Oracle® Communications User Data Repository

Software Upgrade Procedure

Release 15.0.1.0.0

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ORACLE®

Oracle Communications User Data Repository Software Upgrade Procedure, Release 15.0.1.0.0

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CAUTION:

Before recovering any system, please access My Oracle Support (MOS) (https://support.oracle.com) and review any Alerts that relate to this procedure.

My Oracle Support (MOS) (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 MOS 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.

See more information on MOS in the Appendix section.

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1. INTRODUCTION

1.1 Purpose and Scope

This document describes the methods utilized and the procedures executed to perform a major upgrade from Oracle Communications User Data Repository 12.11.x to Oracle Communications User Data Repository 15.0.1.0.0 release. The audience for this document includes Oracle customers as well as the following internal groups: Software Development, Quality Assurance, Product Verification, Information Development, and Consulting Services including NPX. This document provides step-by-step instructions to execute Release 15.0.1.0.0 or later software upgrade. The Oracle Communications User Data Repository software includes all Oracle's Tekelec Platform Distribution (TPD) software. Any TPD upgrade necessary is included automatically as part of the software upgrade. The execution of this procedure assumes that the Oracle Communications User Data Repository software load (ISO file, CD-ROM or other form of media) has already been delivered to the customer's premises. This includes delivery of the software load to the local workstation being used to perform this upgrade.

1.1.1 What is Not Covered by this Document

- Distribution of Oracle Communications User Data Repository 15.0 software loads. Please visit the Oracle Software Delivery Cloud here: https://edelivery.oracle.com/osdc/faces/Home.jspx
- Initial Installation of Oracle Communications User Data Repository 12.11 software. Refer [1].

1.2 References

Oracle 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 www.adobe.com.

1. Log into the Oracle Technology Network site at http://docs.oracle.com.
2. Select the tab "Find a product"
3. Type "User Data Repository"
4. Takes you to "CGBU Documentation"
5. Select "User Data Repository" followed by version

[1] Oracle Communications User Data Repository *Installation and Configuration Guide,* F56659-01*, latest revision*
[2] Oracle Communications User Data Repository *Cloud Installation and Configuration Guide, F87587-01, latest revision*

1.3 Acronyms

This section describes acronyms used in this document.

Acronym	Meaning
CGBU	Communications Global Business unit
CD-ROM	Compact Disc Read-only Media
CSV	Comma-separated Values
DB	Database
DIU	Dual Image Upgrade
DR	Disaster Recovery
FOA	First Office Application
GA	General Availability
GPS	Global Product Solutions
GUI	Graphical User Interface
HA	High Availability
IMI	Internal Management Interface
IP	Internet Protocol
IPM	Initial Product Manufacture
ISO	ISO 9660 file system (when used in the context of this document)
LA	Limited Availability
MOP	Method of Procedure
MOS	My Oracle Support
MP	Message Processing or Message Processor
MW	Maintenance Window
NE	Network Element
NO	Network OAM&P
NOAMP	Network OAM&P
OA	HP Onboard Administrator
OAM	Operations, Administration and Maintenance
OAM&P	Operations, Administration, Maintenance and Provisioning
OCUDR	Oracle Communications User Data Repository
PM&C	Platform Management and Configuration
RMS	Rack Mount Server
SO	System OAM
SOAM	System OAM
SPR	Subscriber Profile Repository
TPD	Tekelec Platform Distribution
TVOE	Tekelec Virtualized Operating Environment
UDR	User Data Repository
UI	User Interface
VIP	Virtual IP
VM	Virtual Machine
VPN	Virtual Private Network
XMI	External Management Interface
XSI	External Signaling Interface

Table 1 - Acronyms

1.4 Terminology

This section describes terminology as it is used within this document.

Term	Meaning
Upgrade	The process of converting an application from its current release on a System to a newer release.
Major Upgrade	An upgrade from a current release to a newer major release. An example of a major upgrade is: release 12.11.x to release 15.0
Minor Upgrade	An upgrade from a current release to a newer minor release. An example of a minorn upgrade is: release 15.0.0 to release 15.0.1
Release	Release is any particular distribution of software that is different from any other distribution.
Single Server Upgrade	The process of converting an Oracle Communications User Data Repository server from its current release on a single server to a newer release.
Standalone Server Upgrade	Single server upgrade performed on a standalone server. This upgrade requires the use of the platcfg UI.
Software Only Upgrade	An upgrade that does not require a Database Schema change, only the software is changed.
DB Conversion Upgrade	An upgrade that requires a Database Schema change performed during upgrade that is necessitated by new feature content or bug fixes.
Backout	The process of converting a single Oracle Communications User Data Repository server to a prior version. This could be performed due to failure in Single Server Upgrade or the upgrade cannot be accepted for some other reason. Backout is a user initiated process.
Downgrade/Backout	The process of converting an Oracle Communications User Data Repository server from its current release to a prior release. This could be performed due to a misbehaving system. Once the upgrade is accepted, servers cannot be backed out to previous release.
Rollback	Automatic recovery procedure that puts a server into its pre-upgrade status. This procedure occurs automatically during upgrade if there is a failure.
Source Release	Software release to upgrade from.
Target Release	Software release to upgrade to.
Oracle RMS	Oracle Server X5-2 or Netra X5-2
Primary NOAM Network Element	The network element that contains the active and standby NOAM servers in an Oracle Communications User Data Repository. If the NOAMs are deployed on a rack-mount server (and often not co-located with any other site), that RMS is considered the primary NOAM network element. If the NOAMs are virtualized on a C-class blade that is part of one of the sites, then the primary NOAM network element and the signaling network element hosting the NOAMs are one and the same.
DR NOAM Network Element	Disaster Recovery NOAMs that are ready to take over as the primary Site if a disaster should occur.
Signaling Network Element	Any network element that contains MPs (and possibly other C-level servers), thus carrying out Diameter signaling functions. Each SOAM pair and its associated C-level servers are considered a single signaling network element. And if a signaling network element includes a server that hosts the NOAMs, that signaling network element is also considered to be the primary NOAM network element.
Site	Physical location where one or more network elements reside.

Health Check	Procedure used to determine the health and status of the network. This includes statuses displayed from the GUI. This can be observed Pre-Server Upgrade, In-Progress Server Upgrade, and Post-Server Upgrade.
Upgrade Ready	State that allows for graceful upgrade of a server without degradation of service. It is a state that a server is required to be in before it can be upgraded. The state is defined by the following attributes: Server is Forced Standby Server is Application Disabled (Signaling servers will not process any traffic)
UI	User interface. "Platcfg UI" refers specifically to the Platform Configuration Utility User Interface, which is a text-based user interface.
Management Server	Server deployed with HP c-class or RMS used to host PM&C application, to configure Cisco 4948 switches and to serve other configuration purposes.
Software Centric	The business practice of delivering an Oracle software product, while relying upon the customer to procure the requisite hardware components. Oracle provides the hardware specifications, but does not provide the hardware, and is not responsible for hardware installation, configuration, or maintenance.
Enablement	The business practice of providing support services (hardware, software, documentation, etc) that enable a 3rd party entity to install, configuration, and maintain Oracle products for Oracle customers.
1+1	Setup with one active and one standby MP.
N+0	Setup with N active MP(s) but no standby MP.
NO	Network OAM for Oracle Communications User Data Repository.
SO	System OAM for Oracle Communications User Data Repository.

Table 2 - Terminology

1.5 How to use this Document

When executing this document, there are a few key points which help to ensure that the user understands the author's intent. These points are as follows:

1. Before beginning a procedure, completely read the instructional text (it will appear immediately after the Section heading for each procedure) and all associated procedural WARNINGS or NOTES.
2. Before execution of a STEP within a procedure, completely read the left and right columns including any STEP specific WARNINGS or NOTES.
3. If a procedural STEP fails to execute successfully or fails to receive the desired output, STOP and contact 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 for assistance before attempting to continue.

1.5.1 Executing Procedures

The user should be familiar with the structure and conventions used within these procedures before attempting execution. **Table** 3 and the details below provide an example of how procedural steps might be displayed within this document.

Column 1: **Step**

- Column 1 in **Table** 3 contains the Step number and a checkbox if the step requires action by the user.
- Sub-steps within a given Step X are referred to as Step X.Y. *(See example: Step 1 has sub-steps Steps 1.1 to 1.2).*
- Each checkbox should be checked-off to keep track of the progress during execution of the procedure.

Column 2: **Procedure**

- Column 2 in **Table** 3 contains a heading which indicates the server/IP being accessed as well as text instructions and/or notes to the user. This column may also describe the operations to be performed or observed during the step.

Column 3: **Result**

- Column 3 in **Table** 3 generally displays the results of executing the instructions (shown in column 2) to the user.
- The Result column may also display any of the following:
  - Inputs (commands or responses) required by the user.
  - Outputs which should be displayed on the terminal.
  - Illustrations or graphic figures related to the step instruction.
  - Screen captures from the product GUI related to the step instruction.

Procedure x: Verifying the Time in GMT

Step	Procedure	Result

1. ☐	**Active NOAMP VIP:**
	1)Access the command prompt.
	2)Log into the server as the "**admusr**" user.
		`Login as: admusr`
		`Using keyboard-interactive authentication.`
		`Password: <password>`
		NOTE: *The password will not appear on the screen as the characters are typed.*

2. ☐	**Active NOAMP VIP:**
	
	Output similar to that shown on the right will appear as the server returns to a command prompt.
		`*** TRUNCATED OUTPUT ***`
		`VPATH=/opt/TKLCcomcol/runcm6.3:/opt/TKLCcomcol/cm6.3`
		`PRODPATH=`
		`RELEASE=6.3`
		`RUNID=00`
		`VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/udr:/usr/TKLC/awpcomm on:/usr/TKLC/comagent-gui:/usr/TKLC/comagent:/usr/TKLC/dpi:/usr/TKLC/capm/prod/plugins`
		`PRODPATH=/opt/comcol/prod`
		`RUNID=00`
		`[admusr@908070109-NO-A ~]$`

3. ☐	**Active NOAMP VIP:**
	
	Verify that the correct Date & Time are displayed in **GMT** (+/- 4 min.)
		`date -u`
		`Thu Apr 24 17:13:17 UTC 2014`
		`[admusr@908070109-NO-A filemgmt]$`

Procedure x: Verifying the Time in GMT

Step	Procedure	Result
THIS PROCEDURE HAS BEEN COMPLETED		

Table 3 - Sample Procedure

1.6 Recommendations

This section provides some recommendations to consider when preparing to execute the procedures in this document.

1.6.1 Frequency of Health Checks

The user may execute the **Perform Health Check** or **View Logs** steps freely or repeat as many times as desired in between procedures during the upgrade process. It is not recommended to do this in between steps within a procedure unless there is a failure to troubleshoot.

1.6.2 Logging of Upgrade Activities

It is a best practice to use a terminal session with logging enabled to capture user command activities and output during the upgrade procedures. These can be used for analysis in the event of issues encountered during the activity. These logs should be saved offline at the completion of the activity.

Note that GUI activities are logged in a security log, but it is also recommended to use a screen capture tool to collect a sequence of screen shots before, during, and after the upgrade. This can also be useful for later analysis.

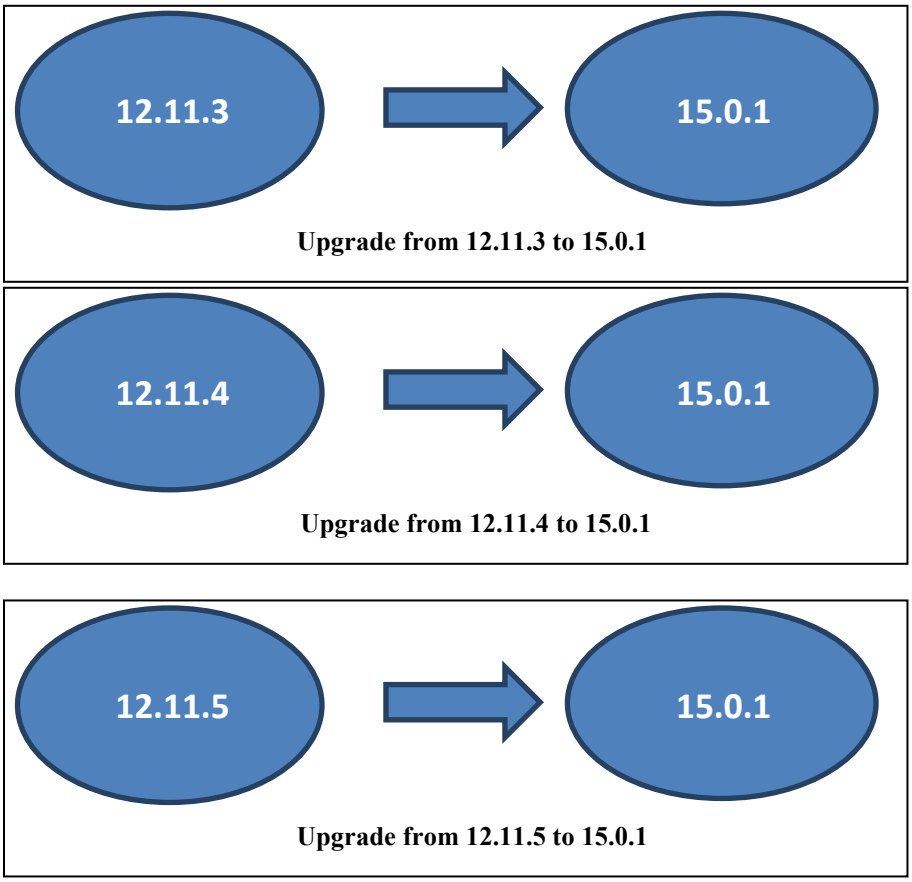
2. GENERAL DESCRIPTION

This document defines the step-by-step actions performed to execute a software upgrade of an in-service Oracle Communications User Data Repository from the source release to the target release. A major upgrade advances the Oracle Communications User Data Repository software from 12.11.3, 12.11.4. 12.11.5, 15.0.0 source release to 15.0.1 target release.

2.1 Supported Upgrade Paths

The supported Oracle Communications User Data Repository upgrade paths are shown in **Figure 1** below.

OL6 based TPD server to OL8 based TPD Upgrade:



OL8 based TPD server to OL8 based TPD Upgrade:

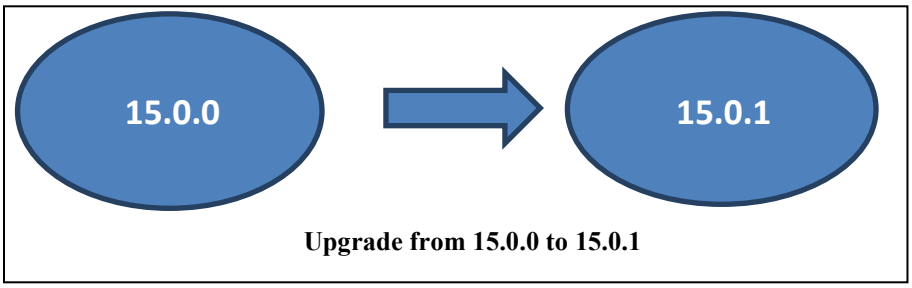


Figure 1: Supported Upgrade Paths

NOTE: *Initial installation is not within the scope of this upgrade document. See [1] for initial installation requirements.*

2.2 Traffic Management during Upgrade

Upgrade of NOAM and SOAM servers is not expected to affect traffic handling at the MPs and other traffic-handling servers.

For the upgrade of the MPs, traffic connections are disabled only for the servers being upgraded. The remaining servers continue to service traffic.

2.3 Provisioning during Upgrade

For Oracle Communications User Data Repository 12.11.x, Provisioning (live traffic) will still continue while upgrade is being executed. While the standby NOAMP is being upgraded, the Active NOAMP will still receive provisioning requests. After the upgrade is complete, replication will be turned on to the Standby NOAMP to sync the most recent requests from the active NOAMP. Then the Standby NOAMP will become active to start receiving provisioning requests, while the previous Active NOAMP is being upgraded.

2.4 Configurations

2.4.1 Cloud Configurations

This includes all Oracle Communications User Data Repository software running within a cloud environment. This can be deployed either as a single site or as a geo-redundant deployment, with 1 or two 2 servers filling each role at each site. See reference [4] for full details.

Non HA				
Min number of VMs	Max number of VMs	Min number of VMs	Max number of VMs	HA config
1	2	2	2	Active-Standby
1	2	2	2	Active-Standby
1	1	2	4	Active-Active

2.5 Multi Active MPs

The site upgrade procedure is for multi-Active MPs. This includes two per site for Low Capacity configurations or up to 4 per site for Normal Capacity Configurations. Single server configurations only have one active MP.

3. UPGRADE PLANNING AND PRE-UPGRADE PROCEDURES

This section contains all information necessary to prepare for and execute an upgrade. The materials required to perform an upgrade are described, as are pre-upgrade procedures that should be run to ensure the system is fully ready for upgrade. Then, the actual procedures for each supported upgrade path are given.
There are overview tables throughout this section that help you plan the upgrade and estimate how long it will take to perform various actions. The stated time durations for each step or group of steps are estimates only. Do not use the overview tables to execute any actions on your system. Only the procedures should be used when performing upgrade actions, beginning with Procedure 1: Required Materials Check.

3.1 Required Materials

The following materials and information are needed to execute an upgrade:

- Target-release application DIU ISO image file and OL7 based TPD DIU iso file, or target-release application media.
- GUI access to the Oracle Communications User Data Repository Network OAM&P VIP with Administrator privileges.
- User logins, passwords, IP addresses and other administration information. See Section 3.1.2.
- SSH/SFTP access to the Oracle Communications User Data Repository Network OAM&P XMI VIP as the "admusr" user.

NOTE: *All logins into the Oracle Communications User Data Repository NO servers are made via the External Management (XMI) VIP unless otherwise stated.*

- VPN access to the customer's network is required if that is the only method to log into the OAM servers.
- Direct access to server IMI IP addresses from the user's local workstation is preferable in the case of a Backout.

NOTE: *If direct access to the IMI IP addresses cannot be made available, then target server access can be made via a tandem connection through the Active Primary NO (i.e., An SSH connection is made to the Active Primary NO XMI first, then from the Active Primary NO, a 2nd SSH connection can be made to the target server's IMI IP address).*

3.1.1 Application and OL7 TPD ISO Image File / Media

You must obtain a copy of the target release DIU ISO image file and OL7 TPD DIU iso file. These files are necessary to perform the upgrade. The Oracle Communications User Data Repository ISO image file will be in the following format:

Example: **`UDR-15.0.1.0.0_115.12.0-x86_64-DIU.iso`**

OL7 based TPD ISO image file will be in the following format:

Example: TPD.install-8.0.0.0.0_90.15.0-OracleLinux7.4-x86_64-DIU.iso

For OL6 to OL8 upgrades 12.11.3 , 12.11.4, 12.11.5 to 15.0.1 we need to use **TPD.install-8.0.0.0.0_90.15.0-OracleLinux7.4-x86_64-DIU.iso version**

NOTE: *Actual number values may vary between releases.*

Prior to the execution of this upgrade procedure, it is assumed that the Oracle Communications User Data Repository DIU ISO image file and OL7 based TPD diu iso has already been delivered to the customer's premises. The DIU ISO image file must reside on the local workstation used to perform the upgrade, and any user performing the upgrade must have access to the ISO image file. If the user performing the upgrade is at a remote location, it is assumed the DIU ISO file is already available to them before starting the upgrade procedure.

3.1.2 Logins, Passwords and Site Information

Obtain all the	Description	Recorded Value
Credentials	GUI Admin Username1	
	GUI Admin Password	
	Admusr Password2	
	Root Password3	
	Blades iLO Admin Username	
	Blades iLO Admin Password	
VPN Access Details	Customer VPN information (if needed)	
NO	Primary NOAM&P	
	DR NOAM&P	
	XMI VIP address4	
	NO 1 XMI IP Address	
	NO 2 XMI IP Address	
SO	XMI VIP address	
	SO 1 XMI IP Address (Site 1)	
	SO 2 XMI IP Address (Site 1)	
	SOAM 1 XMI IP Address (Site 2)	
	SOAM 2 XMI IP Address (Site 2)	
	SO 2 iLO IP Address	
	MP 1 iLO IP Address	
	MP 2 iLO IP Address	
	……	
	MP(n) iLO IP Address (optional)	
Software	Source Release Number	
	Target Release Number	
	ISO Image (.iso) file name	

3.2 Pre-Upgrade Procedures

The pre-upgrade procedures shown in the following table have no effect on the live system.

Table 4 - Pre-Upgrade Overview

Procedure Number	Procedure Title	Elapsed Time (Hours:Minutes)	
		This Step	Cumulative
1	*Required* Materials *Check*	00:15	00:15

[1] Note: The user must have administrator privileges. This means the user belongs to the **admin** group in Group Administration.

[2] Note: This is the password for the **admusr** login on the servers. This is not the same login as the GUI Administrator. The admusr password is required if recovery procedures are needed. If the admusr password is not the same on all other servers, then all those servers' root passwords must also be recorded; use additional space at the bottom of this table.

[3]Note: This is the password for the **root** login on the servers. This is not the same login as the GUI Administrator. The root password is required if recovery procedures are needed. If the root password is not the same on all other servers, then all those servers' root passwords must also be recorded; use additional space at the bottom of this table.

[4] Note: All logins into the NO servers are made via the External Management VIP unless otherwise stated.

2	ISO Administration	*	*
Appendix B	Health Check Procedures (depends on number of servers)	0:10-1:15	00:25-01:30

***NOTE:** *ISO transfers to the target systems cannot be estimated since times will vary significantly depending on the number of systems and the speed of the network.*

The ISO transfers to the target systems should be performed prior to, outside of, the scheduled maintenance window. The user should schedule the required maintenance windows accordingly.

3.2.1 Hardware Upgrade Preparation

There is no hardware preparation necessary when upgrading to release 15.0.1 since we are performing dual image upgrade from 12.11.3, 12.11.4 , 12.11.5 to 15.0.1 on cloud-based server. Hence, we do not need to prepare the hardware. In case of Bare metal to cloud migration, we will only perform the health checkup.

3.2.2 Review Release Notes

Before starting the upgrade, review the Release Notes for the new Oracle Communications User Data Repository 15.0.1 release to understand the functional differences and possible traffic impacts of the upgrade. **Also, very important to check Oracle Communications UDR-PCRF compatibility before performing Major Upgrade since all versions are not compatible.** Release notes for this and all release are available at https://docs.oracle.com.

3.2.3 Required Materials Check

This procedure verifies that all required materials needed to perform an upgrade have been collected and recorded.

Procedure 1: Required Materials Check

Step	This procedure verifies that all required materials are present. Check off (√)each step as it is completed. Boxes have been provided for this purpose under each step number.	
1. ☐	Verify all required materials are present.	Materials are listed in Section 3.1. Verify all required materials are present.
2. ☐	Verify all administration data needed during upgrade.	Double-check that all information in Section 3.1.2 is filled-in and accurate.
3. ☐	Contact Oracle CGBU Customer Care Center	Contact the My Oracle Support and inform them of plans to upgrade this system. See for these instructions.

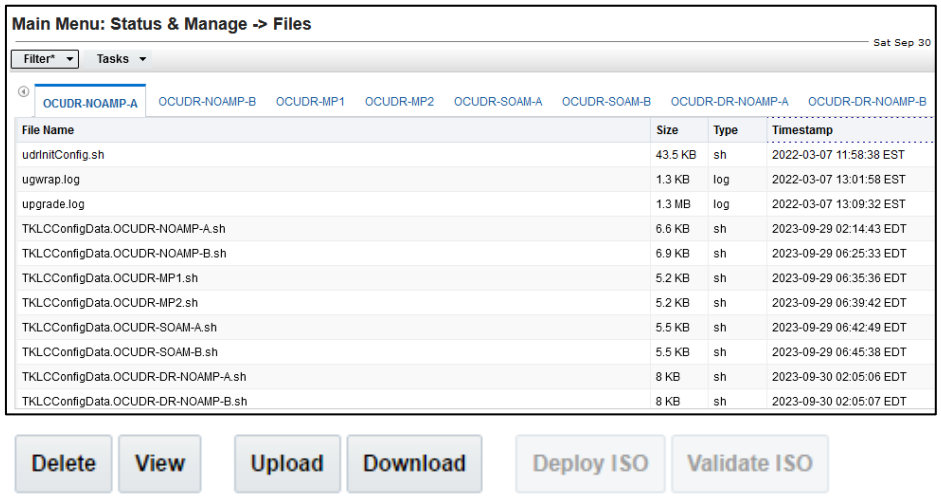
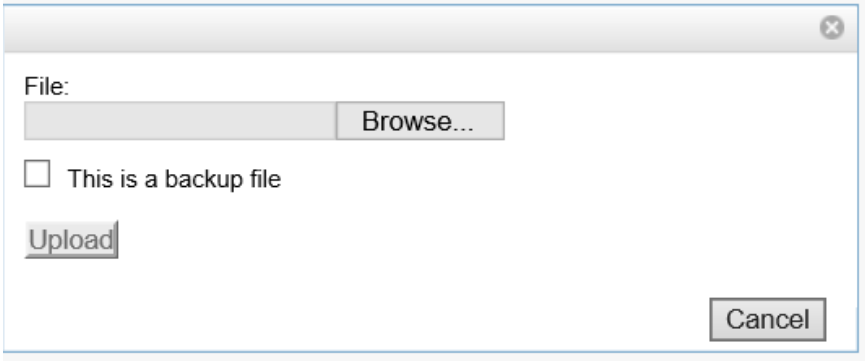
3.2.4 Perform Health Check (Upgrade Preparation)

☐	This procedure is part of Software Upgrade Preparation and is used to determine the health and status of the Oracle Communications User Data Repository network and servers. This may be executed multiple times but must also be executed at least once within the time frame of 24-36 hours prior to the start of the upgrade procedures. • Execute Health Check procedures as specified in **Appendix B.**

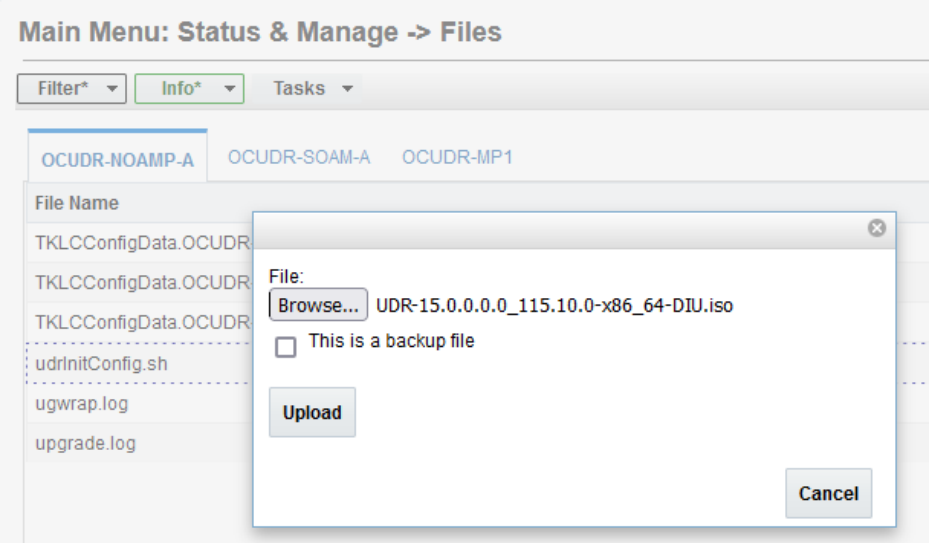
3.2.5 ISO Administration

Note : This step is applicable only for OL8 based TPD server to OL8 based TPD server upgrade

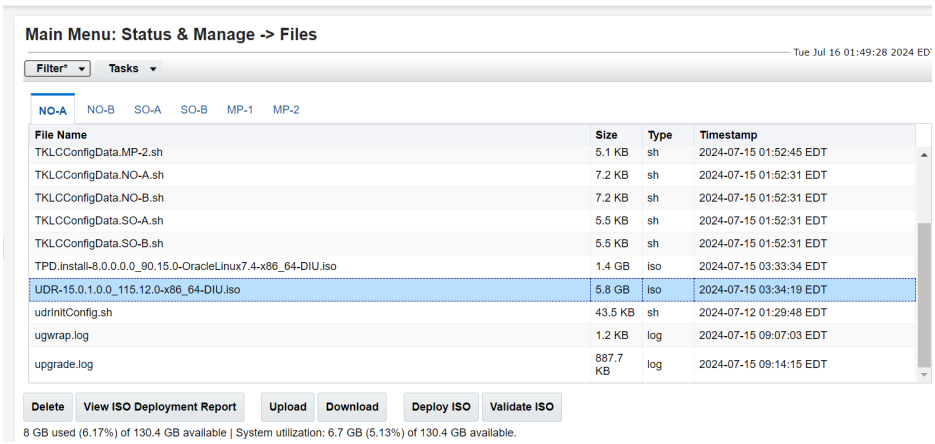
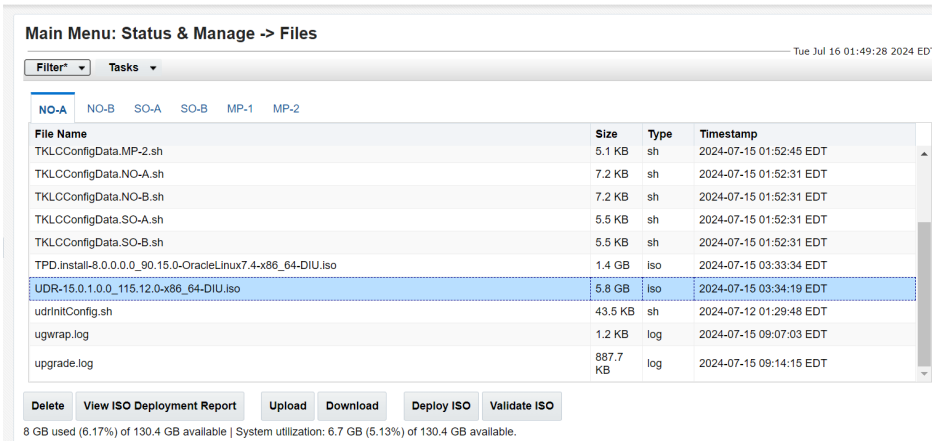
Procedure 2: ISO Administration for Upgrades

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Upload ISO file to the Active NOAMP server **1)**Select… **Main Menu→ Status & Manage →*Files*** **2)** Using the cursor, select the active NOAMP server from the list tabs. **3)** Click on the **"Upload"** button.	
3. ☐	**Active NOAMP VIP:** **1)** Click on the **"Browse..."** dialogue button located in the middle of the screen. **2)** Select the Drive and directory location of the ISO file for the target release. Select the DIU ISO file and click on the **"Open"** dialogue button. **3)** Click on the **"Upload"** dialogue button. **NOTE 1:** *It is recommended to access the DIU ISO file for the target release from a local hard drive partition as opposed to a*	

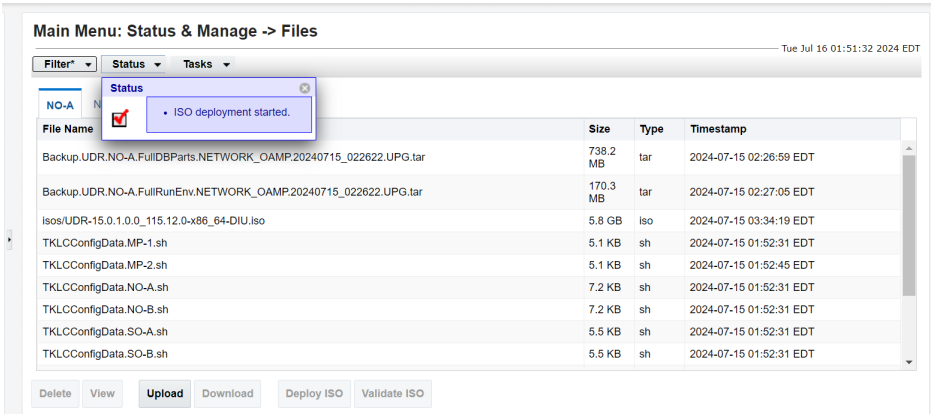
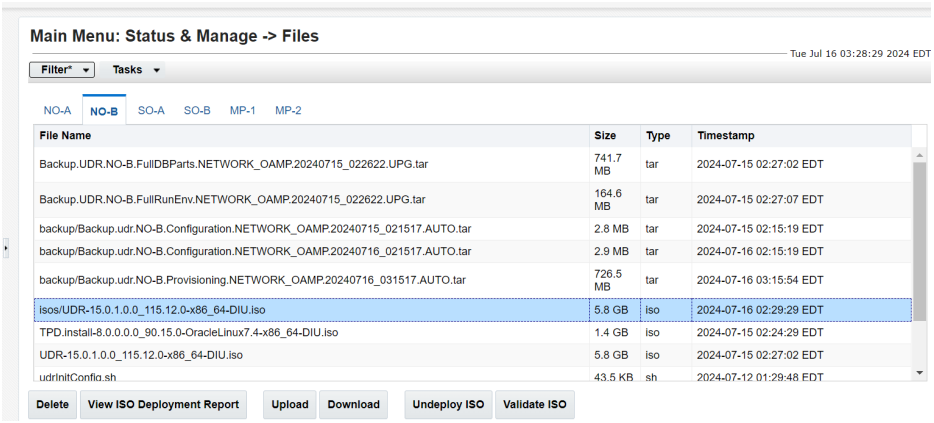
Procedure 2: ISO Administration for Upgrades

Step	Procedure	Result
	network or flash drive location. **NOTE 2:** *Depending on network conditions, this upload may take an extended period of time (> 60 sacs.).* **NOTE 3:** *Alternatively, the DIU ISO file can be manually transferred to the **"/var/TKLC/db/file mgmt"** directory of the **Active NOAMP** server using **SFTP**.* **NOTE 4:** *The DIU ISO in the file management directory must have global read permission or the GUI ISO transfer will fail, with a security log indicating the lack of read permission. If you upload the file using the GUI, the ISO will have global read permission. If you have already transferred the DIU ISO to the NO without global read permission, you can log in as admusr and use "chmod 644 " to give it read permission.* *Note: When scp files use "scp –p" command.*	

Procedure 2: ISO Administration for Upgrades

Step	Procedure	Result
4.	**Active NOAMP VIP:** Click the Timestamp link located on the top right of the right panel. A reverse-sorted list of files showing the newest files at the top displays. The ISO file uploaded in Step 3 of this procedure is at the top most position in the File Name column.	
5.	Active NOAMP VIP: UNDEPLOY all unneeded ISO images.	1. Select **Status & Manage → Files** from the left-side menu; the Files screen displays. 2. Select the DIU ISOs to be undeployed and click **Undeploy ISO** at the bottom of the table. 3. Click **OK** to confirm the ISO undeployment. 4. Verify that the ISO undeployment is successful. **NOTE:** The Tasks menu message box at the top of the Files page displays the status of the undeployment for each server. In addition, an ISO Deployment report can be viewed by selecting the DIU ISO and clicking View ISO Deployment Report.
6.	**Active NOAMP VIP (GUI):** Transfer ISO to all remaining servers via the GUI session. Select the <DIU *ISO filename*> and then click **Deploy ISO**. **Click** OK**.**	

Procedure 2: ISO Administration for Upgrades

Step	Procedure	Result
7.	**Active NOAMP VIP (GUI):** This moves the DIU ISO file to the `isos` directory and starts the secure copy of the DIU ISO to each server in the system. A status window opens as well	
8.	**Active NOAMP VIP (GUI):** To view the status of the deployed ISO, select the file isos/<*ISO filename*> and then click **View ISO Deployment Report** or click the Tasks dropdown. **NOTE:** This button displays when a deployed ISO is selected. All other times, it is the View button. To view the isos directory on each server that is deployed, select the server tabs near the top of the menu. **As an optional check (after the ISO is deployed), can click** Validate ISO **to ensure it is valid.**	 **Main Menu: Status & Manage -> Files [View]** Main Menu: Status & Manage -> Files [View] Tue Jul 16 03:29:38 2024 EDT Deployment report for UDR-15.0.1.0.0_115.12.0-x86_64-DIU.iso: Deployed on 6/6 servers. NO-A: Deployed NO-B: Deployed SO-A: Deployed SO-B: Deployed MP-1: Deployed MP-2: Deployed
THIS PROCEDURE HAS BEEN COMPLETED		

3.3 Order of Application Upgrade

The following list displays the order to upgrade the Servers (Primary and DR sites):

1. Site 2 NOAMPs (DR Spares)
2. Primary Standby NOAMP
3. Primary Active NOAMP
4. Site 1 SOAMs (Standby)
5. Site 1 SOAMs (Active)
6. Site 2 SOAMs (DR site – Spares)
7. Site 1 MPs (one at a time)
8. Site 2 MPs (DR site – one at a time)

3.4 Upgrade Execution Overview for Virtual Machine Configurations

3.4.1 Primary NOAMP / DR NOAMP Execution Overview

The procedures shown in each table below are the estimated times for upgrading 2 NOAMPs and 2 DR NOAMPs. The primary NOAMPs are upgraded first, followed by the DR NOAMPs.

Procedure Number	Procedure Title	Elapsed Time (Hours: Minutes)	
		This Step	Cumulative
3	*Remove Additional GUI Sessions*	00:05	00:05
4	*Full Database Backup*	00:30	00:35
5	*Upgrade DR NOAMP NE*	01:00	01:35

Table 5 - DR NOAMP Upgrade Procedures for Virtual Machine Configurations

Procedure Number	Procedure Title	Elapsed Time (Hours: Minutes)	
		This Step	Cumulative
6	*Upgrade Primary NOAMP NE*	01:00	01:00

Table 6 - Primary NOAMP Upgrade Procedures for Virtual Machine Configurations

***NOTE:** *Times estimates are based on a small Database.*

3.4.2 SOAM Server Upgrade Execution Overview

The procedures shown in the following table are the estimated times for upgrading the two SOAM Servers. SOAMs should be upgraded one site at a time (site 1 followed by site 2).

Procedure Number	Procedure Title	Elapsed Time (Hours: Minutes)	
		This Step	Cumulative
7	*Upgrade SOAM NE*	00:45	00:45

Table 7 - SOAM Upgrade Procedures for Virtual Machine Configurations

3.4.3 MP Server Upgrade Execution Overview

The procedures shown in the following tables are the estimated times for upgrading two MP Servers. MP Servers should be upgraded one site at a time (site 1 followed by site 2).

Procedure Number	Procedure Title	Elapsed Time (Hours: Minutes)	
		This Step	Cumulative
8	*Upgrade MP NE*	00:25	00:25

Table 8 **– MP Server Upgrade Procedures for Virtual Machine Configurations**

3.5 Upgrade Acceptance Overview

Procedure Number	Procedure Title	Elapsed Time (Hours: Minutes)	
		This Step	Cumulative
15	*Accept Upgrade*	00:20	00:20

Table 9 – Upgrade Acceptance overview

4. VM TO VM UPGRADE FROM UDR-12.11.3/4/5 TO UDR-15.0

VM to VM upgrade is performed using Dual Image Upgrade (DIU) procedure provided by the TPD. UDR 12.11.x is based on OL6 TPD and UDR 15.0 is based on OL8 TPD. There are restrictions on OL to upgrade directly from OL6 to OL8. Hence DIU procedures utilize 2 hop upgrades with 1st hop from OL6 to OL7 and 2nd hop from OL7 to OL8. For the 1st hop, TPD DIU ISO is used and UDR DIU ISO would be used for 2nd hop.
Acceptance of upgrade needs to be done twice once at each hop and reject/rollback can be done at each hop.
Reject/rollback at both hops will bring the server back to OL6 TPD i.e UDR 12.11.x

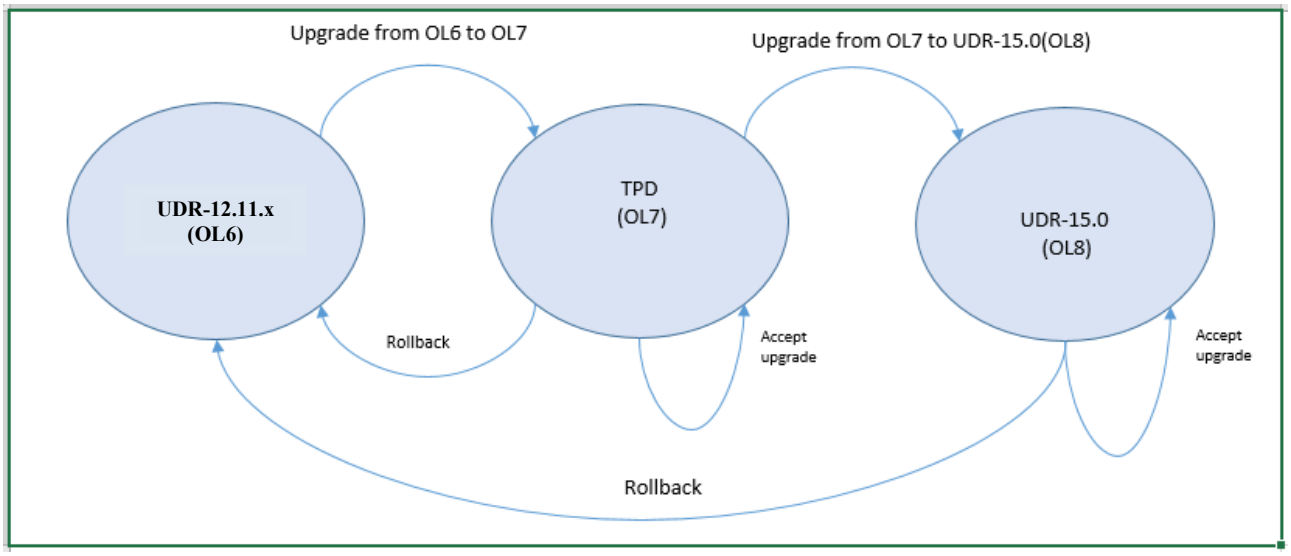


Figure 2: OL6 to OL8 upgrade diagram

4.1 Primary NOAMP / DR NOAMP Upgrade Execution

Open A Service Ticket at My Oracle Support (**Appendix H**) and inform them of your plans to upgrade this system prior to executing this upgrade.
Before upgrade, users must perform the system Health Check **Appendix B.**
This check ensures that the system to be upgraded is in an upgrade-ready state. Performing the system health check determines which alarms are present in the system and if upgrade can proceed with alarms.

****** WARNING *******

If there are servers in the system, which are not in Normal state, these servers should be brought to the Normal or the Application Disabled state before the upgrade process is started.
The sequence of upgrade is such that servers providing support services to other servers will be upgraded first.

****** WARNING *******

Please read the following notes on this procedure:
Procedure completion times shown here are estimates. Times may vary due to differences in database size, user experience, and user preparation.
Where possible, command response outputs are shown as accurately as possible. EXCEPTIONS are as follows:
Session banner information such as time and date.
System-specific configuration information such as hardware locations, IP addresses and hostnames.
ANY information marked with “XXXX” or “YYYY.” Where appropriate, instructions are provided to determine what output should be expected in place of “XXXX or YYYY”
Aesthetic differences unrelated to functionality such as browser attributes: window size, colors, toolbars and button layouts.
After completing each step and at each point where data is recorded from the screen, the technician performing the

upgrade must mark the provided Check Box.
For procedures which are executed multiple times, a mark can be made below the Check Box (in the same column) for each additional iteration of the step executed.
Retention of Captured data is required for as a future support reference this procedure is executed by someone other than Oracle's Consulting Services.

4.1.1 Perform Health Check (Pre-Upgrade)

☐ This procedure is part of Software Upgrade Preparation and is used to determine the health and status of the Oracle Communications User Data Repository network and servers. This may be executed multiple times but must also be executed at least once within the time frame of 24-36 hours prior to the start of a maintenance window. Execute Health Check procedures as specified in **Appendix B.**

4.1.2 Primary NOAMP / DR NOAMP Upgrade

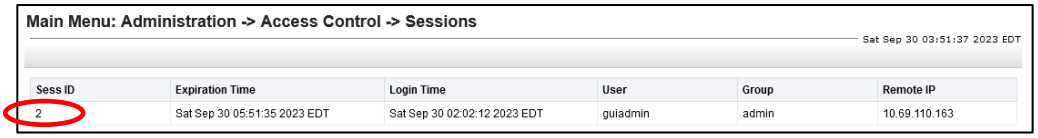
The following procedures detail how to perform upgrades for Primary NOAMP and DR NOAMP Servers.

WARNING: The Database Audit stays disabled throughout the whole upgrade, until all of the SOAM sites are upgraded!

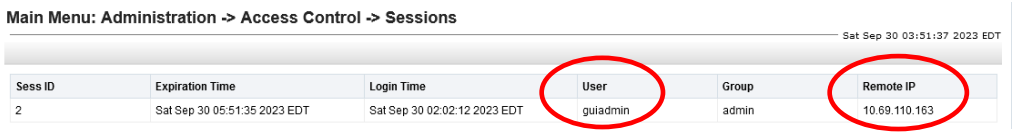
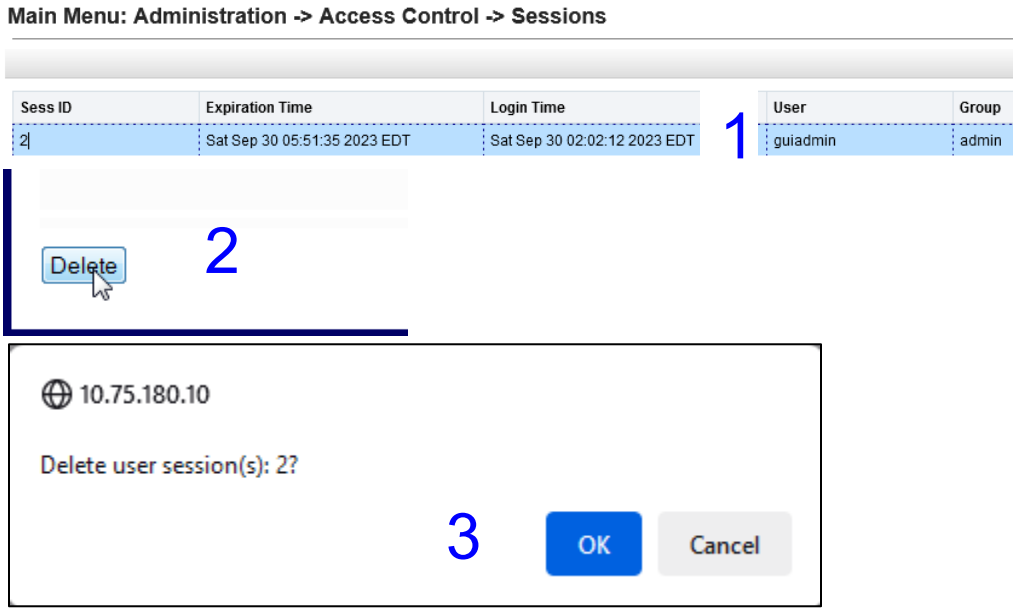
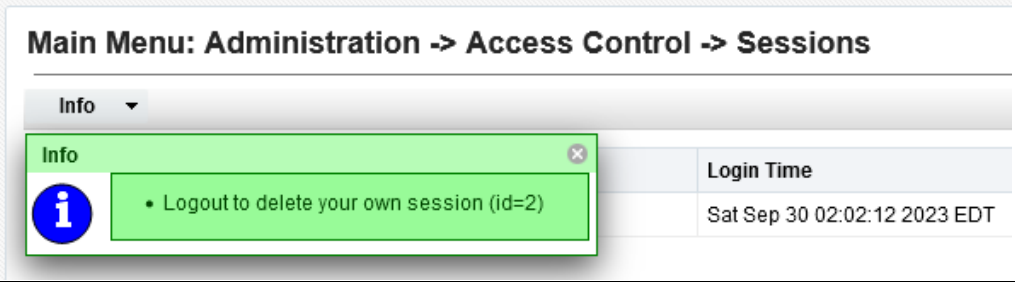
Check off (√)each step as it is completed. Boxes have been provided for this purpose under each step number.

4.1.2.1 Remove Additional GUI Sessions

Procedure 3: Remove Additional GUI Sessions

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu →Administration →Access Control→*Sessions*** …as shown on the right.	
3. ☐	**Active NOAMP VIP:** In the right panel, the user will be presented with the list of Active GUI sessions connected to the Active NOAMP server.	

Procedure 3: Remove Additional GUI Sessions

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** The User ID and Remote IP address of each session will be displayed as seen on the right. Every attempt should be made to contact users not engaged in this Upgrade activity and request that they discontinue GUI access until the upgrade activity has completed.	
5. ☐	**Active NOAMP VIP:** If unable to identify or contact the session owners, sessions not related to the upgrade activity may be selected and deleted as follows: **1)** Select the session for deletion with the cursor. **2)** In the bottom left of the right panel, click the **"Delete"** dialogue button. **3)** In the pop-up window, click on the **"OK"** dialogue button.	 **NOTE:** *The Session screen prevents users from deleting the session which they are currently connected to. If attempting to do so by accident, a message may be received in the Banner area stating* ***"Logout to delete your own session (id=xx)"****.*
6. ☐	**Active NOAMP VIP:** The user will receive a confirmation message in the Info tab indicating the session ID which was deleted.	

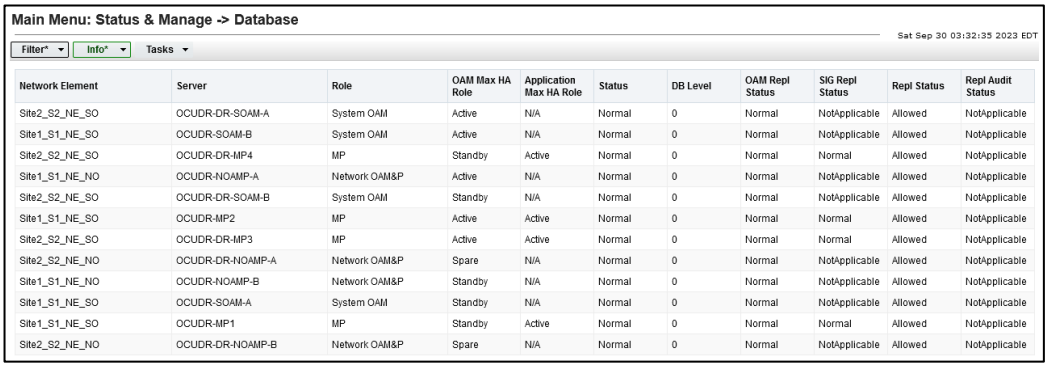
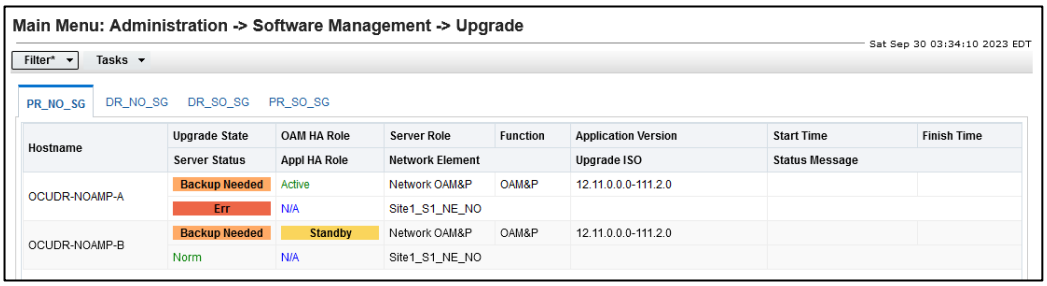
Procedure 3: Remove Additional GUI Sessions

Step	Procedure	Result
7. ☐	**Active NOAMP VIP:** Delete any additional GUI sessions as needed.	Repeat **Steps** 5-6 of this Procedure for each additional GUI session to be deleted.
THIS PROCEDURE HAS BEEN COMPLETED		

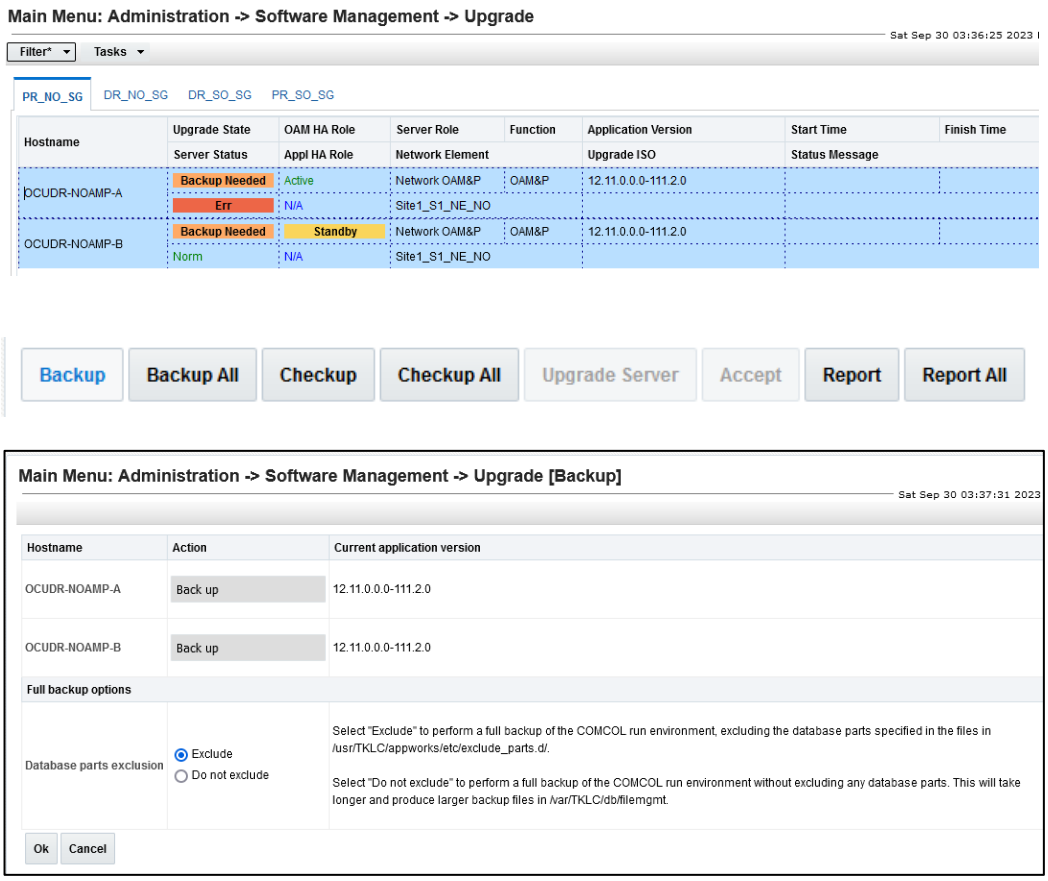
4.1.2.2 Full Database Backup (All Network Elements, All Servers)

This procedure is part of Software Upgrade Preparation and is used to conduct a full backup of the COMCOL run environment on every server, to be used in the event of a backout/rollback of the new software release.

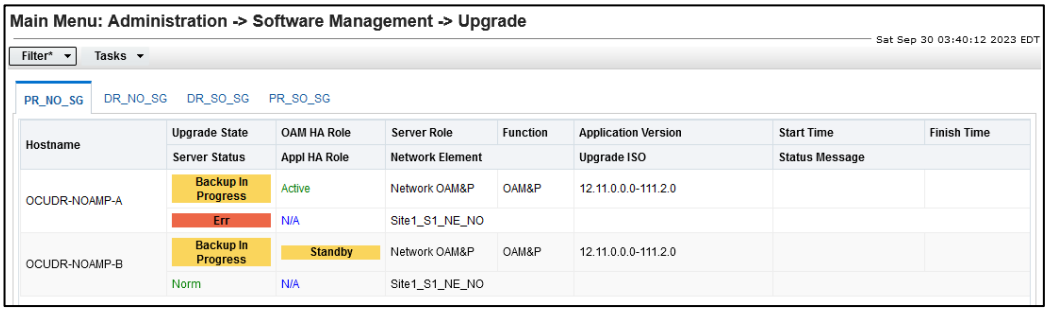
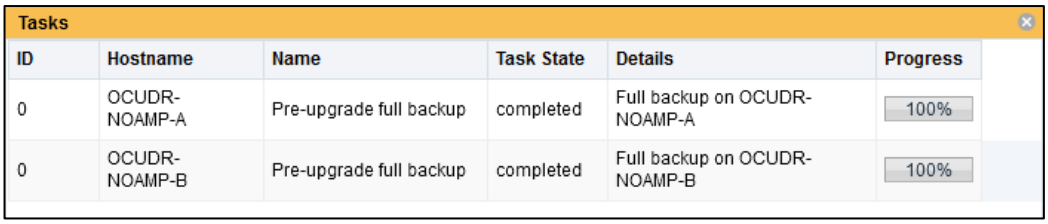
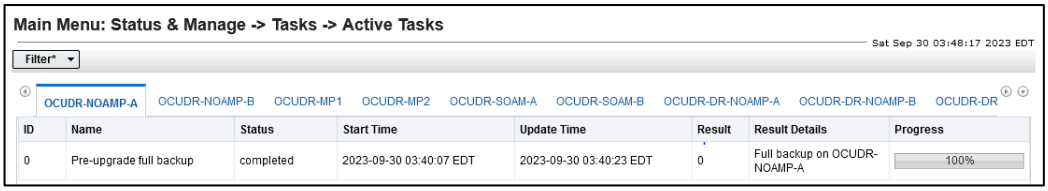
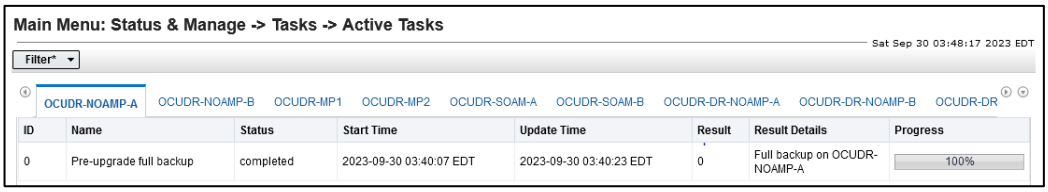
Procedure 4: Full Database Backup

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→*Database*** …as shown on the right.	
3. ☐	**Active NOAMP VIP:** Record the names of all servers.	Using the information provided in Section 3.1.2 (*Logins, Passwords and Site Information*) record the names of all servers. *The full backup on every server can be done from the NOAMP GUI.
4. ☐	**Active NOAMP VIP:** **Main Menu** **→Administration** **→Software Management** **→*Upgrade*** …as shown on the right. Backup the COMCOL run environment	

Procedure 4: Full Database Backup

Step	Procedure	Result
5. ☐	**Active NOAMP VIP:** Click "**Backup All**" button at left bottom of the screen; the full backups will begin. After clicking backup – an additional screen will pop up. Default is to exclude the database parts (If the database parts are included – then the backup will take longer and produce larger backup files in /var/TKLC/db/filemgmt. They are not required for a full backup. Click "**OK**" to begin the backup.	

Procedure 4: Full Database Backup

Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The "Server Status" box indicates "Backup in Progress" The progress of the full backups can be viewed in the pulldown **Tasks** box, as well as from the **Status & Manage->Tasks->Active Tasks** screen. As each full backup completes, its task will update to indicate its success or failure. When all full backup tasks finish successfully, this procedure is complete.	  
7. ☐	**Active NOAMP VIP:** **Main Menu** **→Administration** **→Software Management** ***→Upgrade*** Click the **Tasks** dropdown.	 When complete, Progress should display 100%.
THIS PROCEDURE HAS BEEN COMPLETED		

4.1.2.3 Upgrade DR NOAMP NE

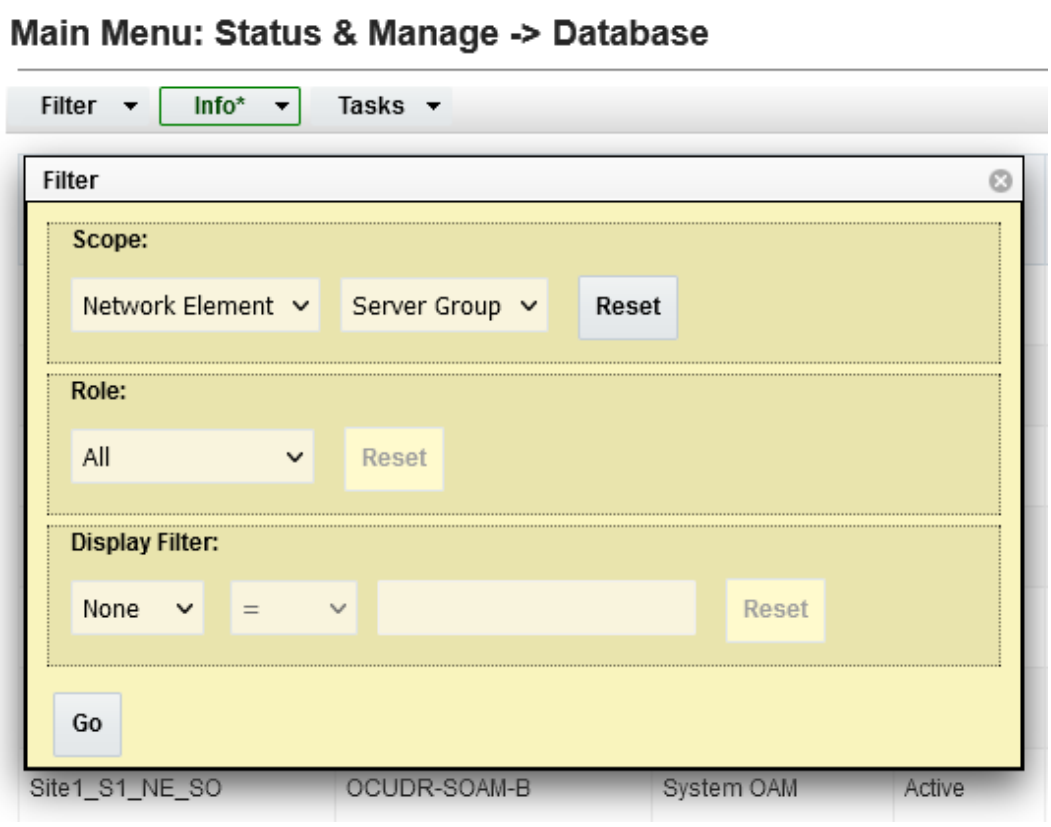
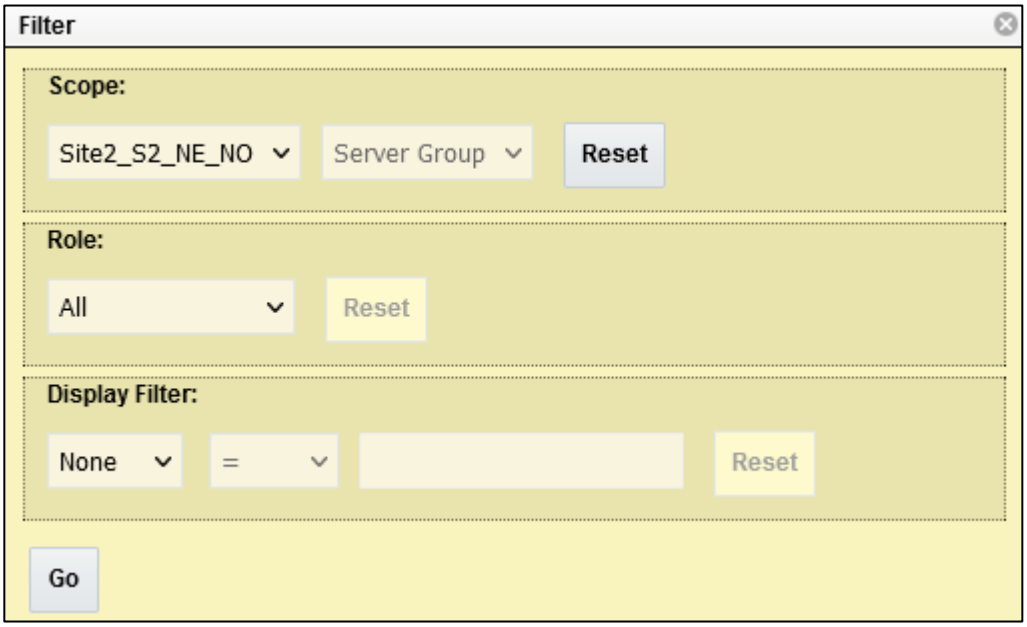
The following procedures give details on how to perform upgrades for DR NOAMP server to various possible upgrade paths.

Note: Ensure you are on latest patch prior to upgrading from Release 12.11.3, 12.11.4, 12.11.5 to 15.0.1

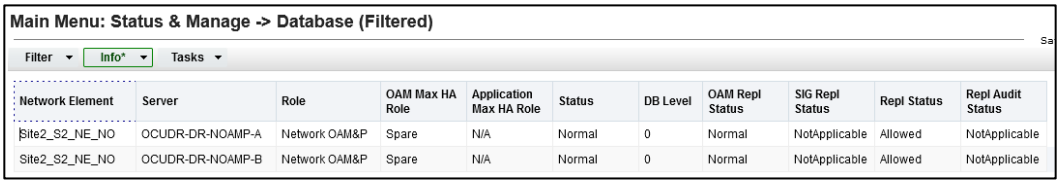
Procedure 5: Upgrade DR NOAMP NE

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu → Status & Manage →*Database*** …as shown on the right.	` **Main Menu: Status & Manage -> Database** Sat Sep 30 04:01:59 2023 EDT Filter* Info* Tasks Network Element | Server | Role | OAM Max HA Role | Application Max HA Role | Status | DB Level | OAM Repl Status | SIG Repl Status | Repl Status | Repl Audit Status Site2_S2_NE_NO | OCUDR-DR-NOAMP-A | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_S1_NE_NO | OCUDR-NOAMP-B | Network OAM&P | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_S1_NE_SO | OCUDR-SOAM-A | System OAM | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_S1_NE_SO | OCUDR-MP1 | MP | Standby | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicable Site2_S2_NE_NO | OCUDR-DR-NOAMP-B | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site2_S2_NE_SO | OCUDR-DR-SOAM-A | System OAM | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_S1_NE_SO | OCUDR-SOAM-B | System OAM | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site2_S2_NE_SO | OCUDR-DR-MP4 | MP | Standby | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicable Site1_S1_NE_NO | OCUDR-NOAMP-A | Network OAM&P | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site2_S2_NE_SO | OCUDR-DR-SOAM-B | System OAM | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_S1_NE_SO | OCUDR-MP2 | MP | Active | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicable Site2_S2_NE_SO | OCUDR-DR-MP3 | MP | Active | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicable
3. ☐	Record the name of the **DR NOAMP** Network Element in the space provided to the right.	Using the information provided in Section 3.1.2 (*Logins, Passwords and Site Information*) record the name of the **DRNOAMP** Network Element in the space provided below: **DR NOAMP Network Element: _____**

Procedure 5: Upgrade DR NOAMP NE

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** From the **"Network Element"** filter pull-down, select the NE name for the **DR NOAMP**.	
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the left bottom of the filter bar.	

Procedure 5: Upgrade DR NOAMP NE

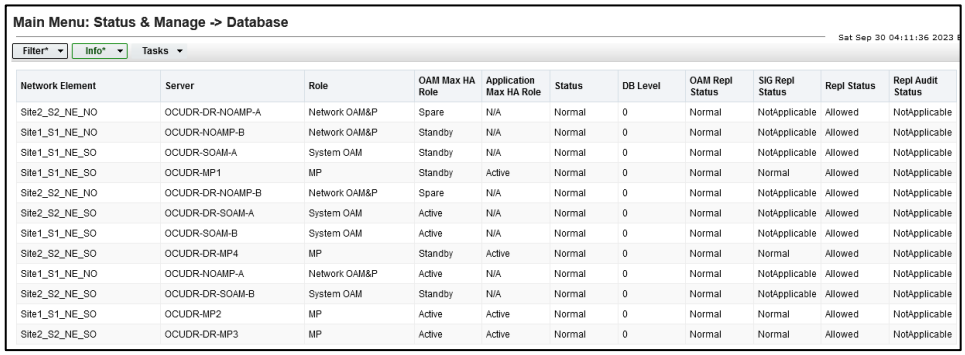
Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with **DR NOAMP** Network Element.	 Main Menu: Status & Manage -> Database (Filtered) Filter Info* Tasks Network Element | Server | Role | OAM Max HA Role | Application Max HA Role | Status | DB Level | OAM Repl Status | SIG Repl Status | Repl Status | Repl Audit Status Site2_S2_NE_NO | OCUDR-DR-NOAMP-A | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site2_S2_NE_NO | OCUDR-DR-NOAMP-B | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Identify each "**Server"** and its associated **"Role"** and **"HA Role"**.
7. ☐	**Active NOAMP VIP:** Record the **"Server"** names appropriately in the space provided to the right.	Identify the **DR NOAMP "Server"** names and record them in the space provided below: **Spare NOAMP Server: _____** **Spare NOAMP Server: _____**
		NOTE: For *Step 8 of this Procedure, select one spare DR NOAMP.* ***** Verify the Databases are in sync using Appendix E before upgrading each spare server.**
8. ☐	**Active NOAMP VIP:** Upgrade Server for the first **Spare DR NOAMP Server**.	Upgrade Server for the first **Spare DR NOAMP Server***(identified in **Step 7** of this Procedure)* as specified in **Appendix C.1 Upgrade Server.**
9. ☐	**Active NOAMP VIP:** Upgrade Server for the second **Spare DR NOAMP Server**.	Upgrade Server for the second **Spare DR NOAMP Server***(identified in **Step 7** of this Procedure)* as specified in **Appendix C.1 Upgrade Server.**
		THIS PROCEDURE HAS BEEN COMPLETED

4.1.2.4 Upgrade Primary NOAMP NE

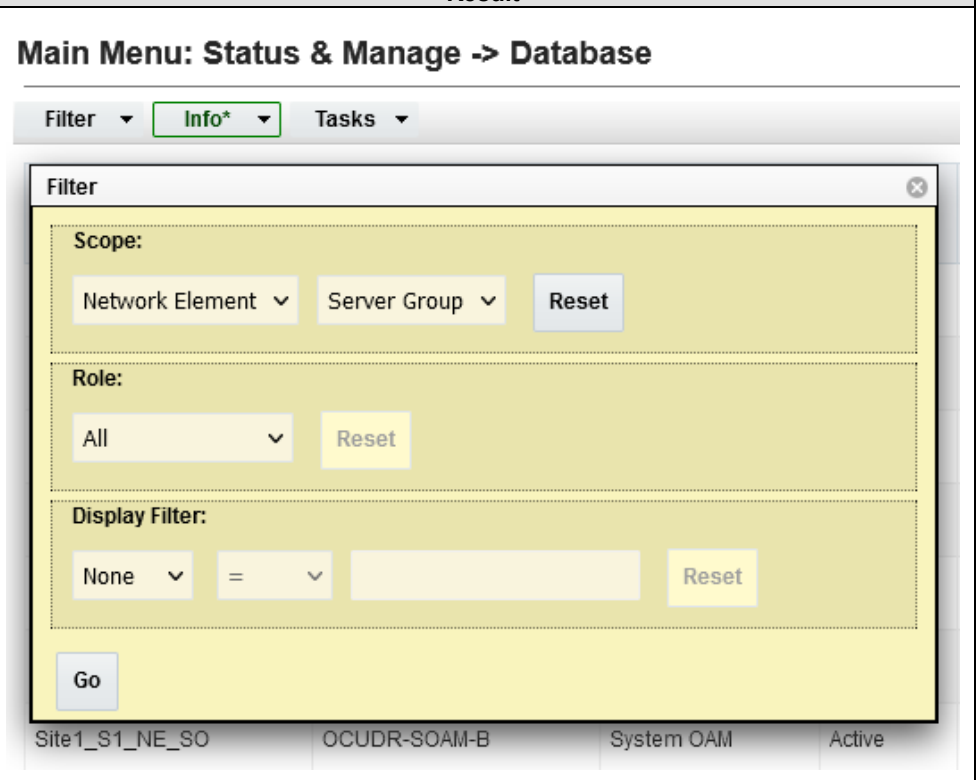
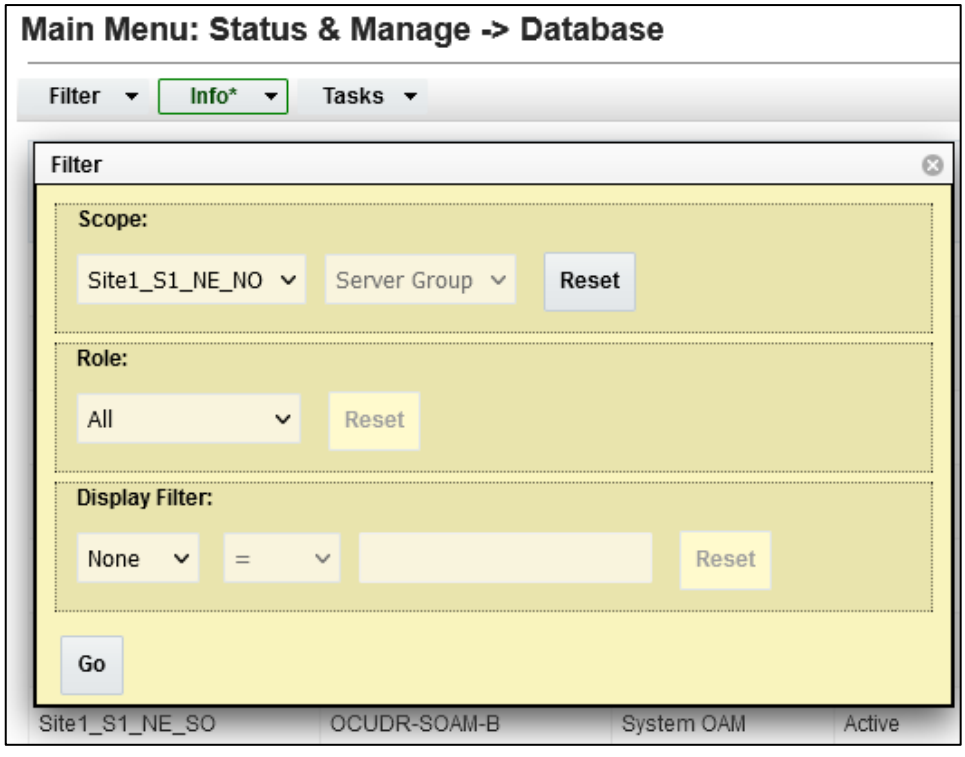
The following procedures detail how to perform upgrades for Primary NOAMP server to various possible upgrade paths.

Note: Ensure you are on latest patch prior to upgrading from Release 12.11.3, 12.11.4, 12.11.5 to 15.0.1

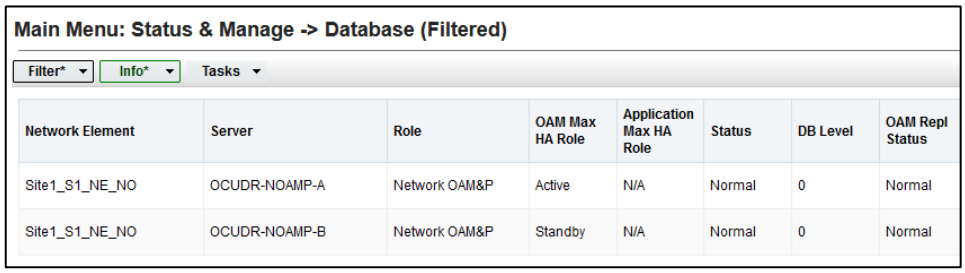
Procedure 6: Upgrade Primary NOAMP NE

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the **Primary NOAMP** GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu → Status & Manage →*Database*** …as shown on the right.	 Network Element | Server | Role | OAM Max HA Role | Application Max HA Role | Status | DB Level | OAM Repl Status | SIG Repl Status | Repl Status | Repl Audit Status Site2_S2_NE_NO | OCUDR-DR-NOAMP-A | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_S1_NE_NO | OCUDR-NOAMP-B | Network OAM&P | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_S1_NE_SO | OCUDR-SOAM-A | System OAM | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_S1_NE_SO | OCUDR-MP1 | MP | Standby | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicable Site2_S2_NE_NO | OCUDR-DR-NOAMP-B | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site2_S2_NE_SO | OCUDR-DR-SOAM-A | System OAM | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_S1_NE_SO | OCUDR-SOAM-B | System OAM | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site2_S2_NE_SO | OCUDR-DR-MP4 | MP | Standby | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicable Site1_S1_NE_NO | OCUDR-NOAMP-A | Network OAM&P | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site2_S2_NE_SO | OCUDR-DR-SOAM-B | System OAM | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_S1_NE_SO | OCUDR-MP2 | MP | Active | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicable Site2_S2_NE_SO | OCUDR-DR-MP3 | MP | Active | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicable
3. ☐	Record the name of the **Primary NOAMP** Network Element in the space provided to the right.	Using the information provided **in Section 3.1.2** (*Logins, Passwords and Site Information*) record the name of the **Primary NOAMP** Network Element in the space provided below: **Primary NOAMP Network Element: _____**

Procedure 6: Upgrade Primary NOAMP NE

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** From the **"Network Element"** filter pull-down, select the Network Element name for the **Primary NOAMP**.	
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the right end of the filter bar.	

Procedure 6: Upgrade Primary NOAMP NE

Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with the **Primary NOAMP** Network Element. Identify each "**Server**" and its associated **"Role"** and **"HA Role"**.	
7. ☐	**Active NOAMP VIP:** Record the **"Server"** names appropriately in the space provided to the right.	Identify the **Primary NOAMP "Server"** names and record them in the space provided below: **Standby NOAMP: _____** **Active NOAMP: _____**
8.	**Active NOAMP Server Executing workarounds for known Bugs**	Refer to the OCUDR 12.11.x Release Notes document for Known Customer Bugs, evaluate for applicability and execute the workarounds as mentioned. Note: If applicable then use workaround else skip the step.
	NOTE: ***Step 9 is for the STANDBY NOAMP ONLY.***	
9. ☐	**Active NOAMP VIP:** Upgrade Server for the **Standby NOAMP Server**.	Upgrade Server for the **Standby NOAMP Server** *(identified in **Step 7** of this Procedure)* as specified in **Appendix C.1 Upgrade Server.**
	!! WARNING !! STEP 9 MUST BE COMPLETED BEFORE CONTINUING ON TO STEP 10. ***** Verify the Databases are in sync using Appendix E before upgrading the Active Server**	
10. ☐	**Active NOAMP VIP:** Upgrade Server for the **Active NOAMP Server**.	Upgrade Server for the **Active NOAMP Server** *(identified in **Step 7** of this Procedure)* as specified in **Appendix C.1 Upgrade Server.**
	THIS PROCEDURE HAS BEEN COMPLETED	

4.1.3 Perform Health Check (Post Primary NOAMP / DR NOAMP Upgrade)

☐	This procedure is part of Software Upgrade Preparation and is used to determine the health and status of the Oracle Communications User Data Repository network and servers. Execute Health Check procedures as specified in **Appendix B.**

4.2 SOAM site Upgrade Execution

Open A Service Ticket at My Oracle Support (**Appendix I**) and inform them of your plans to upgrade this system prior to executing this upgrade.
Before upgrade, users must perform the system Health Check **Appendix B.**
This check ensures that the system to be upgraded is in an upgrade-ready state. Performing the system health check determines which alarms are present in the system and if upgrade can proceed with alarms.

****** WARNING *******

If there are servers in the system, which are not in Normal state, these servers should be brought to the Normal or the Application Disabled state before the upgrade process is started.
The sequence of upgrade is such that servers providing support services to other servers will be upgraded first.

****** WARNING *******

Please read the following notes on this procedure:
Procedure completion times shown here are estimates. Times may vary due to differences in database size, user experience, and user preparation.
Where possible, command response outputs are shown as accurately as possible. EXCEPTIONS are as follows:
Session banner information such as time and date.
System-specific configuration information such as hardware locations, IP addresses and hostnames.
ANY information marked with “XXXX” or “YYYY.” Where appropriate, instructions are provided to determine what output should be expected in place of “XXXX or YYYY”
Aesthetic differences unrelated to functionality such as browser attributes: window size, colors, toolbars and button layouts.
After completing each step and at each point where data is recorded from the screen, the technician performing the upgrade must mark the provided Check Box.
For procedures which are executed multiple times, a mark can be made below the Check Box (in the same column) for each additional iteration of the step executed.
Retention of Captured data is required for as a future support reference this procedure is executed by someone other than Oracle’s Consulting Services.

4.2.1 Perform Health Check (Pre-Upgrade)

☐	This procedure is part of Software Upgrade Preparation and is used to determine the health and status of the Oracle Communications User Data Repository network and servers. This may be executed multiple times but must also be executed at least once within the time frame of 24-36 hours prior to the start of a maintenance window. Execute Health Check procedures as specified in **Appendix B.**

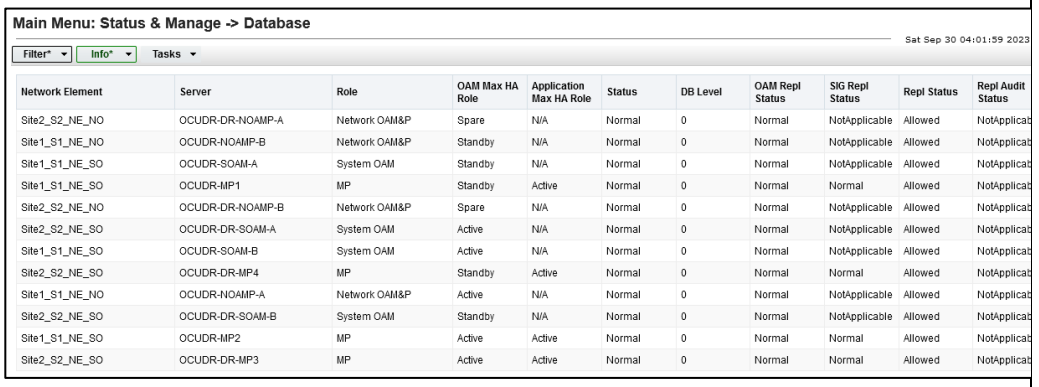
4.2.2 SOAM Upgrade

The following procedure details how to upgrade Oracle Communications User Data Repository SOAMs.

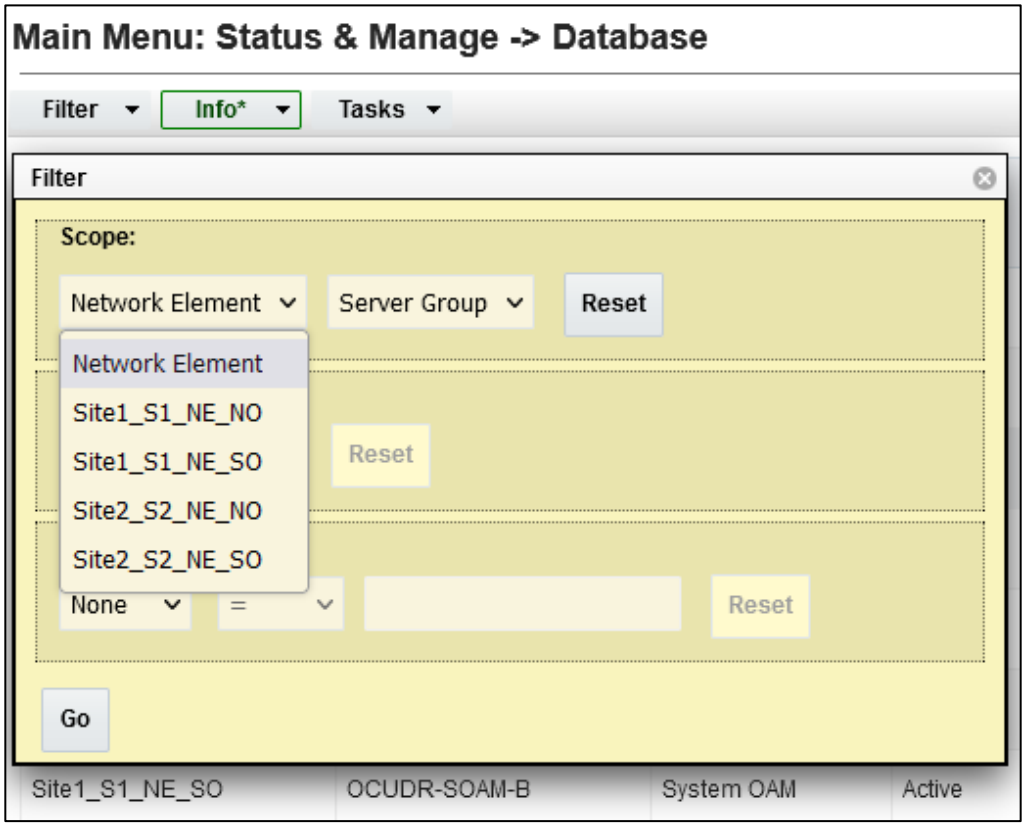
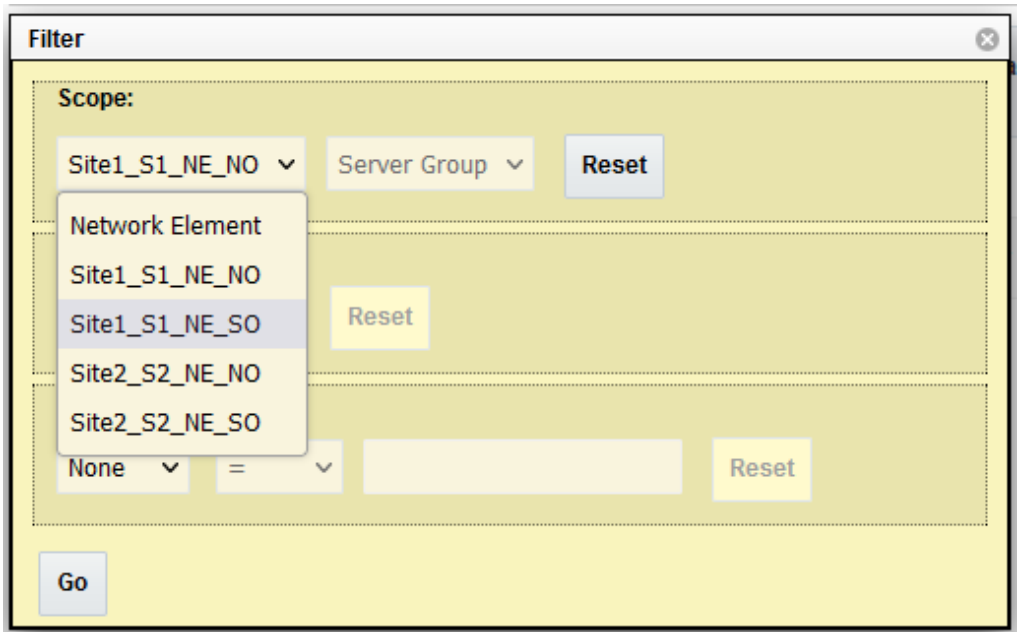
Check off (√)each step as it is completed. Boxes have been provided for this purpose under each step number.

4.2.2.1 Upgrade SOAM NE

Procedure 7: Upgrade SOAM NE

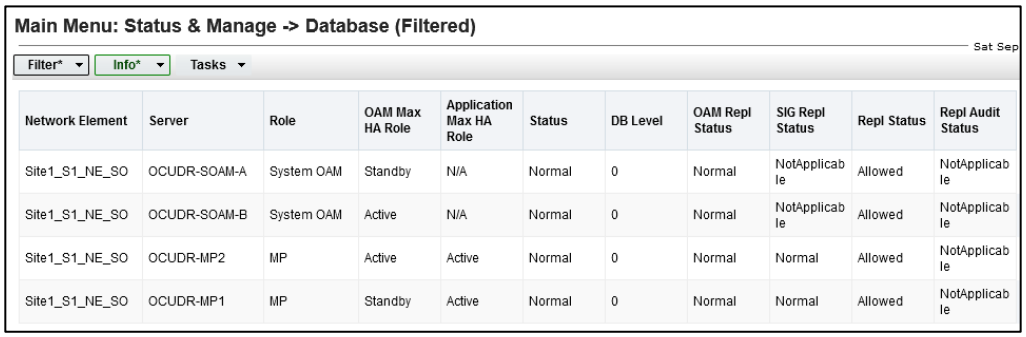
Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→*Database*** …as shown on the right.	 Network Element | Server | Role | OAM Max HA Role | Application Max HA Role | Status | DB Level | OAM Repl Status | SIG Repl Status | Repl Status | Repl Audit Status Site2_S2_NE_NO | OCUDR-DR-NOAMP-A | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicat Site1_S1_NE_NO | OCUDR-NOAMP-B | Network OAM&P | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicat Site1_S1_NE_SO | OCUDR-SOAM-A | System OAM | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicat Site1_S1_NE_SO | OCUDR-MP1 | MP | Standby | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicat Site2_S2_NE_NO | OCUDR-DR-NOAMP-B | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicat Site2_S2_NE_SO | OCUDR-DR-SOAM-A | System OAM | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicat Site1_S1_NE_SO | OCUDR-SOAM-B | System OAM | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicat Site2_S2_NE_SO | OCUDR-DR-MP4 | MP | Standby | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicat Site1_S1_NE_NO | OCUDR-NOAMP-A | Network OAM&P | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicat Site2_S2_NE_SO | OCUDR-DR-SOAM-B | System OAM | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicat Site1_S1_NE_SO | OCUDR-MP2 | MP | Active | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicat Site2_S2_NE_SO | OCUDR-DR-MP3 | MP | Active | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicat
3. ☐	Record the name of the **SOAM** NE in the space provided to the right.	Using the information provided in Section 3.1.2 (*Logins, Passwords and Site Information*) record the name of the **SOAM** Network Element in the space provided below: **SOAM Network Element: _____**

Procedure 7: Upgrade SOAM NE

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** From the **"Network Element"** filter pull-down, select the name for the **SOAM** NE.	
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the left bottom of the filter bar.	

Procedure 7: Upgrade SOAM NE

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>6. ☐</td><td>Active NOAMP VIP:

The user should be presented with the list of servers associated with the SOAM NE.</td><td> 

<table>
<tr><th>Network Element</th><th>Server</th><th>Role</th><th>OAM Max HA Role</th><th>Application Max HA Role</th><th>Status</th><th>DB Level</th><th>OAM Repl Status</th><th>SIG Repl Status</th><th>Repl Status</th><th>Repl Audit Status</th></tr>
<tr><td>Site1_S1_NE_SO</td><td>OCUDR-SOAM-A</td><td>System OAM</td><td>Standby</td><td>N/A</td><td>Normal</td><td>0</td><td>Normal</td><td>NotApplicable</td><td>Allowed</td><td>NotApplicable</td></tr>
<tr><td>Site1_S1_NE_SO</td><td>OCUDR-SOAM-B</td><td>System OAM</td><td>Active</td><td>N/A</td><td>Normal</td><td>0</td><td>Normal</td><td>NotApplicable</td><td>Allowed</td><td>NotApplicable</td></tr>
<tr><td>Site1_S1_NE_SO</td><td>OCUDR-MP2</td><td>MP</td><td>Active</td><td>Active</td><td>Normal</td><td>0</td><td>Normal</td><td>Normal</td><td>Allowed</td><td>NotApplicable</td></tr>
<tr><td>Site1_S1_NE_SO</td><td>OCUDR-MP1</td><td>MP</td><td>Standby</td><td>Active</td><td>Normal</td><td>0</td><td>Normal</td><td>Normal</td><td>Allowed</td><td>NotApplicable</td></tr>
</table></td></tr>
<tr><td>7. ☐</td><td>Using the list of servers associated with the SOAM NE shown in the above Step...

Record the Server names of the SOAMs associated with the SOAM Network Element.</td><td>Identify the SOAM “Server” names and record them in the space provided below:

Standby SOAM: _____

Active SOAM: _____</td></tr>
<tr><td>8. ☐</td><td>Active NOAMP VIP:</td><td>Inspect KPI reports to verify traffic is at the expected condition. (There is no congestion and KPIs are consistent).

Performance indicators are available on the Active NOAMP under Status & Manage → KPIs</td></tr>
<tr><td>9. ☐</td><td>Active NOAMP VIP:

Upgrade Server for the Standby SOAM Server.</td><td>Upgrade Server for the Standby SOAM Server (identified in Step 7 of this Procedure) as specified in Appendix C.1 Upgrade Server.</td></tr>
<tr><td colspan="3">!! WARNING !! STEP 9 MUST BE COMPLETED BEFORE CONTINUING ON TO STEP 10.

*** Verify the Databases are in sync using Appendix E before preparing the upgrade</td></tr>
<tr><td>10. ☐</td><td>Active NOAMP VIP:

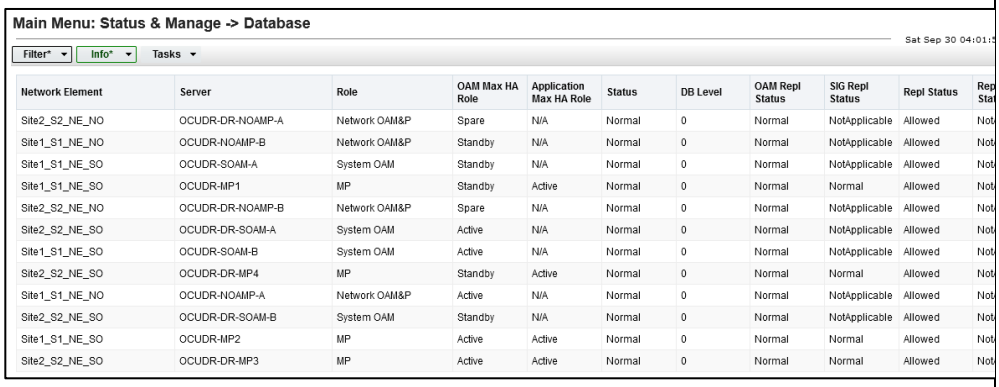
Upgrade Server for the Active SOAM Server.</td><td>Upgrade Server for the Active SOAM Server (identified in Step 7 of this Procedure) as specified in Appendix C.1 Upgrade Server.</td></tr>
<tr><td colspan="3">THIS PROCEDURE HAS BEEN COMPLETED</td></tr>
</table>

4.2.3 MP Upgrade

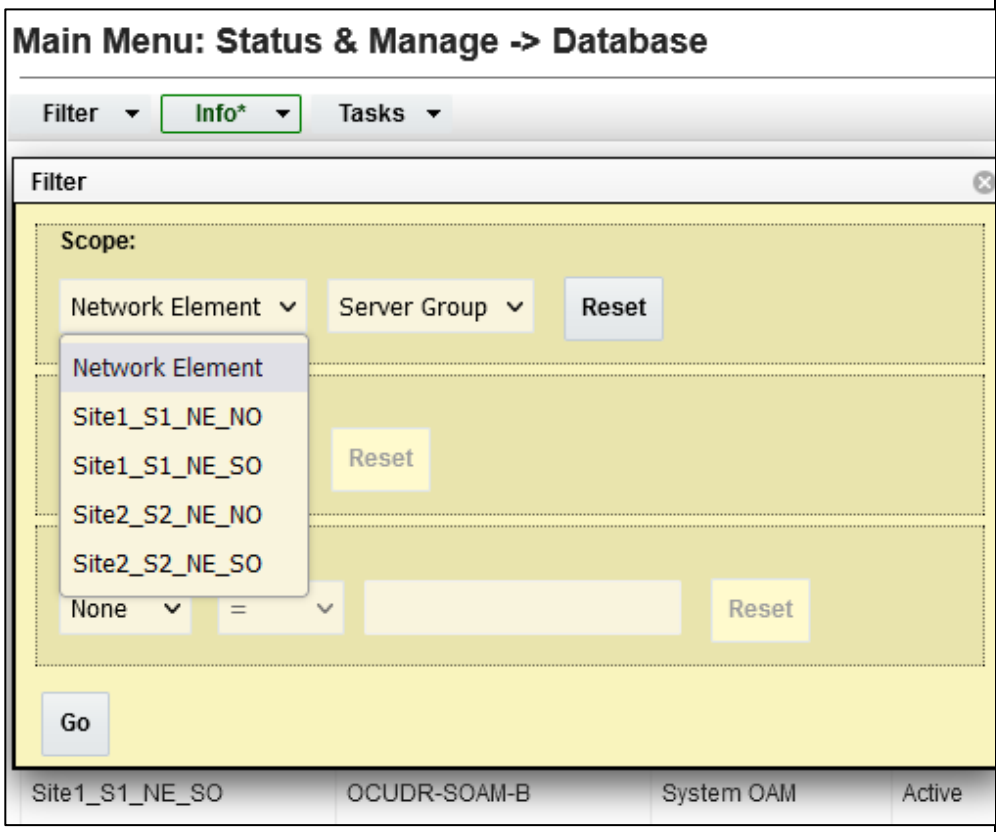
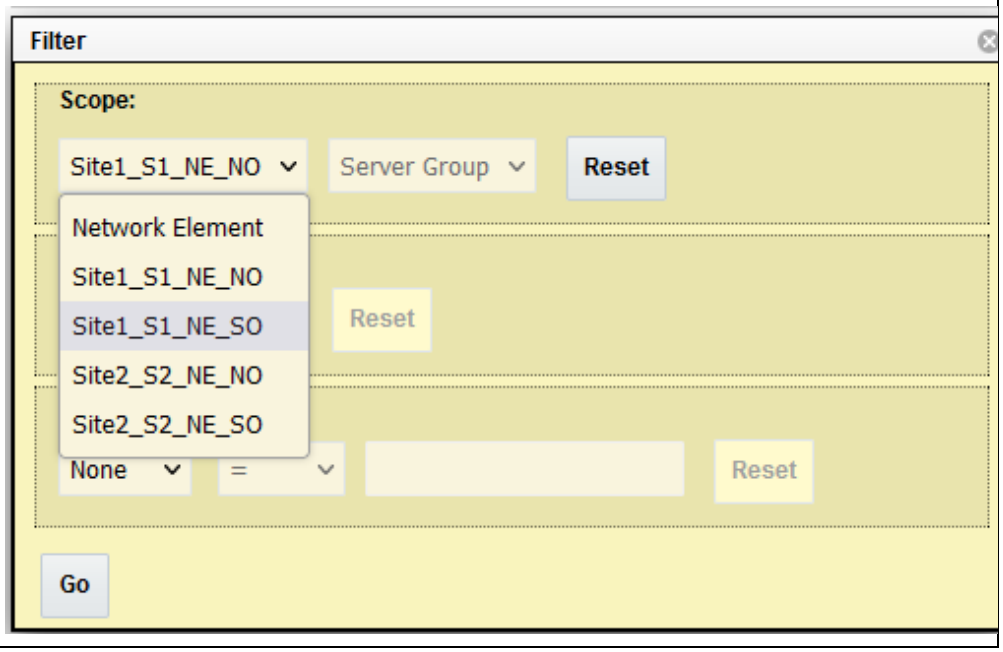
The following procedure details how to upgrade Oracle Communications User Data Repository MPs.

4.2.3.1 Upgrade MP NE

Procedure 8: Upgrade MP NE

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu → Status & Manage →*Database*** …as shown on the right.	 Network Element | Server | Role | OAM Max HA Role | Application Max HA Role | Status | DB Level | OAM Repl Status | SIG Repl Status | Repl Status Site2_S2_NE_NO | OCUDR-DR-NOAMP-A | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed Site1_S1_NE_NO | OCUDR-NOAMP-B | Network OAM&P | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed Site1_S1_NE_SO | OCUDR-SOAM-A | System OAM | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed Site1_S1_NE_SO | OCUDR-MP1 | MP | Standby | Active | Normal | 0 | Normal | Normal | Allowed Site2_S2_NE_NO | OCUDR-DR-NOAMP-B | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed Site2_S2_NE_SO | OCUDR-DR-SOAM-A | System OAM | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed Site1_S1_NE_SO | OCUDR-SOAM-B | System OAM | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed Site2_S2_NE_SO | OCUDR-DR-MP4 | MP | Standby | Active | Normal | 0 | Normal | Normal | Allowed Site1_S1_NE_NO | OCUDR-NOAMP-A | Network OAM&P | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed Site2_S2_NE_SO | OCUDR-DR-SOAM-B | System OAM | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed Site1_S1_NE_SO | OCUDR-MP2 | MP | Active | Active | Normal | 0 | Normal | Normal | Allowed Site2_S2_NE_SO | OCUDR-DR-MP3 | MP | Active | Active | Normal | 0 | Normal | Normal | Allowed
3. ☐	Record the name of the **SOAM** NE in the space provided to the right.	Using the information provided in Section 3.1.2 (*Logins, Passwords and Site Information*) record the name of the **SOAM** Network Element in the space provided below: **SOAM Network Element: _____**

Procedure 8: Upgrade MP NE

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** From the **"Network Element"** filter pull-down, select the name for the **SOAM**NE.	
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the left bottom of the filter bar.	

Procedure 8: Upgrade MP NE

Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of MP servers associated with the **SOAM** NE.	**Main Menu: Status & Manage -> Database (Filtered)** Filter* Info* Tasks Network Element | Server | Role | OAM Max HA Role | Application Max HA Role | Status | DB Level | OAM Repl Status | SIG Repl Status | Repl Status | Repl Audi Status Site1_S1_NE_SO | OCUDR-SOAM-A | System OAM | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplic le Site1_S1_NE_SO | OCUDR-SOAM-B | System OAM | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplic le Site1_S1_NE_SO | OCUDR-MP2 | MP | Active | Active | Normal | 0 | Normal | Normal | Allowed | NotApplic le Site1_S1_NE_SO | OCUDR-MP1 | MP | Standby | Active | Normal | 0 | Normal | Normal | Allowed | NotApplic le
7. ☐	Using the list of servers associated with the **SOAM** NE shown in the above Step... Record the Server names of the M**Ps** associated with the **SOAM** Network Element.	Identify the **MP "Server"** names and record them in the space provided below: **MP1: _____** **MP3: _____** **MP2: _____** **MP4: _____**
8. ☐	**Upgrade MP Servers**	In a multi-active MP cluster, all the MPs are Active; there are no Standby MPs. The effect on the Diameter network traffic must be considered since any MP being upgraded will not be handling live traffic. Oracle Communications User Data Repository shall support upgrades while the Provisioning and Signaling traffic is running at 20% of the rated TPS.
9. ☐	**Active NOAMP VIP:** Upgrade server for the first MP server to be upgraded (start with the MP from the standby SOAM group)	Upgrade Server for the **MP Servers** *(identified in **Step 7** of this Procedure)* as specified in **Appendix C.1 Upgrade Server.** ***Note – After selecting the "upgrade server" button, the connections for that MP will automatically be taken down and traffic will be diverted to the active MP.***

Procedure 8: Upgrade MP NE

Step	Procedure	Result
10. ☐	For low capacity Configurations: Record the server name of the MP that was upgraded from the standby SOAM group. Repeat steps 9 -11 for the MP server at the active SOAM group. For Normal Capacity C-Class Configuration, Record the Server names of the 2 **MPs** that were upgraded from the standby SOAM Group. Repeat steps 10-11 for the MPs.	**"Check off"** the associated **Check Box** as **Steps 9- 10** are completed for each **MP**. ☐ **MP1:** _____ ☐ **MP2:** _____ ☐ **MP3:** _____ ☐ **MP4:** _____
THIS PROCEDURE HAS BEEN COMPLETED		

4.2.4 Perform Health Check (Post SOAM Upgrade)

☐	This procedure is part of Software Upgrade Preparation and is used to determine the health and status of the Oracle Communications User Data Repository network and servers. Execute Health Check procedures as specified in **Appendix B.**

4.3 Accept/Backout upgrade of VM to VM upgrade

Prerequisite: Make sure section 4.1 and 4.2 are completed.

Please use **Appenidx E** to accept the upgrade.

	**NOTE:**	**Once the upgrade is accepted for a server, that server will not be allowed to backout to previous release from which the upgrade was done**

Please use chapter 8 - **Recovery Procedures** for backout

5. VM TO VM UPGRADE FROM UDR-15.0.0 TO UDR-15.0.1

VM to VM upgrade is performed using Dual Image Upgrade (DIU) procedure provided by the TPD.

OL8 to OL8 based TPD upgrade is performed using single hop upgrade procedure provided by TPD.
This procedure will upgrade the server from OL8 based TPD server to OL8 based TPD server.
Example: From UDR-15.0.0.0.0 to UDR-15.0.1.0.0

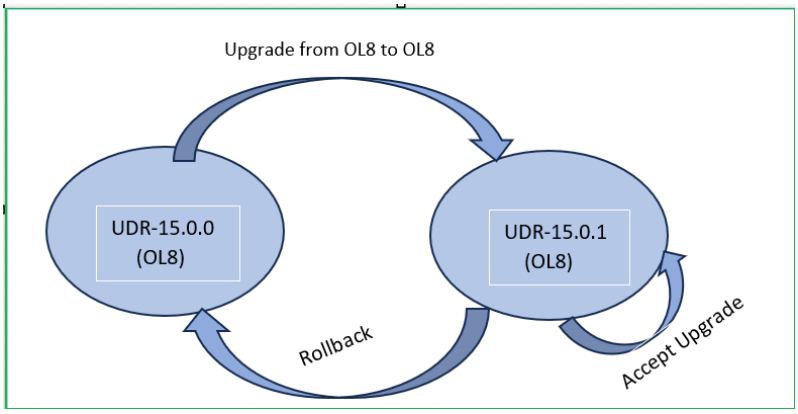


Figure 3: OL8 to OL8 upgrade diagram

5.1 Primary NOAMP / DR NOAMP Upgrade Execution

Open A Service Ticket at My Oracle Support (**Appendix H**) and inform them of your plans to upgrade this system prior to executing this upgrade.
Before upgrade, users must perform the system Health Check **Appendix B.**
This check ensures that the system to be upgraded is in an upgrade-ready state. Performing the system health check determines which alarms are present in the system and if upgrade can proceed with alarms.

****** WARNING *******

If there are servers in the system, which are not in Normal state, these servers should be brought to the Normal or the Application Disabled state before the upgrade process is started.
The sequence of upgrade is such that servers providing support services to other servers will be upgraded first.

****** WARNING *******

Please read the following notes on this procedure:
Procedure completion times shown here are estimates. Times may vary due to differences in database size, user experience, and user preparation.
Where possible, command response outputs are shown as accurately as possible. EXCEPTIONS are as follows:
Session banner information such as time and date.
System-specific configuration information such as hardware locations, IP addresses and hostnames.
ANY information marked with “XXXX” or “YYYY.” Where appropriate, instructions are provided to determine what output should be expected in place of “XXXX or YYYY”
Aesthetic differences unrelated to functionality such as browser attributes: window size, colors, toolbars and button layouts.
After completing each step and at each point where data is recorded from the screen, the technician performing the upgrade must mark the provided Check Box.
For procedures which are executed multiple times, a mark can be made below the Check Box (in the same column) for each additional iteration of the step executed.
Retention of Captured data is required for as a future support reference this procedure is executed by someone other than Oracle’s Consulting Services.

5.1.1 Perform Health Check (Pre-Upgrade)

☐ This procedure is part of Software Upgrade Preparation and is used to determine the health and status of the Oracle Communications User Data Repository network and servers. This may be executed multiple times but must also be executed at least once within the time frame of 24-36 hours prior to the start of a maintenance window. Execute Health Check procedures as specified in **Appendix B.**

5.1.2 Primary NOAMP / DR NOAMP Upgrade

The following procedures detail how to perform upgrades for Primary NOAMP and DR NOAMP Servers.

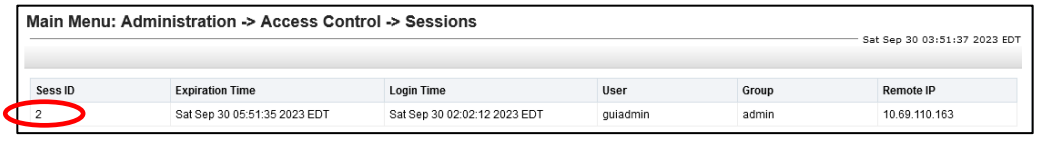
WARNING: The Database Audit stays disabled throughout the whole upgrade, until all of the SOAM sites are upgraded!

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

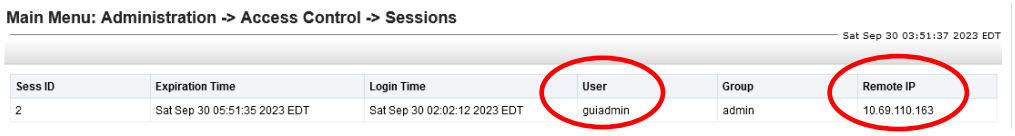
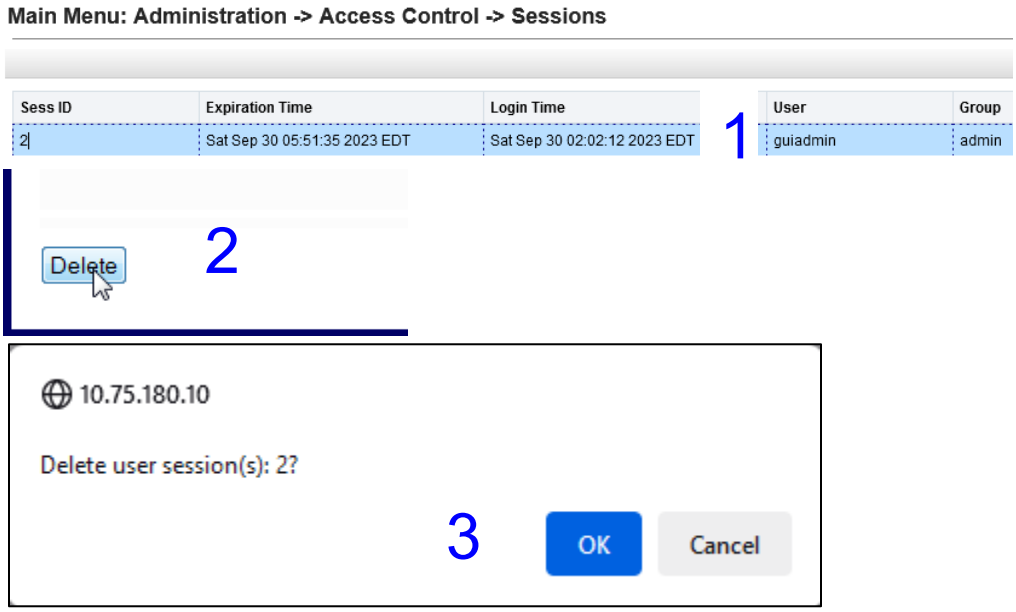
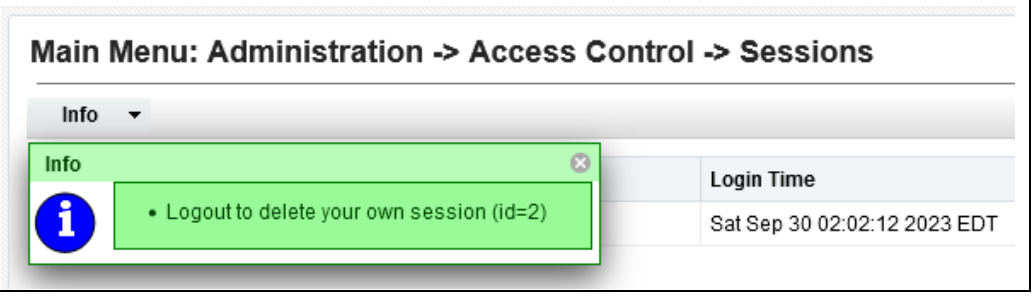
5.1.2.1 Remove Additional GUI Sessions

Note: Version mentioned in the images will be just example. That version should be specific to corresponding release.

Procedure 9: Remove Additional GUI Sessions

Step	Procedure	Result
1 ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu →Administration →Access Control→*Sessions*** …as shown on the right.	
3 ☐	**Active NOAMP VIP:** In the right panel, the user will be presented with the list of Active GUI sessions connected to the Active NOAMP server.	

Procedure 9: Remove Additional GUI Sessions

Step	Procedure	Result
4 ☐	**Active NOAMP VIP:** The User ID and Remote IP address of each session will be displayed as seen on the right. Every attempt should be made to contact users not engaged in this Upgrade activity and request that they discontinue GUI access until the upgrade activity has completed.	
5 ☐	**Active NOAMP VIP:** If unable to identify or contact the session owners, sessions not related to the upgrade activity may be selected and deleted as follows: **1)** Select the session for deletion with the cursor. **2)** In the bottom left of the right panel, click the **"Delete"** dialogue button. **3)** In the pop-up window, click on the **"OK"** dialogue button.	 **NOTE:** *The Session screen prevents users from deleting the session which they are currently connected to. If attempting to do so by accident, a message may be received in the Banner area stating* ***"Logout to delete your own session (id=xx)"****.*
6 ☐	**Active NOAMP VIP:** The user will receive a confirmation message in the Info tab indicating the session ID which was deleted.	

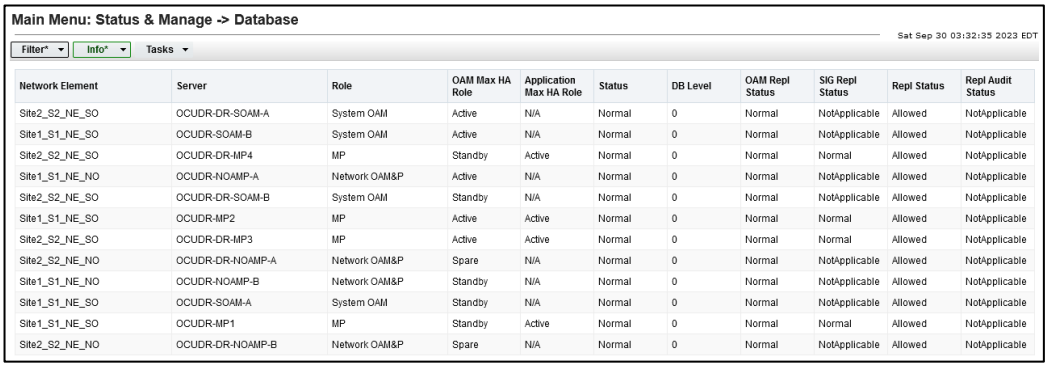
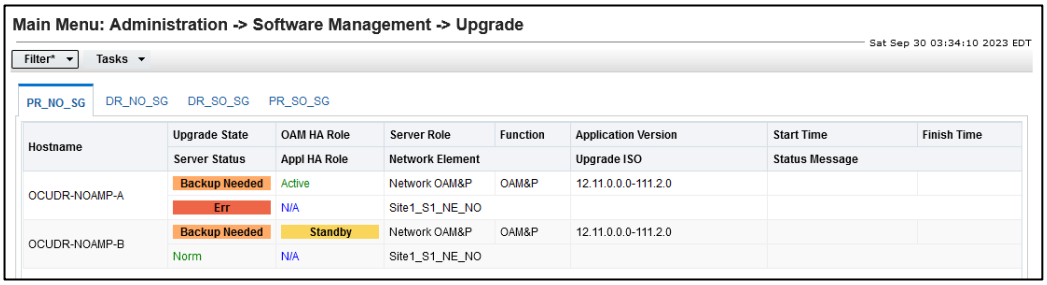
Procedure 9: Remove Additional GUI Sessions

Step	Procedure	Result
7 ☐	**Active NOAMP VIP:** Delete any additional GUI sessions as needed.	Repeat **Steps** 5-6 of this Procedure for each additional GUI session to be deleted.
THIS PROCEDURE HAS BEEN COMPLETED		

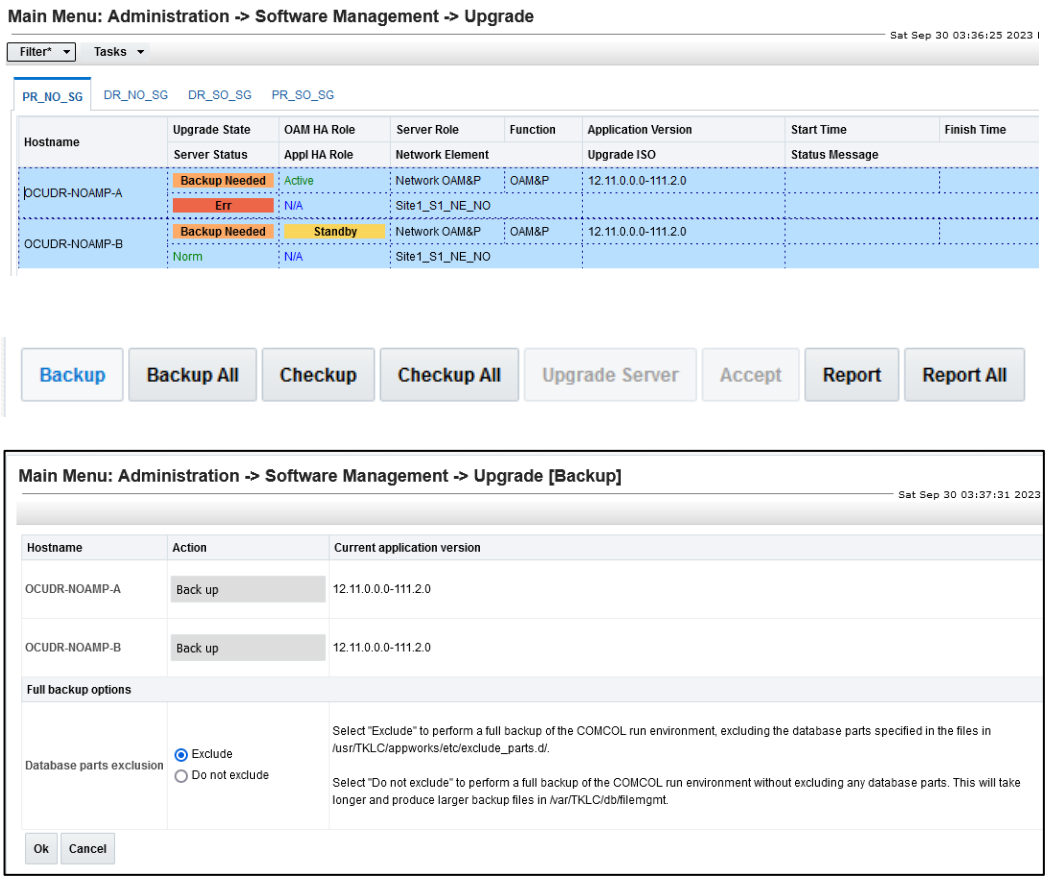
5.1.2.2 Full Database Backup (All Network Elements, All Servers)

This procedure is part of Software Upgrade Preparation and is used to conduct a full backup of the COMCOL run environment on every server, to be used in the event of a backout/rollback of the new software release.

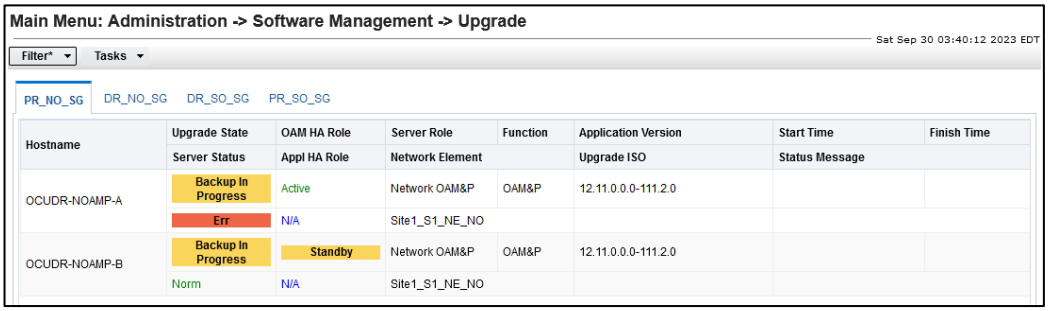
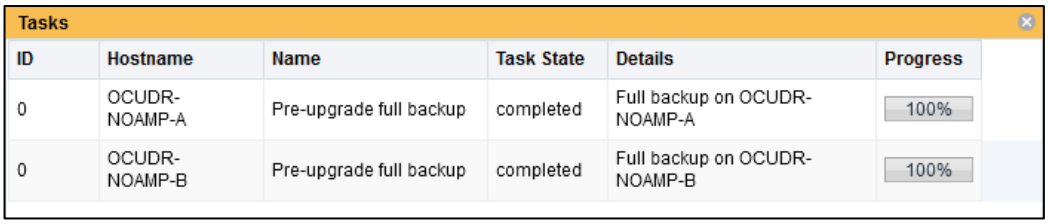
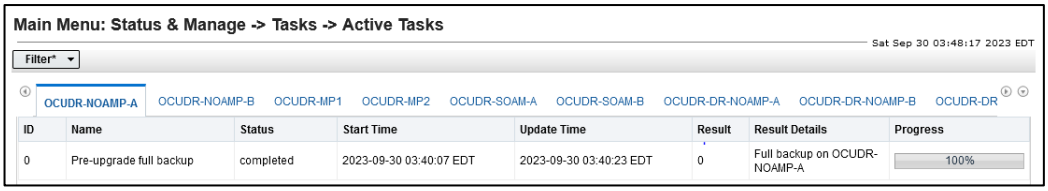
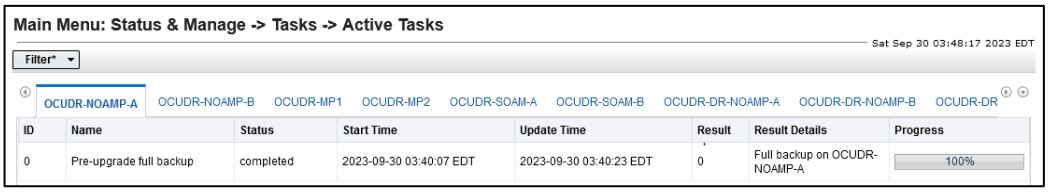
Procedure 10: Full Database Backup

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→*Database*** …as shown on the right.	
3. ☐	**Active NOAMP VIP:** Record the names of all servers.	Using the information provided in Section 3.1.2 (*Logins, Passwords and Site Information*) record the names of all servers. *The full backup on every server can be done from the NOAMP GUI.
4. ☐	**Active NOAMP VIP:** **Main Menu** **→Administration** **→Software Management** **→*Upgrade*** …as shown on the right. Backup the COMCOL run environment	

Procedure 10: Full Database Backup

Step	Procedure	Result
5. ☐	**Active NOAMP VIP:** Click "**Backup All**" button at left bottom of the screen; the full backups will begin. After clicking backup – an additional screen will pop up. Default is to exclude the database parts (If the database parts are included – then the backup will take longer and produce larger backup files in /var/TKLC/db/filemgmt. They are not required for a full backup. Click "**OK**" to begin the backup.	

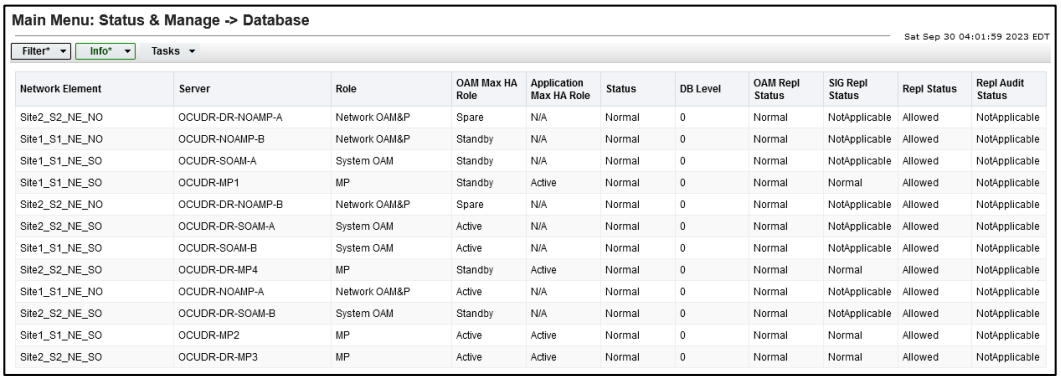
Procedure 10: Full Database Backup

Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The "Server Status" box indicates "Backup in Progress" The progress of the full backups can be viewed in the pulldown **Tasks** box, as well as from the **Status & Manage->Tasks->Active Tasks** screen. As each full backup completes, its task will update to indicate its success or failure. When all full backup tasks finish successfully, this procedure is complete.	  
7. ☐	**Active NOAMP VIP:** **<u>Main Menu</u>** **→Administration** **→Software Management** **→*Upgrade*** Click the **Tasks** dropdown.	 When complete, Progress should display 100%.
THIS PROCEDURE HAS BEEN COMPLETED		

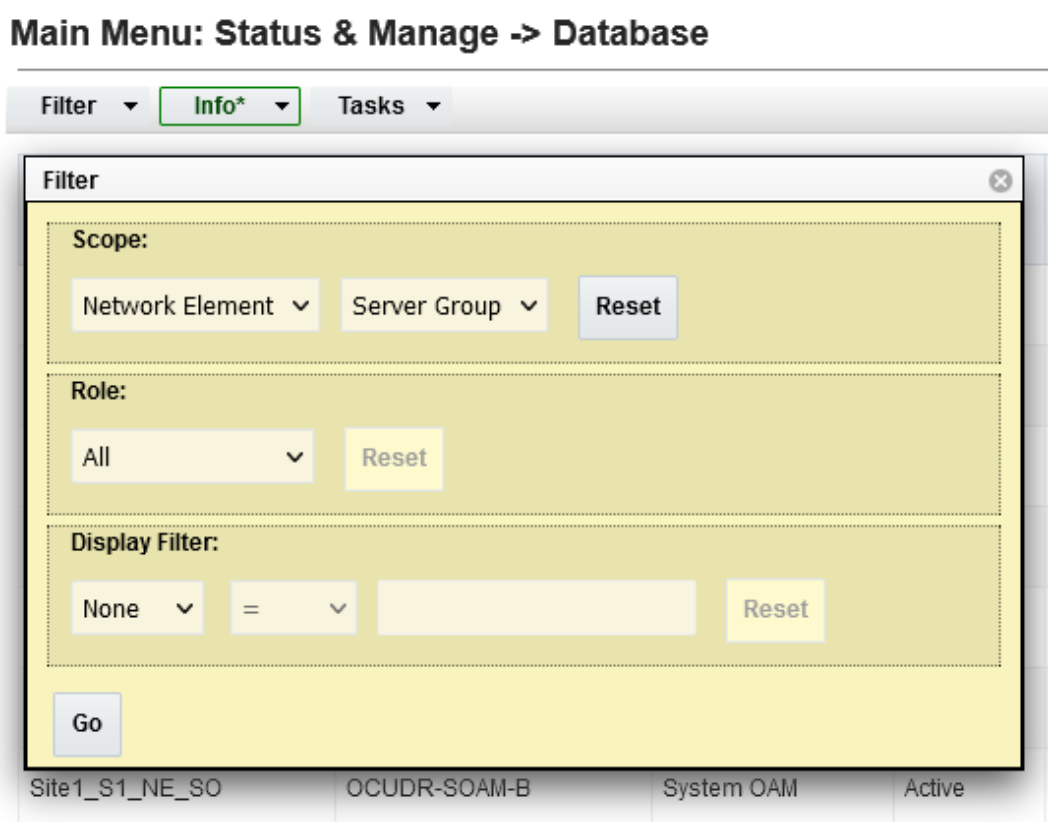
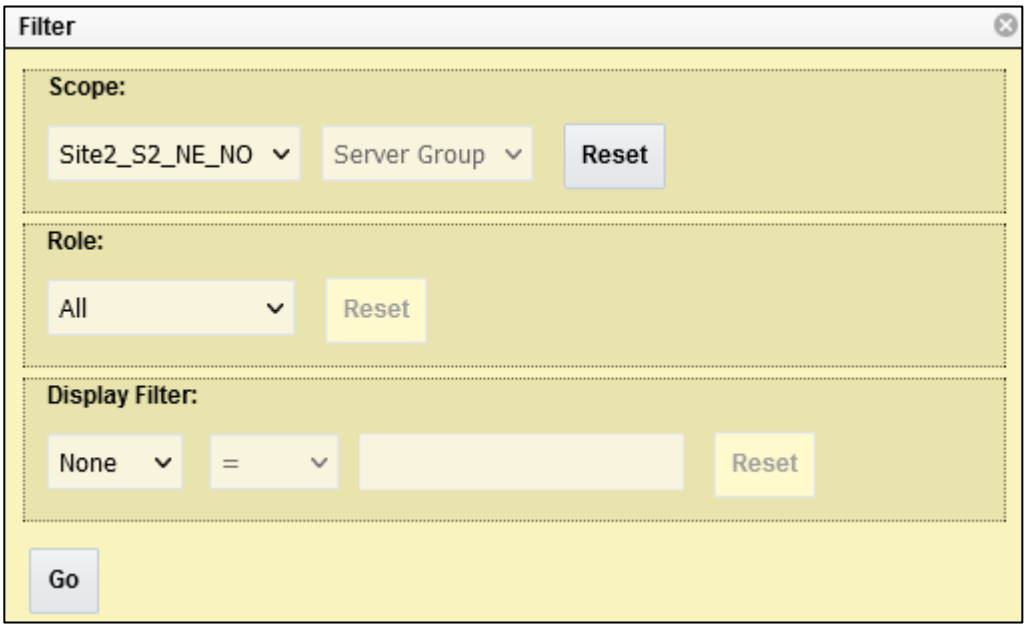
5.1.2.3 Upgrade DR NOAMP NE

The following procedures give details on how to perform upgrades for DR NOAMP server to various possible upgrade paths.

Procedure 11: Upgrade DR NOAMP NE

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu → Status & Manage →*Database*** …as shown on the right.	`  ` Main Menu: Status & Manage -> Database Sat Sep 30 04:01:59 2023 EDT Filter* Info* Tasks Network Element | Server | Role | OAM Max HA Role | Application Max HA Role | Status | DB Level | OAM Repl Status | SIG Repl Status | Repl Status | Repl Audit Status Site2_S2_NE_NO | OCUDR-DR-NOAMP-A | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_S1_NE_NO | OCUDR-NOAMP-B | Network OAM&P | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_S1_NE_SO | OCUDR-SOAM-A | System OAM | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_S1_NE_SO | OCUDR-MP1 | MP | Standby | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicable Site2_S2_NE_NO | OCUDR-DR-NOAMP-B | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site2_S2_NE_SO | OCUDR-DR-SOAM-A | System OAM | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_S1_NE_SO | OCUDR-SOAM-B | System OAM | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site2_S2_NE_SO | OCUDR-DR-MP4 | MP | Standby | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicable Site1_S1_NE_NO | OCUDR-NOAMP-A | Network OAM&P | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site2_S2_NE_SO | OCUDR-DR-SOAM-B | System OAM | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_S1_NE_SO | OCUDR-MP2 | MP | Active | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicable Site2_S2_NE_SO | OCUDR-DR-MP3 | MP | Active | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicable
3. ☐	Record the name of the **DR NOAMP** Network Element in the space provided to the right.	Using the information provided in Section 3.1.2 (*Logins, Passwords and Site Information*) record the name of the **DRNOAMP** Network Element in the space provided below: **DR NOAMP Network Element: _____**

Procedure 11: Upgrade DR NOAMP NE

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** From the **"Network Element"** filter pull-down, select the NE name for the **DR NOAMP**.	
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the left bottom of the filter bar.	

Procedure 11: Upgrade DR NOAMP NE

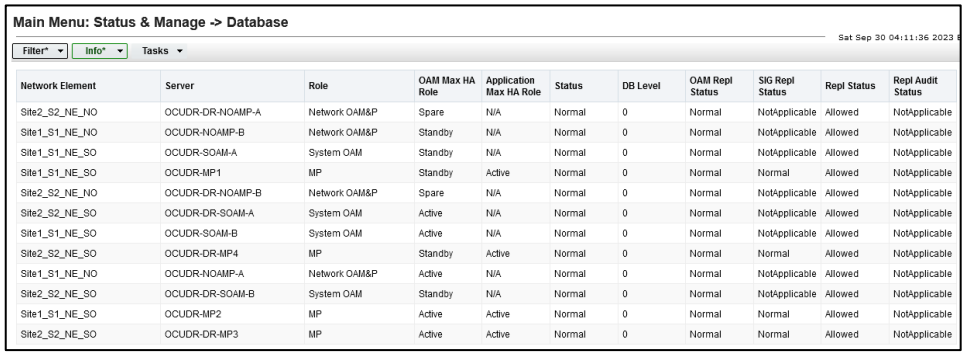
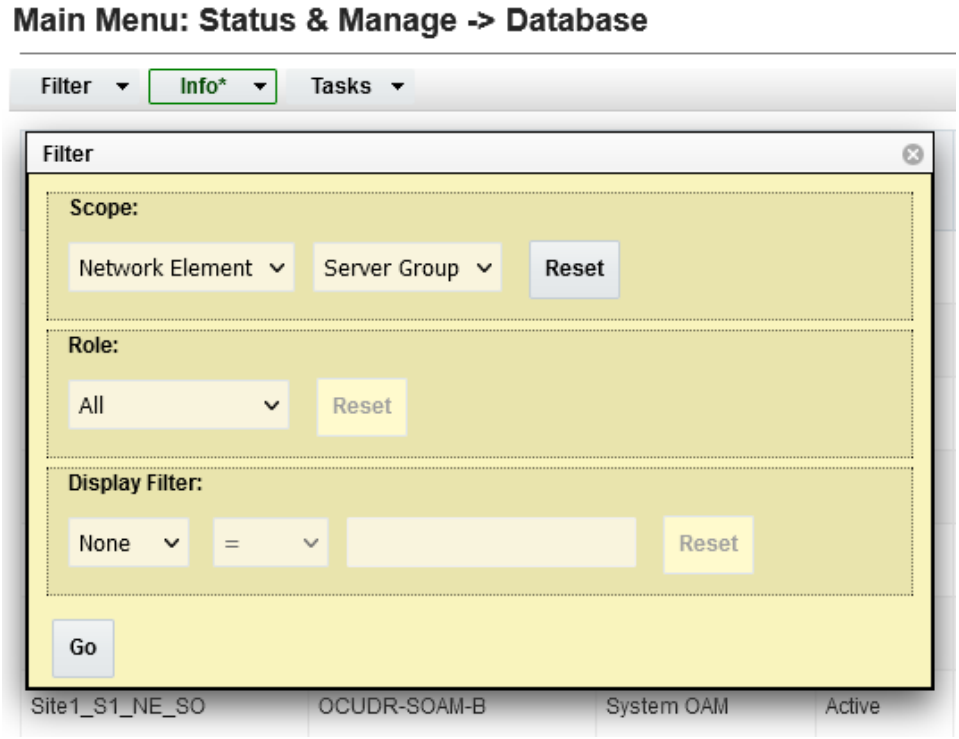
Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with **DR NOAMP** Network Element.	Main Menu: Status & Manage -> Database (Filtered) Filter Info* Tasks Identify each "**Server**" and its associated **"Role"** and **"HA Role"**.
7. ☐	**Active NOAMP VIP:** Record the **"Server"** names appropriately in the space provided to the right.	Identify the **DR NOAMP "Server"** names and record them in the space provided below: **Spare NOAMP Server: _____** **Spare NOAMP Server: _____**
	NOTE: For *Step 8 of this Procedure, select one spare DR NOAMP.* ***** Verify the Databases are in sync using Appendix E before upgrading each spare server.**	
8. ☐	**Active NOAMP VIP:** Upgrade Server for the first **Spare DR NOAMP Server**.	Upgrade Server for the first **Spare DR NOAMP Server** *(identified in **Step 7** of this Procedure)* as specified in **Appendix C.2 OL8 to OL8 Upgrade.**
9. ☐	**Active NOAMP VIP:** Upgrade Server for the second **Spare DR NOAMP Server**.	Upgrade Server for the second **Spare DR NOAMP Server***(identified in **Step 7** of this Procedure)* as specified in **Appendix C.2 OL8 to OL8 Upgrade**
THIS PROCEDURE HAS BEEN COMPLETED		

Network Element	Server	Role	OAM Max HA Role	Application Max HA Role	Status	DB Level	OAM Repl Status	SIG Repl Status	Repl Status	Repl Audit Status
Site2_S2_NE_NO	OCUDR-DR-NOAMP-A	Network OAM&P	Spare	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable
Site2_S2_NE_NO	OCUDR-DR-NOAMP-B	Network OAM&P	Spare	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable

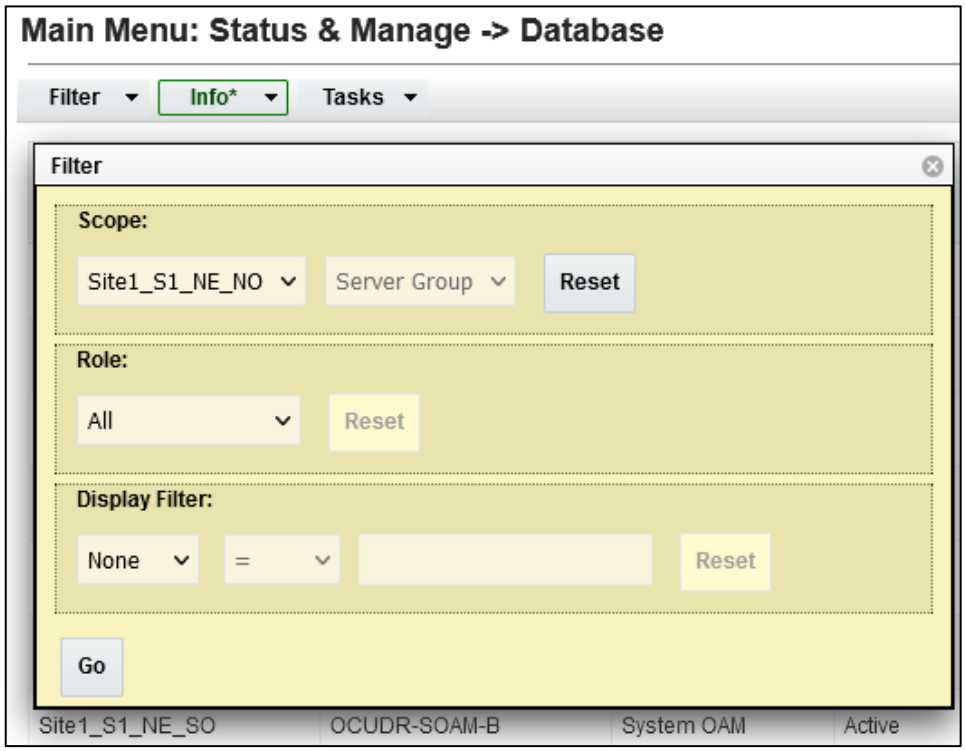
5.1.2.4 Upgrade Primary NOAMP NE

The following procedures detail how to perform upgrades for Primary NOAMP server to various possible upgrade paths.

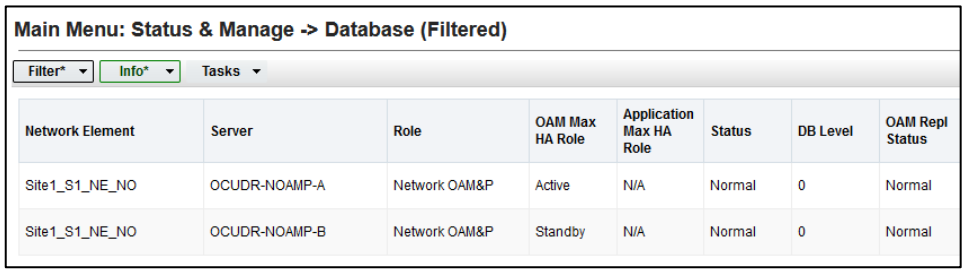
Procedure 12: Upgrade Primary NOAMP NE

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the **Primary NOAMP** GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→*Database*** …as shown on the right.	 Network Element / Server / Role / OAM Max HA Role / Application Max HA Role / Status / DB Level / OAM Repl Status / SIG Repl Status / Repl Status / Repl Audit Status Site2_S2_NE_NO OCUDR-DR-NOAMP-A Network OAM&P Spare N/A Normal 0 Normal NotApplicable Allowed NotApplicable Site1_S1_NE_NO OCUDR-NOAMP-B Network OAM&P Standby N/A Normal 0 Normal NotApplicable Allowed NotApplicable Site1_S1_NE_SO OCUDR-SOAM-A System OAM Standby N/A Normal 0 Normal NotApplicable Allowed NotApplicable Site1_S1_NE_SO OCUDR-MP1 MP Standby Active Normal 0 Normal Normal Allowed NotApplicable Site2_S2_NE_NO OCUDR-DR-NOAMP-B Network OAM&P Spare N/A Normal 0 Normal NotApplicable Allowed NotApplicable Site2_S2_NE_SO OCUDR-DR-SOAM-A System OAM Active N/A Normal 0 Normal NotApplicable Allowed NotApplicable Site1_S1_NE_SO OCUDR-SOAM-B System OAM Active N/A Normal 0 Normal NotApplicable Allowed NotApplicable Site2_S2_NE_SO OCUDR-DR-MP4 MP Standby Active Normal 0 Normal Normal Allowed NotApplicable Site1_S1_NE_NO OCUDR-NOAMP-A Network OAM&P Active N/A Normal 0 Normal NotApplicable Allowed NotApplicable Site2_S2_NE_SO OCUDR-DR-SOAM-B System OAM Standby N/A Normal 0 Normal NotApplicable Allowed NotApplicable Site1_S1_NE_SO OCUDR-MP2 MP Active Active Normal 0 Normal Normal Allowed NotApplicable Site2_S2_NE_SO OCUDR-DR-MP3 MP Active Active Normal 0 Normal Normal Allowed NotApplicable
3. ☐	Record the name of the **Primary NOAMP** Network Element in the space provided to the right.	Using the information provided **in Section 3.1.2** (*Logins, Passwords and Site Information*) record the name of the **Primary NOAMP** Network Element in the space provided below: **Primary NOAMP Network Element: _____**
4. ☐	**Active NOAMP VIP:** From the **"Network Element"** filter pull-down, select the Network Element name for the **Primary NOAMP**.	

Procedure 12: Upgrade Primary NOAMP NE

Step	Procedure	Result
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the right end of the filter bar.	

Procedure 12: Upgrade Primary NOAMP NE

Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with the **Primary NOAMP** Network Element. Identify each "**Server"** and its associated **"Role"** and **"HA Role"**.	 Network Element | Server | Role | OAM Max HA Role | Application Max HA Role | Status | DB Level | OAM Repl Status Site1_S1_NE_NO | OCUDR-NOAMP-A | Network OAM&P | Active | N/A | Normal | 0 | Normal Site1_S1_NE_NO | OCUDR-NOAMP-B | Network OAM&P | Standby | N/A | Normal | 0 | Normal
7. ☐	**Active NOAMP VIP:** Record the **"Server"** names appropriately in the space provided to the right.	Identify the **Primary NOAMP "Server"** names and record them in the space provided below: **Standby NOAMP: _____** **Active NOAMP: _____**
8.	**Active NOAMP Server Executing workarounds for known Bugs**	Refer to the OCUDR 15.0.1 Release Notes document for Known Customer Bugs, evaluate for applicability and execute the workarounds as mentioned. Note: If applicable then use workaround else skip the step.

Procedure 12: Upgrade Primary NOAMP NE

Step	Procedure	Result
	NOTE: ***Step 9 is for the STANDBY NOAMP ONLY.***	
9. ☐	**Active NOAMP VIP:** Upgrade Server for the **Standby NOAMP Server**.	Upgrade Server for the **Standby NOAMP Server** *(identified in **Step 7** of this Procedure)* as specified in **Appendix C.2 OL8 to OL8 Upgrade**
	!! WARNING !! STEP *9* MUST BE COMPLETED BEFORE CONTINUING ON TO STEP 10. ***** Verify the Databases are in sync using Appendix E before upgrading the Active Server**	
10. ☐	**Active NOAMP VIP:** Upgrade Server for the **Active NOAMP Server**.	Upgrade Server for the **Active NOAMP Server** *(identified in **Step 17** of this Procedure)* as specified in **Appendix C.2 OL8 to OL8 Upgrade**
	THIS PROCEDURE HAS BEEN COMPLETED	

5.1.3 Perform Health Check (Post Primary NOAMP / DR NOAMP Upgrade)

☐ This procedure is part of Software Upgrade Preparation and is used to determine the health and status of the Oracle Communications User Data Repository network and servers.
Execute Health Check procedures as specified in **Appendix B.**

5.2 SOAM site Upgrade Execution

Open A Service Ticket at My Oracle Support (**Appendix I**) and inform them of your plans to upgrade this system prior to executing this upgrade.
Before upgrade, users must perform the system Health Check **Appendix B.**
This check ensures that the system to be upgraded is in an upgrade-ready state. Performing the system health check determines which alarms are present in the system and if upgrade can proceed with alarms.

****** WARNING *******

If there are servers in the system, which are not in Normal state, these servers should be brought to the Normal or the Application Disabled state before the upgrade process is started.
The sequence of upgrade is such that servers providing support services to other servers will be upgraded first.

****** WARNING *******

Please read the following notes on this procedure:
Procedure completion times shown here are estimates. Times may vary due to differences in database size, user experience, and user preparation.
Where possible, command response outputs are shown as accurately as possible. EXCEPTIONS are as follows:
Session banner information such as time and date.
System-specific configuration information such as hardware locations, IP addresses and hostnames.
ANY information marked with "XXXX" or "YYYY." Where appropriate, instructions are provided to determine what output should be expected in place of "XXXX or YYYY"

Aesthetic differences unrelated to functionality such as browser attributes: window size, colors, toolbars and button layouts. After completing each step and at each point where data is recorded from the screen, the technician performing the upgrade must mark the provided Check Box. For procedures which are executed multiple times, a mark can be made below the Check Box (in the same column) for each additional iteration of the step executed. Retention of Captured data is required for as a future support reference this procedure is executed by someone other than Oracle's Consulting Services.

5.2.1 Perform Health Check (Pre-Upgrade)

☐	This procedure is part of Software Upgrade Preparation and is used to determine the health and status of the Oracle Communications User Data Repository network and servers. This may be executed multiple times but must also be executed at least once within the time frame of 24-36 hours prior to the start of a maintenance window. Execute Health Check procedures as specified in **Appendix B.**

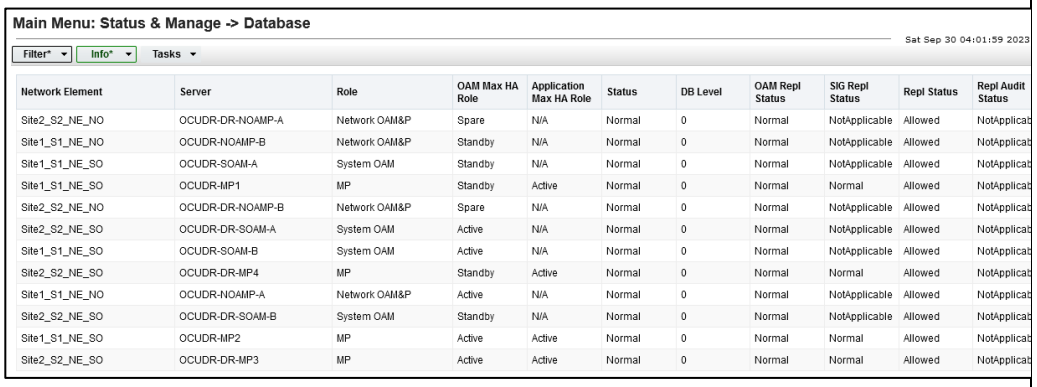
5.2.2 SOAM Upgrade

The following procedure details how to upgrade Oracle Communications User Data Repository SOAMs.

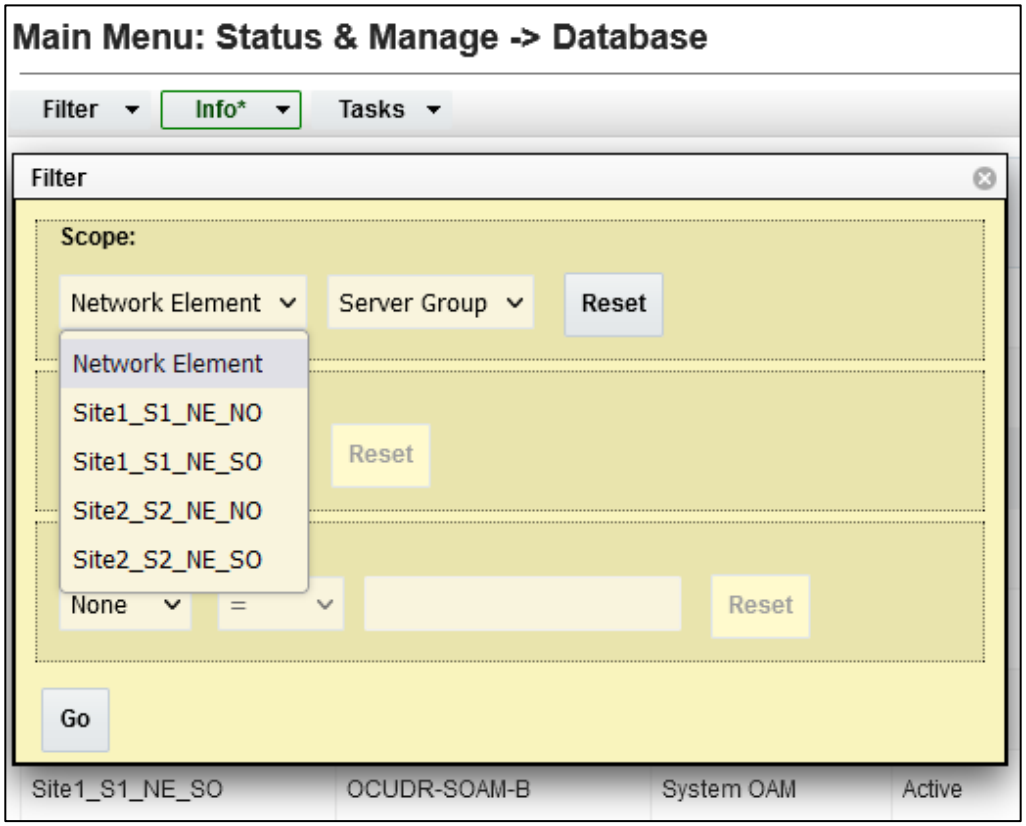
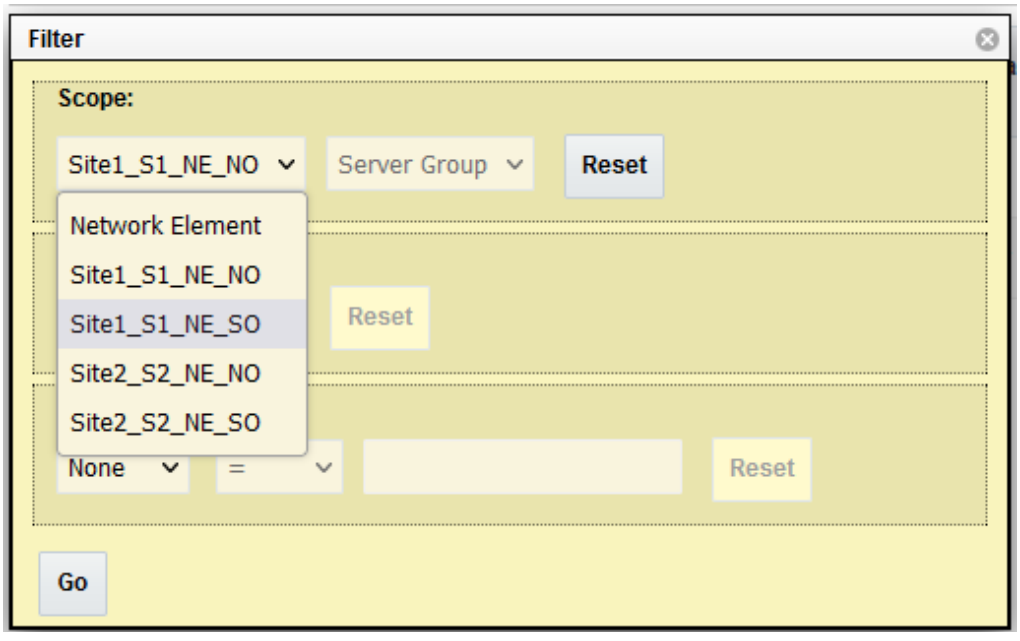
Check off (√)each step as it is completed. Boxes have been provided for this purpose under each step number.

5.2.2.1 Upgrade SOAM NE

Procedure 13: Upgrade SOAM NE

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→*Database*** …as shown on the right.	 Network Element | Server | Role | OAM Max HA Role | Application Max HA Role | Status | DB Level | OAM Repl Status | SIG Repl Status | Repl Status | Repl Audit Status Site2_S2_NE_NO | OCUDR-DR-NOAMP-A | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicat Site1_S1_NE_NO | OCUDR-NOAMP-B | Network OAM&P | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicat Site1_S1_NE_SO | OCUDR-SOAM-A | System OAM | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicat Site1_S1_NE_SO | OCUDR-MP1 | MP | Standby | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicat Site2_S2_NE_NO | OCUDR-DR-NOAMP-B | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicat Site2_S2_NE_SO | OCUDR-DR-SOAM-A | System OAM | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicat Site1_S1_NE_SO | OCUDR-SOAM-B | System OAM | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicat Site2_S2_NE_SO | OCUDR-DR-MP4 | MP | Standby | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicat Site1_S1_NE_NO | OCUDR-NOAMP-A | Network OAM&P | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicat Site2_S2_NE_SO | OCUDR-DR-SOAM-B | System OAM | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicat Site1_S1_NE_SO | OCUDR-MP2 | MP | Active | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicat Site2_S2_NE_SO | OCUDR-DR-MP3 | MP | Active | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicat
3. ☐	Record the name of the **SOAM** NE in the space provided to the right.	Using the information provided in Section 3.1.2 (*Logins, Passwords and Site Information*) record the name of the **SOAM** Network Element in the space provided below: **SOAM Network Element: _____**

Procedure 13: Upgrade SOAM NE

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** From the **"Network Element"** filter pull-down, select the name for the **SOAM** NE.	
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the left bottom of the filter bar.	

Procedure 13: Upgrade SOAM NE

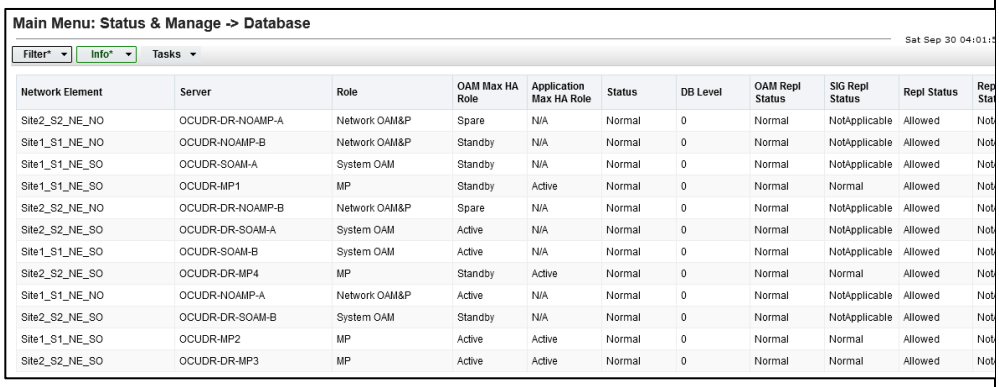
Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with the **SOAM** NE.	**Main Menu: Status & Manage -> Database (Filtered)** Sat Sep Filter* Info* Tasks Network Element | Server | Role | OAM Max HA Role | Application Max HA Role | Status | DB Level | OAM Repl Status | SIG Repl Status | Repl Status | Repl Audit Status Site1_S1_NE_SO | OCUDR-SOAM-A | System OAM | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_S1_NE_SO | OCUDR-SOAM-B | System OAM | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_S1_NE_SO | OCUDR-MP2 | MP | Active | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicable Site1_S1_NE_SO | OCUDR-MP1 | MP | Standby | Active | Normal | 0 | Normal | Normal | Allowed | NotApplicable
7. ☐	Using the list of servers associated with the **SOAM** NE shown in the above Step... Record the Server names of the **SOAMs** associated with the **SOAM** Network Element.	Identify the **SOAM "Server"** names and record them in the space provided below: **Standby SOAM: _____** **Active SOAM: _____**
8. ☐	**Active NOAMP VIP:**	Inspect KPI reports to verify traffic is at the expected condition. (There is no congestion and KPIs are consistent). Performance indicators are available on the Active NOAMP under **Status & Manage → KPIs**
9. ☐	**Active NOAMP VIP:** Upgrade Server for the **Standby SOAM Server**.	Upgrade Server for the **Standby SOAM Server** *(identified in **Step** 7 of this Procedure)* as specified in **Appendix C.2 OL8 to OL8 Upgrade**
	!! WARNING !! STEP 9 MUST BE COMPLETED BEFORE CONTINUING ON TO STEP 10. ***** Verify the Databases are in sync using Appendix E before preparing the upgrade**	
10. ☐	**Active NOAMP VIP:** Upgrade Server for the **Active SOAM Server**.	Upgrade Server for the **Active SOAM Server** *(identified in **Step 7** of this Procedure)* as specified in **Appendix C.2 OL8 to OL8 Upgrade**
	THIS PROCEDURE HAS BEEN COMPLETED	

5.2.3 MP Upgrade

The following procedure details how to upgrade Oracle Communications User Data Repository MPs.

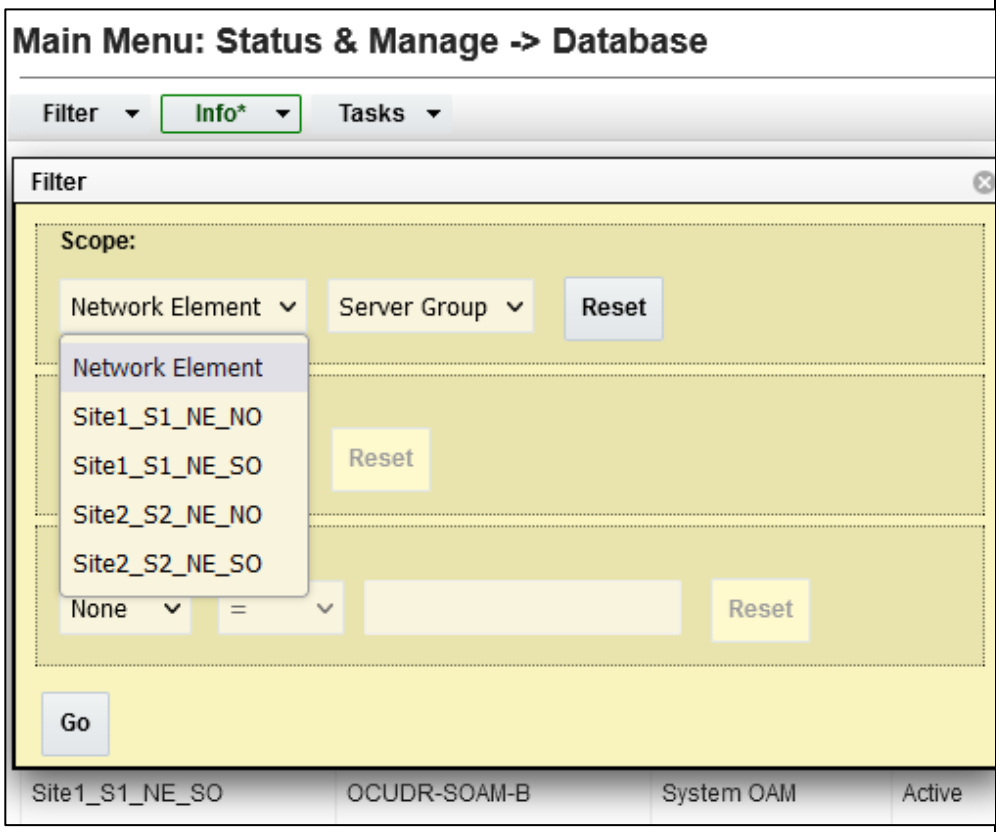
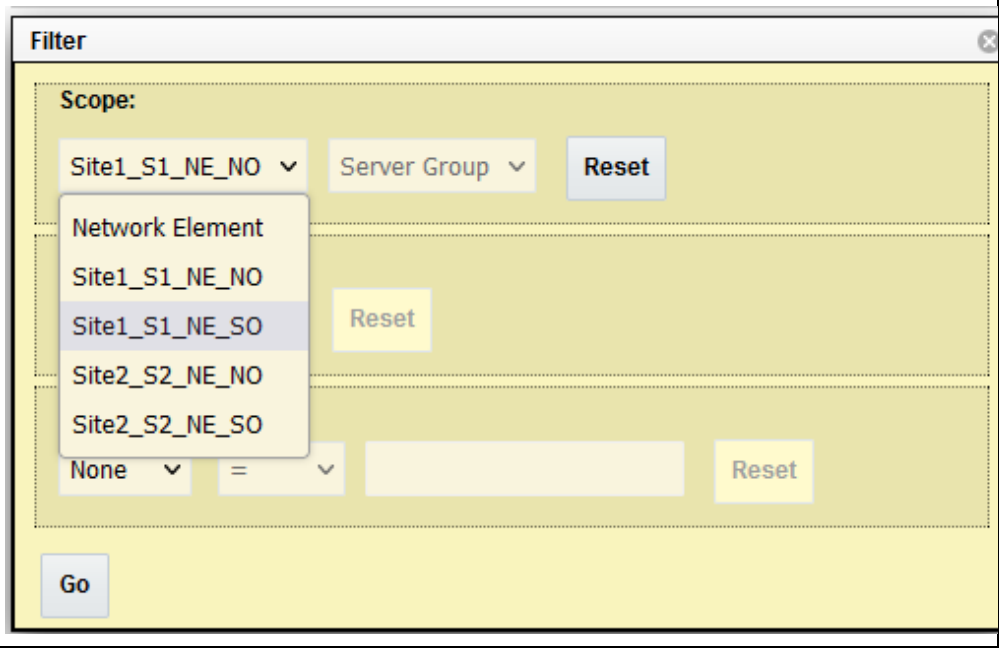
5.2.3.1 Upgrade MP NE

Procedure 14: Upgrade MP NE

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu → Status & Manage →*Database*** …as shown on the right.	
3. ☐	Record the name of the **SOAM** NE in the space provided to the right.	Using the information provided in Section 3.1.2 (*Logins, Passwords and Site Information*) record the name of the **SOAM** Network Element in the space provided below: **SOAM Network Element: _____**

Network Element	Server	Role	OAM Max HA Role	Application Max HA Role	Status	DB Level	OAM Repl Status	SIG Repl Status	Repl Status	Rep Sta
Site2_S2_NE_NO	OCUDR-DR-NOAMP-A	Network OAM&P	Spare	N/A	Normal	0	Normal	NotApplicable	Allowed	Not
Site1_S1_NE_NO	OCUDR-NOAMP-B	Network OAM&P	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	Not
Site1_S1_NE_SO	OCUDR-SOAM-A	System OAM	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	Not
Site1_S1_NE_SO	OCUDR-MP1	MP	Standby	Active	Normal	0	Normal	Normal	Allowed	Not
Site2_S2_NE_NO	OCUDR-DR-NOAMP-B	Network OAM&P	Spare	N/A	Normal	0	Normal	NotApplicable	Allowed	Not
Site2_S2_NE_SO	OCUDR-DR-SOAM-A	System OAM	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	Not
Site1_S1_NE_SO	OCUDR-SOAM-B	System OAM	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	Not
Site2_S2_NE_SO	OCUDR-DR-MP4	MP	Standby	Active	Normal	0	Normal	Normal	Allowed	Not
Site1_S1_NE_NO	OCUDR-NOAMP-A	Network OAM&P	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	Not
Site2_S2_NE_SO	OCUDR-DR-SOAM-B	System OAM	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	Not
Site1_S1_NE_SO	OCUDR-MP2	MP	Active	Active	Normal	0	Normal	Normal	Allowed	Not
Site2_S2_NE_SO	OCUDR-DR-MP3	MP	Active	Active	Normal	0	Normal	Normal	Allowed	Not

Procedure 14: Upgrade MP NE

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** From the **"Network Element"** filter pull-down, select the name for the **SOAM**NE.	
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the left bottom of the filter bar.	

Procedure 14: Upgrade MP NE

Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of MP servers associated with the **SOAM** NE.	**Main Menu: Status & Manage -> Database (Filtered)** Filter* Info* Tasks Network Element / Server / Role / OAM Max HA Role / Application Max HA Role / Status / DB Level / OAM Repl Status / SIG Repl Status / Repl Status / Repl Audi Status Site1_S1_NE_SO / OCUDR-SOAM-A / System OAM / Standby / N/A / Normal / 0 / Normal / NotApplicable / Allowed / NotApplic le Site1_S1_NE_SO / OCUDR-SOAM-B / System OAM / Active / N/A / Normal / 0 / Normal / NotApplicable / Allowed / NotApplic le Site1_S1_NE_SO / OCUDR-MP2 / MP / Active / Active / Normal / 0 / Normal / Normal / Allowed / NotApplic le Site1_S1_NE_SO / OCUDR-MP1 / MP / Standby / Active / Normal / 0 / Normal / Normal / Allowed / NotApplic le
7. ☐	Using the list of servers associated with the **SOAM** NE shown in the above Step... Record the Server names of the M**Ps** associated with the **SOAM** Network Element.	Identify the **MP "Server"** names and record them in the space provided below: **MP1: _____** **MP3: _____** **MP2: _____** **MP4: _____**
8. ☐	**Upgrade MP Servers**	In a multi-active MP cluster, all the MPs are Active; there are no Standby MPs. The effect on the Diameter network traffic must be considered since any MP being upgraded will not be handling live traffic. Oracle Communications User Data Repository shall support upgrades while the Provisioning and Signaling traffic is running at 20% of the rated TPS.
9. ☐	**Active NOAMP VIP:** Upgrade server for the first MP server to be upgraded (start with the MP from the standby SOAM group)	Upgrade Server for the **MP Servers** *(identified in **Step 7** of this Procedure)* as specified in **Appendix C.2 OL8 to OL8 Upgrade** ***Note – After selecting the "upgrade server" button, the connections for that MP will automatically be taken down and traffic will be diverted to the active MP.***

Procedure 14: Upgrade MP NE

Step	Procedure	Result
11. ☐	For low capacity Configurations: Record the server name of the MP that was upgraded from the standby SOAM group. Repeat steps 9 -11 for the MP server at the active SOAM group. For Normal Capacity C-Class Configuration, Record the Server names of the 2 **MPs** that were upgraded from the standby SOAM Group. Repeat steps 10-11 for the MPs.	**"Check off"** the associated **Check Box** as **Steps 9- 10** are completed for each **MP**. ☐ **MP1:** _____ ☐ **MP2:** _____ ☐ **MP3:** _____ ☐ **MP4:** _____
THIS PROCEDURE HAS BEEN COMPLETED		

5.2.4 Perform Health Check (Post SOAM Upgrade)

☐	This procedure is part of Software Upgrade Preparation and is used to determine the health and status of the Oracle Communications User Data Repository network and servers. Execute Health Check procedures as specified in **Appendix B.**

5.3 Accept/Backout upgrade of VM to VM upgrade

Please use **Appenidx E** to accept the upgrade.

	NOTE:	**Once the upgrade is accepted for a server, that server will not be allowed to backout to previous release from which the upgrade was done**

Please use chapter 8 - **Recovery Procedures** for backout

6. BARE METAL MIGRATION FROM UDR-12.11.X TO UDR-15.0

6.1 Bare Metal to Virtual Machine Migration Without Split

Use this procedure when the subscriber DB size on the existing BM deployment can be accommodated on the supported VM profiles on UDR 15.0. For details on subscriber DB size supported on different VM profiles, refer to Appendix G in Cloud Installation and Configuration Guide.

Note: There would be no rollback procedure since a new set of VMs are created and added to the existing deployments. For rollback, the BM deploymeets can be made Active.

This procedure is used to migrate the BM setup to VM based setup where DB will be synced from BM site to VM site and then we follow the dual image upgrade procedure to peform upgrade on VM based site to 15.0 UDR from UDR-12.11.x. Once VM site is upgraded to 15.0, thereafter we failover the BM site. Here we will be using new IPs.

Prerequisite: Take full database back up using Procedure 4: Full Database Backup

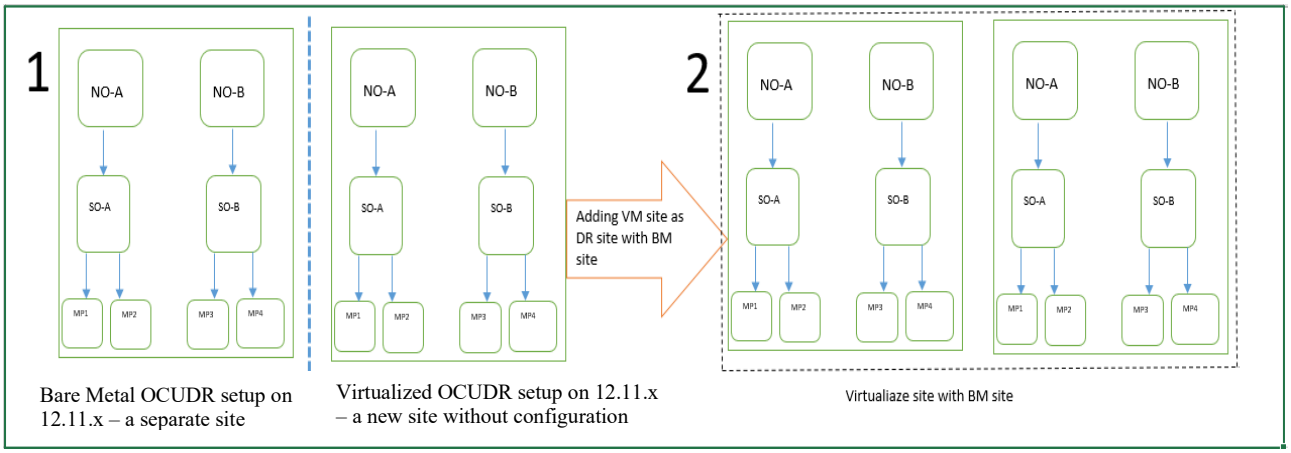


Figure 3: Baremetal site and VM site association

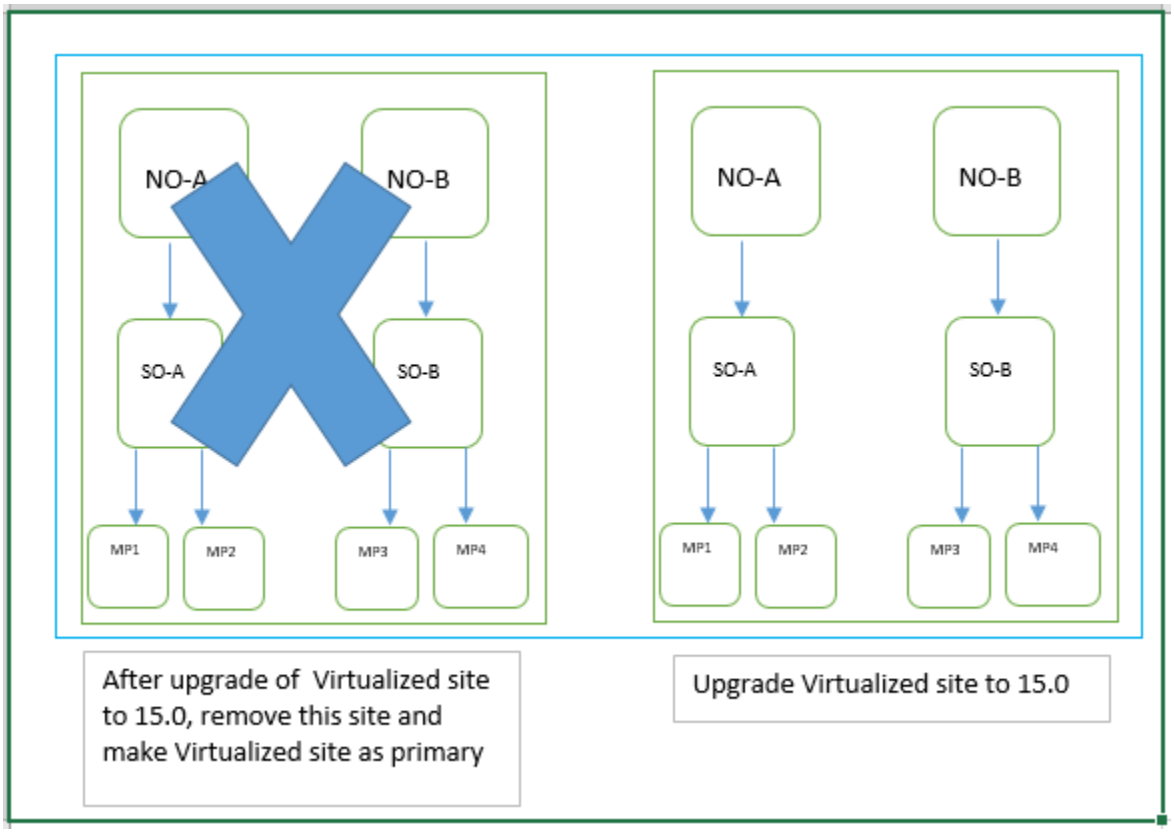
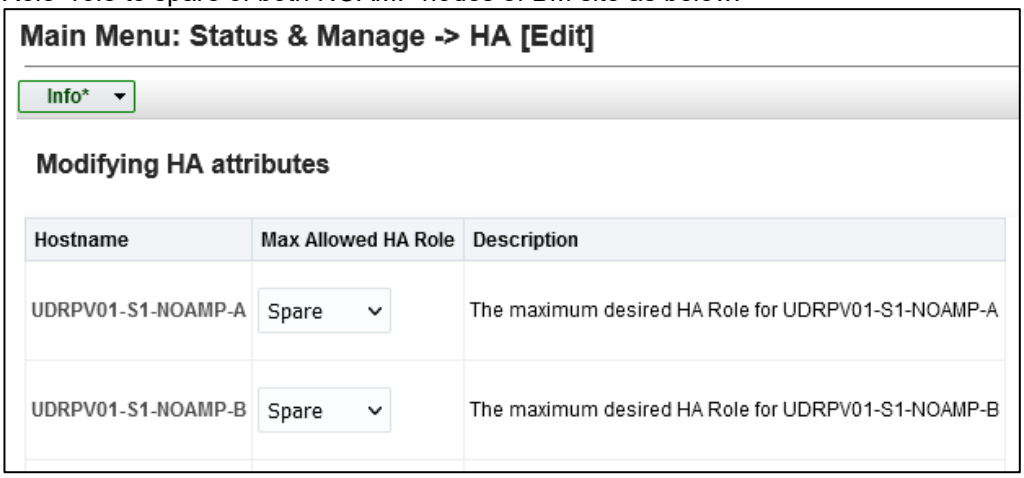


Figure 4: Seperation of BM site from VM site after upgrade to UDR-15.0

Procedure 15**: Migration procedure from BM to VM**

Step	Procedure	Result
Note: There would be no rollback procedure since a new set of VMs are created and added to the existing deployments. For rollback, the BM deploymeets can be made Active.		
1.	Choose the VM profile which can accomodate the DB from the Appendix G of Cloud Installation&Configuration Guide	Choose the profile for NOAMP, SOAM and MP before creating VM for them
2. ☐	Create VM guest in same number as we have nodes in BM using 'cloud installation & configuration' guide	Create the VM guests using the **Section 4.0 Cloud Creation** with UDR-12.11.x
3.	Login to Active NOAMP GUI using Appendix A on BM	Logged in Active NOAMP GUI

Step	Procedure	Result
Note: There would be no rollback procedure since a new set of VMs are created and added to the existing deployments. For rollback, the BM deploymeets can be made Active.		
4.	Add VM guest as spare site to BM site using Cloud Installation and Configuration Guide of UDR-12.11.x	We will have two sites BM site (exiting site) and VM site as spare site. Use below section of Cloud instllation & Configuration guide to add VM site with BM site **5.2 Create Configuration for Remaining Servers** **5.3 Apply Configuration to Remaining Servers** **5.4 Configure XSI Networks (All SOAM Sites)** **6.0 OAM PAIRING** **7.0 APPLICATION CONFIGURATION** **Note:** Use Active NOAMP GUI of BM for configuration
5.	Make VM site as active site and BM site as spare site	Step-1 Go to Main Menu: Status & Manage -> HA and change the “Max Allowed HA Role” role to spare of both NOAMP nodes of BM site as below: 
6.	Configure the Sh connection to OCPM from all MPs of VM site	Verify that all MPs of VM site start reciving SH traffic. Go to ***Main Menu: Status & Manage -> KPIs*** and verify all requests are successful
7.	Perform the Dual Image Upgrade on VM site using 4.1 and 4.2	Upgrade all server of VM site using the section of 4.1 and 4.2

Step	Procedure	Result
Note: There would be no rollback procedure since a new set of VMs are created and added to the existing deployments. For rollback, the BM deploymeets can be made Active.		
8.	After suucessful DIU of VM site, remove BM site from VM site	1- First remove Sh connection to all MPs of BM site • Login to Active SOAM GUI using Appendix-A • Go to ***Main Menu: Diameter -> Maintenance -> Connections*** and disable the connection using 'Disable' button • Go to ***Main Menu: Diameter -> Configuration -> Connections*** and delete the connections using 'Delete' button • Go to Main Menu: Diameter -> Configuration -> Peer Nodes and delete the peer node using 'Delete' button • Go to Main Menu: Diameter -> Configuration -> Local Nodes and delete the local nodes using 'Delete' button **Note:** Only delete the connections, peer nodes and local nodes of BM site only. 2- Remove all MPs from its server group • Login to Active NOAMP GUI using Appendix A • Go to ***Main Menu: Status & Manage -> HA*** and make "Max Allowed HA role to OSS' • Go to ***Main Menu: Configuration -> Server Groups*** and remove from MP server group using'Edit' button and then delete the server group too 3- Delete the MP server from server screen of active NOAMP GUI [VM site] • Go to ***Main Menu: Configuration -> Server*** and delete all MP servers using 'Delete' button 4- After MP, remove SOAM nodes of BM site from its Server Group • Use step-2 5- Delete the SOAM server from server screen of active NOAMP GUI [VM site] • Use step-3 6- At last, remove NOAMP nodes of BM from its server group • Use step-2 7- Delete NOAMP server from server screen of active NOAMP GUI [VM site] • Use step-3 8- Finally delete the NE files of BM site from Active NOAMP of VM site Go to **Main Menu: Configuration -> Networking -> Networks,** click on ✖ symbol to delete the files
9.	After successful removal of BM site from VM site	All subscribers are migrated here in VM site.
THIS PROCEDURE HAS BEEN COMPLETED		

6.2 Bare Metal to Virtual Machine Migration with Export/Import split procedures

Use this procedure when the subscriber DB size on the existing BM deployment is greater than the supporte capacities on VM profiles. For details on subscriber DB size supported on different VM profiles, refer to Appendix G in Cloud Installation and Configuration Guide.

This procedure is used to migrate the BM setup to VM based setup where Subscribers will be imported in two or more VM based setup installed in UDR-15.0 using EXPORT/IMPORT tools provided by UDR.

Note: There would be no rollback procedure since a new set of VMs are created and added to the existing deployments. For rollback, the BM deploymeets can be made Active.

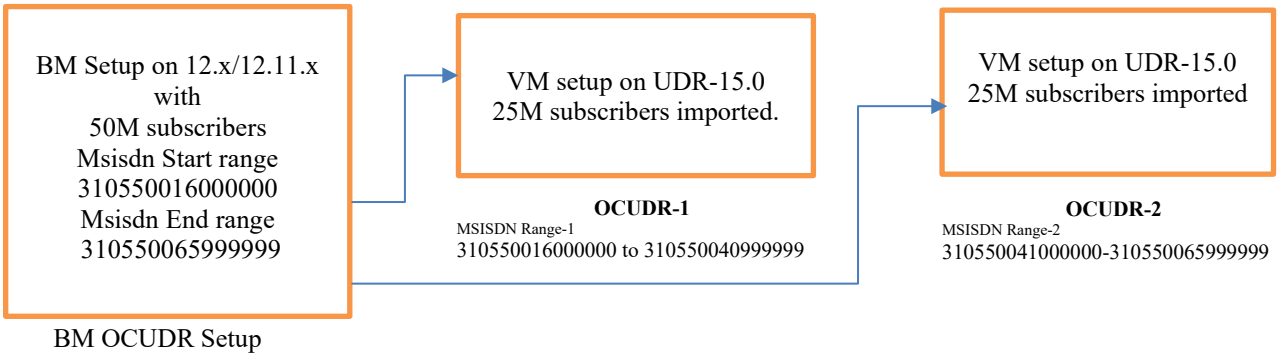
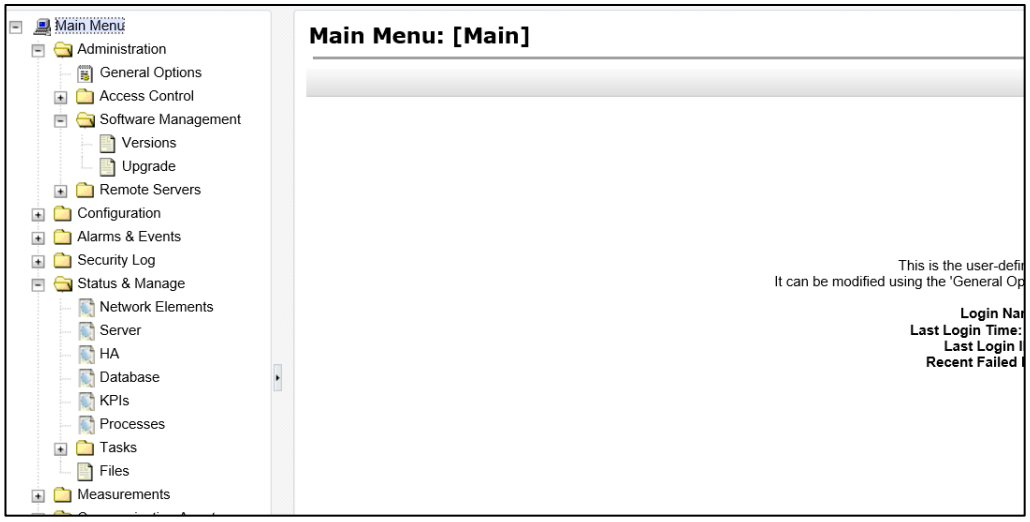
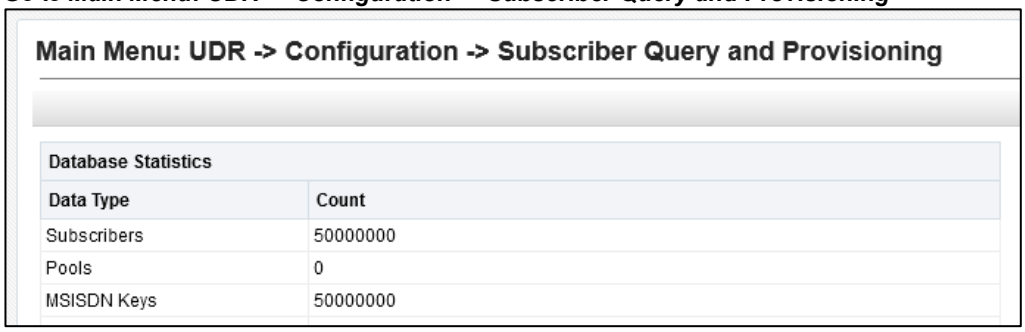
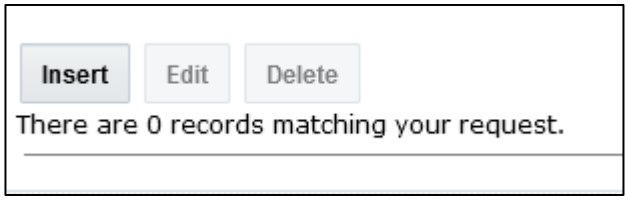


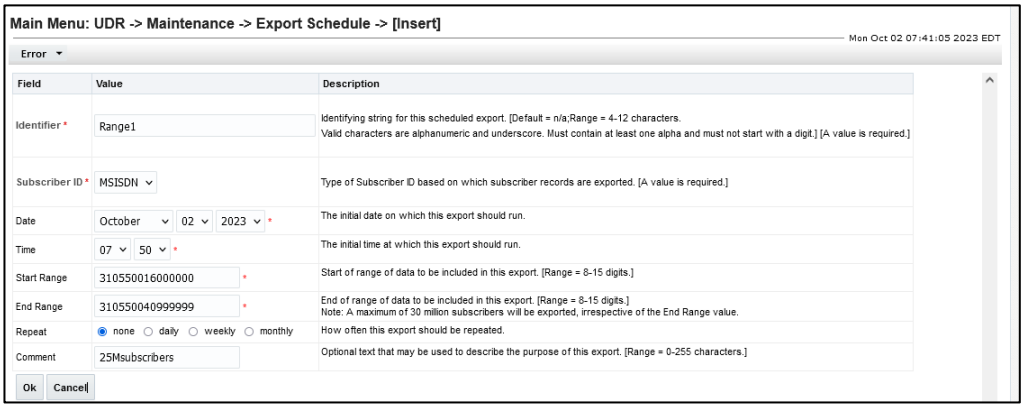
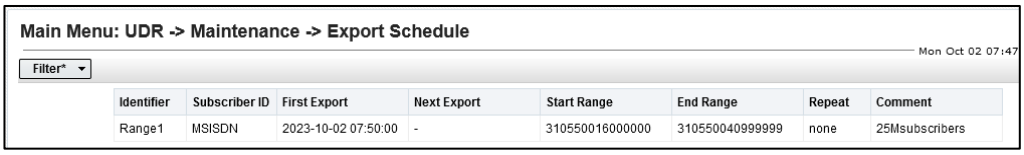
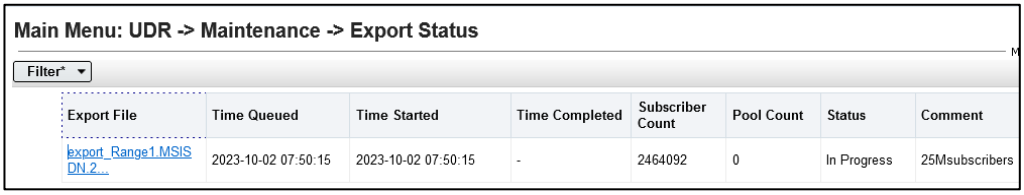
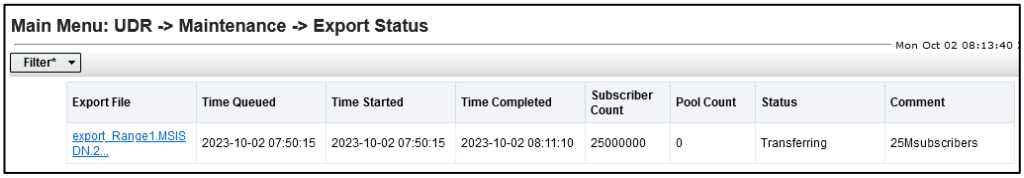
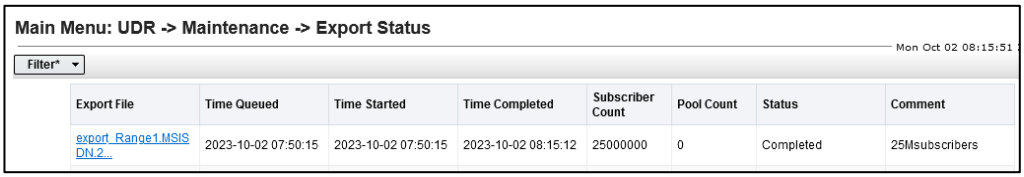
Figure 5: Subscriber Migration to Cloud OCUDR from Bare metal OCUDR

Prerequisite: Take full database back up using Procedure 4: Full Database Backup

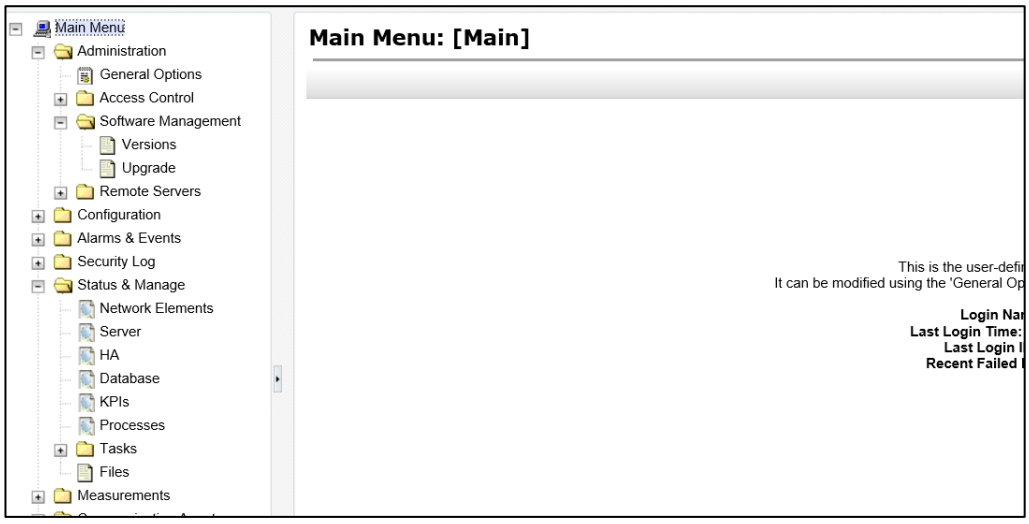
Procedure 16: Migration procedure from BM to VM using Export/Import tool

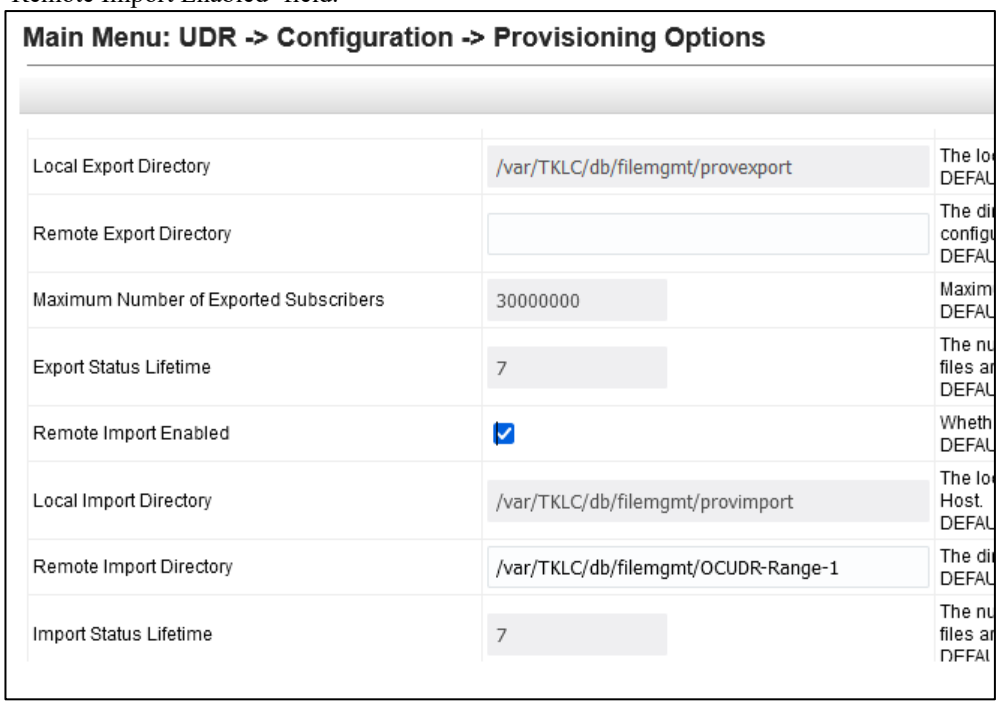
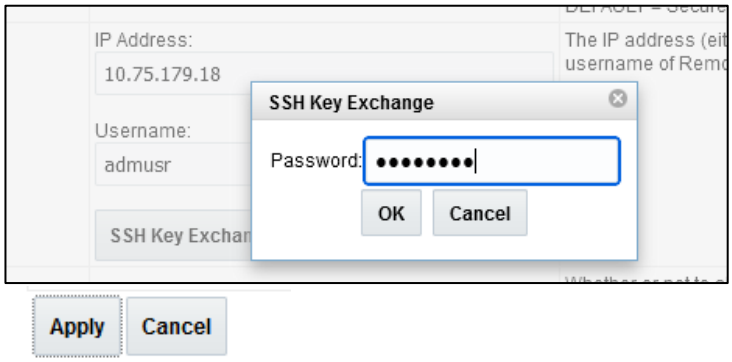
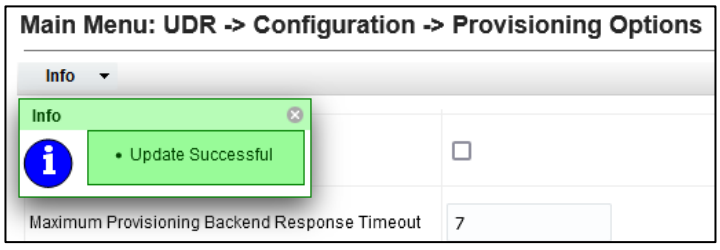
Step	Procedure	Result
Note: There would be no rollback procedure since a new set of VMs are created and added to the existing deployments. For rollback, the BM deploymeets can be made Active.		
1.	Refer the Appendix G of Cloud Install Guide for VM profile	Choose the NOAMP, SOAM and MP profiles for VM creation
2.	Create VM setup	Create a new setup vm based and configure them with UDR-15.0 using cloud installation and configuration guide of UDR-15.0 ***CloudInstallationAndConfigurationGuide-UDR-15.0.docx***, section 4.0 for creating guest and sections-5.0,6.0 and 7.0 to configure the setup

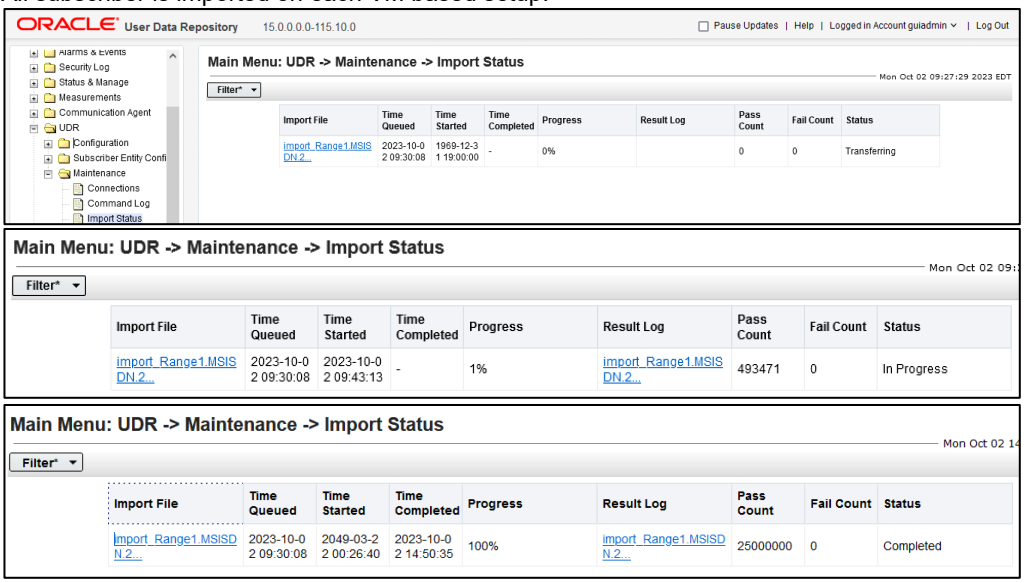
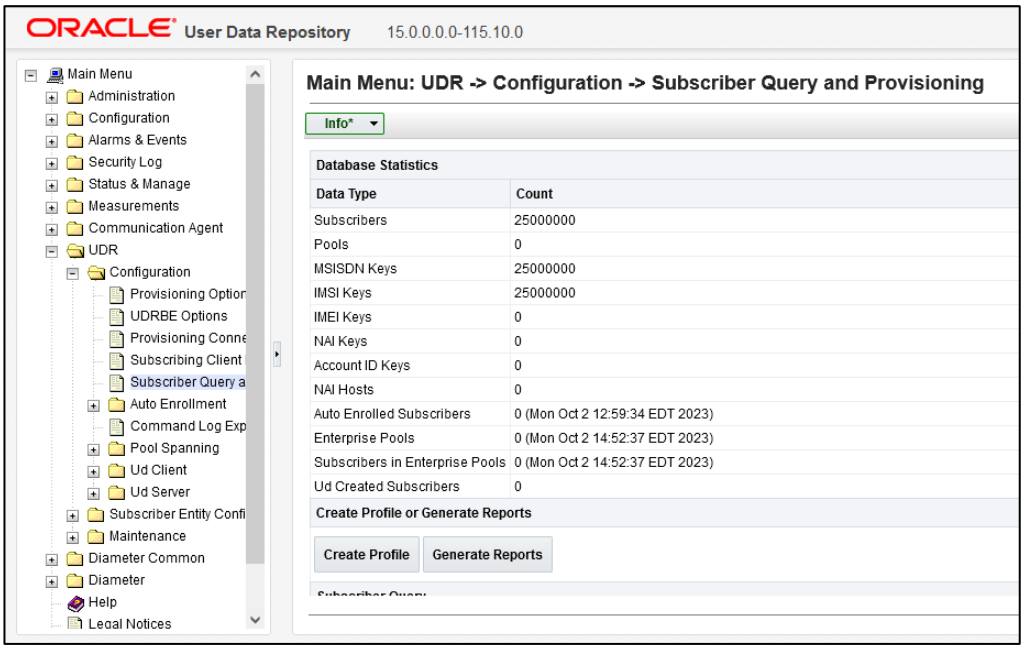
Step	Procedure	Result
Note: There would be no rollback procedure since a new set of VMs are created and added to the existing deployments. For rollback, the BM deploymeets can be made Active.		
3. ☐	Login to BM active NOAMP using Appendix-A	
4.	Verify the count of subscribers at Bare Metal (source setup)	Go to ***Main Menu: UDR -> Configuration -> Subscriber Query and Provisioning*** 
5.	Initiate Export Schedule task from BM Active NOAMP GUI in range manner.	Go to ***Main Menu: UDR -> Maintenance -> Export Schedule***   All .exml files will be exported on Active NOAMP console at /var/TKLC/dv/filemgmt/provexport/ **Example**: BM setup has 50M subscribers, and we will split 50M into two ranges and export them. Each exml file will have 25M subscribers. First 25M ixml file we use to import on OCUDR-1 target setup and second 25M ixml we use for OCUDR-2 target server.

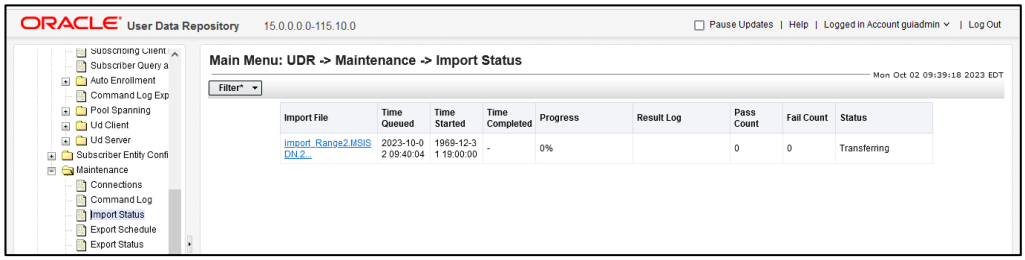
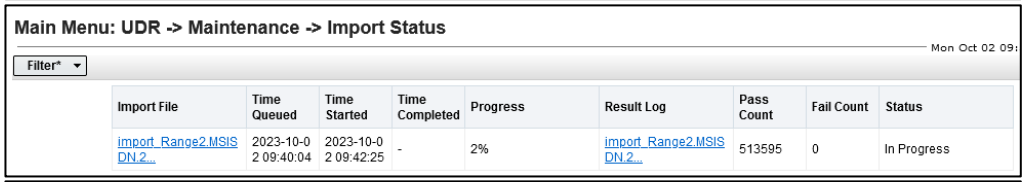
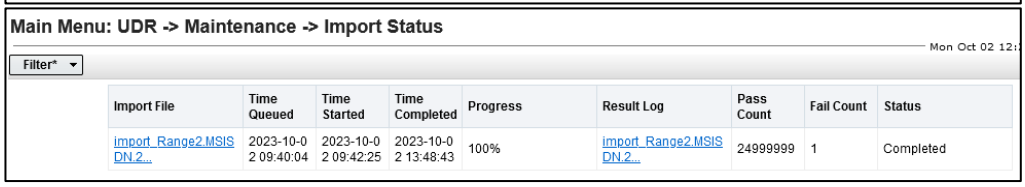
Step	Procedure	Result
Note: There would be no rollback procedure since a new set of VMs are created and added to the existing deployments. For rollback, the BM deploymeets can be made Active.		
6.	Click 'Inser button' and fill data then initiate Export schedule task by pressing 'Ok' button	 
7.	Check the status on ***Main Menu: UDR -> Maintenance -> Export Status***	  

Step	Procedure	Result
Note: There would be no rollback procedure since a new set of VMs are created and added to the existing deployments. For rollback, the BM deploymeets can be made Active.		
8.	Repeate step-3 to step-5 for 2nd range export	**Main Menu: UDR -> Maintenance -> Export Schedule** Mon Oct 02 08:01:55 2023 EDT Filter* Identifier | Subscriber ID | First Export | Next Export | Start Range | End Range | Repeat | Comment Range1 | MSISDN | 2023-10-02 07:50:00 | 2023-10-02 07:50:00 | 310550016000000 | 310550040999999 | none | 25Msubscribers Range2 | MSISDN | 2023-10-02 08:05:00 | - | 310550041000000 | 310550065999999 | none | 25Msubscribers **Main Menu: UDR -> Maintenance -> Export Status** Mon Oct 02 08:15:51 20 Filter* Export File | Time Queued | Time Started | Time Completed | Subscriber Count | Pool Count | Status | Comment export_Range1.MSISDN.2... | 2023-10-02 07:50:15 | 2023-10-02 07:50:15 | 2023-10-02 08:15:12 | 25000000 | 0 | Completed | 25Msubscribers export_Range2.MSISDN.2... | 2023-10-02 08:15:13 | 2023-10-02 08:15:13 | - | 0 | 0 | Initializing | 25Msubscribers **Main Menu: UDR -> Maintenance -> Export Status** Mon Oct 02 08:21:29 2 Filter* Export File | Time Queued | Time Started | Time Completed | Subscriber Count | Pool Count | Status | Comment export_Range1.MSISDN.2... | 2023-10-02 07:50:15 | 2023-10-02 07:50:15 | 2023-10-02 08:15:12 | 25000000 | 0 | Completed | 25Msubscribers export_Range2.MSISDN.2... | 2023-10-02 08:15:13 | 2023-10-02 08:15:13 | 2023-10-02 08:25:07 | 25000000 | 0 | Completed | 25Msubscribers
9.	**Login to Active NOAMP console of BM(Source)** **Server XMI IP (SSH):** SSH to server and login as root user	Use your SSH client to connect to the server (ex. ssh, putty): **ssh<server address>** login as: **admusr** password: **<enter password>** Switch to root **su –** password: **<enter password>**
10.	**List out the exported files at provexport directory on Active NOAMP console**	[root@UDRPV01-S1-NOAMP-A provexport]# ls -ltrh total 108G -export_Range1.MSISDN.202310020750.exml -export_Range2.MSISDN.202310020815.exml [root@UDRPV01-S1-NOAMP-A provexport]#
11.	**Create the directories on filemgmt area to place the ixml files**	**# mkdir /var/TKLC/db/filemgmt/OCUDR-Range-1** **# mkdir /var/TKLC/db/filemgmt/OCUDR-Range-2** **# chmod 777 OCUDR-Range-1 OCUDR-Range-2**

Step	Procedure	Result
Note: There would be no rollback procedure since a new set of VMs are created and added to the existing deployments. For rollback, the BM deploymeets can be made Active.		
12.	Use the xmlconverter tool to convert the exml files to the ixml files	**# /usr/TKLC/udr/bin/xmlconverter /var/TKLC/db/filemgmt/<export file> /var/TKLC/db/filemgmt/<import file> create** Example: [root@UDRPV01-S1-NOAMP-A filemgmt]# /usr/TKLC/udr/bin/xmlconverter /var/TKLC/db/filemgmt/provexport/export_Range1.MSISDN.202310020750.exml /var/TKLC/db/filemgmt/OCUDR-Range-1/import_Range1.MSISDN.202310020750.ixml create Completed (25000004 of 25000004) [root@UDRPV01-S1-NOAMP-A filemgmt]# /usr/TKLC/udr/bin/xmlconverter /var/TKLC/db/filemgmt/provexport/export_Range2.MSISDN.202310020815.exml /var/TKLC/db/filemgmt/OCUDR-Range-2/import_Range2.MSISDN.202310020815.ixml create Completed (25000004 of 25000004) [root@UDRPV01-S1-NOAMP-A filemgmt]#
13.	Provide full permission to converted .ixml files	**[root@UDRPV01-S1-NOAMP-A filemgmt]# ls OCUDR-Range-1 import_Range1.MSISDN.202310020750.ixml** **[root@UDRPV01-S1-NOAMP-A filemgmt]# ls OCUDR-Range-2 import_Range2.MSISDN.202310020815.ixml** **[root@UDRPV01-S1-NOAMP-A filemgmt]#**
14.	Login to target OCUDR active NOAMP using Appendix-A	

Step	Procedure	Result
Note: There would be no rollback procedure since a new set of VMs are created and added to the existing deployments. For rollback, the BM deploymeets can be made Active.		
15.	Configure the remote import on target OCUDR active NOAMP GUI and perform the key exchange.	Go to ***Main Menu: UDR -> Configuration -> Provisioning Options*** , provide the path of source server where we keep the .ixml files and perform the 'key exchange' and enbale the 'Remote Import Enabled' field.   

Step	Procedure	Result
Note: There would be no rollback procedure since a new set of VMs are created and added to the existing deployments. For rollback, the BM deploymeets can be made Active.		
16.	On Active GUI of OCUDR-1 target server, check the status of import task	All subscriber is imported on each VM based setup. 
17.	Verify the subscriber count on target setup	Go to Main Menu: UDR -> Configuration -> Subscriber Query and Provisioning on target OCUDR-1 NOAMP GUI. 

Step	Procedure	Result
Note: There would be no rollback procedure since a new set of VMs are created and added to the existing deployments. For rollback, the BM deploymeets can be made Active.		
18.	And repeate the step from 12 – 15 for OCUDR-2 setup	  
19.	Start traffic to newly created VM based setup	All BM (source setup) subscribers are moved to VM based setup (target servers) and can start the SH request from OCPM.
THIS PROCEDURE HAS BEEN COMPLETED		

7. SINGLE SERVER UPGRADE

A 1-RMS server configuration is used for customer lab setup and for virtualization demonstration only. This configuration does not support HA and is not intended for production network. This One Server Lab RMS shall support the ability to perform and upgrade which allows all configuration data and database records to be carried forward to the next release.

7.1 Upgrading a Single Server (OL6 to OL8 Upgrade)

The following procedure below is ONLY for upgrading a one server Lab RMS.

Procedure 17: Upgrade Single Server

Step	Procedure	Result
1.	Resize the disk of server	Use Appendix H to resize the disk of a server before initiating upgrade
2. ☐	Identify NOAMP IP Address	Identify IP Address of the Single NOAMP Server to be upgraded.
3. ☐	**Server XMI IP (SSH):** SSH to server and login as root user	Use your SSH client to connect to the server (ex. ssh, putty): **ssh<server address>** login as: **admusr** password: **<enter password>** Switch to root **su –** password: **<enter password>**
4.	Copy and mount TPD 7.4 based ISO to the UDR server which is to be upgrded	**# cp /var/TKLC/db/filemgmt/TPD.install-8.0.0.0.0_90.13.0-OracleLinux7.4-x86_64-DIU.iso /var/TKLC/upgrade/** **# chmod 777 /var/TKLC/upgrade/TPD.install-8.0.0.0.0_90.13.0-OracleLinux7.4-x86_64-DIU.iso** **# sudo mount /var/TKLC/upgrade/TPD.install-8.0.0.0.0_90.13.0-OracleLinux7.4-x86_64-DIU.iso /mnt/upgrade -o loop** **Note:** Please download DIU ISO from mos and upload to server at filemgmt area using **ISO** Administration and then copy to path: /var/TKLC/upgrade on server to upgrade.
5. ☐	Make a directory, copy UDR DIU ISO and mount it	**# mkdir /var/TKLC/ol8_diu** **Note:** copy application DIU iso in filemgmt location as iso is >9 GB **# mount /var/TKLC/db/filemgmt/UDR-15.0.0.0.0_115.10.0-x86_64-DIU.iso/var/TKLC/ol8_diu -o loop**

Procedure 17: Upgrade Single Server

Step	Procedure	Result

6.	Install and then apply upgrade of TPD 7.4 first	**# alarmMgr --clear 32509;alarmMgr --clear 32500**
		
		# /mnt/upgrade/upgrade/diUpgrade --install --ignoreDevCheck –debug
		
		Output:
		`Migrating 152 directories`
		`Migrating 845 files`
		`Migrating 1 symlinks`
		`Image install complete`
		`########################################`
		`#  INSTALL COMPLETE  #`
		`########################################`
		`Transitioning from 'Installing Upgrade' to 'Ready to Apply Upgrade'`
		`[root@OCUDR-DR-NOAMP-A filemgmt]#`
		
		# alarmMgr --clear 32509;alarmMgr --clear 32500
		
		# /var/TKLC/backout/diUpgrade --apply --ignoreDevCheck –debug
		
		Output:
		`[root@OCUDR-DR-NOAMP-A filemgmt]# /var/TKLC/backout/diUpgrade --apply --ignoreDevCheck -debug`
		`Resuming from state STATE_READY_TO_APPLY`
		`Transitioning from 'Ready to Apply Upgrade' to 'Applying Upgrade'`
		`####################################`
		`#  APPLY INITIATED  #`
		`####################################`
		`APPLY START TIME: Sat Sep 30 07:11:24 2023 EDT (11:11:24 UTC)`
		`Validating image pre-apply`
		`/mnt/upgrade/images/plat_root.gz`
		`/mnt/upgrade/images/plat_usr.gz`
		`/mnt/upgrade/images/plat_var.gz`
		`/mnt/upgrade/images/plat_var_tklc.gz`
		`Migrating 1 symlinks`
		`Enabling service upgrade...`
		`Converting from MBR to GPT`
		`Updating bootloader...`
		`Add md uuid to grub...`
		`Unmounting images...`
		`Performing reboot...`
		`Inhibiting upgrade services...`
		`Allowing upgrade services...`
		`[root@OCUDR-DR-NOAMP-A filemgmt]#`
		`login as: admusr`
		`admusr@10.75.180.18's password:`
		`Last login: Sat Sep 30 06:44:19 2023 from 10.69.110.163`
		`OCUDR VM from OVA file`
		`|============================================================|`
		`| This system has been upgraded but the upgrade has not yet  |`
		`| been accepted or rejected.  Please accept or reject the    |`
		`| upgrade soon.                                              |`
		`|============================================================|`
		`[admusr@ocudr-dr-noamp-a ~]$`
		
		Note: Server reboots after ‘apply upgrade’ finishes.

Procedure 17: Upgrade Single Server

Step	Procedure	Result

7.	Accept upgrade of TPD 7.4	**Note:** Before accepting, please make sure 'Upgrade Applied' state is shown, use below command to show the status:
		# /var/TKLC/backout/diUpgrade --status
		
		Output:
		`[root@ocudr-dr-noamp-a admusr]# /var/TKLC/backout/diUpgrade --status`
		`State: Upgrade Applied`
		`Status Messages:`
		`- Performing early checks`
		`- Downloading upgrade data`
		`- Verifying image`
		`- Performing image pre-install`
		`- Configuring images`
		`- Identifying resources`
		`- Reserving image storage`
		`- Installing image`
		`- Performing image post-install`
		`- Verifying configuration sanity`
		`- Image install complete`
		`- Validating image pre-apply`
		`- Performing image pre-apply`
		`- Applying image`
		`- Performing configuration export`
		`- Performing image post-apply`
		`- Image Apply Complete`
		`[root@ocudr-dr-noamp-a admusr]#`
		Note: If we don't need to proceed further upgrade then we can reject the upgrade at this stage ,using below step
		# /var/TKLC/backout/diUpgrade -reject
		Skip the above step if we want to continue upgrade
		
		# /var/TKLC/backout/diUpgrade --accept
		
		Output:
		`[root@ocudr-dr-noamp-a admusr]# /var/TKLC/backout/diUpgrade --accept`
		`Resuming from state STATE_UPGRADE_APPLIED`
		`Transitioning from 'Upgrade Applied' to 'Accepting Upgrade'`
		`Enabling service rebootcheck...`
		`#####################################`
		`#  ACCEPT INITIATED  #`
		`#####################################`
		`ACCEPT START TIME: Sat Sep 30 07:21:23 2023 EDT (11:21:23 UTC)`
		`Validating image pre-accept`
		`Performing image post-accept`
		`Running postAccept() for DIUpgrade::Policy::P20TPD upgrade policy...`
		`Running postAccept() for DIUpgrade::Policy::P36APPappworks upgrade policy...`
		`Running postAccept() for DIUpgrade::Policy::P38APPawpcommon upgrade policy...`
		`Running postAccept() for DIUpgrade::Policy::P39APPdpi upgrade policy...`
		`Running postAccept() for DIUpgrade::Policy::P42APPcomagent upgrade policy...`
		`Running postAccept() for DIUpgrade::Policy::P43APPccl upgrade policy...`
		`Running postAccept() for DIUpgrade::Policy::P50APPudr upgrade policy...`
		`Creating alarm script: /tmp/vu3svF51Jl`
		`#####################################`
		`#  ACCEPT COMPLETE  #`
		`#####################################`
		`Check is rebootcheck is enabled ...`
		`Disabling service rebootcheck...`
		`Transitioning from 'Accepting Upgrade' to 'No Upgrade Available'`
		`Inhibiting upgrade services...`
		`Allowing upgrade services...`
		`Cleaning backout directory.`
		`[root@ocudr-dr-noamp-a admusr]#`

Procedure 17: Upgrade Single Server

Step	Procedure	Result
8.	Update fstab and re-create filemgmt directory	**# vim /etc/fstab** Add below line at bottom /dev/vgroot/filemgmt /var/TKLC/db/filemgmt ext4 defaults 1 2 **# mkdir -p /var/TKLC/db/filemgmt** **# mount -a**

Procedure 17: Upgrade Single Server

Step	Procedure	Result

9.	Mount UDR DIU iso and first install and then upgrade	**# mount /var/TKLC/db/filemgmt/UDR-15.0.0.0.0_115.10.0-x86_64-DIU.iso /mnt/upgrade -o loop**
		
		# alarmMgr --clear 32509;alarmMgr --clear 32500
		
		# /mnt/upgrade/upgrade/diUpgrade --install --ignoreDevCheck –debug
		
		Output:
		`Migrating 76 directories`
		`Migrating 372 files`
		`Migrating 1 symlinks`
		`Image install complete`
		`########################################`
		`#  INSTALL COMPLETE  #`
		`########################################`
		`Transitioning from 'Installing Upgrade' to 'Ready to Apply Upgrade'`
		`[root@ocudr-dr-noamp-a admusr]#`
		
		# alarmMgr --clear 32509;alarmMgr --clear 32500
		
		# /var/TKLC/backout/diUpgrade --apply --ignoreDevCheck –debug
		
		Output:
		`[root@OCUDR-DR-NOAMP-A admusr]# /var/TKLC/backout/diUpgrade --status`
		`State: Upgrade Applied`
		`Status Messages:`
		`- Performing early checks`
		`- Downloading upgrade data`
		`- Verifying image`
		`- Performing image pre-install`
		`- Configuring images`
		`- Identifying resources`
		`- Reserving image storage`
		`- Installing image`
		`- Performing image post-install`
		`- Verifying configuration sanity`
		`- Image install complete`
		`- Validating image pre-apply`
		`- Performing image pre-apply`
		`- Applying image`
		`- Performing configuration export`
		`- Performing image post-apply`
		`- Image Apply Complete`
		`[root@OCUDR-DR-NOAMP-A admusr]#`
		
		NOTE:1: After reboot, upgrade post apply takes time so keep checking status on console.
		NOTE:2: During the upgrade you might see the following expected alarms. Not all servers have all alarms:
		Alarm ID = **31101**(DB Replication to a slave DB has failed)
		Alarm ID = **31106**(DB Merging to a parent Merge Node has failed)
		Alarm ID = **31107**(DB Merging from a child source Node has failed)
		Alarm ID = **31114** (DB Replication of configuration data via …)
		Alarm ID = **13071** No northbound Provisioning Connections)
		Alarm ID = **10073** (Server Group Max Allowed HA Role Warning)
		Alarm ID = **10075** (Application processes have been manually stopped)
		Alarm ID = **32515** (Server HA Failover Inhibited)
		Alarm ID = **31283** (HA Highly available server failed to receive)
		Alarm ID = **31226** (The High Availability Status is degraded)

Procedure 17: Upgrade Single Server

Step	Procedure	Result
10. ☐	Accept the upgrade	Accept upgrade as specified in Procedure 12: Accept Upgrade.
11. ☐	Identify SOAM IP Address	Identify IP Address of the Single SOAM Server to be upgraded.
12. ☐	Upgrade SOAM Server	Repeat steps 2 through 9 for the SOAM Server
13. ☐	Identify MP IP Address	Identify IP Address of the Single MP Server to be upgraded.
14. ☐	Upgrade MP Server	Repeat Steps 2 through 9 for the MP Server
THIS PROCEDURE HAS BEEN COMPLETED		

7.2 Upgrading a Single Server (OL8 to OL8 Upgrade)

Step	Procedure	Result
1.	Identify NOAMP IP Address	Identify IP Address of the single NOAMP server to be upgraded.

2.	**Server IMI IP (SSH):** SSH to server and login as root user	Use your SSH client to connect to the server (ex. ssh, putty):
		`ssh<server address>`
		`login as: admusr`
		`password: <enter password>`
		`Switch to root su -`
		`password: <enter password>`

3.	Copy OL8.x Application DIU iso to "/var/TKLC/upgrade " and and change the permission and then mount it in "/mnt/upgrade/" mount point	**`# chmod 777 /var/TKLC/upgrade/UDR-15.0.0.0.0_115.12.0-x86_64-DIU.iso`** **`# sudo mount /var/TKLC/upgrade/ UDR-15.0.0.0.0_115.12.0-x86_64-DIU.iso /mnt/upgrade -o loop`** **Note:** Please download DIU ISO from mos and upload to server at filemgmt area using ISO Administration and then copy to path: /var/TKLC/upgrade on server to upgrade

Step	Procedure	Result

4.	Install and then apply upgrade	**# alarmMgr --clear 32509;alarmMgr --clear 32500**
		
		# /mnt/upgrade/upgrade/diUpgrade --install --ignoreDevCheck –debug
		
		Output:
		`Migrating 152 directories`
		`Migrating 845 files`
		`Migrating 1 symlinks`
		`Image install complete`
		`########################################`
		`#  INSTALL COMPLETE  #`
		`########################################`
		`Transitioning from 'Installing Upgrade' to 'Ready to Apply Upgrade'`
		`[root@OCUDR-DR-NOAMP-A filemgmt]#`
		
		# alarmMgr --clear 32509;alarmMgr --clear 32500
		
		# /var/TKLC/backout/diUpgrade --apply --ignoreDevCheck –debug
		
		Output:
		`[root@OCUDR-DR-NOAMP-A filemgmt]# /var/TKLC/backout/diUpgrade --apply --ignoreDevCheck -debug`
		`Resuming from state STATE_READY_TO_APPLY`
		`Transitioning from 'Ready to Apply Upgrade' to 'Applying Upgrade'`
		`####################################`
		`#  APPLY INITIATED  #`
		`####################################`
		`APPLY START TIME: Sat Sep 30 07:11:24 2023 EDT (11:11:24 UTC)`
		`Validating image pre-apply`
		`/mnt/upgrade/images/plat_root.gz`
		`/mnt/upgrade/images/plat_usr.gz`
		`/mnt/upgrade/images/plat_var.gz`
		`/mnt/upgrade/images/plat_var_tklc.gz`
		
		`Migrating 1 symlinks`
		`Enabling service upgrade...`
		`Converting from MBR to GPT`
		`Updating bootloader...`
		`Add md uuid to grub...`
		`Unmounting images...`
		`Performing reboot...`
		`Inhibiting upgrade services...`
		`Allowing upgrade services...`
		`[root@OCUDR-DR-NOAMP-A filemgmt]#`
		`login as: admusr`
		`admusr@10.75.180.18's password:`
		`Last login: Sat Sep 30 06:44:19 2023 from 10.69.110.163`
		`OCUDR VM from OVA file`
		`|============================================================|`
		`| This system has been upgraded but the upgrade has not yet  |`
		`| been accepted or rejected.  Please accept or reject the    |`
		`| upgrade soon.                                              |`
		`|============================================================|`
		`[admusr@ocudr-dr-noamp-a ~]$`
		
		Note: Server reboots after ‘apply upgrade’ finishes.

Step	Procedure	Result

5.	Accept upgrade	Before accepting, please make sure 'Upgrade Applied' state is shown, use below command to show the status:
		# /var/TKLC/backout/diUpgrade –status
		Output:
		`[root@ocudr-dr-noamp-a admusr]# /var/TKLC/backout/diUpgrade --status`
		`State: Upgrade Applied`
		`Status Messages:`
		`- Performing early checks`
		`- Downloading upgrade data`
		`- Verifying image`
		`- Performing image pre-install`
		`- Configuring images`
		`- Identifying resources`
		`- Reserving image storage`
		`- Installing image`
		`- Performing image post-install`
		`- Verifying configuration sanity`
		`- Image install complete`
		`- Validating image pre-apply`
		`- Performing image pre-apply`
		`- Applying image`
		`- Performing configuration export`
		`- Performing image post-apply`
		`- Image Apply Complete`
		`[root@ocudr-dr-noamp-a admusr]#`
		
		Note: If we don't need to proceed further upgrade then we can reject the upgrade at this stage, using below step:
		# /var/TKLC/backout/diUpgrade –reject
		Skip the above step if we want to continue upgrade
		
		# /var/TKLC/backout/diUpgrade --accept
		
		Output:
		`[root@ocudr-dr-noamp-a admusr]# /var/TKLC/backout/diUpgrade --accept`
		`Resuming from state STATE_UPGRADE_APPLIED`
		`Transitioning from 'Upgrade Applied' to 'Accepting Upgrade'`
		`Enabling service rebootcheck...`
		`########################################`
		`#  ACCEPT INITIATED  #`
		`########################################`
		`ACCEPT START TIME: Sat Sep 30 07:21:23 2023 EDT (11:21:23 UTC)`
		`Validating image pre-accept`
		`Performing image post-accept`
		`Running postAccept() for DIUpgrade::Policy::P20TPD upgrade policy...`
		`Running postAccept() for DIUpgrade::Policy::P36APPappworks upgrade policy...`
		`Running postAccept() for DIUpgrade::Policy::P38APPawpcommon upgrade policy...`
		`Running postAccept() for DIUpgrade::Policy::P39APPdpi upgrade policy...`
		`Running postAccept() for DIUpgrade::Policy::P42APPcomagent upgrade policy...`
		`Running postAccept() for DIUpgrade::Policy::P43APPccl upgrade policy...`
		`Running postAccept() for DIUpgrade::Policy::P50APPudr upgrade policy...`
		`Creating alarm script: /tmp/vu3svF51J1`
		`########################################`
		`#  ACCEPT COMPLETE  #`
		`########################################`
		`Check is rebootcheck is enabled ...`
		`Disabling service rebootcheck...`
		`Transitioning from 'Accepting Upgrade' to 'No Upgrade Available'`
		`Inhibiting upgrade services...`
		`Allowing upgrade services...`
		`Cleaning backout directory.`
		`[root@ocudr-dr-noamp-a admusr]#`

Step	Procedure	Result
6	Identify SOAM IP Address	Identify IP Address of the Single SOAM Server to be upgraded.
7	Upgrade SOAM Server	Repeat steps 2 through 5 for the SOAM Server
8	Identify MP IP Address	Identify IP Address of the Single MP Server to be upgraded
9	Upgrade MP Server	Repeat steps 2 through 5 for the MP Server
THIS PROCEDURE HAS BEEN COMPLETED		

8. RECOVERY PROCEDURES

Upgrade procedure recovery issues should be directed to the My Oracle Support (Appendix I). Persons performing the upgrade should be familiar with these documents.
Recovery procedures are covered under the Disaster Recovery Guide. Execute this section only if there is a problem and it is desired to revert back to the pre-upgrade version of the software.

!! WARNING !! **Do not attempt to perform these backout procedures without first contacting the My Oracle Support. Refer to Appendix I.**

!! WARNING !! **Backout procedures will cause traffic loss!**

NOTES:

These recovery procedures are provided for the Backout of an Upgrade ONLY! (i.e., for the Backout from a failed target release to the previously installed release).

Backout of an initial installation is not supported!

8.1 Order of Backout

The following list displays the order to backout the Servers (Primary and DR sites):

1. Site 1 MPs
2. Site 2 MPs (DR site)
3. Site 1 SOAMs (Active/Standby)
4. Site 2 SOAMs (DR site)
5. DR NOAMPs (Spares)
6. Primary Standby NOAMP
7. Primary Active NOAMP

8.2 Backout Setup

Identify IP addresses of all servers that need to be backed out.

1. Select **Administration → Software Management →Upgrade**
2. Based on the "Application Version" Column, identify all the hostnames that need to be backed out.
3. Select **Configuration → Servers**
4. Identify the IMI IP addresses of all the hostnames identified in step 2.
   These are required to access the server when performing the backout.

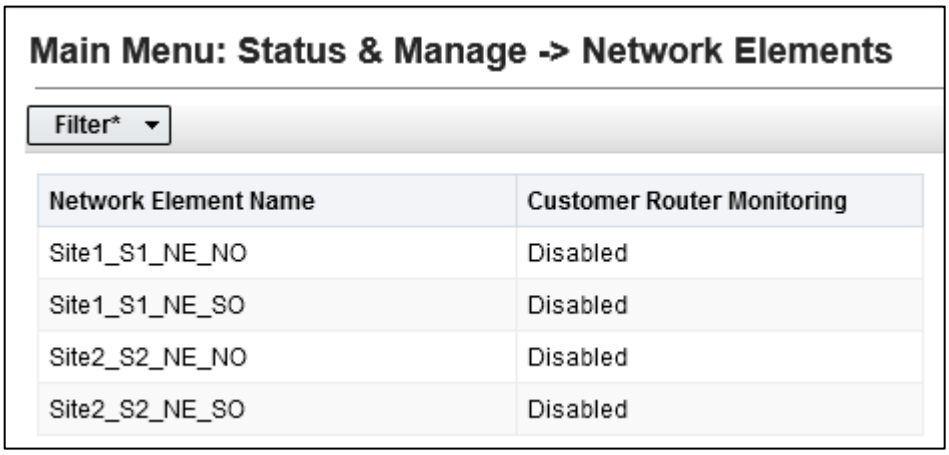
The reason to execute a backout has a direct impact on any additional backout preparation that must be done. The Backout procedure will cause traffic loss.

NOTE: **Verify that the two backup archive files created using the procedure in 4.1.2.2** Full Database Backup (All Network Elements, All Servers) **are present on every server that is to be backed-out.**
These archive files are located in the **/var/TKLC/db/filemgmt** directory and have different filenames than other database backup files.
The filenames will have the format:

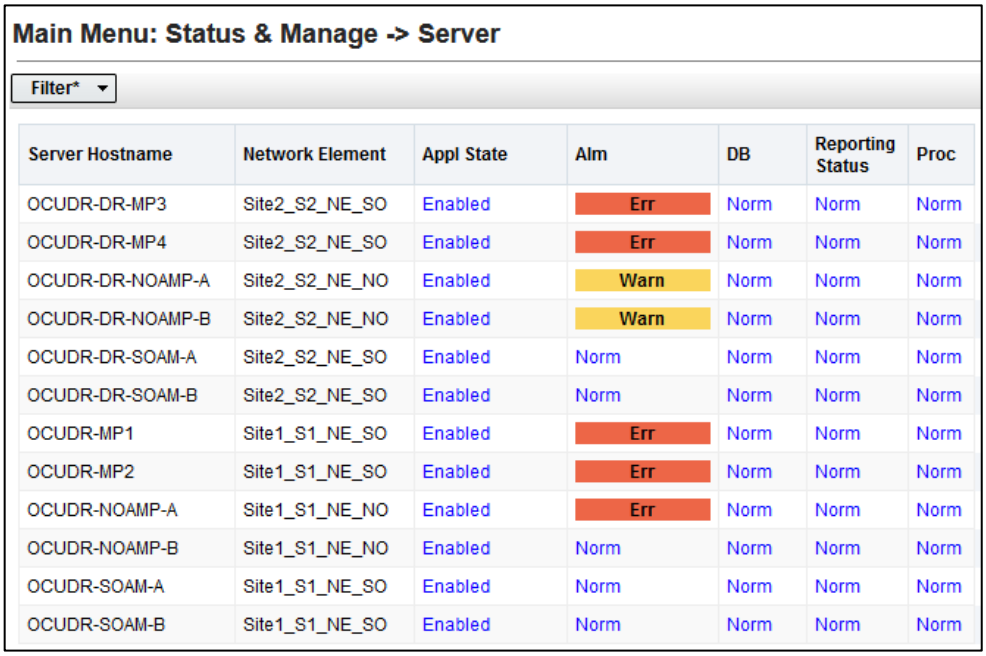
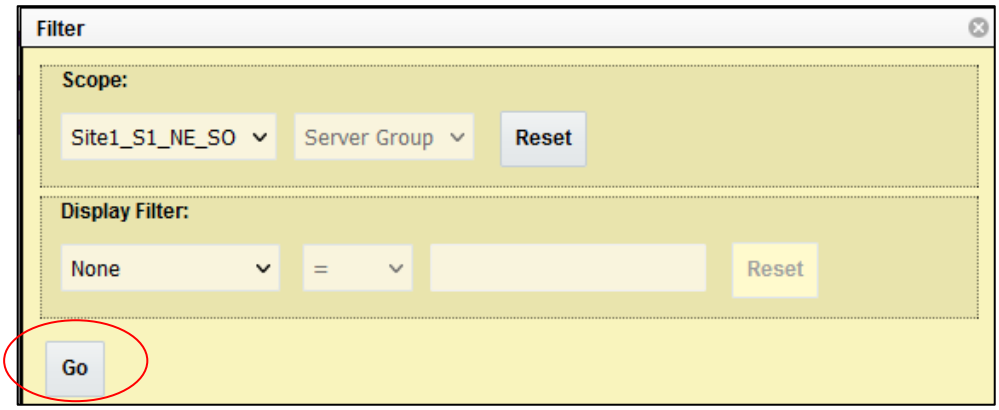
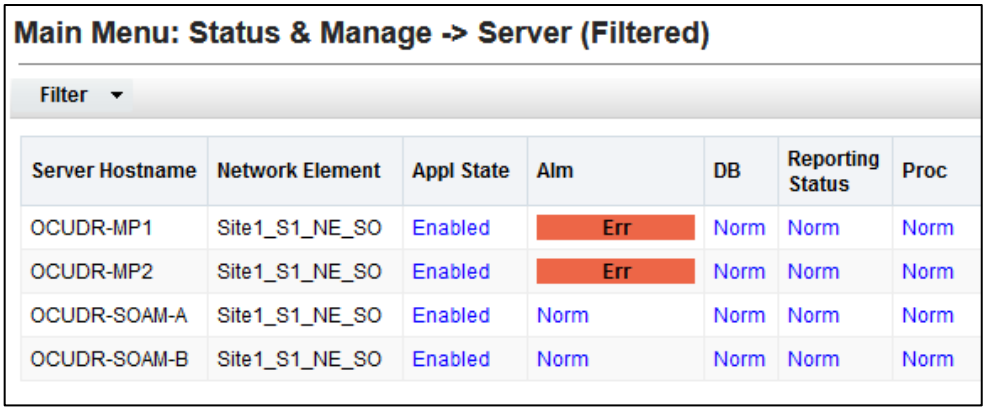
- **`Backup.<application>.<server>.FullDBParts.<role>.<date_time>.UPG.tar.bz2`**
- **`Backup.<application>.<server>.FullRunEnv.<role>.<date_time>.UPG.tar.bz2`**

8.3 Backout of SOAM / MP

Procedure 18: Backout of SOAM / MP

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **<u>Main Menu</u>** **→ Status & Manage** ***→Network Elements*** …as shown on the right.	
3. ☐	Record the name of the **SOAM** Network Element to be downgraded (**backed out**)	Record the name of the **SOAM** Network Element which will be **"backed out"** **SOAM Network Element: _____**

Procedure 18: Backout of SOAM / MP

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→*Server*** …as shown on the right.	
5. ☐	**Active NOAMP VIP:** 1) From the **Status & Manage→ Server** filter pull-down, select the name for the **SOAM** NE. 2) Click on the **"GO"** dialogue button located on the right end of the filter bar	
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with the S**OAM** NE. Identify each **"Server Hostname"** and its associated **"Reporting Status"** and **"Appl State"**.	

Main Menu: Status & Manage -> Server

Filter*

Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc
OCUDR-DR-MP3	Site2_S2_NE_SO	Enabled	Err	Norm	Norm	Norm
OCUDR-DR-MP4	Site2_S2_NE_SO	Enabled	Err	Norm	Norm	Norm
OCUDR-DR-NOAMP-A	Site2_S2_NE_NO	Enabled	Warn	Norm	Norm	Norm
OCUDR-DR-NOAMP-B	Site2_S2_NE_NO	Enabled	Warn	Norm	Norm	Norm
OCUDR-DR-SOAM-A	Site2_S2_NE_SO	Enabled	Norm	Norm	Norm	Norm
OCUDR-DR-SOAM-B	Site2_S2_NE_SO	Enabled	Norm	Norm	Norm	Norm
OCUDR-MP1	Site1_S1_NE_SO	Enabled	Err	Norm	Norm	Norm
OCUDR-MP2	Site1_S1_NE_SO	Enabled	Err	Norm	Norm	Norm
OCUDR-NOAMP-A	Site1_S1_NE_NO	Enabled	Err	Norm	Norm	Norm
OCUDR-NOAMP-B	Site1_S1_NE_NO	Enabled	Norm	Norm	Norm	Norm
OCUDR-SOAM-A	Site1_S1_NE_SO	Enabled	Norm	Norm	Norm	Norm
OCUDR-SOAM-B	Site1_S1_NE_SO	Enabled	Norm	Norm	Norm	Norm

Filter

Scope:

Site1_S1_NE_SO | Server Group | Reset

Display Filter:

None | = | Reset

Go

Main Menu: Status & Manage -> Server (Filtered)

Filter

Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc
OCUDR-MP1	Site1_S1_NE_SO	Enabled	Err	Norm	Norm	Norm
OCUDR-MP2	Site1_S1_NE_SO	Enabled	Err	Norm	Norm	Norm
OCUDR-SOAM-A	Site1_S1_NE_SO	Enabled	Norm	Norm	Norm	Norm
OCUDR-SOAM-B	Site1_S1_NE_SO	Enabled	Norm	Norm	Norm	Norm

Procedure 18: Backout of SOAM / MP

Step	Procedure	Result
7. ☐	Using the list of servers associated with the **SOAM NE** shown in the above Step... Record the Server names of the **MPs** associated with the **SOAM NE**.	Identify the **SOAM "Server"** names and record them in the space provided below: **Standby SOAM: _____** **Active SOAM: _____** **MP1: _____** **MP3: _____** **MP2: _____** **MP4: _____**
8. ☐	**Active NOAMP VIP:** Referencing the list of servers recorded in **Step7**,execute **Appendix D** for the **MP1 Server**.	**Backout** the target release for the **MP1 Server** as specified in **Appendix D** *(Backout of a Server).*
9. ☐	**1)** Record the Server names of the **MPs** associated with the **SOAM** NE. **2)** Beginning with **MP2**, execute **Appendix D** for each **MP Server** associated with **SOAM NE** **3)"Check off"** each Check Box as **Appendix D**is completed for the **MP Server** listed to its right.	Record the Server name of each **MP** to be **"Backed Out"** in the space provided below: **"Check off"** the associated **Check Box** as **Appendix D**is completed for each **MP**. ☐ **MP1: _____** ☐ **MP3: _____** ☐ **MP2: _____** ☐ **MP4: _____**
10. ☐	**Active NOAMP VIP:** Execute **Appendix D** for the **Standby SOAM Server**.	**Backout** the target release for the **Standby SOAM Server** as specified in **Appendix D** *(Backout of a Server).*
11. ☐	**Active NOAMP VIP:** Execute **Appendix D** for the **Active SOAM Server**.	**Backout** the target release for the **Active SOAM Server** as specified in **Appendix D** *(Backout of a Server).*

Procedure 18: Backout of SOAM / MP

Step	Procedure	Result
12. ☐	**Active NOAMP VIP:** Execute Health Check at this time only if no other servers require back Out. Otherwise, proceed with the next Backout.	Execute Health Check procedures (Post Backout) as specified in **Appendix B**, if backout procedures have been completed for all required servers.
THIS PROCEDURE HAS BEEN COMPLETED		

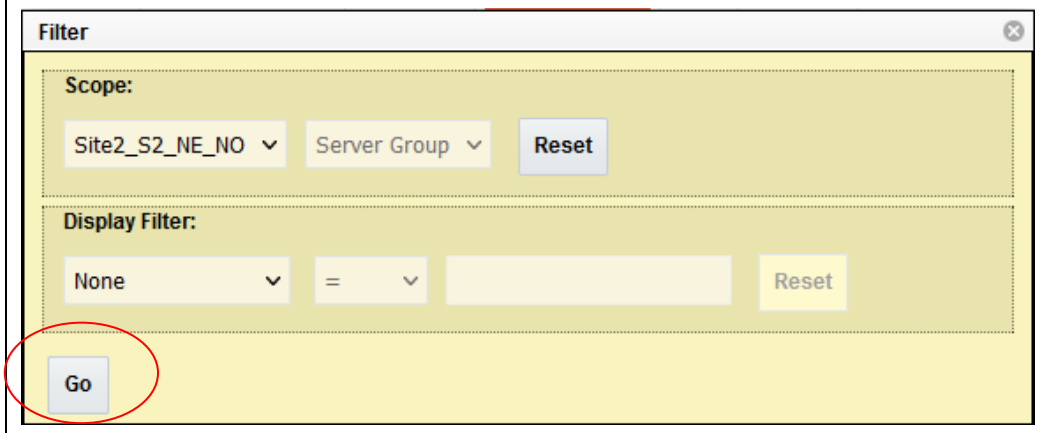
8.4 Backout of DR NOAMP NE

Procedure 19: Backout of DR NOAMP NE

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** ***→Network Elements*** …as shown on the right.	**Main Menu: Status & Manage -> Network Elements** Filter* Network Element Name / Customer Router Monitoring Site1_S1_NE_NO – Disabled Site1_S1_NE_SO – Disabled Site2_S2_NE_NO – Disabled Site2_S2_NE_SO – Disabled
3. ☐	Record the name of the **DR NOAMP** NE to be downgraded (**backed out**) in the space provided to the right.	Record the name of the **DR NOAMP** NE which will be **"Backed out"**. **DR NOAMP NE: _____**
4. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** ***→Server*** …as shown on the right.	**Main Menu: Status & Manage -> Server** Filter*

Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc
OCUDR-DR-MP3	Site2_S2_NE_SO	Enabled	Err	Norm	Norm	Norm
OCUDR-DR-MP4	Site2_S2_NE_SO	Enabled	Err	Norm	Norm	Norm
OCUDR-DR-NOAMP-A	Site2_S2_NE_NO	Enabled	Warn	Norm	Norm	Norm
OCUDR-DR-NOAMP-B	Site2_S2_NE_NO	Enabled	Warn	Norm	Norm	Norm
OCUDR-DR-SOAM-A	Site2_S2_NE_SO	Enabled	Norm	Norm	Norm	Norm
OCUDR-DR-SOAM-B	Site2_S2_NE_SO	Enabled	Norm	Norm	Norm	Norm
OCUDR-MP1	Site1_S1_NE_SO	Enabled	Err	Norm	Norm	Norm
OCUDR-MP2	Site1_S1_NE_SO	Enabled	Err	Norm	Norm	Norm
OCUDR-NOAMP-A	Site1_S1_NE_NO	Enabled	Err	Norm	Norm	Norm
OCUDR-NOAMP-B	Site1_S1_NE_NO	Enabled	Norm	Norm	Norm	Norm
OCUDR-SOAM-A	Site1_S1_NE_SO	Enabled	Norm	Norm	Norm	Norm
OCUDR-SOAM-B	Site1_S1_NE_SO	Enabled	Norm	Norm	Norm	Norm

Procedure 19: Backout of DR NOAMP NE

Step	Procedure	Result
5. ☐	**Active NOAMP VIP:** 1) From the **Status & Manage→ Server** filter pull-down, select the name for the **DR NOAMP** NE. 2) Click on the **"GO"** dialogue button located on the right end of the filter bar	
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with the **DR NOAMP** NE. Identify each "**Server Hostname"** and its associated **"Reporting Status"** and **"Appl State"**.	**Main Menu: Status & Manage -> Server (Filtered)** Filter* Server Hostname | Network Element | Appl State | Alm | DB | Reporting Status | Proc OCUDR-DR-NOAMP-A | Site2_S2_NE_NO | Enabled | Warn | Norm | Norm | Norm OCUDR-DR-NOAMP-B | Site2_S2_NE_NO | Enabled | Norm | Norm | Norm | Norm
7. ☐	Using the list of servers associated with the **DR NOAMP** NE shown in the above Step, record the Server names associated with the **DR NOAMP** NE.	Identify the **DR NOAMP "Server"** names and record them in the space provided below: **Standby DR NOAMP: _____** **Active DR NOAMP: _____**
8. ☐	**Active NOAMP VIP:** Execute **Appendix D** for the first **Spare - DR NOAMP Server**	**Backout** the target release for the **Spare DR NOAMP Server** as specified in **Appendix D** *(Backout of a Single Server)*.
9. ☐	**Active NOAMP VIP:** Execute **Appendix D** for the second **Spare - DR NOAMP Server**.	**Backout** the target release for the **Spare DR NOAMP Server** as specified in **Appendix D** *(Backout of a Single Server)*.

Procedure 19: Backout of DR NOAMP NE

Step	Procedure	Result
10. ☐	**Active NOAMP VIP:** Execute Health Check at this time only if no other servers require back Out. Otherwise, proceed with the next Backout	Execute Health Check procedures (Post Backout) as specified in **Appendix B**, if Backout procedures have been completed for all required servers.
THIS PROCEDURE HAS BEEN COMPLETED		

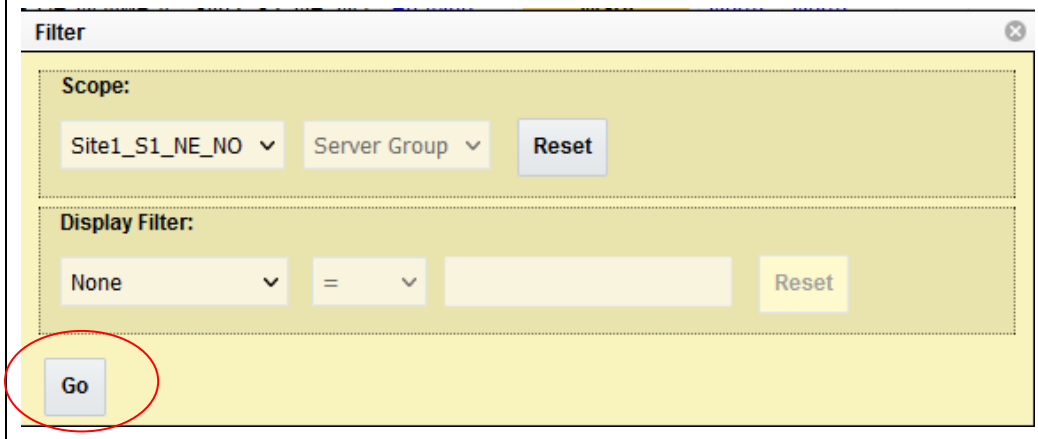
8.5 Backout of Primary NOAMP NE

Procedure 20: Backout of Primary NOAMP NE

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** ***→Network Elements*** …as shown on the right.	**Main Menu: Status & Manage -> Network Elements** Filter* Network Element Name / Customer Router Monitoring Site1_S1_NE_NO — Disabled Site1_S1_NE_SO — Disabled Site2_S2_NE_NO — Disabled Site2_S2_NE_SO — Disabled
3. ☐	Record the name of the **NOAMP** NE to be downgraded (**Backed out**) in the space provided to the right.	Record the name of the **Primary NOAMP** NE which will be **"Backed out"**. **Primary NOAMP NE: _____**
4. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** ***→Server*** …as shown on the right.	**Main Menu: Status & Manage -> Server** Filter*

Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc
OCUDR-DR-MP3	Site2_S2_NE_SO	Enabled	Err	Norm	Norm	Norm
OCUDR-DR-MP4	Site2_S2_NE_SO	Enabled	Err	Norm	Norm	Norm
OCUDR-DR-NOAMP-A	Site2_S2_NE_NO	Enabled	Warn	Norm	Norm	Norm
OCUDR-DR-NOAMP-B	Site2_S2_NE_NO	Enabled	Warn	Norm	Norm	Norm
OCUDR-DR-SOAM-A	Site2_S2_NE_SO	Enabled	Norm	Norm	Norm	Norm
OCUDR-DR-SOAM-B	Site2_S2_NE_SO	Enabled	Norm	Norm	Norm	Norm
OCUDR-MP1	Site1_S1_NE_SO	Enabled	Err	Norm	Norm	Norm
OCUDR-MP2	Site1_S1_NE_SO	Enabled	Err	Norm	Norm	Norm
OCUDR-NOAMP-A	Site1_S1_NE_NO	Enabled	Err	Norm	Norm	Norm
OCUDR-NOAMP-B	Site1_S1_NE_NO	Enabled	Norm	Norm	Norm	Norm
OCUDR-SOAM-A	Site1_S1_NE_SO	Enabled	Norm	Norm	Norm	Norm
OCUDR-SOAM-B	Site1_S1_NE_SO	Enabled	Norm	Norm	Norm	Norm

Procedure 20: Backout of Primary NOAMP NE

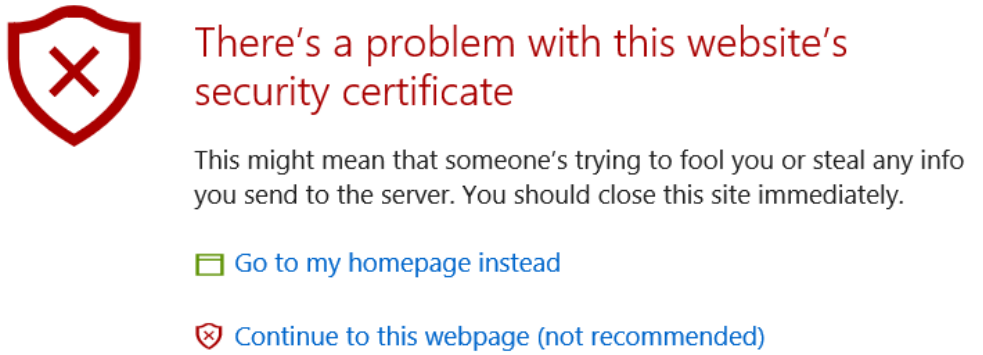
Step	Procedure	Result
5. ☐	**Active NOAMP VIP:** 1) From the **Status & Manage/Server** filter pull-down, select the name for the **Primary NOAMP** NE. 2) Click on the **"GO"** dialogue button located on the right end of the filter bar	
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with the **Primary NOAMP** NE. Identify each "**Server Hostname**" and its associated **"Reporting Status"** and **"Appl State"**.	**Main Menu: Status & Manage -> Server (Filtered)** Filter* | Server Hostname | Network Element | Appl State | Alm | DB | Reporting Status | Proc | | --- | --- | --- | --- | --- | --- | --- | | OCUDR-NOAMP-A | Site1_S1_NE_NO | Enabled | Err | Norm | Norm | Norm | | OCUDR-NOAMP-B | Site1_S1_NE_NO | Enabled | Norm | Norm | Norm | Norm |
7. ☐	Using the list of servers associated with the **Primary NOAMP** NE shown in the above Step... Record the Server names associated with the **Primary NOAMP** NE.	Identify the **Primary NOAMP "Server"** names and record them in the space provided below: **Standby Primary NOAMP: _____** **Active Primary NOAMP: _____**
8. ☐	**Active NOAMP VIP:** Execute Appendix D for the **Standby Primary NOAMP Server**	**Backout** the target release for the **Standby Primary NOAMP Server** as specified in **Appendix D** *(Backout of a Single Server)*.
9. ☐	**Active NOAMP VIP:** Execute Appendix D for the **Active Primary NOAMP Server**.	**Backout** the target release for the **Active Primary NOAMP Server** as specified in **Appendix D** *(Backout of a Single Server)*.

Procedure 20: Backout of Primary NOAMP NE

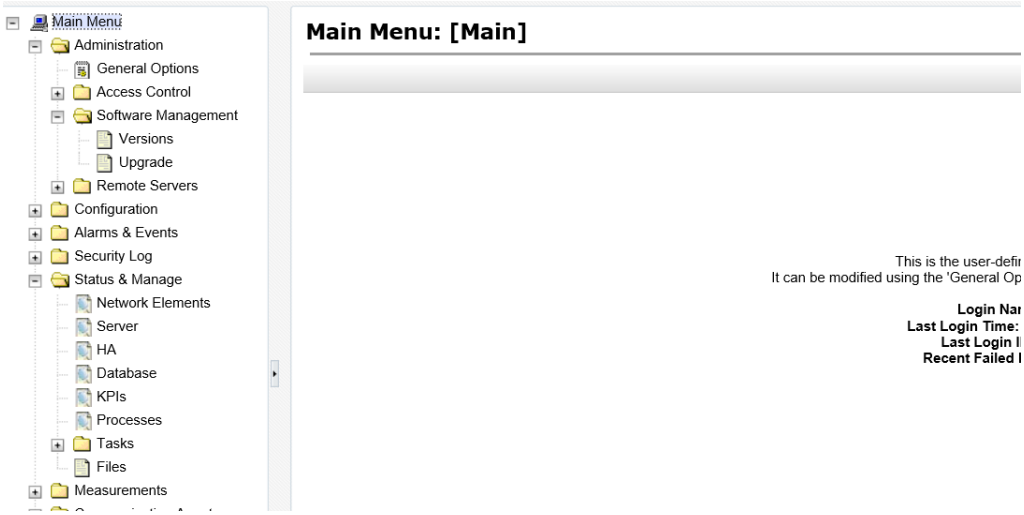
Step	Procedure	Result
10. ☐	**Active NOAMP VIP:** Execute Health Check at this time only if no other servers require backout.	Execute Health Check procedures (Post Backout) as specified in **Appendix B**, if Backout procedures have been completed for all required servers.
THIS PROCEDURE HAS BEEN COMPLETED		

APPENDIX A. ACCESSING THE OAM SERVER GUI (NOAMP / SOAM)

Appendix A: Accessing the OAM Server GUI (NOAMP / SOAM)

Step	Procedure	Result
1. ☐	**Active OAM VIP:** **1)** Launch **Internet Explorer** or other and connect to the XMI Virtual IP address (VIP) assigned to **Active OAM site** **2)** If a Certificate Error is received, click on the box which states… **"Proceed anyway."**	
2. ☐	**Active OAM VIP:** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	

Appendix A: Accessing the OAM Server GUI (NOAMP / SOAM)

Step	Procedure	Result
3. ☐	**Active OAM VIP:** 1) The user should be presented the Main Menu as shown on the right. 2) Verify that the message shown across the top of the right panel indicates that the browser is using the **"VIP"** connected to the **Active** OAM server.	 **NOTE:** *The message may show connection to either a **"ACTIVE NETWORK OAM&P"** or a **"SYSTEM OAM"** depending on the selected NE.*
THIS PROCEDURE HAS BEEN COMPLETED		

APPENDIX B. HEALTH CHECK PROCEDURES

This procedure is part of Software Upgrade Preparation and is used to determine the health and status of the Oracle Communications User Data Repository network and servers.

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

Appendix B: Health Check Procedures

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>1.
☐</td><td>Using the VIP address, access the Primary NOAMP GUI.</td><td>Access the Primary NOAMP GUI as specified in Appendix A.</td></tr>
<tr><td>2.
☐</td><td>Active NOAMP VIP:
Select…

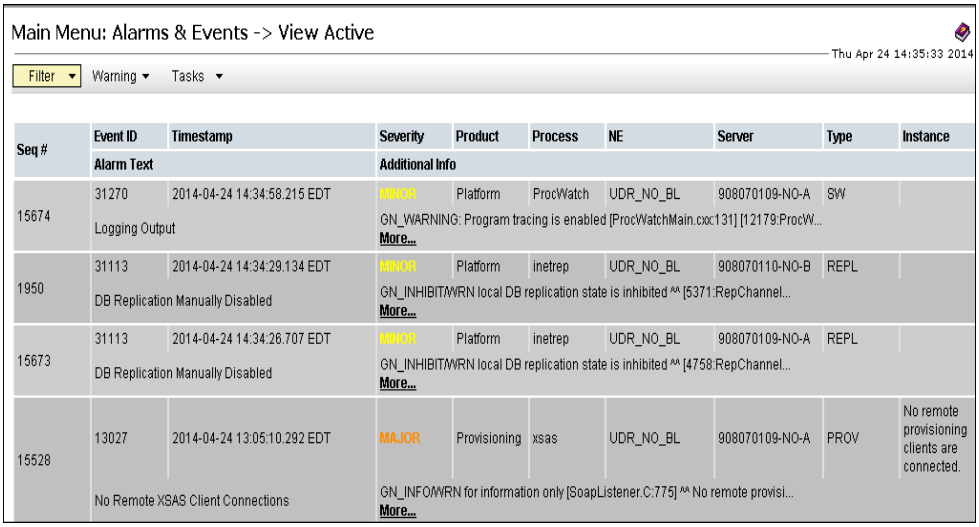
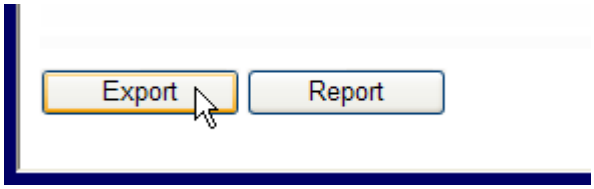
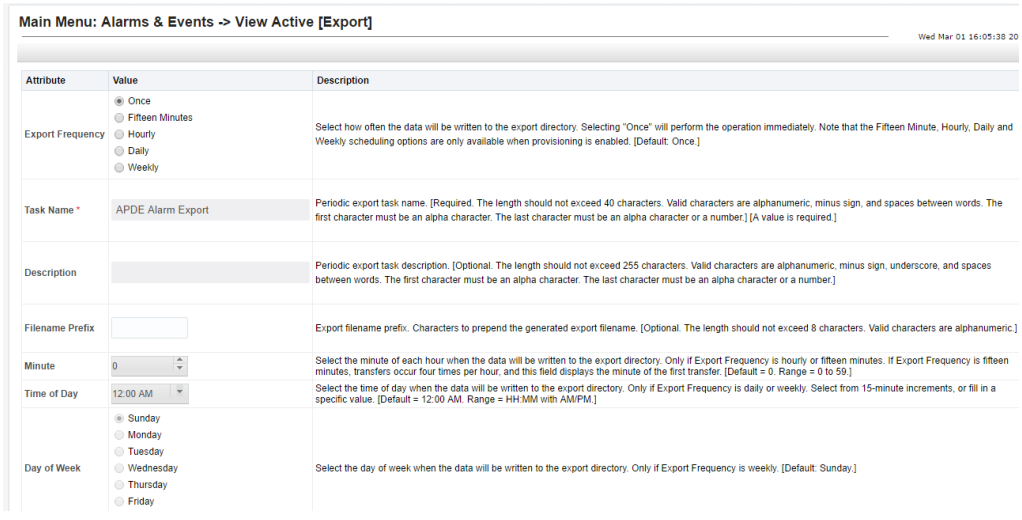
<u>Main Menu</u>
→ Status & Manage
→Server

…as shown on the right.</td><td>Main Menu: Status & Manage -> Server
Filter*
<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-DR-MP3</td><td>Site2_S2_NE_SO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-DR-MP4</td><td>Site2_S2_NE_SO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-DR-NOAMP-A</td><td>Site2_S2_NE_NO</td><td>Enabled</td><td>Warn</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-DR-NOAMP-B</td><td>Site2_S2_NE_NO</td><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-DR-SOAM-A</td><td>Site2_S2_NE_SO</td><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-DR-SOAM-B</td><td>Site2_S2_NE_SO</td><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-MP1</td><td>Site1_S1_NE_SO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-MP2</td><td>Site1_S1_NE_SO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-NOAMP-A</td><td>Site1_S1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-NOAMP-B</td><td>Site1_S1_NE_NO</td><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-SOAM-A</td><td>Site1_S1_NE_SO</td><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-SOAM-B</td><td>Site1_S1_NE_SO</td><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr></table>Verify that all server statuses show “Norm “as shown above.</td></tr>
<tr><td>3.
☐</td><td>Active NOAMP VIP:

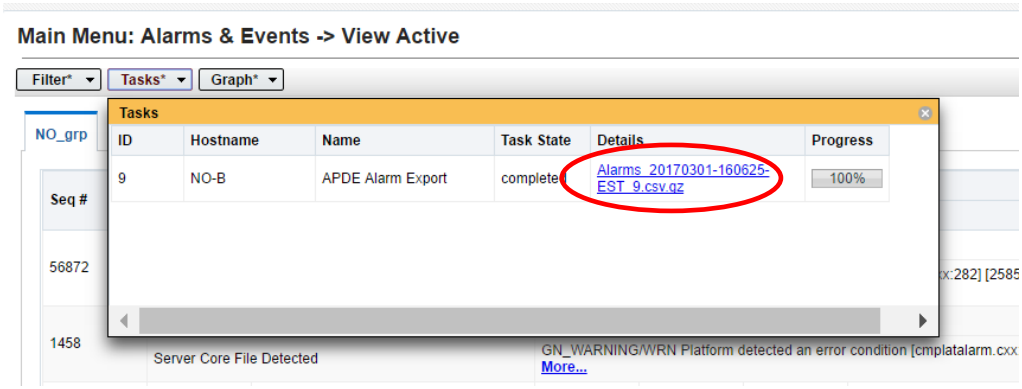
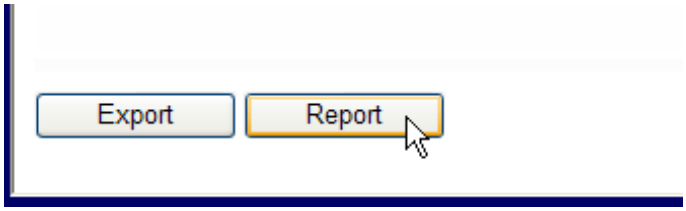
If any other server statuses are present, they will appear in a colored box as shown on the right.

NOTE: Other server states include “Err, Warn, Man, Unk and Disabled”.</td><td>Main Menu: Status & Manage -> Server
Filter*
<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-DR-MP3</td><td>Site2_S2_NE_SO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-DR-MP4</td><td>Site2_S2_NE_SO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-DR-NOAMP-A</td><td>Site2_S2_NE_NO</td><td>Enabled</td><td>Warn</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-DR-NOAMP-B</td><td>Site2_S2_NE_NO</td><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-DR-SOAM-A</td><td>Site2_S2_NE_SO</td><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-DR-SOAM-B</td><td>Site2_S2_NE_SO</td><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-MP1</td><td>Site1_S1_NE_SO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-MP2</td><td>Site1_S1_NE_SO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-NOAMP-A</td><td>Site1_S1_NE_NO</td><td>Enabled</td><td>Err</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-NOAMP-B</td><td>Site1_S1_NE_NO</td><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-SOAM-A</td><td>Site1_S1_NE_SO</td><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr><tr><td>OCUDR-SOAM-B</td><td>Site1_S1_NE_SO</td><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td><td>Norm</td></tr></table>If server state is any value besides NORM, follow My Oracle Support (MOS) to contact My Oracle Support.</td></tr>
</table>

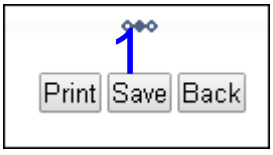
Appendix B: Health Check Procedures

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Alarm & Events** **→*View Active*** …as shown on the right.	
5. ☐	**Active NOAMP VIP:** Select the **"Export"** dialogue button from the bottom left corner of the screen.	 **Note: This step cannot be performed if global provisioning is disabled. The "export" button will be grayed out in that scenario.**
6. ☐	**Active NOAMP VIP:** Click the **"Ok"** button at the bottom of the screen. Default values are fine.	

Appendix B: Health Check Procedures

Step	Procedure	Result
7. ☐	**Active NOAMP VIP:** Click the **Tasks** dropdown. The name of the exported Alarms CSV file will appear in the banner at the top of the right panel.	
8. ☐	**Active NOAMP VIP:** Record the filename of Alarms CSV file generated in the space provided to the right.	Example: *Alarms<yyyymmdd>_<hhmmss>.csv* Alarms _____ _ _____ .csv
9. ☐	**Active NOAMP VIP:** Select the **"Report"** dialogue button from the bottom left corner of the screen.	

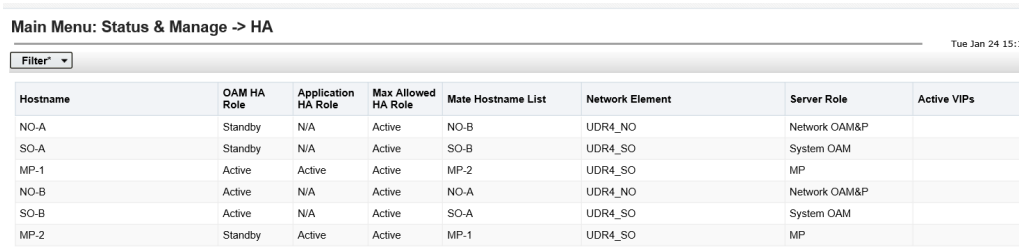
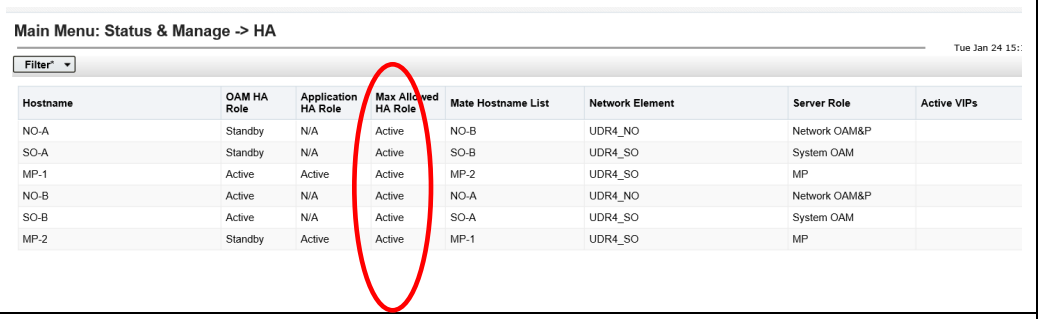
Appendix B: Health Check Procedures

Step	Procedure	Result
10. ☐	**Active NOAMP VIP:** **Active "Alarms & Events" Report** will be generated and displayed in the right panel.	**Main Menu: Alarms & Events -> View Active [Report]** Main Menu: Alarms & Events -> View Active [Report] Wed Mar 01 16:08:11 2017 EST TIMESTAMP: 2017-03-01 16:07:49.971 EST NETWORK_ELEMENT: UDR2_NO SERVER: NO-B SEQ_NUM: 56878 EVENT_NUMBER: 31270 SEVERITY: MINOR PRODUCT: Platform PROCESS: ProcWatch TYPE: SW INSTANCE: NAME: Logging Output DESCR: Logging Output set to Above Normal ERR_INFO: GN_WARNING: Program tracing is enabled [ProcWatchMain.cxx:282] [25857:ProcWatchMain.cxx:283] NSECS: 1598159982881848712 ID: 0 TIMESTAMP: 2017-03-01 05:58:12.010 EST NETWORK_ELEMENT: UDR2_SO SERVER: SO-A SEQ_NUM: 1458 EVENT_NUMBER: 32508 SEVERITY: MINOR PRODUCT: TPD PROCESS: cmplatalarm TYPE: PLAT Print Save Back
11. ☐	**Active NOAMP VIP:** **1)** Select the **"Save"** dialogue button from the bottom/middle of the right panel. **2)** Click the **"Save"** dialogue and save to a directory.	
12. ☐	**Active NOAMP VIP:** Select… **<u>Main Menu</u>** **→ Configuration** ***→Network Elements*** …as shown on the right.	**Main Menu: Status & Manage -> Network Elements** Filter* | Network Element Name | Customer Router Monitoring | | --- | --- | | UDR4_NO | Disabled | | UDR4_SO | Disabled |

Appendix B: Health Check Procedures

Step	Procedure	Result
13. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Configuration** **→*Server Groups*** …as shown on the right.	**Main Menu: Configuration -> Server Groups** Filter" Server Group Name | Level | Parent | Function | Connection Count | Servers MP_grp | C | SO_grp | UDR-MP (multi-active cluster) | 1 | Network Element: UDR4_SO NE HA Pref: DEFAULT — Server: MP-1, MP-2 (Node HA Pref, VIPs) NO_grp | A | NONE | UDR-NO | 8 | Network Element: UDR4_NO NE HA Pref: DEFAULT — Server: NO-A, NO-B (Node HA Pref, VIPs) SO_grp | B | NO_grp | NONE | 8 | Network Element: UDR4_SO NE HA Pref: DEFAULT — Server: SO-A, SO-B (Node HA Pref, VIPs)
14. ☐	**Active NOAMP VIP:** Select the **"Report"** dialogue button from the bottom left corner of the screen.	Insert Edit Delete Report
15. ☐	**Active NOAMP VIP:** A **"Server Group Report"** will be generated and displayed in the right panel.	**Main Menu: Configuration -> Server Groups [Report]** Main Menu: Configuration -> Server Groups [Report] Wed Mar 01 16:09:45 2017 EST Name: MP_grp Level: C Connection Count: 8 Parent: SO_grp Function: UDR-MP (multi-active cluster) Servers: MP-1: [HA Role Pref: DEFAULT, NE: UDR2_SO, NE HA Pref: DEFAULT] MP-2: [HA Role Pref: DEFAULT, NE: UDR2_SO, NE HA Pref: DEFAULT] Vips: Name: NO_grp Level: A Connection Count: 8 Parent: NONE Function: UDR-NO Servers: NO-A: [HA Role Pref: DEFAULT, NE: UDR2_NO, NE HA Pref: DEFAULT] NO-B: [HA Role Pref: DEFAULT, NE: UDR2_NO, NE HA Pref: DEFAULT] Vips: 10.75.183.218: [NE: UDR2_NO]

Appendix B: Health Check Procedures

Step	Procedure	Result
16. ☐	**Active NOAMP VIP:** **1)** Select the **"Save"** dialogue button from the bottom/middle of the right panel. **2)** Click the **"Save"** dialogue and save to a directory.	
17. ☐	Provide the saved files to the Customer Care Center for Health Check Analysis.	If executing this procedure as a pre or post Upgrade Health Check (HC1/HC2/HC3), provide the following saved files to the Customer Care Center for proper Health Check Analysis: ***Active "Alarms & Events" Report*** *[Appendix B, Step 11]* ***Network Elements Report*** *[Appendix B, Step 1]* ***Server Group Report*** *[Appendix B, Step 16]*
18. ☐	**Active NOAMP VIP:** Select… **<u>Main Menu</u>** **→ Status & Manage →*HA*** …as shown on the right.	
19. ☐	**Active NOAMP VIP:** **1)** Verify that the **"HA Status"** for all servers shows either **"Active"** or **"Standby"** as shown to the right.	
20. ☐	**Active NOAMP VIP:** Repeat **Step 19** of this procedure until the last page of the **[Main Menu: *Status & Manage →HA*]** screen is reached.	Verify the **"HA Status"** for each page of the **[Main Menu: *Status & Manage →HA*]** screen and click "**Next**" to reach the next page.
STEP 21 IS POST-UPGRADE ONLY		

Appendix B: Health Check Procedures

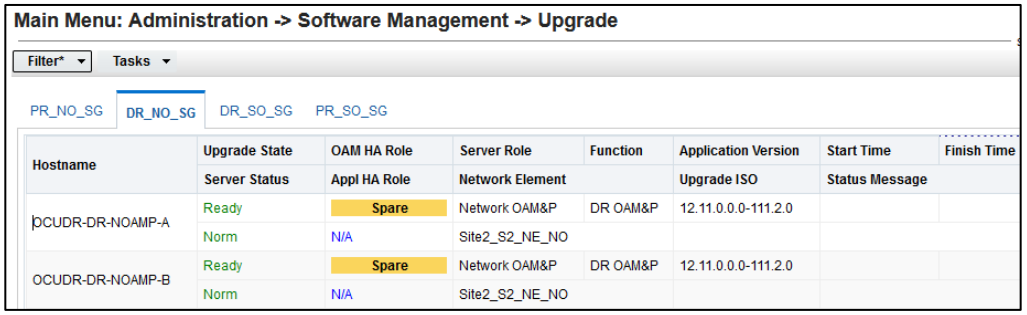
Step	Procedure	Result
21. ☐	**Active NOAMP VIP:** Determine if any errors were reported.	Use an SSH client to connect to the recently upgraded server(s) (e.g., ssh, putty): **ssh< server IMI IP address>** **login as: admusr** **password: <enter password>** Switch to root **su –** password: **<enter password>** **# verifyUpgrade** Examine the output of the above command to determine if any errors were reported. Contact the Oracle CGBU Customer Care Center in case of errors.
THIS PROCEDURE HAS BEEN COMPLETED		

APPENDIX C. UPGRADE OF A SERVER [VM TO VM – UDR-12.11.3/12.11.4/12.11.15/15.0.0 TO UDR-15.0.1]

C.1 OL6 to OL8 Upgrade

Appendix C.1: Upgrade Server

Note: During "Fatal Error" the server cannot be recovered, and you need to rebuild the server again with the same UDR release of its mate server. During normal failure the system can be recovered with the following command:
/var/TKLC/backout/diUpgrade –clearError

Step	Procedure	Result
1.	Resize the disk size of server	Use the **Appendix H** for resizing the disk of a server before initiating upgrade **Note: After rezise If you observe any alarm related to disk space shortage ,then extend the memory to that volume to clear the alarm**
2. ☐	Using the **VIP** address, access the Active NOAMP.	Access the Primary NOAMP GUI as specified in **Appendix A.** **NOTE:** Please ensure there are no users under /var/TKLC/db/filemgmt directory on server to be upgraded
3. ☐	**Active NOAMP VIP:** **1)** Select… **Main Menu** **→ Administration** **→Software Management** **→ Upgrade** **2)** Select server group tab for server(s) to be upgraded. **3)** Verify that the **Upgrade State** shows **"Ready"** for the server(s) to be upgraded. **4)** Verify the **Application Version** value for server(s) is the source software release version	

Appendix C.1: Upgrade Server

Note: During "Fatal Error" the server cannot be recovered, and you need to rebuild the server again with the same UDR release of its mate server. During normal failure the system can be recovered with the following command:
/var/TKLC/backout/diUpgrade –clearError

Step	Procedure	Result
4. ☐	**Server IMI IP (SSH):** SSH to server and login as root user	Use your SSH client to connect to the server (ex. ssh, putty): **ssh<server address>** login as: **admusr** password: **<enter password>** Switch to root **su –** password: **<enter password>**
5.	Copy and mount TPD 7.4 based ISO to the UDR server which is to be upgrded	**# cp /var/TKLC/db/filemgmt/TPD.install-8.0.0.0.0_90.13.0-OracleLinux7.4-x86_64-DIU.iso /var/TKLC/upgrade/** **# chmod 777 /var/TKLC/upgrade/TPD.install-8.0.0.0.0_90.13.0-OracleLinux7.4-x86_64-DIU.iso** **# mount /var/TKLC/upgrade/TPD.install-8.0.0.0.0_90.13.0-OracleLinux7.4-x86_64-DIU.iso /mnt/upgrade -o loop** **Note:** Please download DIU ISO from mos and upload to server at filemgmt area using **ISO** Administration and then copy to path: /var/TKLC/upgrade on server to upgrade.
6. ☐	Make a directory, copy UDR DIU ISO and mount it	**# mkdir /var/TKLC/ol8_diu** Note: copy application DIU iso in filemgmt location as iso is >9 GB **# mount /var/TKLC/db/filemgmt/UDR-15.0.0.0.0_115.10.0-x86_64-DIU.iso /var/TKLC/ol8_diu -o loop**

Appendix C.1: Upgrade Server

Note: During "Fatal Error" the server cannot be recovered, and you need to rebuild the server again with the same UDR release of its mate server. During normal failure the system can be recovered with the following command:
/var/TKLC/backout/diUpgrade –clearError

Step	Procedure	Result

7.	Install and then apply upgrade of TPD 7.4 first	**# alarmMgr --clear 32509;alarmMgr --clear 32500**
		
		# /mnt/upgrade/upgrade/diUpgrade --install --ignoreDevCheck --debug
		
		Output:
		`Migrating 152 directories`
		`Migrating 845 files`
		`Migrating 1 symlinks`
		`Image install complete`
		`########################################`
		`#  INSTALL COMPLETE  #`
		`########################################`
		`Transitioning from 'Installing Upgrade' to 'Ready to Apply Upgrade'`
		`[root@OCUDR-DR-NOAMP-A filemgmt]#`
		
		# alarmMgr --clear 32509;alarmMgr --clear 32500
		
		# /var/TKLC/backout/diUpgrade --apply --ignoreDevCheck --debug
		
		Output:
		`[root@OCUDR-DR-NOAMP-A filemgmt]# /var/TKLC/backout/diUpgrade --apply --ignoreDevCheck -debug`
		`Resuming from state STATE_READY_TO_APPLY`
		`Transitioning from 'Ready to Apply Upgrade' to 'Applying Upgrade'`
		`####################################`
		`#  APPLY INITIATED  #`
		`####################################`
		`APPLY START TIME: Sat Sep 30 07:11:24 2023 EDT (11:11:24 UTC)`
		`Validating image pre-apply`
		`/mnt/upgrade/images/plat_root.gz`
		`/mnt/upgrade/images/plat_usr.gz`
		`/mnt/upgrade/images/plat_var.gz`
		`/mnt/upgrade/images/plat_var_tklc.gz`
		`Migrating 1 symlinks`
		`Enabling service upgrade...`
		`Converting from MBR to GPT`
		`Updating bootloader...`
		`Add md uuid to grub...`
		`Unmounting images...`
		`Performing reboot...`
		`Inhibiting upgrade services...`
		`Allowing upgrade services...`
		`[root@OCUDR-DR-NOAMP-A filemgmt]#`
		`login as: admusr`
		`admusr@10.75.180.18's password:`
		`Last login: Sat Sep 30 06:44:19 2023 from 10.69.110.163`
		`OCUDR VM from OVA file`
		`|============================================================|`
		`| This system has been upgraded but the upgrade has not yet  |`
		`| been accepted or rejected.  Please accept or reject the    |`
		`| upgrade soon.                                               |`
		`|============================================================|`
		`[admusr@ocudr-dr-noamp-a ~]$`
		
		Note: Server reboots after 'apply upgrade' finishes.

Appendix C.1: Upgrade Server

Note: During "Fatal Error" the server cannot be recovered, and you need to rebuild the server again with the same UDR release of its mate server. During normal failure the system can be recovered with the following command:
/var/TKLC/backout/diUpgrade –clearError

Step	Procedure	Result

8.	Accept upgrade of TPD 7.4	**Note:** Before accepting, please make sure 'Upgrade Applied' state is shown, use below command to show the status:
		# /var/TKLC/backout/diUpgrade --status
		Output:
		`[root@ocudr-dr-noamp-a admusr]# /var/TKLC/backout/diUpgrade --status`
		`State: Upgrade Applied`
		`Status Messages:`
		`- Performing early checks`
		`- Downloading upgrade data`
		`- Verifying image`
		`- Performing image pre-install`
		`- Configuring images`
		`- Identifying resources`
		`- Reserving image storage`
		`- Installing image`
		`- Performing image post-install`
		`- Verifying configuration sanity`
		`- Image install complete`
		`- Validating image pre-apply`
		`- Performing image pre-apply`
		`- Applying image`
		`- Performing configuration export`
		`- Performing image post-apply`
		`- Image Apply Complete`
		`[root@ocudr-dr-noamp-a admusr]#`
		Note: If we don't need to proceed further upgrade then we can reject the upgrade at this stage, using below step
		# /var/TKLC/backout/diUpgrade –reject
		Skip the above step if we want to continue upgrade
		# /var/TKLC/backout/diUpgrade --accept
		Output:
		`[root@ocudr-dr-noamp-a admusr]# /var/TKLC/backout/diUpgrade --accept`
		`Resuming from state STATE_UPGRADE_APPLIED`
		`Transitioning from 'Upgrade Applied' to 'Accepting Upgrade'`
		`Enabling service rebootcheck...`
		`########################################`
		`#  ACCEPT INITIATED  #`
		`########################################`
		`ACCEPT START TIME: Sat Sep 30 07:21:23 2023 EDT (11:21:23 UTC)`
		`Validating image pre-accept`
		`Performing image post-accept`
		`Running postAccept() for DIUpgrade::Policy::P20TPD upgrade policy...`
		`Running postAccept() for DIUpgrade::Policy::P36APPappworks upgrade policy...`
		`Running postAccept() for DIUpgrade::Policy::P38APPawpcommon upgrade policy...`
		`Running postAccept() for DIUpgrade::Policy::P39APPdpi upgrade policy...`
		`Running postAccept() for DIUpgrade::Policy::P42APPcomagent upgrade policy...`
		`Running postAccept() for DIUpgrade::Policy::P43APPccl upgrade policy...`
		`Running postAccept() for DIUpgrade::Policy::P50APPudr upgrade policy...`
		`Creating alarm script: /tmp/vu3svF51J1`
		`########################################`
		`#  ACCEPT COMPLETE  #`
		`########################################`
		`Check is rebootcheck is enabled ...`
		`Disabling service rebootcheck...`
		`Transitioning from 'Accepting Upgrade' to 'No Upgrade Available'`
		`Inhibiting upgrade services...`
		`Allowing upgrade services...`
		`Cleaning backout directory.`
		`[root@ocudr-dr-noamp-a admusr]#`

Appendix C.1: Upgrade Server

Note: During "Fatal Error" the server cannot be recovered, and you need to rebuild the server again with the same UDR release of its mate server. During normal failure the system can be recovered with the following command:
/var/TKLC/backout/diUpgrade –clearError

Step	Procedure	Result
9.	Update fstab and re-create filemgmt directory	**# vim /etc/fstab** Add below line at bottom /dev/vgroot/filemgmt /var/TKLC/db/filemgmt ext4 defaults 1 2 **# mkdir -p /var/TKLC/db/filemgmt** **# mount -a**

Appendix C.1: Upgrade Server

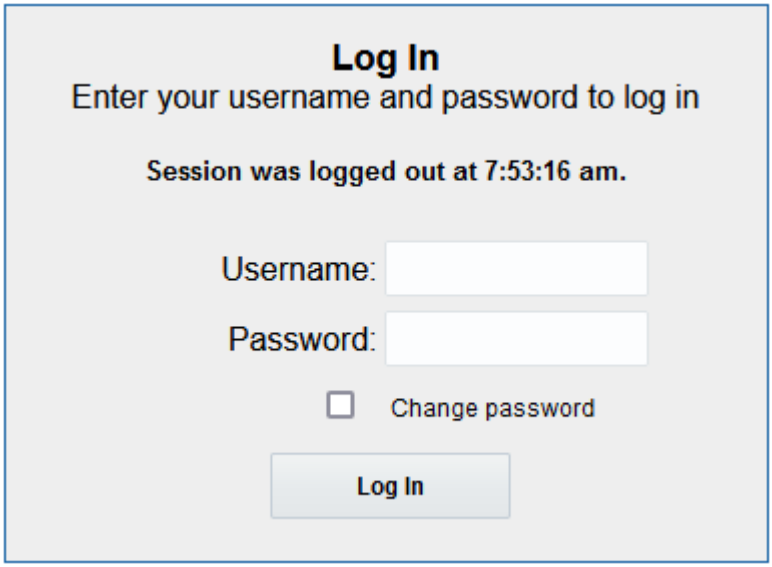
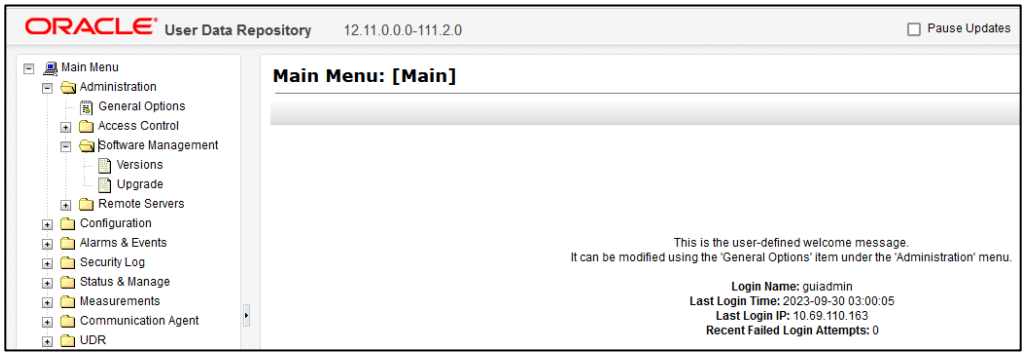
Note: During "Fatal Error" the server cannot be recovered, and you need to rebuild the server again with the same UDR release of its mate server. During normal failure the system can be recovered with the following command:
/var/TKLC/backout/diUpgrade –clearError

Step	Procedure	Result

10.	Mount UDR DIU iso and first install and then upgrade	**# mount /var/TKLC/db/filemgmt/UDR-15.0.0.0.0_115.10.0-x86_64-DIU.iso /mnt/upgrade -o loop**
		# alarmMgr --clear 32509;alarmMgr --clear 32500
		# /mnt/upgrade/upgrade/diUpgrade --install --ignoreDevCheck --debug
		Output:
		`Migrating 76 directories`
		`Migrating 372 files`
		`Migrating 1 symlinks`
		`Image install complete`
		`####################################`
		`#  INSTALL COMPLETE  #`
		`####################################`
		`Transitioning from 'Installing Upgrade' to 'Ready to Apply Upgrade'`
		`[root@ocudr-dr-noamp-a admusr]#`
		
		# alarmMgr --clear 32509;alarmMgr --clear 32500
		# /var/TKLC/backout/diUpgrade --apply --ignoreDevCheck --debug
		Output:
		`[root@OCUDR-DR-NOAMP-A admusr]# /var/TKLC/backout/diUpgrade --status`
		`State: Upgrade Applied`
		`Status Messages:`
		`- Performing early checks`
		`- Downloading upgrade data`
		`- Verifying image`
		`- Performing image pre-install`
		`- Configuring images`
		`- Identifying resources`
		`- Reserving image storage`
		`- Installing image`
		`- Performing image post-install`
		`- Verifying configuration sanity`
		`- Image install complete`
		`- Validating image pre-apply`
		`- Performing image pre-apply`
		`- Applying image`
		`- Performing configuration export`
		`- Performing image post-apply`
		`- Image Apply Complete`
		`[root@OCUDR-DR-NOAMP-A admusr]#`
		NOTE:1: After reboots, upgrade post apply takes time so keep checking status on console.
		NOTE:2: During the upgrade, you might see the following expected alarms. Not all servers have all alarms:
		Alarm ID = **31101**(DB Replication to a slave DB has failed)
		Alarm ID = **31106**(DB Merging to a parent Merge Node has failed)
		Alarm ID = **31107**(DB Merging from a child source Node has failed)
		Alarm ID = **31114** (DB Replication of configuration data via …)
		Alarm ID = **13071** No northbound Provisioning Connections)
		Alarm ID = **10073** (Server Group Max Allowed HA Role Warning)
		Alarm ID = **10075** (Application processes have been manually stopped)
		Alarm ID = **32515** (Server HA Failover Inhibited)
		Alarm ID = **31283** (HA Highly available server failed to receive)
		Alarm ID = **31226** (The High Availability Status is degraded)

Appendix C.1: Upgrade Server

Note: During "Fatal Error" the server cannot be recovered, and you need to rebuild the server again with the same UDR release of its mate server. During normal failure the system can be recovered with the following command:
/var/TKLC/backout/diUpgrade –clearError

Step	Procedure	Result
11. ☐	**Active NOAMP VIP:** **** For Active NOAMP only – Once the User completes Step 9,** Login to the GUI using the default user and password.	
12. ☐	**Active NOAM VIP:** **** For Active NOAMP only** The user should be presented the Main Menu as shown on the right. Verify that the message shown across the top of the right panel indicates that the browser is using the **"VIP"** connected to the **Active Network OAM&P** server.	

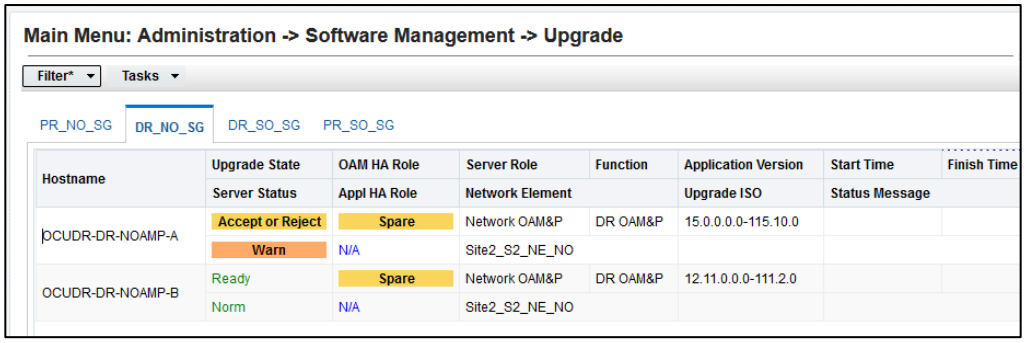
Appendix C.1: Upgrade Server

Note: During "Fatal Error" the server cannot be recovered, and you need to rebuild the server again with the same UDR release of its mate server. During normal failure the system can be recovered with the following command:
/var/TKLC/backout/diUpgrade –clearError

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>13.

</td><td>Active NOAMP VIP:

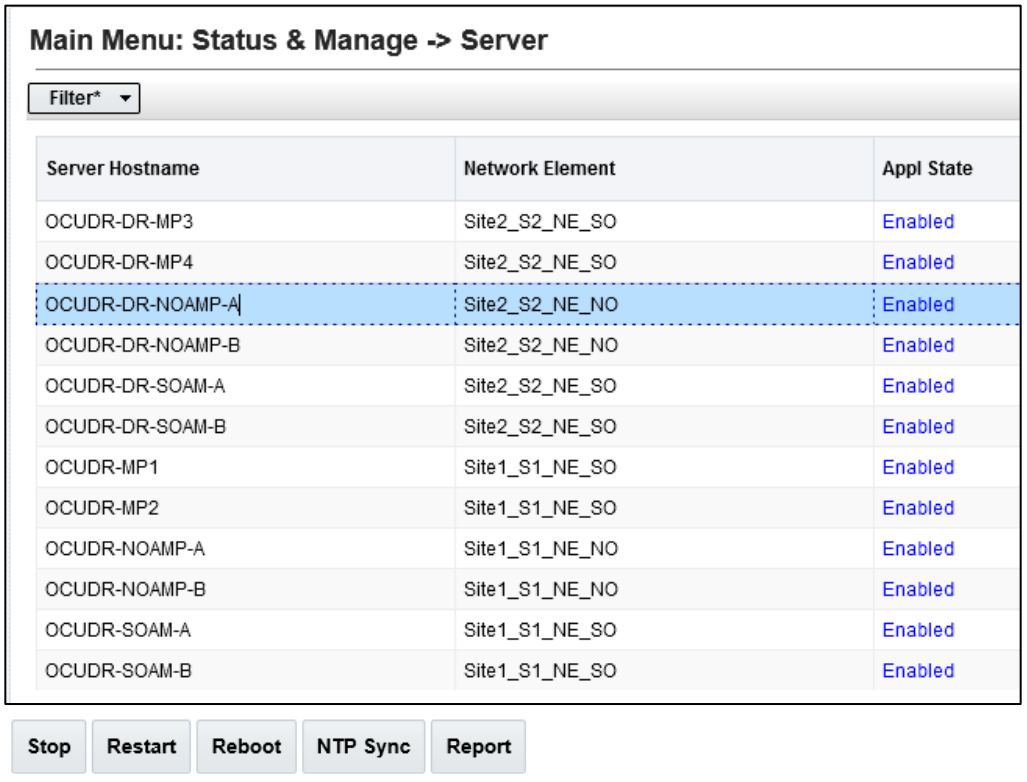
1) Select the appropriate tab (NO_SG, MP_SG or SO_SG) and select the row containing the hostname of the server that was upgraded.

2) Verify that the Status Message shows “Success” and “Upgrade State” is “Accept or Reject”</td><td> 

Note: If the upgrade status indicates “Server could not restart the application to complete the upgrade” and alarm 10134 –Server Upgrade Failed” appears; ensure replication is up for (use irepstat command on active server and verify status is “active”):
The Status to change to “Success”
Alarm 10134 to clear</td></tr>
<tr><td>14.

</td><td>1) If upgrade status still indicates that “Server could not restart the application to complete the upgrade, restart the server by clicking the “Restart” button.

2) Verify that the Status Message shows “Success” and “Upgrade State” is “Accept or Reject”</td><td>Restart Server that is being upgraded from Main Menu->Status & Manage -> Server screen

 
</td></tr>
</table>

Appendix C.1: Upgrade Server

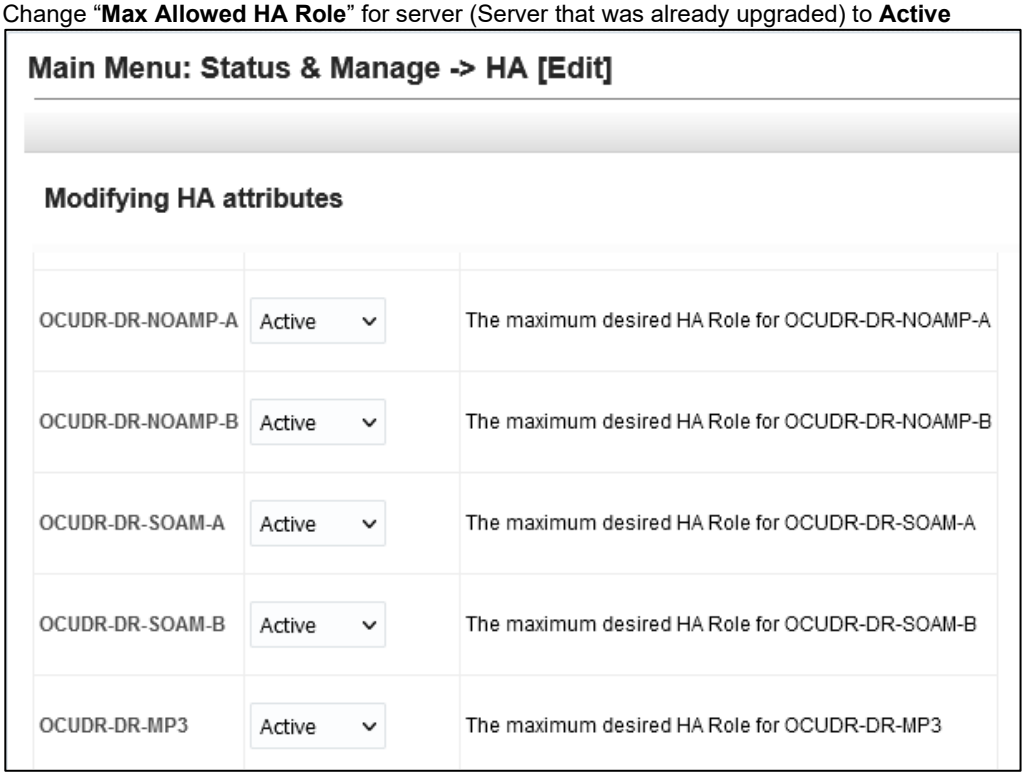
Note: During "Fatal Error" the server cannot be recovered, and you need to rebuild the server again with the same UDR release of its mate server. During normal failure the system can be recovered with the following command:
/var/TKLC/backout/diUpgrade –clearError

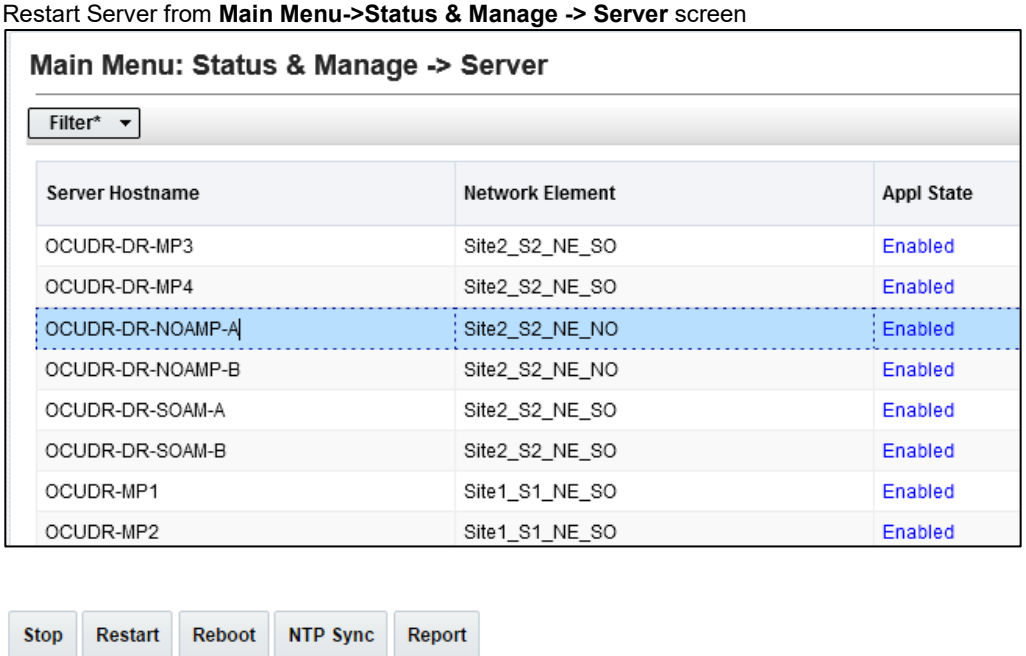
<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr>
<td>15.

☐</td>
<td>Active NOAMP VIP:

Select…

<u>Main Menu</u>
→ Status & Manage
→HA [Edit]</td>
<td>NOTE: Only execute the following step if “Upgrade State” is “DEGRADED”.

Change “Max Allowed HA Role” for server (Server that was already upgraded) to Active
 

Restart Server from Main Menu->Status & Manage -> Server screen
 
</td>
</tr>
</table>

Appendix C.1: Upgrade Server

Note: During "Fatal Error" the server cannot be recovered, and you need to rebuild the server again with the same UDR release of its mate server. During normal failure the system can be recovered with the following command:
/var/TKLC/backout/diUpgrade –clearError

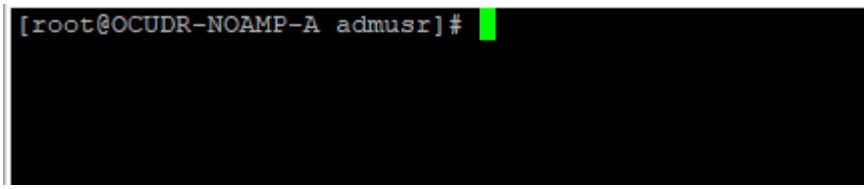
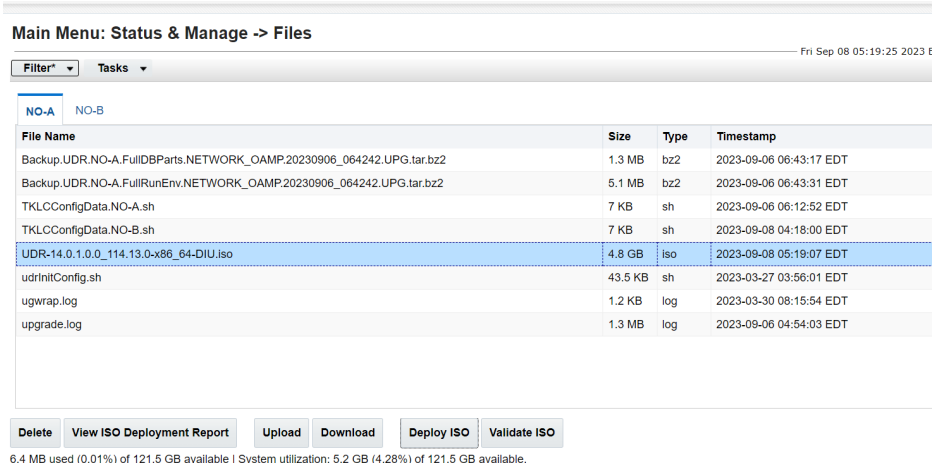
Step	Procedure	Result
16. ☐	**Active NOAMP VIP:** View post-upgrade status	View post-upgrade status of the server(s): (The following alarms may be present) Active NO server will have the following expected alarms: Alarm ID = 13071 (No Northbound Provisioning Connections) You may also see the alarm: Alarm ID = 32532 (Server Upgrade Pending Accept/Reject) You may also see this alarm due to DRNO *servers Max Allowed HA Role being set to standby* in Procedure 7. Alarm ID =10073 (Server Group Max Allowed HA Role Warning)
17. ☐	**Active NOAMP VIP:** Clear browser cache	JavaScript libraries, images and other objects are often modified in the upgrade. Browsers can sometimes cause GUI problems by holding on to the old objects in the built-in cache. To prevent these problems always clear the browser cache before logging in to an NO or SO which has been upgraded: Simultaneously hold down the Ctrl, Shift and Delete keys. Select the appropriate type of objects and delete from the cache via the pop-up dialog. For Internet Explorer the relevant object type is “Temporary Internet Files”. Other browsers may label these objects differently.
THIS PROCEDURE HAS BEEN COMPLETED		

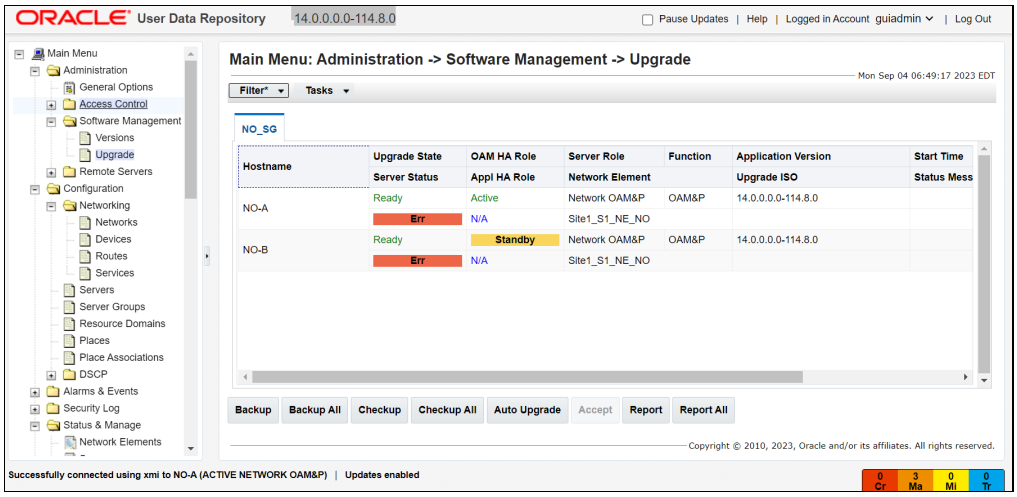
C.2 OL8 To OL8 Upgrade

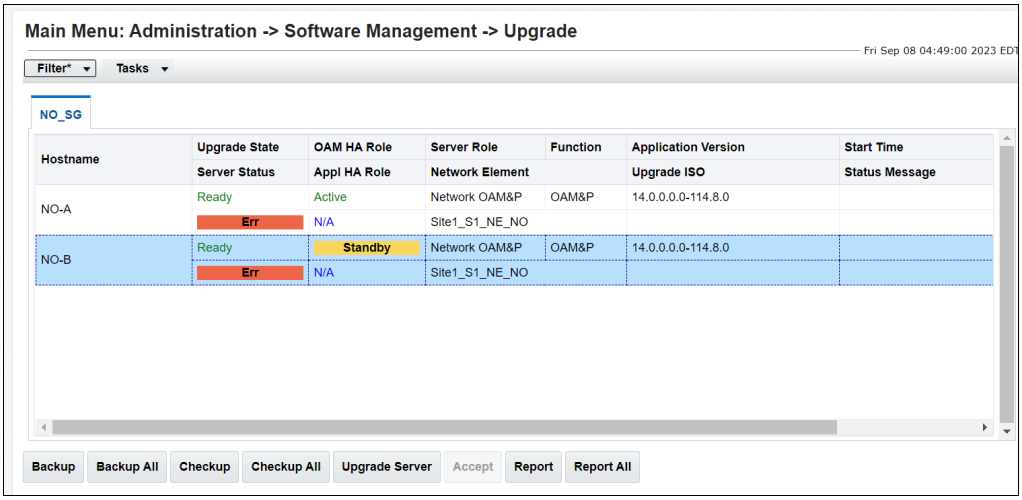
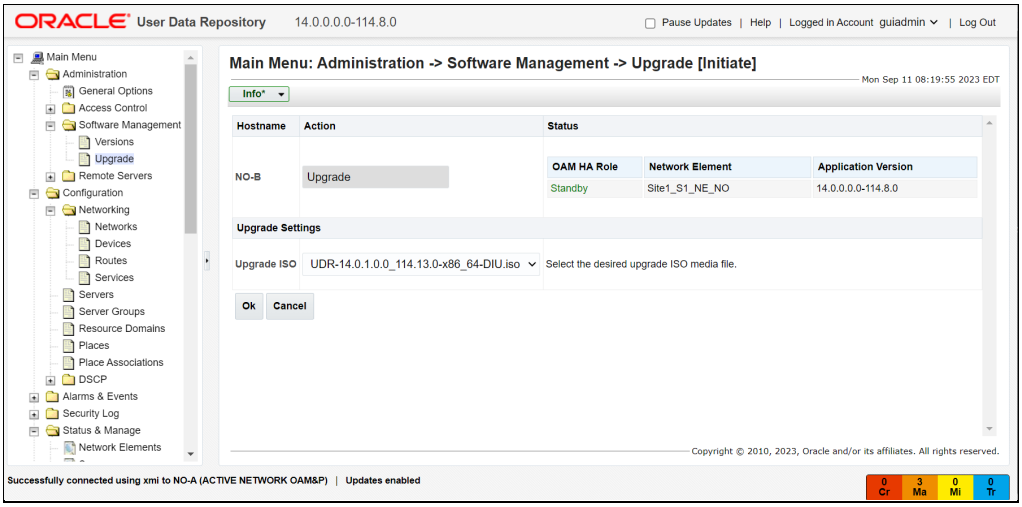
Appendix C.2: OL8 to OL8 Upgrade

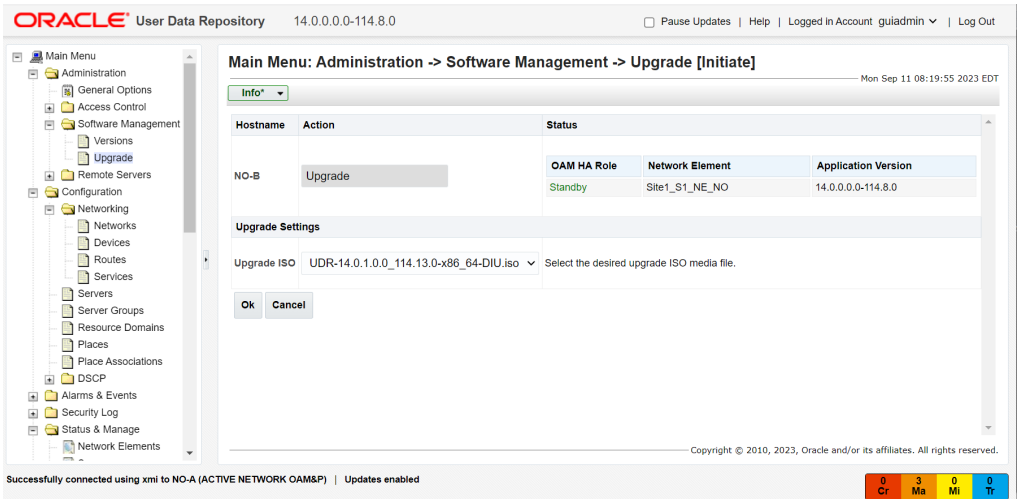
This procedure explains the steps of upgrading OL8 based TPD server to OL8 based TPD server

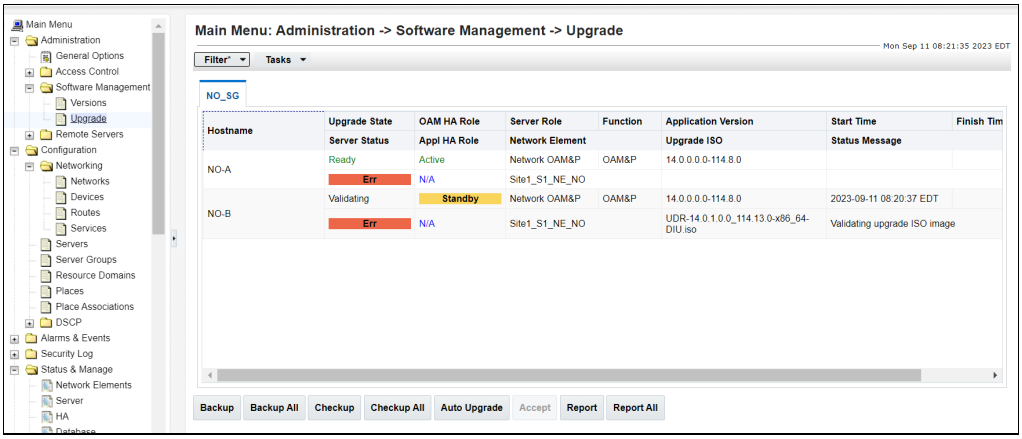
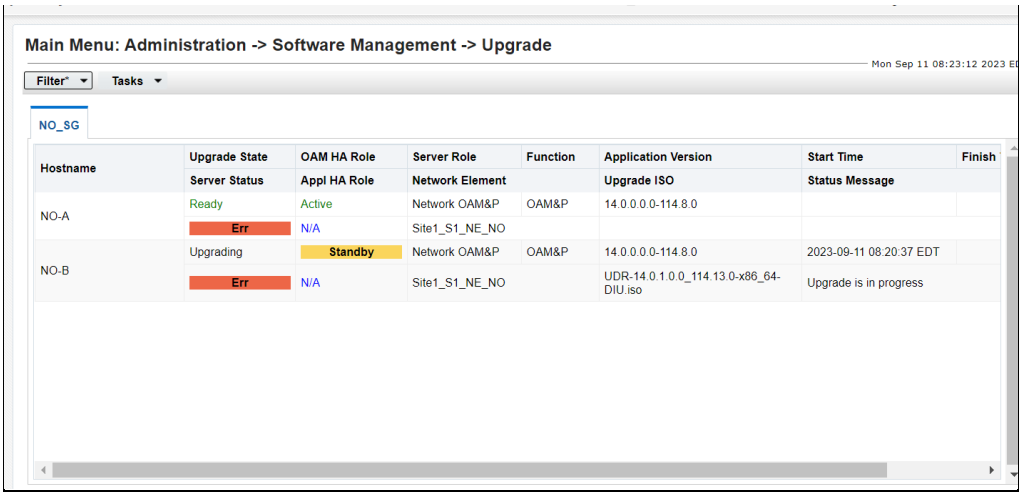
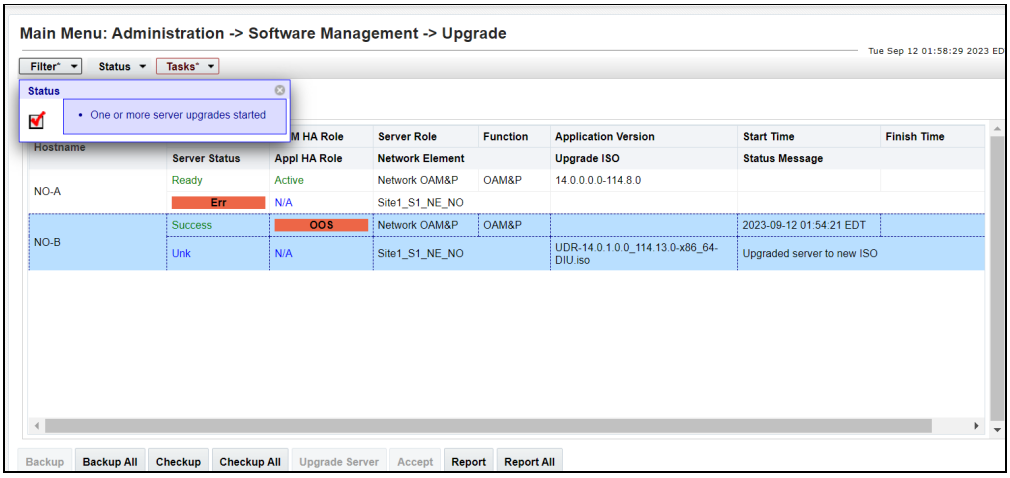
Procedure 21: Upgrade Server

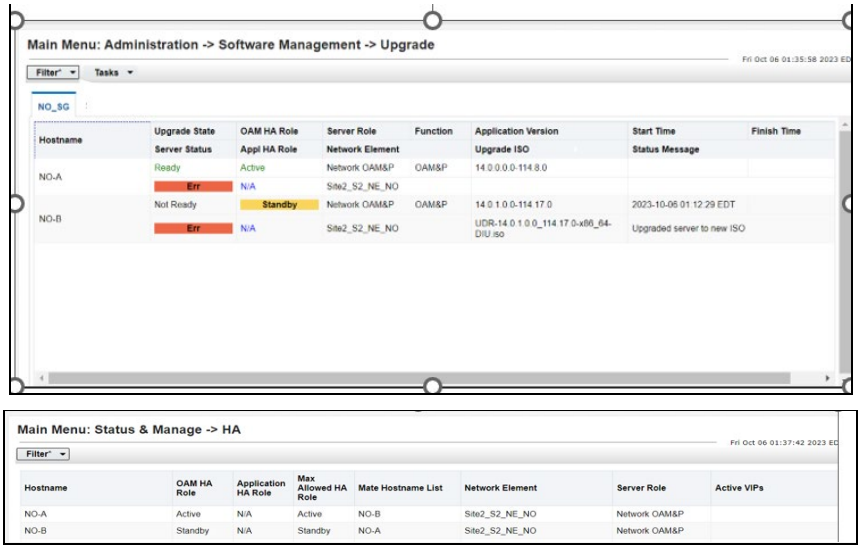
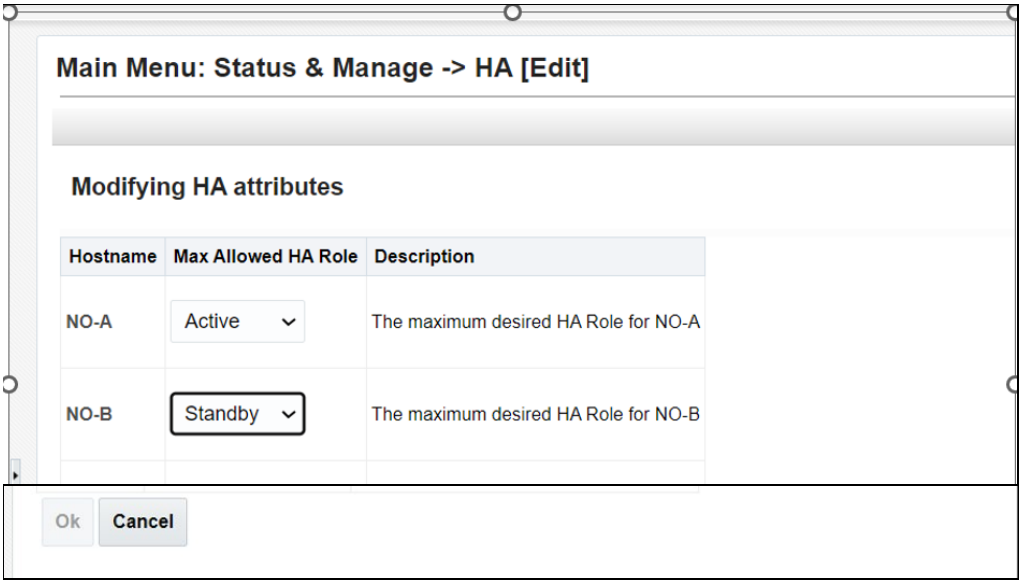
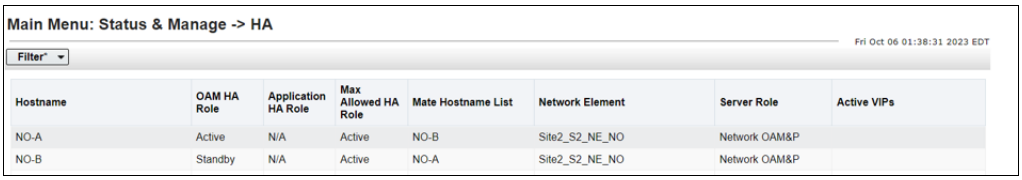
Step	Procedure	Result
1.	Login to console of active server	**Note1 : Vgroot should have 24GB free space to proceed an upgrade** **Note 2: if you observe any alarm related to disk space shortage ,then extend the memory to that volume to clear the alarm** **If enough memoy is not available to handle both above scenarios then resize the VM with required memory with steps mentioned in Appendix.H** Access the server using ssh and switch to root: **#sudo su -** 
2.	Run the below command in CLI ““sed -i '528i\ sleep(900);' /var/TKLC/appworks/services/SvrUpgrade.php””	
3.	Copy the DIU ISO to the filemgmt And change the file permission	**# cp source of DIU-ISO /var/TKLC/db/filemgmt/UDR-15.0.1.0.0_115.12.0-x86_64-DIU.iso** **# chmod 777 /var/TKLC/db/filemgmt/UDR-15.0.1.0.0_115.12.0-x86_64-DIU.iso**
4.	Then Deploy DIU iso from Active UDR GUI	 **Note: Refer the section 3.2.5 for iso deployment**

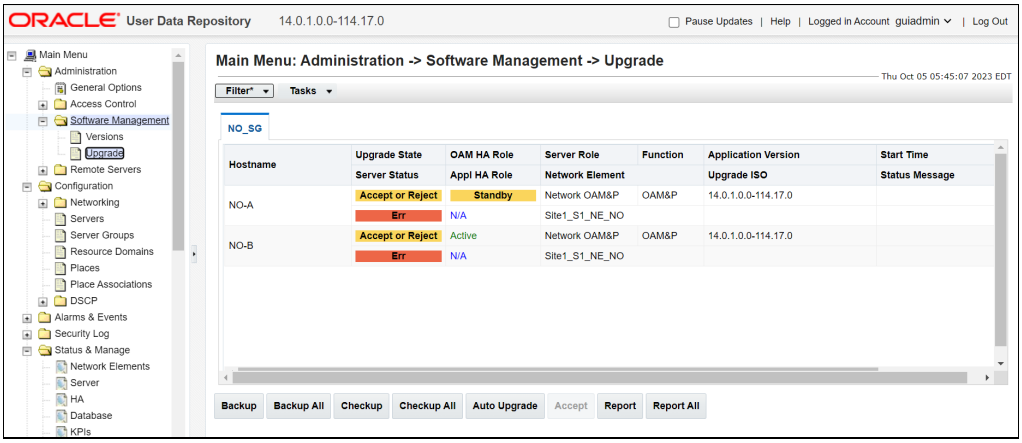
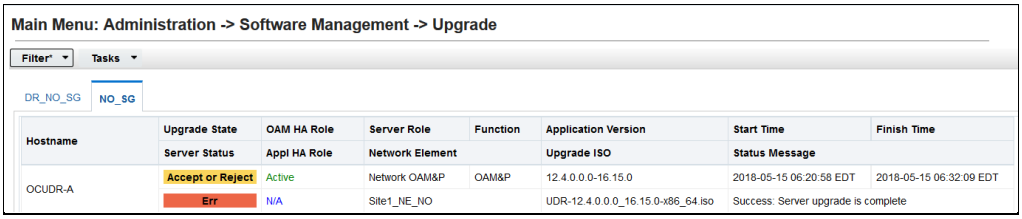
Step	Procedure	Result
5. ☐	Using the VIP address, access the primary NOAMP GUI.	Access the primary NOAMP GUI as specified in Appendix A. **NOTE:** Ensure that there are no users in the `/var/TKLC/db/filemgmt` directory on server to be upgraded
6. ☐	**Active NOAMP VIP:** 1. Navigate to **Main Menu → Administration → Software Management → Upgrade** 2. Select server group tab for servers to be upgraded. 3. Verify that the Upgrade State shows Ready for the servers to be upgraded. 4. Verify the Application Version value for servers is the source software release version	

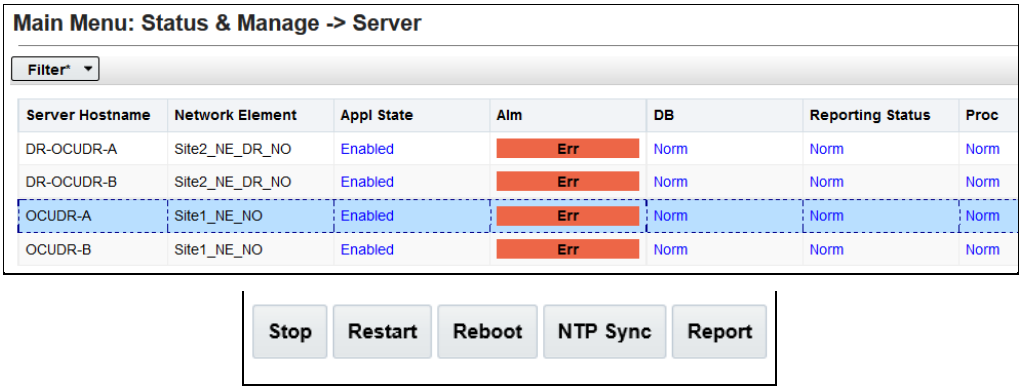
Step	Procedure	Result
7. ☐	**Active NOAMP VIP:** 5. Select the server (for one server at a time) 6. Ensure the Upgrade Server button is enabled. 7. Click **Upgrade Server**	 

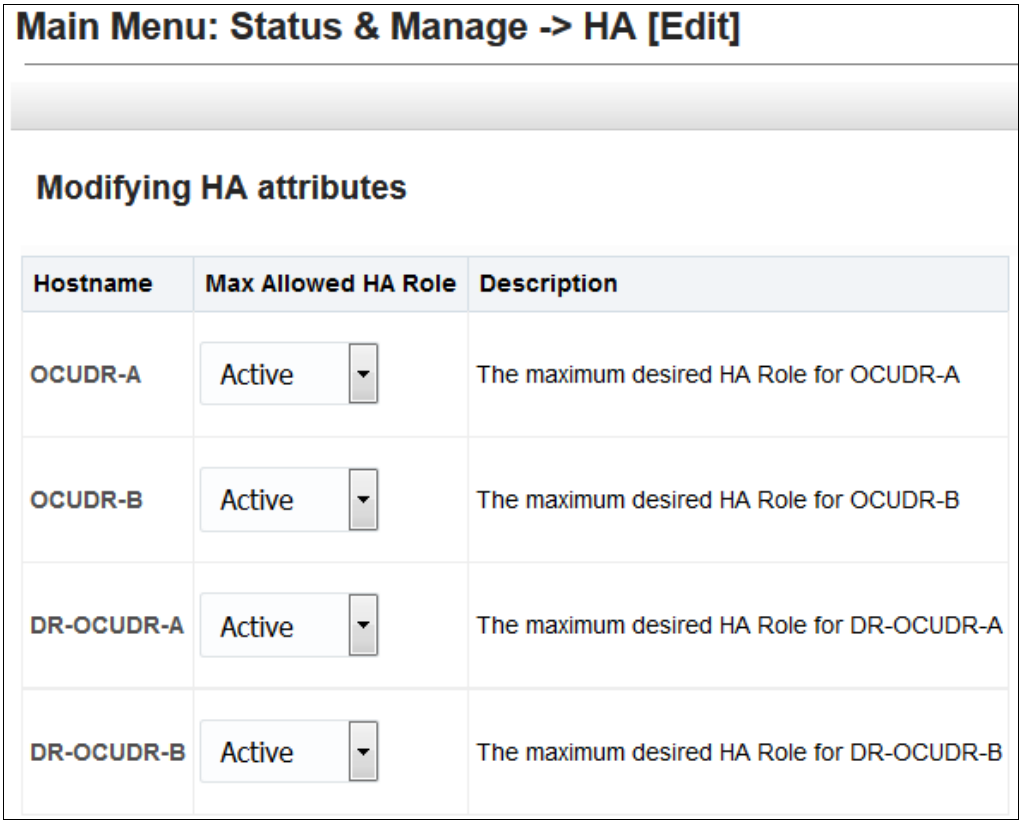
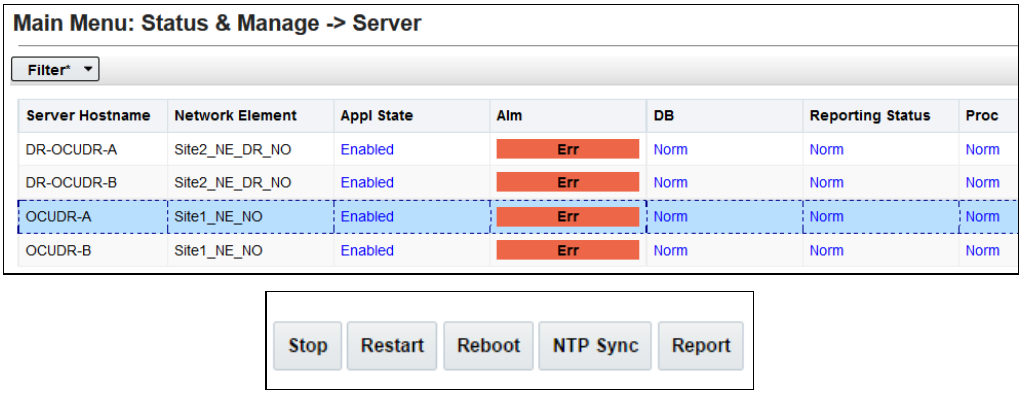
Step	Procedure	Result
8. ☐	**Active NOAMP VIP:** 1. The Upgrade [Initiate] screen displays 2. Select the ISO to use in the server upgrade 3. Click **Ok** to start the upgrade	 **NOTE:** During the upgrade you might see the following expected alarms. Not all servers have all alarms: **31101**(DB Replication to a slave DB has failed) **31106**(DB Merging to a parent Merge Node has failed) **31107**(DB Merging from a child source Node has failed) **31114** (DB Replication of configuration data via …) **13071** No northbound Provisioning Connections) **10073** (Server Group Max Allowed HA Role Warning) **10075** (Application processes have been manually stopped) **32515** (Server HA Failover Inhibited) **31283** (HA Highly available server failed to receive) **31226** (The High Availability Status is degraded)

Step	Procedure	Result
9. ☐	**Active NOAMP VIP:** View in-progress status 1. Select **Main Menu → Administration → Software Management → Upgrade** 2. Observe the Upgrade State of the servers of interest throughout the upgrade. Status Message contains additional upgrade details which allow upgrades in progress to be monitored. The following screen shots are examples of what to expect during upgrade. The Progress can be viewed on the Task list 3. Wait for each upgrade to report Success before proceeding to the next step. 4. Even after the status success ,it will take some time to finish upgrade.So wait till the HA role changes from OOS to Active Or Standby	  

Step	Procedure	Result
10.	Once the HA Roll changes to Standby Then upgrade status will show Not ready And Max HA status will show as Standby	
11.	Go to “Main Menu: Status & Manage-> HA” and click on edit and change the MAX HA Role of upgraded server to Active from Standby	 

Step	Procedure	Result
12.	Change the Appl State Disabled to Enabled under "Main Menu: Status & Manage-Server"	 Select the Upgrade server and click on restart then server will move to enabled state 
13. ☐	**Active NOAMP VIP:** 1. Select the appropriate tab (NO_SG) and select the row containing the hostname of the server that was upgraded. 2. Verify that the Status Message shows Success and Upgrade State is Accept or Reject	 **NOTE:** If the upgrade status indicates that the server could not restart the application to complete the upgrade and alarm 10134 (Server Upgrade Failed) displays; ensure that replication is up. Use `irepstat` command on active server and verify status is Active: • The Status changes to Success • Alarm 10134 to clear 

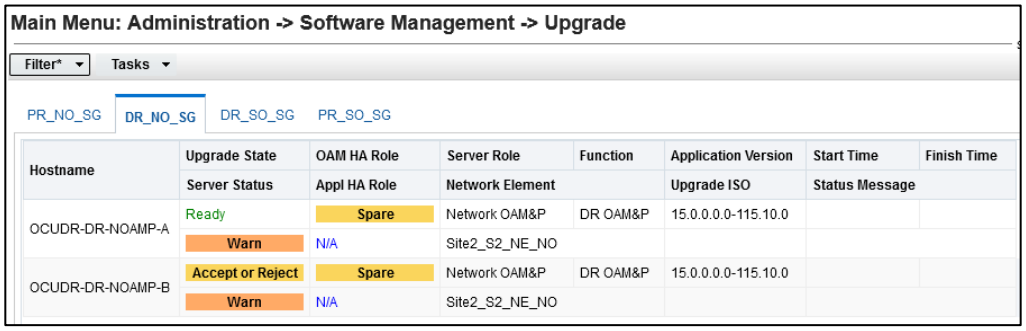
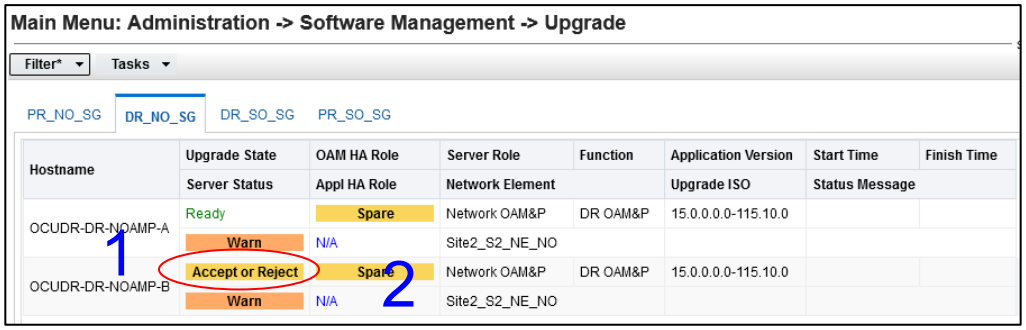
Step	Procedure	Result
14. ☐	1. If upgrade status still indicates that server could not restart the application to complete the upgrade, restart the server by clicking the **Restart**. 2. Verify that the Status Message shows Success and Upgrade State is Accept or Reject	Restart server that is being upgraded from **Main Menu → Status & Manage→ Server** screen 

Step	Procedure	Result
15. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Status & Manage → HA [Edit]**	**NOTE:** Only perform the following step if Upgrade State is DEGRADED. Change Max Allowed HA Role for server (server that was upgraded) to Active  Restart server from **Main Menu->Status & Manage -> Server** screen 
16. ☐	**Active NOAMP VIP:** View post-upgrade status	View post-upgrade status of the servers. The following alarms may be present. Active NO server has the following expected alarm: Alarm ID is 13071 (No Northbound Provisioning Connections) You may also see the alarm: Alarm ID is 32532 (Server Upgrade Pending Accept/Reject) You may also see this alarm due to DRNO servers Max Allowed HA Role being set to standby in Procedure 7. Alarm ID is10073 (Server Group Max Allowed HA Role Warning)

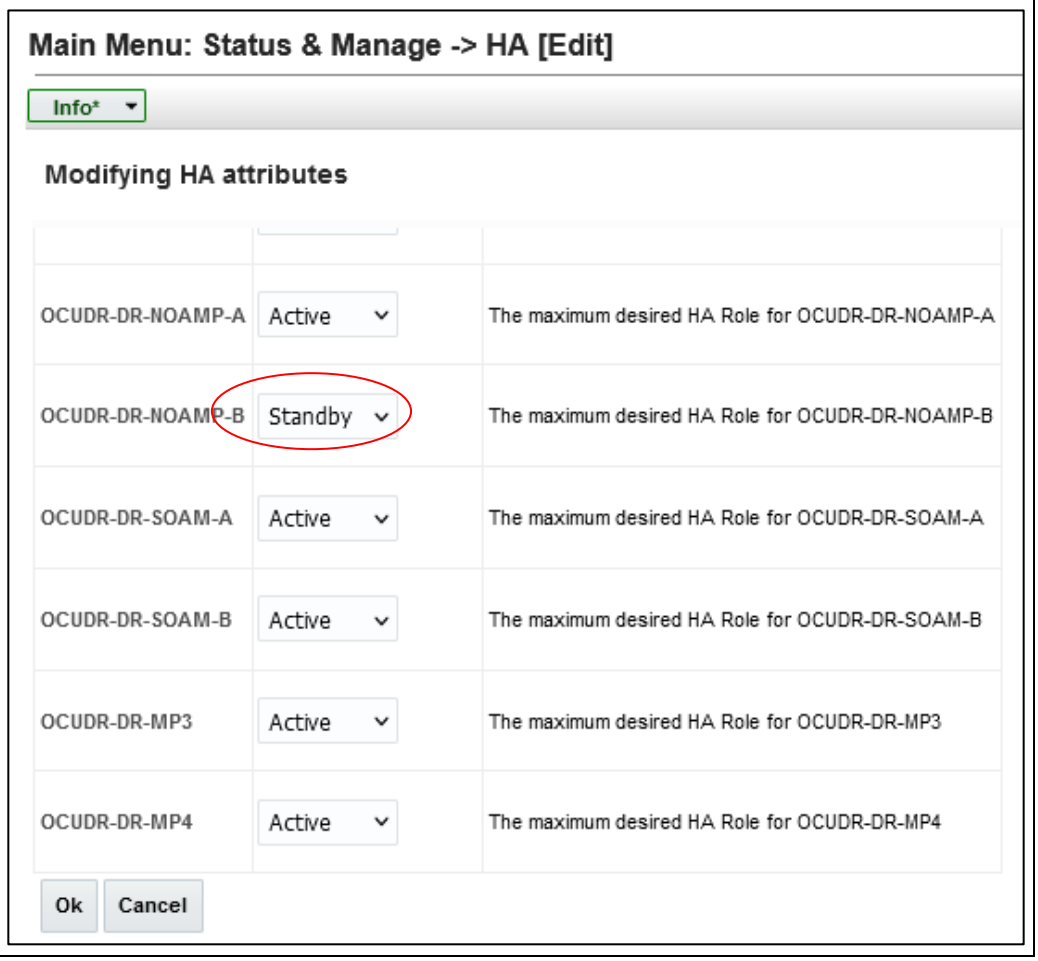
Step	Procedure	Result
17.	**Upgrade SOAM and MP**	Repeat the steps from steps 5 to 16 to upgrade SOAM and MPs
18. ☐	**Active NOAMP VIP:** Clear browser cache	JavaScript libraries, images and other objects are often modified in the upgrade. Browsers can cause GUI problems by holding on to the old objects in the built-in cache. To prevent these problems always clear the browser cache before logging in to an NO or SO which has been upgraded: Simultaneously hold down Ctrl-Shift-Delete. Select the appropriate type of objects and delete from the cache. For Internet Explorer the relevant object type is Temporary Internet Files. Other browsers may label these objects differently.
THIS PROCEDURE HAS BEEN COMPLETED		

APPENDIX D. BACKOUT OF A SERVER

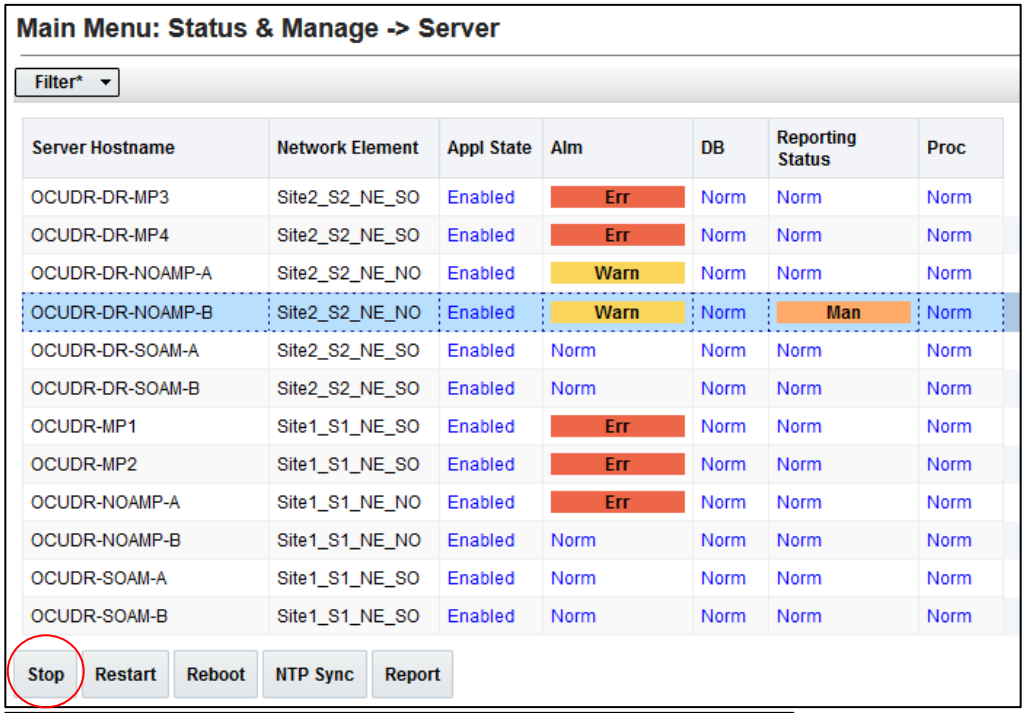
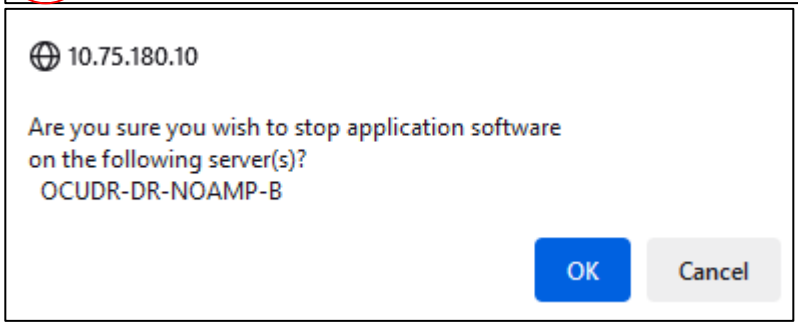
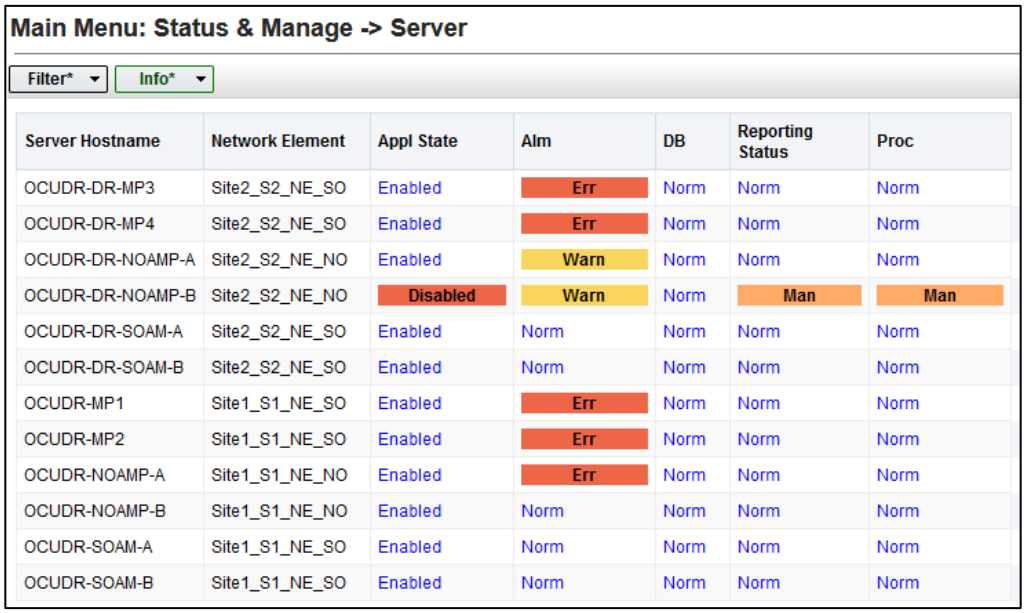
Appendix D: Backout of a Server

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Administration** **→ Software Management** **→*Upgrade*** …as shown on the right.	
3. ☐	**Active NOAMP VIP:** **1)** Select the tab containing the server to be downgraded. **2)** Scroll to the row containing the **hostname** of the server to be backed-out. 3) Verify that the **Upgrade State** shows **"Accept or Reject"**.	

Appendix D: Backout of a Server

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** Make the server ready for downgrade: Select… **Main Menu →Status & Manage→HA** 1) Press the **Edit** button 2) Select the server to be downgraded and choose a "Max Allowed Role" value of **Standby** or **Spare** for DR servers. 3) Press **OK** button 4) ** For Active NOAMP only, the user will be logged out after this step due to HA switchover, will need to log back in to continue. The active server will be "standby"	

Appendix D: Backout of a Server

Step	Procedure	Result
5. ☐	**Active NOAMP VIP:** Select… **Main Menu →Status & Manage→ Server** 1) Select the server to be downgraded and press **STOP** 2) Click **OK** to confirm the operation, then ensure the Appl State updates to **Disabled**.	  

Appendix D: Backout of a Server

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>6.
☐</td><td>Active NOAMP VIP:

Select …

<u>Main Menu</u>
→ Administration
→ Software Management
→Upgrade

…as shown on the right.</td><td>Main Menu: Administration -> Software Management -> Upgrade
Filter* Tasks
PR_NO_SG | DR_NO_SG | DR_SO_SG | PR_SO_SG
<table><tr><th rowspan="2">Hostname</th><th>Upgrade State</th><th>OAM HA Role</th><th>Server Role</th><th>Function</th><th>Application Version</th><th>Start Time</th><th>Finish Time</th></tr><tr><th>Server Status</th><th>Appl HA Role</th><th>Network Element</th><th></th><th>Upgrade ISO</th><th>Status Message</th><th></th></tr><tr><td rowspan="2">OCUDR-DR-NOAMP-A</td><td>Ready</td><td>Spare</td><td>Network OAM&P</td><td>DR OAM&P</td><td>15.0.0.0.0-115.10.0</td><td></td><td></td></tr><tr><td>Warn</td><td>N/A</td><td>Site2_S2_NE_NO</td><td></td><td></td><td></td><td></td></tr><tr><td rowspan="2">OCUDR-DR-NOAMP-B</td><td>Backout Ready</td><td>Spare</td><td>Network OAM&P</td><td>DR OAM&P</td><td>15.0.0.0.0-115.10.0</td><td></td><td></td></tr><tr><td>Warn</td><td>N/A</td><td>Site2_S2_NE_NO</td><td></td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>7.
☐</td><td>Active NOAMP VIP:

1) Select the tab containing the server to be downgraded.

2) Scroll to the row containing the hostname of the server to be backed-out.

3) Verify that the Upgrade State shows “Backout Ready”. (It may take a few moments to change status)</td><td>Main Menu: Administration -> Software Management -> Upgrade
Filter* Tasks
PR_NO_SG | DR_NO_SG | DR_SO_SG | PR_SO_SG
<table><tr><th rowspan="2">Hostname</th><th>Upgrade State</th><th>OAM HA Role</th><th>Server Role</th><th>Function</th><th>Application Version</th><th>Start Time</th><th>Finish Time</th></tr><tr><th>Server Status</th><th>Appl HA Role</th><th>Network Element</th><th></th><th>Upgrade ISO</th><th>Status Message</th><th></th></tr><tr><td rowspan="2">OCUDR-DR-NOAMP-A</td><td>Ready</td><td>Spare</td><td>Network OAM&P</td><td>DR OAM&P</td><td>15.0.0.0.0-115.10.0</td><td></td><td></td></tr><tr><td>Warn</td><td>N/A</td><td>Site2_S2_NE_NO</td><td></td><td></td><td></td><td></td></tr><tr><td rowspan="2">OCUDR-DR-NOAMP-B</td><td>Backout Ready</td><td>Spare</td><td>Network OAM&P</td><td>DR OAM&P</td><td>15.0.0.0.0-115.10.0</td><td></td><td></td></tr><tr><td>Warn</td><td>N/A</td><td>Site2_S2_NE_NO</td><td></td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>8.
☐</td><td>Server XMI IP (SSH):

SSH to server</td><td>Use your SSH client to connect to the server (ex. ssh, putty):

ssh<server address></td></tr>
<tr><td>9.
☐</td><td>Server XMI IP (SSH):

Login as admusr user</td><td>Login as “admusr”:

login as: admusr
Password: <enter password>

Switch to root su –
password: <enter password></td></tr>
</table>

Appendix D: Backout of a Server

Step	Procedure	Result

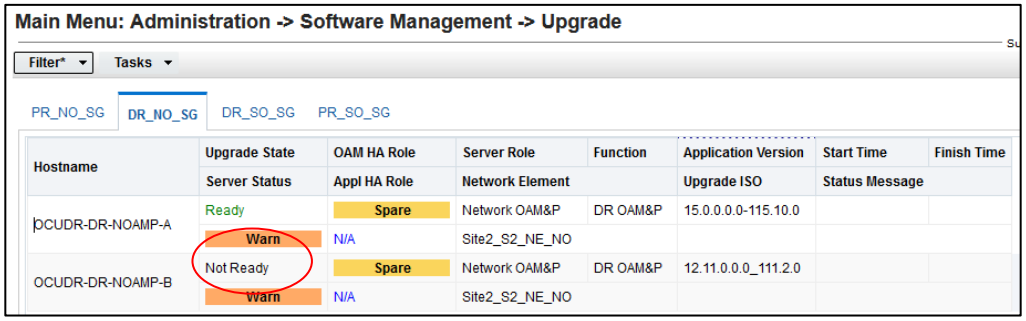
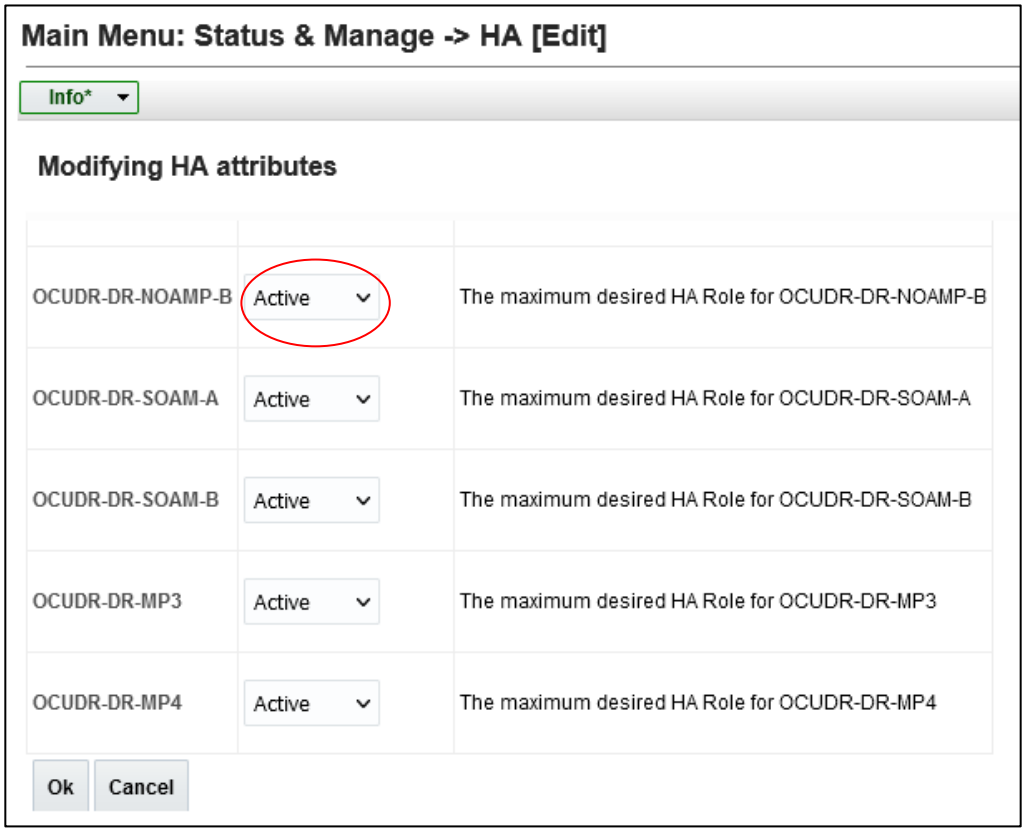
10. ☐	**Server XMI IP (SSH):**
	
	Execute the backout
		1. Find out the state of the server which is going to be backed out. Server shall be in Standby/Spare. Execute following command to find the HA state:
		
		# ha.mystate
		
		NOTE: If the state of the server is Active then follow these steps to move to standby.
		
		Go to Main Menu: Status & Manage -> HA
		Click edit
		Switch Max Allowed HA role to "standby"
		
		2. Execute the backout using the reject script:
		
		# /var/TKLC/backout/diUpgrade --reject
		
		Output:
		`[root@OCUDR-DR-NOAMP-B admusr]# /var/TKLC/backout/diUpgrade --reject`
		`Resuming from state STATE_UPGRADE_APPLIED`
		`Transitioning from 'Upgrade Applied' to 'Rejecting Upgrade'`
		`Enabling service rebootcheck...`
		`#####################################`
		`#  REJECT INITIATED  #`
		`#####################################`
		`REJECT START TIME: Sun Oct  1 07:10:32 2023 EDT (11:10:32 UTC)`
		`Validating image pre-reject`
		`/mnt/upgrade/images/plat_root.tar.gz`
		`/mnt/upgrade/images/plat_usr.tar.gz`
		
		NOTE: If backout asks if you would like to continue backout, answer "**y**".

11. ☐	**Server XMI IP (SSH):** Backout proceeds	Many informational messages will come across the terminal screen as the backout proceeds. Finally, after backout is complete, the server will automatically reboot.
12. ☐	**Server XMI IP (SSH):** SSH to server and login as root user	Use your SSH client to connect to the server (ex. ssh, putty): **ssh<server address>** `login as:` **admusr** `password:` **<enter password>** `Switch to root` **su –** `password:` **<enter password>**

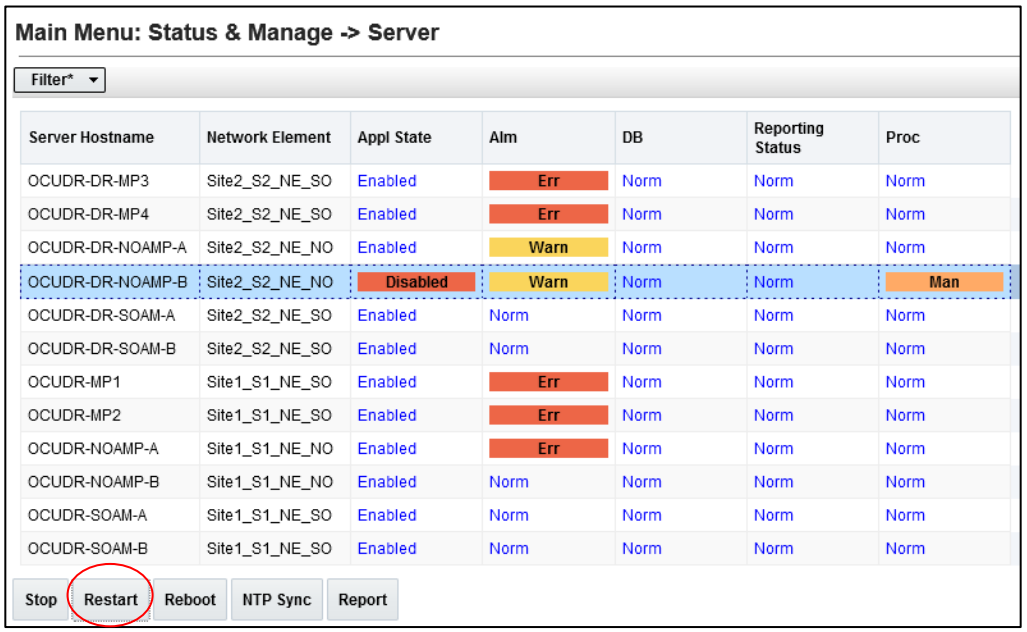
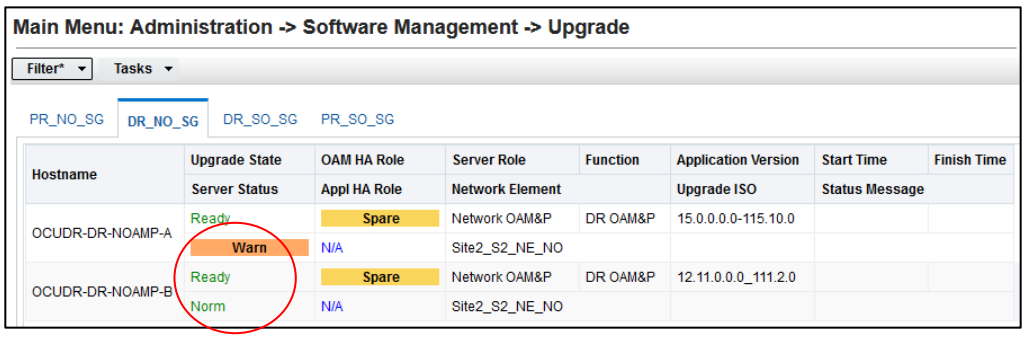
Appendix D: Backout of a Server

Step	Procedure	Result
13.	**Server XMI IP (SSH):**	**Note: Steps 13 and 14 are not required in case of rollback from OL8 based TPD server to OL6 based TPD server** **These Steps are required only for OL8 to OL8 Upgrade** Before proceeding to run restore command please verify the status of roll back with the command "tail -f /var/TKLC/appw/logs/Process/upgrade.log" If reject is completed successfully then proceed with the restore or else wait for it complete. Perform the backout_restore utility to restore the full database run environment: 1. sudo /usr/TKLC/appworks/sbin/backout_restore **NOTE:** If asked if you would like to proceed, answer y. If the restore was successful, the following message is displayed: `Success: Full restore of COMCOL run env has completed.` Return to the backout procedure document for further instruction.
14.	**Server XMI IP (SSH):**	Enter the following command to reboot the server. If logged in as admusr, it is necessary to use sudo. `# init 6` This step takes several minutes and terminates the SSH session.
15. ☐	**Server XMI IP (SSH):** Verify services restart	**If this is an NOAMP or SOAM server,** verify httpd service is running. Execute the command: **# service httpd status** Verify expected output displays httpd is running (the process IDs are variable so the list of numbers can be ignored): **httpd<process IDs will be listed here> is running...** If httpd is still not running after ~3 minutes, then services have failed to restart. Exit from the command line of backed-out server. # **exit**
16. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**

Appendix D: Backout of a Server

Step	Procedure	Result
17. ☐	**Active NOAMP VIP:** Verify server states: Select… **Main Menu** **→ Administration** **→ Software Management** **→*Upgrade*** …as shown on the right.	 If the state is **Ready**, you are finished with procedure. If the state is "**Not Ready**", continue to next step.
18.	**Active NOAMP VIP:** Correct Upgrade State on downgraded server Select… **Main Menu** **Status & Manage→HA[Edit]** Select the downgraded server and choose a Max Allowed HA Role value of **Active** (Press the **Ok** button. Verify the Max Allowed HA Role is set to the desired value for the server.	Due to backout being initiated from the command line instead of through the GUI, you will have to modify the downgraded server, so its Upgrade State moves to **Ready**. 

Appendix D: Backout of a Server

Step	Procedure	Result
19.	**Active NOAMP VIP:** Correct Upgrade State on downgraded server Select… **Main Menu** **Status & Manage→Server** Select the downgraded server and enable it by clicking on "Restart" button.	
20.	**Active NOAMP VIP:** Select **Main Menu Administration→ Software Management→ Upgrade**; Select the tab of the server group containing the server to be downgraded. Verify its Upgrade State is now "**Ready**". (It might take a couple minutes for the grid to update.)	
21.	Verify application version	Verify the Application Version value for this server has been downgraded to the original release version.
THIS PROCEDURE HAS BEEN COMPLETED		

APPENDIX E. UPGRADE ACCEPTANCE

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

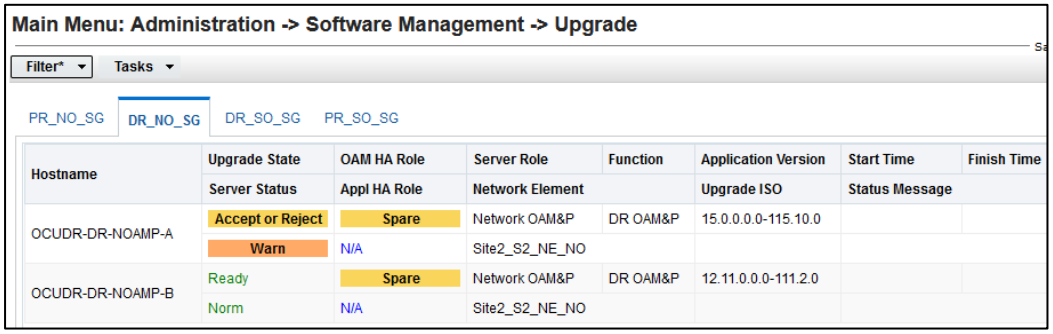
The Alarm 32532 (Server Upgrade Pending Accept/Reject) will be displayed for each server until one of these two actions (accept or reject) is performed.

An upgrade should be accepted only after it was determined to be successful as “accept” is final. This frees up file storage but prevents a backout from the previous upgrade.

	NOTE:	**Once the upgrade is accepted for a server, that server will not be allowed to backout to previous release from which the upgrade was done**

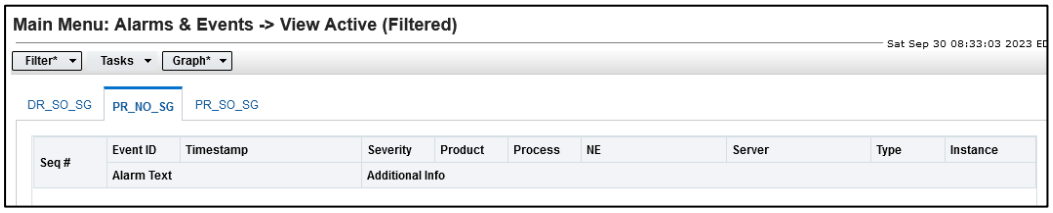
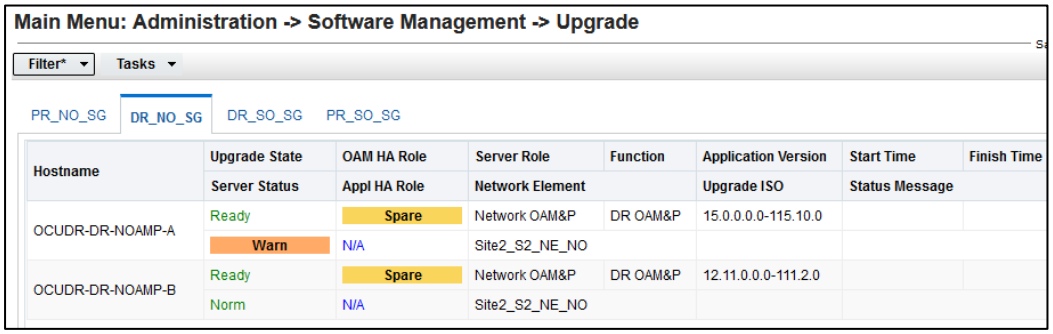
The following procedure details how to accept a successful upgrade of Oracle Communications User Data Repository system.

Procedure 22: Accept Upgrade

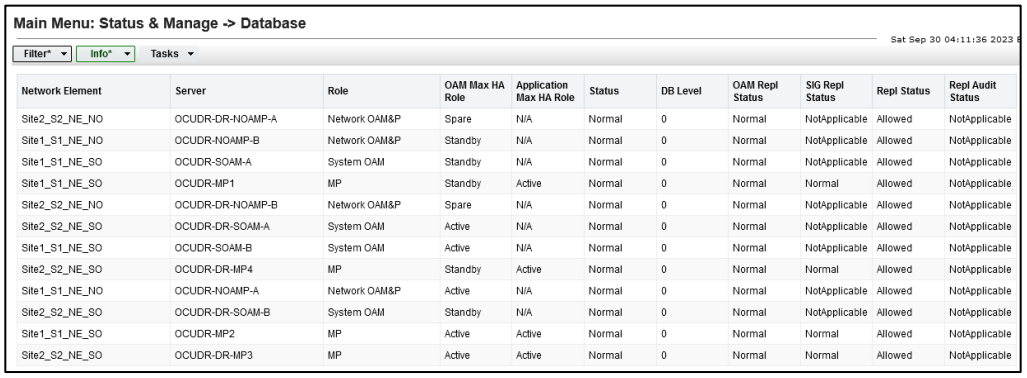
Step	Procedure	Result
1. ☐	Using the **VIP** IP, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu → Administration →*Software Management* →*Upgrade*** …as shown on the right.	

3. ☐	Accept upgrade for selected server(s) by running accept upgrade command on console.	**`# /var/TKLC/backout/diUpgrade --accept`**
		
		`Running postAccept() for DIUpgrade::Policy::P50APPudr upgrade policy...`
		`Creating alarm script: /tmp/6SryxZbdWk`
		`########################################`
		`#          ACCEPT COMPLETE             #`
		`########################################`
		`Check is rebootcheck is enabled ...`
		`Disabling service rebootcheck...`
		`Transitioning from 'Accepting Upgrade' to 'No Upgrade Available'`
		`Cleaning backout directory.`
		`[root@OCUDR-DR-NOAMP-A admusr]#`
		
		Note: Once upgrade is accepted, the servers will not be able to revert to their previous image states.

Procedure 22: Accept Upgrade

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** Accept upgrade of the rest of the system	Accept Upgrade on all remaining servers in the Oracle Communications User Data Repository system: Repeat all sub-steps of step 3 of this procedure on remaining servers until the upgrade of all servers in the Oracle Communications User Data Repository system has been accepted. Note: As upgrade is accepted on each server the corresponding Alarm ID **32532** (**Server Upgrade Pending Accept/Reject)** should be removed.
5. ☐	**Active NOAMP VIP:** Verify accept	Check that alarms are removed: Navigate to this GUI page Alarms & Events > View Active  Verify that Alarm ID **32532** (**Server Upgrade Pending Accept/Reject)** is not displayed under active alarms on Oracle Communications User Data Repository system
6. ☐	**Active NOAMP VIP:** Select… **<u>Main Menu</u>** **→ Administration** ***→Software Management*** ***→Upgrade*** …as shown on the right.	Verify server status is “Ready and Application version is updated”. 
7. ☐	**Active NOAMP VIP:** Configure services	Run the procedure specified in **Appendix G: Configuring Services for Dual Path HA.**
THIS PROCEDURE HAS BEEN COMPLETED		

APPENDIX F. VERIFYING SERVERS ARE SYNCRONIZED

Step	Procedure	Result
1. ☐	**Active NOAMP VIP:** Confirm Servers are in sync prior to upgrading the next server **<u>Main Menu</u>** **→ Status & Manage** **→*Database*** 1) Repl Status should be “allowed” 2) The DB Levels should be the same or close in numbers.	

Main Menu: Status & Manage -> Database

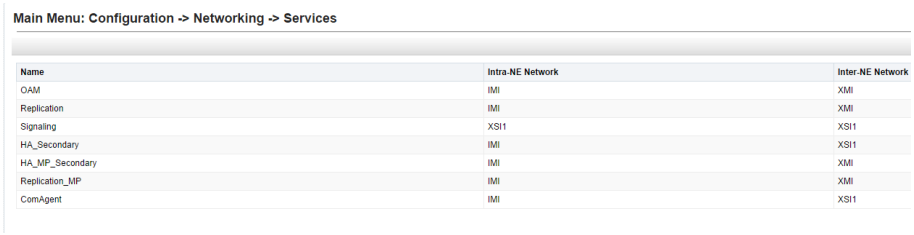
Sat Sep 30 04:11:36 2023

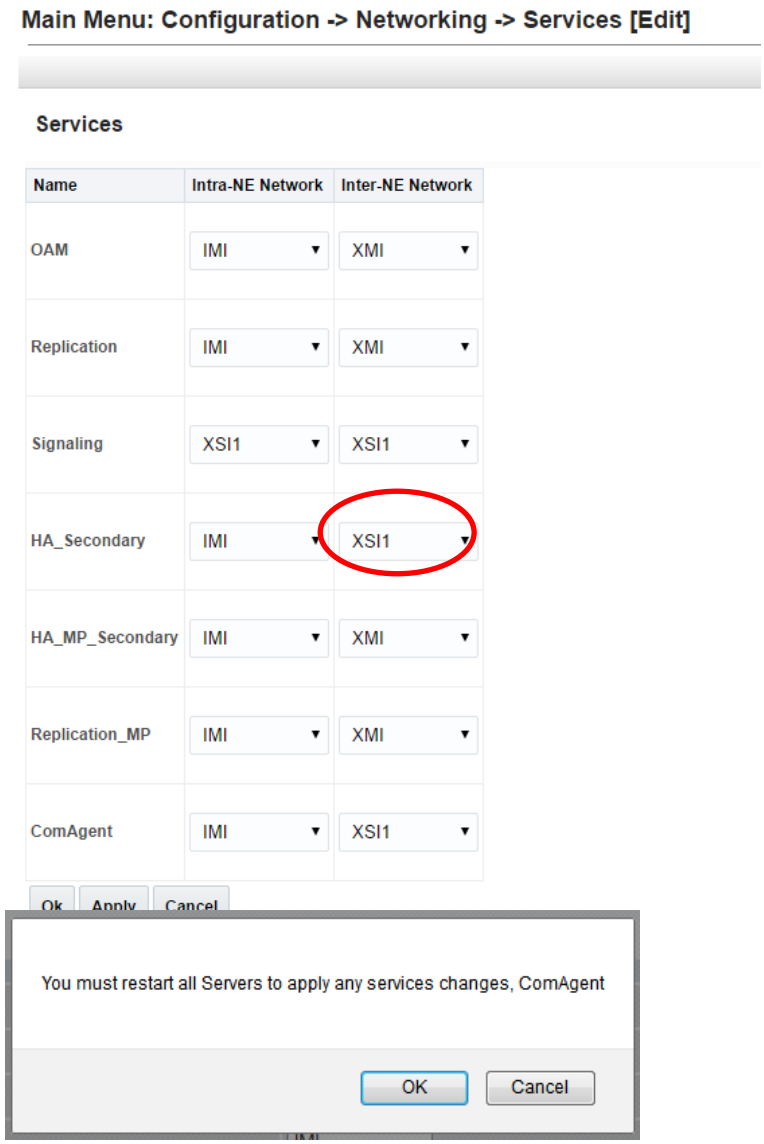
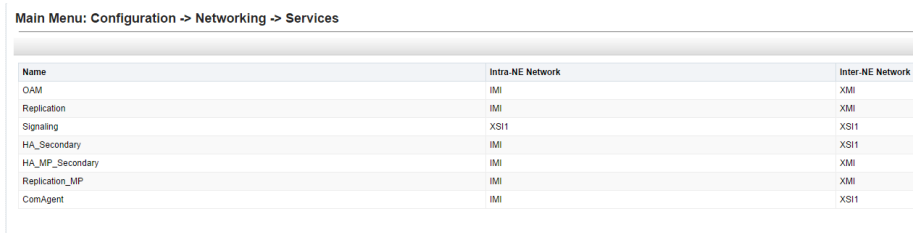
Filter* Info* Tasks

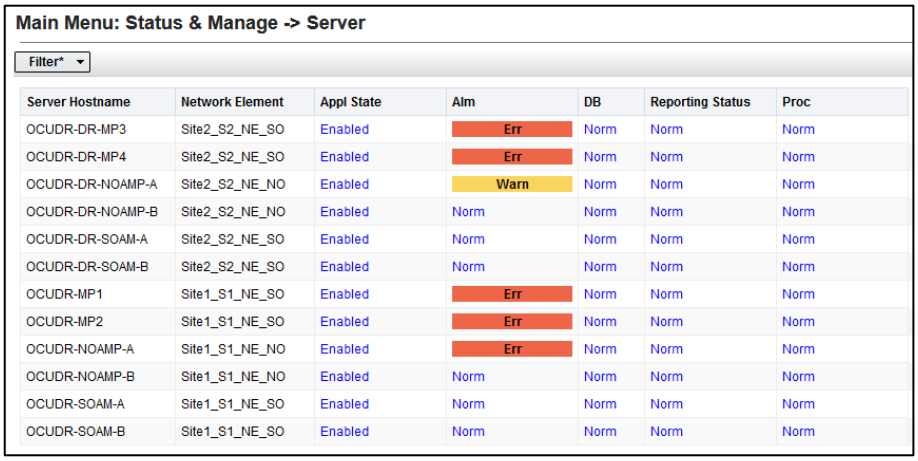
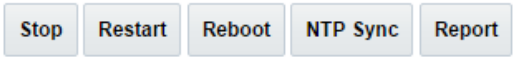
Network Element	Server	Role	OAM Max HA Role	Application Max HA Role	Status	DB Level	OAM Repl Status	SIG Repl Status	Repl Status	Repl Audit Status
Site2_S2_NE_NO	OCUDR-DR-NOAMP-A	Network OAM&P	Spare	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable
Site1_S1_NE_NO	OCUDR-NOAMP-B	Network OAM&P	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable
Site1_S1_NE_SO	OCUDR-SOAM-A	System OAM	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable
Site1_S1_NE_SO	OCUDR-MP1	MP	Standby	Active	Normal	0	Normal	Normal	Allowed	NotApplicable
Site2_S2_NE_NO	OCUDR-DR-NOAMP-B	Network OAM&P	Spare	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable
Site2_S2_NE_SO	OCUDR-DR-SOAM-A	System OAM	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable
Site1_S1_NE_SO	OCUDR-SOAM-B	System OAM	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable
Site2_S2_NE_SO	OCUDR-DR-MP4	MP	Standby	Active	Normal	0	Normal	Normal	Allowed	NotApplicable
Site1_S1_NE_NO	OCUDR-NOAMP-A	Network OAM&P	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable
Site2_S2_NE_SO	OCUDR-DR-SOAM-B	System OAM	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable
Site1_S1_NE_SO	OCUDR-MP2	MP	Active	Active	Normal	0	Normal	Normal	Allowed	NotApplicable
Site2_S2_NE_SO	OCUDR-DR-MP3	MP	Active	Active	Normal	0	Normal	Normal	Allowed	NotApplicable

APPENDIX G. CONFIGURING SERVICES FOR DUAL PATH HA

This Appendix provides the procedure for updating Oracle Communications User Data Repository Services for the Dual Path HA feature. This applies to all configurations that make use of a Secondary/DR Site.

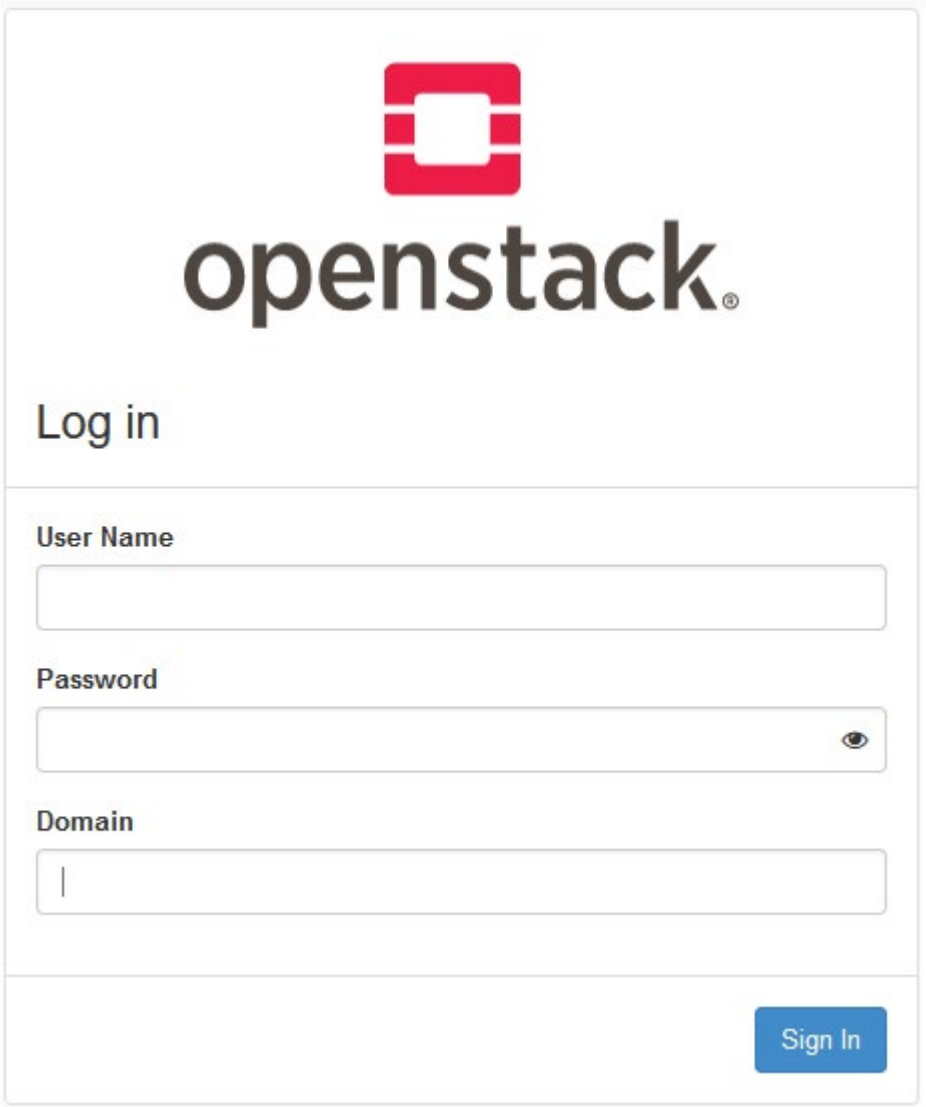
Step	This procedure verifies that all required materials are present. Check off (√)each step as it is completed. Boxes have been provided for this purpose under each step number.	
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** → **Configuration** → ***Networking*** → ***Services*** …as shown on the right.	

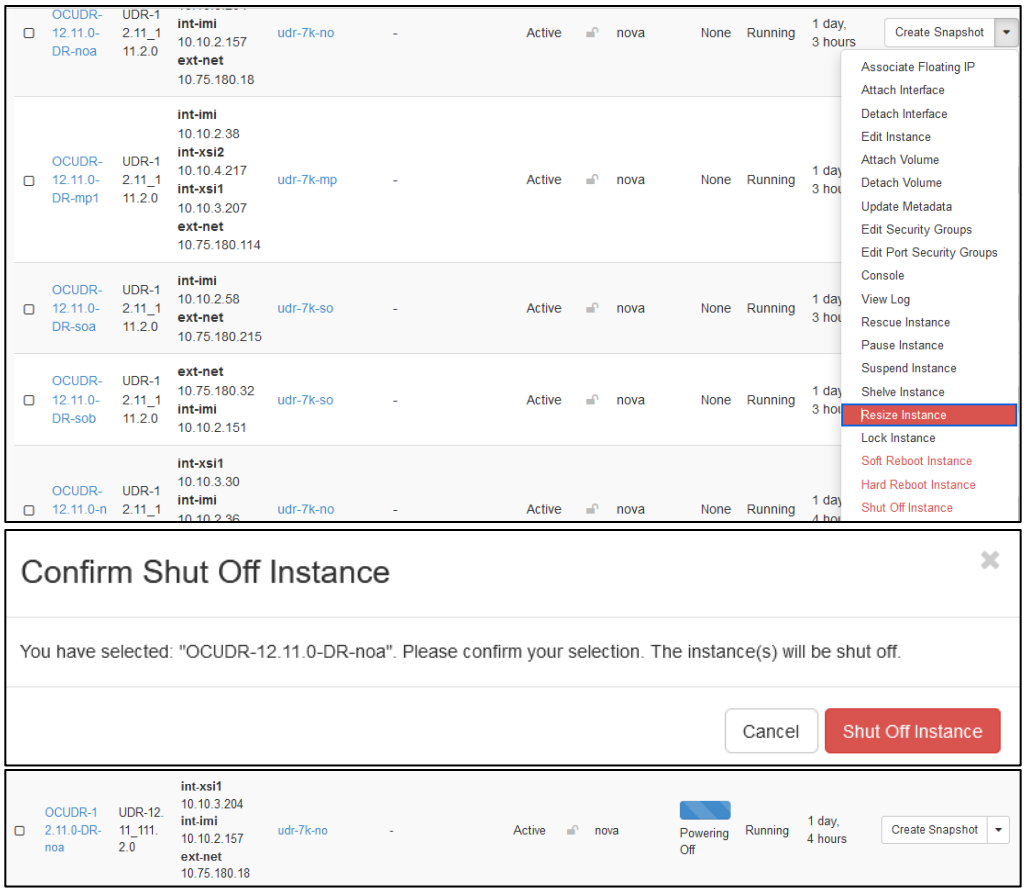
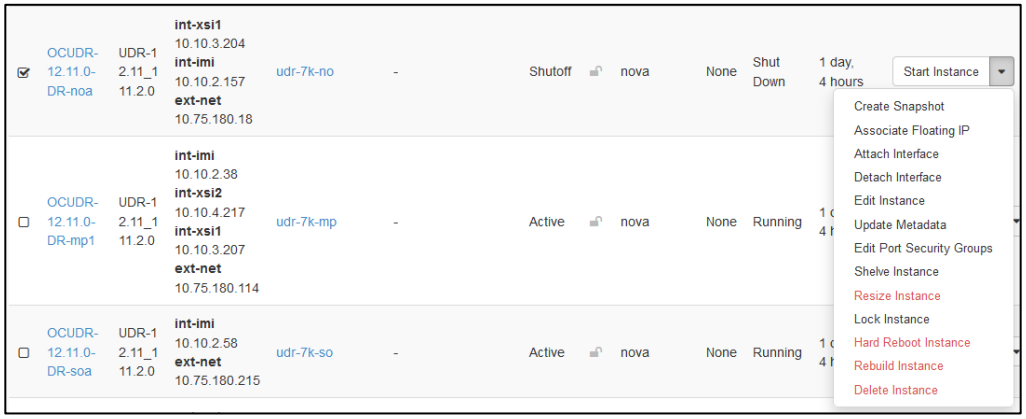
3. ☐	**Active NOAMP VIP:** **1)** Change Service value as shown below: **Inter-NE HA_Secondary → XSI1** **2)** Select the **"Apply"** dialogue button. **3)** Select the **"OK"** dialogue button in the popup window.	 NOAMP and MP Servers need to be restarted.
4. ☐	**Active NOAMP VIP:** The user will be presented with the "**Services**" configuration screen as shown on the right	

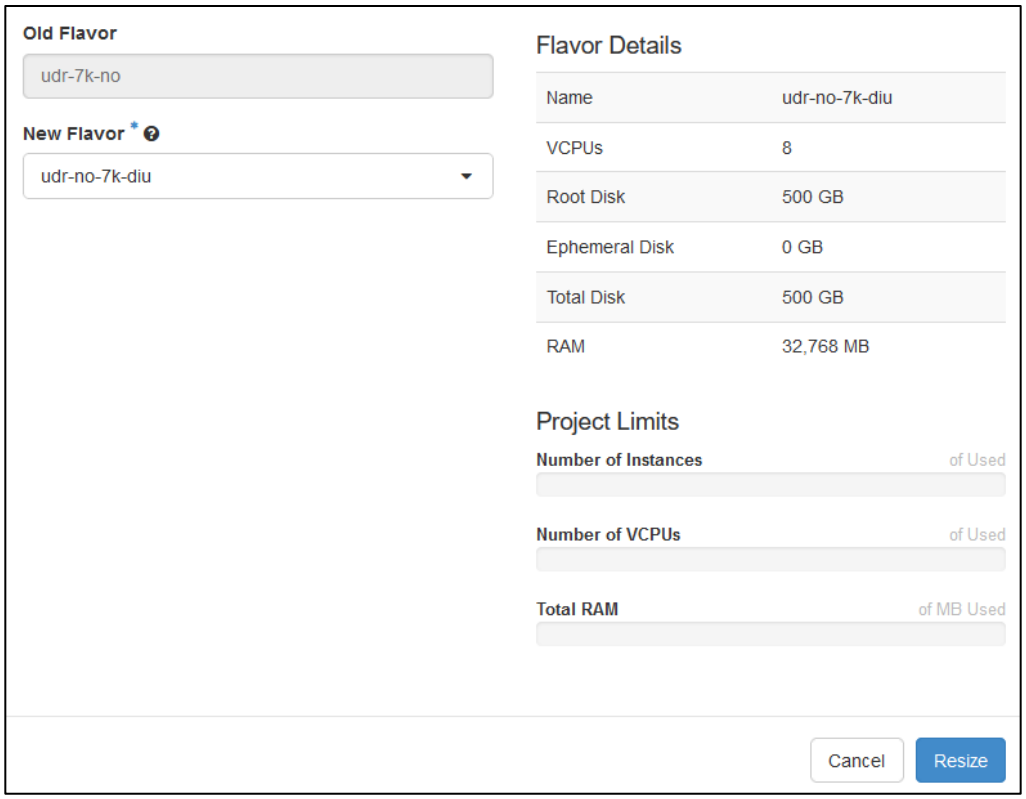
5. ☐	**Restart Reboot all NOAMP and MP Servers**	Reboot all NOAMP and MP servers either by the Active NOAMP GUI's Status & Manage -> Server screen with the **Reboot** button:   Or on the terminal of each server with the reboot command: `$ sudo reboot` Note: This should be executed on all NOAMPs and MPs.
THIS PROCEDURE HAS BEEN COMPLETED		

APPENDIX H. RESIZING VM GUEST DISK FOR UPGRADE

H.1 Resizing VM Guest disk for upgrade on Openstack

Step	Procedure	Result
1. ☐	Login to cloud home page.	

2.	Go to instance page and shut off instance	
3.	Select the instance and resize using ‘Resize Instance’ option.	

4.	Please specify the new flavor that has 50 GB disk more than existing flavor used. And press 'Resize'	 
5.	Click on 'Confirm Resize Migrate' button and start instance	  

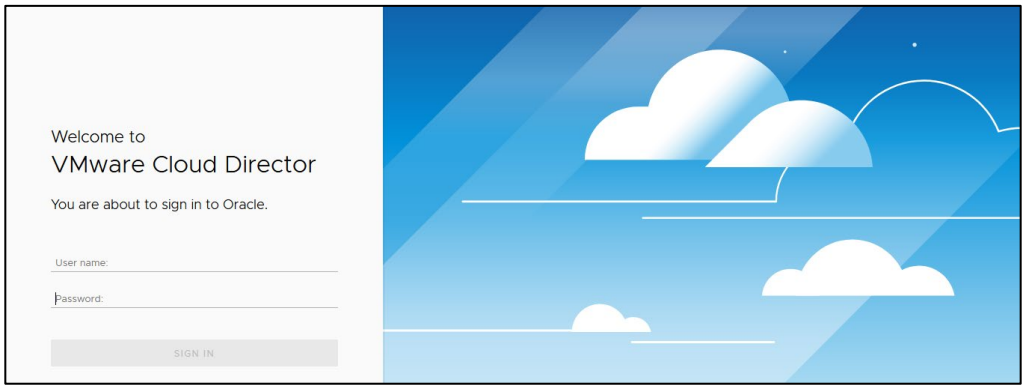
6.	Login to console of instance and execute the listed commands	**# fdisk -c /dev/vda**
		Note: Device name may differe from vda to some other name like sda, vdb, vdc etc..
		
		➔ Press letter 'm' (It will display all possible operations)
		➔ Press letter 'n' (To add a new partition)
		➔ Press letter 'p' (Primary extension)
		➔ Press number '3' (Enter 3 or 4 as partion number or provide default choice)
		➔ It will ask for sector value, provide default value as input)
		➔ It will ask for size, provide '+50G' (To add 50GB, it depends upon VM flavor)
		Note: If we get error like "Value Out of Range" for above step then provide "+49G" instead of "+50G"
		
		Example : vg size will become 150GB , if the previous size is 100GB
		
		➔ Press letter 't' (To change a partion's system id)
		➔ Provide partition number which we have created in earlier step
		➔ It will ask fro HEX Code, enter '8e'
		➔ Press letter 'w' (write table to disk and exit)
		
		Example:
		
		`[root@OCUDR-DR-NOAMP-A filemgmt]# fdisk -c /dev/vda`
		
		`WARNING: cylinders as display units are deprecated. Use command 'u' to change units to sectors.`
		
		`Command (m for help): n`
		`Command action`
		`e extended`
		`p primary partition (1-4)`
		`p`
		`Partition number (1-4): 3`
		`First cylinder (832204-1040253, default 832204):`
		`Using default value 832204`
		`Last cylinder, +cylinders or +size{K,M,G} (832204-1040253, default 1040253): +50G`
		
		`Command (m for help): t`
		`Partition number (1-4): 3`
		`Hex code (type L to list codes): 8e`
		`Changed system type of partition 3 to 8e (Linux LVM)`
		
		`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.`
		`[root@OCUDR-DR-NOAMP-A filemgmt]# reboot`

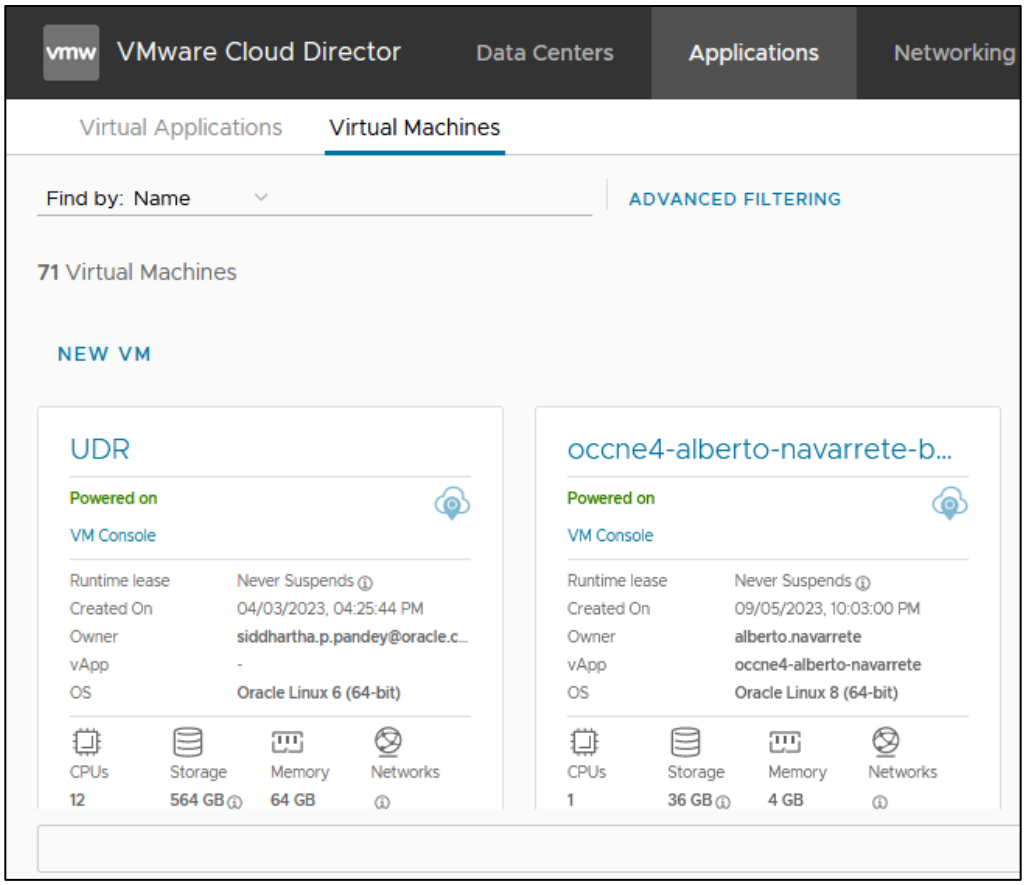
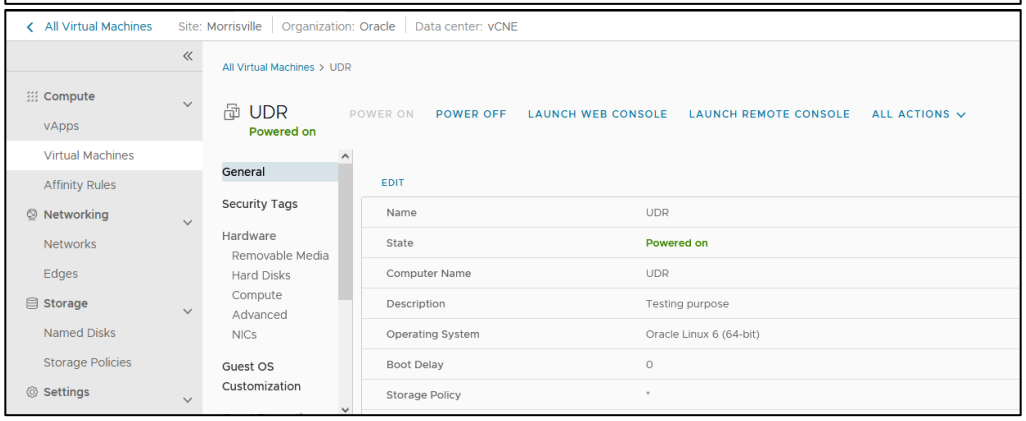
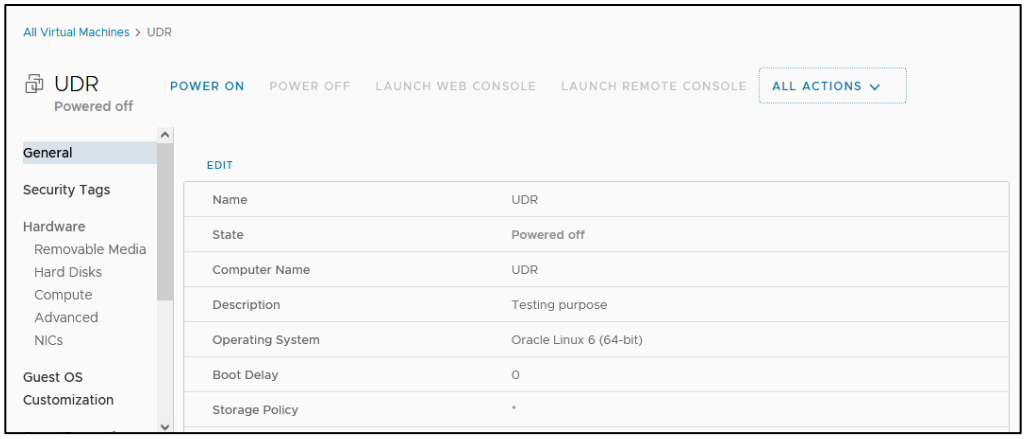
7.	After step-6, reboot the instance	**# reboot**

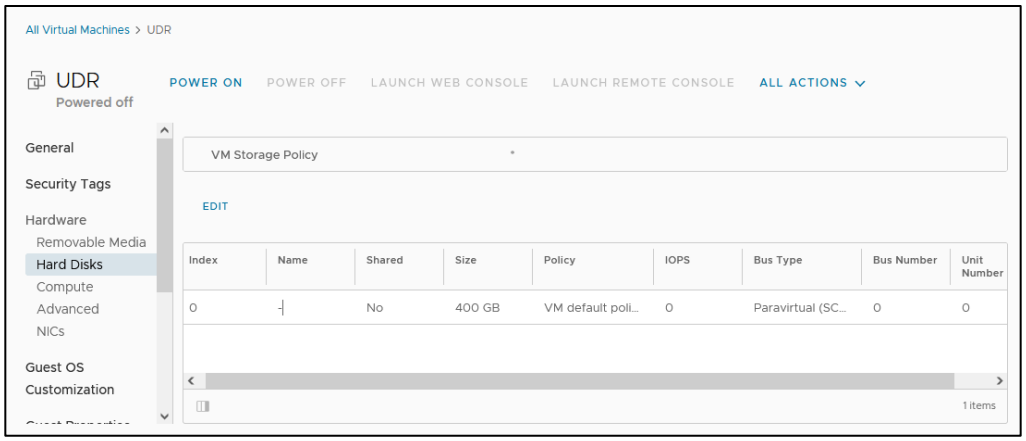
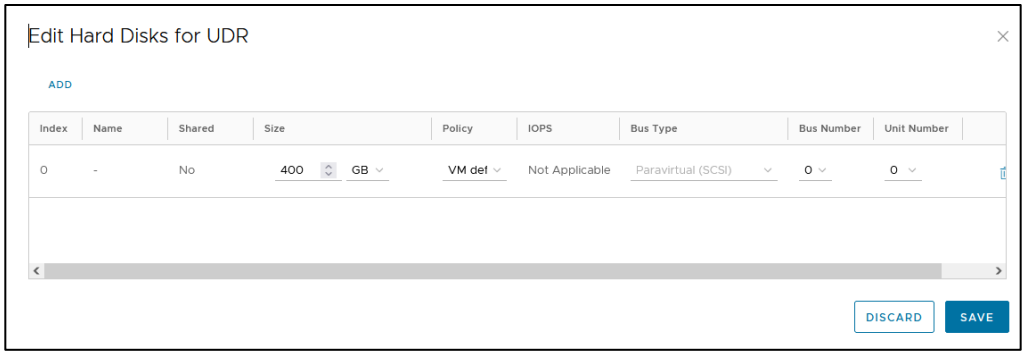
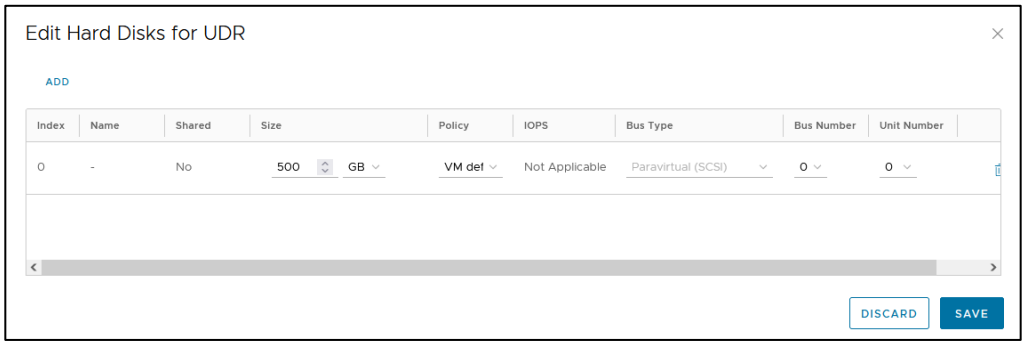
8.	After reboot, create physical volume and extend the volume group using it	**Note:** Once partition is done then create physical volum using pvcreate command but after reboot.
		
		# pvcreate <new physical volum name>
		Example: pvcreate /dev/vda3
		
		# vgextend <vgname> <physical volume name>
		Example: vgextend vgroot /dev/vda3
		
		`[root@OCUDR-DR-NOAMP-A admusr]# pvs`
		`  PV         VG     Fmt  Attr PSize   PFree`
		`  /dev/vda2  vgroot lvm2 a--u 399.47g 117.62g`
		`[root@OCUDR-DR-NOAMP-A admusr]#`
		`[root@OCUDR-DR-NOAMP-A admusr]# pvcreate /dev/vda3`
		`  Physical volume "/dev/vda3" successfully created`
		`[root@OCUDR-DR-NOAMP-A admusr]#`
		`[root@OCUDR-DR-NOAMP-A admusr]# vgextend vgroot  /dev/vda3`
		`  Volume group "vgroot" successfully extended`
		`[root@OCUDR-DR-NOAMP-A admusr]#`
		`[root@OCUDR-DR-NOAMP-A admusr]# vgs`
		`  VG     #PV #LV #SN Attr   VSize   VFree`
		`  vgroot   2  11   0 wz--n- 449.44g 167.59g`
		`[root@OCUDR-DR-NOAMP-A admusr]#`
		
		Note: For knowledge.
		
		• use vgs command to know the vg name
		• use fdisk -l /dev/vda command to know the partition name which we have created in above step.

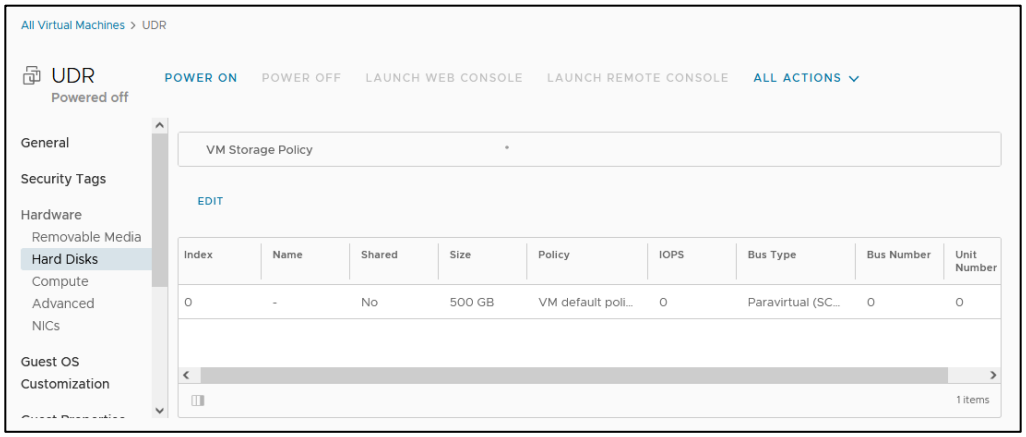
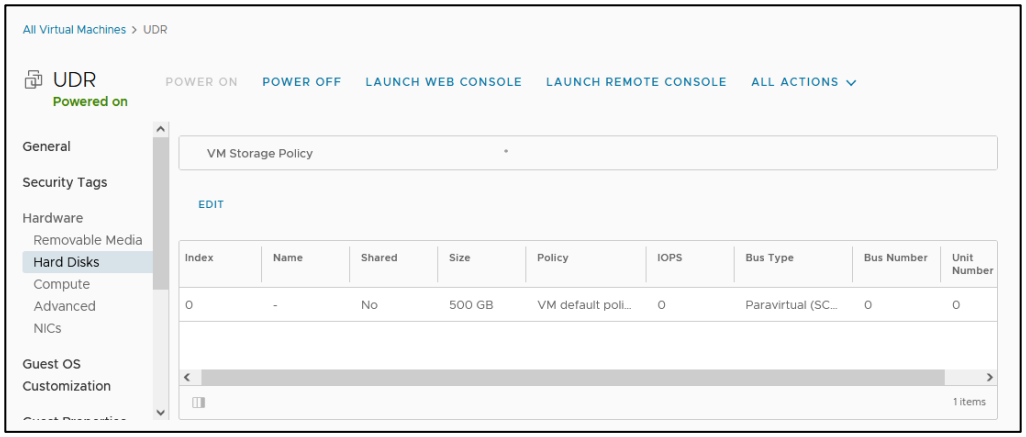
THIS PROCEDURE HAS BEEN COMPLETED		

H.2 Resizing VM Guest disk for upgrade on VMWare

Step	Procedure	Result
1. ☐	Login to VMWare home page.	

2.	Go to vm page and shut off vm for which disk size needs to be updated	  

3.	Select the 'Hard disk' and edit using 'Edit' option.	 
4.	Please specify the new disk size And press 'Save' button	

5.	Click on 'Power ON' button to start VM	 

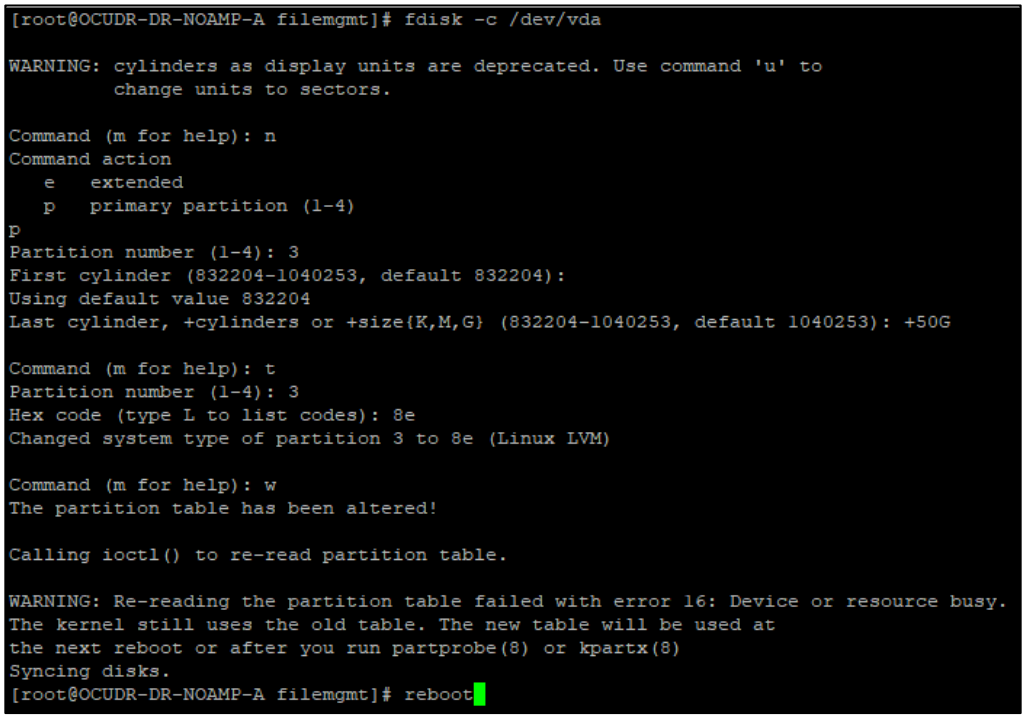
<table>
<tr>
<td>6.</td>
<td>Login to console of instance and execute the listed commands</td>
<td>
fdisk -c /dev/vda
Note: Device name may differe from vda to some other name like sda, vdb, vdc etc..

➔ Press letter ‘m’ (It will display all possible operations)
➔ Press letter ‘n’ (To add a new partition)
➔ Press letter ‘p’ (Primary extension)
➔ Press number ‘3’ (Enter 3 or 4 as partion number or provide default choice)
➔ It will ask for sector value, provide default value as input)
➔ It will ask for size, provide ‘+50G’ (To add 50GB, it depends upon VM flavor)
Note: If we get error like “Value Out of Range” for above step then provide “+49G” instead of “+50G”

Example : vg size will become 150GB , if the previous size is 100GB

➔ Press letter ‘t’ (To change a partion’s system id)
➔ Provide partition number which we have created in earlier step
➔ It will ask fro HEX Code, enter ‘8e’
➔ Press letter ‘w’ (write table to disk and exit)

Example:



</td>
</tr>
<tr>
<td>7.</td>
<td>After step-6, reboot the instance</td>
<td># reboot</td>
</tr>
</table>

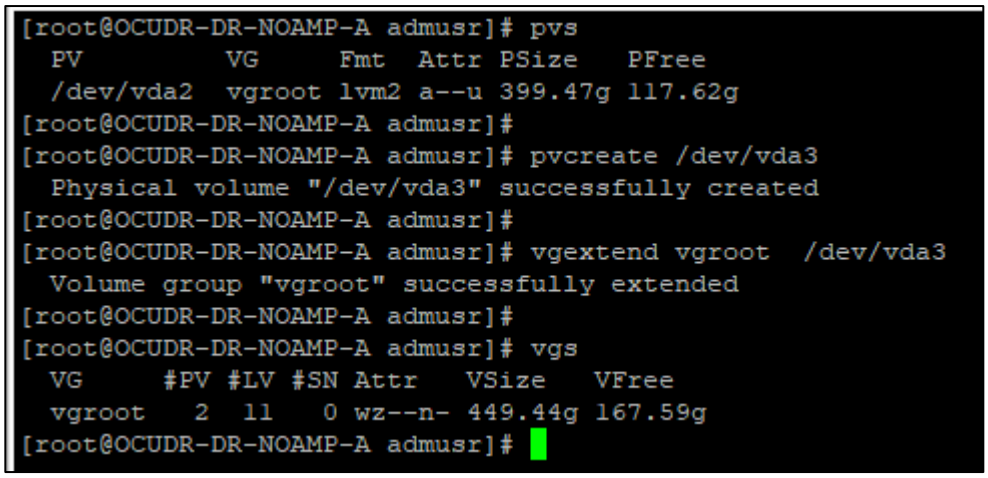
8.	After reboot, create physical volume and extend the volume group using it	**Note:** Once partition is done then create physical volum using pvcreate command but after reboot.
		
		# pvcreate <new physical volum name>
		Example: pvcreate /dev/vda3
		
		# vgextend <vgname> <physical volume name>
		Example: vgextend vgroot /dev/vda3
		
		`[root@OCUDR-DR-NOAMP-A admusr]# pvs`
		`  PV         VG     Fmt  Attr PSize   PFree`
		`  /dev/vda2  vgroot lvm2 a--u 399.47g 117.62g`
		`[root@OCUDR-DR-NOAMP-A admusr]#`
		`[root@OCUDR-DR-NOAMP-A admusr]# pvcreate /dev/vda3`
		`  Physical volume "/dev/vda3" successfully created`
		`[root@OCUDR-DR-NOAMP-A admusr]#`
		`[root@OCUDR-DR-NOAMP-A admusr]# vgextend vgroot  /dev/vda3`
		`  Volume group "vgroot" successfully extended`
		`[root@OCUDR-DR-NOAMP-A admusr]#`
		`[root@OCUDR-DR-NOAMP-A admusr]# vgs`
		`  VG     #PV #LV #SN Attr   VSize   VFree`
		`  vgroot   2  11   0 wz--n- 449.44g 167.59g`
		`[root@OCUDR-DR-NOAMP-A admusr]#`
		
		Note: For knowledge.
		
		• use vgs command to know the vg name
		• use fdisk -l /dev/vda command to know the partition name which we have created in above step.

THIS PROCEDURE HAS BEEN COMPLETED		

H.3 Resizing VM Guest disk for upgrade on KVM

Step	Procedure	Result
1. ☐	Login to KVM host console where all KVM based machines are present.	login as: root root@10.75.190.66's password: Activate the web console with: systemctl enable --now cockpit.socket Last login: Mon Oct 2 02:17:49 2023 from 10.191.211.80
2.	Shutdown the VM for which disk size needs to be updated	**# virsh shutdown UDR-12.11.1.0.0_111.6.0** [root@X5-2-OCUDR-OL-6 ~]# virsh list --all Id Name State ---------- 139 UDR-12.11.0.0.0_111.3.0 running - UDR-12.11.1.0.0_111.6.0 shut off
3.	Extend the disk size of VM.	**# qemu-img resize /home/image/UDR-12.11.1.0.0_111.6.0.qcow2 +50G** Image resized. Note: The path of guest img may differe in customer setup.
4.	List the VM machines	**# virsh list –all** [root@X5-2-OCUDR-OL-6 ~]# virsh list --all Id Name State ---------- 139 UDR-12.11.0.0.0_111.3.0 running - UDR-12.11.1.0.0_111.6.0 shut off [root@X6-2-OCUDR-OL8 ~]#
5.	Start the VM	**# virsh start UDR-12.11.1.0.0_111.6.0** Domain 'UDR-12.11.0.0.0_111.5.0' started [root@X5-2-OCUDR-OL6 ~]# virsh list --all Id Name State ---------- 139 UDR-12.11.0.0.0_111.3.0 running 224 UDR-12.11.1.0.0_111.6.0 running [root@X5-2-OCUDR-OL6 ~]#

6.	Login to console of instance and execute the listed commands	**# fdisk -c /dev/sda** **Note:** Device name may differe from vda to some other name like sda, vdb, vdc etc.. ➔ Press letter 'm' (It will display all possible operations) ➔ Press letter 'n' (To add a new partition) ➔ Press letter 'p' (Primary extension) ➔ Press number '3' (Enter 3 or 4 as partion number or provide default choice) ➔ It will ask for sector value, provide default value as input) ➔ It will ask for size, provide '+50G' (To add 50GB, it depends upon VM flavor) **Note: If we get error like "Value Out of Range" for above step then provide "+49G" instead of "+50G"** Example : vg size will become 150GB , if the previous size is 100GB ➔ Press letter 't' (To change a partion's system id) ➔ Provide partition number which we have created in earlier step ➔ It will ask fro HEX Code, enter '8e' ➔ Press letter 'w' (write table to disk and exit) Example: [root@UDR-SO-A ~]# fdisk -c /dev/sda Welcome to fdisk (util-linux 2.32.1). Changes will remain in memory only, until you decide to write them. Be careful before using the write command. GPT PMBR size mismatch (209715199 != 314572799) will be corrected by write. The backup GPT table is not on the end of the device. This problem will be corrected by write. Command (m for help): n Partition number (3-128, default 3): 3 First sector (209715167-314572766, default 209715200): Last sector, +sectors or +size{K,M,G,T,P} (209715200-314572766, default 314572766): +50G Created a new partition 3 of type 'Linux filesystem' and of size 50 GiB. Command (m for help): t Partition number (1-3, default 3): 3 Partition type (type L to list all types): 8e Type of partition 3 is unchanged: Linux filesystem. Command (m for help): w The partition table has been altered. Syncing disks. [root@localhost ~]# reboot [root@localhost ~]# pvcreate /dev/sda3 Physical volume "/dev/sda3" successfully created. [root@UDR-SO-A ~]# pvs PV VG Fmt Attr PSize PFree /dev/sda2 vgroot lvm2 a-- <99.50g 24.26g /dev/sda3 lvm2 --- 49.00g 49.00g [root@localhost ~]# vgextend vgroot /dev/sda3 Volume group "vgroot" successfully extended [root@UDR-SO-A ~]# vgs VG #PV #LV #SN Attr VSize VFree vgroot 2 11 0 wz--n- 149.49g <74.26g [root@lUDR-SO-A ~]#

7.	After step-6, reboot the instance	**# reboot**
8.	After reboot, create physical volume and extend the volume group using it	**Note:** Once partition is done then create physical volum using pvcreate command but after reboot. **# pvcreate <new physical volum name>** Example: pvcreate /dev/vda3 **# vgextend <vgname> <physical volume name>** Example: vgextend vgroot /dev/vda3  **Note**: For knowledge. • use vgs command to know the vg name • use fdisk -l /dev/vda command to know the partition name which we have created in above step.
THIS PROCEDURE HAS BEEN COMPLETED		

APPENDIX I. MY ORACLE SUPPORT (MOS)

MOS (*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 MOS registration.

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

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

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

MOS is available 24 hours a day, 7 days a week, 365 days a year.

APPENDIX J. 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. Log into the Oracle Technology Network site at http://docs.oracle.com.
2. Select the tab “Find a product”
3. Type “User Data Repository”
4. Takes you to “CGBU Documentation”.
   A list of the entire documentation set for the selected product and release appears.
5. Select “User Data Repository” followed by version
6. 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.