETWORKING CONFIGURATION USING VSPHERE

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

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


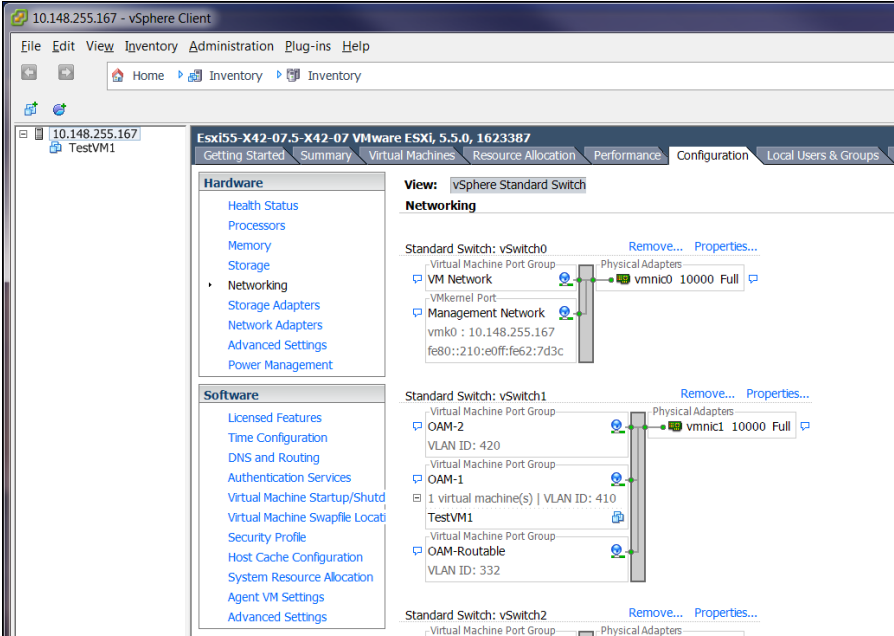
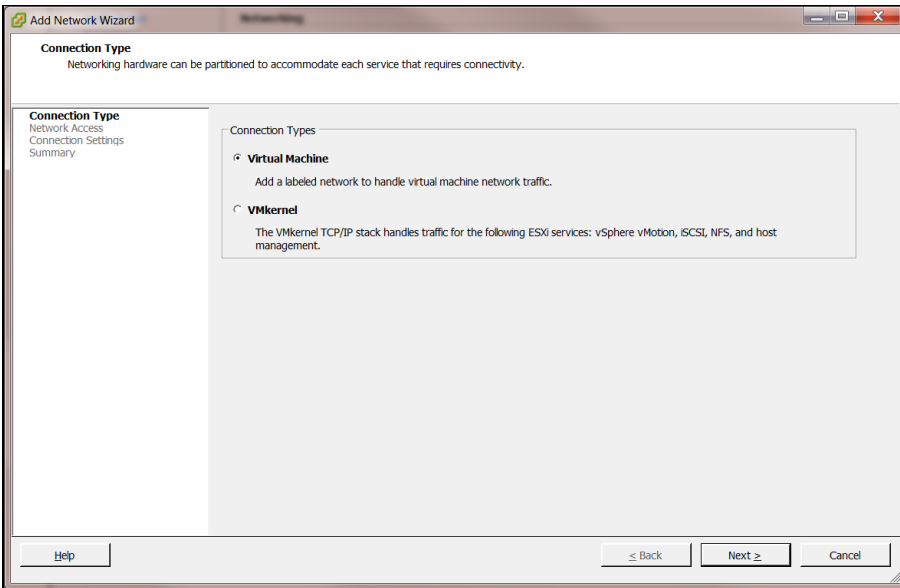
Oracle Communications User Data Repository VMs can be associated with up to 5 vLAN Networks. All 5 vNICs must be created and configured in order to be available for the Guest. The expected vNICs correspond to the following dedicated interfaces of the Oracle Communications User Data Repository and so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

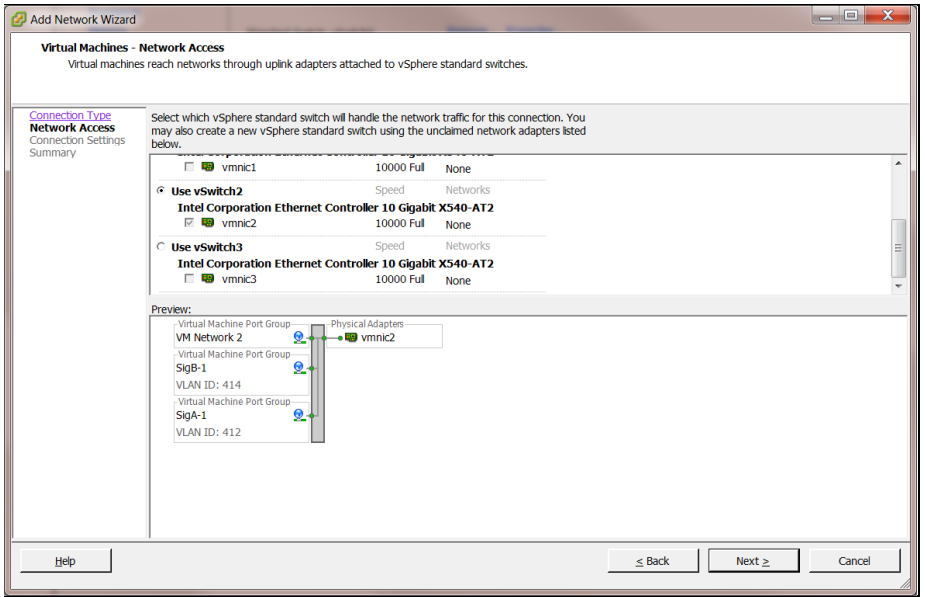
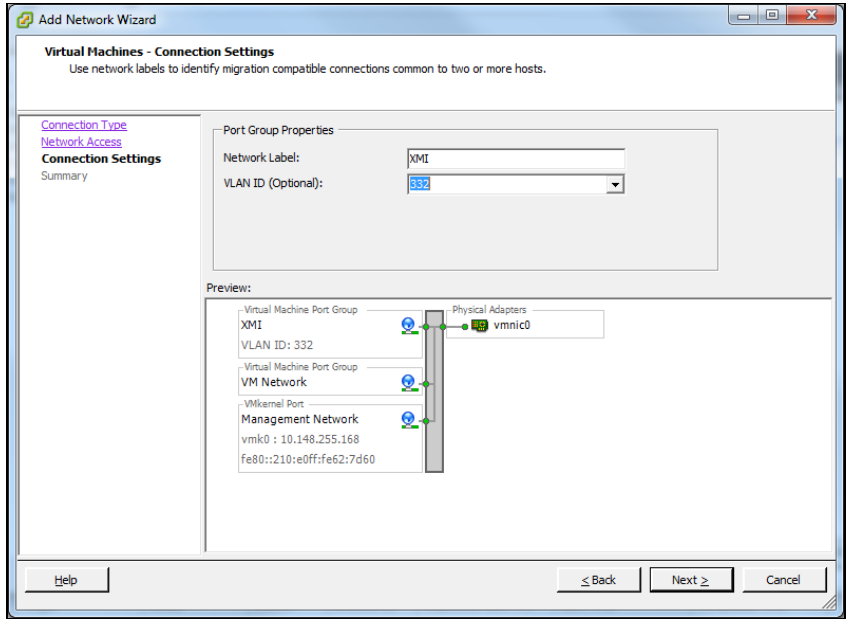
- XMI
OAM Management Interface for the application
- XSI1
Signaling Interface
- XSI2
Signaling Interface
- IMI
Replication Interface
- Guest Management
Reserved for Guest management activities.

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

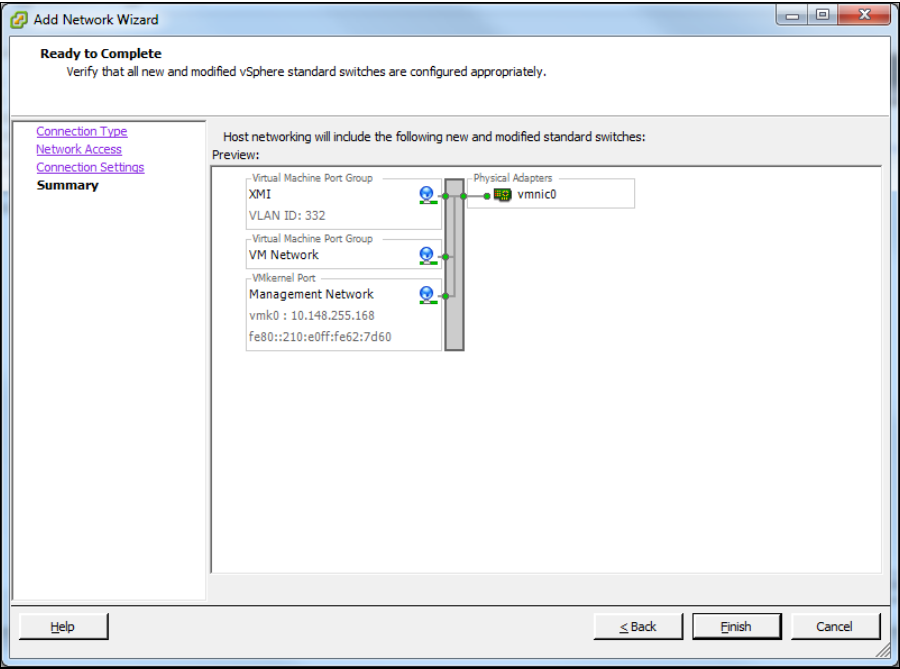
If this procedure fails, contact My Oracle Support, and ask for assistance.

Procedure15: Host Networking Configuration with vSphere

| Step | Procedure | Details |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 7. <input type="checkbox"/> | Log into the VMware client |  |
| 8. <input type="checkbox"/> | 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 |  <p>Add Network Wizard Virtual Machines - Network Access Virtual machines reach networks through uplink adapters attached to vSphere standard switches.</p> <p>Connection Type: Network Access Connection Settings: Connection Settings Summary:</p> <p>Select which vSphere standard switch will handle the network traffic for this connection. You may also create a new vSphere standard switch using the undrained network adapters listed below.</p> <table border="1"> <thead> <tr> <th>vmnic</th> <th>Speed</th> <th>Networks</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> vmnic1</td> <td>10000 Full</td> <td>None</td> </tr> <tr> <td><input checked="" type="radio"/> Use vSwitch2</td> <td>Intel Corporation Ethernet Controller 10 Gigabit X540-AT2</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> vmnic2</td> <td>10000 Full</td> <td>None</td> </tr> <tr> <td><input type="radio"/> Use vSwitch3</td> <td>Intel Corporation Ethernet Controller 10 Gigabit X540-AT2</td> <td></td> </tr> <tr> <td><input type="checkbox"/> vmnic3</td> <td>10000 Full</td> <td>None</td> </tr> </tbody> </table> <p>Preview:</p> <ul style="list-style-type: none"> - Virtual Machine Port Group: VM Network 2 - Virtual Machine Port Group: SigB-1 - Virtual Machine Port Group: SigA-1 - Physical Adapters: vmnic2 <p>Buttons: Help, < Back, Next >, Cancel</p> | vmnic | Speed | Networks | <input type="checkbox"/> vmnic1 | 10000 Full | None | <input checked="" type="radio"/> Use vSwitch2 | Intel Corporation Ethernet Controller 10 Gigabit X540-AT2 | | <input checked="" type="checkbox"/> vmnic2 | 10000 Full | None | <input type="radio"/> Use vSwitch3 | Intel Corporation Ethernet Controller 10 Gigabit X540-AT2 | | <input type="checkbox"/> vmnic3 | 10000 Full | None |
| vmnic | Speed | Networks | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> vmnic1 | 10000 Full | None | | | | | | | | | | | | | | | | | | |
| <input checked="" type="radio"/> Use vSwitch2 | Intel Corporation Ethernet Controller 10 Gigabit X540-AT2 | | | | | | | | | | | | | | | | | | | |
| <input checked="" type="checkbox"/> vmnic2 | 10000 Full | None | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> Use vSwitch3 | Intel Corporation Ethernet Controller 10 Gigabit X540-AT2 | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> vmnic3 | 10000 Full | None | | | | | | | | | | | | | | | | | | |
| 11. <input type="checkbox"/> | VMware client: Label the Network, enter its VLAN ID, click Next |  <p>Add Network Wizard Virtual Machines - Connection Settings Use network labels to identify migration compatible connections common to two or more hosts.</p> <p>Connection Type: Network Access Connection Settings: Connection Settings Summary:</p> <p>Port Group Properties</p> <p>Network Label: XMI VLAN ID (Optional): 332</p> <p>Preview:</p> <ul style="list-style-type: none"> - Virtual Machine Port Group: XMI - Virtual Machine Port Group: VM Network - VMkernel Port: Management Network - Physical Adapters: vmnic0 <p>Buttons: Help, < Back, Next >, Cancel</p> | | | | | | | | | | | | | | | | | | |

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

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

Appendix B. VMware vSphere Oracle Communications User Data Repository Deployment

B.1 CREATE GUESTS FROM OVA


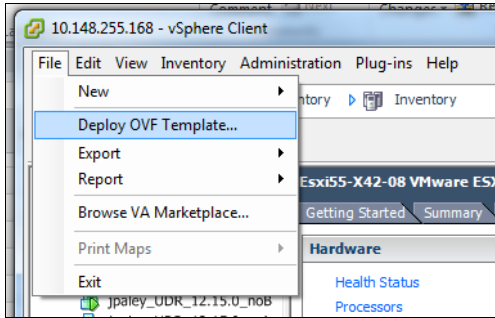
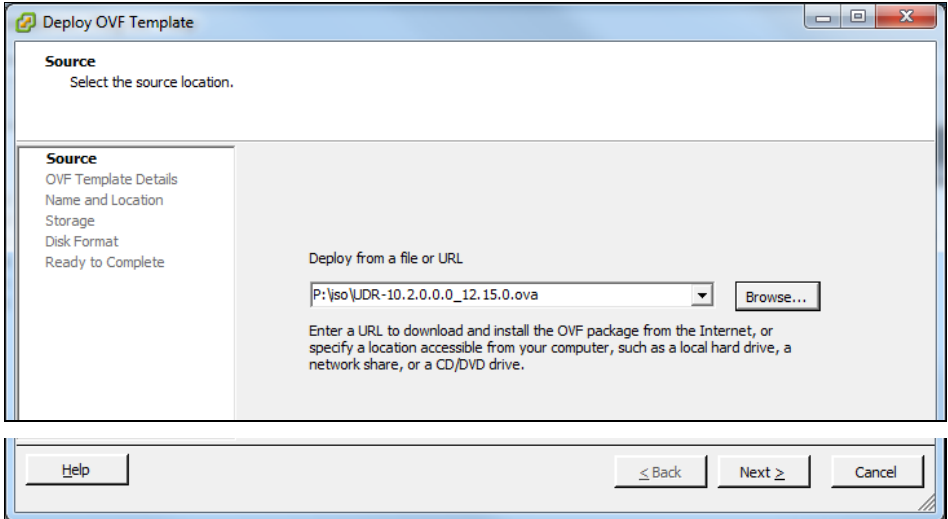
This procedure creates Oracle Communications User Data Repository virtual machines (guests) from OVA.

Needed material:

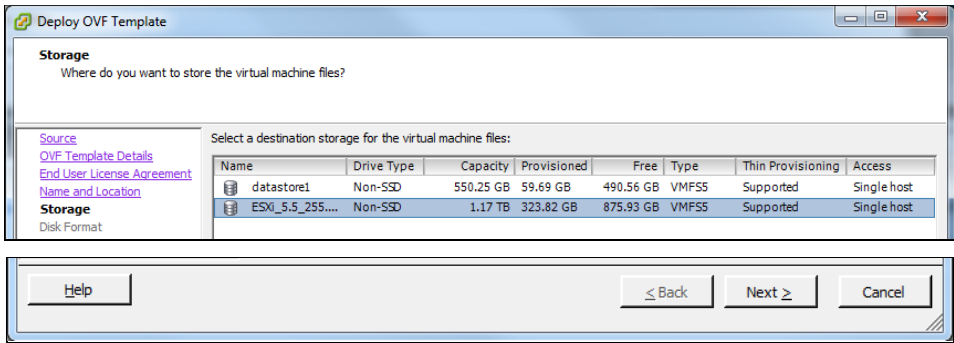
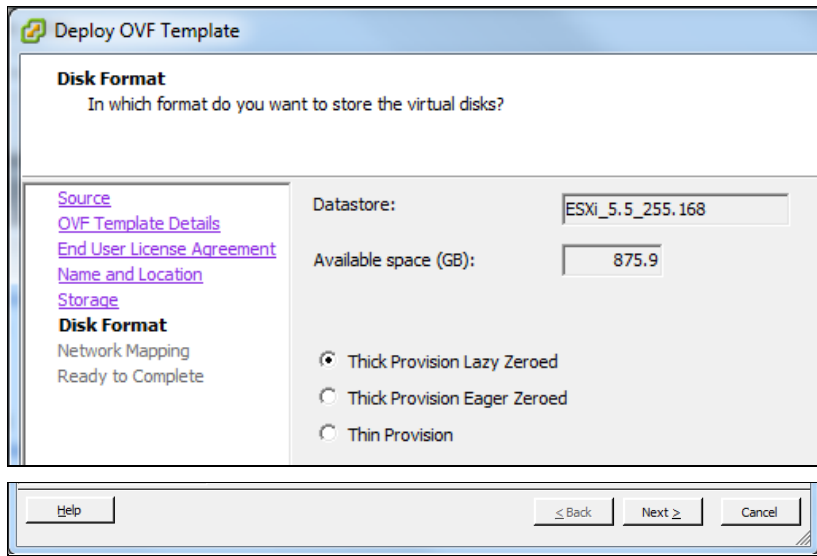
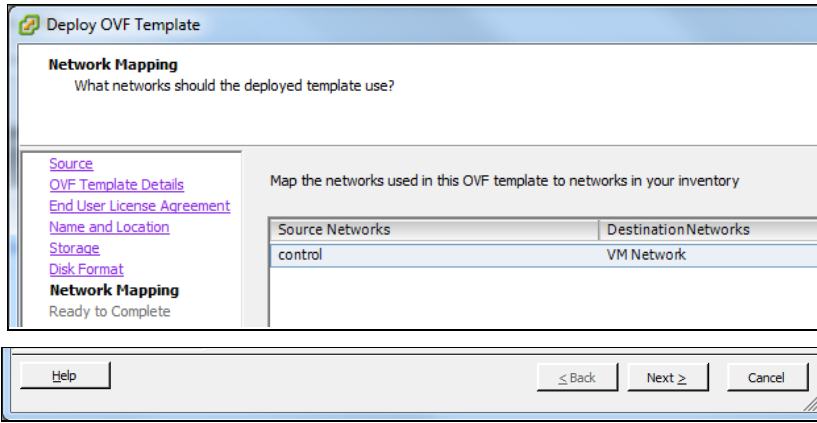
- Oracle Communications User Data Repository OVA

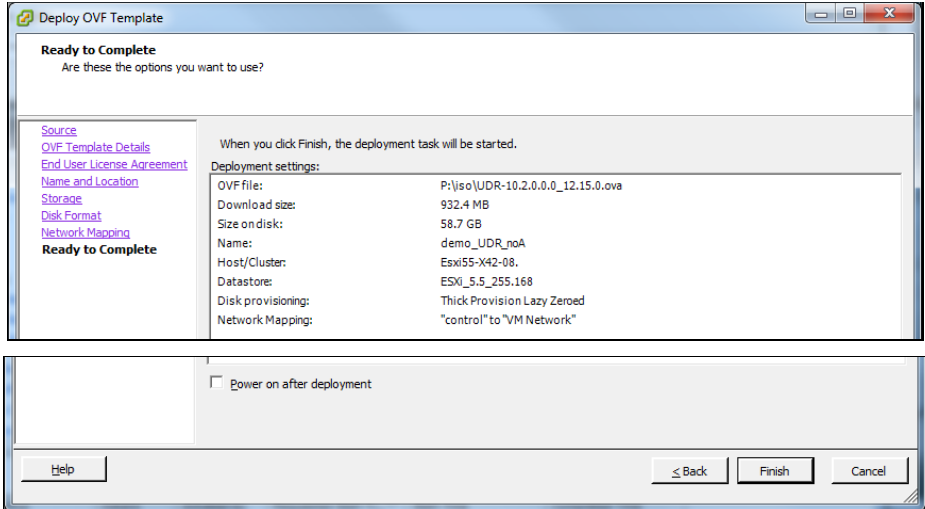
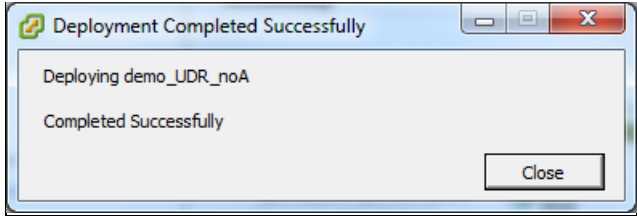
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

Procedure16: Deploy Oracle Communications User Data Repository OVA

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

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

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


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

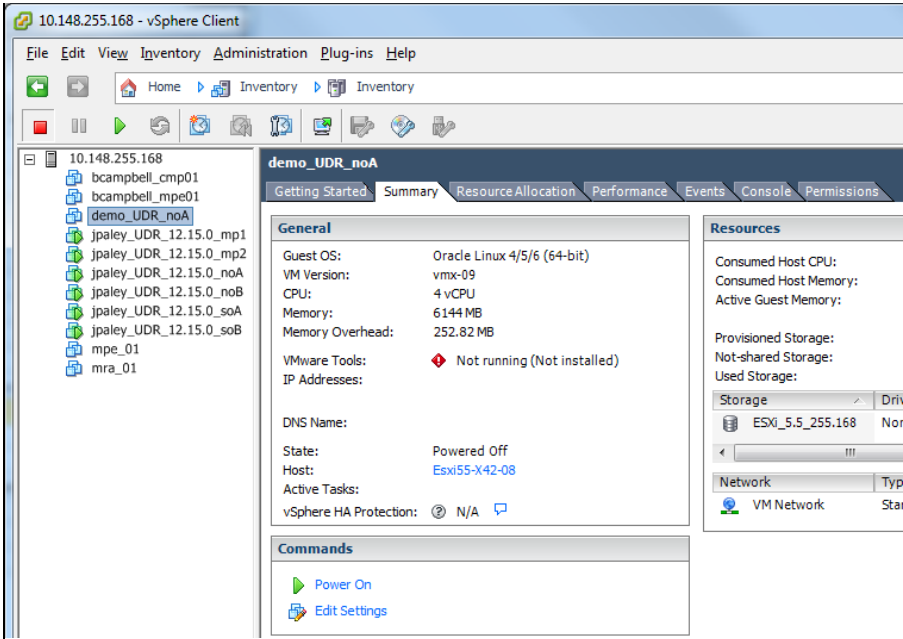
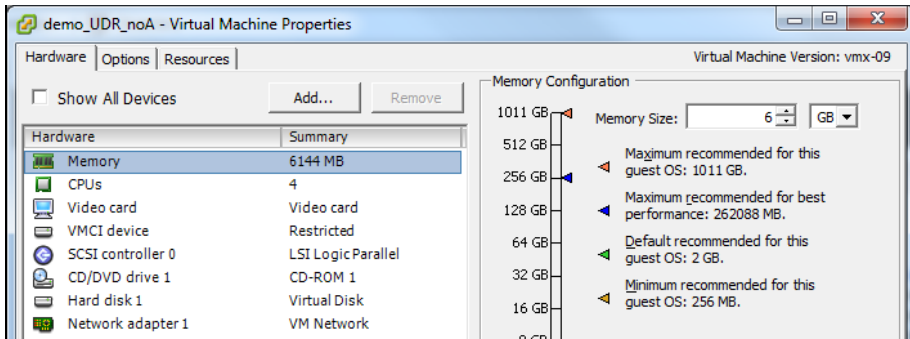
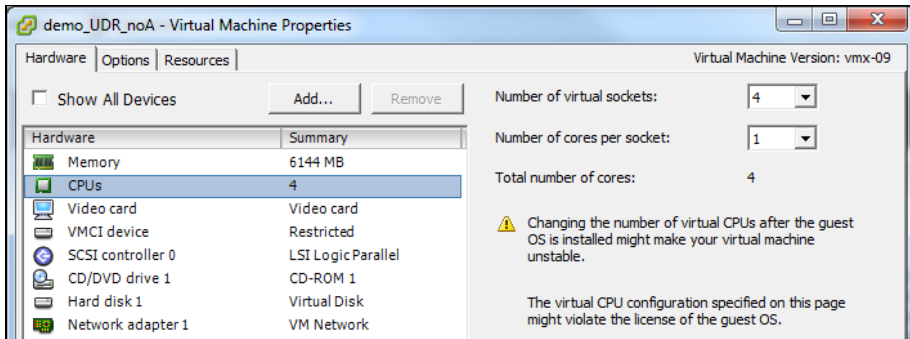
B.2 CONFIGURE GUEST RESOURCES

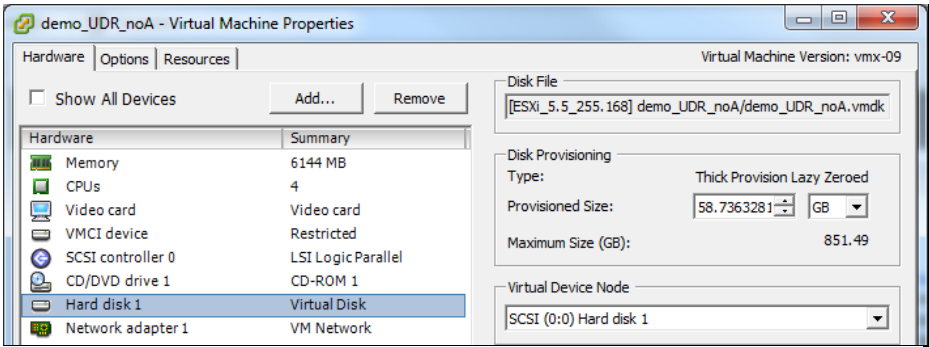
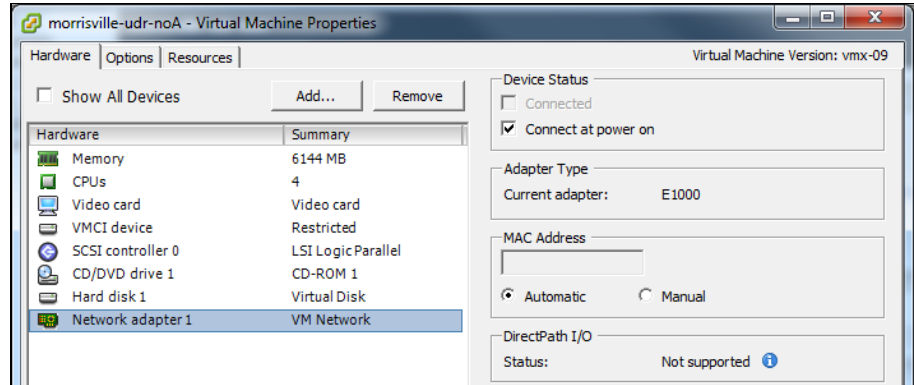
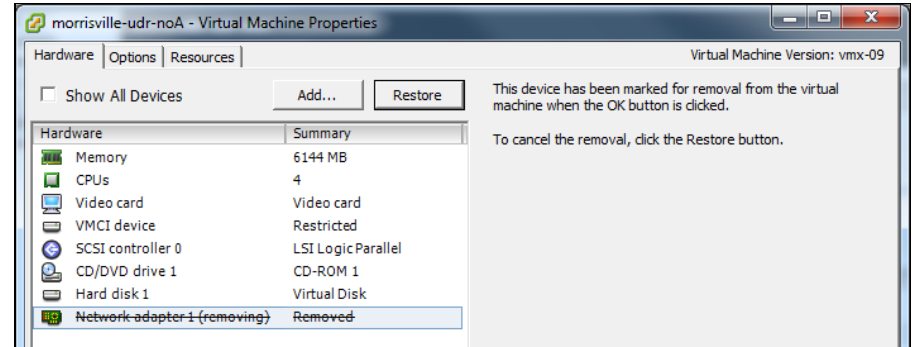
This procedure configures the required resource allocations and associations for Oracle Communications User Data Repository virtual machines (guests) and power them on.

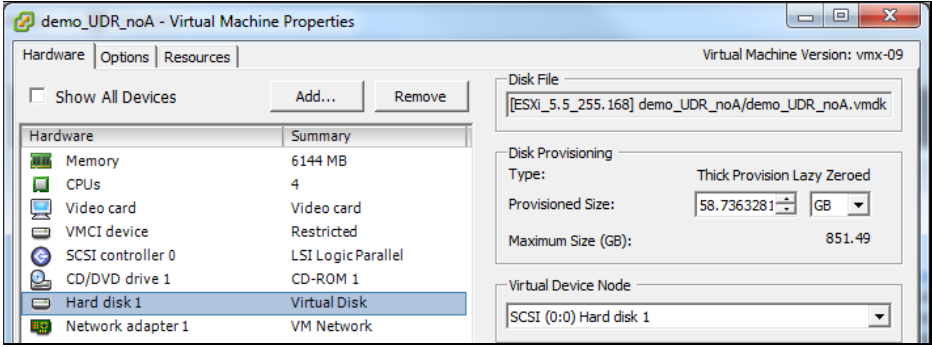
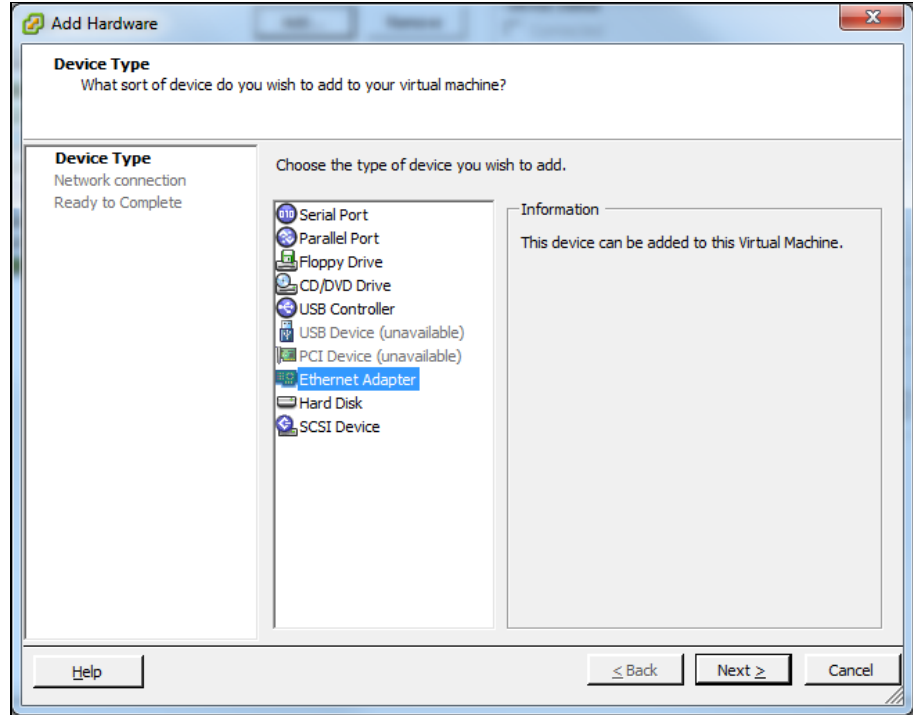
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

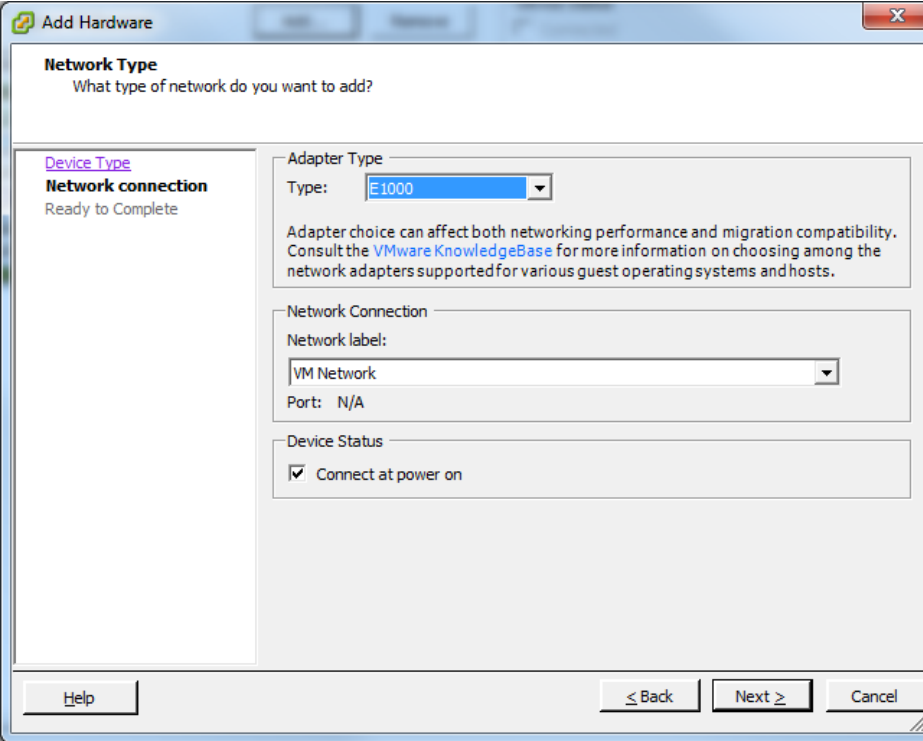
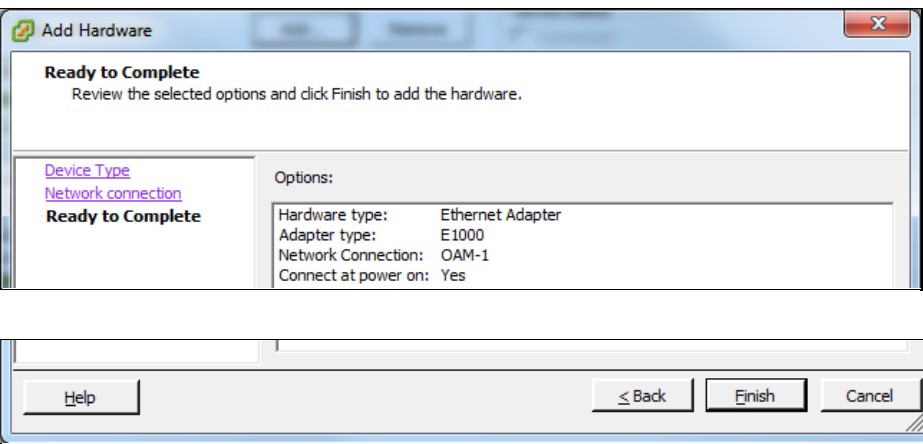
Procedure17: Configure Guest Resources

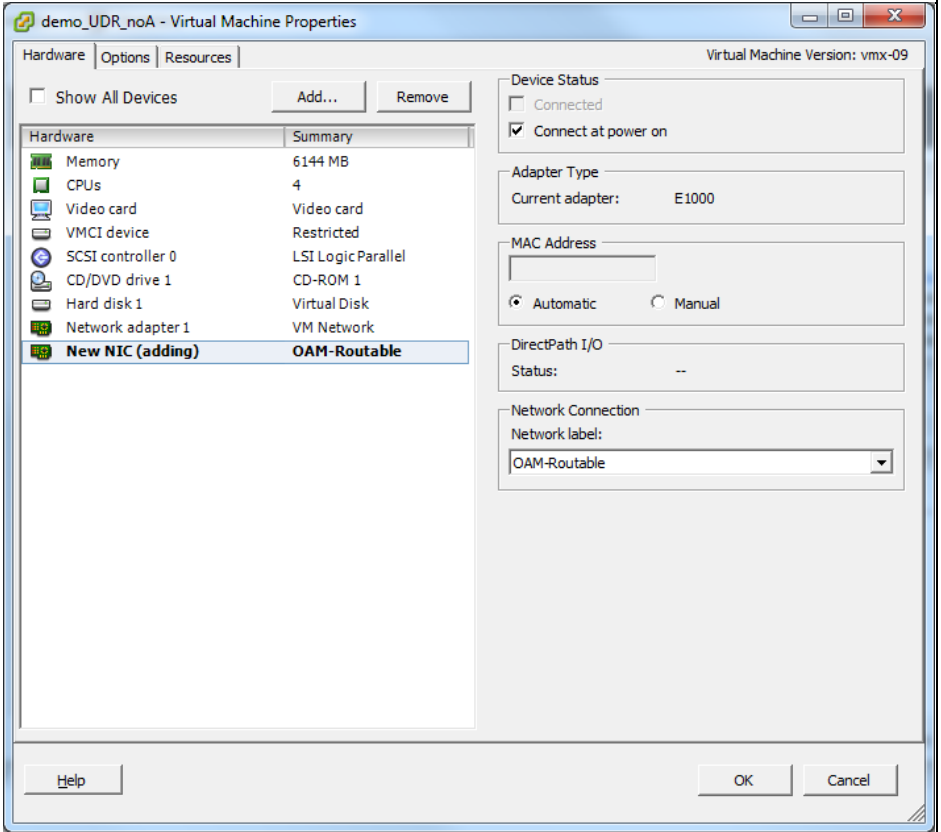
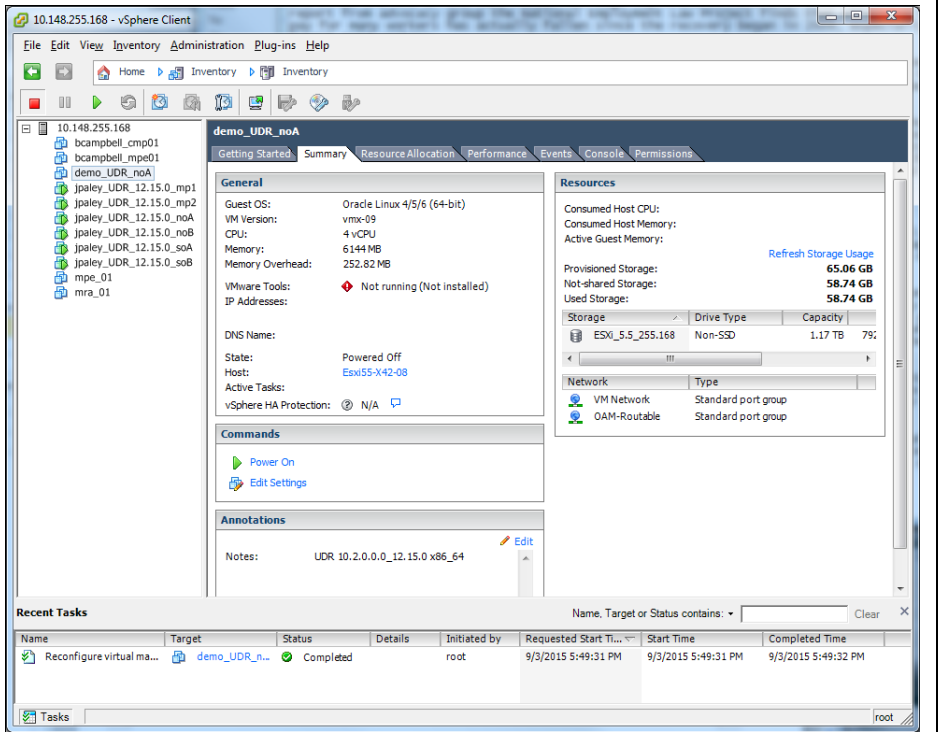
| Step | Procedure | Result |
|-----------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> | VMware client: Log into the Vmware client |  |

| Step | Procedure | Result |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 2. <input type="checkbox"/> | VMware client: <ol style="list-style-type: none"> 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: <p>Select Memory from the Hardware menu and adjust Memory Size for the role of the server.</p> <p>UDR: 48 GB</p> |  |
| 4. <input type="checkbox"/> | VMware client: <p>Select CPUs from the Hardware menu and adjust the Number of virtual sockets according to [1].</p> |  |

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

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

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


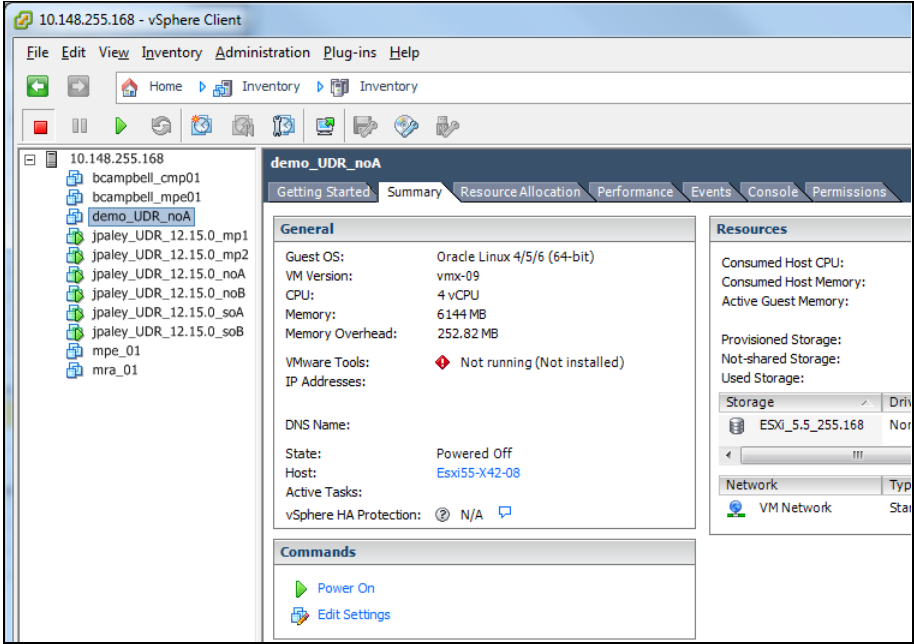
| Step | Procedure | Result |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|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

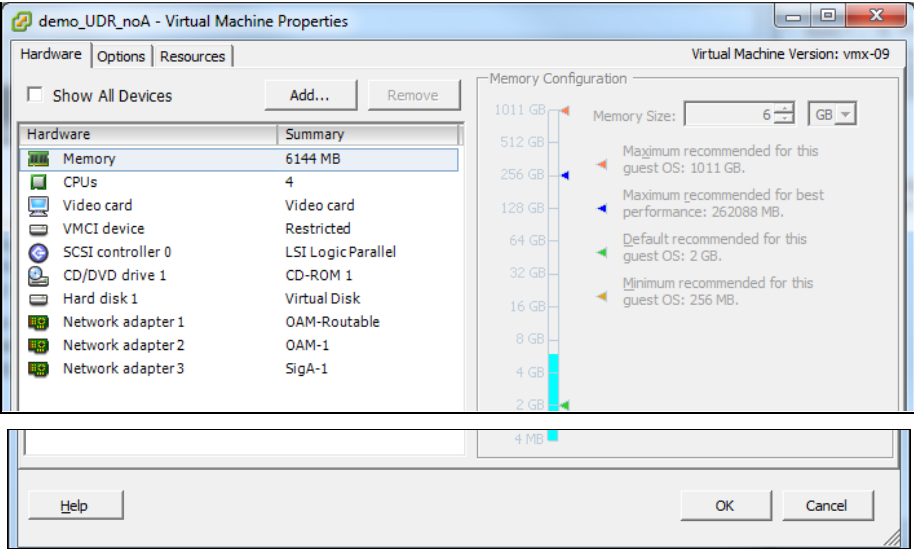
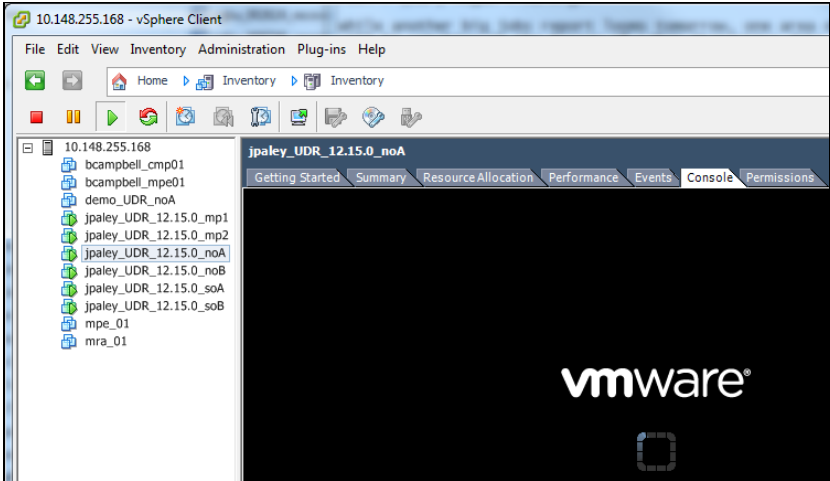
B.3 CONFIGURE GUEST NETWORK

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

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

Procedure18: Configure Guest OAM Network

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

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

Needed material:


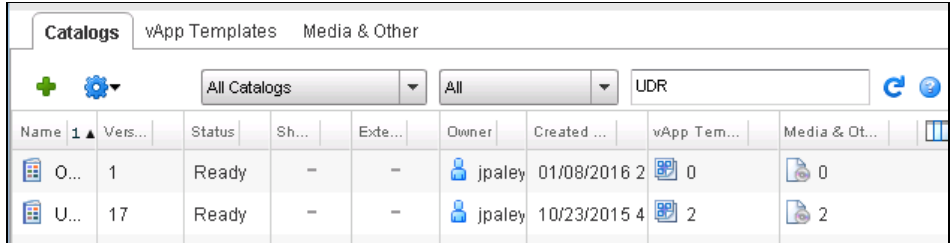
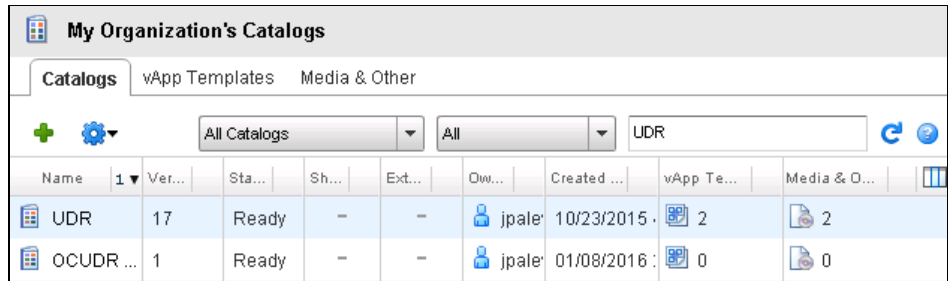
- Oracle Communications User Data Repository OVA

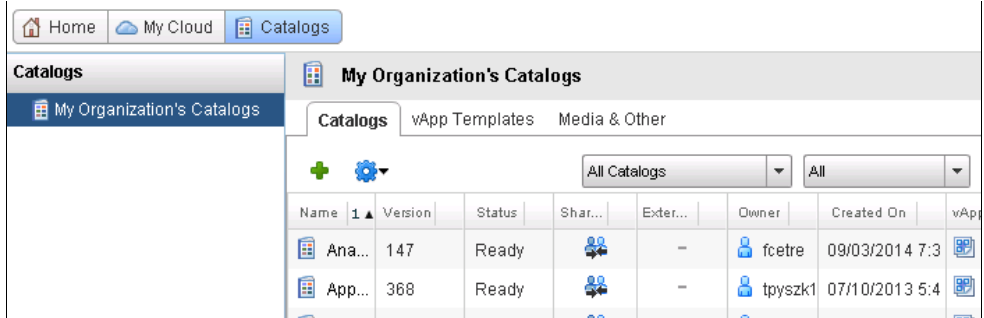
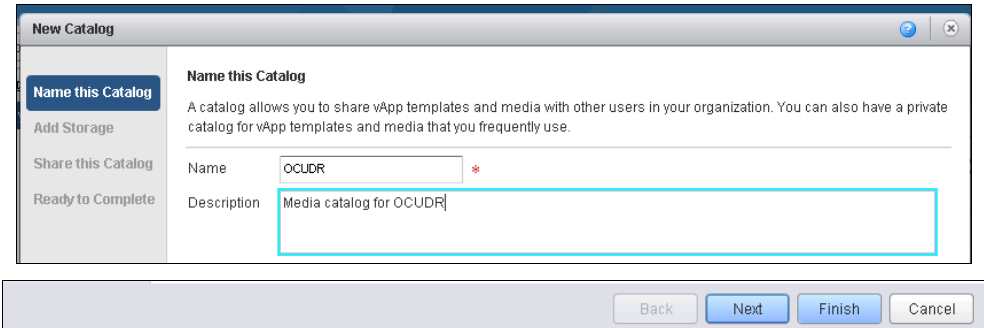

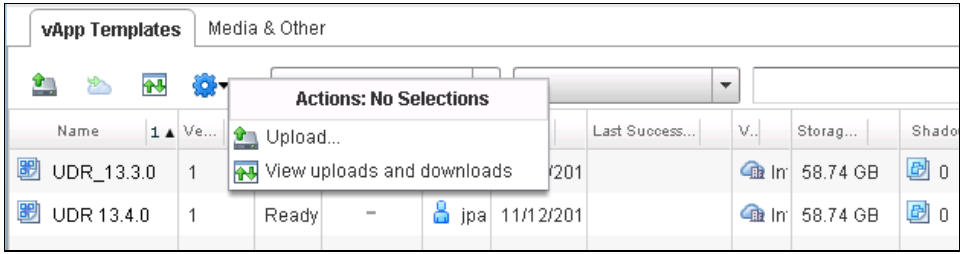
Optional material (required for ISO install only):

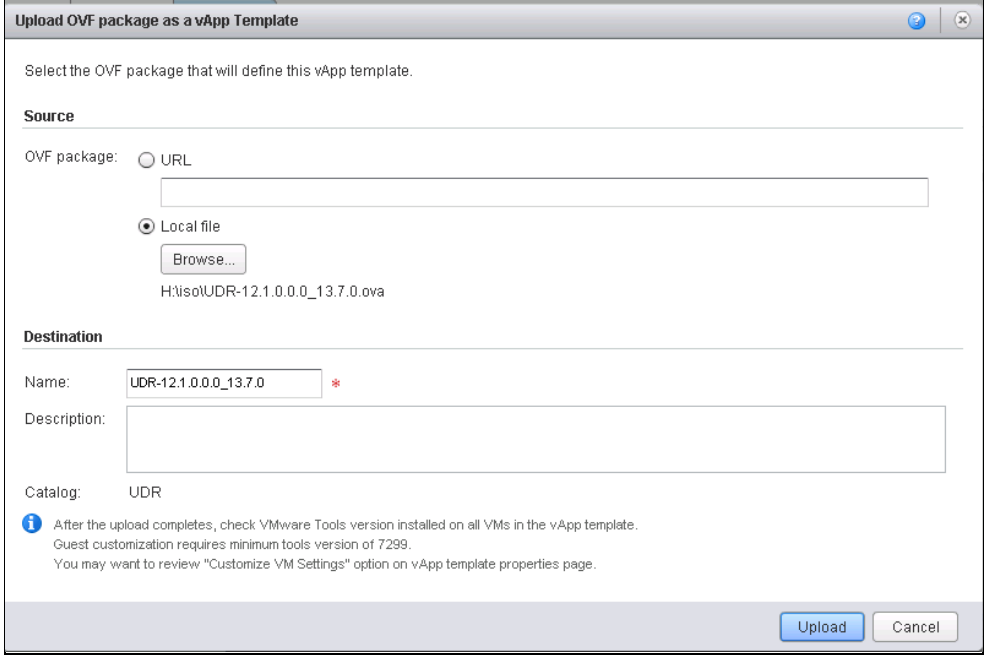
- Oracle Communications User Data Repository ISO
- TPD Platform ISO

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

Procedure19: vCloud Director Oracle Communications User Data Repository Media Upload

| Step | Procedure | Result |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> | Log into the VMware vCloud Director |  |
| 2. <input type="checkbox"/> | vCloud Director: Enter Oracle Communications User Data Repository catalog name in the search field and hit Enter. |  |
| 3. <input type="checkbox"/> | vCloud Director: Click the name for the appropriate catalog and proceed to Step 6 |  <p>NOTE: If a catalog for Oracle Communications User Data Repository does not exist, create one using steps 4 and 5.</p> |

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


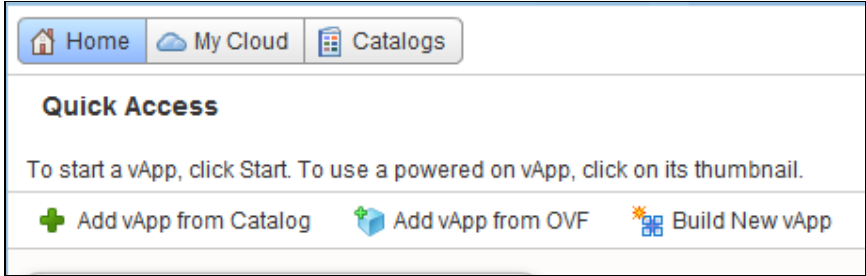
| Step | Procedure | Result |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------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

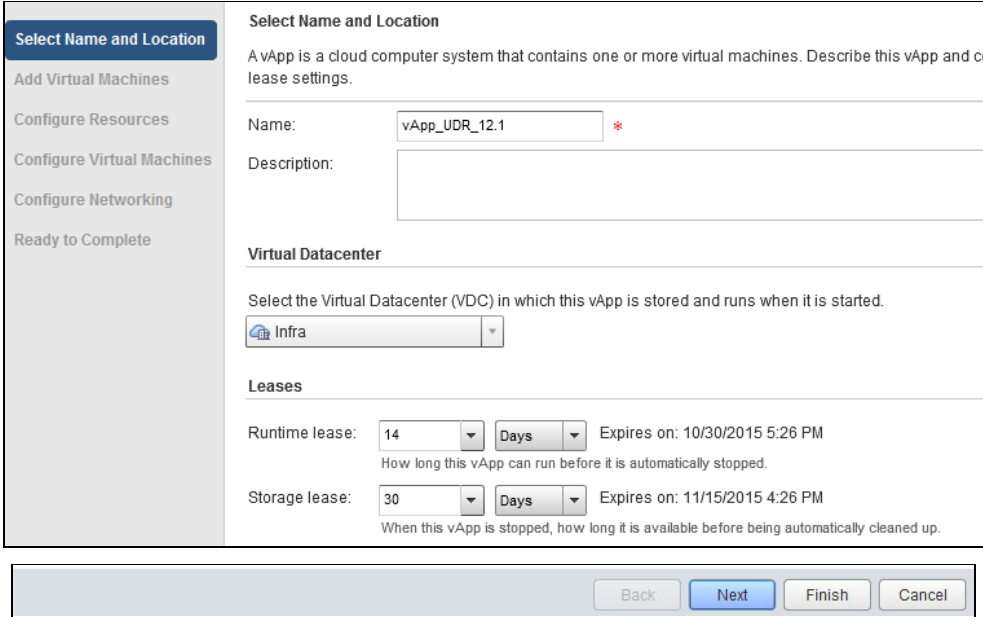
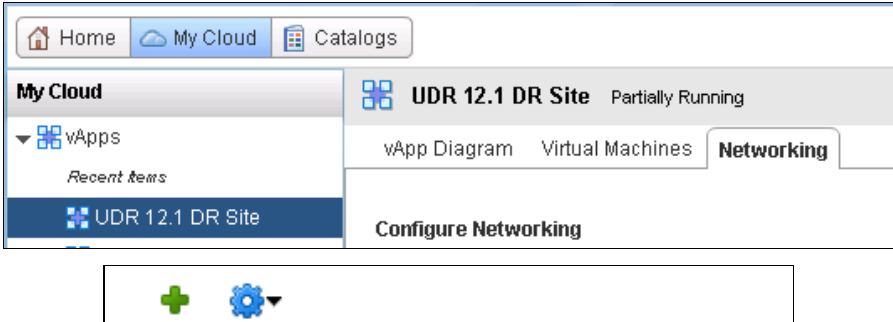
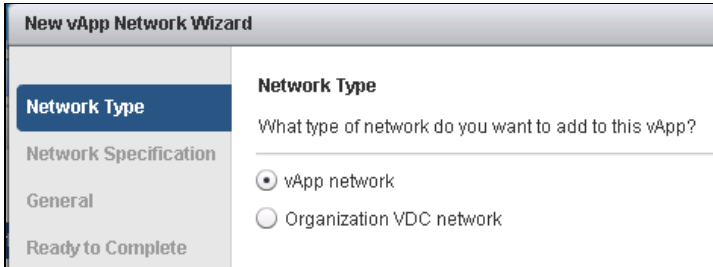
C.2 CREATE VAPP

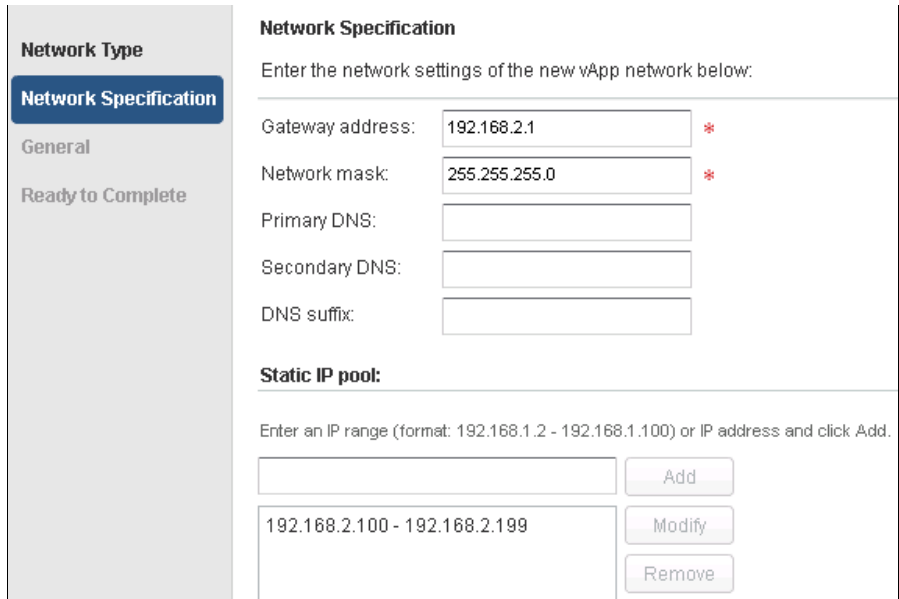
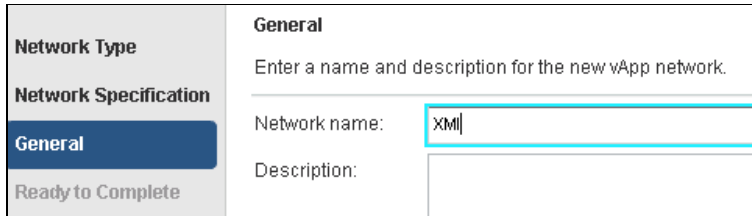
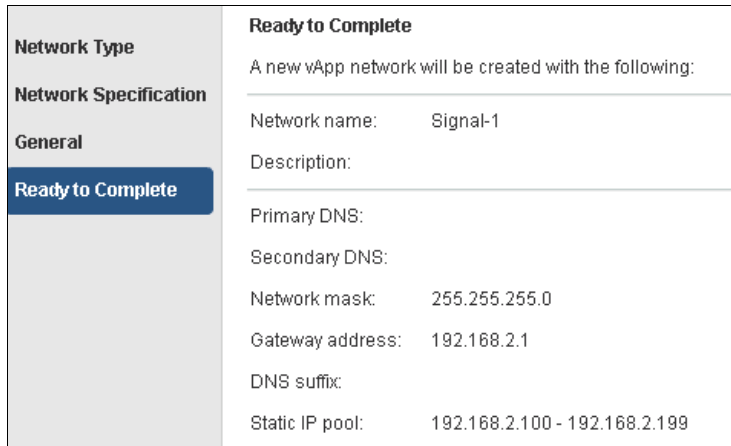
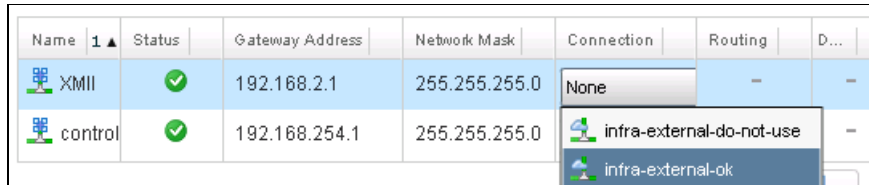
This procedure creates and configure a vApp virtual appliance.


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

Procedure20: Create vApp

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

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

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

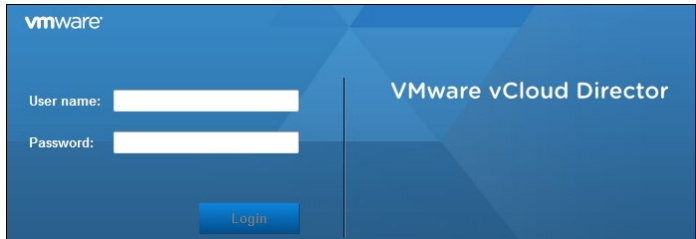
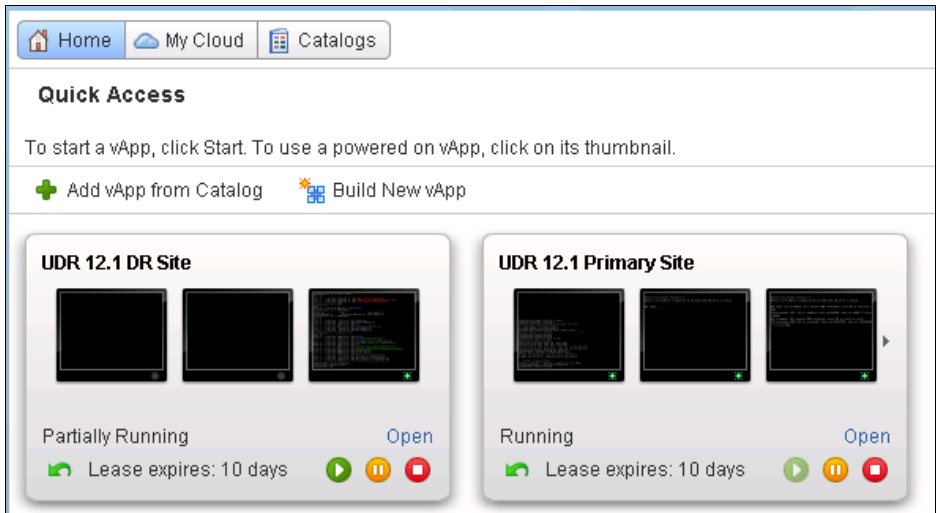
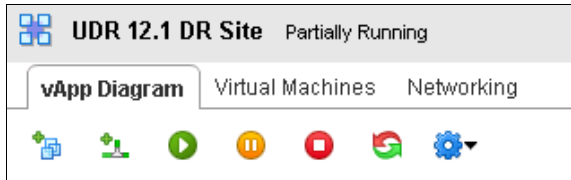
| Step | Procedure | Result |
|------------------------------------------|-------------------------------------------------|------------------------------------------------------------------------------------|
| 10. <input type="checkbox"/> | vCloud Director: Click Apply . |  |
| THIS PROCEDURE HAS BEEN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

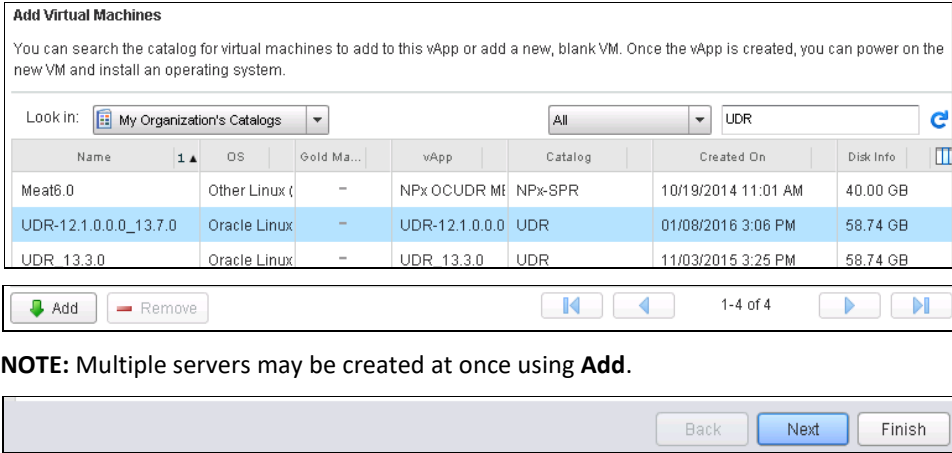
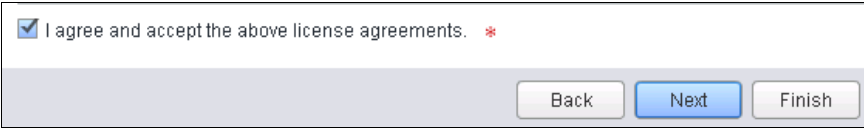

C.3 CREATE GUESTS FROM OVA

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

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

Procedure21: Create Guests from OVA with vCloud Director

| Step | Procedure | Result |
|-----------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> | Log into the VMware vCloud Director |  |
| 2. <input type="checkbox"/> | vCloud Director: Click Open for the Oracle Communications User Data Repository vApp |  <p>NOTE: Current vApps are listed on the Home Page. If a new vApp is required continue with the next step.</p> |
| 3. <input type="checkbox"/> | vCloud Director: Select icon on left to Add VM |  |

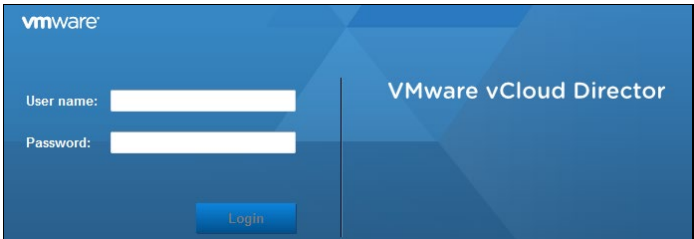
| Step | Procedure | Result |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------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


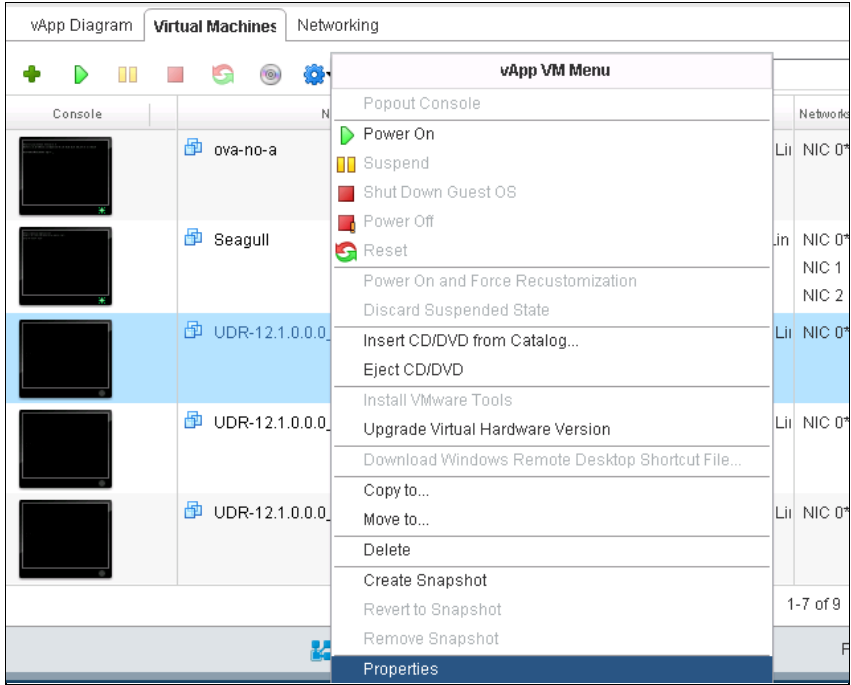
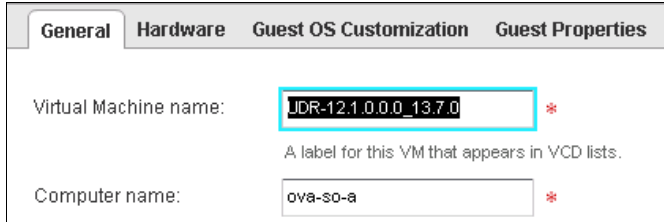
C.4 CONFIGURE GUEST RESOURCES

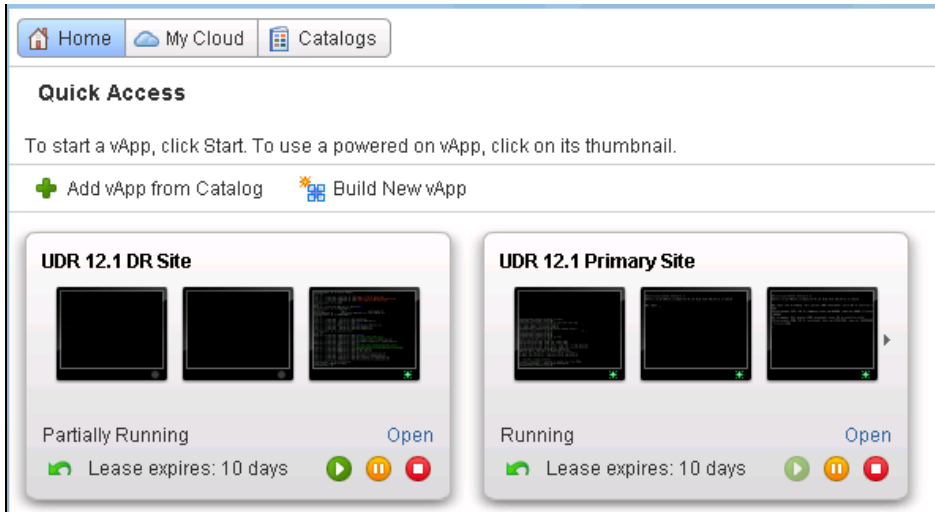

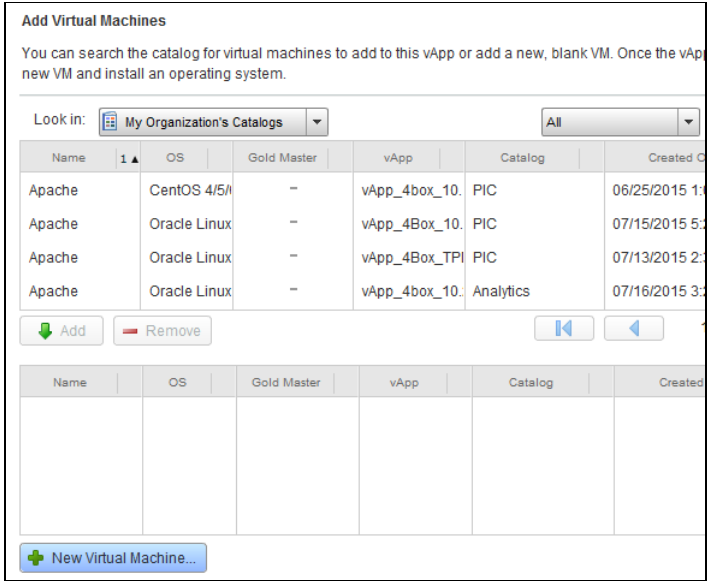
This procedure configures Oracle Communications User Data Repository virtual machines (guests) which have been created from OVA.

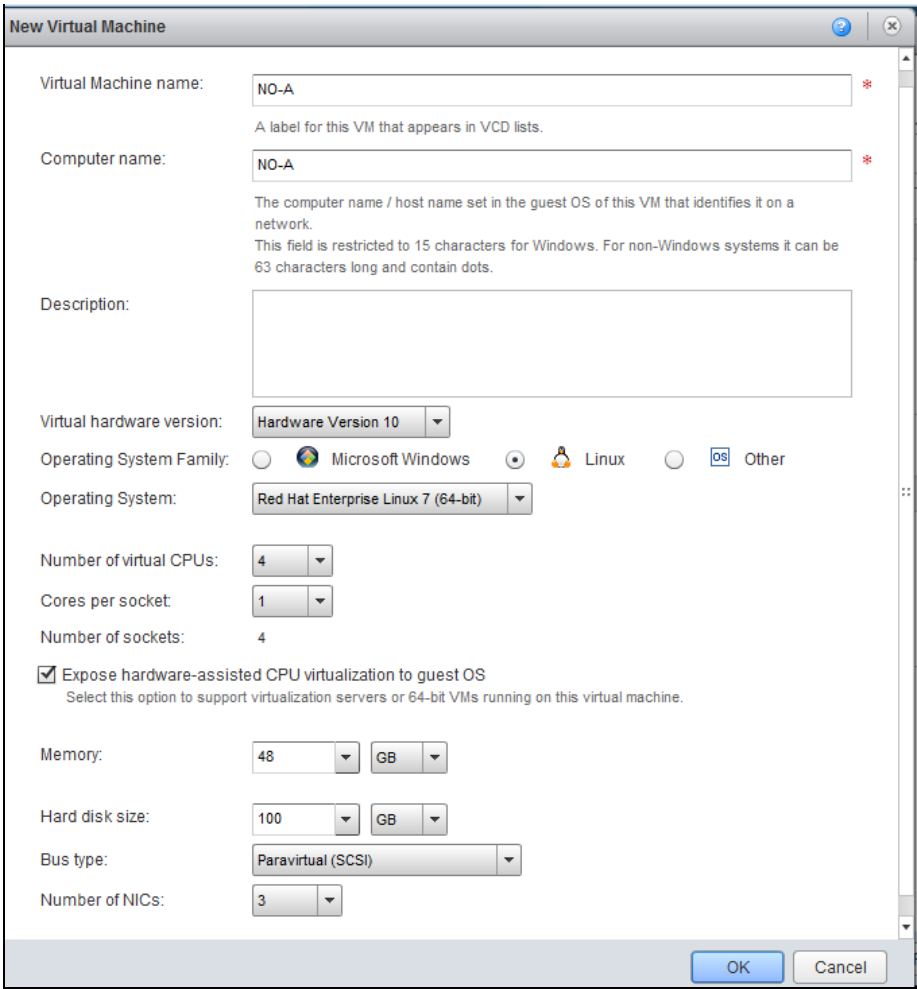
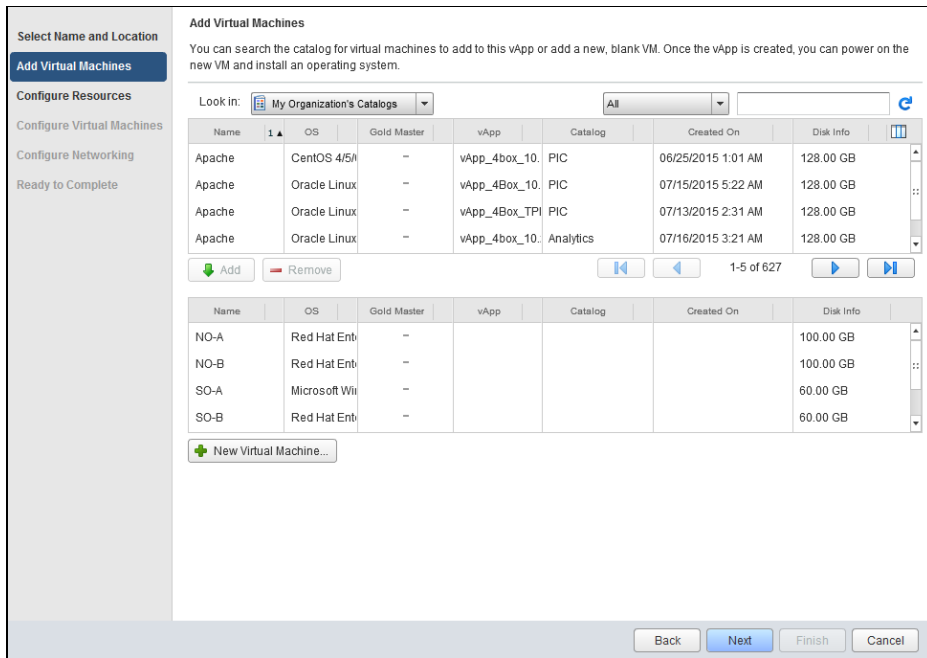
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

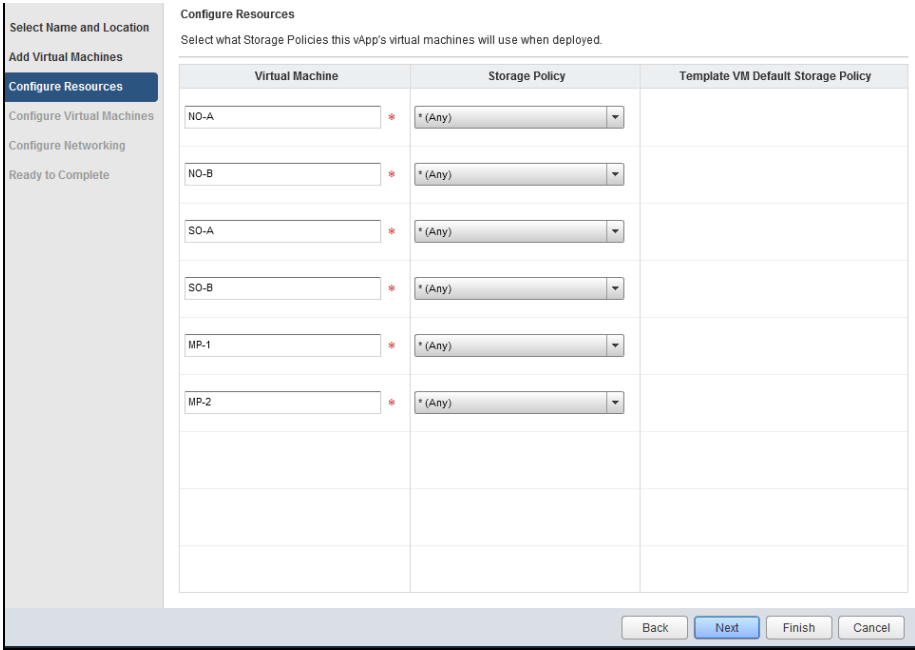
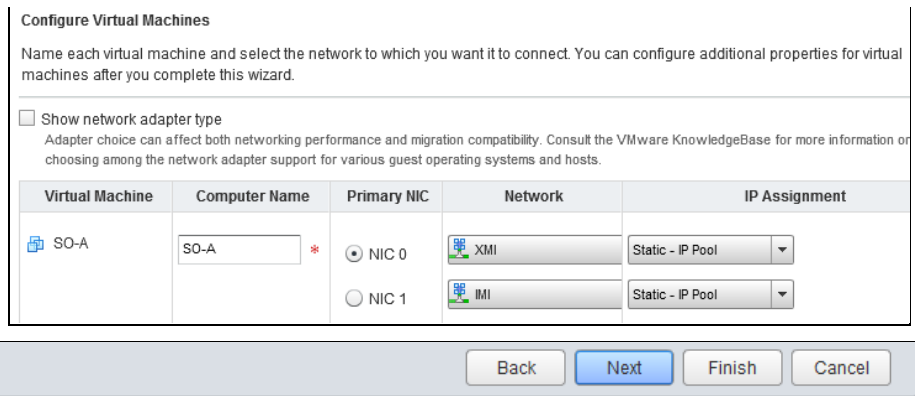
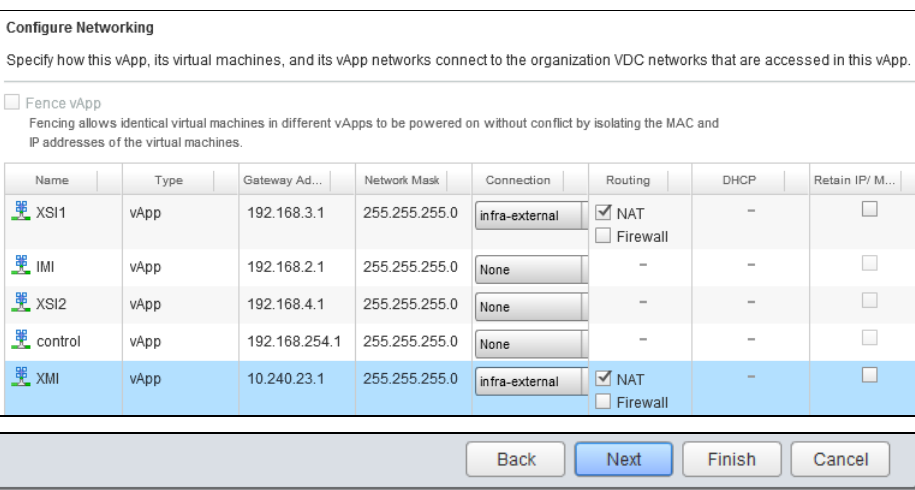
Procedure22: Configure Guests from OVA with vCloud Director

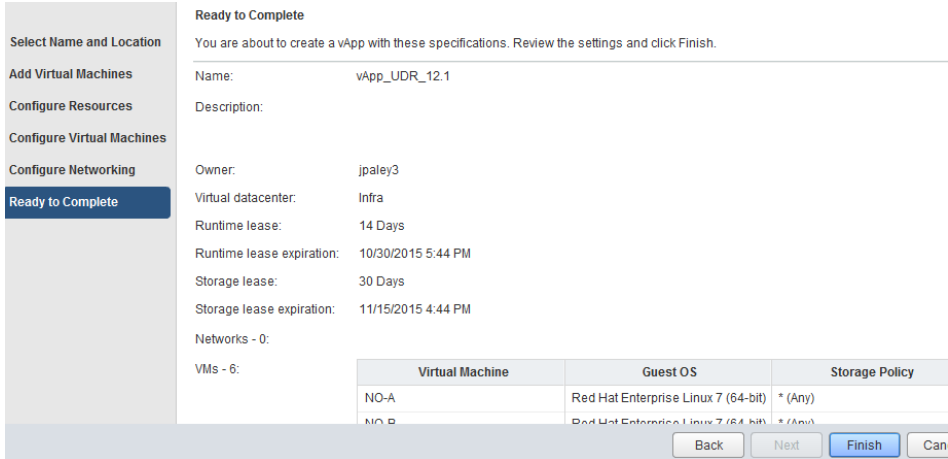
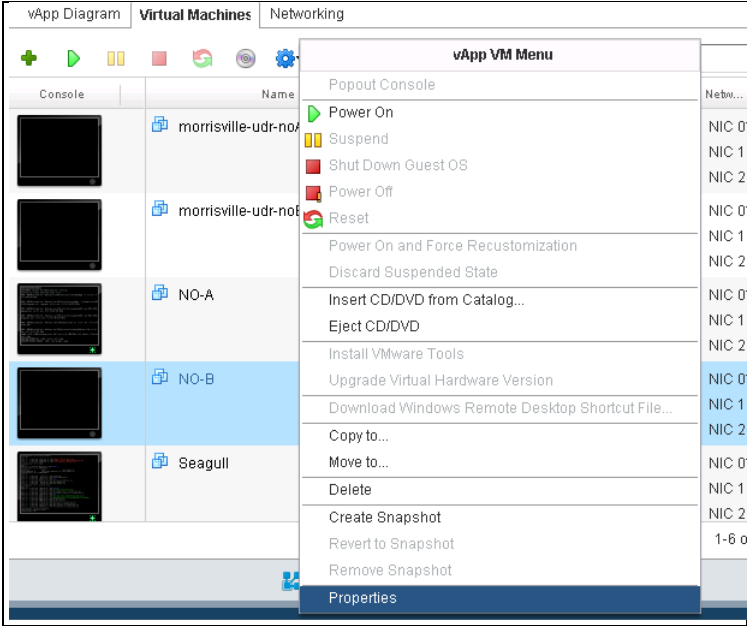
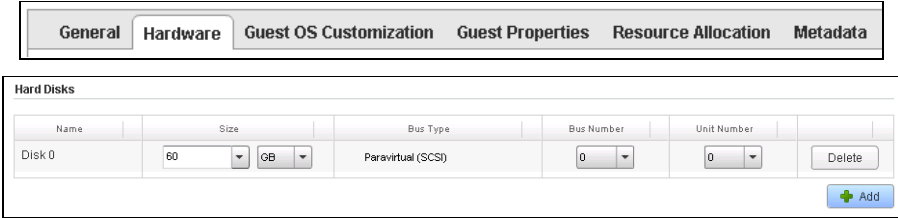
| Step | Procedure | Result |
|-----------------------------|-------------------------------------|--------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> | Log into the VMware vCloud Director |  |

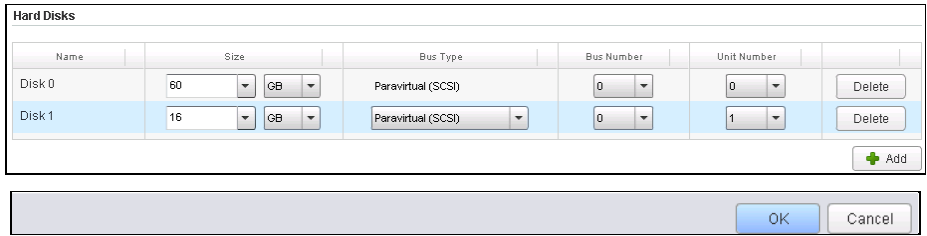
| Step | Procedure | Result |
|-----------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2. <input type="checkbox"/> | vCloud Director: Navigate to My Cloud → Virtual Machines |  The screenshot shows the vCloud Director web interface. At the top, there are tabs for 'Home', 'My Cloud', and 'Catalogs'. Below 'My Cloud', there's a 'vApps' section with a 'Recent Items' list. To the right, a summary for 'UDR 12.1 DR Site' shows it is 'Partially Running'. Below this, there are three tabs: 'vApp Diagram', 'Virtual Machines' (which is selected), and 'Networking'. |
| 3. <input type="checkbox"/> | vCloud Director: 1. Select the VM. 2. Click the Blue Gear icon. 3. Select Properties . |  The screenshot shows the 'Virtual Machines' tab in vCloud Director. A list of VMs is displayed, including 'ova-no-a', 'Seagull', and several 'UDR-12.1.0.0.0' instances. The 'UDR-12.1.0.0.0' VM is selected, and a context menu (vApp VM Menu) is open over it. The menu includes options like 'Power On', 'Suspend', 'Shut Down Guest OS', 'Power Off', 'Reset', 'Power On and Force Recustomization', 'Discard Suspended State', 'Insert CD/DVD from Catalog...', 'Eject CD/DVD', 'Install VMware Tools', 'Upgrade Virtual Hardware Version', 'Download Windows Remote Desktop Shortcut File...', 'Copy to...', 'Move to...', 'Delete', 'Create Snapshot', 'Revert to Snapshot', 'Remove Snapshot', and 'Properties' (which is highlighted at the bottom). |
| 4. <input type="checkbox"/> | vCloud Director: Under the General tab, adjust Virtual Machine and Computer names. |  The screenshot shows the 'General' tab of the VM properties dialog. It has four sub-tabs: 'General', 'Hardware', 'Guest OS Customization', and 'Guest Properties'. The 'General' sub-tab is active. It contains two text input fields: 'Virtual Machine name:' with the value 'UDR-12.1.0.0.0_1370' and a red asterisk indicating a required field; and 'Computer name:' with the value 'ova-so-a' and a red asterisk. A note below the first field states: 'A label for this VM that appears in VCD lists.' |

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

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

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

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

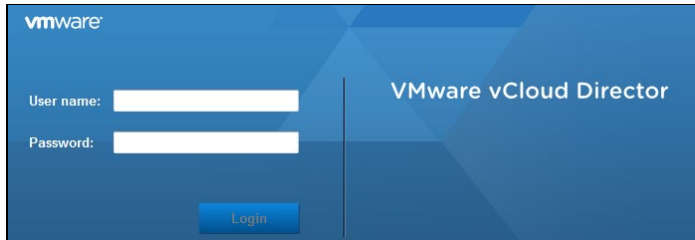
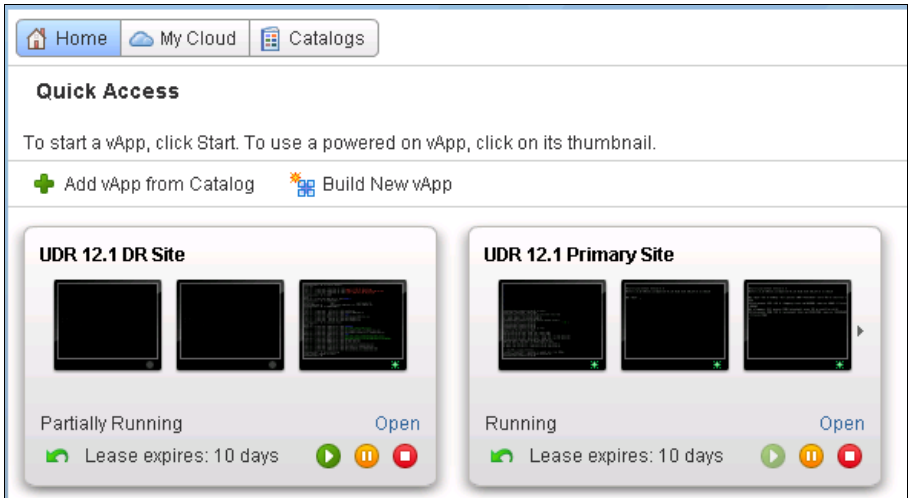

| Step | Procedure | Result |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|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

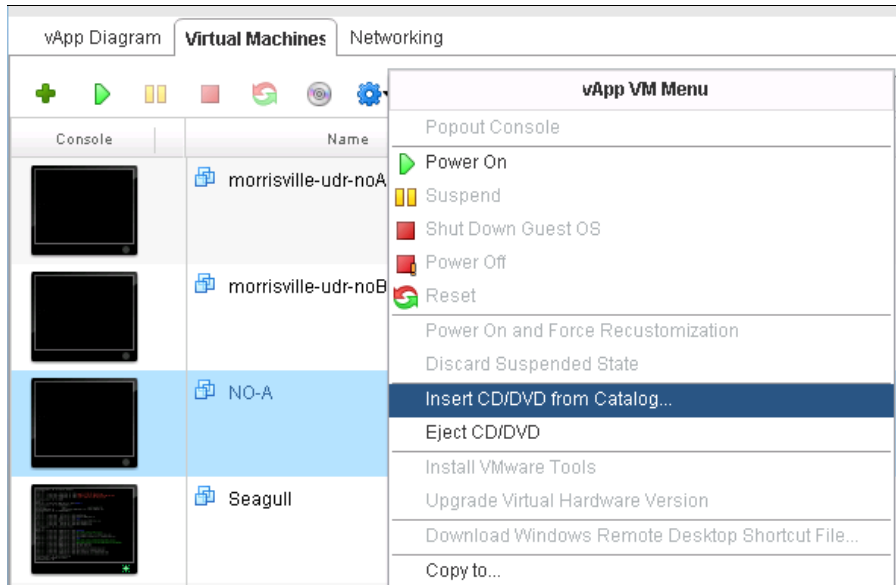
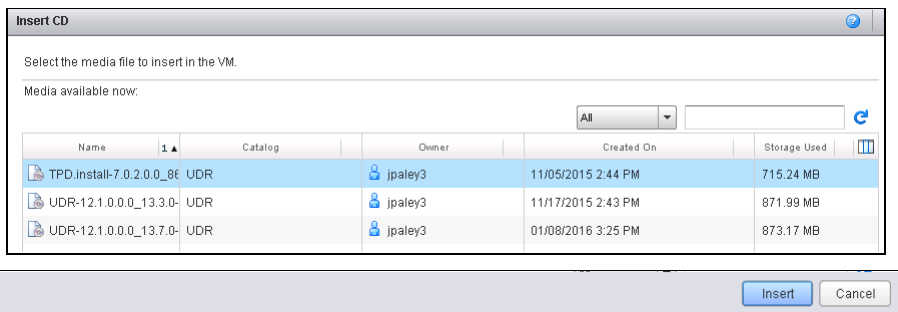
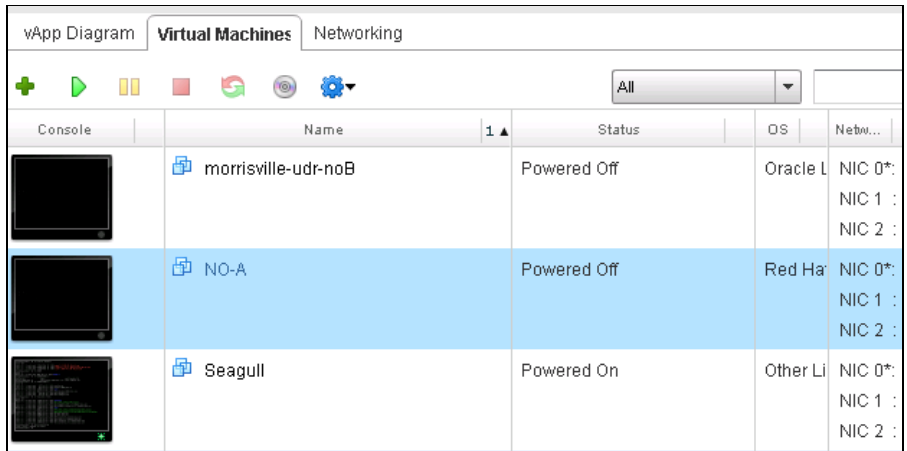
C.6 INSTALL GUESTS FROM ISO

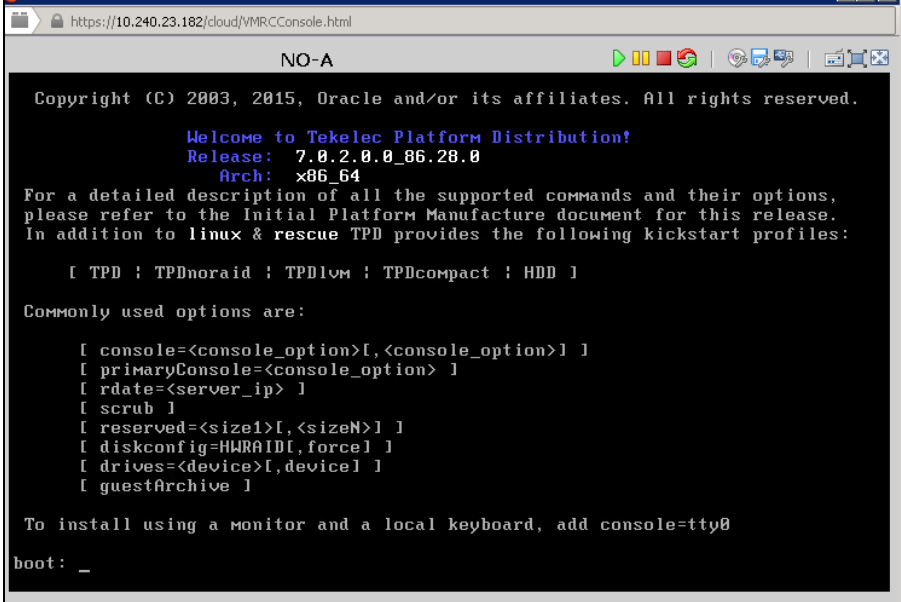
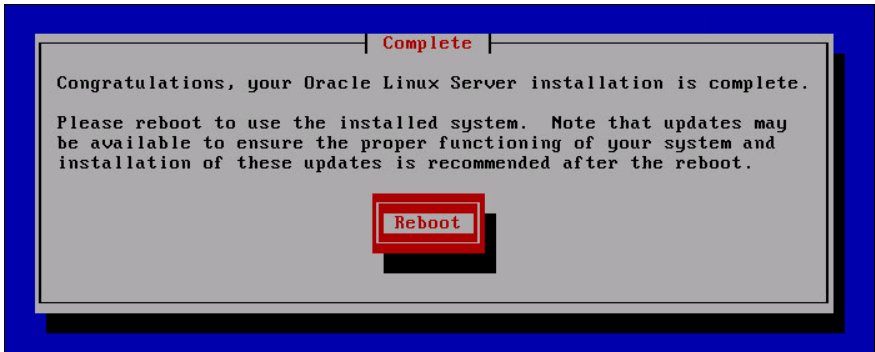
This procedure creates Oracle Communications User Data Repository virtual machines (guests) from ISO.

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

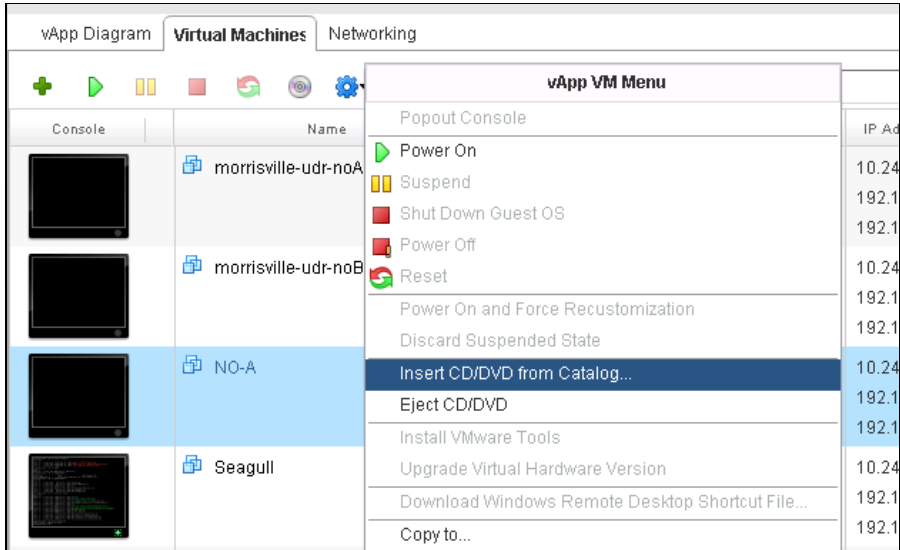
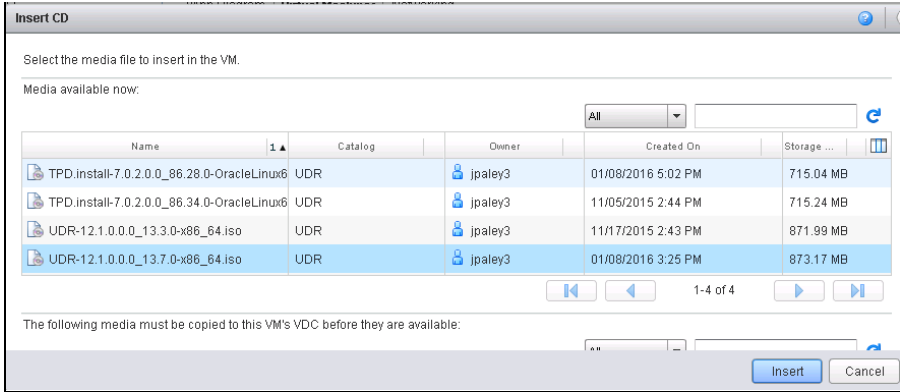

Procedure24: Install Guests from ISO with vCloud Director

| Step | Procedure | Result |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> | Log into the VMware vCloud Director |  |
| 2. <input type="checkbox"/> | 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.</p> |
| 3. <input type="checkbox"/> | vCloud Director: Navigate to → My Cloud → Virtual Machines |  |

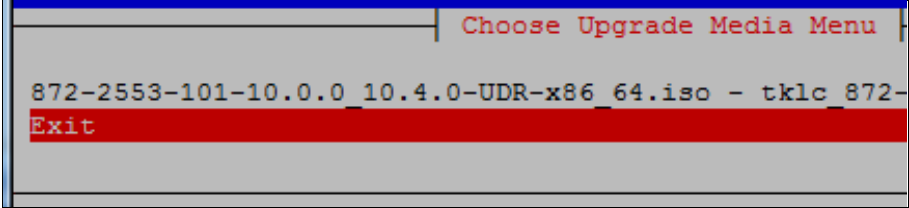
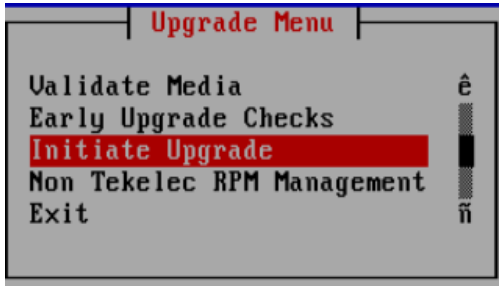
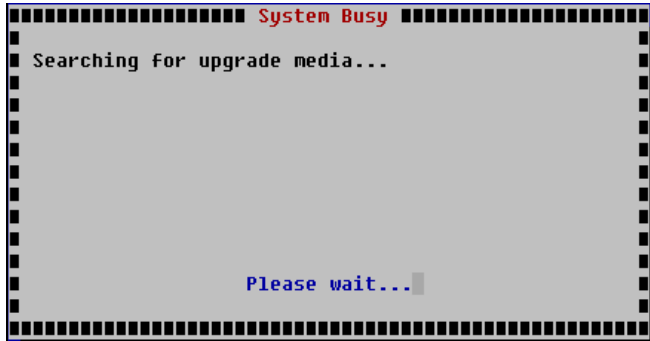

| Step | Procedure | Result | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------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

| Step | Procedure | Result |
|------------------------------|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7. <input type="checkbox"/> | vCloud Director: Initiate operating system install by entering the given text into console boot prompt |  <pre> boot: TPDnoraidd console=tty0 </pre> |
| 8. <input type="checkbox"/> | When installation completes, press Enter to reboot |  <p>NOTE: Escape the console session by pressing Ctrl- Alt</p> |
| 9. <input type="checkbox"/> | After reboot, log into console | <pre> Hostname:b6092a316785 login: root password: </pre> |
| 10. <input type="checkbox"/> | Verify that the TPD release is 7.6.1.x | <pre> # getPlatRev 7.6.1.0.0-88.55.0 </pre> |
| 11. <input type="checkbox"/> | Run the <code>alarmMgr</code> command to verify health of the server before Application install. | <pre> # alarmMgr --alarmStatus </pre> <p>NOTE: This command should not return output on a healthy system.</p> |
| 12. <input type="checkbox"/> | Run the <code>verifyIPM</code> as a secondary way to verify health of the server before Application install. | <pre> # verifyIPM </pre> <p>NOTE: This command should not return output on a healthy system.</p> |
| 13. <input type="checkbox"/> | Create physical volume <code>sdb</code> | <pre> # pvcreate /dev/sdb Physical volume "/dev/sdb" successfully created </pre> |

| Step | Procedure | Result |
|------------------------------|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14. <input type="checkbox"/> | Create volume group stripe_vg | <pre># vgcreate stripe_vg /dev/sdb</pre> <p>Volume group "stripe_vg" successfully created</p> |
| 15. <input type="checkbox"/> | Create logical volume rundb | <pre># lvcreate -L <SIZE>G --alloc anywhere --name rundb stripe_vg</pre> <p>Replace <SIZE> size tag with a number in gigabytes half the size of the second disk according to [1].</p> <pre>ISO lab second disk is 120: <SIZE> = 60 ISO production second disk is 720: <SIZE> = 360</pre> |
| 16. <input type="checkbox"/> | Make filesystem on rundb | <pre># mkfs -t ext4 /dev/stripe_vg/rundb</pre> <pre>mke2fs 1.43-WIP (20-Jun-2013) Filesystem label= OS type: Linux Block size=4096 (log=2) Fragment size=4096 (log=2) Stride=0 blocks, Stripe width=0 blocks 25231360 inodes, 100925440 blocks 5046272 blocks (5.00%) reserved for the super user First data block=0 Maximum filesystem blocks=4294967296 3080 block groups 32768 blocks per group, 32768 fragments per group 8192 inodes per group Superblock backups stored on blocks: 32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208, 4096000, 7962624, 11239424, 20480000, 23887872, 71663616, 78675968 Allocating group tables: done Writing inode tables: done Creating journal (32768 blocks): done Writing superblocks and filesystem accounting information: done This filesystem will be automatically checked every 22 mounts or 180 days, whichever comes first. Use tune2fs -c or -i to override.</pre> |
| 17. <input type="checkbox"/> | Run the syscheck/restart steps in order | <pre># syscheck --reconfig disk</pre> |
| 18. <input type="checkbox"/> | Escape console | Escape the console session by pressing Ctrl-Alt |

| Step | Procedure | Result |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 19. <input type="checkbox"/> | vCloud Director: <ol style="list-style-type: none"> 1. Select the VM. 2. Click the Blue Gear icon. 3. Select Insert CD/DVD from Catalog. |  |
| 20. <input type="checkbox"/> | vCloud Director: <ol style="list-style-type: none"> 1. Select Oracle Communications User Data Repository ISO. 2. Click Insert |  |
| 21. <input type="checkbox"/> | VM Console: <ol style="list-style-type: none"> 1. Re-enter the console window 2. Login to the platcfg utility. |  |

| Step | Procedure | Result |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 22. <input type="checkbox"/> | VM Console: From the platcfg Main Menu, select each option, pressing Enter after each selection. |    |
| 23. <input type="checkbox"/> | VM Console: 1. From the platcfg Main Menu, verify that the CDROM is Valid. 2. Press any key to return to platcfg menu. |  |

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

| Step | Procedure | Result |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 27. <input type="checkbox"/> | VM Console: Output similar to that shown on the right may be observed as the server initiates a post-install reboot. | <pre>scsi7 : SCSI emulation for USB Mass Storage devices scsi8 : SCSI emulation for USB Mass Storage devices input: Intel(R) Multidevice as /class/input/input3 input: USB HID v1.01 Mouse [Intel(R) Multidevice] on usb-0000:00:1d.3-1 input: Intel(R) Multidevice as /class/input/input4 input: USB HID v1.01 Keyboard [Intel(R) Multidevice] on usb-0000:00:1d.3-1 Restarting system. . machine restart</pre> |
| 28. <input type="checkbox"/> | VM Console: After the server has completed reboot, log into the server as admusr. | <pre>CentOS release 5.6 (Final) Kernel 2.6.18-238.19.1.el5prere15.0.0_72.22.0 on an x86_64 hostname1260476221 login:admusr Password: <admusr_password></pre> |
| 29. <input type="checkbox"/> | VM Console: Output similar to that shown on the right appears as the server returns to a command prompt. | <pre>*** TRUNCATED OUTPUT *** ===== This system has been upgraded but the upgrade has not yet been accepted or rejected. Please accept or reject the upgrade soon. ===== VPATH=/opt/TKLCcomcol/runcm5.16:/opt/TKLCcomcol/cm5.16 PRODPATH= RELEASE=5.16 RUNID=00 VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr/TKLC /comagent-gui:/usr/TKLC/comagent:/usr/TKLC/udr PRODPATH=/opt/comcol/prod RUNID=00 [admusr@hostname1260476221 ~]\$</pre> |
| 30. <input type="checkbox"/> | VM Console: Verify successful upgrade. | <pre>\$ verifyUpgrade</pre> <p>NOTE: This command should not return output on a healthy system.</p> |
| 31. <input type="checkbox"/> | VM Console: Verify that the Application release level matches the target release. | <pre>[admusr@ pc9000724-no-a ~]\$ appRev Install Time: Fri Feb 9 04:48:18 2019 Product Name: UDR Product Release: 12.5.1.0.0_17.7.0 Base Distro Product: TPD Base Distro Release: 7.6.1.0.0-88.55.0 Base Distro ISO: TPD.install-7.6.1.0.0_88.55.0-OracleLinux6.9- x86_64.iso ISO name: UDR-12.5.1.0.0_17.7.0-x86_64.iso OS: OracleLinux 6.9</pre> |
| 32. <input type="checkbox"/> | Change directory | <pre>\$ cd /var/TKLC/backout</pre> |
| 33. <input type="checkbox"/> | Perform upgrade acceptance. | <pre>\$ sudo ./accept</pre> |

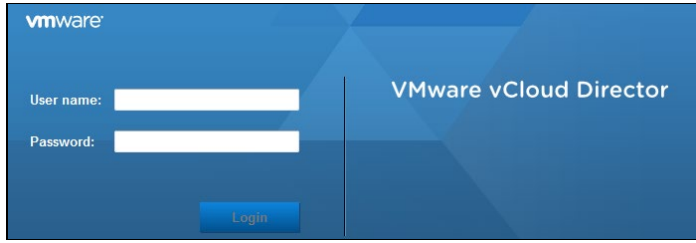
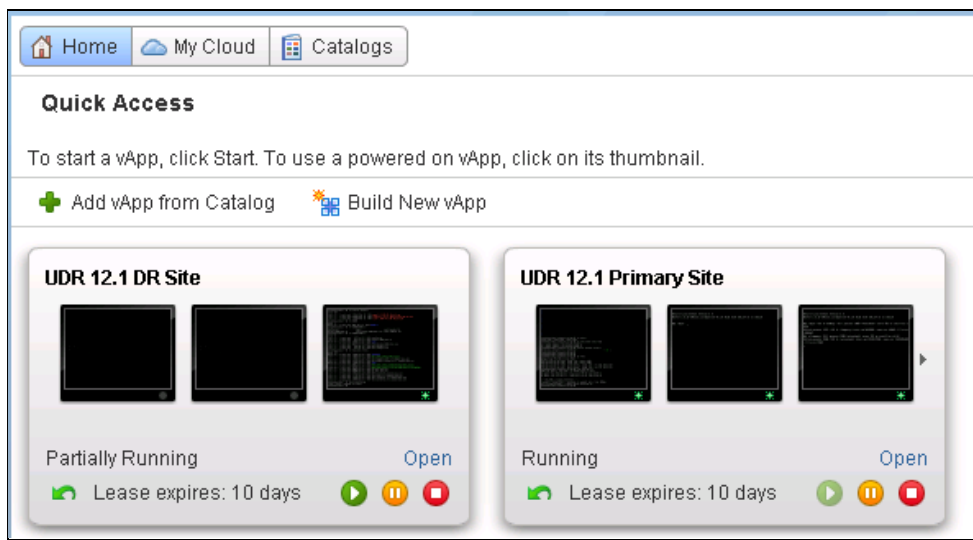
| Step | Procedure | Result |
|------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 34. <input type="checkbox"/>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


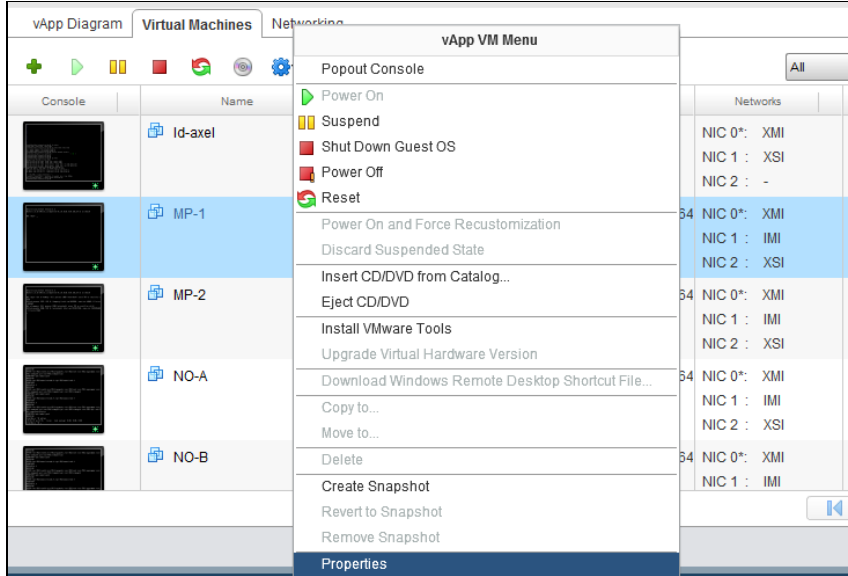
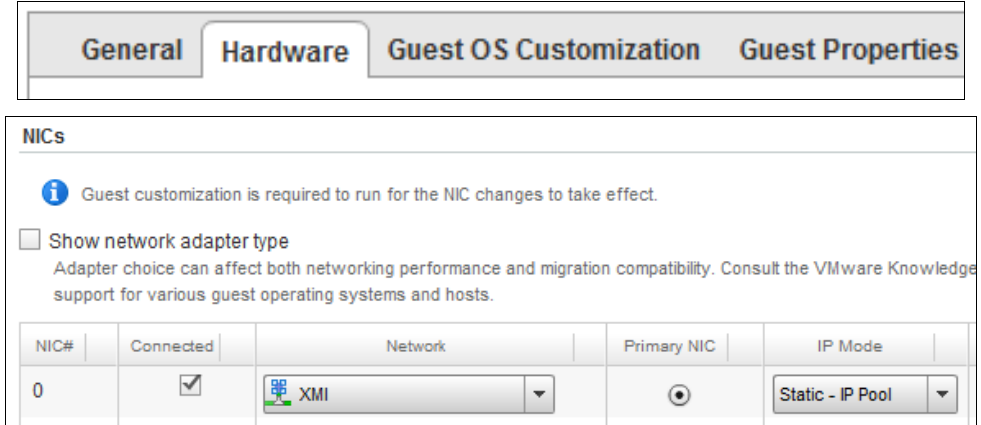
C.7 CONFIGURE GUESTS NETWORK

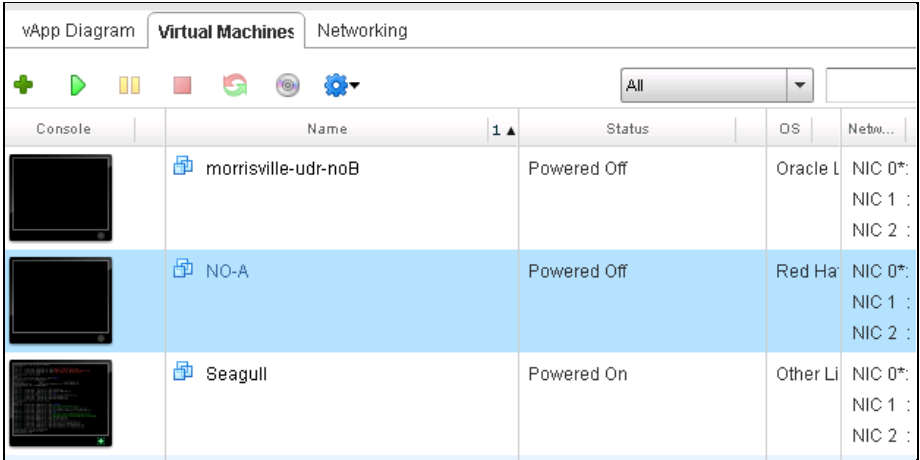
This procedure creates Oracle Communications User Data Repository virtual machines (guests) from ISO.

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

Procedure25: Configure Guest OAM Network

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

| Step | Procedure | Result |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. <input type="checkbox"/> | vCloud Director: Navigate to My Cloud → Virtual Machines |  |
| 4. <input type="checkbox"/> | vCloud Director: 1. Select the VM. 2. Click the Blue Gear icon. 3. Select Properties |  |
| 5. <input type="checkbox"/> | vCloud Director: 1. Select Hardware tab. 2. Record the NIC number assignment of application networks 3. Click Cancel |  <p>Record the NIC device number assignment for these networks:</p> <p>XMI: _____</p> <p>IMI: _____</p> <p>XSI-1: _____</p> <p>XSI-2: _____ (optional)</p> <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 | <pre>login as: admusr Password:</pre> |
| 8. <input type="checkbox"/> | VM Console: Configure XMI network | <p>1. View a list of netAdm devices</p> <pre>\$ sudo netAdm show</pre> <p>2. Set the XMI device for routable OAM access:</p> <p>NOTE: Use add if the show command did not list device eth0. Use set otherwise.</p> <pre>\$ sudo netAdm add --device=eth0 --address=<Guest_XMI_IP_Address> --netmask=<XMI_Netmask> --onboot=yes --bootproto=none</pre> <p>3. Add the default route for XMI:</p> <pre>\$ sudo netAdm add --route=default --gateway=<Gateway_XMI_IP_Address> --device=eth0</pre> <p>NOTE: The network device may be different than shown here (eth0) if the order of network adapter insertion was other than shown. Refer to Step 5 for this assignment.</p> |
| 9. <input type="checkbox"/> | VM Console: Configure XSI network | <p>Set the XSI device for routable signaling network access (Only for NO and MP Servers):</p> <p>NOTE: Where ethX is the interface associated with the signaling network</p> <pre>\$ sudo netAdm add --device=eth2 --address=<Guest_XSI_IP_Address> --netmask=<XSI_Netmask> --onboot=yes --bootproto=none</pre> <p>NOTE: The network device may be different than shown here (eth2) if the order of network adapter insertion was other than shown. Refer to Step 5 for this assignment.</p> |
| 10. <input type="checkbox"/> | VM Console: Repeat as required | Repeat Step 7 to add XS1-2 (eth3) if a second signaling network is in use. Adjust parameter values as required |
| 11. <input type="checkbox"/> | VM Console: Exit console | <pre>\$ exit</pre> <p>NOTE: Press Ctrl-Alt to escape from console.</p> |
| THIS PROCEDURE HAS BEEN COMPLETED | | |

Appendix D. OpenStack Cloud Oracle Communications User Data Repository

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

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

D.1 OPENSTACK IMAGE CREATION FROM OVA

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

Needed material:

- Oracle Communications User Data Repository OVAs

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

Procedure26: OpenStack Image Creation from OVA

| Step | Procedure | Result |
|-----------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> | 1. Login to OpenStack Controller Node using root user 2. Create /home/ova dir | login as: root root@100.65.218.136's password: <root_password> Last login: Thu Feb 9 21:10:59 2016 from 10.182.167.73 [root@pc12107008 ~]# mkdir -p /home/ova [root@pc12107008 ~]# cd /home/ova |
| 2. <input type="checkbox"/> | Transfer OVA file this dir using sftp tool | [root@pc12107008 ova]# ll -rw-r--r-- 1 root root 1519329280 Feb 2 03:40 UDR-12.5.1.0.0_17.7.0.ova |
| 3. <input type="checkbox"/> | Untar this ova file | [root@pc12107008 ova]# tar xvf UDR-12.5.1.0.0_17.7.0.ova UDR-17_7_0.ovf UDR-17_7_0.mf UDR-17_7_0.vmdk |
| 4. <input type="checkbox"/> | Convert this vmdk file to qcow2 file | [root@pc12107008 ova]# qemu-img convert -O qcow2 UDR-17_17_0.vmdk UDR-17_7_0.qcow2 |

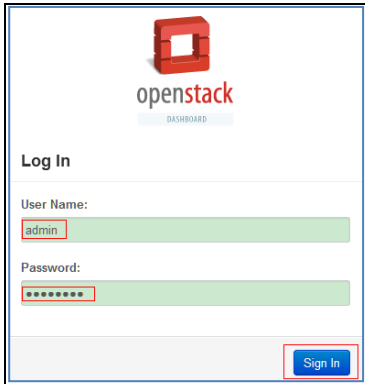
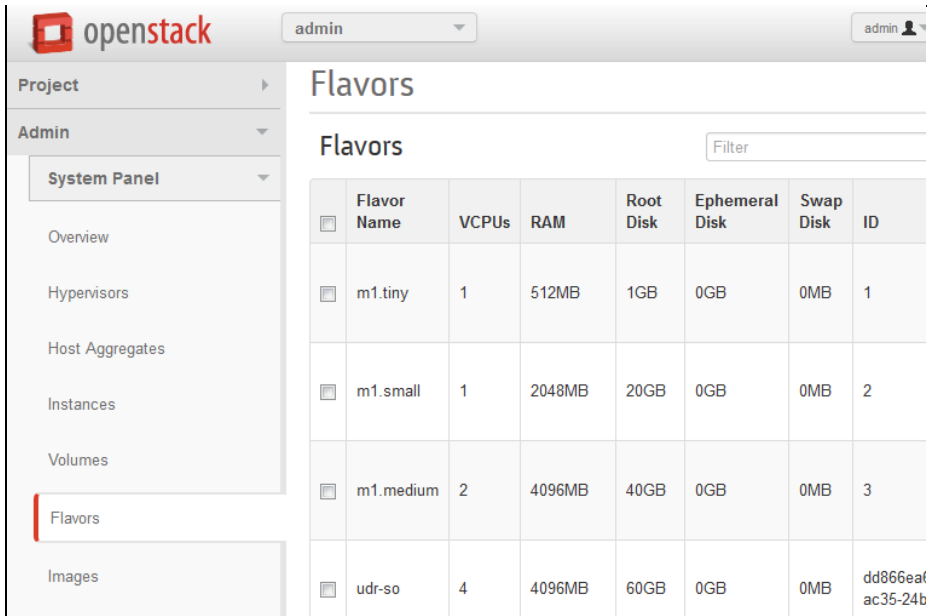
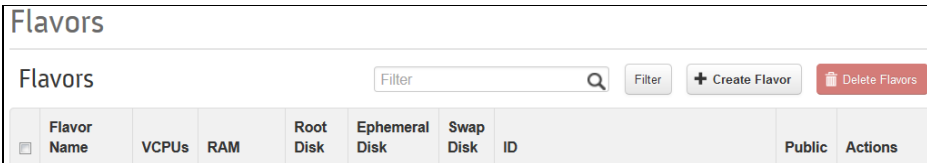
| Step | Procedure | Result | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------|----------|----------------------------------|------------------|------|------------|--------------------|---------|-------|------------|------|-------------|-------|----|--------------------------------------|-----------|------|----------|---|---------|---|------|------------|-------|----------------------------------|-----------|-------|------|------------|--------|--------|------------|---------------------|--------------|------|------|-----------|------|----------|-----|----------|
| 5. <input type="checkbox"/> | Import converted qcow2 file into OpenStack | <pre>[root@pcl2107008 ova]# source /root/keystonerc_admin [root@pcl2107008 ova(keystone_admin)]# time glance image-create --name UDR-17_7_0 --disk-format=qcow2 --container-format=bare -- visibility=public-- file= UDR-17_7_0.qcow2</pre> <table><tr><td>Property</td><td>Value</td></tr><tr><td>checksum</td><td>81e7f682231b108e29053e9516ff91ac</td></tr><tr><td>container_format</td><td>bare</td></tr><tr><td>created_at</td><td>2019-02-9T06:56:51</td></tr><tr><td>deleted</td><td>False</td></tr><tr><td>deleted_at</td><td>None</td></tr><tr><td>disk_format</td><td>qcow2</td></tr><tr><td>id</td><td>ee0ffa59-356b-4b32-aea2-b0cdf9063653</td></tr><tr><td>is_public</td><td>True</td></tr><tr><td>min_disk</td><td>0</td></tr><tr><td>min_ram</td><td>0</td></tr><tr><td>name</td><td>UDR-17_7_0</td></tr><tr><td>owner</td><td>63efbafd70864562aa6440abfca60ca5</td></tr><tr><td>protected</td><td>False</td></tr><tr><td>size</td><td>3615227904</td></tr><tr><td>status</td><td>active</td></tr><tr><td>updated_at</td><td>2016-03-29T06:57:16</td></tr><tr><td>virtual_size</td><td>None</td></tr></table> <table><tr><td>real</td><td>0m26.267s</td></tr><tr><td>user</td><td>0m2.435s</td></tr><tr><td>sys</td><td>0m2.691s</td></tr></table> | Property | Value | checksum | 81e7f682231b108e29053e9516ff91ac | container_format | bare | created_at | 2019-02-9T06:56:51 | deleted | False | deleted_at | None | disk_format | qcow2 | id | ee0ffa59-356b-4b32-aea2-b0cdf9063653 | is_public | True | min_disk | 0 | min_ram | 0 | name | UDR-17_7_0 | owner | 63efbafd70864562aa6440abfca60ca5 | protected | False | size | 3615227904 | status | active | updated_at | 2016-03-29T06:57:16 | virtual_size | None | real | 0m26.267s | user | 0m2.435s | sys | 0m2.691s |
| Property | Value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| checksum | 81e7f682231b108e29053e9516ff91ac | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| container_format | bare | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| created_at | 2019-02-9T06:56:51 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| deleted | False | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| deleted_at | None | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| disk_format | qcow2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| id | ee0ffa59-356b-4b32-aea2-b0cdf9063653 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| is_public | True | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| min_disk | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| min_ram | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| name | UDR-17_7_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| owner | 63efbafd70864562aa6440abfca60ca5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| protected | False | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| size | 3615227904 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| status | active | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| updated_at | 2016-03-29T06:57:16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| virtual_size | None | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| real | 0m26.267s | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| user | 0m2.435s | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| sys | 0m2.691s | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6. <input type="checkbox"/> | After image-create, this image could be seen from OpenStack GUI under Project → Images | <div><div><input type="text" value="q"/></div><div><div><input type="checkbox"/></div><div>Owner</div></div><div><div><input type="checkbox"/></div><div>admin</div></div><div><div><input type="checkbox"/></div><div>Name ^</div></div><div><div><input type="checkbox"/></div><div>UDR-17_7</div></div><div><div><input type="checkbox"/></div><div>Type</div></div><div><div><input type="checkbox"/></div><div>Image</div></div><div><div><input type="checkbox"/></div><div>Status</div></div><div><div><input type="checkbox"/></div><div>Active</div></div><div><div><input type="checkbox"/></div><div>Visibility</div></div><div><div><input type="checkbox"/></div><div>Public</div></div><div><div><input type="checkbox"/></div><div>Protected</div></div><div><div><input type="checkbox"/></div><div>No</div></div><div><div><input type="checkbox"/></div><div>Disk Format</div></div><div><div><input type="checkbox"/></div><div>QCOW2</div></div><div><div><input type="checkbox"/></div><div>Size</div></div><div><div><input type="checkbox"/></div><div>4.06 GB</div></div></div> <div><div>Create Image</div></div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| THIS PROCEDURE HAS BEEN COMPLETED | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

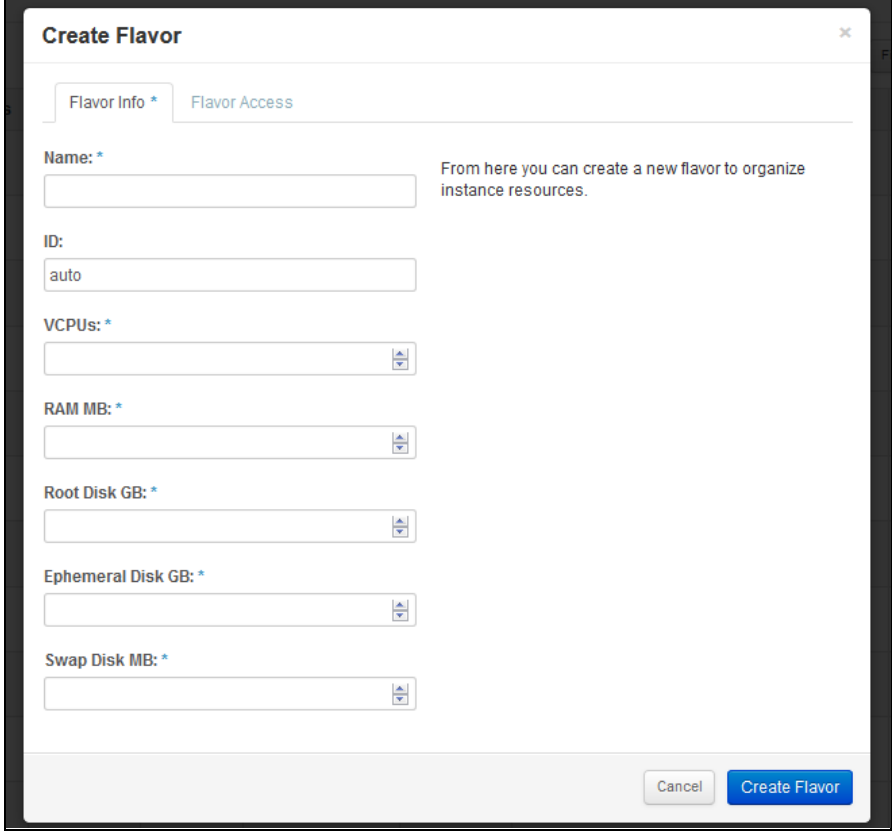
D.2 CREATE RESOURCE PROFILES (FLAVORS)

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

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

Procedure27: Create Resource Profiles (Flavors)

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

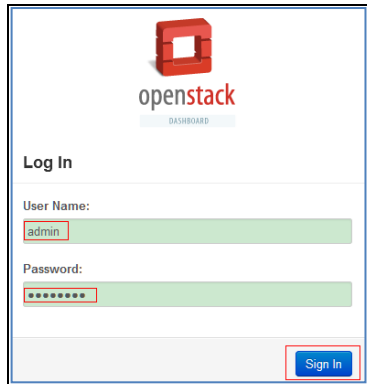
| Step | Procedure | Result |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------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


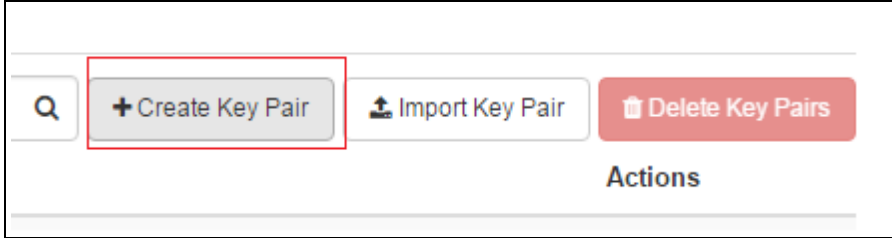
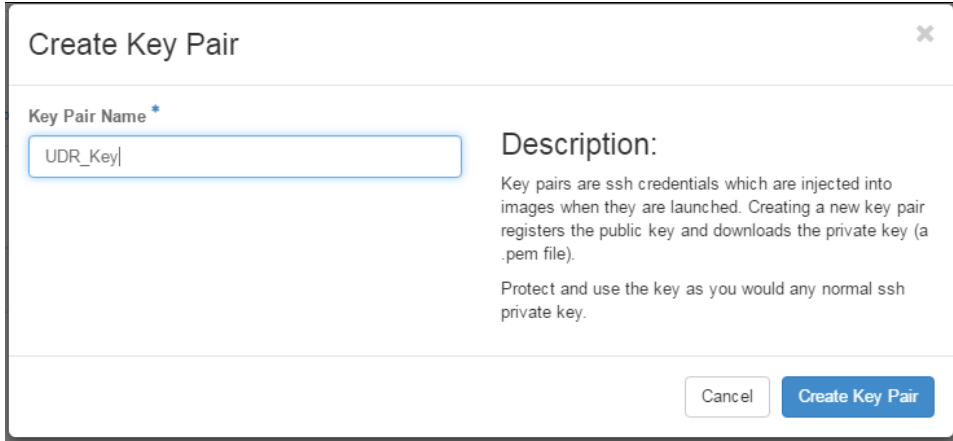
D.3 CREATE KEY PAIR

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

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

Procedure28: Create Key Pair

| Step | Procedure | Result |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> | <p>Login to the OpenStack GUI</p> <p>NOTE: Flavor profile creation may require administrative privilege.</p> |  |

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

D.4 UPDATE UDR STACK YAML FILE

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

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

Procedure29: Create Key Pair

| Step | Procedure | Result |
|-----------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> | Download the yaml file | Go to the Oracle Help Center and download the zip file containing the UDR Heat Templates . |
| 2. <input type="checkbox"/> | Update Image name or ID with the name of the UDR Qcow2 to be used | Change the default value. <pre>label: Image name or ID description: UDR Image to be used for launching UDR VM default: UDR-12.5.1.0.0_17.7.0</pre> |

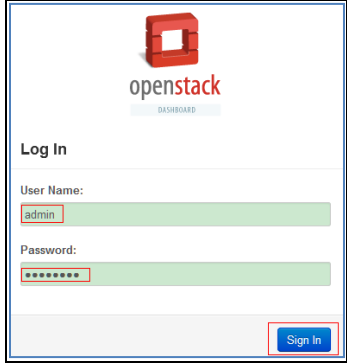
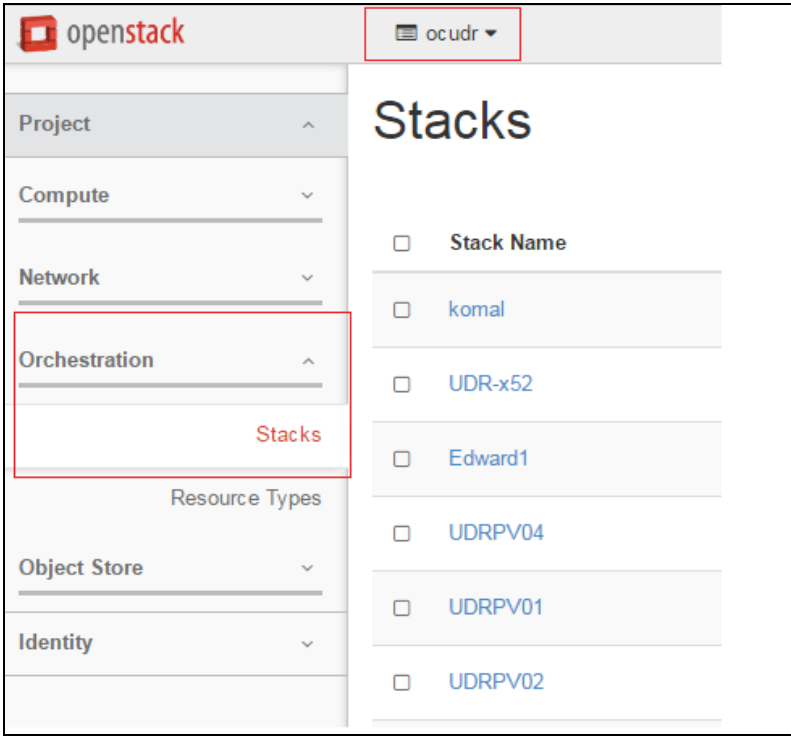
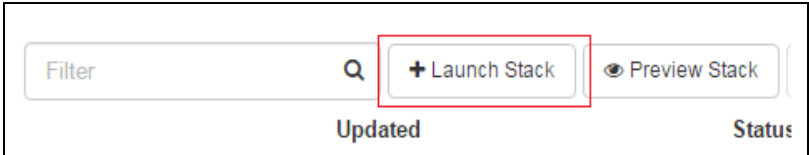
| Step | Procedure | Result |
|------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|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

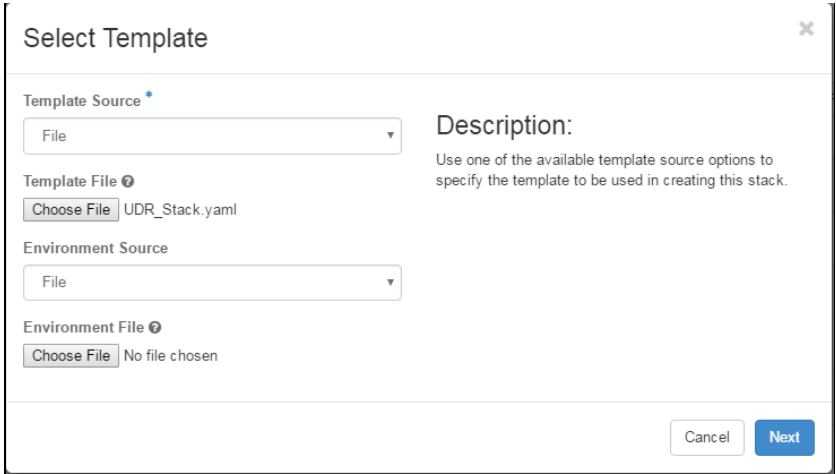
D.5 CREATE VM INSTANCES USING YAML FILE

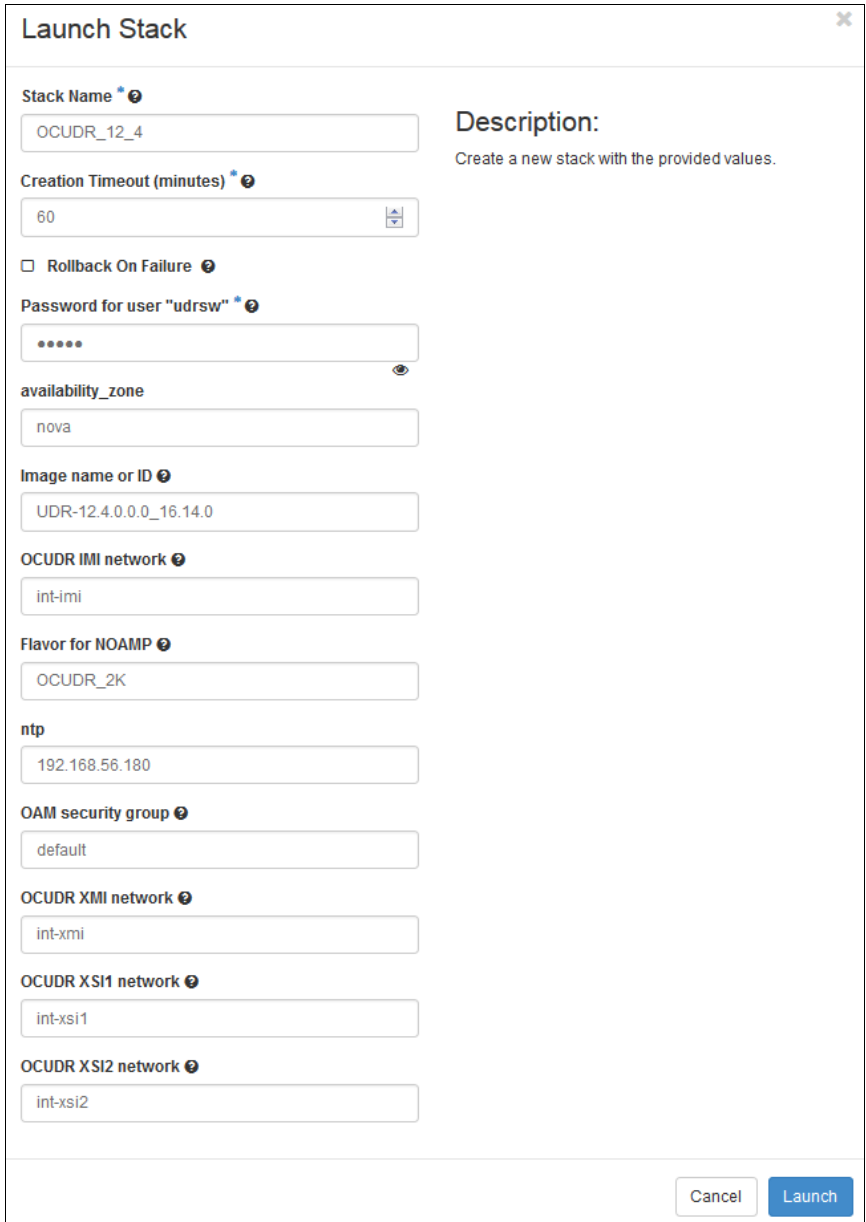
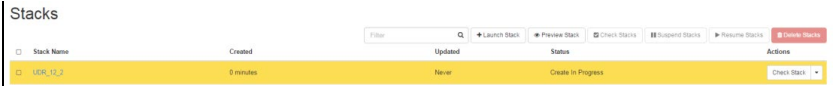
This procedure creates and configure all VM instances needed for UDR configuration.

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

Procedure30: Create VM Instances Using Yaml File

| Step | Procedure | Result |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> | Login to the OpenStack GUI |  The screenshot shows the OpenStack Dashboard login page. It includes the OpenStack logo, a 'Log In' section with 'User Name' (admin) and 'Password' fields, and a 'Sign In' button. Red boxes highlight the 'admin' text, the password field, and the 'Sign In' button. |
| 2. <input type="checkbox"/> | 1. Select project, (for example, UDR). 2. Navigate to Project → Orchestration → Stacks to show all Stacks created under this project. |  The screenshot shows the OpenStack 'Stacks' page. The left sidebar has 'Orchestration' selected, and 'Stacks' is highlighted in red. The main area lists several stacks: 'komal', 'UDR-x52', 'Edward1', 'UDRPV04', 'UDRPV01', and 'UDRPV02'. A red box highlights the 'ocudr' dropdown menu at the top right. |
| 3. <input type="checkbox"/> | Click Launch Stack |  The screenshot shows the bottom of the Stacks page with a 'Filter' input, a search icon, a '+ Launch Stack' button (highlighted with a red box), and a 'Preview Stack' button. Below these are 'Updated' and 'Status' labels. |

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

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

D.6 EXTEND VM INSTANCE VOLUME SIZE

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

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

This procedure must be performed only under these conditions:

- UDR Instance with resource profile other than lab profile

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

Procedure31: Extend VM Instance Volume Size

| Step | Procedure | Result |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> | Login to the VM Instance as per D.10 Accessing VM Instance using SSH | <pre>hostnamea0c2d9aa8bce login: admusr</pre> |
| 2. <input type="checkbox"/> | Switch to root user | <pre># su - root password: <root_password></pre> |
| 3. <input type="checkbox"/> | Use fdisk to create a partition on /dev/vda NOTE: First cylinder of /dev/vda3 is calculated from end cylinder of /dev/vda2, say 124810 is the next of the end cylinder of /dev/vda2 | <pre>[root@hostnameb267a6968148 ~]#fdisk /dev/vda Command (m for help): p Disk /dev/vda: 171.8 GB, 171798691840 bytes 16 heads, 63 sectors/track, 332881 cylinders Units = cylinders of 1008 * 512 = 516096 bytes Sector size (logical/physical): 512 bytes / 512 bytes I/O size (minimum/optimal): 512 bytes / 512 bytes Disk identifier: 0x0008a531 Device Boot Start End Blocks Id System /dev/vda1 * 3 523 262144 83 Linux Partition 1 does not end on cylinder boundary. /dev/vda2 523 124809 62640128 8e Linux LVM Partition 2 does not end on cylinder boundary. Command (m for help): n Command action e extended p primary partition (1-4) p Partition number (1-4): 3 First cylinder (1-332881, default 1): 124810 Last cylinder, +cylinders or +size{K,M,G} (124810-332881, default 332881): Using default value 332881 Command (m for help): w The partition table has been altered! Calling ioctl() to re-read partition table. WARNING: Re-reading the partition table failed with error 16: Device or resource busy. The kernel still uses the old table. The new table will be used at the next reboot or after you run partprobe(8) or kpartx(8) Syncing disks.</pre> |
| 4. <input type="checkbox"/> | Reboot instance | <pre>[root@hostnameb267a6968148 ~]# init 6</pre> |

| Step | Procedure | Result |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5. <input type="checkbox"/> | After reboot, Login to the VM with admusr user and switch to root user D.10 Accessing VM Instance using SSH | <pre>hostnameb267a6968148 login: admusr # su - root password: <root_password></pre> |
| 6. <input type="checkbox"/> | Create pv /dev/vda3 | <pre>[root@hostnameb267a6968148 ~]# pvcreate /dev/vda3 Physical volume "/dev/vda3" successfully created</pre> |
| 7. <input type="checkbox"/> | Extend vg vgroot on /dev/vda3 | <pre>[root@hostnameb267a6968148 ~]# vgextend vgroot /dev/vda3 Volume group "vgroot" successfully extended</pre> |
| 8. <input type="checkbox"/> | Extend logical volumes for 2K profile Note: Filesystem extended with values mentioned in commands in addition to existing size of filesystem.Do not change the values of commands. | <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 # lv sdf -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"/> | <p>Extend logical volumes for 7K or 12.5K or EIR-UDR-2NOs or EIR-UDR-1NO-FixedIP profile</p> <p>Note:Filesystem extended with values mentioned in commands in addition to existing size of filesystem.Do not change the values of commands.</p> | <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 # lvextend -L +10485760K /dev/mapper/vgroot-plat_usr # resize2fs /dev/mapper/vgroot-filemgmt # resize2fs /dev/mapper/vgroot-run_db # resize2fs /dev/mapper/vgroot-logs_process # resize2fs /dev/mapper/vgroot-apw_tmp # resize2fs /dev/mapper/vgroot-plat_usr # 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---- 14.00g 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. | <p>Extend logical volumes for 700M-MNP-2NOs profile</p> <p>Note:Filesystem extended with values mentioned in commands in addition to existing size of filesystem.Do not change the values of commands.</p> | <pre># lvextend -L +335544320K /dev/vgroot/run_db # lvextend -L +524288000K /dev/vgroot/filemgmt # lvextend -L +6291456K /dev/vgroot/logs_process # lvextend -L +10485760K /dev/vgroot/apw_tmp # lvextend -L +10485760K /dev/mapper/vgroot-plat_usr # resize2fs /dev/mapper/vgroot-filemgmt # resize2fs /dev/mapper/vgroot-run_db # resize2fs /dev/mapper/vgroot-logs_process # resize2fs /dev/mapper/vgroot-apw_tmp # resize2fs /dev/mapper/vgroot-plat_usr</pre> |
| 11. | <p>Extend logical volumes for 700M-ENUM-MNP-2NOs profile</p> <p>Note:Filesystem extended with values mentioned in commands in addition to existing size of filesystem.Do not change the values of commands.</p> | <pre># lvextend -L +639631360K /dev/vgroot/run_db # lvextend -L +1038090240K /dev/vgroot/filemgmt # lvextend -L +6291456K /dev/vgroot/logs_process # lvextend -L +10485760K /dev/vgroot/apw_tmp # lvextend -L +10485760K /dev/mapper/vgroot-plat_usr # resize2fs /dev/mapper/vgroot-filemgmt # resize2fs /dev/mapper/vgroot-run_db # resize2fs /dev/mapper/vgroot-logs_process # resize2fs /dev/mapper/vgroot-apw_tmp # resize2fs /dev/mapper/vgroot-plat_usr</pre> |

| Step | Procedure | Result |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12. | <p>Extend logical volumes for 700M-Only-ENUM-2NOs profile</p> <p>Note:Filesystem extended with values mentioned in commands in addition to existing size of filesystem.Do not change the values of commands.</p> | <pre># lvextend -L +524288000K /dev/vgroot/run_db # lvextend -L +943718400K /dev/vgroot/filemgmt # lvextend -L +6291456K /dev/vgroot/logs_process # lvextend -L +10485760K /dev/vgroot/apw_tmp # lvextend -L +10485760K /dev/mapper/vgroot-plat_usr # resize2fs /dev/mapper/vgroot-filemgmt # resize2fs /dev/mapper/vgroot-run_db # resize2fs /dev/mapper/vgroot-logs_process # resize2fs /dev/mapper/vgroot-apw_tmp # resize2fs /dev/mapper/vgroot-plat_usr</pre> |
| 13. | <p>Extend logical volumes for 300M-EIR-UDR-2NOs profile</p> <p>Note:Filesystem extended with values mentioned in commands in addition to existing size of filesystem.Do not change the values of commands.</p> | <pre># lvextend -L +283115520K /dev/vgroot/run_db # lvextend -L +262144000K /dev/vgroot/filemgmt # lvextend -L +12582912K /dev/vgroot/logs_process # lvextend -L +20971520K /dev/vgroot/apw_tmp # lvextend -L +10485760K /dev/mapper/vgroot-plat_usr # resize2fs /dev/mapper/vgroot-filemgmt # resize2fs /dev/mapper/vgroot-run_db # resize2fs /dev/mapper/vgroot-logs_process # resize2fs /dev/mapper/vgroot-apw_tmp # resize2fs /dev/mapper/vgroot-plat_usr</pre> |
| 14. | <p>Extend logical volumes for vMNP-UDR-2NOs profile</p> <p>Note:Filesystem extended with values mentioned in commands in addition to existing size of filesystem.Do not change the values of commands.</p> | <pre># lvextend -L +230686720K /dev/vgroot/run_db # lvextend -L +209715200K /dev/vgroot/filemgmt # lvextend -L +12582912K /dev/vgroot/logs_process # lvextend -L +20971520K /dev/vgroot/apw_tmp # lvextend -L +10485760K /dev/mapper/vgroot-plat_usr # resize2fs /dev/mapper/vgroot-filemgmt # resize2fs /dev/mapper/vgroot-run_db # resize2fs /dev/mapper/vgroot-logs_process # resize2fs /dev/mapper/vgroot-apw_tmp # resize2fs /dev/mapper/vgroot-plat_usr</pre> |

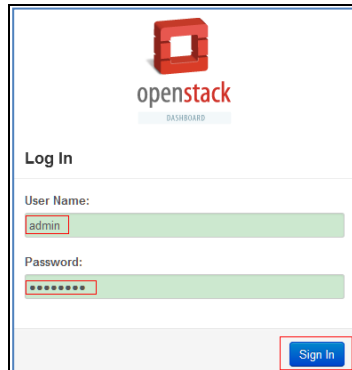
| Step | Procedure | Result |
|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15. | Extend logical volumes for UDR-FABR-2NOs profile Note: Filesystem extended with values mentioned in commands in addition to existing size of filesystem.Do not change the values of commands. | <pre># lvextend -L +367001600K /dev/vgroot/run_db # lvextend -L +262144000K /dev/vgroot/filemgmt # lvextend -L +12582912K /dev/vgroot/logs_process # lvextend -L +20971520K /dev/vgroot/apw_tmp # lvextend -L +10485760K /dev/mapper/vgroot-plat_usr # resize2fs /dev/mapper/vgroot-filemgmt # resize2fs /dev/mapper/vgroot-run_db # resize2fs /dev/mapper/vgroot-logs_process # resize2fs /dev/mapper/vgroot-apw_tmp # resize2fs /dev/mapper/vgroot-plat_usr</pre> |
| 16. <input type="checkbox"/> | Reboot instance | <code>[root@hostnameb267a6968148 ~]# init 6</code> |
| THIS PROCEDURE HAS BEEN COMPLETED | | |

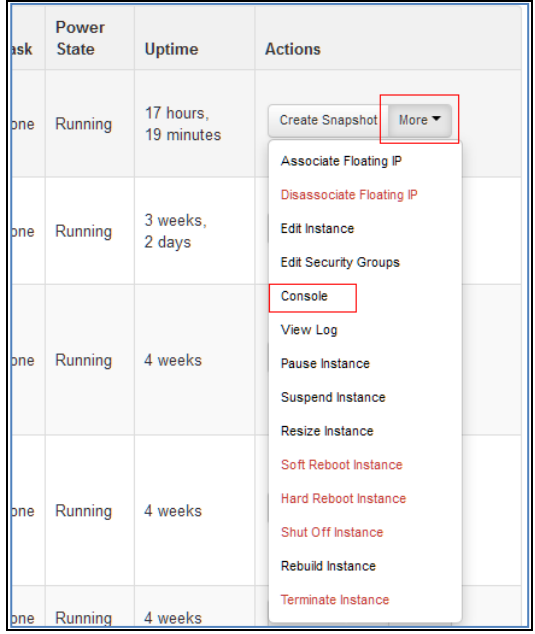
D.7 VM INSTANCE NETWORK CONFIGURATION

This procedure configures network interfaces for VM instance.

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

Procedure32: VM Instance Network Configuration

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

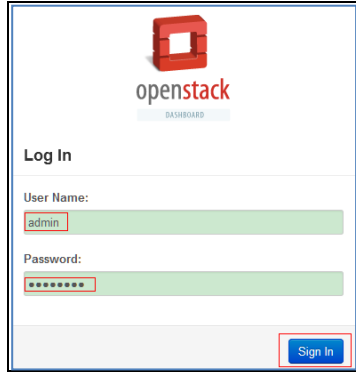
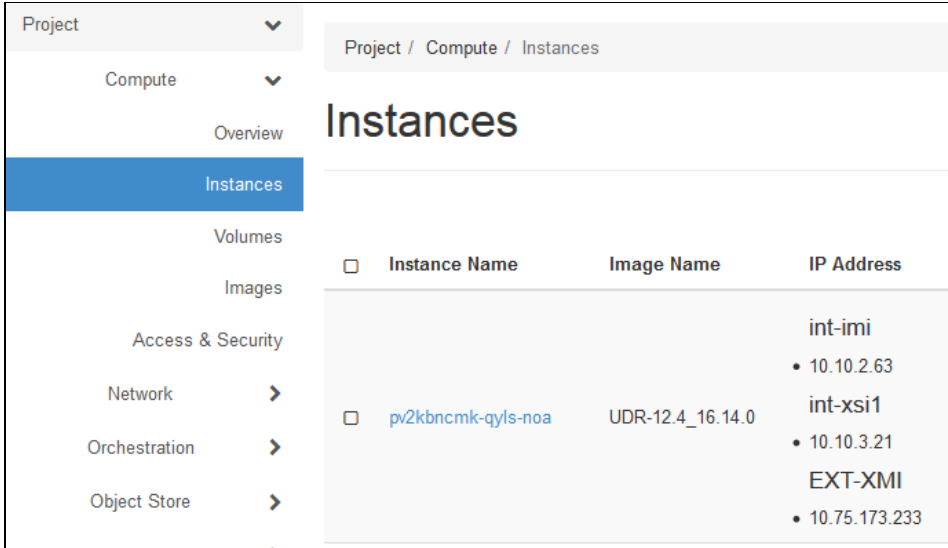
| Step | Procedure | Result |
|------------------------------------------|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|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

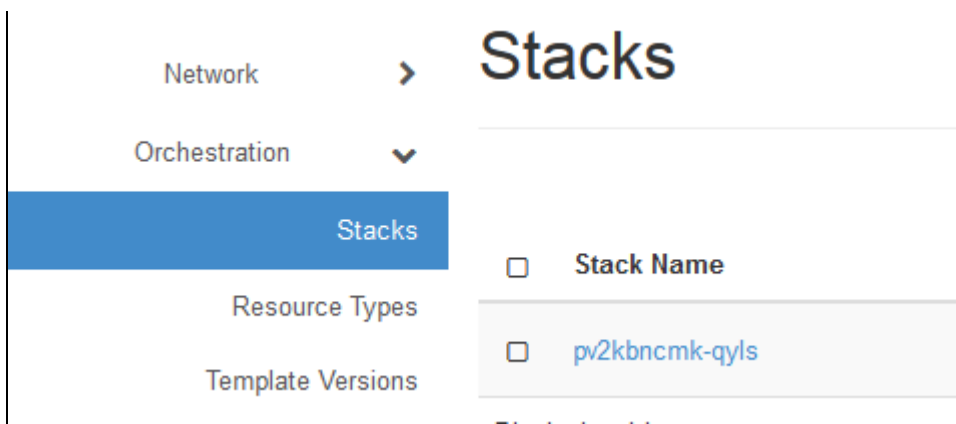
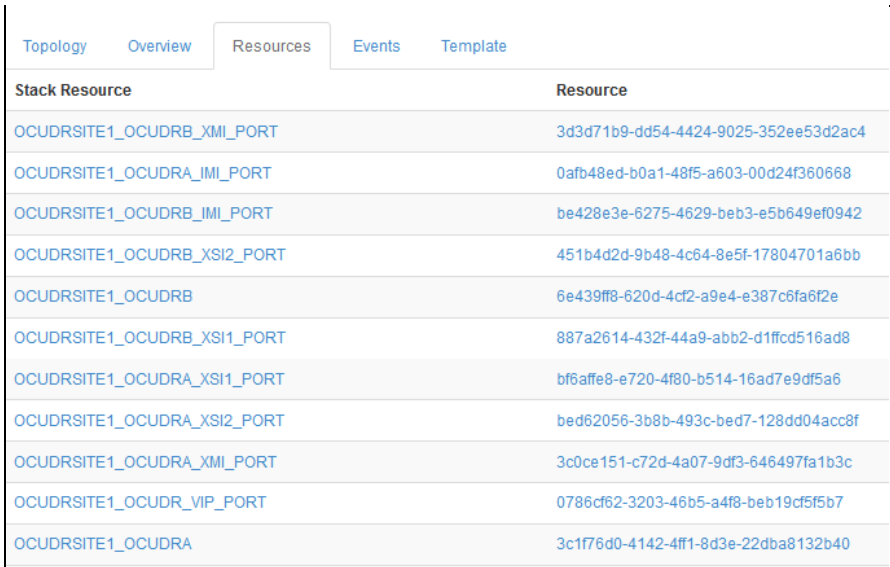
D.8 VIRTUAL IP ADDRESS ASSIGNMENT

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

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

Procedure33: Virtual IP Address Assignment

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

| Step | Procedure | Result | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|-----------|--------|----------|----------------|--|----------|--|--|----------------------------|--|--------------------------------------|--|--|----------------------------|--|--------------------------------------|--|--|----------------------------|--|--------------------------------------|--|--|-----------------------------|--|--------------------------------------|--|--|-------------------|--|--------------------------------------|--|--|-----------------------------|--|-------------------------------------|--|--|-----------------------------|--|--------------------------------------|--|--|-----------------------------|--|--------------------------------------|--|--|----------------------------|--|--------------------------------------|--|--|---------------------------|--|--------------------------------------|--|--|-------------------|--|--------------------------------------|--|--|
| 4. <input type="checkbox"/> | <div>1. Navigate to Project → Orchestration → Stacks</div> <div>2. Select the Stack Name to see more detail</div> |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. <input type="checkbox"/> | Select the Resource tab, find the VIP PORT for UDR servers. |  <table><tr><th>Topology</th><th>Overview</th><th>Resources</th><th>Events</th><th>Template</th></tr><tr><th colspan="2">Stack Resource</th><th colspan="3">Resource</th></tr><tr><td colspan="2">OCUDRSITE1_OCUDRB_XMI_PORT</td><td colspan="3">3d3d71b9-dd54-4424-9025-352ee53d2ac4</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDRA_XMI_PORT</td><td colspan="3">0afb48ed-b0a1-48f5-a603-00d24f360668</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDRB_XMI_PORT</td><td colspan="3">be428e3e-6275-4629-beb3-e5b649ef0942</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDRB_XSI2_PORT</td><td colspan="3">451b4d2d-9b48-4c64-8e5f-17804701a6bb</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDRB</td><td colspan="3">6e439ff8-620d-4cf2-a9e4-e387c6fa6f2e</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDRB_XSI1_PORT</td><td colspan="3">887a2614-432f-44a9-abb2-d1ffc516ad8</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDRA_XSI1_PORT</td><td colspan="3">bf6affe8-e720-4f80-b514-16ad7e9df5a6</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDRA_XSI2_PORT</td><td colspan="3">bed62056-3b8b-493c-bed7-128dd04acc8f</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDRA_XMI_PORT</td><td colspan="3">3c0ce151-c72d-4a07-9df3-646497fa1b3c</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDR_VIP_PORT</td><td colspan="3">0786cf62-3203-46b5-a4f8-beb19cf5f5b7</td></tr><tr><td colspan="2">OCUDRSITE1_OCUDRA</td><td colspan="3">3c1f76d0-4142-4ff1-8d3e-22dba8132b40</td></tr></table> | Topology | Overview | Resources | Events | Template | Stack Resource | | Resource | | | OCUDRSITE1_OCUDRB_XMI_PORT | | 3d3d71b9-dd54-4424-9025-352ee53d2ac4 | | | OCUDRSITE1_OCUDRA_XMI_PORT | | 0afb48ed-b0a1-48f5-a603-00d24f360668 | | | OCUDRSITE1_OCUDRB_XMI_PORT | | be428e3e-6275-4629-beb3-e5b649ef0942 | | | OCUDRSITE1_OCUDRB_XSI2_PORT | | 451b4d2d-9b48-4c64-8e5f-17804701a6bb | | | OCUDRSITE1_OCUDRB | | 6e439ff8-620d-4cf2-a9e4-e387c6fa6f2e | | | OCUDRSITE1_OCUDRB_XSI1_PORT | | 887a2614-432f-44a9-abb2-d1ffc516ad8 | | | OCUDRSITE1_OCUDRA_XSI1_PORT | | bf6affe8-e720-4f80-b514-16ad7e9df5a6 | | | OCUDRSITE1_OCUDRA_XSI2_PORT | | bed62056-3b8b-493c-bed7-128dd04acc8f | | | OCUDRSITE1_OCUDRA_XMI_PORT | | 3c0ce151-c72d-4a07-9df3-646497fa1b3c | | | OCUDRSITE1_OCUDR_VIP_PORT | | 0786cf62-3203-46b5-a4f8-beb19cf5f5b7 | | | OCUDRSITE1_OCUDRA | | 3c1f76d0-4142-4ff1-8d3e-22dba8132b40 | | |
| Topology | Overview | Resources | Events | Template | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stack Resource | | Resource | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRB_XMI_PORT | | 3d3d71b9-dd54-4424-9025-352ee53d2ac4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRA_XMI_PORT | | 0afb48ed-b0a1-48f5-a603-00d24f360668 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRB_XMI_PORT | | be428e3e-6275-4629-beb3-e5b649ef0942 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRB_XSI2_PORT | | 451b4d2d-9b48-4c64-8e5f-17804701a6bb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRB | | 6e439ff8-620d-4cf2-a9e4-e387c6fa6f2e | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRB_XSI1_PORT | | 887a2614-432f-44a9-abb2-d1ffc516ad8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRA_XSI1_PORT | | bf6affe8-e720-4f80-b514-16ad7e9df5a6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRA_XSI2_PORT | | bed62056-3b8b-493c-bed7-128dd04acc8f | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRA_XMI_PORT | | 3c0ce151-c72d-4a07-9df3-646497fa1b3c | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDR_VIP_PORT | | 0786cf62-3203-46b5-a4f8-beb19cf5f5b7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRA | | 3c1f76d0-4142-4ff1-8d3e-22dba8132b40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Step | Procedure | Result | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|-----------------------------|--------------------------------------|-------------------|--------------------------------------|-----------------------------|-------------------------------------|-----------------------------|--------------------------------------|-----------------------------|--------------------------------------|----------------------------|--------------------------------------|---------------------------|--------------------------------------|-------------------|--------------------------------------|
| 6. <input type="checkbox"/> | Copy or record the Port ID for UDR | <div><div>TopologyOverviewResourcesEventsTemplate</div><table><thead><tr><th>Stack Resource</th><th>Resource</th></tr></thead><tbody><tr><td>OCUDRSITE1_OCUDRB_XMI_PORT</td><td>3d3d71b9-dd54-4424-9025-352ee53d2ac4</td></tr><tr><td>OCUDRSITE1_OCUDRA_XMI_PORT</td><td>0afb48ed-b0a1-48f5-a603-00d24f360668</td></tr><tr><td>OCUDRSITE1_OCUDRB_XMI_PORT</td><td>be428e3e-6275-4629-beb3-e5b649ef0942</td></tr><tr><td>OCUDRSITE1_OCUDRB_XSI2_PORT</td><td>451b4d2d-9b48-4c54-8e5f-17804701a6bb</td></tr><tr><td>OCUDRSITE1_OCUDRB</td><td>6e439f8b-620d-4cf2-a9e4-e387c6fa6f2e</td></tr><tr><td>OCUDRSITE1_OCUDRB_XSI1_PORT</td><td>887a2614-432f-44a9-abb2-d1ffc516ad8</td></tr><tr><td>OCUDRSITE1_OCUDRA_XSI1_PORT</td><td>bf6affe8-e720-4f80-b514-16ad7e9df5a6</td></tr><tr><td>OCUDRSITE1_OCUDRA_XSI2_PORT</td><td>bed62056-3b8b-493c-bed7-128dd04acc8f</td></tr><tr><td>OCUDRSITE1_OCUDRA_XMI_PORT</td><td>3c0ce151-c72d-4a07-9df3-646497fa1b3c</td></tr><tr><td>OCUDRSITE1_OCUDR_VIP_PORT</td><td>0786cf62-3203-46b5-a4f8-beb19df5f5b7</td></tr><tr><td>OCUDRSITE1_OCUDRA</td><td>3c1f76d0-4142-4ff1-8d3e-22dba8132b40</td></tr></tbody></table></div> | Stack Resource | Resource | OCUDRSITE1_OCUDRB_XMI_PORT | 3d3d71b9-dd54-4424-9025-352ee53d2ac4 | OCUDRSITE1_OCUDRA_XMI_PORT | 0afb48ed-b0a1-48f5-a603-00d24f360668 | OCUDRSITE1_OCUDRB_XMI_PORT | be428e3e-6275-4629-beb3-e5b649ef0942 | OCUDRSITE1_OCUDRB_XSI2_PORT | 451b4d2d-9b48-4c54-8e5f-17804701a6bb | OCUDRSITE1_OCUDRB | 6e439f8b-620d-4cf2-a9e4-e387c6fa6f2e | OCUDRSITE1_OCUDRB_XSI1_PORT | 887a2614-432f-44a9-abb2-d1ffc516ad8 | OCUDRSITE1_OCUDRA_XSI1_PORT | bf6affe8-e720-4f80-b514-16ad7e9df5a6 | OCUDRSITE1_OCUDRA_XSI2_PORT | bed62056-3b8b-493c-bed7-128dd04acc8f | OCUDRSITE1_OCUDRA_XMI_PORT | 3c0ce151-c72d-4a07-9df3-646497fa1b3c | OCUDRSITE1_OCUDR_VIP_PORT | 0786cf62-3203-46b5-a4f8-beb19df5f5b7 | OCUDRSITE1_OCUDRA | 3c1f76d0-4142-4ff1-8d3e-22dba8132b40 |
| Stack Resource | Resource | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRB_XMI_PORT | 3d3d71b9-dd54-4424-9025-352ee53d2ac4 | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRA_XMI_PORT | 0afb48ed-b0a1-48f5-a603-00d24f360668 | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRB_XMI_PORT | be428e3e-6275-4629-beb3-e5b649ef0942 | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRB_XSI2_PORT | 451b4d2d-9b48-4c54-8e5f-17804701a6bb | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRB | 6e439f8b-620d-4cf2-a9e4-e387c6fa6f2e | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRB_XSI1_PORT | 887a2614-432f-44a9-abb2-d1ffc516ad8 | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRA_XSI1_PORT | bf6affe8-e720-4f80-b514-16ad7e9df5a6 | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRA_XSI2_PORT | bed62056-3b8b-493c-bed7-128dd04acc8f | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRA_XMI_PORT | 3c0ce151-c72d-4a07-9df3-646497fa1b3c | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDR_VIP_PORT | 0786cf62-3203-46b5-a4f8-beb19df5f5b7 | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCUDRSITE1_OCUDRA | 3c1f76d0-4142-4ff1-8d3e-22dba8132b40 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7. <input type="checkbox"/> | Copy or record all required Port IDs for DR Site. | Repeat Step 5 and Step 6 to copy or record the Port ID of both servers: DR-UDR-A and DR-UDR-B. DR-UDR-A: _____ DR-UDR-B _____ | | | | | | | | | | | | | | | | | | | | | | | | |
| 8. <input type="checkbox"/> | OpenStack Controller node: 1. Access the command prompt. 2. Log into the controller node as a privileged user. | <pre>login as: <usr_name> root@10.250.xx.yy's password: <usr_password> Last login: Mon Jul 30 10:33:19 2012 from 10.25.80.199 [root@control01]#</pre> | | | | | | | | | | | | | | | | | | | | | | | | |
| 9. <input type="checkbox"/> | OpenStack Controller node: Initialize environment variables | <pre>controller ~]# source keystone_rc_udrsw</pre> | | | | | | | | | | | | | | | | | | | | | | | | |

| Step | Procedure | Result |
|------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10. <input type="checkbox"/> | OpenStack Controller node: Assign VIP by Port IDs | Assign the VIP address to both A and B servers sharing the VIP: <pre>[root@control01 ~(keystone_udrsw)]# openstack floating ip create --port <UDR_VIP_Port_ID> EXT-XMI</pre> For example: <pre>openstack floating ip create --port fc7b8473-b39d-477f-8b2b-7e0a3b45ce5b EXT-XMI</pre> |
| 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: <pre>[root@control01 ~(keystone_udrsw)]# neutron port-show <port_id></pre> See Figure 3 for an example of the output. |
| THIS PROCEDURE HAS BEEN COMPLETED | | |

Figure 3 Example port-show output.

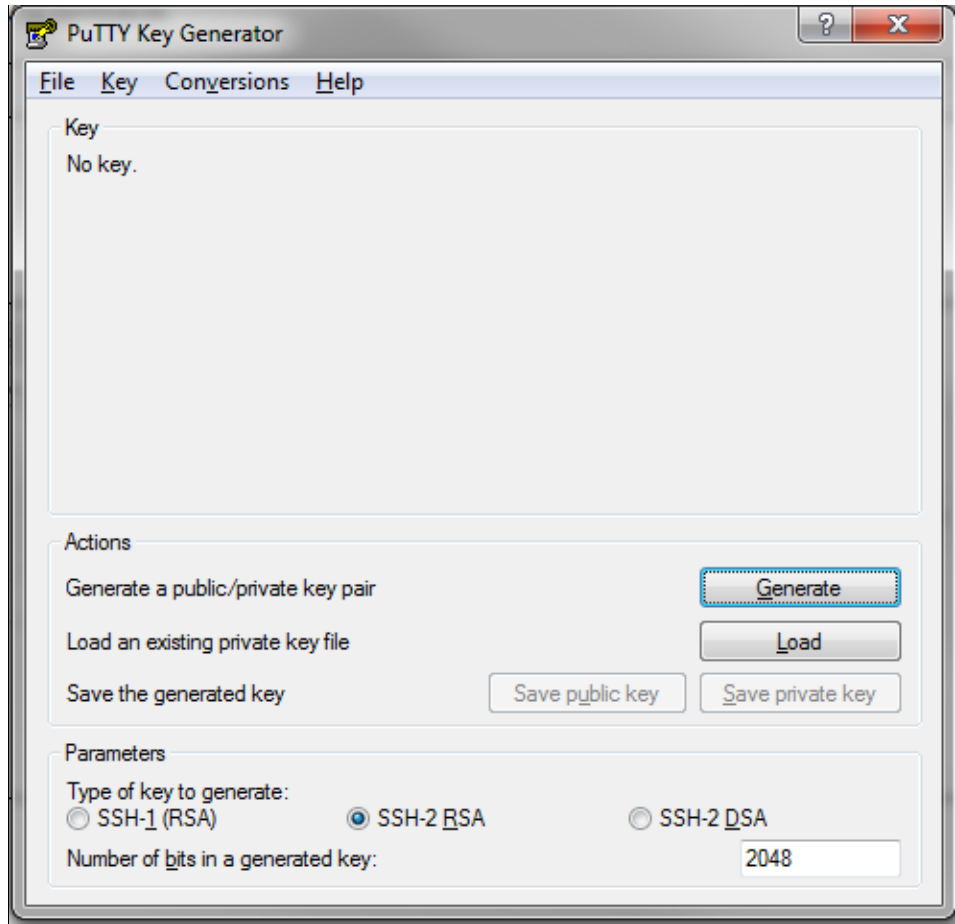
| Field | Value |
|-----------------------|--------------------------------------------------------------------------------------|
| admin_state_up | True |
| allowed_address_pairs | {"ip_address": "10.240.221.36", "mac_address": "fa:16:3e:ce:18:2a"} |
| binding:host_id | compute05.labafrika |
| binding:profile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

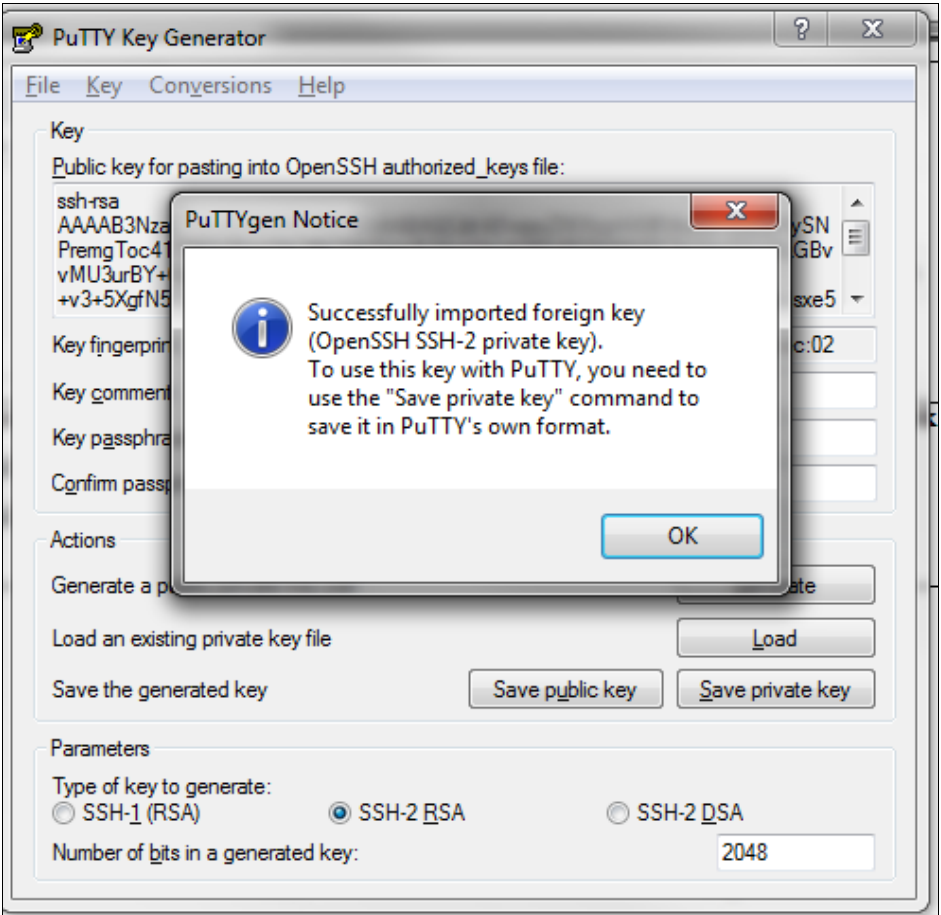
D.9 GENERATE PRIVATE KEY FOR SSH ACCESS

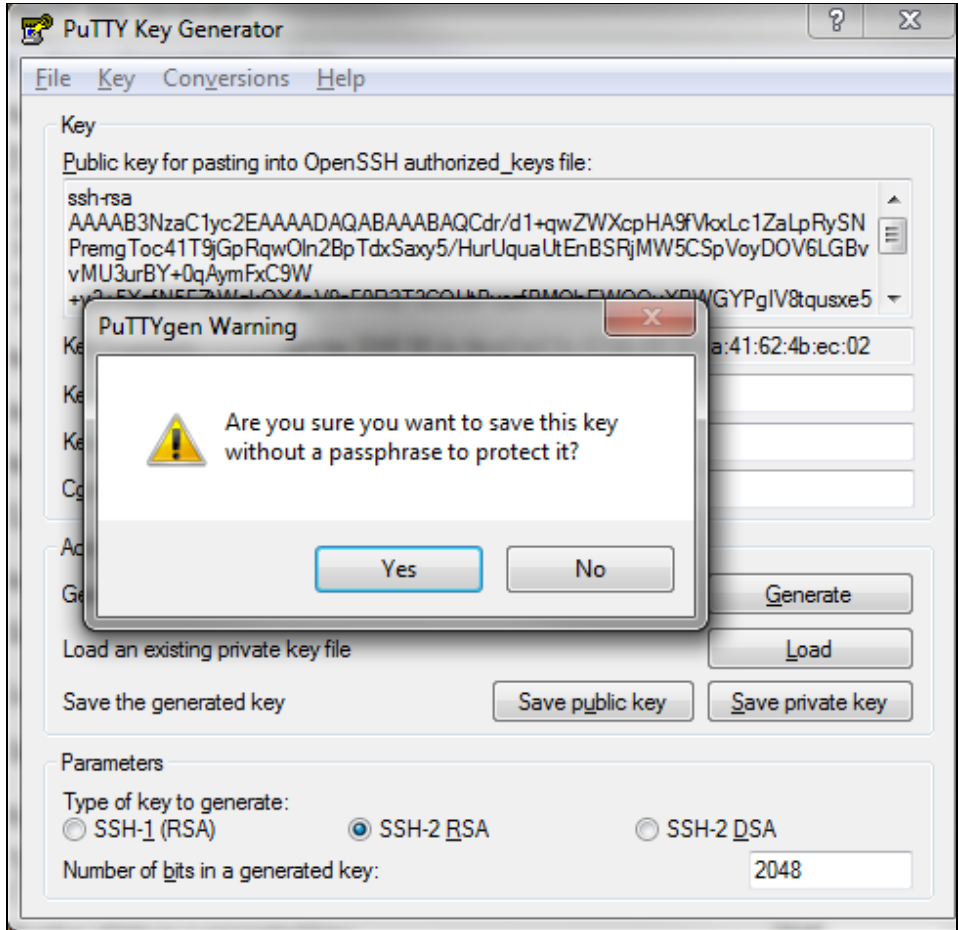
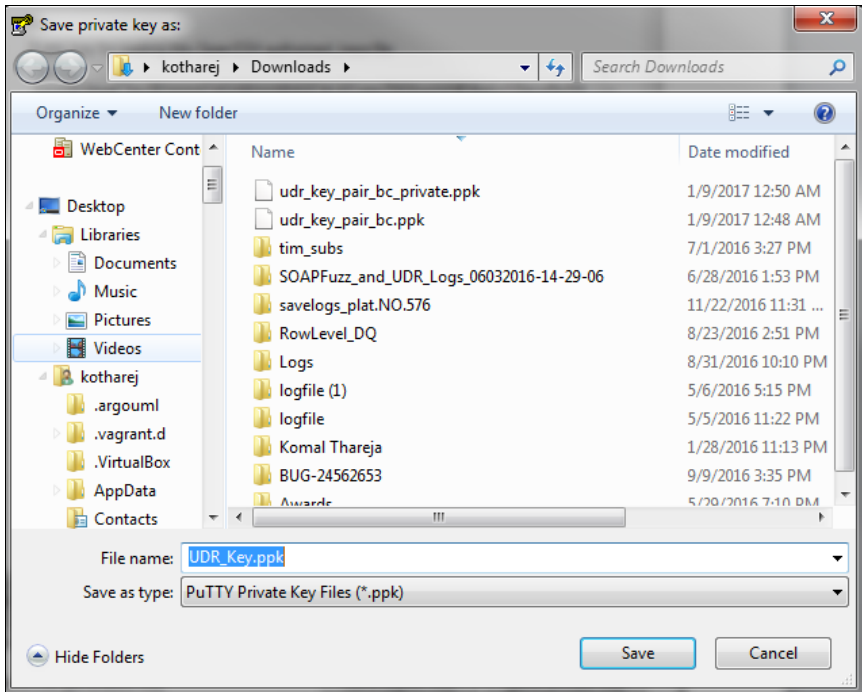
This procedure is used to generate Private Key to be used for accessing VM instance via SSH.

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

Procedure34: Generate Private Key for SSH Access

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

| Step | Procedure | Result |
|-----------------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 2. <input type="checkbox"/> | <p>Load the key file i.e *.pem generated in D.3 Create Key Pair</p> <p>Click OK</p> |  |

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

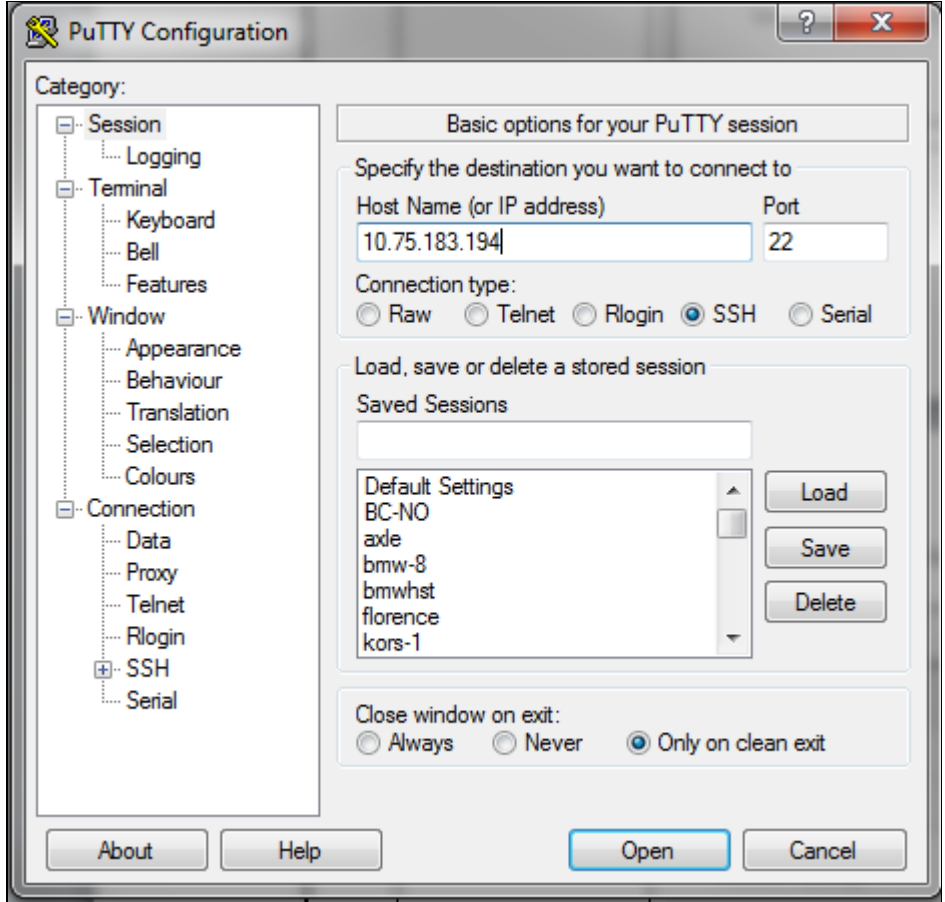
D.10 ACCESSING VM INSTANCE USING SSH

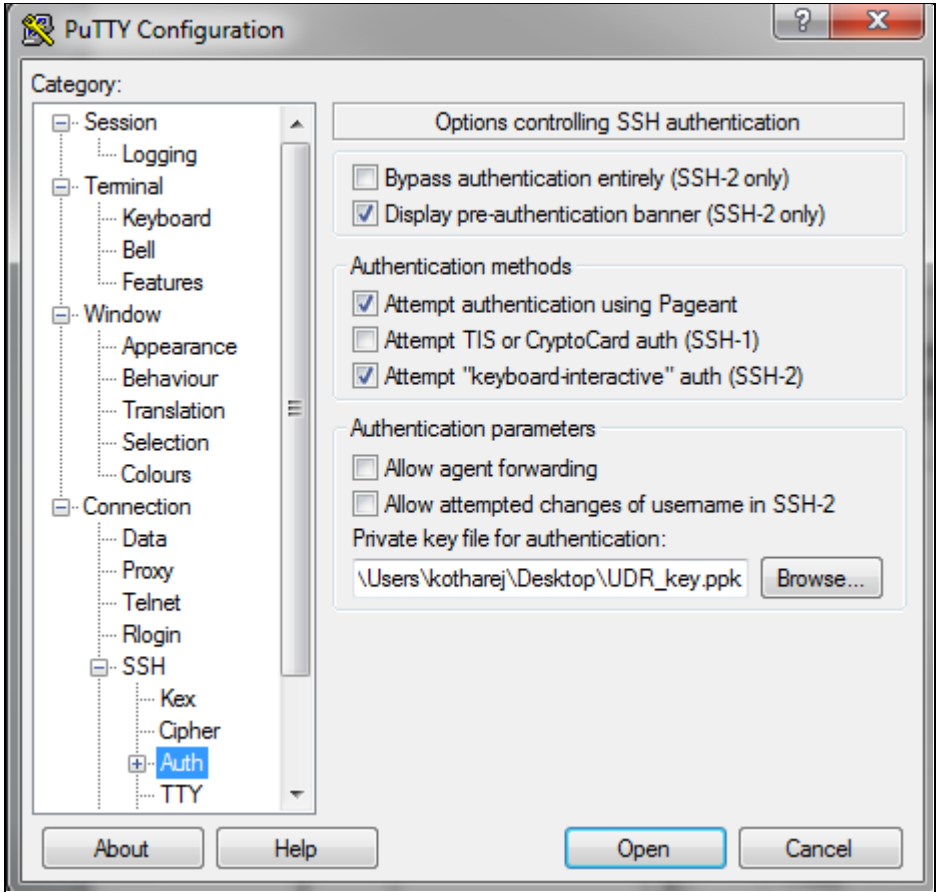
This procedure is used to access VM instance via SSH. This procedure assumes following:

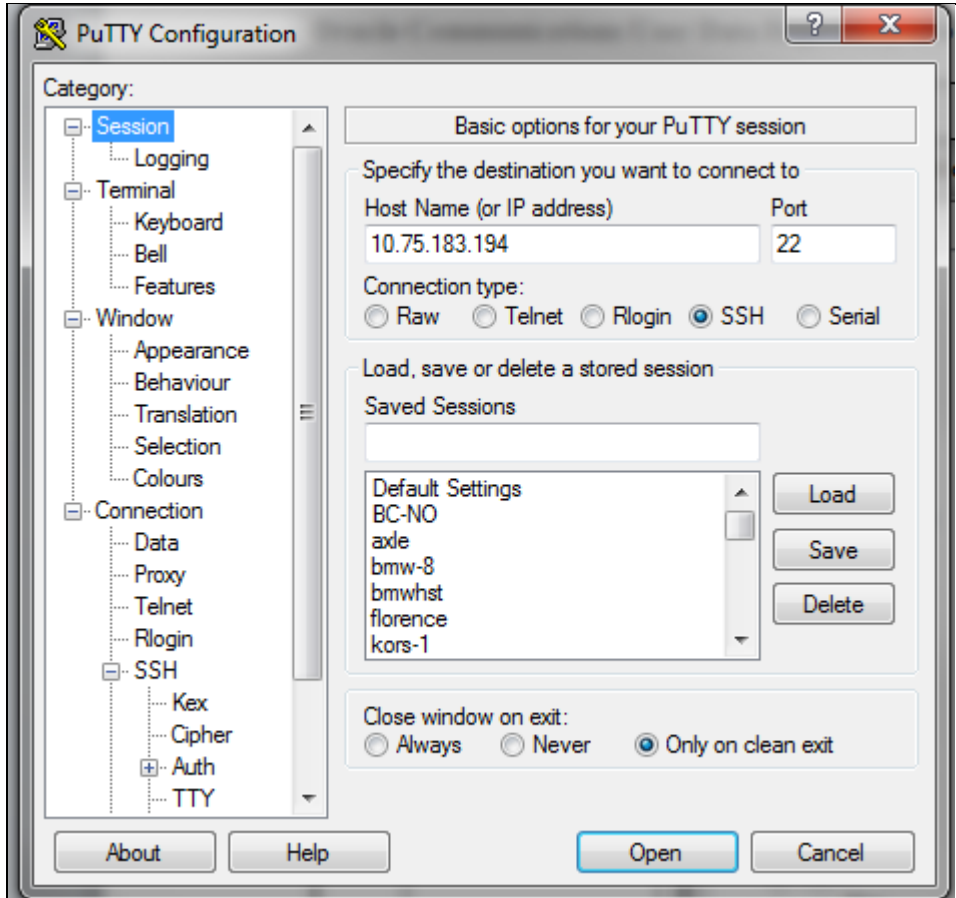
- Network configuration on VM instance is complete or floating IPs have been associated with VM instance
- Private Key has been generated as per D.9 Generate Private Key for SSH Access

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

Procedure35: SSH Access to VM Instance

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

| Step | Procedure | Result |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 2. <input type="checkbox"/> | <p>Navigate to SSH → Auth</p> <p>Select the *.ppk file generated by D.9 Generate Private Key for SSH Access</p> |  |

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

D.11 CLOBBER THE DATABASE ON VM INSTANCE

This procedure clobbers the database on VM instance.

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

Procedure36: Clobber Database on VM Instance

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

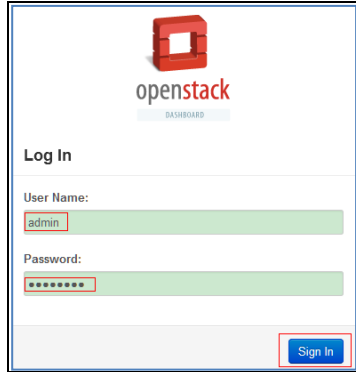
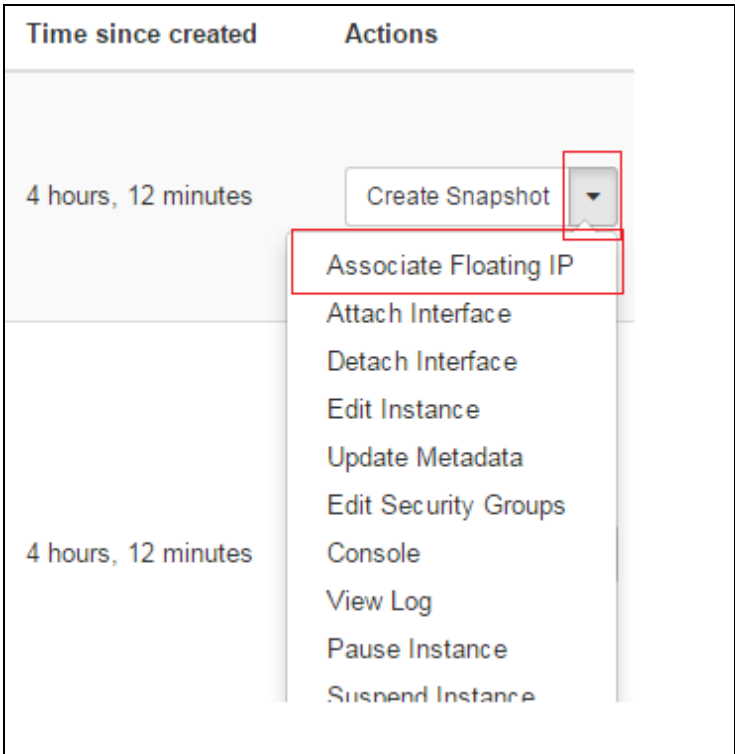
| Step | Procedure | Result |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. <input type="checkbox"/> | Run prod.clobber on the created instances | <pre> [root@hostname2c6772f9819e ~]# prod.clobber ...prod.clobber (RUNID=00)... ...getting current state... Current state: X (product under procmgr) WARNING: ABOUT TO DESTROY ALL PRODUCT DISK FILES !!!! Are you sure? [enter Y or N] y ...setting state 0... ...waiting for state 0... Current state is 0 ...taking down processes... processes down ...removing existing IPC resources... + md_ipcrm ... 852 resources ...clobbering runenv files... + rm -rf /var/TKLC/run/db/run </pre> |
| 4. <input type="checkbox"/> | Run prod.start on instance After start, use pl to check process status, after first start, only a few processes start | <pre> [root@hostname2c6772f9819e ~]# prod.start_ + lgt -liddioXML -DataDictPart > /var/TKLC/run/db/DataDictPart/20160527.055813.5460.DataDictPart.tmp + edd.op --install --must-eq-current /var/TKLC/run/db/DataDictPart/20160527.055813.5460.DataDictPart.tmp created: 20160527.055813.5460.DataDictPart.xml ...starting procmgr ... [root@hostname2c6772f9819e ~]# pl \$ pid procTag \$1 stat spawnTime N cmd Z 29470 cnha Up 05/27 01:59:29 1 cnha Z 29471 cnsoapa Up 05/27 01:59:29 1 cnsoapa Z 29473 idbsvc Up 05/27 01:59:29 1 idbsvc -M10 -HE204 -D40 -DE820 -U1 -S2 -L1 Z 29475 inetmerge Up 05/27 01:59:29 1 inetmerge Z 29477 raclerk Up 05/27 01:59:29 1 raclerk -r 3000 Z 29478 re.portmap Up 05/27 01:59:29 1 re.portmap -c100 </pre> |
| 5. <input type="checkbox"/> | Run prod.start -i again on instance, this time, all processes started | <pre> [root@hostname2c6772f9819e ~]# prod.start ...prod.start (RUNID=00)... ...getting current state... Current state: Z (product under procmgr) ...setting state X... ...waiting for state [X00]... Current state is X [root@hostname2c6772f9819e ~]# pl \$ pid procTag \$1 stat spawnTime N cmd X 29586 lmysqld Up 05/27 02:00:25 1 lmysqld.start -force X 29587 ProcWatch Up 05/27 02:00:25 1 ProcWatch -L X 29589 apuSoapServer Up 05/27 02:00:25 1 tCH00SIGCHK=1 apuSoapServer X 29470 cnha Up 05/27 01:59:29 1 cnha X 29591 cnplatalarm Up 05/27 02:00:25 1 cnplatalarm X 29593 cnsnmpsa Up 05/27 02:00:25 1 cnsnmpsa -R 1.3.6.1.4.1.323.5.3.32.1 X 29471 cnsoapa Up 05/27 01:59:29 1 cnsoapa X 29608 eclipseHelp Up 05/27 02:00:25 1 eclipseHelp X 29594 guiReqMapLoad Up 05/27 02:00:25 1 guiReqMapLoad X 29473 idbsvc Up 05/27 01:59:29 1 idbsvc -M10 -HE204 -D40 -DE820 -U1 -S2 -L1 X 29475 inetmerge Up 05/27 01:59:29 1 inetmerge X 29596 inetrep Up 05/27 02:00:25 1 inetrep X 29598 nkdbhooks Up 05/27 02:00:25 1 nkdbhooks X 29601 oanpAgent Up 05/27 02:00:25 1 oanpAgent X 29603 pn.watchdog Up 05/27 02:00:25 1 pn.watchdog X 29477 raclerk Up 05/27 01:59:29 1 raclerk -r 3000 X 29478 re.portmap Up 05/27 01:59:29 1 re.portmap -c100 X 29605 statclerk Up 05/27 02:00:25 1 statclerk -s -0 X 29607 vipmgr Up 05/27 02:00:25 1 vipmgr </pre> |
| THIS PROCEDURE HAS BEEN COMPLETED | | |

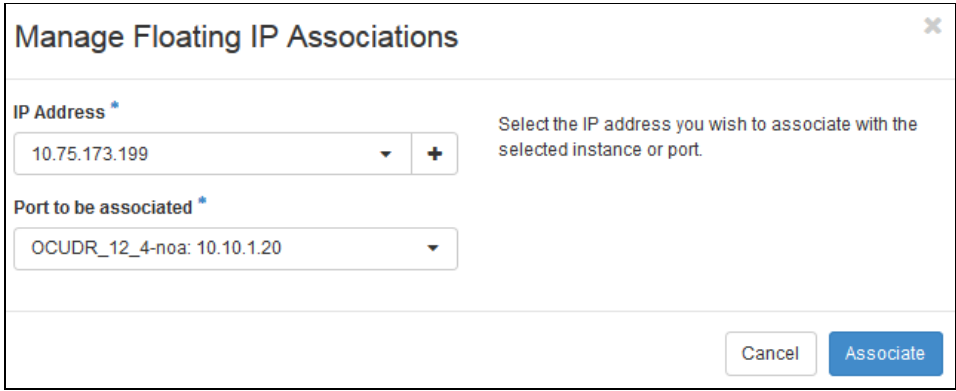
D.12 ASSOCIATING FLOATING IPS

This procedure associates Floating IP to VM instance.

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

Procedure37: Associate Floating IP

| Step | Procedure | Result |
|-----------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> | Login to the OpenStack GUI |  <p>The screenshot shows the OpenStack Dashboard login page. The 'Log In' section has a 'User Name' field containing 'admin' and a 'Password' field with masked characters. A 'Sign In' button is at the bottom right.</p> |
| 2. <input type="checkbox"/> | Login to the VM instance by navigating to Project → Instances → More → Associate Floating IP |  <p>The screenshot shows the 'Instances' table in the OpenStack GUI. The 'Actions' column for a VM instance is expanded, showing a list of actions. The 'Associate Floating IP' option is highlighted with a red box.</p> |

| Step | Procedure | Result |
|-----------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 3. <input type="checkbox"/> | Select the IP Addresss and Port to be associated Click Associate |  |
| THIS PROCEDURE HAS BEEN COMPLETED | | |

Appendix E. Same Network Element and Hardware Profiles

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

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

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

Example Network Element XML file:

| Example NOAMP Network Element XML | Example SOAM Network Element XML |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre><?xml version="1.0"?> <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 networks in a Network Element XML file.

The server hardware information is needed to configure the Ethernet interfaces on the servers. This server hardware profile data XML file is used for Appworks deployments. It is supplied to the NOAMP server so that the information can be pulled in by Appworks and presented in the GUI during server configuration. Figure 4 is an example of a server hardware profile XML file stored in the `/var/TKLC/appworks/profiles` directory.

Figure 4: Example Server Hardware Profile XML—Virtual Guest

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

Appendix F. High Availability Configurations

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

NOTES:

Non-HA configuration is for labs and demonstrations only.

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

The HA Max number of VMs was used for performance testing

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

Appendix G. Resource Profile

| VM Purpose | Network Operation,Administration,Maintenance And Provisioning | | | |
|-----------------|---------------------------------------------------------------|---------|-------------|----------------------------------|
| Flavor NAME | vCPUs | RAM(GB) | STORAGE(GB) | Subscriber Capacity(In Millions) |
| Small | 6 | 16 | 270 | - |
| Medium | 12 | 32 | 450 | - |
| vEIR | 18 | 70 | 450 | 120 |
| vMNP | 32 | 128 | 850 | 250 |
| 300M_vEIR | 32 | 140 | 850 | 300 |
| vFABR_Large | 56 | 256 | 850 | 180 |
| 700M_vMNP | 32 | 350 | 1300 | 700 |
| 700M_vOnly_ENUM | 32 | 550 | 2100 | 700 |
| 700M_vENUM_MNP | 32 | 700 | 2540 | 700 |

NOTES:

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

Automatic backup files limitations:

For **700M_vMNP**, **700M_vOnly_ENUM** and **700M_vENUM_MNP** based flavor, the size of automatic backup(Configuration and Provisioning) at standby NOAMP node is very huge and so we do not recomend to have more than one. If customer needs to retain them then they should either increase the size of filemgmt or move existing backup files to remote server using the Data Export schedule task. If customer does not follow then new backup file will not be created due to unsufficient space in filemgmt area.

Refere DSR OAM Guide, section 2.4.3.3 - Configure Data Export Jobs

For Backup and Restore:

For **700M_vMNP**, **700M_vOnly_ENUM** and **700M_vENUM_MNP** based flavor, make sure **vgs** has free space greater than size of **run_db** for the backup to get complete.

For Restore to work properly make sure the **filemgmt** size is “backup file size + (backup file size + 60G) “.

Subscriber Capacity:

| Deployment Type | Flavor Type | Max Subscriber(In Millions) |
|-----------------|-----------------|-----------------------------|
| MNP | vMNP | 250 |
| EIR | vEIR | 120 |
| 300M_EIR | v300M_EIR | 300 |
| 700M_ENUM_MNP | v700M_ENUM_MNP | 700 |
| 700M_MNP | v700M_MNP | 700 |
| 700M_Only_ENUM | v700M_Only_ENUM | 700 |
| DSA/SFAPP | vMNP | 140 |
| DSA/SFAPP | vEIR | 75 |

Appendix H. Network Device Assignments

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

| Legend | | | | |
|-----------|----------------|-------------|----------|-----------|
| Mandatory | Not Applicable | Unsupported | Optional | Suggested |

Appendix I. Network and Port Information

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

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

Appendix J. Install UDR on Oracle Linux OS via KVM

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

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

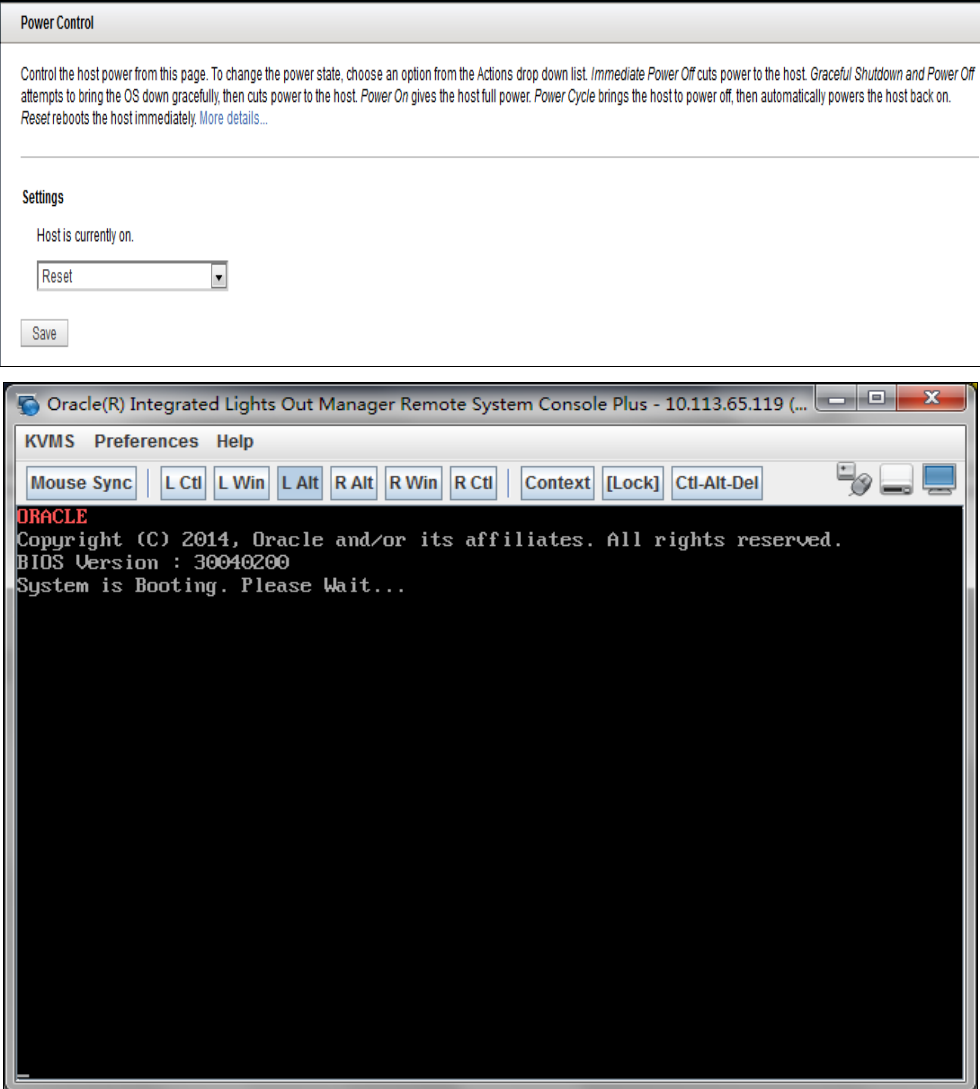
NOTE:


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

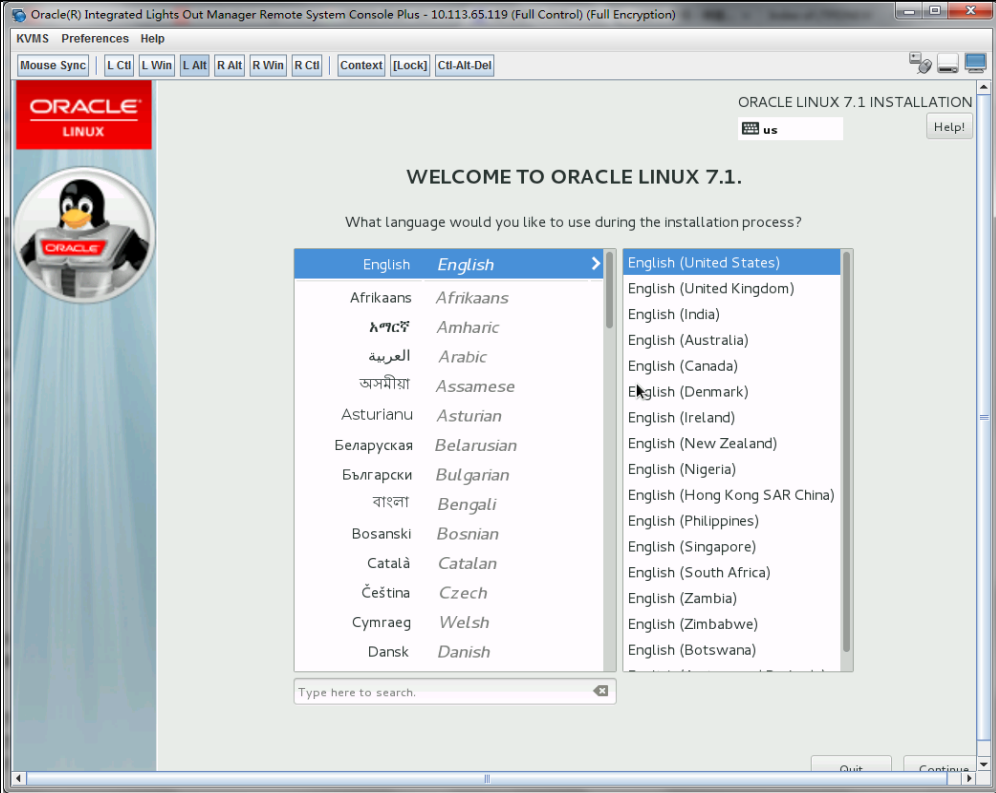
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

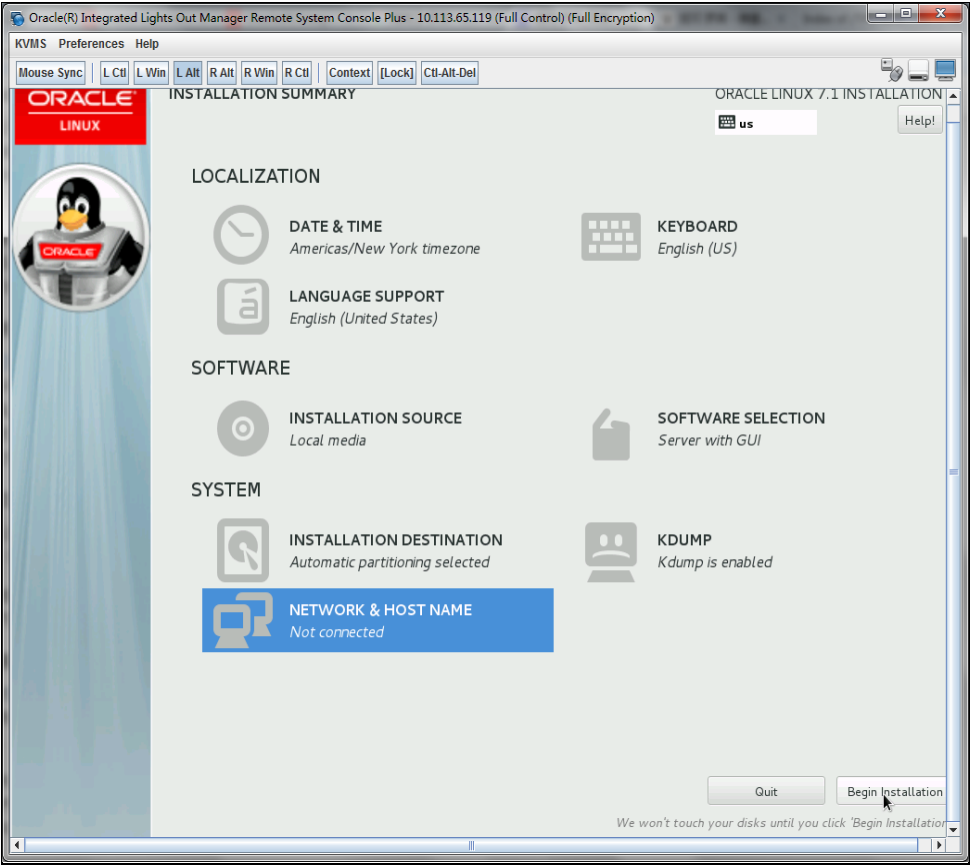
Procedure38: Install UDR on Oracle Linux/KVM

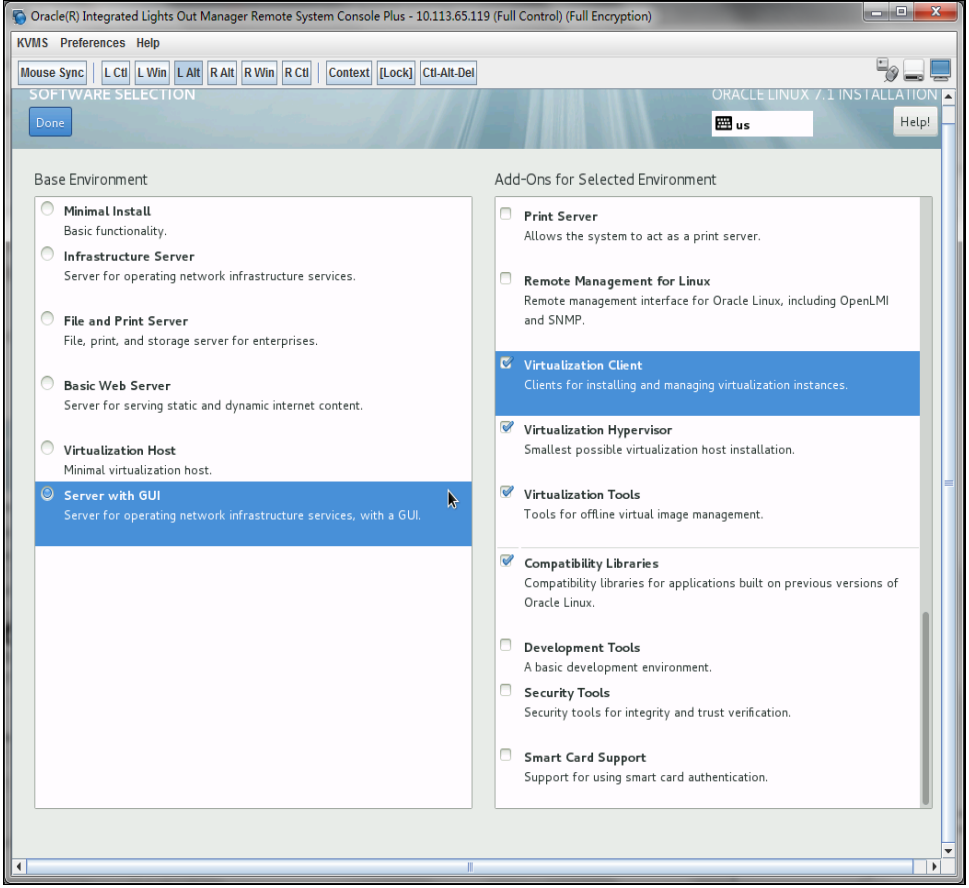
| Step | Procedure | Result |
|-----------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|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

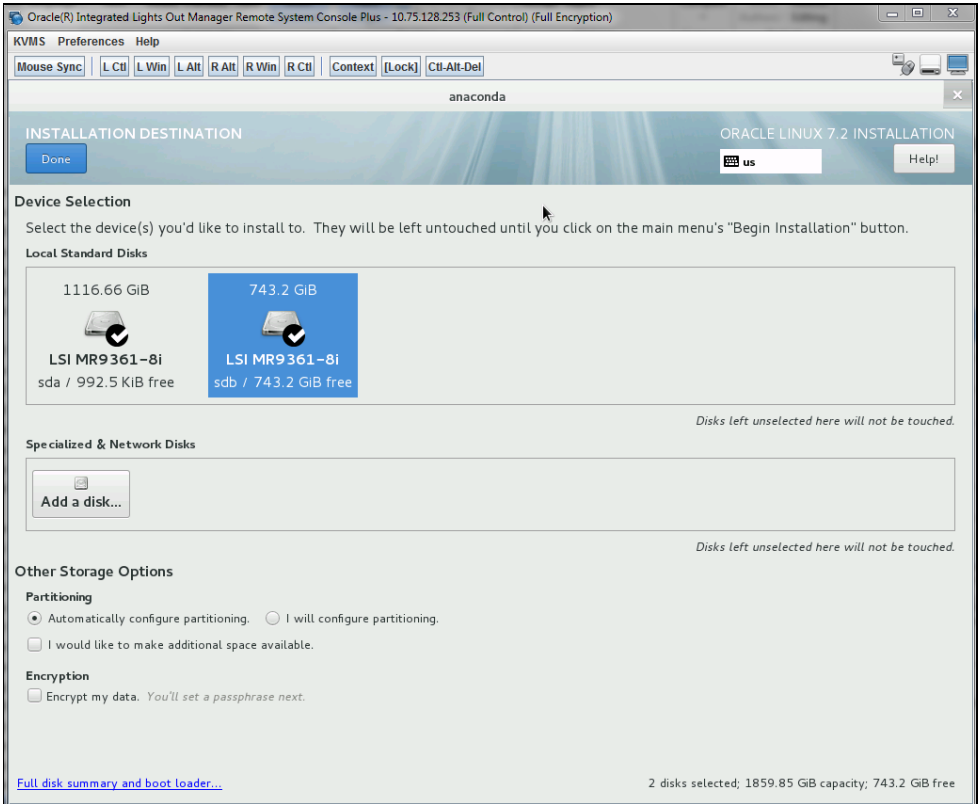
| Step | Procedure | Result |
|-----------------------------|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2. <input type="checkbox"/> | 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>  <p>The screenshot shows two parts of the iLo interface. The top part is the 'Power Control' web page, which includes instructions on how to use the 'Actions' drop-down list for power management. It shows the 'Host is currently on.' status and a 'Reset' button selected in the drop-down menu, with a 'Save' button below it. The bottom part is a remote console window titled 'Oracle(R) Integrated Lights Out Manager Remote System Console Plus - 10.113.65.119'. The console shows the 'ORACLE' logo, copyright information for 2014, BIOS version 30040200, and the message 'System is Booting. Please Wait...'. The console window has a menu bar with 'KVMS', 'Preferences', and 'Help', and a toolbar with buttons for 'Mouse Sync', 'L Ctl', 'L Win', 'L Alt', 'R Alt', 'R Win', 'R Ctl', 'Context', '[Lock]', and 'Ctl-Alt-Del'.</p> |

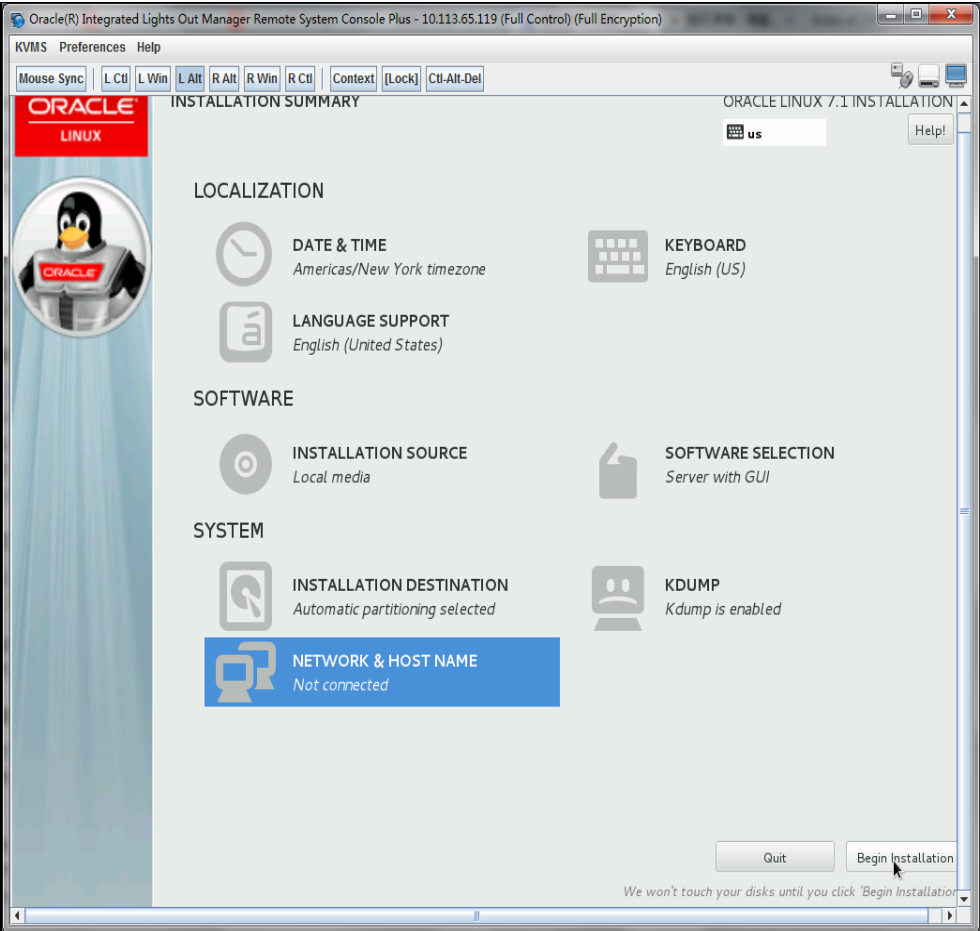
| Step | Procedure | Result |
|-----------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------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

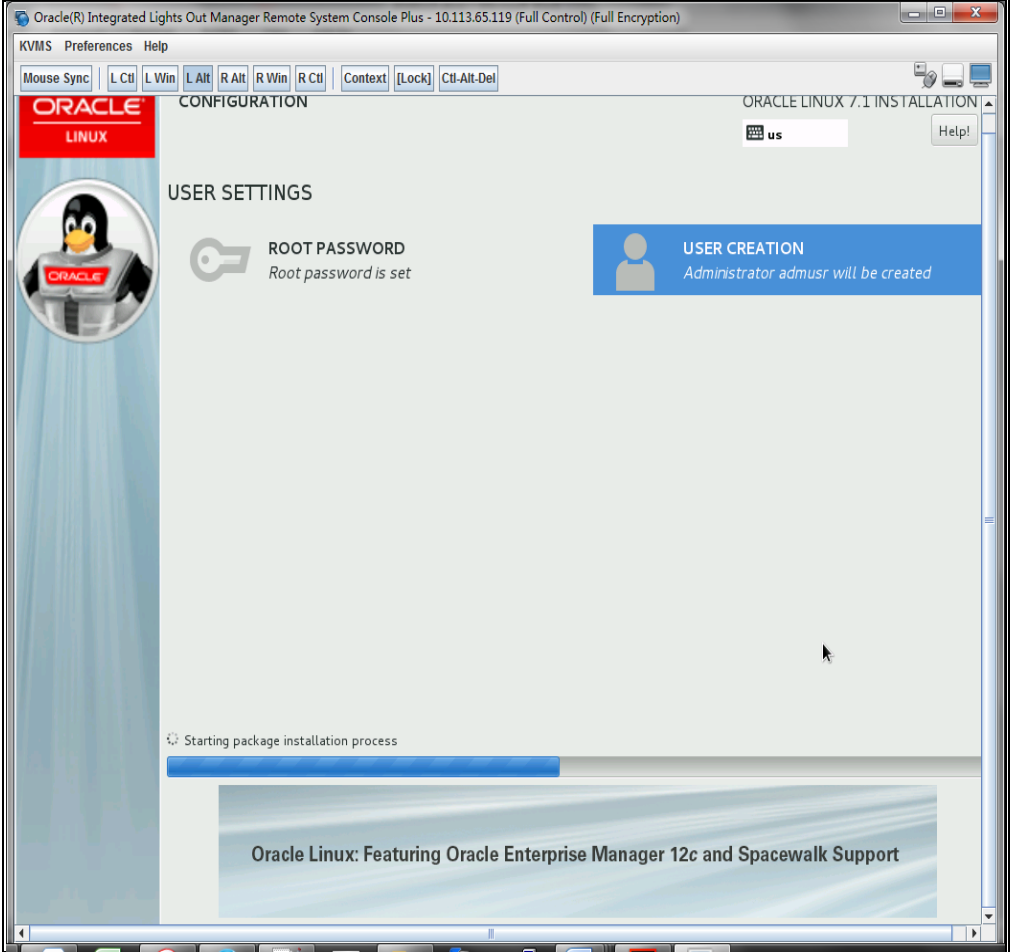
| Step | Procedure | Result |
|-----------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|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

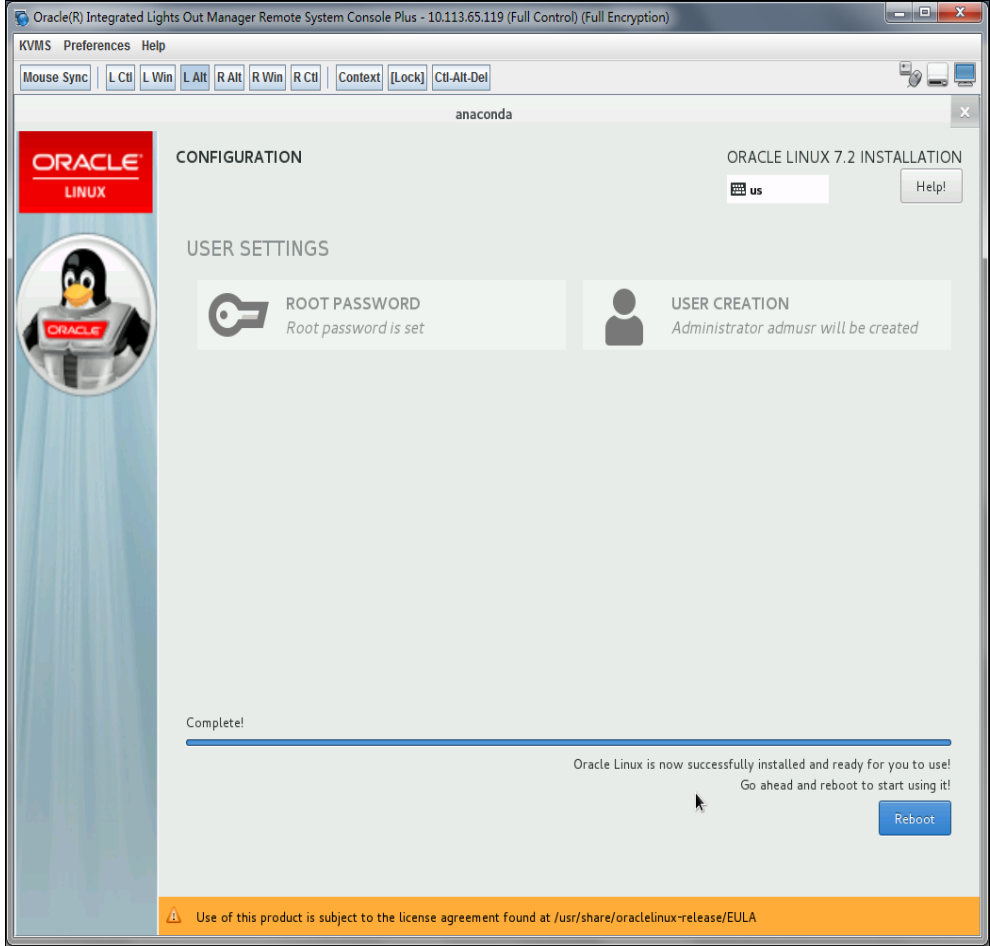
| Step | Procedure | Result |
|-----------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------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

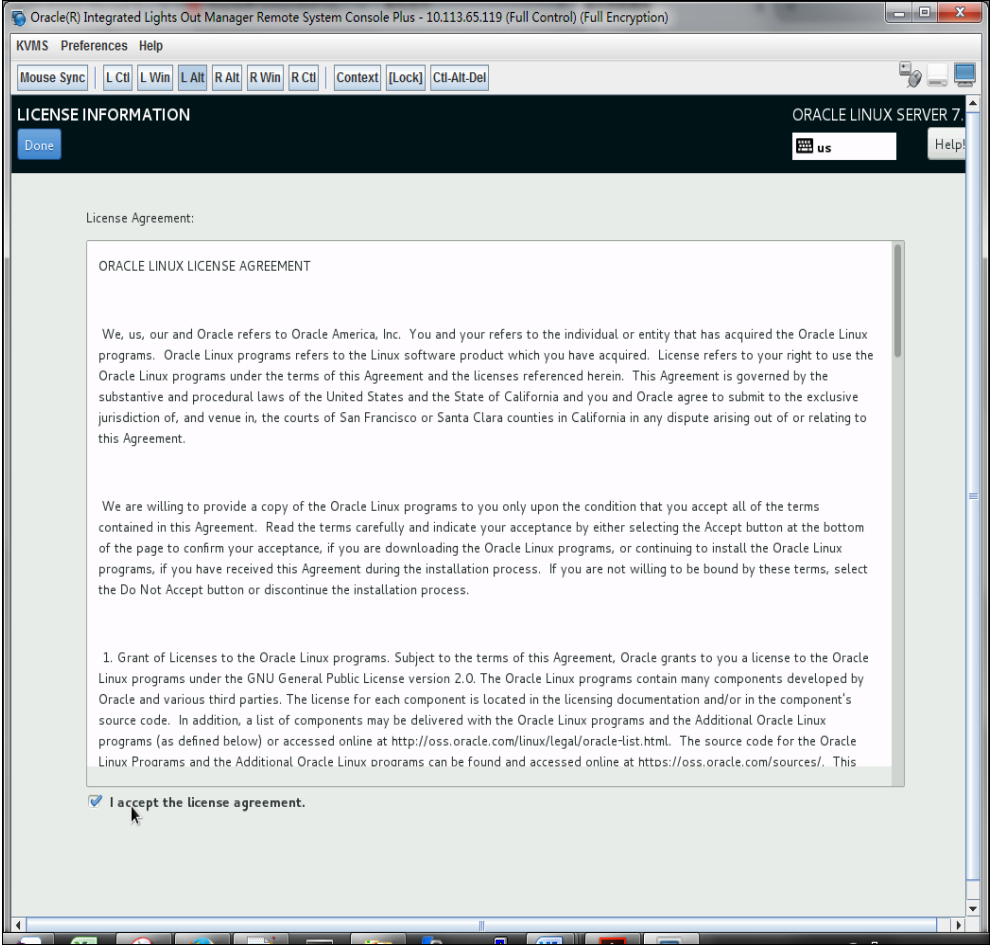
| Step | Procedure | Result |
|-----------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------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

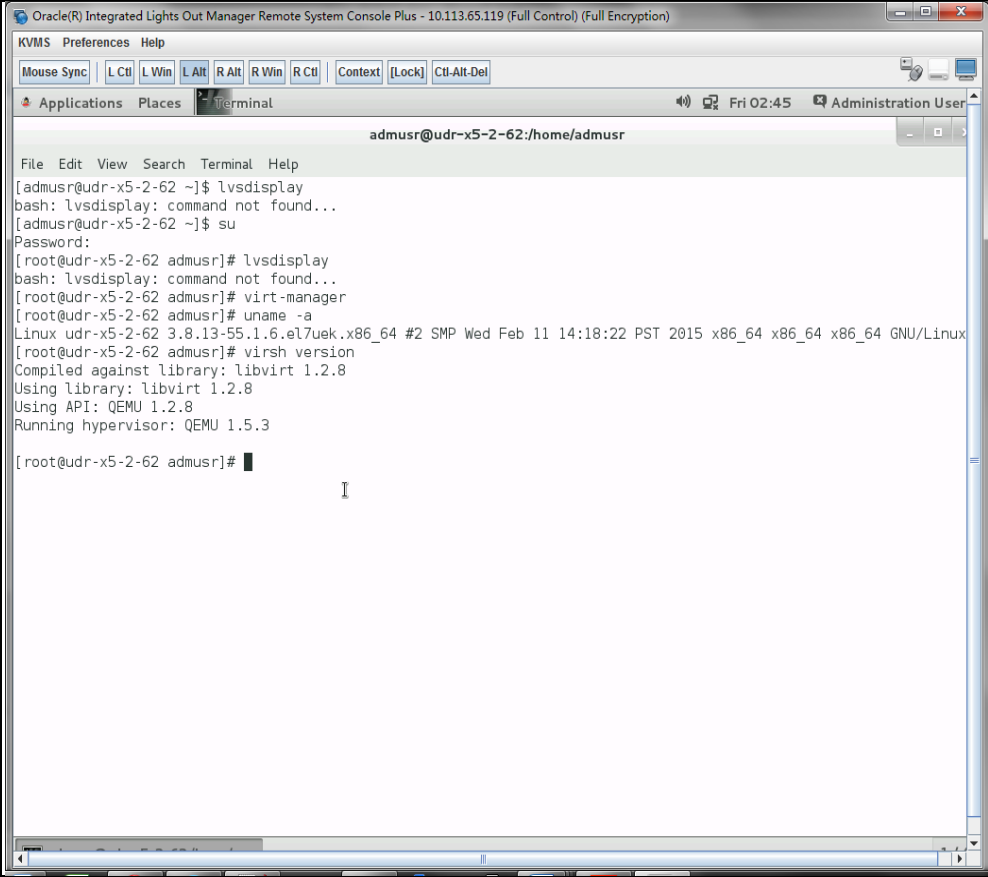
| Step | Procedure | Result |
|-----------------------------|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------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

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

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

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

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

| Step | Procedure | Result |
|------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12. <input type="checkbox"/> | For each Oracle X5-2 RMS, verify kernel version and KVM version | <p>Open SSH console window and check following:</p>  <pre> admusr@udr-x5-2-62:/home/admusr File Edit View Search Terminal Help [admusr@udr-x5-2-62 ~]\$ lvsdisplay bash: lvsdisplay: command not found... [admusr@udr-x5-2-62 ~]\$ su Password: [root@udr-x5-2-62 admusr]# lvsdisplay bash: lvsdisplay: command not found... [root@udr-x5-2-62 admusr]# virt-manager [root@udr-x5-2-62 admusr]# uname -a Linux udr-x5-2-62 3.8.13-55.1.6.el7uek.x86_64 #2 SMP Wed Feb 11 14:18:22 PST 2015 x86_64 x86_64 x86_64 GNU/Linux [root@udr-x5-2-62 admusr]# virsh version Compiled against library: libvirt 1.2.8 Using library: libvirt 1.2.8 Using API: QEMU 1.2.8 Running hypervisor: QEMU 1.5.3 [root@udr-x5-2-62 admusr]# </pre> |
| 13. <input type="checkbox"/> | For each Oracle X5-2 RMS, change network interface name pattern to ethx | <ol style="list-style-type: none"> Edit /etc/default/grub to append net.ifnames=0 to option GRUB_CMDLINE_LINUX: <pre>[root@udr-x5-2-62-ol7 admusr]# cat /etc/default/grub</pre> <pre> GRUB_TIMEOUT=5 GRUB_DISTRIBUTOR="\$(sed 's, release .*\$,,g' /etc/system-release)" GRUB_DEFAULT=saved GRUB_DISABLE_SUBMENU=true GRUB_TERMINAL_OUTPUT="console" GRUB_CMDLINE_LINUX="crashkernel=auto rd.lvm.lv=ol00/root rd.lvm.lv=ol00/swap rhgb quiet net.ifnames=0" GRUB_DISABLE_RECOVERY="true" </pre> Recreate the grub2 config file with following command: <pre># grub2-mkconfig -o /boot/grub2/grub.cfg</pre> Restart host using shutdown -r command and verify that network interface have the ethx name pattern. |

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

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

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

| Step | Procedure | Result |
|------------------------------|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 18. <input type="checkbox"/> | For each Oracle X5-2 RMS, Create xsi1/xsi2 bridge | <p>Create device bond1.<xsi1_vlan> configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-bond1.<xsi1_vlan></pre> <pre>BOOTPROTO=none VLAN=yes ONBOOT=yes TYPE=Ethernet DEVICE=bond1.<xsi1_vlan> BRIDGE=xsi1 NM_CONTROLLED=no</pre> <p>Create device xsi1 configuration file:</p> <pre># vim /etc/sysconfig/network-scripts/ifcfg-xsi1</pre> <pre>DEVICE=xsi1 TYPE=Bridge BOOTPROTO=none ONBOOT=yes NM_CONTROLLED=no BRIDGE_INTERFACES=bond1.<xsi1_vlan></pre> <p>Bring the devices into service:</p> <pre># ifup xsi1 # ifup bond1.<xsi1_vlan></pre> <p>Perform similar operations to create network devices for xsi2.</p> |
| 19. <input type="checkbox"/> | For each Oracle X5-2 RMS, set the host name | <p>Rename host by modifying /etc/hostname file:</p> <pre>[root@localhost network-scripts]# cat /etc/hostname</pre> <pre>udr-x5-2-62-017</pre> <p>Review host name change with following command:</p> <pre>[root@localhost network-scripts]# hostnamectl status</pre> <pre>Static hostname: udr-x5-2-62-017 Icon name: computer-server Chassis: server Machine ID: 17980a78ef7d440ca5a6900768903795 Boot ID: a2a5a649eea14d8ab7534aec962c6782 Operating System: Oracle Linux Server 7.2 CPE OS Name: cpe:/o:oracle:linux:7:2:server Kernel: Linux 3.8.13-98.7.1.el7uek.x86_64 Architecture: x86-64</pre> |

| Step | Procedure | Result |
|------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 20. <input type="checkbox"/> | For each Oracle X5-2 RMS, set the NTP service | <p>Modify /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 the added server:</p> <pre># ntpdate 144.25.255.140 # timedatectl</pre> <p>Verify time synced:</p> <pre>[root@udr-x5-2-62 log]# chronyc tracking</pre> <pre>Reference ID : 144.25.255.140 (144.25.255.140) Stratum : 3 Ref time (UTC) : Mon Feb 29 06:06:44 2016 System time : 1.692247748 seconds slow of NTP time Last offset : -3.862722397 seconds RMS offset : 3.862722397 seconds Frequency : 0.000 ppm fast Residual freq : -93.109 ppm Skew : 1000000.000 ppm Root delay : 0.178002 seconds Root dispersion : 30.041723 seconds Update interval : 0.0 seconds Leap status : Normal</pre> |
| 21. <input type="checkbox"/> | For each Oracle X5-2 RMS: Create /home/ova dir | <pre>[root@pc9112020 ~]# mkdir -p /home/ova [root@pc9112020 ~]# cd /home/ova</pre> |
| 22. <input type="checkbox"/> | Transfer OVA file this dir using sftp tool | <pre>[root@pc12107008 ova]# ll total 12322888 -rw-r--r--. 1 root root 1047767040 May 2 00:51 UDR-12.5.1.0.0_17.7.0.ova</pre> |
| 23. <input type="checkbox"/> | Untar this ova file | <pre>[root@pc9112020 ova]# tar xvf UDR-12.5.1.0.0_17.7.0.ova UDR-17_7_0.ovf UDR-17_7_0.mf UDR-17_7_0.vmdk</pre> |
| 24. <input type="checkbox"/> | Convert this vmdk | <pre>[root@pc9112020 ova]# qemu-img convert -O qcow2 DR- UDR-12.5.1.0.0_17.7.0.ova.vmdk UDRNO-17_7_0.qcow2</pre> |

| Step | Procedure | Result |
|------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | file to qcow2 file | |
| 25. <input type="checkbox"/> | Copy the qcow2 files for SO and MP | <pre>[root@pc9112020 ova]# cp UDRNO-17_7_0.qcow2 UDRSO-17_7_0.qcow2 [root@pc9112020 ova]# cp UDRNO-17_7_0.qcow2 UDRMP-17_7_0.qcow2</pre> |
| 26. <input type="checkbox"/> | Configure storage for corresponding qcow2 files | <p>Configure storage qcow2 files as per corresponding VMs. Refer Appendix G to get the required storage.</p> <p>Run the following command for each VM to set the storage:</p> <pre>qemu-img resize <NO_qcow2_filename>.qcow2 <storage_in_gigabytes>G</pre> <p>Run the command for a VM if storage required is greater than 60G. You do not have to run this command if the storage required is 60G or less.</p> <p>For example, if resource profile is EIR and VM is UDR, the storage required is 400G. The command in that case is:</p> <pre>qemu-img resize UDRNO-17_7_0.qcow2 400G</pre> |
| 27. <input type="checkbox"/> | Create UDR VMs. Repeat this step for each VM. | <p>Create UDR VMs: NO, SO and MP using appendix below. Repeat the below procedure for each VM</p> <p>Appendix J Install UDR on Oracle Linux OS via KVM</p> <p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR</p> |
| 28. <input type="checkbox"/> | For each UDR VMs: Add the network device | <p>Login to each VM created and add the network devices:</p> <p>UDR:</p> <pre># netAdm add -device=eth0 # netAdm add -device=eth1 # netAdm add -device=eth2</pre> <p>NOTE: eth0 is XMI, eth1 is IMI and eth2 is XSI1 and eth3 is XSI2 (create eth3 if XSI2 is required).</p> |
| 29. <input type="checkbox"/> | For each UDR VMs: Configure XMI network address | <p>Set XMI network address for each UDR VM:</p> <pre># netAdm set --device=eth0 --onboot=yes --netmask=<XMI_netmask> --address=<XMI_network_address> # netAdm add --device=eth0 --route=default --gateway=<XMI_gateway></pre> |
| 30. <input type="checkbox"/> | For each UDR VMs: Configure NTP service | <p>Use Step 5 to 6 of Appendix L.6 Configure TVOE Server (Hostname, Time Zone, SNMP, NTP, etc) in [2] to configure NTP service for each VM.</p> |
| 31. <input type="checkbox"/> | Extend VM Instance volume | <p>Extend volumes for various VM Instances depending on flavor following:</p> <p>Appendix D.6 Extend VM Instance Volume Size</p> <p>Mark the check box as addition is completed for each server.</p> <p><input type="checkbox"/> UDR-A <input type="checkbox"/> UDR-B</p> |
| THIS PROCEDURE HAS BEEN COMPLETED | | |

Appendix K. My Oracle Support

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

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

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

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

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

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

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

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

Appendix M. Create and install UDR VM via KVM GUI

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

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

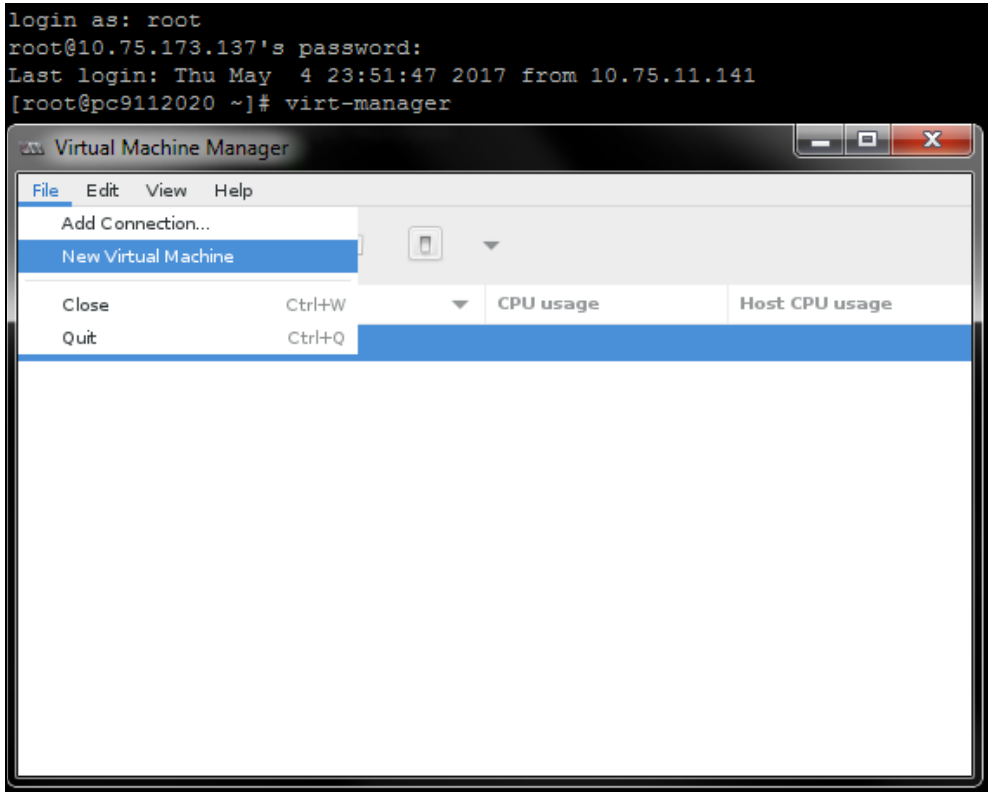
NOTE: This procedure needs to be done for each VM: NO, SO and MP

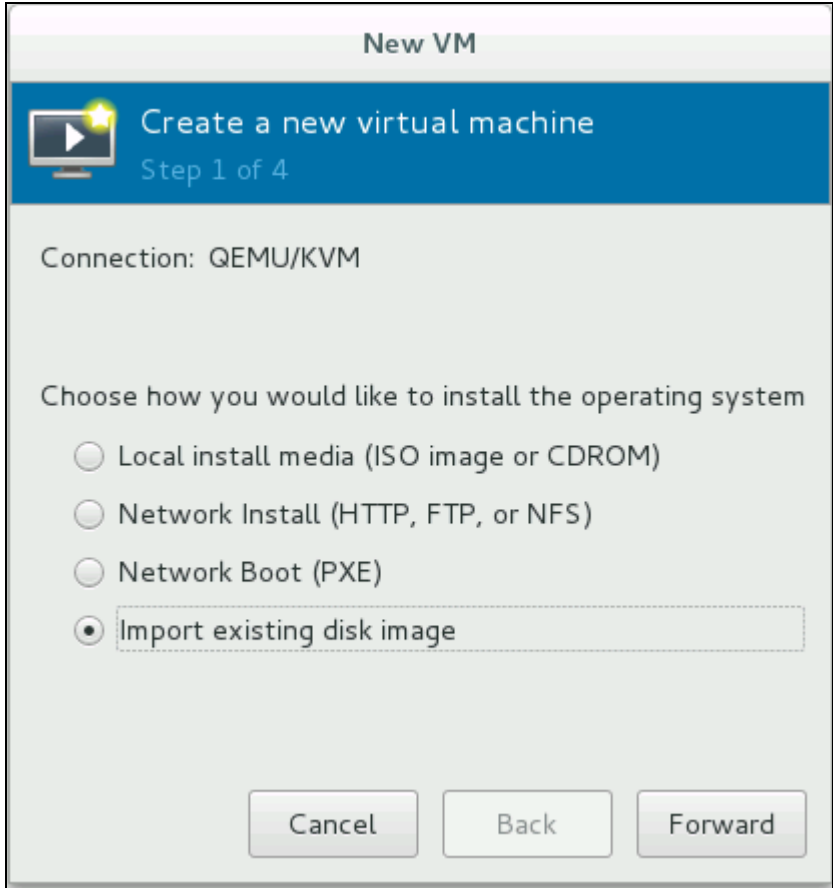
Requirements:

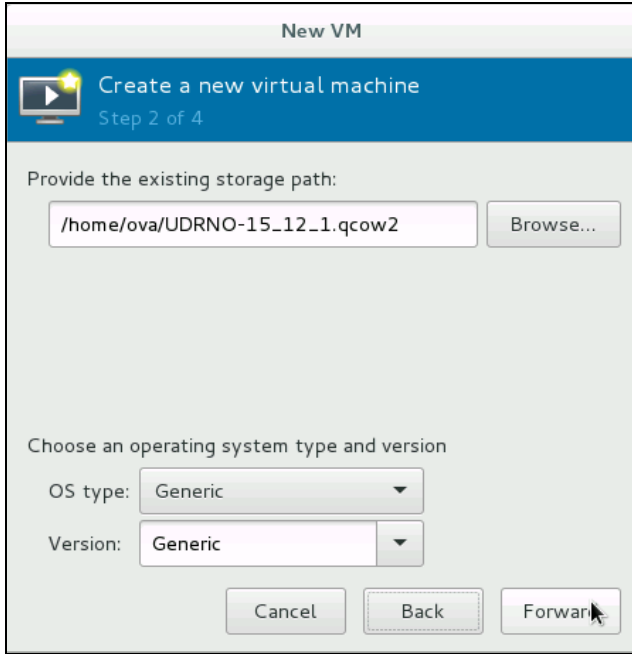
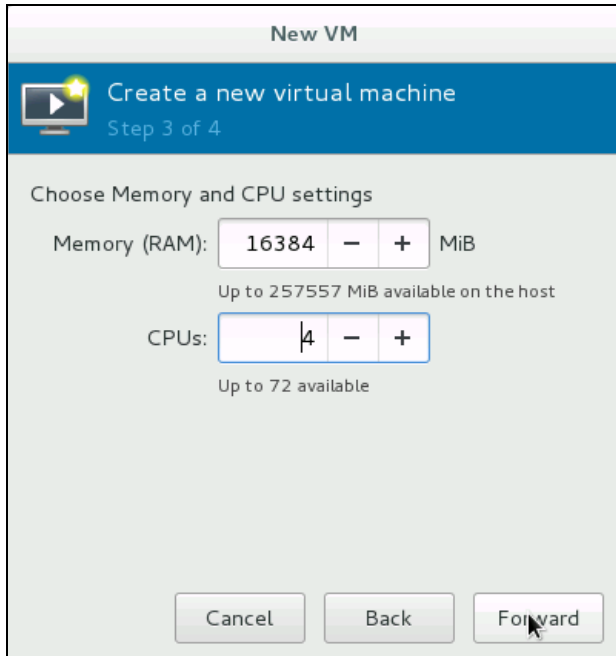
- [Appendix J Install UDR on Oracle Linux OS via KVM](#) Steps: 1 to 25 must be complete.

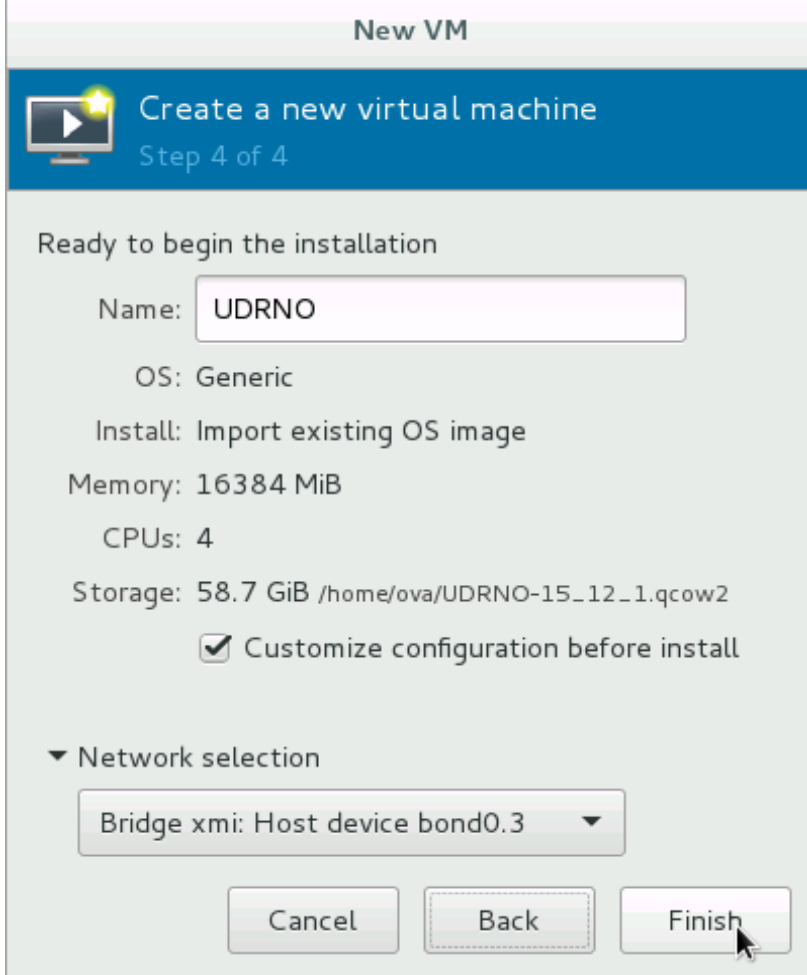
Mark (✓) each step as it is completed. Boxes have been provided for this purpose by each step number.

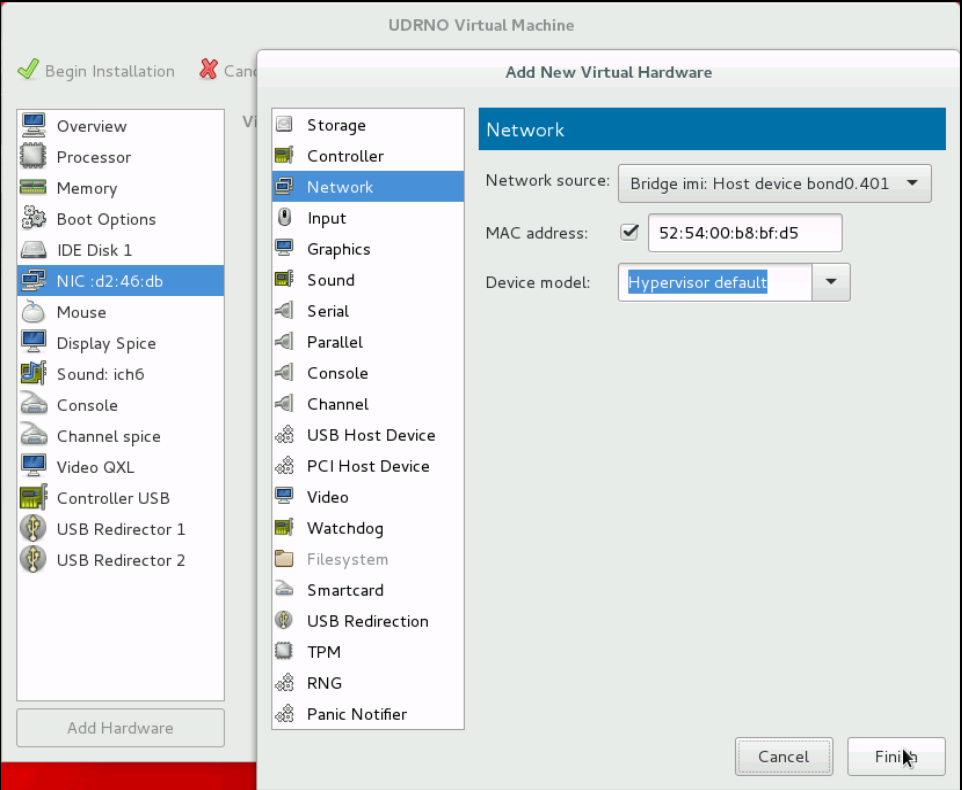
Procedure39: Create and Install UDR VMs via KVM GUI

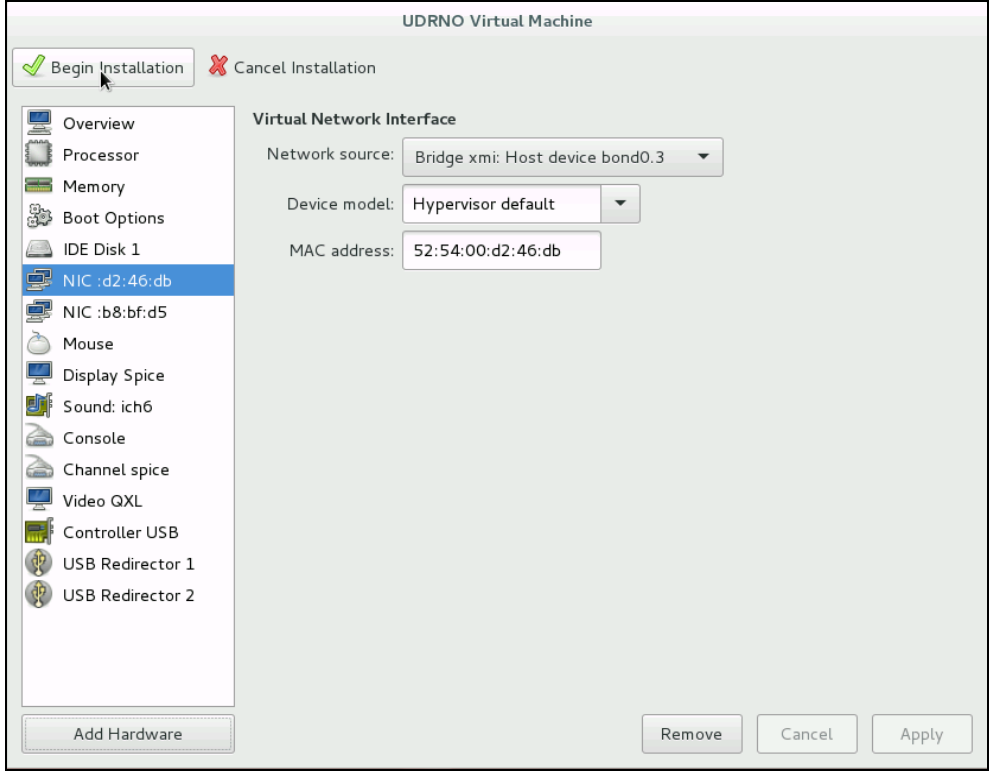
| Step | Procedure | Result |
|-----------------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------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

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

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

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

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

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

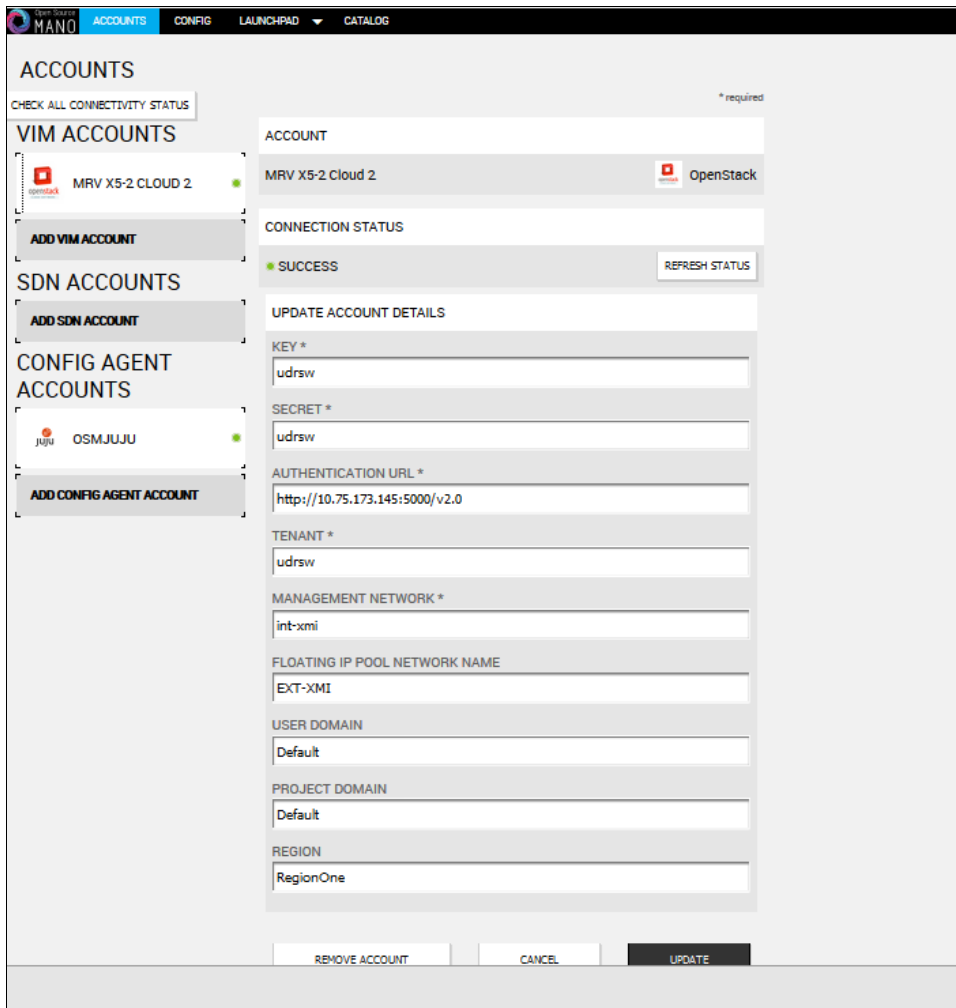
Appendix N. Orchestrating UDR Via OSM

Pre-requisites:

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

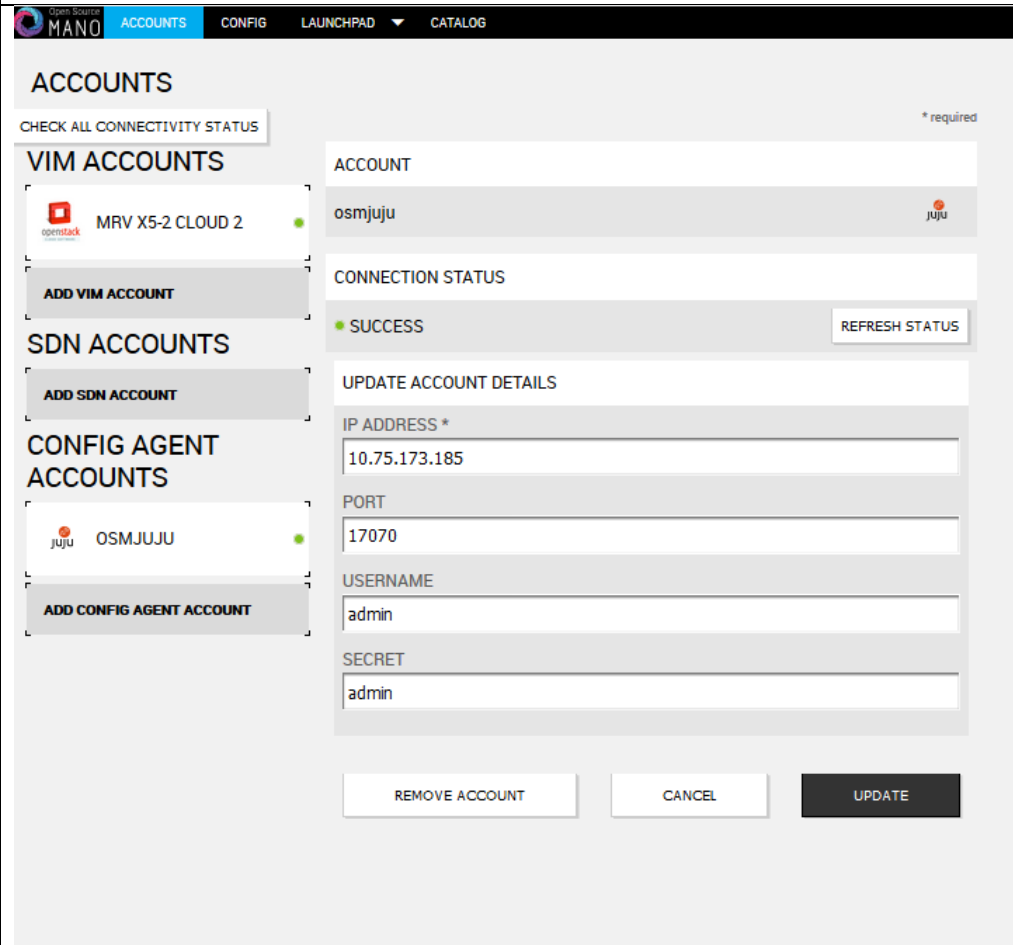
N.1 CONFIGURE OPENSTACK VIM TO RUN WITH OSM

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

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

N.2 CONFIGURE CONFIG AGENT ACCOUNT (JUJU SERVER)

Add the details of standalone Juju server as a Config Agent account in order to enable OSM to communicate with Juju Server. On the OSM GUI, navigate to Accounts tab and **Add Config Agent Account**. A screen like the one below displays. Enter in the Juju Server details and add the account.

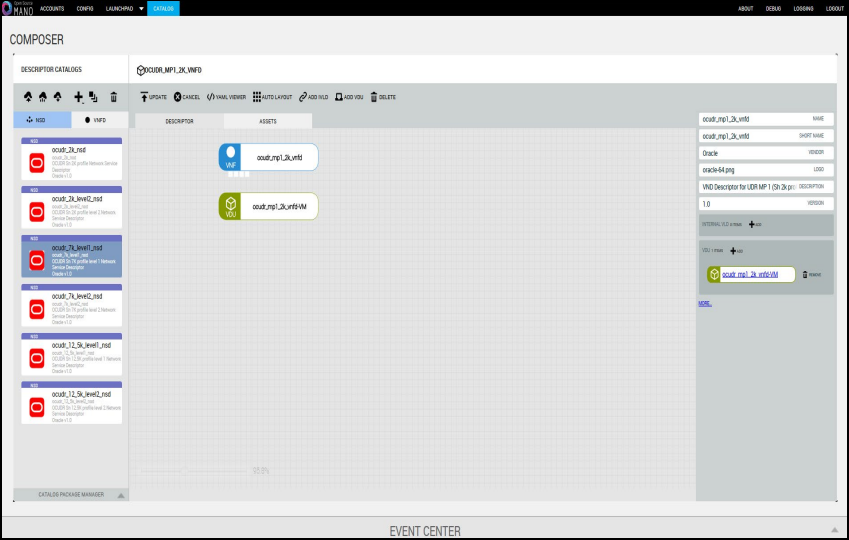
| Procedure | Result |
|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Add the CONFIG AGENT (Juju) account details in the Account → CONFIG AGENT ACCOUNTS on OSM GUI. |  <p>The screenshot shows the OSM GUI 'ACCOUNTS' page. The left sidebar has tabs for 'ACCOUNTS', 'CONFIG', 'LAUNCHPAD', and 'CATALOG'. The main area is titled 'ACCOUNTS' and includes a 'CHECK ALL CONNECTIVITY STATUS' button. It lists three categories: 'VIM ACCOUNTS' (with 'MRV X5-2 CLOUD 2'), 'SDN ACCOUNTS' (with 'ADD SDN ACCOUNT'), and 'CONFIG AGENT ACCOUNTS' (with 'OSMJUJU' selected). The right panel shows the details for the 'osmjuju' account, including 'CONNECTION STATUS' (SUCCESS), 'UPDATE ACCOUNT DETAILS' form (IP ADDRESS: 10.75.173.185, PORT: 17070, USERNAME: admin, SECRET: admin), and buttons for 'REMOVE ACCOUNT', 'CANCEL', and 'UPDATE'.</p> |

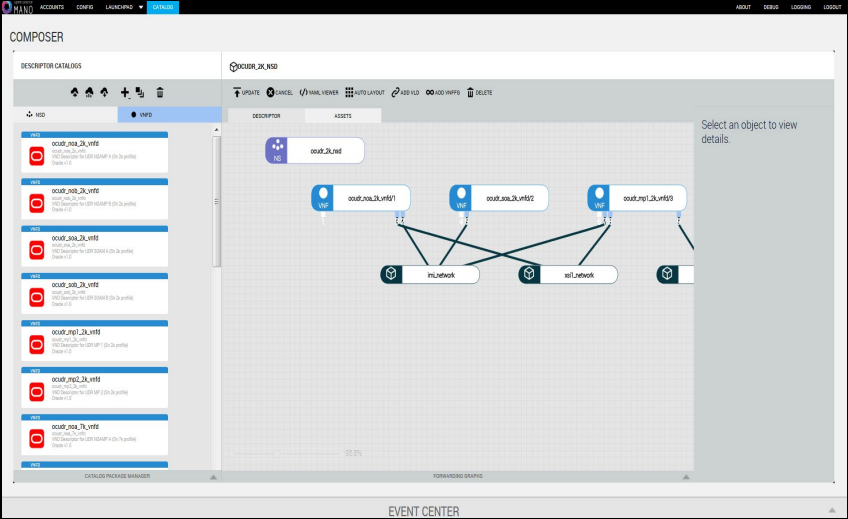
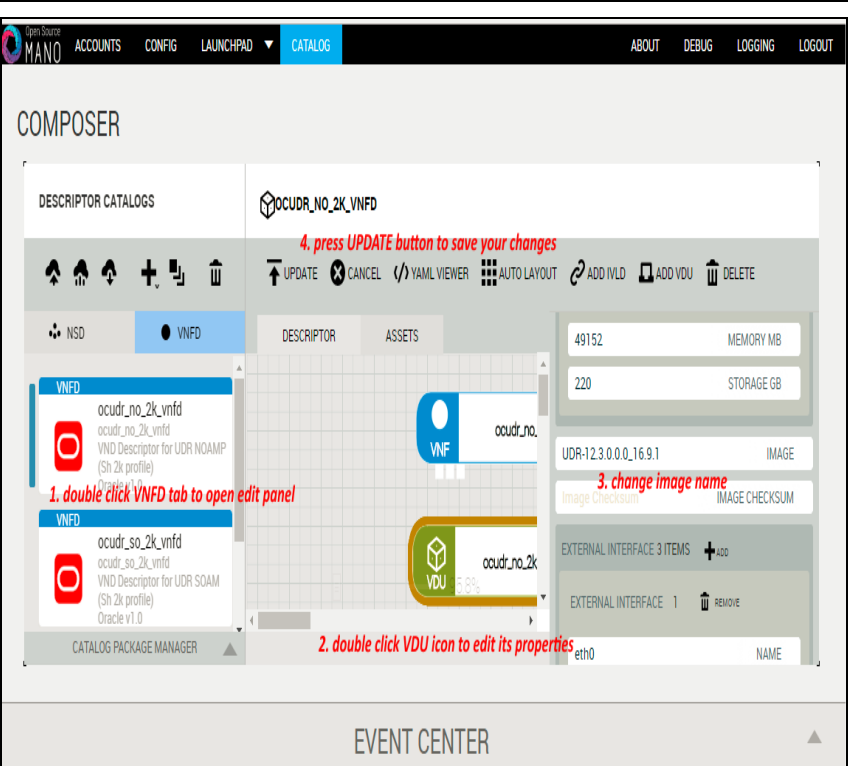
N.3 BUILD AND DEPLOY UDR NSD/VNFD PACKAGE

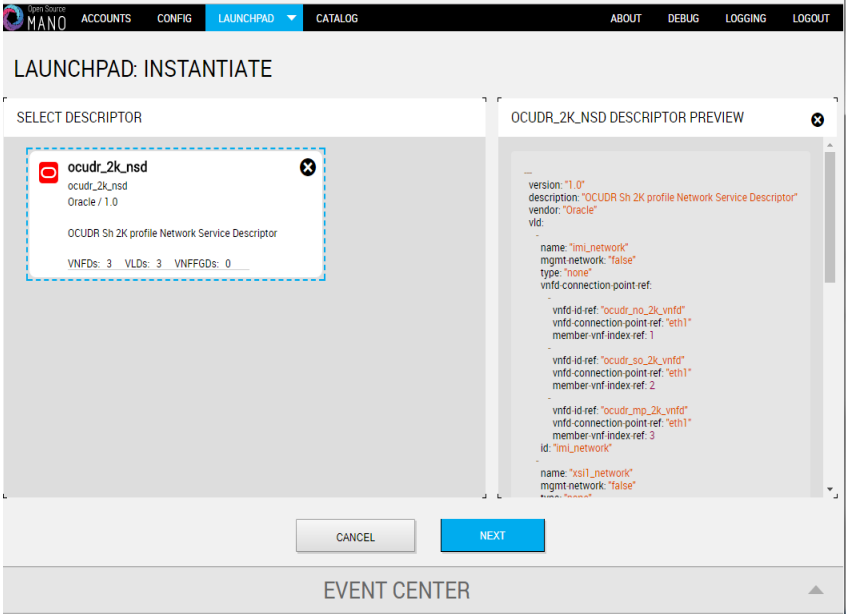
Build and deploy scripts must be run in order to upload UDR NSDs and VNFDs to OSM.

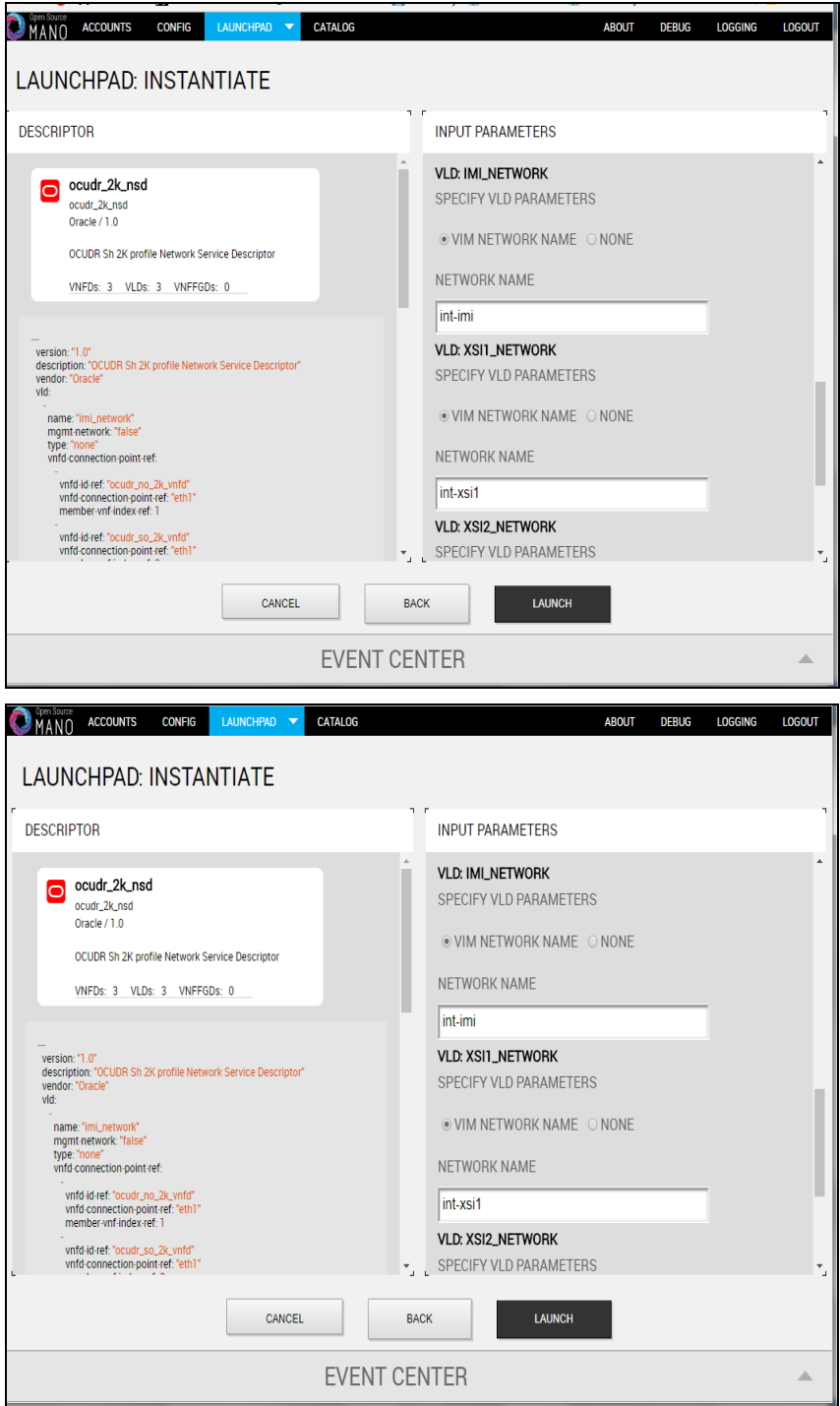
Procedure 11 SSH Logon to Juju Server and fetch build and deploy source scripts

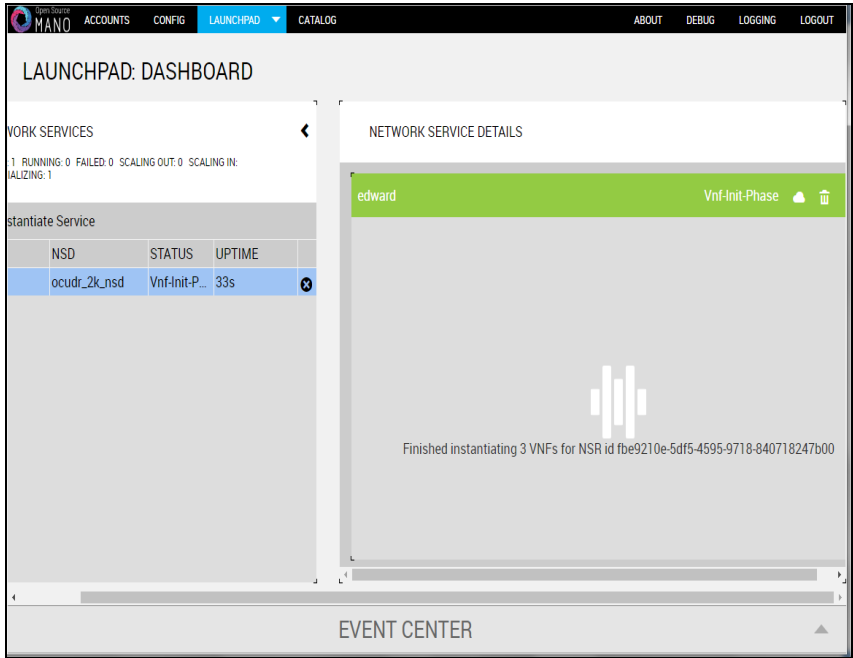
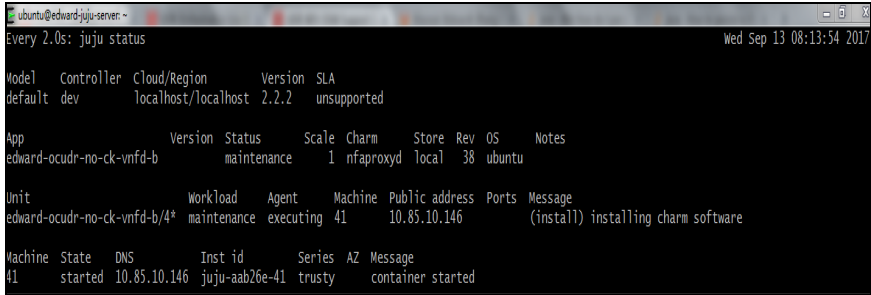
| Step | Procedure | Result |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> | SSH Logon to Juju server and fetch the build and deploy source scripts | <p>1. Copy the qcow2 file made from the ova file of UDR image to the Juju server.</p> <p>2. Run the following commands:</p> <pre>\$ sudo guestmount -a UDR-12.5.1.0.0_17.7.0.qcow2 -m /dev/mapper/vgroot-plat_usr /mnt</pre> <pre>\$ sudo cp /mnt/TKLC/udr/cloud/OSM-support.tar.gz ./</pre> <pre>\$ sudo guestunmount /mnt</pre> <p>3. These commands extract osm-supprt.tar.gz file from qcow2 image</p> <p>4. Untar the file to osm-support directory</p> <p>Copied Image on Juju Server:</p> <pre>ubuntu@edward-juju-server:~\$ ls -l UDR-12.4.0.0.0_16.13.0.qcow2 -rw-r--r-- 1 ubuntu ubuntu 4345757696 Jan 23 09:57 UDR-12.4.0.0.0_16.13.0.qcow2 ubuntu@edward-juju-server:~\$</pre> <p>Extracted osm-support directory from qcow2 Image</p> <pre>ubuntu@edward-juju-server:~\$ cd osm-support/ ubuntu@edward-juju-server:~/osm-support\$ ls build build.sh charms deploy.sh doc nsd vnfd ubuntu@edward-juju-server:~/osm-support\$</pre> |
| 2. <input type="checkbox"/> | <p>Navigate to OSM-Support directory and Run the build script</p> <pre>\$./build.sh</pre> <p>NOTE: Monitor the console output to verify that the build script completed successfully</p> | <pre>ubuntu@edward-juju-server:~/osm-support\$./build.sh ocudr_soa_2k_vnf/ ocudr_soa_2k_vnf/ocudr_soa_2k_vnfd.yaml ocudr_soa_2k_vnf/README ocudr_soa_2k_vnf/icons/ ocudr_soa_2k_vnf/icons/oracle-64.png ocudr_soa_2k_vnf/checksums.txt ocudr_soa_2k_vnf/cloud_init/ ocudr_soa_2k_vnf/cloud_init/ocudr_soa_2k_vnfd-VM.init ocudr_sob_2k_vnf/ ocudr_nob_12_5k_vnf/cloud_init/ocudr_nob_12_5k_vnfd-VM.in build: Composing into /home/ubuntu/osm-support/charms build: Destination charm directory: /home/ubuntu/osm-suppo nfaproxyd build: Processing layer: layer:basic build: Processing layer: layer:sshproxy build: Processing layer: layer:vnfproxy build: Processing layer: nfaproxyd (from charms/nfaproxyd proof: I: Includes template icon.svg file. proof: W: Includes template README.ex file proof: W: README.ex includes boilerplate: Step by step in g the charm: proof: W: README.ex includes boilerplate: You can then br address to configure the service. proof: W: README.ex includes boilerplate: - Upstream mail t information proof: W: README.ex includes boilerplate: - Feel free to useful for users proof: I: all charms should provide at least one thing</pre> |

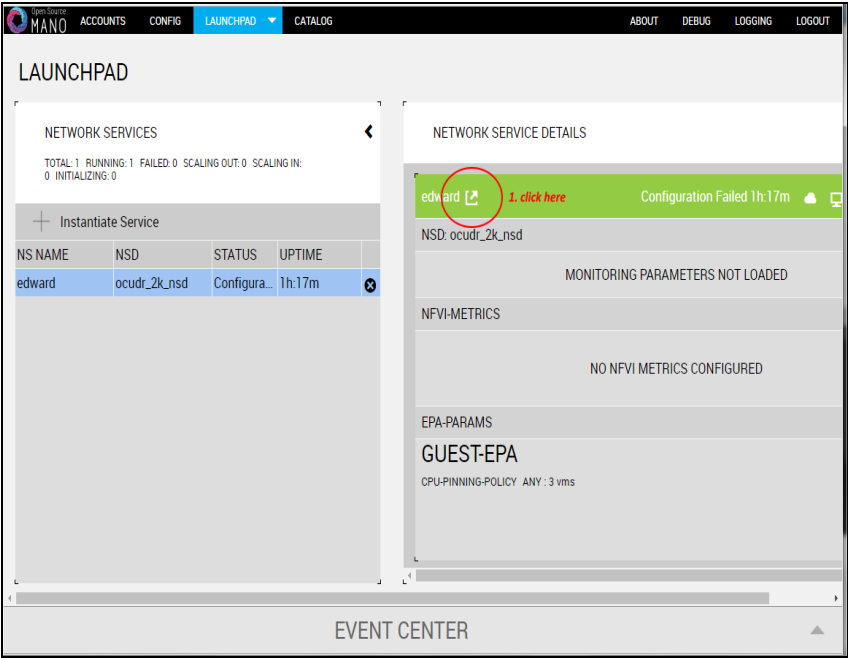
| Step | Procedure | Result |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | <pre> ocudr_12_5k_level1_ns/ ocudr_12_5k_level1_ns/README ocudr_12_5k_level1_ns/icons/ ocudr_12_5k_level1_ns/icons/oracle-64.png ocudr_12_5k_level1_ns/ocudr_12_5k_level1_nsd.yaml ocudr_12_5k_level1_ns/checksums.txt ocudr_12_5k_level2_ns/ ocudr_12_5k_level2_ns/README ocudr_12_5k_level2_ns/icons/ ocudr_12_5k_level2_ns/icons/oracle-64.png ocudr_12_5k_level2_ns/checksums.txt ocudr_12_5k_level2_ns/ocudr_12_5k_level2_nsd.yaml ubuntu@edward-juju-server:~/osm-support\$ </pre> |
| 3. <input type="checkbox"/> | <p>After the build script completes, run the deploy script inside OSM-support directory</p> <p>Pre-requisite: OSM host IP is required to run <code>deploy.sh</code>. Open the deploy script with an editor and change the env variable of <code>OSM_HOSTNAME</code> to your OSM host IP before running <code>deploy.sh</code>.</p> <pre>\$. /deploy.sh</pre> | <pre> ubuntu@edward-juju-server:~/osm-support\$./deploy.sh failed to delete vnfd ocudr_noa_2k_vnfd failed to delete vnfd ocudr_nob_2k_vnfd failed to delete vnfd ocudr_soa_2k_vnfd failed to delete vnfd ocudr_sob_2k_vnfd failed to delete vnfd ocudr_mp1_2k_vnfd failed to delete vnfd ocudr_mp2_2k_vnfd </pre> |
| 4. <input type="checkbox"/> | <p>Logon to OSM GUI, verify that UDR NSD/VNFD has been uploaded successfully:</p> |  |

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

| Step | Procedure | Result |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 6. <input type="checkbox"/> | <div>1. Open the OSM GUI.</div> <div>2. Click LAUNCHPAD</div> <div>3. Click Instantiate Service</div> <div>4. Select UDR_2k_nsd.</div> <div>5. Click Next.</div> |  |

| Step | Procedure | Result |
|-----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7. <input type="checkbox"/> | Enter the required information and click Launch , enter the instance name. | <p>NOTE: Enter the VLD:*_network: VLD:IMI_NETWORK → int-imi, VLD:XSI1_NETWORK → int-xsi1, VLD:XSI2_NETWORK → int-xsi2</p>  <p>The screenshots show the 'LAUNCHPAD: INSTANTIATE' interface. The top screenshot displays the 'INPUT PARAMETERS' section with the following values: VLD: IMI_NETWORK (int-imi), VLD: XSI1_NETWORK (int-xsi1), and VLD: XSI2_NETWORK (int-xsi2). The bottom screenshot shows the same interface with the 'LAUNCH' button highlighted.</p> |

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

| Step | Procedure | Result |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9. <input type="checkbox"/> | <p>After instantiation is complete, query UDR NSR ID from OSM GUI and configure the parameter of udr-nsr-id in NO charm.</p> <p>Follow the steps in the image to Add UDR NSR ID in NO charm</p> |  <p>The screenshot shows the MANO LAUNCHPAD interface. On the left, under 'NETWORK SERVICES', there is a table with columns: NS NAME, NSD, STATUS, and UPTIME. The table contains one entry: 'edward' with NSD 'ocudr_2k_nsd', STATUS 'Configura...', and UPTIME '1h:17m'. A red circle highlights the 'edward' link in the table. On the right, under 'NETWORK SERVICE DETAILS', there is a green banner with the text 'edward' and a red circle around it, followed by '1. click here' and 'Configuration Failed 1h:17m'. Below this, there are sections for 'NSD: ocudr_2k_nsd', 'MONITORING PARAMETERS NOT LOADED', 'NFVI-METRICS', 'NO NFVI METRICS CONFIGURED', 'EPA-PARAMS', and 'GUEST-EPA'.</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> <pre> graph LR edward --> edward_ocudr_mp_2k_vnfd_3 edward --> edward_ocudr_no_2k_vnfd_1 edward --> edward_ocudr_so_2k_vnfd_2 </pre> <p>RECORD DETAILS</p> <pre> { "nsr:nsr": { "rw-nsr:operational-events": [{ "timestamp": 1505290734, "description": "Instantiation Request Received NSR", "id": "f9e9210e-5df5-4595-9718-848718247600", "event": "instantiating", "id": 1 }, { "timestamp": 1505290734, "description": "nsd-fetched", "event": "nsd-fetched", "id": 2 }] } } </pre> <p>EVENT CENTER</p> <p>LAUNCHPAD: VIEWPORT</p> <p>VNF Data Service Primitive VDU Console Links</p> <p>SERVICE-PRIMITIVES</p> <p>config</p> <p>instantiate-udr Configure with UDR NSR ID</p> <p>terminate-udr Configure with UOA host IP</p> <p>Configure per local OSM settings</p> <p>UDR-NSR-ID: <udr_nsr_id></p> <p>UOA-HOST-IP: 10.75.173.151</p> <p>OSM-SO-BASE-URL: https://10.75.173.176</p> <p>CONFIG</p> |

N.4 PERFORM ORCHESTRATION OPERATIONS VIA OSM

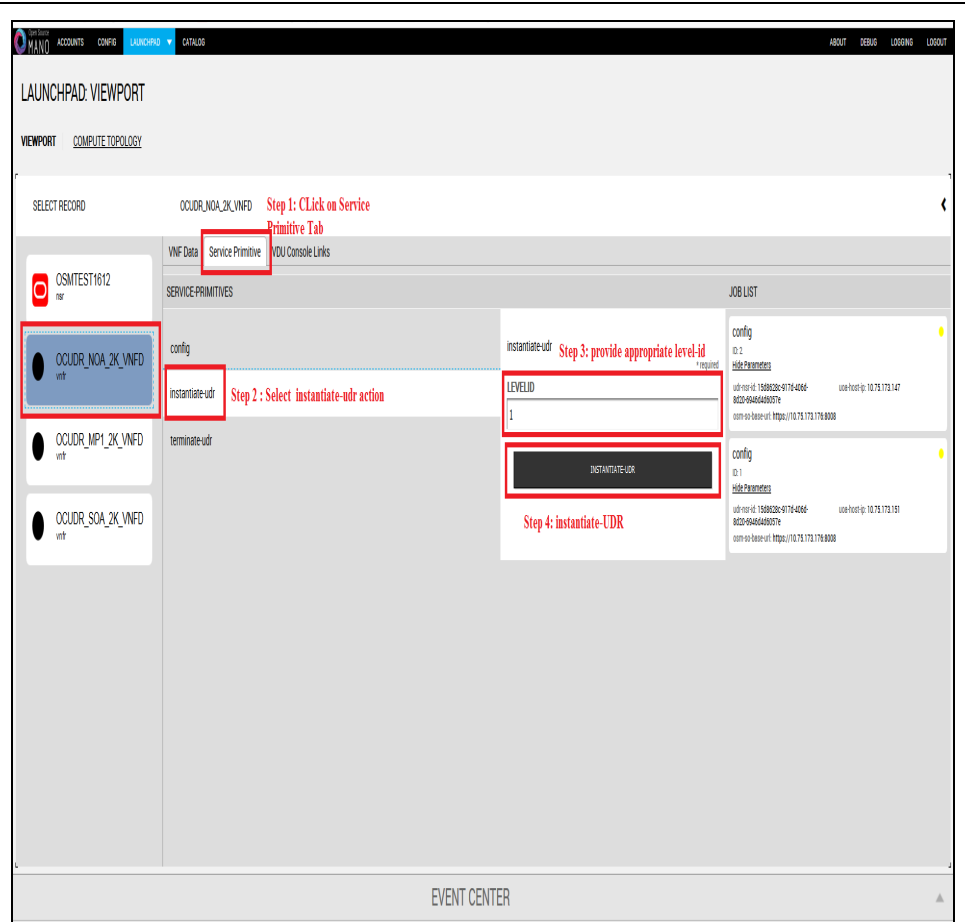
After the UDR NSR ID is added in the NO charm, UDR Orchestration operations can be performed. OSM supports two operations:

1. Instantiation
2. Termination

N.5 INSTANTIATE UDR

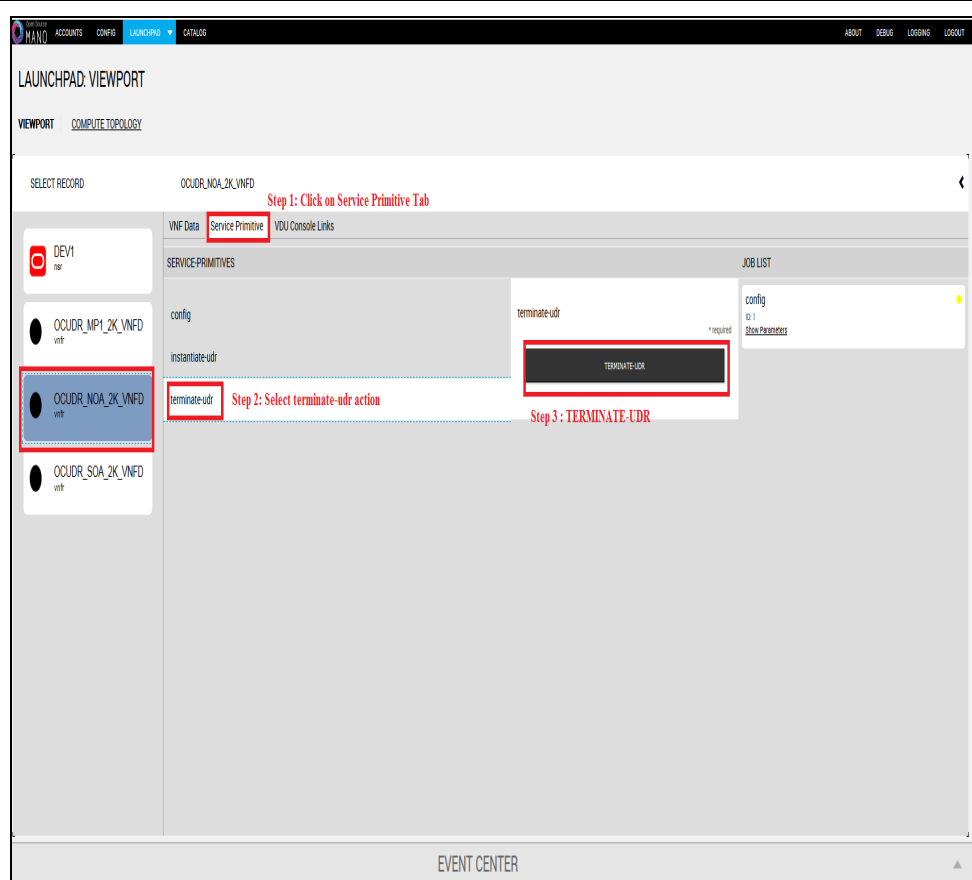
After the steps in [Appendix N-3](#) are completed successfully, a UDR instance can be instantiated either to level1 or level 2.

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



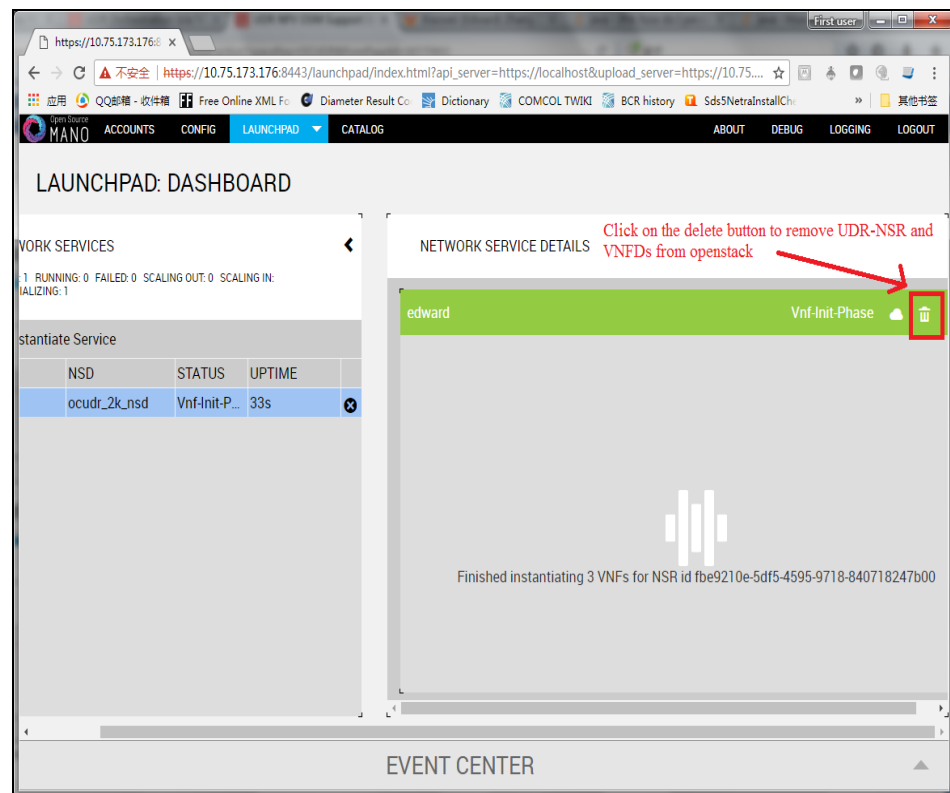
N.6 TERMINATE UDR

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



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

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



Appendix O. Orchestrating UDR via Tacker

Pre-requisites:

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

O.1 TACKER CONFIGURATION

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

```
[udr]

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

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

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

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

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

Configuration Options

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

O.2 INSTALL UDR TACKER SUPPORT SCRIPTS

| Step | Procedure | Result |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> | <p>SSH Logon to Tacker server</p> <p>1. Copy the qcow2 file made from the ova file of UDR image to the tacker server (controller Node).</p> <p>2. Run the following commands:</p> <pre>\$ sudo guestmount -a UDR- 12.5.1.0.0_ 17.7.0.0.qcow 2 -m /dev/mapper /vgroot- plat_usr /mnt \$ sudo cp /mnt/TKLC/u dr/cloud/Ta cker- support.tar .gz ./ \$ sudo guestunmoun t /mnt</pre> <p>These commands extract Tacker-supprt.tar.gz file from qcow2 image</p> <p>3. Untar the file to tacker-support directory</p> | <p>Copied Image on Tacker server:</p> <pre>[root@nj-x52-61 image]# ls -l UDR-12.4.0.0.0_16.13.0.qcow2 -rwxrwxrwx 1 root root 4345757696 Jan 24 18:05 UDR-12.4.0.0.0_16.13.0.qcow2 [root@nj-x52-61 image]#</pre> <p>Extracted tacker-support directory from qcow2 image</p> <pre>[root@nj-x52-61 tacker-support]# ls bin mgmt_driver requirements.txt vnfd</pre> |

| Step | Procedure | Result |
|-----------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2. <input type="checkbox"/> | Browse to the directory where the tacker scripts are copied on the controller Node. | <p>Run the following commands:</p> <ol style="list-style-type: none"> 1. <code>sudo mkdir -p /usr/lib/python2.7/site-packages/tacker/vnfm/mgmt_drivers/udr</code> 2. edit <code>mgmt_driver/udr/udr.py</code> to navigate to line 102: 3. <code>level = str(self.cluster_info['options']['LEVEL'])</code> 4. <code>sudo cp mgmt_driver/udr/*.py /usr/lib/python2.7/site-packages/tacker/vnfm/mgmt_drivers/udr/</code> 5. <code>sudo service openstack-tacker-server restart</code> <p>NOTE: Substitute <code>/usr/lib/python2.7/site-packages/tacker</code> with the tacker script installation directory for your local tacker installation path.</p> <p>Inspect <code>tacker.log</code> to verify that UDR management driver installed successfully.</p> <pre>[root@nj-x52-61 tacker-support]# mkdir -p /usr/lib/python2.7/site-packages/tacker/vnfm/mgmt_drivers/udr/ [root@nj-x52-61 tacker-support]# /bin/cp -rf mgmt_driver/udr/*.py /usr/lib/python2.7/site-packages/tacker/vnfm/mgmt_drivers/udr/ [root@nj-x52-61 tacker-support]# service openstack-tacker-server restart Redirecting to /bin/systemctl restart openstack-tacker-server.service [root@nj-x52-61 tacker-support]#</pre> |
| 3. <input type="checkbox"/> | Deploy VNFD for UDR 2k level 2 VNF | <ol style="list-style-type: none"> 1. Edit <code>vnfd/udr-2k-vnfd.yaml</code> and find occurrences of <code>init 6</code> (there are 6 occurrences in total), prepend line with: <pre>echo 'ifconfig eth0 mtu 1450' >> /etc/rc.d/rc.local</pre> before each occurrence of <code>'init 6'</code>, like following: <pre>echo 'ifconfig eth0 mtu 1450' >> /etc/rc.d/rc.local</pre> <code>init 6</code> 2. Source keystone rc file of openstack: <pre>source ~/keystonerc_admin</pre> 3. Deploy the updated VNFD file with following command: <pre>tacker vnfd-create --vnfd-file vnfd/udr-2k-vnfd.yaml udrvnfd</pre> 4. Verify that VNFD is deployed successfully. <pre>[root@nj-x52-61 tacker-support]# vim vnfd/udr-2k-vnfd.yaml [root@nj-x52-61 tacker-support]# tacker vnfd-create --vnfd-file vnfd/udr-2k-vnfd.yaml udr-2k-vnfd You must provide a username or user ID via --os-username, env[OS_USERNAME] or --os-user-id, env[OS_USER_ID] [root@nj-x52-61 tacker-support]# source ~/keystonerc_admin [root@nj-x52-61 tacker-support(keystone_admin)]# tacker vnfd-create --vnfd-file vnfd/udr-2k-vnfd.yaml udr-2k-vnfd Created a new vnfd: +-----+ Field Value +-----+ created_at 2018-02-05 03:47:24.167240 description Demo with udr cluster id 0874def4-0ac5-4352-bc7a-cff6139d6df4 name udr-2k-vnfd service_types vnfd template_source onboarded tenant_id 45a69279f4be47d89556b5299bdec769 updated_at +-----+ [root@nj-x52-61 tacker-support(keystone_admin)]#</pre> |

0.3 PERFORM ORCHESTRATION OPERATIONS VIA TACKER

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

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

O.4 CREATE UDR VNF (INSTANTIATION)

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

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

Where:

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

Figure 5 Example of udrvnf-param.yaml

```
xmi_network: int-xmi
imi_network: int-imi
xsil_network: int-xsil
xsi2_network: int-xsi2
image: UDR-12.5.1.0.0_17.7.0.0
```

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

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

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

O.5 DELETE UDR VNF (TERMINATION)

Issue the following command to delete UDR VNF:

```
tacker vnf-delete <udr_vnf_name>
```

Where:

- `udr_vnf_name` is replaced with the name of udr vnf you want to terminate.

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