Oracle® Communications

Upgrade Procedure

Diameter Signal Routing User Data Repository Software Upgrade Procedure Release 14.0.1.0.0

F88025-01

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ORACLE

CAUTION:

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

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

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

See more information on My Oracle Support, see Appendix J.

Oracle Communications User Data Repository Software Upgrade Procedure, Release 14.0.1.0.0

F88025-01

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Chapter 1. Introduction

1.1 Purpose and Scope

This document describes the methods utilized and the procedures performed for a major upgrade from Oracle Communications User Data Repository 12.7.0.x releases to Oracle Communications User Data Repository 14.0.1.0.0 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 perform any Release 14.0.1.0.0 or later software upgrade. The Oracle Communications User Data Repository software includes all Oracle Tekelec Platform Distribution (TPD) software. Any TPD upgrade necessary is included automatically as part of the software upgrade. Performing this procedure assumes that the Oracle Communications User Data Repository software load (ISO file, CD-ROM, or other form of media) has been delivered or dowwnoadedto the 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 14.0.1.0.0 software loads. Visit the Oracle Software Delivery Cloud here: https://edelivery.oracle.com/osdc/faces/Home.jspx
- Distribution of Oracle Communications User Data Repository software that goes with Oracle Communications DSR product is not covered.
- Initial installation of Oracle Communications User Data Repository 12.6.0 software. Refer [1].

1.2 References

Oracle 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 **Find a product**
3. Enter `User Data Repository`

   The CGBU Documentation page opens.

4. Select **User Data Repository** followed by version

[1] Oracle Communications User Data Repository Cloud Installation and Configuration Guide, F88024-01, latest revision

1.3 Acronyms

Table 1: Acronyms

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

Acronym	Meaning
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
MW	Maintenance Window
NE	Network Element
NO	Network OAMP
NOAMP	Network OAMP
OA	HP Onboard Administrator
OAM	Operations, Administration and Maintenance
OAMP	Operations, Administration, Maintenance and Provisioning
PM&C	Platform Management and Configuration
RMS	Rack Mount Server
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

1.4 Terminology

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

Table 2: Terminology

Term	Meaning
Upgrade	The process of converting an application from its current release on a system to a new release.
Major Upgrade	An upgrade from a current release to a new major release. An example of a major upgrade is: release 12.7.0.x to 14.0.1
Minor Upgrade	An upgrade from a current build to a new build in the same major release. An example of a Minor upgrade is: release 14.0.0 to 14.0.1.
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 new 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 that is performed during an 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. 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. After 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.
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.

Term	Meaning
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 do 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 on 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, and so on) that enable a 3rd party entity to install, configuration, and maintain Oracle products for Oracle customers.
NO	Network OAM for Oracle Communications User Data Repository.

1.5 How to use this Document

When using this document, there are a few key points which help to understand the intent of the author. These points are as follows:

1. Before beginning a procedure, completely read the instructional text (immediately after the section heading for each procedure) and all associated procedural warnings or notes.
2. Before performing a step in a procedure, completely read the left and right columns including any step specific warnings or notes.
3. If a procedural step fails to run successfully or fails to receive the required 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 Performing Procedures

Familiarize yourself with the structure and conventions used in these procedures before performing them. Table 1 and the details below provide an example of how procedural steps might be displayed in this document.

Column 1: Step

- Column 1 in Table 1 contains the step number and a checkbox if the step requires an action.
- Sub-steps in a Step X are referred to as Step X.Y. (See example: Step 1 has sub-steps Steps 1.1 to 1.2).
- Mark checkboxes in as steps are performed to keep track of the progress during the procedure.

Column 2: Procedure

- Column 2 in Table 1 contains a heading which indicates the server/IP being accessed as well as text instructions and/or notes. This column may also describe the operations to be performed or observed during the step.

Column 3: Result

- Column 3 in Table 1 generally displays the results of performing the instructions in column 2.
- The Result column can also display any of the following:
  - Inputs (commands or responses) required.
  - Outputs which are displayed on the terminal.
  - Illustrations or graphic figures related to the step instruction.
  - Screen captures from the product GUI related to the step instruction.

Table 3: Sample Procedure

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 does note show on the screen as the characters are entered.

2. ☐	**Active NOAMP VIP:**
	Output diaplays 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/awpcommon:/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 and time are displayed in GMT (+/- 4 min.)
		`date -u`
		`Thu Apr 24 17:13:17 UTC 2014`
		`[admusr@908070109-NO-A filemgmt]$`

THIS PROCEDURE HAS BEEN COMPLETED		

1.6 Recommendations

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

1.6.1 Frequency of Health Checks

You can run the Perform Health Check or View Logs steps freely or repeat as many times as necessary in between procedures during the upgrade process. It is not recommended to do this in between steps in 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 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 are 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.

Chapter 2. General Description

This document defines the step-by-step actions performed for 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 12.7.x source release, or 14.0.0 source release to 14.0.1.0.0 target release.

2.1 Supported Upgrade Paths

Figure 1 shows the supported Oracle Communications User Data Repository upgrade paths.

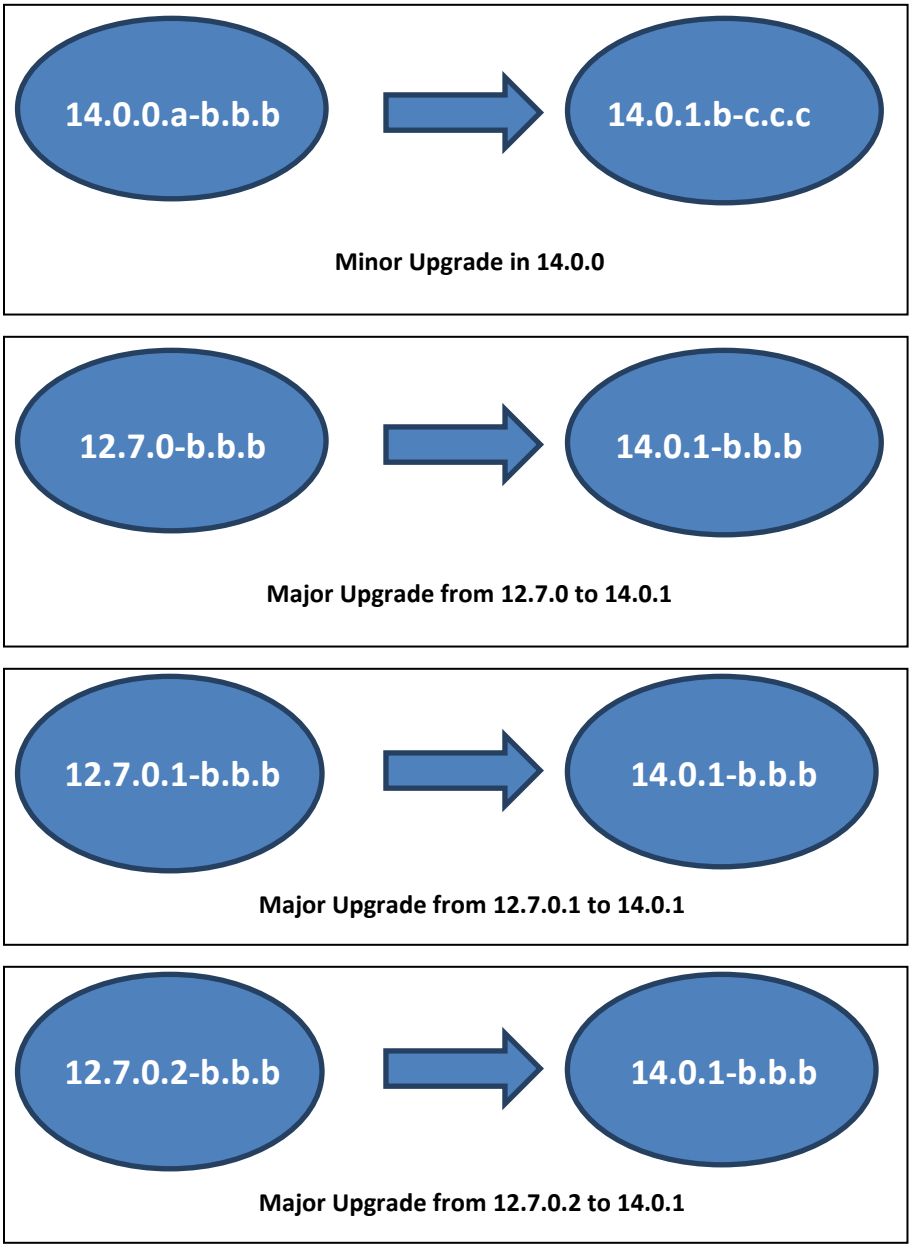


Figure 1: Supported Upgrade Paths

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

2.2 Traffic Management during Upgrade

Upgrade of NOAM servers are not expected to affect traffic-handling servers.

2.3 Provisioning during Upgrade

For Oracle Communications User Data Repository 14.0.1.0.0, provisioning (live traffic) continues while the upgrade is being performed. While the standby NOAMP is being upgraded, the active NOAMP receives provisioning requests. After the upgrade is complete, replication is turned on to the standby NOAMP to sync the most recent requests from the active NOAMP. Then the standby NOAMP becomes 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 in 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

Chapter 3. Upgrade Planning and pre-upgrade procedures

This section contains all information necessary to prepare for and perform an upgrade. The materials required to perform an upgrade are described and the pre-upgrade procedures that are run to ensure the system is 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 takes 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 perform any actions on your system. Only the procedures are used when performing upgrade actions, beginning with Procedure 1: Required Materials Check.

3.1 Required Materials

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

- Target-release application DIU ISO image file, or target-release application media.
- TPD OL7 based DIU iso image file
- GUI access to the Oracle Communications User Data Repository Network OAMP 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 OAMP 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 network is required if that is the only method to log into the OAM servers.
- Direct access to server IMI IP addresses from the 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 (that is, 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 IMI IP address of the server).

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 TPD OL7 based DIU iso file. These files are necessary to perform the upgrade. The Oracle Communications User Data Repository DIU ISO image file is in the format:

Example: UDR-14.0.1.0.0_114.17.0-x86_64-DIU.iso

OL7 based TPD DIU iso: TPD.install-8.0.0.0.0_90.13.0-OracleLinux7.4-x86_64-DIU.iso

When performing this upgrade procedure, it is assumed that the Oracle Communications User Data Repository DIU ISO image file and OL7 based TPD DIU iso has been delivered to the premises. The DIU ISO image file must reside on the local workstation used to perform the upgrade, and anybody performing the upgrade must have access to the application DIU ISO image file and OL7 based TPD DIU iso. If you are at a remote location, it is assumed the application DIU ISO file and OL7 based TPD DIU iso is available to you before starting the upgrade procedure.

3.1.2 Logins, Passwords and Site Information

Obtain all the information requested in the following table. This ensures that the necessary administration information is available before an upgrade starts. Consider the confidential nature of the information recorded in this

table. While all the information in the table is required to complete the upgrade, there may be security policies in place that require secure disposal after the upgrade completes.

	Description	Recorded Value
Credentials	GUI Admin Username[1]	
	GUI Admin Password	
	Admusr Password[2]	
	Root Password[3]	
VPN Access Details	Customer VPN information (if needed)	
NO	Primary NOAMP	
	DR NOAMP	
	XMI VIP address[4]	
	NO 1 XMI IP Address	
	NO 2 XMI IP Address	
Software	Source Release Number	
	Target Release Number	
	ISO Image (.iso) file name	

3.2 Pre-Upgrade Procedures

The pre-upgrade procedures in Table 4 do not have an affect 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
2	Perform Health Check (Upgrade Preparation)	*	*
Appendix B	Health Check Procedures (depends on number of servers)	0:10-1:15	00:25-01:30

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

The DIU ISO transfers to the target systems must be performed before the scheduled maintenance window. Schedule the required maintenance windows accordingly.

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

[2] 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 root passwords for the servers must also be recorded; use additional space at the bottom of this table.

[3] 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 root passwords for the servers must also be recorded; use additional space at the bottom of this table.

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

3.2.1 Hardware Upgrade Preparation

Hardware preparation is not necessary when upgrading to release 14.0.1.0.0.

3.2.2 Review Release Notes

Before starting the upgrade, review the release notes for the Oracle Communications User Data Repository 14.0.1.0.0 release to understand the functional differences and possible traffic impacts of the upgrade.

It is important to check Oracle Communications UDR-DSR compatibility before performing a 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.

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.

Procedure 1: Required Materials Check

Step	Procedure	Result
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 Appendix H for these instructions.

3.2.4 Perform Health Check (Upgrade Preparation)

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

Procedure 2: Perform Health Check (Upgrade Preparation)

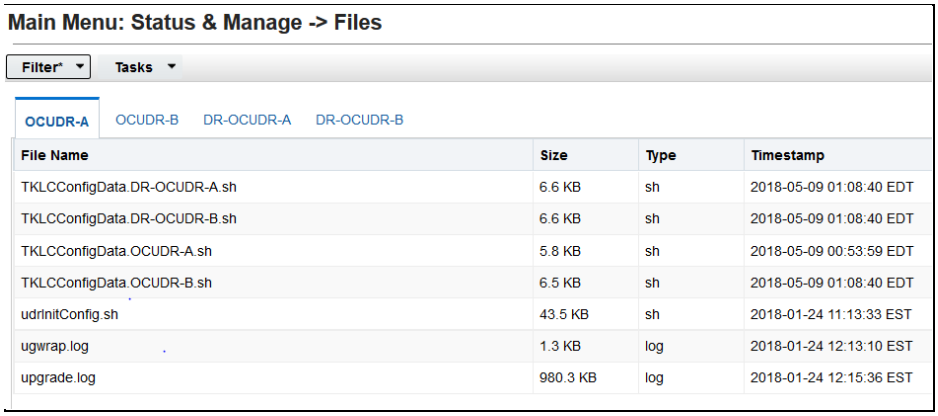
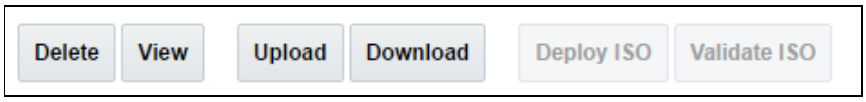
Step	Procedure
1. ☐	This procedure is part of software upgrade preparation and is used to determine the health and status of the Oracle Communications User Data Repository network and servers. This may be performed multiple times but must also be performed at least once in 24 to 36 hours before the start of the upgrade procedures. • Perform Health Check procedures as specified in **Appendix B**.

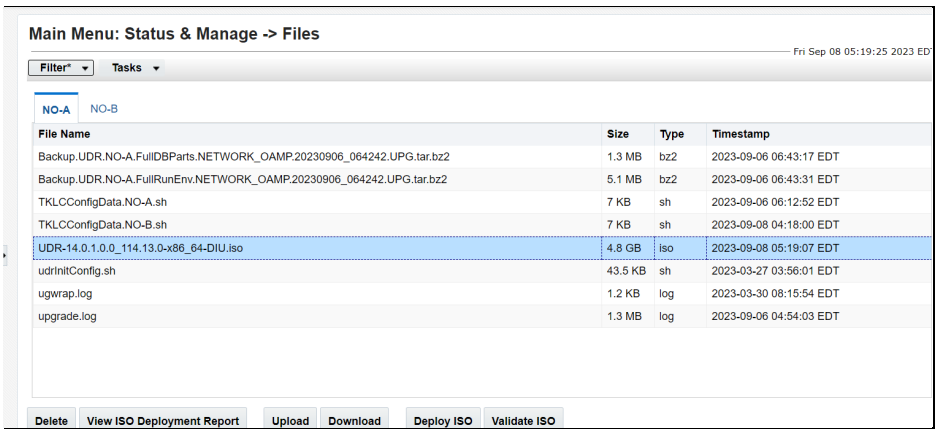
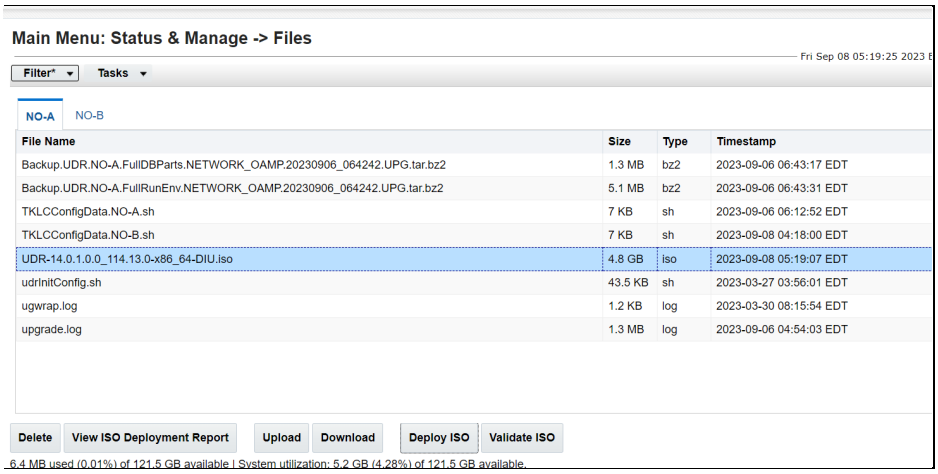
3.2.5 ISO Administration (This step is applicable only for Minor Upgrade)

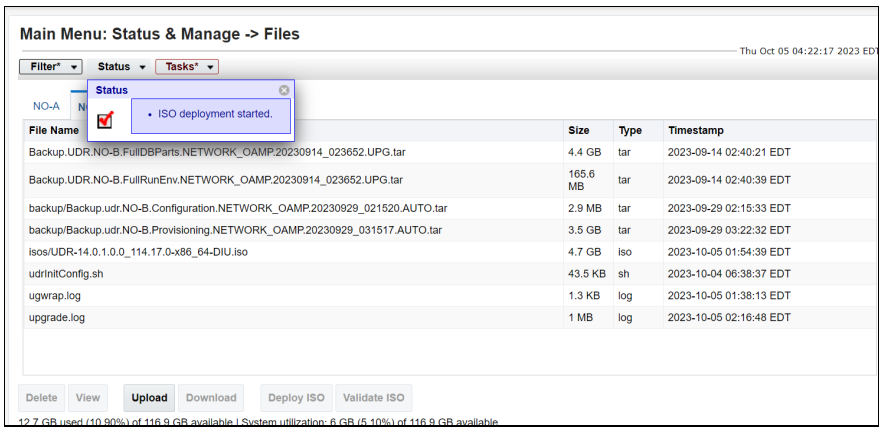
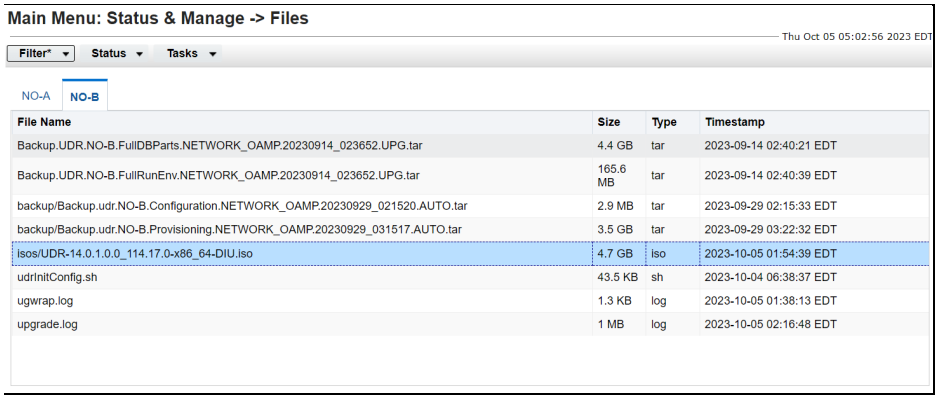
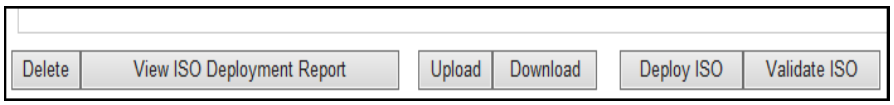
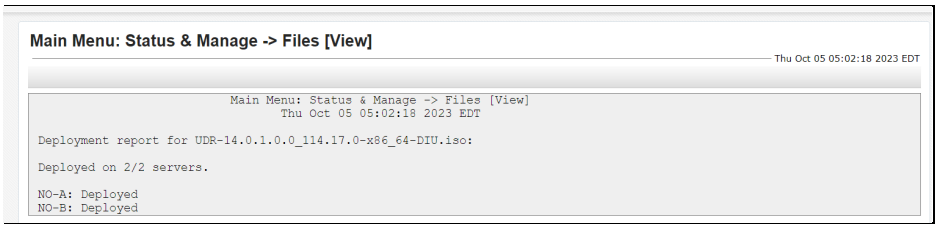
Minor Upgrade: OL8 based TPD server to OL8 based server

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

Procedure 3: 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. Navigate to **Main Menu→ Status & Manage →Files** 2. Using the cursor, select the active NOAMP server from the list tabs. 3. Click **Upload**.	 
3. ☐	**Active NOAMP VIP:** 1. Click **Browse**. 2. Select the Drive and directory location of the ISO file for the target release. Select the DIU ISO file and click **Open**. 3. Click **Upload**.	**NOTES:** • It is recommended to access the DIU ISO file for the target release from a local hard drive partition as opposed to a network or flash drive location. • Depending on network conditions, this upload may take an extended period of time (> 60 secs.). • Alternatively, the DIU ISO file can be manually transferred to the `/var/TKLC/db/filemgmt` directory of the active NOAMP server using SFTP. • The DIU ISO in the file management directory must have global read permission or the GUI ISO transfer fails, with a security log indicating the lack of read permission. If you upload the file using the GUI, the ISO has global read permission. If you have transferred the DIU ISO to the NO without global read permission, you can log in as admusr and use `chmod 777` to give it read permission. • When scp files use `scp -p` command.

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**.	

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.	  

Step	Procedure	Result
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

3.4 Upgrade Execution Overview for Virtual machine Configurations

3.4.1 Primary NOAMP/DR NOAMP Execution Overview

The times in Table 5 and Table 6 are the estimated times for upgrading 2 NOAMPs and 2 DR NOAMPs. The DR NOAMPs are upgraded first, followed by the primary NOAMPs.

Table 5: DR NOAMP Upgrade Procedures for Virtual machine Configurations

Procedure Number	Procedure Title	Elapsed Time (Hours: Minutes)	
		This Step	Cumulative
5	Remove Additional GUI Sessions	00:05	00:05
6	Full Database Backup	00:30	00:35
7 or 9	Major Upgrade DR NOAMP NE or Minor Upgrade DR NOAMP NE	03:30	04:05

Table 6: Primary NOAMP Upgrade Procedures for Virtaul machine Configurations

Procedure Number	Procedure Title	Elapsed Time (Hours: Minutes)	
		This Step	Cumulative
8 or 10	Major Upgrade Primary NOAMP NE or Minor Upgrade Primary NOAMP NE	03:30	03:30

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

3.5 Upgrade Acceptance Overview

Table 4: Upgrade Acceptance overview

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

Chapter 4. Upgrade From UDR-12.7.0.x/UDR-14.0.0 VM to UDR-14.0.1 VM

Major Upgrade:

Major upgrade is performed using Dual Image Upgrade (DIU) procedure provided by the TPD. UDR 12.7.0.x based on OL6 TPD where as UDR 14.0.1.0.0 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 12.7.0.x

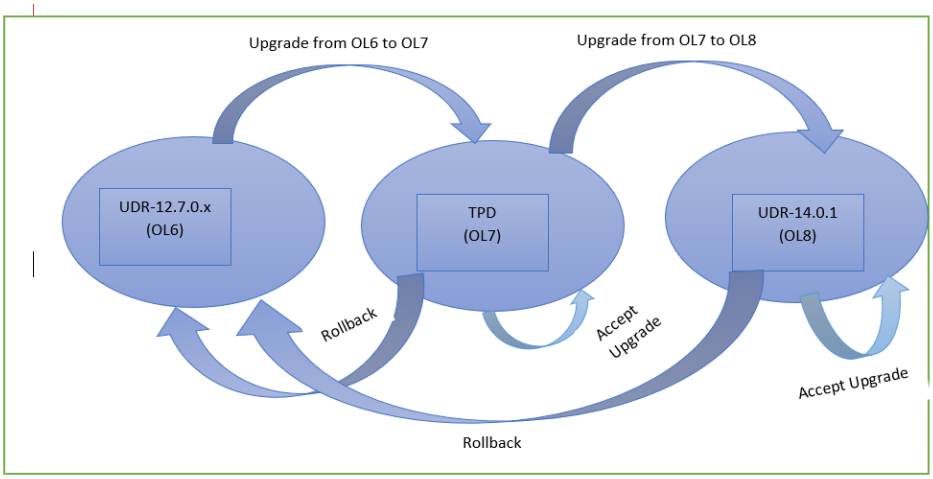


Figure 2: OL6 to OL8 upgrade diagram

Minor Upgrade:

Minor 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-14.0.0.0.0 to UDR-14.0.1.0.0

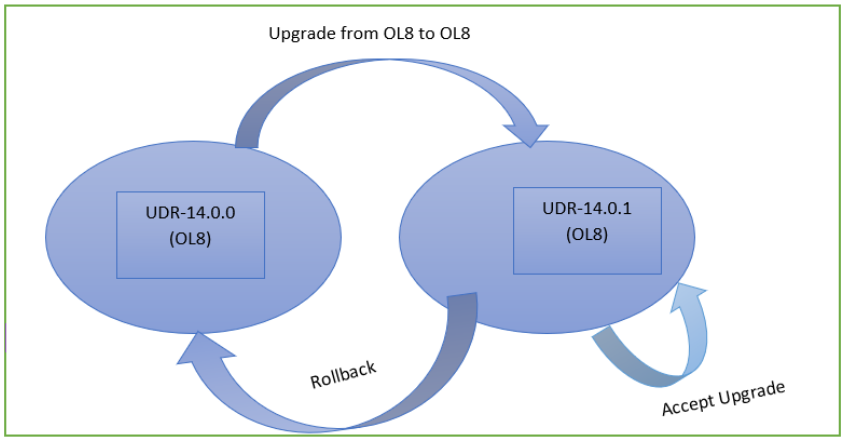


Figure 3: OL8 to OL8 upgrade diagram

4.1 Primary NOAMP/DR NOAMP Upgrade Execution

Open A Service Ticket at My Oracle Support (H) and inform them of your plans to upgrade this system before performing this upgrade.

Before upgrade, 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 the Normal state, put these servers into the Normal or the Application Disabled state before the upgrade process is started.

The sequence of upgrade is designed so that servers providing support services to other servers are upgraded first.

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

Read the following notes on this procedure:

Procedure completion times listed in this document 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 is 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 checkbox.

For procedures which are performed multiple times, a mark can be made below the checkbox (in the same column) for each additional iteration of the step.

Retention of captured data is required for future support references.

4.2 Perform Health Check (Pre Upgrade)

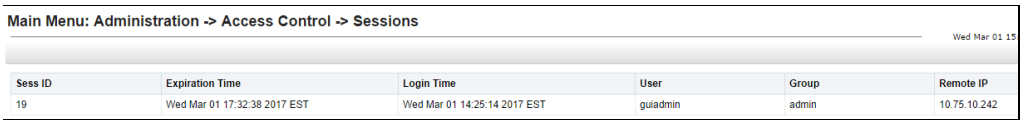
Procedure 4: Health Check (Pre Upgrade)

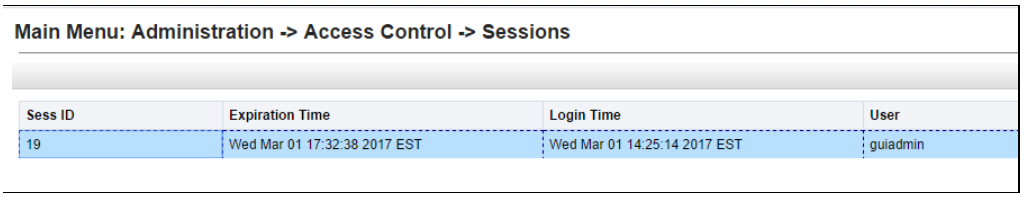
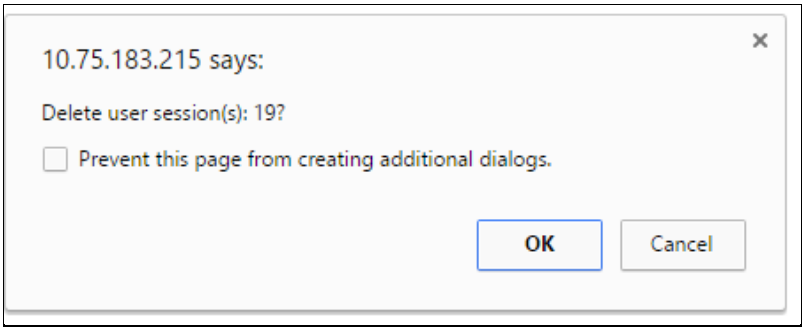
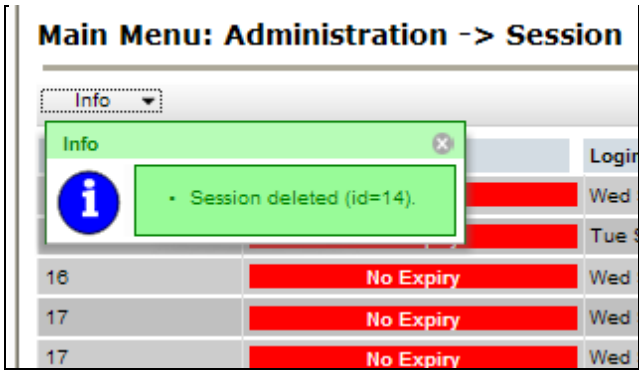
1. ☐	This procedure is part of software upgrade preparation and is used to determine the health and status of the Oracle Communications User Data Repository network and servers. This may be performed multiple times but must also be performed at least once 24 to 36 hours before the start of a maintenance window. Perform Health Check procedures as specified in **Appendix B**.

4.3 Remove Additional GUI Sessions

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

Procedure 5: Remove Additional GUI Sessions

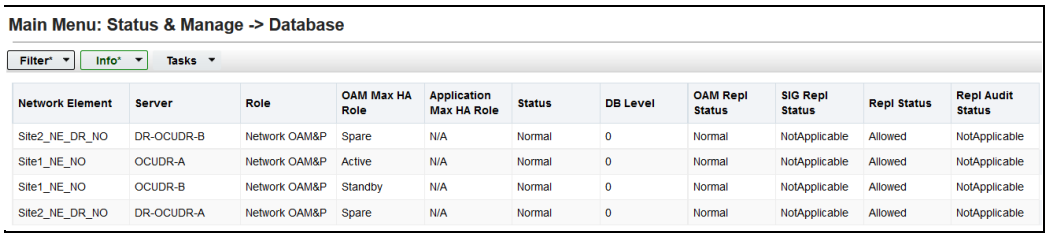
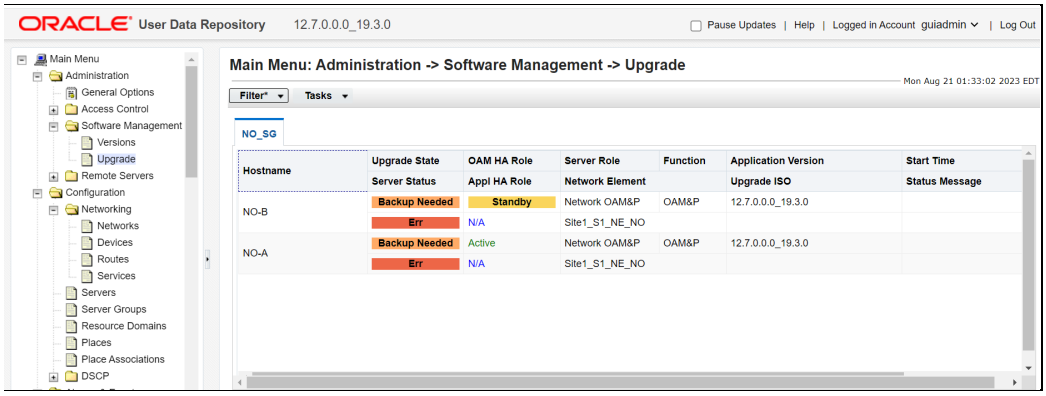
Step	Procedure	Result
1. ☐	Using the VIP address, access the primary NOAMP GUI.	Access the primary NOAMP GUI as specified in **Appendix A**.
2. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Administration → Access Control → Sessions**	
3. ☐	**Active NOAMP VIP:** In the right panel, the list of active GUI sessions connected to the active NOAMP server displays.	
4. ☐	**Active NOAMP VIP:** The User ID and Remote IP address of each session are displayed as seen on the right. Every attempt is made to contact users not engaged in this Upgrade activity and request that they discontinue GUI access until the upgrade activity has completed.	

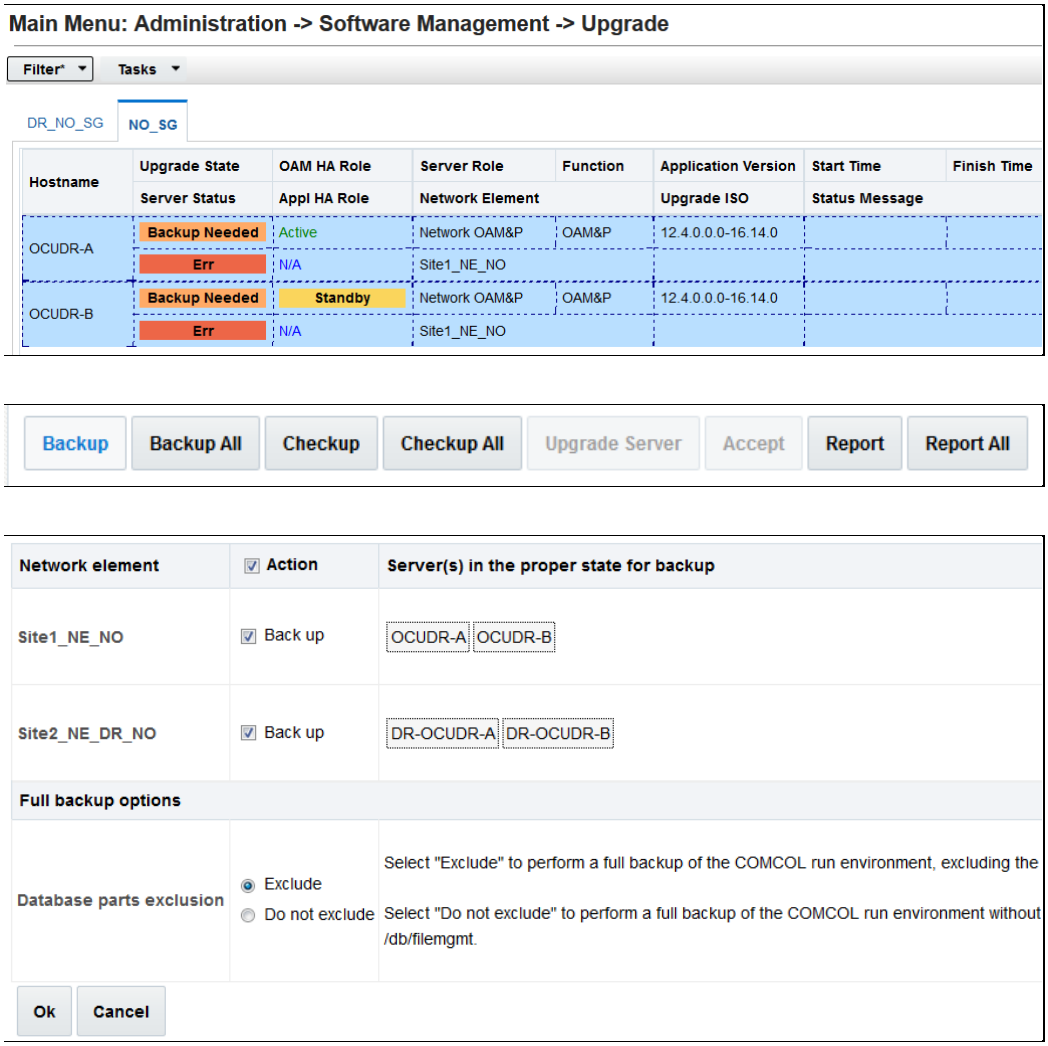
Step	Procedure	Result
5. ☐	**Active NOAMP VIP:** If unable to identify or contact the session owners, sessions not related to the upgrade activity may be selected and deleted as follows: 1. Select the session for deletion with the cursor. 2. In the bottom left of the right panel, click **Delete**. 3. Click **OK**.	  **NOTE:** The Session screen prevents you from deleting the session users are 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:** A confirmation message displays in the Info tab indicating the session ID which was deleted.	
7. ☐	**Active NOAMP VIP:** Delete any additional GUI sessions as needed.	Repeat Steps 5 and 6 of this Procedure for each additional GUI session to be deleted.
THIS PROCEDURE HAS BEEN COMPLETED		

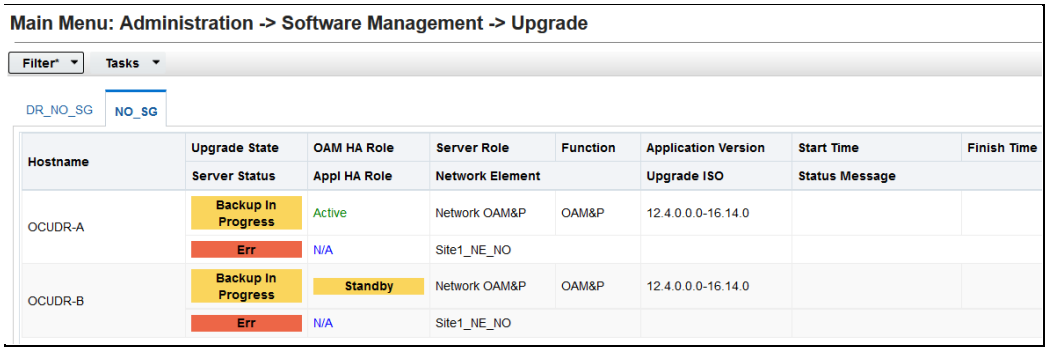
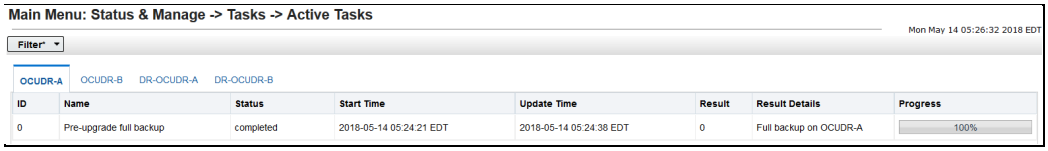
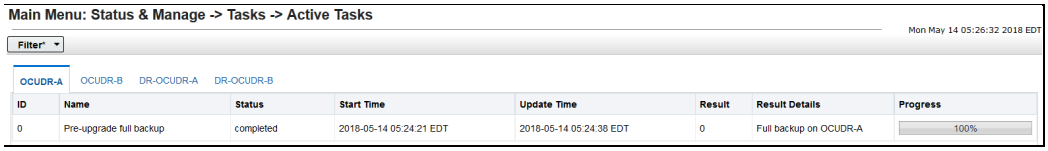
4.4 Full Database Backup (all servers)

This procedure is part of software upgrade preparation and is used to conduct a full backup of the COMCOL run environment on every server. This backup is used in the event of a backout or rollback of the software release.

Procedure 6: 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:** Navigate to **Main Menu → Status & Manage → Database**	 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_NE_DR_NO | DR-OCUDR-B | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_NE_NO | OCUDR-A | Network OAM&P | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_NE_NO | OCUDR-B | Network OAM&P | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site2_NE_DR_NO | DR-OCUDR-A | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable
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 **NOTE:** The full backup on every server can be done from the NOAMP GUI.
4. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Administration → Software Management → Upgrade** Backup the COMCOL run environment	

Step	Procedure	Result
5. ☐	**Active NOAMP VIP:** Click **Backup All** at left bottom of the screen; the full backups begin. After clicking backup, an additional screen opens. Default is to exclude the database parts. If the database parts are included, then the backup takes 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.	

Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The Server Status indicates Backup in Progress The progress of the full backups can be viewed in the Tasks box, as well as from the **Status & Manage->Tasks->Active Tasks** screen. As each full backup completes, its task updates to indicate its success or failure. When all full backup tasks finish successfully, this procedure is complete.	 Main Menu: Administration -> Software Management -> Upgrade Filter Tasks DR_NO_SG NO_SG Hostname / Upgrade State / OAM HA Role / Server Role / Function / Application Version / Start Time / Finish Time Server Status / Appl HA Role / Network Element / Upgrade ISO / Status Message OCUDR-A: Backup In Progress, Active, Network OAM&P, OAM&P, 12.4.0.0.0-16.14.0 Err, N/A, Site1_NE_NO OCUDR-B: Backup In Progress, Standby, Network OAM&P, OAM&P, 12.4.0.0.0-16.14.0 Err, N/A, Site1_NE_NO Tasks ID / Hostname / Name / Task State / Details / Progress 47 / OCUDR-B / Pre-upgrade full backup / running / Full backup on OCUDR-B / 10% 75 / DR-OCUDR-A / Pre-upgrade full backup / completed / Full backup on DR-OCUDR-A / 100% 47 / DR-OCUDR-B / Pre-upgrade full backup / completed / Full backup on DR-OCUDR-B / 100% 0 / OCUDR-A / Pre-upgrade full backup / completed / Full backup on OCUDR-A / 100%  Main Menu: Status & Manage -> Tasks -> Active Tasks Mon May 14 05:26:32 2018 EDT Filter OCUDR-A OCUDR-B DR-OCUDR-A DR-OCUDR-B ID / Name / Status / Start Time / Update Time / Result / Result Details / Progress 0 / Pre-upgrade full backup / completed / 2018-05-14 05:24:21 EDT / 2018-05-14 05:24:38 EDT / 0 / Full backup on OCUDR-A / 100%
7. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Administration → Software Management → Upgrade** Click **Tasks** dropdown.	 Main Menu: Status & Manage -> Tasks -> Active Tasks Mon May 14 05:26:32 2018 EDT Filter OCUDR-A OCUDR-B DR-OCUDR-A DR-OCUDR-B ID / Name / Status / Start Time / Update Time / Result / Result Details / Progress 0 / Pre-upgrade full backup / completed / 2018-05-14 05:24:21 EDT / 2018-05-14 05:24:38 EDT / 0 / Full backup on OCUDR-A / 100% When complete, Progress should display 100%.
THIS PROCEDURE HAS BEEN COMPLETED		

4.5 Upgrade from 12.7.0.x to UDR-14.0.1 (Primary NOAMP/DR NOAMP)

This procedure details how to perform upgrades for primary NOAMP and DR NOAMP servers.

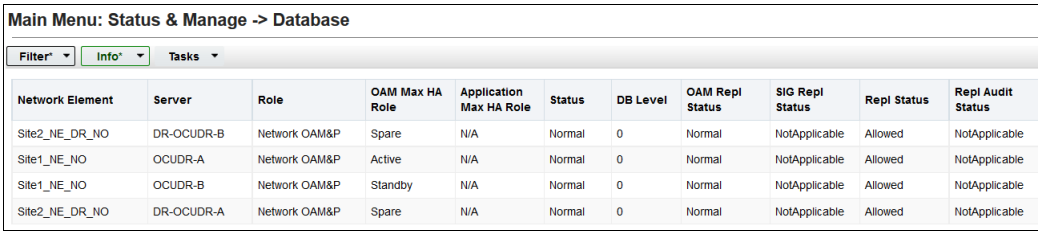
4.5.1 Major Upgrade DR NOAMP NE

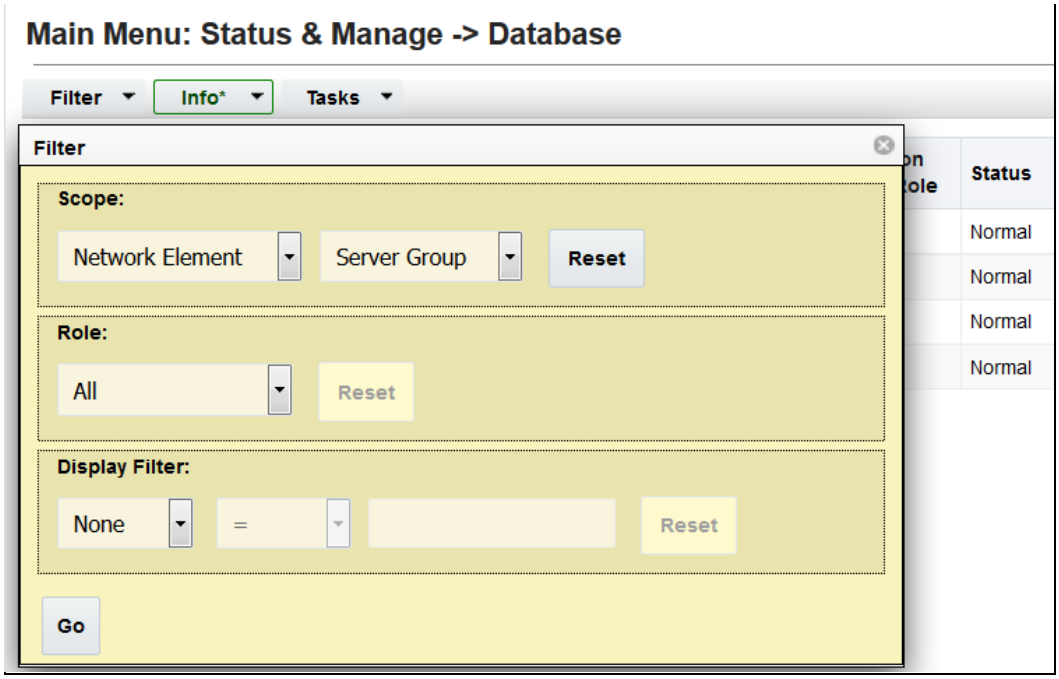
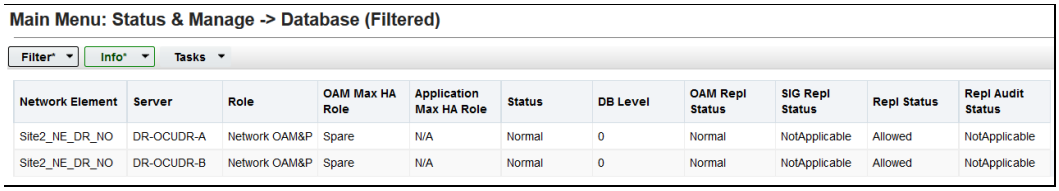
Major upgrade: Upgrade from OL6 based TPD server to OL6 based TPD server.

This procedure details how to perform major upgrades for DR NOAMP server to various possible upgrade paths.

NOTE: Ensure you are on latest patch before upgrading to Release 14.0.1.0.0.

Procedure 7: Major 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:** Navigate to **Main Menu → Status & Manage → Database**	 Main Menu: Status & Manage -> Database 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_NE_DR_NO, DR-OCUDR-B, Network OAM&P, Spare, N/A, Normal, 0, Normal, NotApplicable, Allowed, NotApplicable Site1_NE_NO, OCUDR-A, Network OAM&P, Active, N/A, Normal, 0, Normal, NotApplicable, Allowed, NotApplicable Site1_NE_NO, OCUDR-B, Network OAM&P, Standby, N/A, Normal, 0, Normal, NotApplicable, Allowed, NotApplicable Site2_NE_DR_NO, DR-OCUDR-A, Network OAM&P, Spare, N/A, Normal, 0, Normal, NotApplicable, 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: _____

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** From the Network Element filter list, select the NE name for the DR NOAMP.	
5. ☐	**Active NOAMP VIP:** Click **Go**.	
6. ☐	**Active NOAMP VIP:** The list of servers associated with DR NOAMP Network Element displays.	 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: _____

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_NE_DR_NO	DR-OCUDR-A	Network OAM&P	Spare	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable
Site2_NE_DR_NO	DR-OCUDR-B	Network OAM&P	Spare	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable

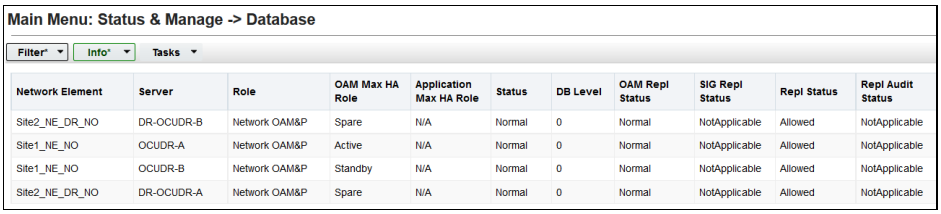
Step	Procedure	Result
NOTE: For Step 8 of this Procedure, select one spare DR NOAMP. *** Verify the Databases are in sync using Appendix E before upgrading each spare server.		
8. ☐	**Active NOAMP VIP:** Upgrade server for the first spare DR NOAMP server.	Upgrade server for the first spare DR NOAMP server (identified in **Step 7** of this Procedure) as specified in Appendix C.2 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.2 Upgrade Server
THIS PROCEDURE HAS BEEN COMPLETED		

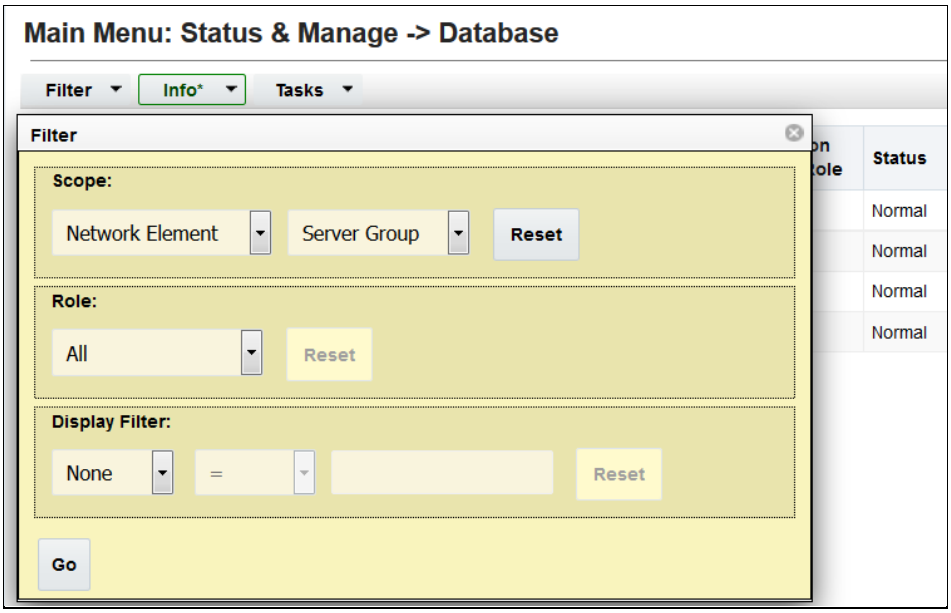
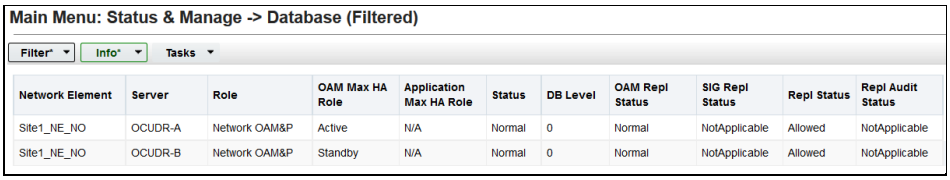
4.5.2 Major Upgrade Primary NOAMP NE

This procedure details how to perform major upgrades for primary NOAMP server to various possible upgrade paths.

NOTE: Ensure you are on latest patch before upgrading from Release 12.7.x to 14.0.1.

Procedure 8: Major 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:** Navigate to **Main Menu → Status & Manage → Database**	 Main Menu: Status & Manage -> Database 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_NE_DR_NO / DR-OCUDR-B / Network OAM&P / Spare / N/A / Normal / 0 / Normal / NotApplicable / Allowed / NotApplicable Site1_NE_NO / OCUDR-A / Network OAM&P / Active / N/A / Normal / 0 / Normal / NotApplicable / Allowed / NotApplicable Site1_NE_NO / OCUDR-B / Network OAM&P / Standby / N/A / Normal / 0 / Normal / NotApplicable / Allowed / NotApplicable Site2_NE_DR_NO / DR-OCUDR-A / Network OAM&P / Spare / N/A / Normal / 0 / Normal / NotApplicable / 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: _____

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** From the Network Element filter list, select the Network Element name for the primary NOAMP.	
5. ☐	**Active NOAMP VIP:** Click **Go** located on the right end of the filter bar.	
6. ☐	**Active NOAMP VIP:** The list of servers associated with the primary NOAMP Network Element displays. Identify each server and the 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: _____

Step	Procedure	Result
8. ☐	**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 Upgrade Server
	!! WARNING !! STEP 8 MUST BE COMPLETED BEFORE CONTINUING ON TO STEP 9. *** Verify the Databases are in sync using Appendix E before upgrading the active server	
9. ☐	**Active NOAMP VIP:** Upgrade server for the active NOAMP server.	Switch the Active server to Standby and Continue the upgrade Upgrade server for the active NOAMP server (identified in Step 7 of this Procedure) as specified in Appendix C.2 Upgrade Server.
THIS PROCEDURE HAS BEEN COMPLETED		

4.5.3 Accept/Backout Major Upgrade

Prerequisite: Make sure section 4.5.1 and 4.5.2 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 7** - Recovery Procedures for backout

4.6 Upgrade from UDR-14.0.0 to UDR-14.0.1 (Primary NOAMP/DR NOAMP)

4.6.1 Minor Upgrade DR NOAMP NE

Minor Upgrade: Upgrade from OL8 based TPD server to OL8 based server

Supported upgrade path is: 14.0.0 to 14.0.1

Procedure 4: Minor 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**.

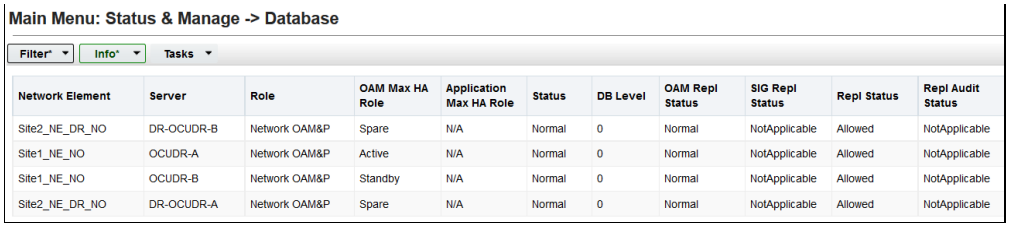
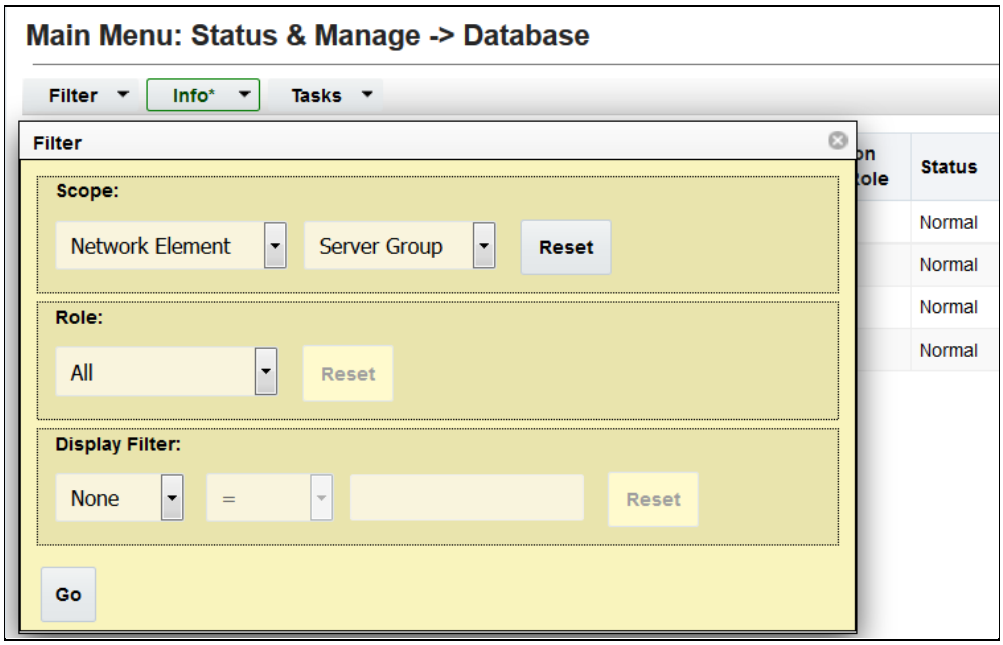
Step	Procedure	Result
2. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Status & Manage → Database**	Main Menu: Status & Manage -> Database Filter* Info* Tasks Network Element | Server | Role | OAM Max HA Role | Application Max HA Role | Status | DB Level | OAM Repl Status | SIG Repl Status | Repl Status | Repl Audit Status Site2_NE_DR_NO | DR-OCUDR-B | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_NE_NO | OCUDR-A | Network OAM&P | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_NE_NO | OCUDR-B | Network OAM&P | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site2_NE_DR_NO | DR-OCUDR-A | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | 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: _____
4. ☐	**Active NOAMP VIP:** From the Network Element filter list, select the NE name for the DR NOAMP.	Main Menu: Status & Manage -> Database Filter Info* Tasks Filter Scope: Network Element Server Group Reset Role: All Reset Display Filter: None = Reset Go Status Normal Normal Normal Normal
5. ☐	**Active NOAMP VIP:** Click **Go**.	SO_UDR Display Filter: - None - = Go

Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The list of servers associated with DR NOAMP Network Element displays.	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_NE_DR_NO | DR-OCUDR-A | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site2_NE_DR_NO | DR-OCUDR-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		

4.6.2 Minor Upgrade Primary NOAMP NE

Procedure 10: Minor 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**.

Step	Procedure	Result
2. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Status & Manage → Database**	 Main Menu: Status & Manage -> Database 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_NE_DR_NO | DR-OCUDR-B | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_NE_NO | OCUDR-A | Network OAM&P | Active | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site1_NE_NO | OCUDR-B | Network OAM&P | Standby | N/A | Normal | 0 | Normal | NotApplicable | Allowed | NotApplicable Site2_NE_DR_NO | DR-OCUDR-A | Network OAM&P | Spare | N/A | Normal | 0 | Normal | NotApplicable | 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 list, select the Network Element name for the primary NOAMP.	 Main Menu: Status & Manage -> Database Filter Info* Tasks Filter Scope: Network Element Server Group Reset Role: All Reset Display Filter: None = Reset Go Status Normal Normal Normal Normal
5. ☐	**Active NOAMP VIP:** Click **Go** located on the right end of the filter bar.	Display Filte Go

Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The list of servers associated with the primary NOAMP Network Element displays. Identify each server and its associated Role and HA Role.	**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
---	---	---	---	---	---	---	---	---	---	---
Site1_NE_NO	OCUDR-A	Network OAM&P	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable
Site1_NE_NO	OCUDR-B	Network OAM&P	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable	 	
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: _____
NOTE: Step 8 is for the STANDBY NOAMP ONLY.		
8. ☐	**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 8 MUST BE COMPLETED BEFORE CONTINUING ON TO STEP 9. *** Verify the Databases are in sync using Appendix F before upgrading the active server	
9. ☐	**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		

4.6.3 Accept/Backout upgrade of Minor Upgrade

Prerequisite: Make sure section 4.6.1 or 4.6.2 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 7 - **Recovery Procedures** for backout

Chapter 5. Single server upgrade

Single server configuration is used for lab setup demonstration only. This configuration does not support HA and is not intended for production network. This one server lab setup supports the ability to perform and upgrade which allows all configuration data and database records to be carried forward to the next release.

5.1 Upgrading a Single Server (Major Upgrade)

This procedure is for upgrading a one server Lab setup only.

Procedure 5: Upgrade Single Server

Step	Procedure	Result
1. ☐	Resize the instance	Resize the instance as per the Appendix.H
2. ☐	Identify NOAMP IP Address	Identify IP Address of the single NOAMP server to be upgraded.

3. ☐	**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>`

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 **`# mount /var/TKLC/db/filemgmt/UDR-14.0.1.0.0_114.17.0-x86_64-DIU.iso /var/TKLC/ol8_diu -o loop`**

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.

7. ☐	Accept upgrade of TPD 7.4	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

Step	Procedure	Result
		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]#
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**

9. ☐	Mount UDR DIU iso and first install and then upgrade	**mount /var/TKLC/db/filemgmt/ UDR-14.0.1.0.0_114.17.0-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)

Step	Procedure	Result
		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)
10. ☐	Accept/Rollback the upgrade	Accept upgrade as specified in **Appendix E**: Rollback the upgrade as specified in Appendix D
THIS PROCEDURE HAS BEEN COMPLETED		

5.2 Upgrading a Single Server (Minor 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-14.0.1.0.0_114.17.0-x86_64-DIU.iso`** **`# sudo mount /var/TKLC/upgrade/ UDR-14.0.1.0.0_114.17.0-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

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.

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

Step	Procedure	Result
		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]#
THIS PROCEDURE HAS BEEN COMPLETED		

Chapter 6. Perform Health Check (Post Primary NOAM/DR NOAMP upgrade)

Procedure 6: Health Check (Post Primary NOAMP/DR NOAMP Upgrade)

1. ☐	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. Perform Health Check procedures as specified in **Appendix B**.

Chapter 7. Recovery Procedures

Upgrade procedure recovery issues are directed to the My Oracle Support (**Appendix I**). Persons performing the upgrade are familiar with these documents.

Recovery procedures are covered under the Disaster Recovery Guide. Perfrom this procedure only if there is a problem and it is required 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 J.

!! WARNING !!	Backout procedures cause traffic loss.

NOTES:	These recovery procedures are provided for the backout of an upgrade only. (that is, for the backout from a failed target release to the previously installed release). Backout of an initial installation is not supported.

7.1 Order of Backout

The following list displays the order to backout the servers (primary and DR sites):

1. DR NOAMPs (spares)
2. Primary standby NOAMP
3. Primary active NOAMP

7.2 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 addresses are required to access the server when performing the backout.

The reason to perform a backout has a direct impact on any additional backout preparation that must be done. The backout procedure causes traffic loss.

NOTE: Verify that the two backup archive files created using the procedure in 4.4 Full Database Backup (All Servers) are present on every server that is to be backed-out.

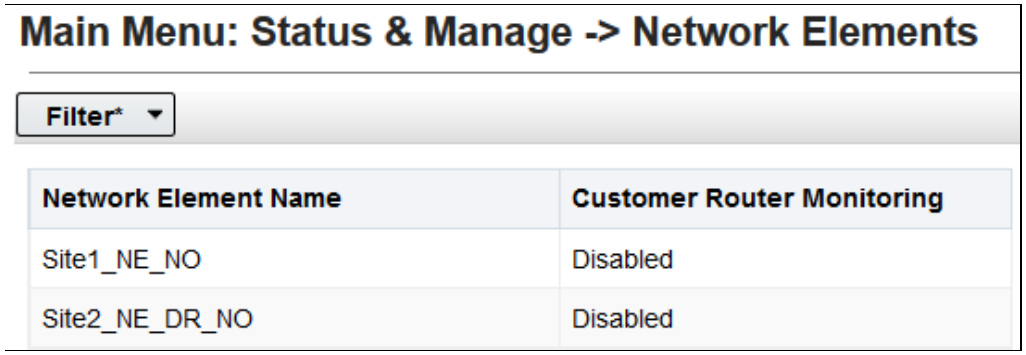
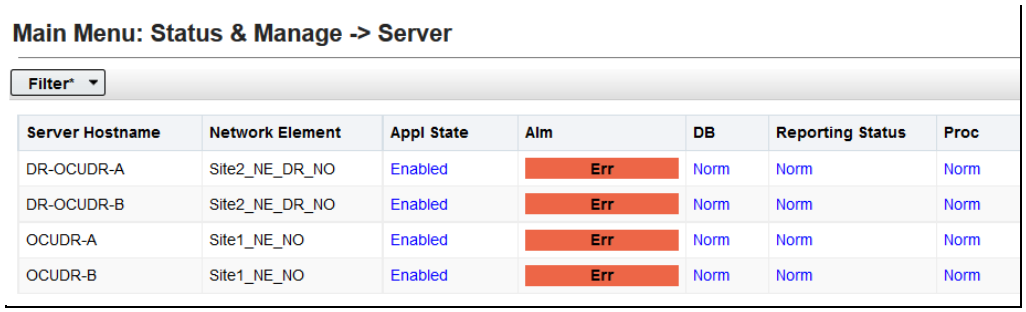
These archive files are located in the `/var/TKLC/db/filemgmt` directory and have different filenames than other database backup files.

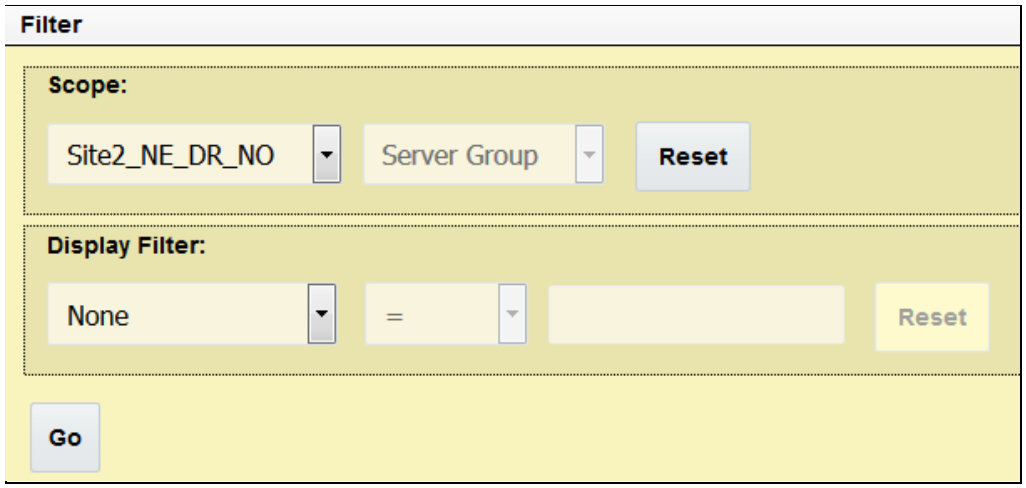
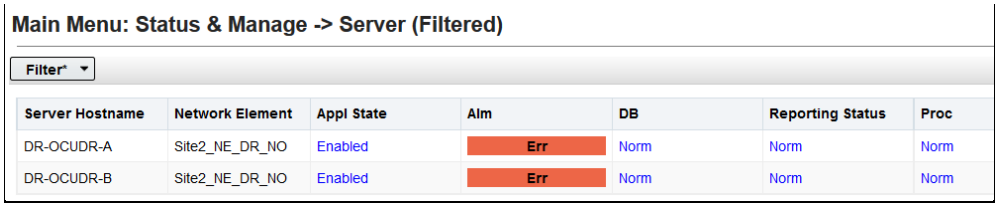
The filenames have the format:

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

7.3 Backout of DR NOAMP NE

Procedure 73: Backout of DR NOAMP NE

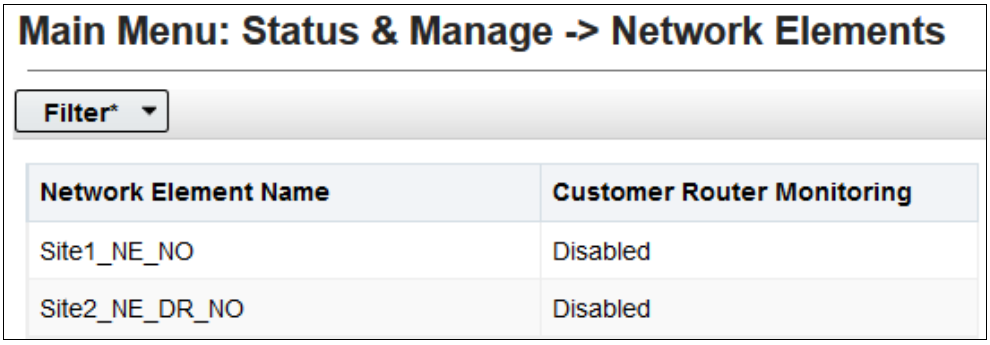
Step	Procedure	Result
1. ☐	Using the VIP address, access the primary NOAMP GUI.	Access the primary NOAMP GUI as specified in Appendix A.
2. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Status & Manage → Network Elements**	
3. ☐	Record the name of the DR NOAMP NE to be downgraded (backed out) in the space provided to the right.	Record the name of the DR NOAMP NE to be backed out. DR NOAMP NE: _____
4. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Status & Manage → Server**	

Step	Procedure	Result
5. ☐	**Active NOAMP VIP:** 4. From the **Status & Manage→ Server** filter list, select the name for the DR NOAMP NE. 5. Click **Go**.	
6. ☐	**Active NOAMP VIP:** The list of servers associated with the DR NOAMP NE displays. Identify each server hostname and its associated Reporting Status and Appl State.	
7. ☐	Using the list of servers associated with the DR NOAMP NE in Step 6, 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:** Perform 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 Server).

Step	Procedure	Result
9. ☐	**Active NOAMP VIP:** Perform 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 Server).
10. ☐	**Active NOAMP VIP:** Perform Health Check at this time only if all servers are backed out. Otherwise, proceed with the next backout	Perform 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		

7.4 Backout of Primary NOAMP NE

Procedure 84: Backout of Primary NOAMP NE

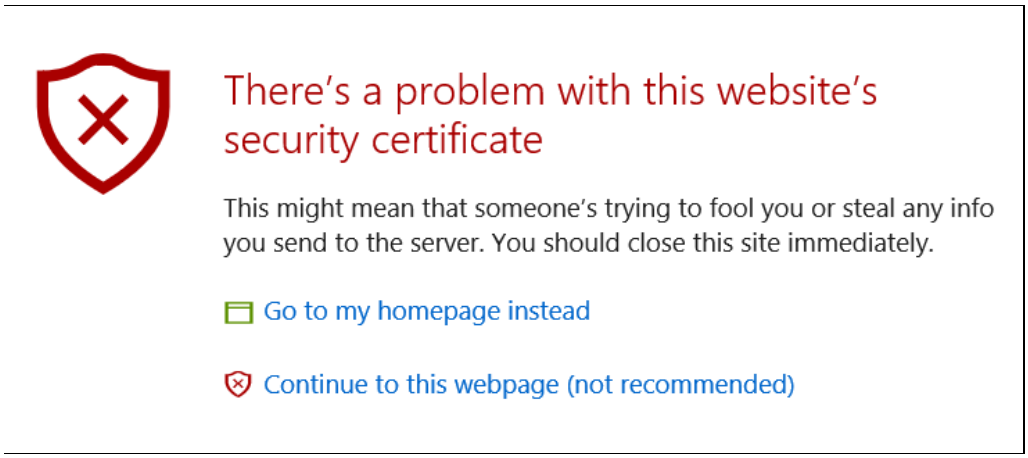
Step	Procedure	Result
1. ☐	Using the VIP address, access the primary NOAMP GUI.	Access the primary NOAMP GUI as specified in Appendix A.
2. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Status & Manage → Network Elements**	
3. ☐	Record the name of the NOAMP NE to be downgraded (backed out) in the space provided to the right.	Record the name of the primary NOAMP NE which is backed out. Primary NOAMP NE: _____

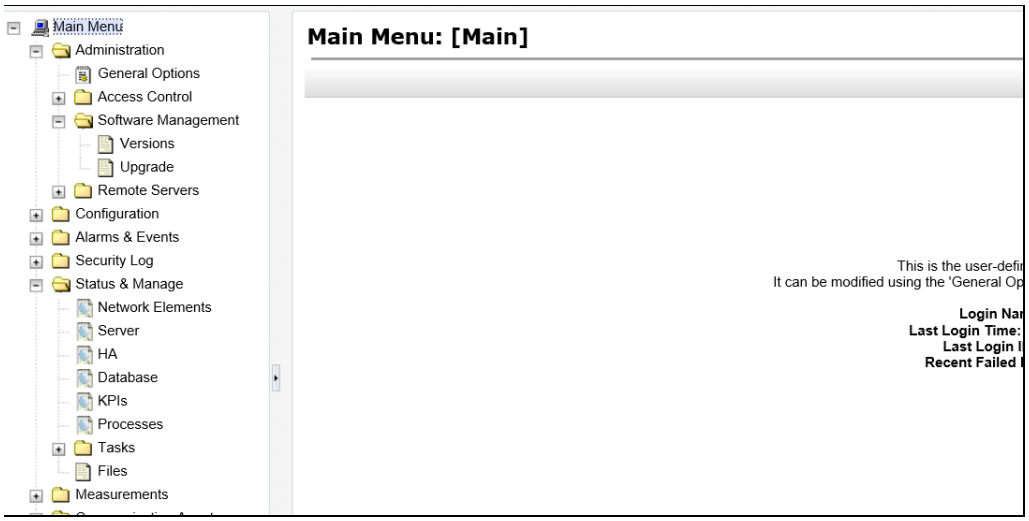
Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Status & Manage → Server**	**Main Menu: Status & Manage -> Server** Filter* Server Hostname / Network Element / Appl State / Alm / DB / Reporting Status / Proc DR-OCUDR-A / Site2_NE_DR_NO / Enabled / Err / Norm / Norm / Norm DR-OCUDR-B / Site2_NE_DR_NO / Enabled / Err / Norm / Norm / Norm OCUDR-A / Site1_NE_NO / Enabled / Err / Norm / Norm / Norm OCUDR-B / Site1_NE_NO / Enabled / Err / Norm / Norm / Norm
5. ☐	**Active NOAMP VIP:** 1. From the **Status & Manage/ Server** filter list, select the name for the primary NOAMP NE. 2. Click **Go**	**Filter** **Scope:** Site1_NE_NO / Server Group / **Reset** **Display Filter:** None / = / Reset **Go**
6. ☐	**Active NOAMP VIP:** A list of servers associated with the primary NOAMP NE displays. 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-A / Site1_NE_NO / Enabled / Err / Norm / Norm / Norm OCUDR-B / Site1_NE_NO / Enabled / Err / Norm / Norm / Norm
7. ☐	Using the list of servers associated with the primary NOAMP NE 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: _____

Step	Procedure	Result
8. ☐	**Active NOAMP VIP:** Perform 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 Server).
9. ☐	**Active NOAMP VIP:** Perform 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 Server).
10. ☐	**Active NOAMP VIP:** Perform Health Check at this time only if all servers are backed out.	Perform 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)

Procedure 95: Accessing the OAM Server GUI (NOAMP)

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 **Proceed anyway**.	
2. ☐	**Active OAM VIP:** The login screen displays. Login to the GUI using the default user and password.	

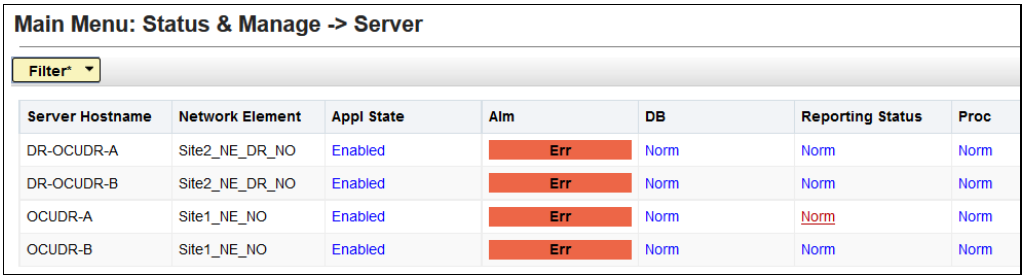
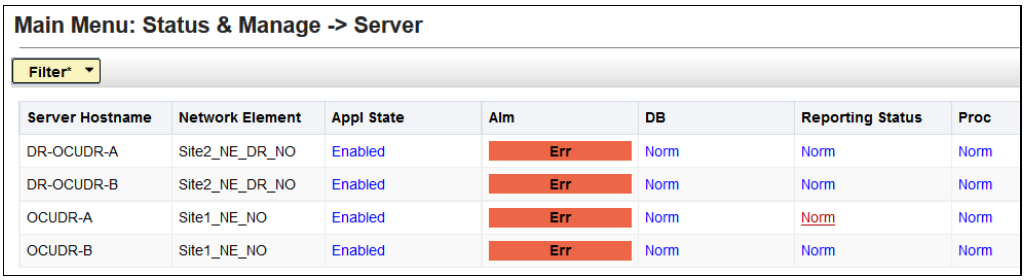
Step	Procedure	Result
3. ☐	**Active OAM VIP:** The Main Menu displays. Verify that the message across the top of the right panel indicates that the browser is using the VIP connected to the active OAM server.	 **NOTE:** The message may show connection to either a ACTIVE NETWORK OAMP or a SYSTEM OAM depending on the selected NE.
THIS PROCEDURE HAS BEEN COMPLETED		

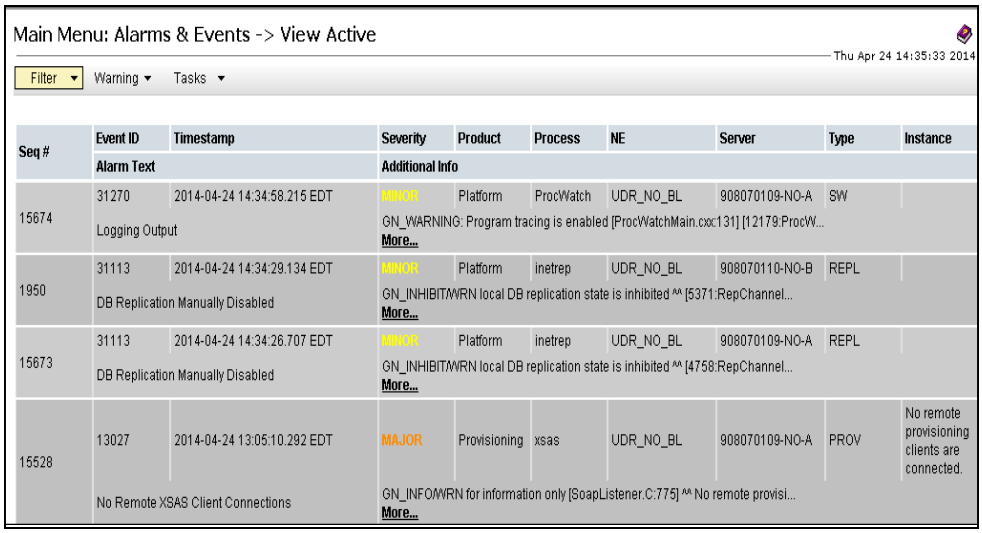
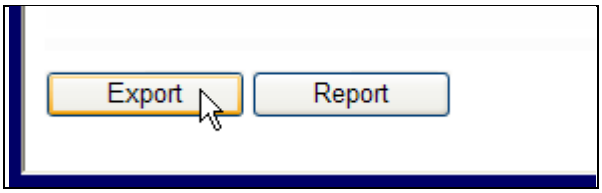
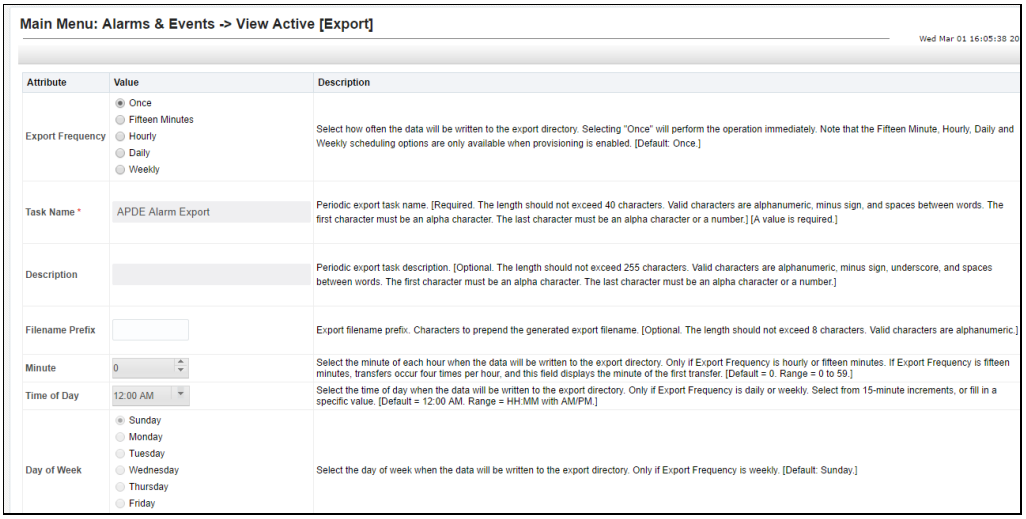
Appendix B. Health Check Procedures

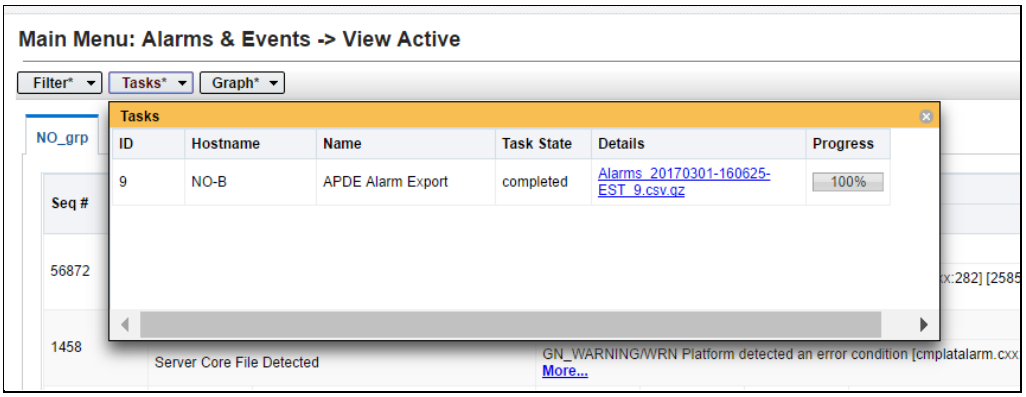
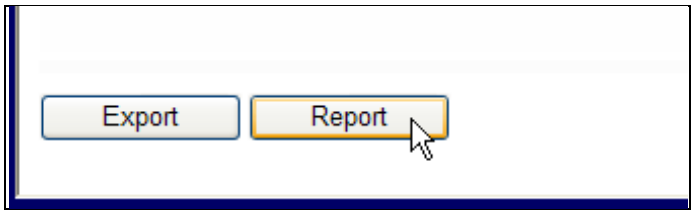
This procedure is part of software upgrade preparation and is used to determine the health and status of the Oracle Communications User Data Repository network and servers.

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

Procedure 106: Health Check Procedures

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:** Navigate to **Main Menu → Status & Manage →Server**	 Main Menu: Status & Manage -> Server Filter* Server Hostname | Network Element | Appl State | Alm | DB | Reporting Status | Proc DR-OCUDR-A | Site2_NE_DR_NO | Enabled | Err | Norm | Norm | Norm DR-OCUDR-B | Site2_NE_DR_NO | Enabled | Err | Norm | Norm | Norm OCUDR-A | Site1_NE_NO | Enabled | Err | Norm | Norm | Norm OCUDR-B | Site1_NE_NO | Enabled | Err | Norm | Norm | Norm Verify that all server statuses show Norm.
3. ☐	**Active NOAMP VIP:** If any other server statuses are present, they are listed in a colored box. **NOTE:** Other server states include Err, Warn, Man, Unk and Disabled.	 Main Menu: Status & Manage -> Server Filter* Server Hostname | Network Element | Appl State | Alm | DB | Reporting Status | Proc DR-OCUDR-A | Site2_NE_DR_NO | Enabled | Err | Norm | Norm | Norm DR-OCUDR-B | Site2_NE_DR_NO | Enabled | Err | Norm | Norm | Norm OCUDR-A | Site1_NE_NO | Enabled | Err | Norm | Norm | Norm OCUDR-B | Site1_NE_NO | Enabled | Err | Norm | Norm | Norm If server state is any value besides NORM, follow **Appendix I** to contact My Oracle Support.

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Alarm & Events → View Active**	
5. ☐	**Active NOAMP VIP:** Click **Export**.	 **NOTE:** This step cannot be performed if global provisioning is disabled. The Export button is grayed out in that scenario.
6. ☐	**Active NOAMP VIP:** Click **Ok** at the bottom of the screen. Default values are fine.	

Step	Procedure	Result
7. ☐	**Active NOAMP VIP:** Click **Tasks**. The name of the exported Alarms CSV file displays 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:** Click **Report**.	

Step	Procedure	Result
10. ☐	**Active NOAMP VIP:** Active **Alarms & Events Report** is generated and displayed in the right panel.	**Main Menu: Alarms & Events -> View Active [Report]** Main Menu: Alarms & Events -> View Active [Report] Tue May 15 07:30:21 2018 EDT TIMESTAMP: 2018-05-15 06:46:56.350 EDT NETWORK_ELEMENT: Site1_NE_NO SERVER: OCUDR-A SEQ_NUM: 32758 EVENT_NUMBER: 13075 SEVERITY: CRITICAL PRODUCT: Provisioning PROCESS: udrprov TYPE: PROV INSTANCE: NAME: Provisioning Interfaces Disabled DESCR: Provisioning Interfaces Disabled. ERR_INFO: GN_NOTENAB/WRN SOAP and REST interfaces are disabled ^^ [30479:ProvController.C:164] NSECS: 1638939351337559701 ID: 0 TIMESTAMP: 2018-05-15 06:29:14.812 EDT NETWORK_ELEMENT: Site1_NE_NO SERVER: OCUDR-A SEQ_NUM: 32743 EVENT_NUMBER: 32532 SEVERITY: MINOR PRODUCT: TPD PROCESS: cmplatalarm TYPE: PLAT INSTANCE: NAME: Server Upgrade Pending Accept/Reject DESCR: Server Upgrade Pending Accept/Reject ERR_INFO:
11. ☐	**Active NOAMP VIP:** 1. Click **Save**. 2. Click **Save** and save to a directory.	Print Save Back
12. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Configuration → Network Elements**	**Main Menu: Status & Manage -> Network Elements** Filter* Network Element Name: Site1_NE_NO — Customer Router Monitoring: Disabled Network Element Name: Site2_NE_DR_NO — Customer Router Monitoring: Disabled

Step	Procedure	Result
13. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Configuration → Server Groups**	**Main Menu: Configuration -> Server Groups** Filter* Server Group Name: DR_NO_SG; Level: A; Parent: NONE; Function: UDR-NO; Connection Count: 8 Servers: Network Element: **Site2_NE_DR_NO** NE HA Pref: **SPARE** Server / Node HA Pref / VIPs DR-OCUDR-A / SPARE / 10.10.1.39 DR-OCUDR-B / SPARE / 10.10.1.39 Server Group Name: NO_SG; Level: A; Parent: NONE; Function: UDR-NO; Connection Count: 8 Servers: Network Element: **Site1_NE_NO** NE HA Pref: **DEFAULT** Server / Node HA Pref / VIPs OCUDR-A / 10.10.1.6 OCUDR-B / 10.10.1.6
14. ☐	**Active NOAMP VIP:** Click **Report**.	Insert Edit Delete **Report**
15. ☐	**Active NOAMP VIP:** A Server Group Report is generated and displayed in the right panel.	**Main Menu: Configuration -> Server Groups [Report]** Main Menu: Configuration -> Server Groups [Report] Tue May 15 07:27:17 2018 EDT Name: DR_NO_SG Level: A Connection Count: 8 Parent: NONE Function: UDR-NO Servers: DR-OCUDR-A: [HA Role Pref: SPARE, NE: Site2_NE_DR_NO, NE HA Pref: SPARE] DR-OCUDR-B: [HA Role Pref: SPARE, NE: Site2_NE_DR_NO, NE HA Pref: SPARE] Vips: 10.10.1.39: [NE: Site2_NE_DR_NO] Name: NO_SG Level: A Connection Count: 8 Parent: NONE Function: UDR-NO Servers: OCUDR-A: [HA Role Pref: DEFAULT, NE: Site1_NE_NO, NE HA Pref: DEFAULT] OCUDR-B: [HA Role Pref: DEFAULT, NE: Site1_NE_NO, NE HA Pref: DEFAULT] Vips: 10.10.1.6: [NE: Site1_NE_NO]
16. ☐	**Active NOAMP VIP:** 1. Click **Save** 2. Click **Save**.	Print Save Back

Step	Procedure	Result
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 7 and 10] • Network Elements Report [*Appendix B*, Step 12] • Server Group Report [*Appendix B*, Step 15]
18. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Status & Manage → HA**	**Main Menu: Status & Manage -> HA** Filter* Hostname | OAM HA Role | Application HA Role | Max Allowed HA Role | Mate Hostname List | Network Element | Server Role | Active VIPs OCUDR-A | Active | N/A | Active | OCUDR-B | Site1_NE_NO | Network OAM&P | 10.10.1.6 OCUDR-B | Standby | N/A | Active | OCUDR-A | Site1_NE_NO | Network OAM&P | DR-OCUDR-A | Spare | N/A | Active | DR-OCUDR-B | Site2_NE_DR_NO | Network OAM&P | 10.10.1.39 DR-OCUDR-B | Spare | N/A | Active | DR-OCUDR-A | Site2_NE_DR_NO | Network OAM&P |
19. ☐	**Active NOAMP VIP:** Verify that the HA Status for all servers shows either Active or Standby.	**Main Menu: Status & Manage -> HA** Filter* Hostname | OAM HA Role | Application HA Role | Max Allowed HA Role | Mate Hostname List | Network Element | Server Role | Active VIPs OCUDR-A | Active | N/A | Active | OCUDR-B | Site1_NE_NO | Network OAM&P | 10.10.1.6 OCUDR-B | Standby | N/A | Active | OCUDR-A | Site1_NE_NO | Network OAM&P | DR-OCUDR-A | Spare | N/A | Active | DR-OCUDR-B | Site2_NE_DR_NO | Network OAM&P | 10.10.1.39 DR-OCUDR-B | Spare | N/A | Active | DR-OCUDR-A | Site2_NE_DR_NO | Network OAM&P |
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**.
STEP 21 IS POST-UPGRADE ONLY		

21. ☐	**Active NOAMP VIP:**
	Determine if any errors were reported.
		Use an SSH client to connect to the recently upgraded servers (for example: ssh or 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 command to determine if any errors were reported. Contact the Oracle CGBU Customer Care Center if errors occur.

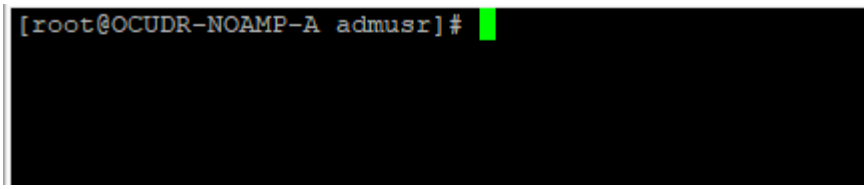
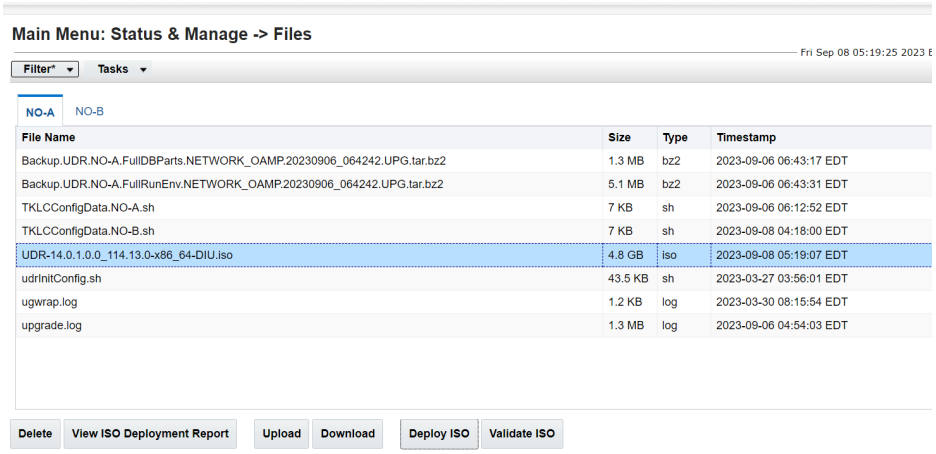
THIS PROCEDURE HAS BEEN COMPLETED		

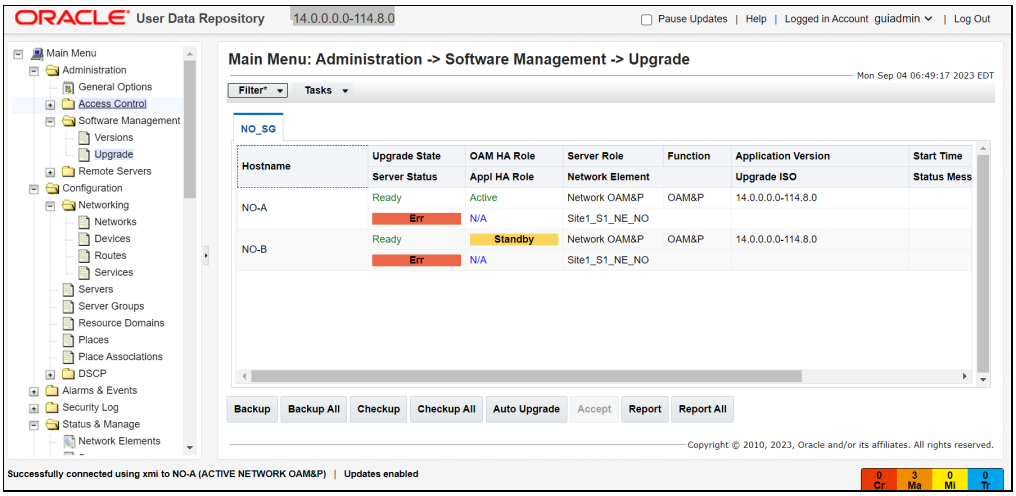
Appendix C. Upgrade of a Server

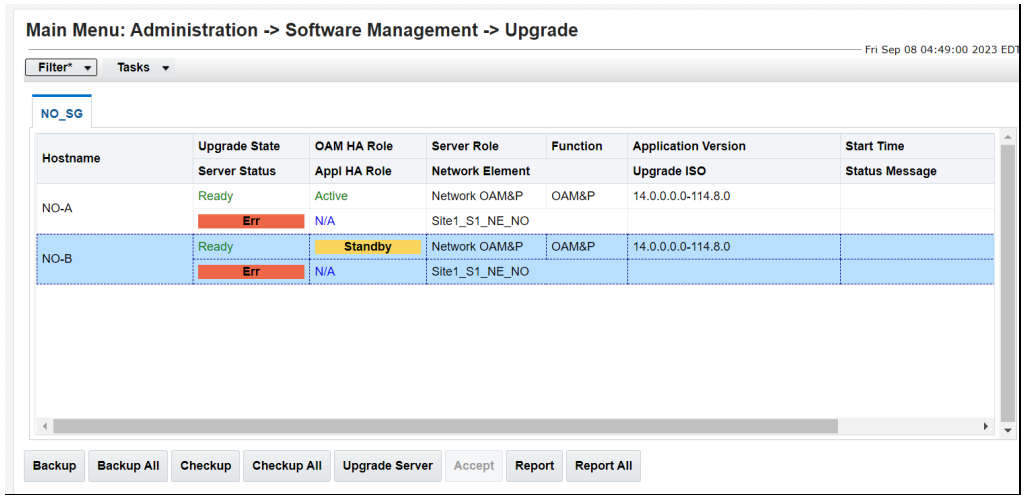
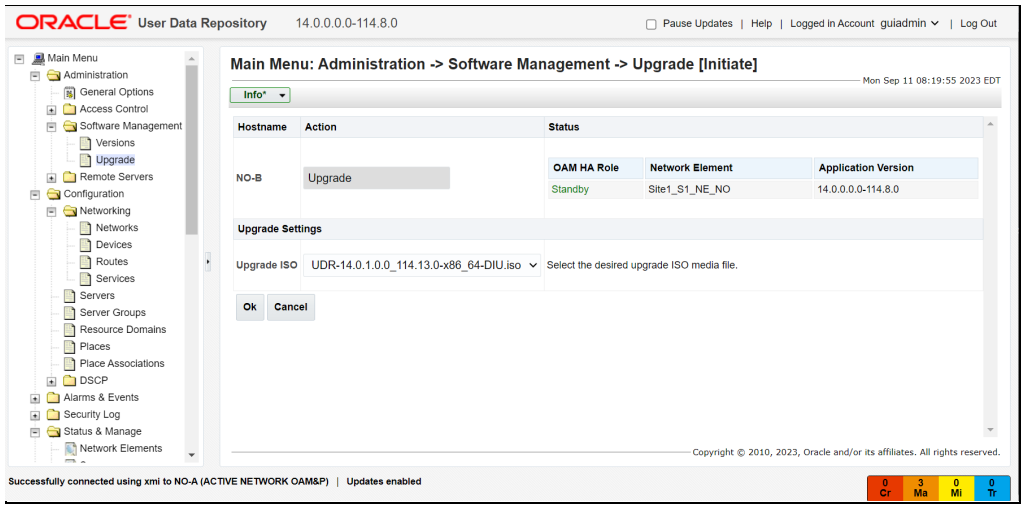
C.1 MINOR UPGRADE

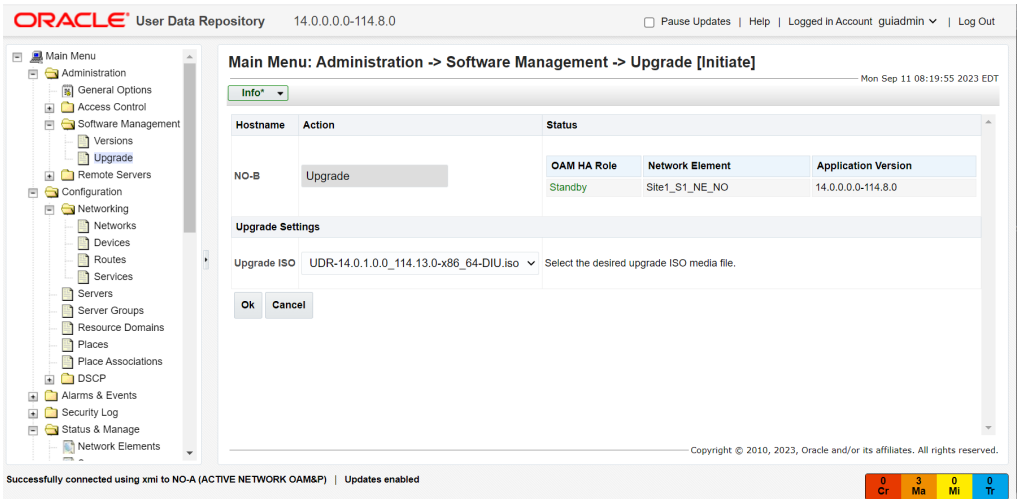
This procedure explains the steps of upgrading OL8 based TPD server to OL8 based TPD server

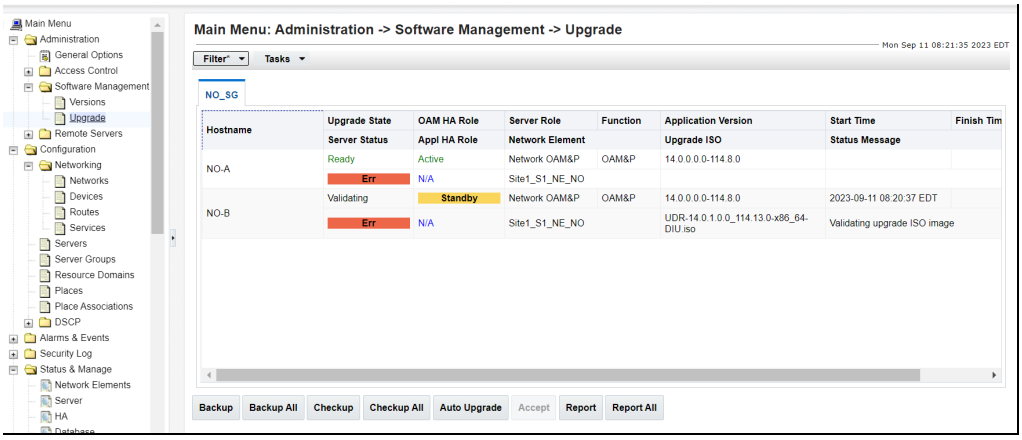
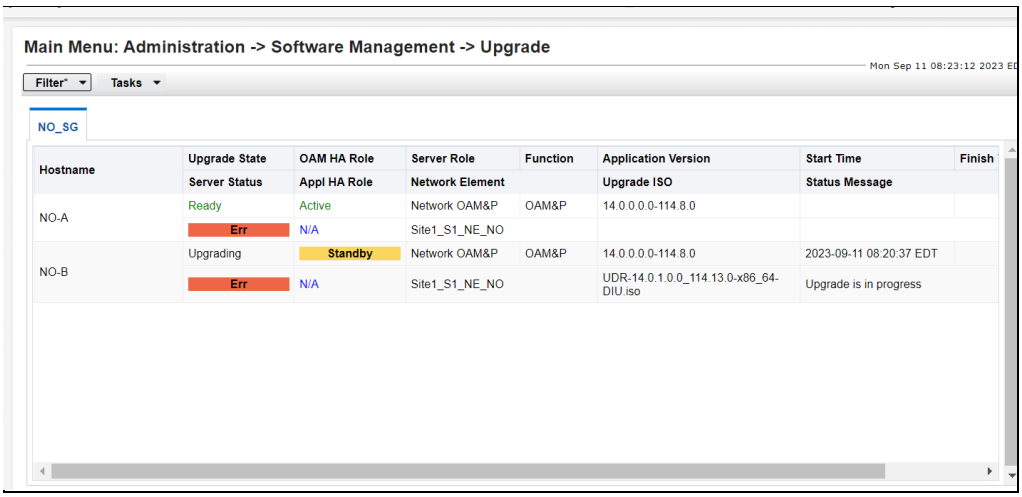
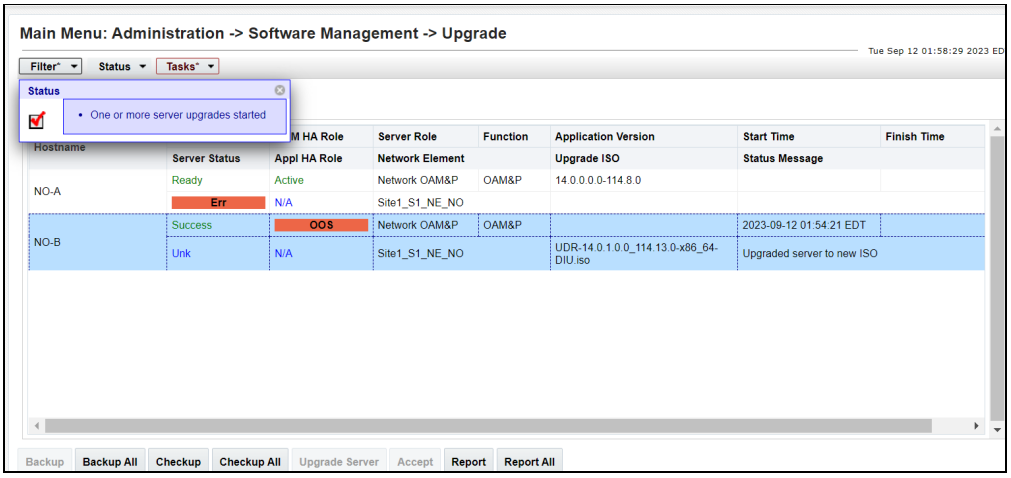
Procedure 117: Upgrade Server

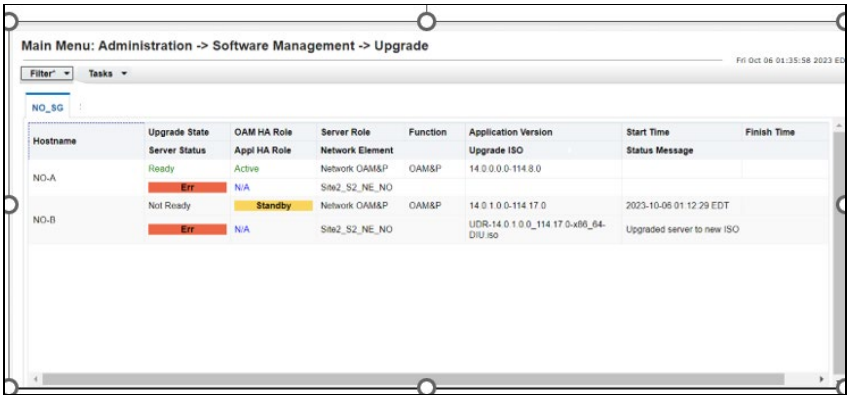
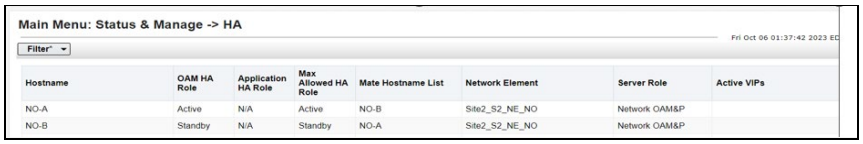
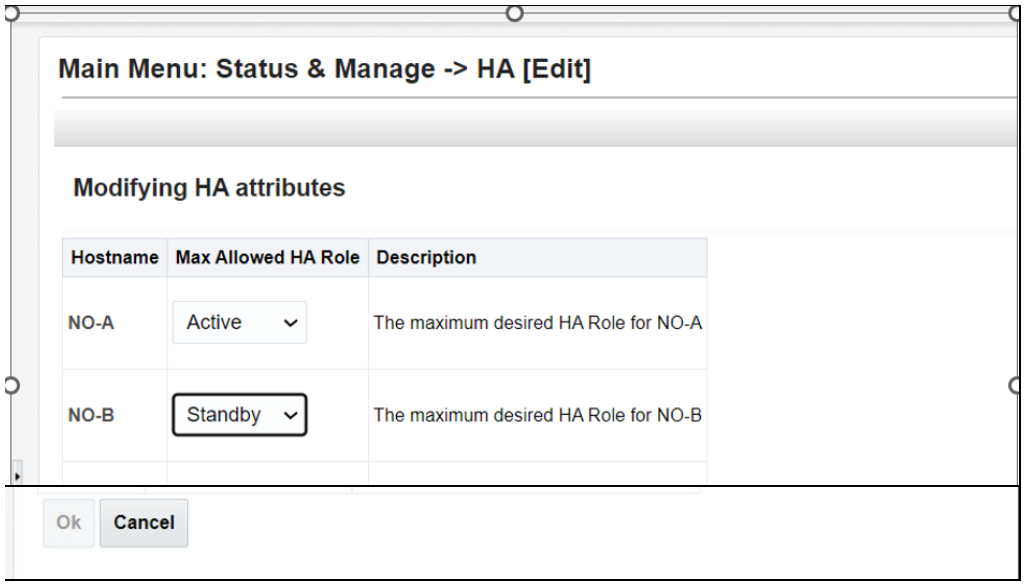
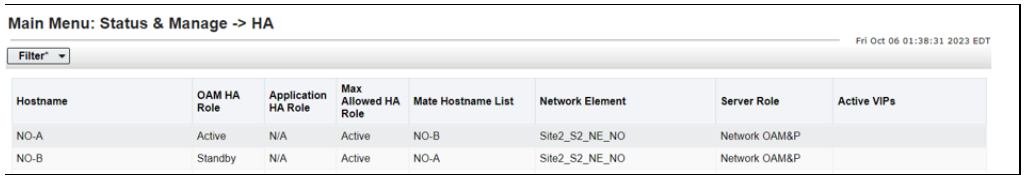
Step	Procedure	Result
1.	Login to console of active server	Access the server using ssh and switch to root: **#sudo su -** 
2.	Run the below command in CLI ““sed -i '528i\ sleep(900);' /var/TKLC/appworks/services/SvrUpgrade.php””	
3.	Copy the DIU ISO to the filemgmt And change the file permission	**# cp source of DIU-ISO /var/TKLC/db/filemgmt/UDR-14.0.1.0.0_114.17.0-x86_64-DIU.iso** **# chmod 777 /var/TKLC/db/filemgmt/UDR-14.0.1.0.0_114.17.0-x86_64-DIU.iso**
4.	Then Deploy DIU iso from Active UDR GUI	 **Note: Refer the section 3.2.5 for iso deployment**
5.		

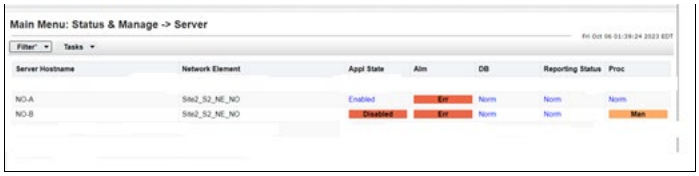
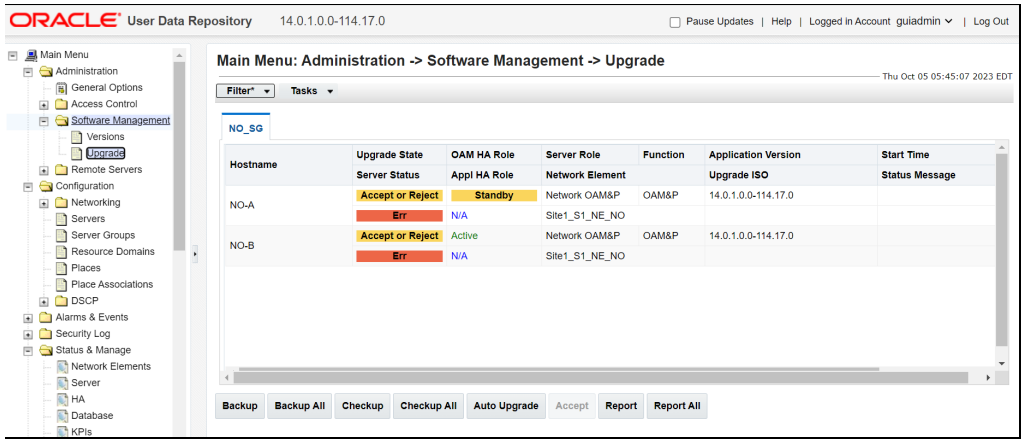
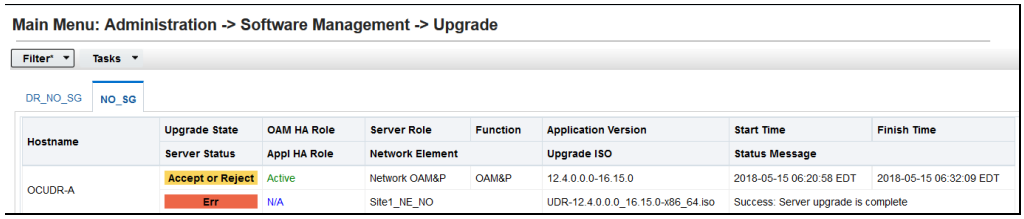
Step	Procedure	Result
6. ☐	Using the VIP address, access the primary NOAMP GUI.	Access the primary NOAMP GUI as specified in Appendix A. **NOTE:** Ensure that there are no users in the `/var/TKLC/db/filemgmt` directory on server to be upgraded
7. ☐	**Active NOAMP VIP:** 1. Navigate to **Main Menu → Administration → 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	

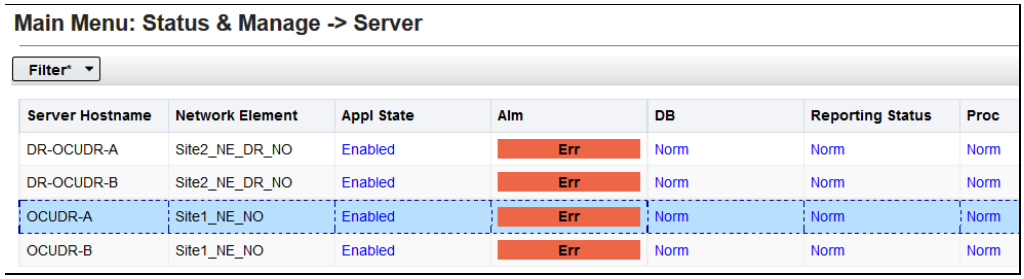
Step	Procedure	Result
8. ☐	**Active NOAMP VIP:** 1. Select the server (for one server at a time) 2. Ensure the Upgrade Server button is enabled. 3. Click **Upgrade Server**	 

Step	Procedure	Result
9. ☐	**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
10. ☐	**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
11.	Once the HA Roll changes to Standby Then upgrade status will show Not ready And Max HA status will show as Standby	 
12.	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
13.	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
14. ☐	**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
15. ☐	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  Main Menu: Status & Manage -> Server Filter* Server Hostname | Network Element | Appl State | Alm | DB | Reporting Status | Proc DR-OCUDR-A | Site2_NE_DR_NO | Enabled | Err | Norm | Norm | Norm DR-OCUDR-B | Site2_NE_DR_NO | Enabled | Err | Norm | Norm | Norm OCUDR-A | Site1_NE_NO | Enabled | Err | Norm | Norm | Norm OCUDR-B | Site1_NE_NO | Enabled | Err | Norm | Norm | Norm Stop Restart Reboot NTP Sync Report

Step	Procedure	Result
16. ☐	**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

Main Menu: Status & Manage -> HA [Edit]

Modifying HA attributes

Hostname	Max Allowed HA Role	Description
OCUDR-A	Active	The maximum desired HA Role for OCUDR-A
OCUDR-B	Active	The maximum desired HA Role for OCUDR-B
DR-OCUDR-A	Active	The maximum desired HA Role for DR-OCUDR-A
DR-OCUDR-B	Active	The maximum desired HA Role for DR-OCUDR-B

Restart server from **Main Menu->Status & Manage -> Server** screen

Main Menu: Status & Manage -> Server

Filter*

Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc
DR-OCUDR-A	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm
DR-OCUDR-B	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm
OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm
OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm

Stop | Restart | Reboot | NTP Sync | Report

Step	Procedure	Result
17. ☐	**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)
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		

C.2 MAJOR UPGRADE

This Procedure explains the steps to upgrade from OL6 based TPD server to OL8 based TPD server

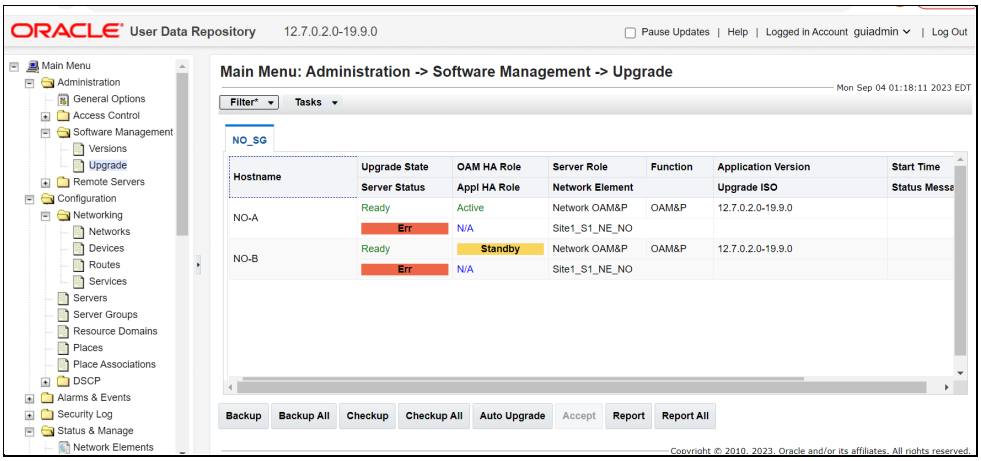
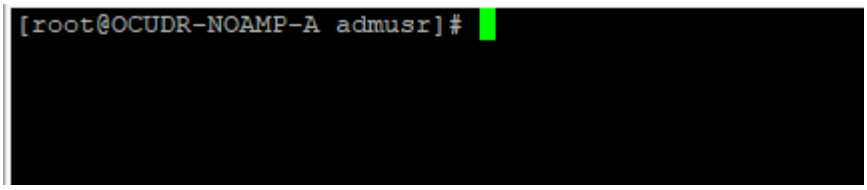
Points to be noted during Dual Hop Upgrade

- During **"Fatal Error"** the server will not be recoverable, and we need to rebuild the server again. We need to rebuild the server with **same UDR release** of its mate server
- During normal failure the system can be recovered with the below command: **/var/TKLC/backout/diUpgrade –clearError**

DIU Procedure:

Procedure 18: Initiate Upgrade Server

Step	Procedure	Result
1.	Resize the instance	Resize the instance as per the Appendix.H
2.	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

Step	Procedure	Result
3.	**Active NOAMP VIP:** 3. Navigate to **Main Menu → Administration → Software Management → Upgrade** 4. Select server group tab for servers to be upgraded. 5. Verify that the Upgrade State shows Ready for the servers to be upgraded. 6. Verify the Application Version value for servers is the source software release version	
4.	Login to console of server to be upgraded	Access the server using ssh and switch to root: **#sudo su -** 
5.	Copy and mount TPD 7.4 based ISO to the UDR server which is to be upgrded	**# scp admusr@100.64.72.X:/export/home/eagle/releases/TPD/prod/TPD/iso/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**
6.	Make a directory, copy UDR DIU ISO and mount it	**# mkdir /var/TKLC/ol8_diu** **Note: copy application DIU iso in filemgmt location** **# mount /var/TKLC/db/filemgmt/UDR-14.0.1.0.0_114.17.0-x86_64-DIU.iso /var/TKLC/ol8_diu -o loop**

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]#`
		Check the status of install command and then proceed with next command.Refer the note to check the stutus
		
		# 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 ~]$`
		Check the status of apply command and then proceed with next command. Refer the note to check the stutus
		
		Note: Before the next command, make sure that previous command execution is completed. You can check this in two ways. One is just checking the status of previous command with below command. “ /var/TKLC/backout/diUpgrade –status”.
		Or go to “/var/TKLC/appw/logs/Process” path and run “tail -f upgrade.log” to see the status

Step	Procedure	Result

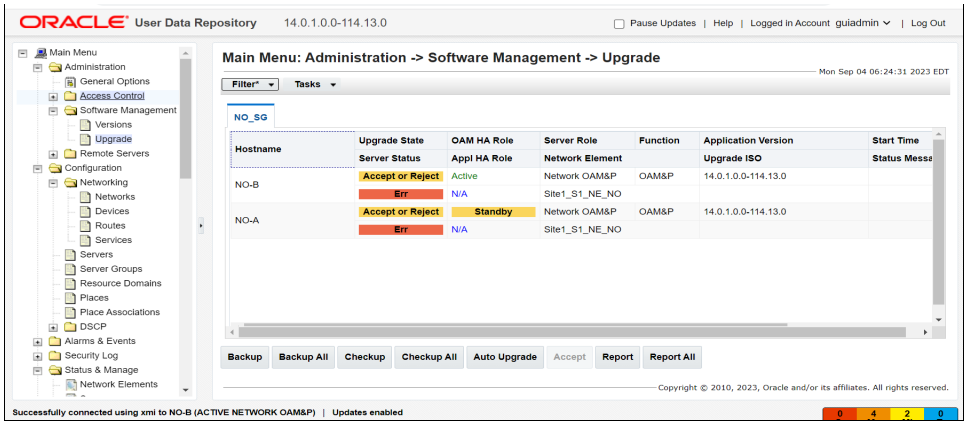
8.	Accept upgrade of TPD 7.4	**Note:** Before accepting, please make sure 'Upgrade Applied' state is shown, use below command to show the status:
		# /var/TKLC/backout/diUpgrade –status
		Output:
		`[root@ocudr-dr-noamp-a admusr]# /var/TKLC/backout/diUpgrade --status`
		`State: Upgrade Applied`
		`Status 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]#`

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

Step	Procedure	Result

10.	Mount UDR DIU iso and first install and then upgrade	# mount /var/TKLC/db/filemgmt/UDR-14.0.1.0.0_114.17.0-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]#`
		Make sure that previous command execution is completed before triggering the next command
		
		# 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)

11.		

Step	Procedure	Result
12.	**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
13.	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 **Main Menu: Status & Manage -> Server** Filter Server Hostname | Network Element | Appl State | Alm | DB | Reporting Status | Proc DR-OCUDR-A | Site2_NE_DR_NO | Enabled | Err | Norm | Norm | Norm DR-OCUDR-B | Site2_NE_DR_NO | Enabled | Err | Norm | Norm | Norm OCUDR-A | Site1_NE_NO | Enabled | Err | Norm | Norm | Norm OCUDR-B | Site1_NE_NO | Enabled | Err | Norm | Norm | Norm Stop Restart Reboot NTP Sync Report

Step	Procedure	Result
14.	**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

Main Menu: Status & Manage -> HA [Edit]

Modifying HA attributes

Hostname	Max Allowed HA Role	Description
OCUDR-A	Active	The maximum desired HA Role for OCUDR-A
OCUDR-B	Active	The maximum desired HA Role for OCUDR-B
DR-OCUDR-A	Active	The maximum desired HA Role for DR-OCUDR-A
DR-OCUDR-B	Active	The maximum desired HA Role for DR-OCUDR-B

Restart server from **Main Menu->Status & Manage -> Server** screen

Main Menu: Status & Manage -> Server

Filter*

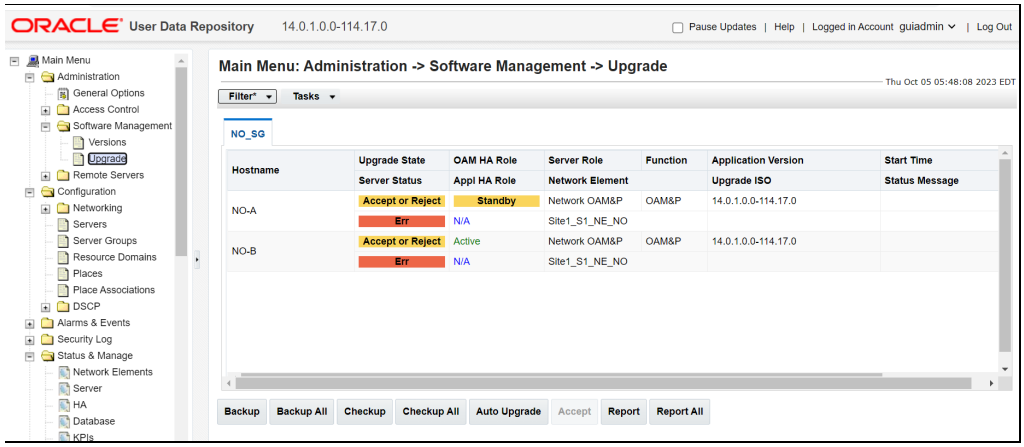
Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc
DR-OCUDR-A	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm
DR-OCUDR-B	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm
OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm
OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm

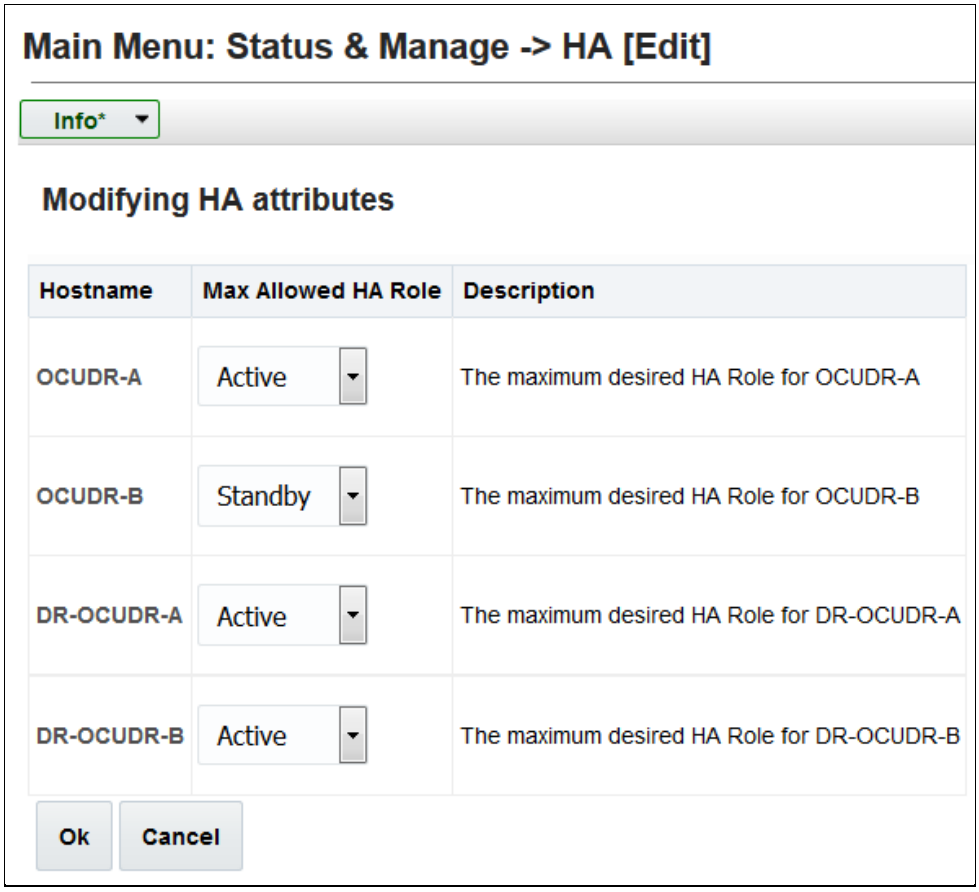
Stop | Restart | Reboot | NTP Sync | Report

Step	Procedure	Result
15.	**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)
16.	**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

Procedure 19: 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:** Navigate to **Main Menu → Administration → Software Management → Upgrade**	
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.	

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** Make the server ready for downgrade. 1. Navigate to **Main Menu → Status & Manage → HA** 2. Click **Edit** 3. Select the server to be downgraded and select a Max Allowed Role value of Standby or spare for DR servers. 4. Click **OK** **NOTE:** For active NOAMP only, you are logged out after this step because of the HA switchover. You must log back in to continue. The active server is standby	

Step	Procedure	Result
5. ☐	**Active NOAMP VIP:** Navigate to **Main Menu →Status & Manage → Server** 1. Select the server to be downgraded and click **STOP** 2. Click **OK** to confirm the operation, then ensure the Appl State updates to Disabled.	**Main Menu: Status & Manage -> Server** Filter* Stop Restart Reboot NTP Sync Report Are you sure you wish to stop application software on the following server(s)? OCUDR-B OK Cancel **Main Menu: Status & Manage -> Server** Filter* Info*
6. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Administration → Software Management → Upgrade**	**Main Menu: Administration -> Software Management -> Upgrade** Filter* Tasks DR_NO_SG NO_SG

Main Menu: Status & Manage -> Server

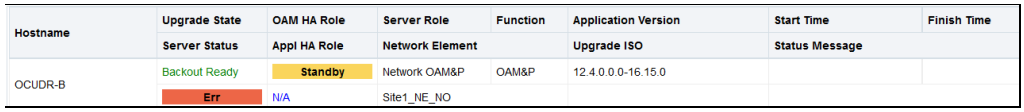
Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc
DR-OCUDR-A	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm
DR-OCUDR-B	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm
OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm
OCUDR-B	Site1_NE_NO	Enabled	Err	Norm	Man	Norm

Main Menu: Status & Manage -> Server

Server Hostname	Network Element	Appl State	Alm	DB	Reporting Status	Proc
DR-OCUDR-A	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm
DR-OCUDR-B	Site2_NE_DR_NO	Enabled	Err	Norm	Norm	Norm
OCUDR-A	Site1_NE_NO	Enabled	Err	Norm	Norm	Norm
OCUDR-B	Site1_NE_NO	Disabled	Err	Norm	Man	Man

Main Menu: Administration -> Software Management -> Upgrade

Hostname	Upgrade State / Server Status	OAM HA Role / Appl HA Role	Server Role / Network Element	Function	Application Version / Upgrade ISO	Start Time / Status Message	Finish Time
OCUDR-A	Accept or Reject	Active	Network OAM&P	OAM&P	12.4.0.0.0-16.15.0	2018-05-15 06:20:58 EDT	2018-05-15 06:32:09 EDT
	Err	N/A	Site1_NE_NO		UDR-12.4.0.0.0_16.15.0-x86_64.iso	Success: Server upgrade is complete	
OCUDR-B	Backout Ready	Standby	Network OAM&P	OAM&P	12.4.0.0.0-16.15.0		
	Err	N/A	Site1_NE_NO				

Step	Procedure	Result
7. ☐	**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)	 Hostname: OCUDR-B Upgrade State: Backout Ready Server Status: Err OAM HA Role: Standby Appl HA Role: N/A Server Role: Network OAM&P Network Element: Site1_NE_NO Function: OAM&P Application Version: 12.4.0.0.0-16.15.0 Upgrade ISO: Start Time: Finish Time: Status Message:
8. ☐	**Server XMI IP (SSH):** SSH to server	Use your SSH client to connect to the server (ex. ssh, putty): `ssh<server address>`

9. ☐	**Server XMI IP (SSH):**
	Login as admusr user
		Login as admusr:
		`login as: admusr`
		`Password: <enter password>`
		`Switch to root su -`
		`password: <enter password>`

10. ☐	**Server XMI IP (SSH):**
	Perform the backout
		1. Find out the state of the server which is going to be backed out. Server is in Standby or Spare. Run the following command to find the HA state:
		`# ha.mystate`
		NOTE: If the state of the server is Active, then perform these steps to move to standby.
		2. Go to **MAIN MENU: STATUS & MANAGE → HA**
		3. Click **Edit**
		4. Switch Max Allowed HA role to standby
		5. Perform the backout using the reject script:
		`# screen`
		`# sudo /var/TKLC/backout/diUpgrade --reject`
		NOTE: If backout asks if you would like to continue backout, answer y.

11. ☐	**Server XMI IP (SSH):** Backout proceeds	Informational messages come across the terminal screen as the backout proceeds. After backout is complete, the server automatically reboots.

Step	Procedure	Result

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>`

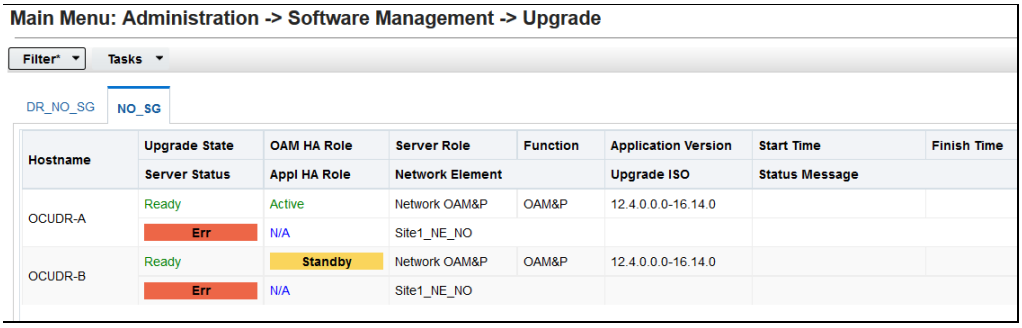
13. ☐	**Server XMI IP (SSH):**	Perform the backout_restore utility to restore the full database run environment: 1. sudo /usr/TKLC/appworks/sbin/backout_restore **NOTE:** If asked if you would like to proceed, answer y. If the restore was successful, the following message is displayed: `Success: Full restore of COMCOL run env has completed.` Return to the backout procedure document for further instruction. **Note: This Restore step is not required in case of rollback (Major upgrade)from OL8 based TPD server to OL6 based TPD server**
14. ☐		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):**
	SSH to backed-out 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>`

16. ☐	**Server XMI IP (SSH):**
	Verify services restart
		If this is an NOAMP server, verify httpd service is running. Run 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 are listed here> is running...`
		If httpd is still not running after approximately 3 minutes, then services have failed to restart.
		Exit from the command line of backed-out server.
		`# exit`

17. ☐	Using the VIP address, access the primary NOAMP GUI.	Access the primary NOAMP GUI as specified in Appendix A.

Step	Procedure	Result
18. ☐	**Active NOAMP VIP:** Verify server states. Navigate to **Main Menu → Administration → Software Management → Upgrade**	Main Menu: Administration -> Software Management -> Upgrade Filter* Tasks DR_NO_SG NO_SG Hostname / Upgrade State / OAM HA Role / Server Role / Function / Application Version / Start Time / Finish Time Server Status / Appl HA Role / Network Element / Upgrade ISO / Status Message OCUDR-A: Ready, Active, Network OAM&P, OAM&P, 12.4.0.0.0-16.14.0; Err, N/A, Site1_NE_NO OCUDR-B: Ready, Standby, Network OAM&P, OAM&P, 12.4.0.0.0-16.14.0; Err, N/A, Site1_NE_NO • If the state is Ready, you are finished with this procedure. • If the state is Not Ready, continue to next step.
19. ☐	**Active NOAMP VIP:** 1. Correct Upgrade State on downgraded server 2. Navigate to **Main Menu Status & Manage→HA[Edit]** 3. Select the downgraded server. 4. Select a Max Allowed HA Role value of Active 5. Click **Ok**. 6. Verify the Max Allowed HA Role is set to the specified value for the server.	Due to backout being initiated from the command line instead of through the GUI, you must modify the downgraded server so that its Upgrade State moves to Ready. Main Menu: Status & Manage -> HA [Edit] Modifying HA attributes Hostname / Max Allowed HA Role / Description OCUDR-A / Active / The maximum desired HA Role for OCUDR-A OCUDR-B / Active / The maximum desired HA Role for OCUDR-B DR-OCUDR-A / Active / The maximum desired HA Role for DR-OCUDR-A DR-OCUDR-B / Active / The maximum desired HA Role for DR-OCUDR-B

Step	Procedure	Result
20. ☐	**Active NOAMP VIP:** Navigate to **Main Menu Administration→ Software Management→ Upgrade**; Select the tab of the server group containing the server to be downgraded. Verify its Upgrade State is Ready. (It might take a couple minutes for the grid to update.)	 Main Menu: Administration -> Software Management -> Upgrade Filter* Tasks DR_NO_SG NO_SG Hostname / Upgrade State / OAM HA Role / Server Role / Function / Application Version / Start Time / Finish Time Server Status / Appl HA Role / Network Element / Upgrade ISO / Status Message OCUDR-A: Ready / Active / Network OAM&P / OAM&P / 12.4.0.0.0-16.14.0 Err / N/A / Site1_NE_NO OCUDR-B: Ready / Standby / Network OAM&P / OAM&P / 12.4.0.0.0-16.14.0 Err / N/A / Site1_NE_NO
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.

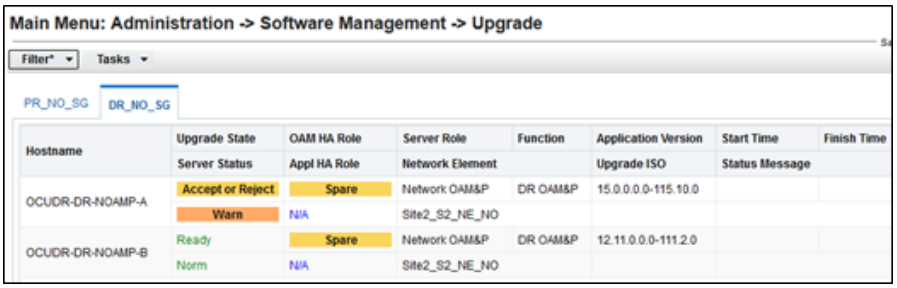
The Alarm 32532 (Server Upgrade Pending Accept/Reject) will be displayed for each server until one of these two actions (accept or reject) is performed.

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**

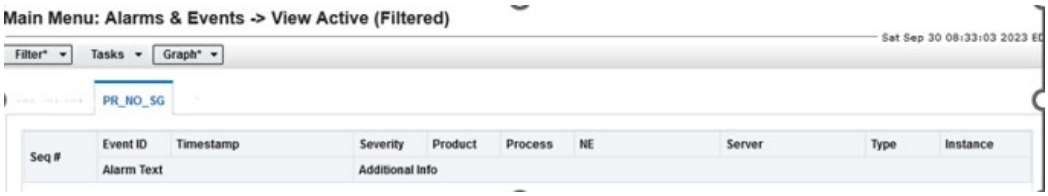
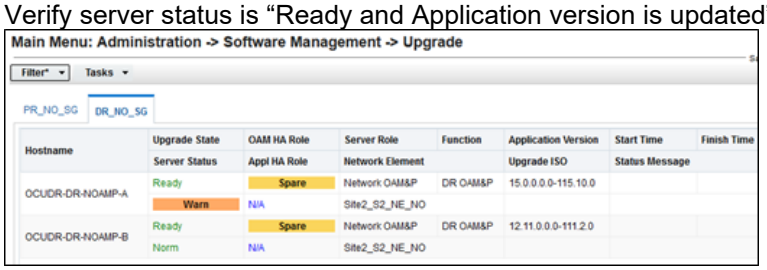
The following procedure details how to accept a successful upgrade of Oracle Communications User Data Repository system.

Procedure 20: 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… **<u>Main Menu</u>** **→ 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 back to their previous image states.

Procedure 20: 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”.  **Note:** Versions displayed in images are just an example.
7. ☐	**Active NOAMP VIP:** Configure services	Run the procedure specified in **Appendix G: Configuring Services for Dual Path HA.**

Appendix F. Verifying servers are Syncronized

Procedure 21: Verifying servers are Syncronized

Step	Procedure	Result
1. ☐	**Active NOAMP VIP:** Confirm servers are in sync before upgrading the next server 1. Navigate to **Main Menu → Status & Manage → Database** 2. Repl Status is Allowed 3. The DB Levels is the same or close in numbers.	Main Menu: Status & Manage -> Database Filter* Info* Tasks Network Element: Site2_NE_DR_NO, Server: DR-OCUDR-B, Role: Network OAM&P, OAM Max HA Role: Spare, Application Max HA Role: N/A, Status: Normal, DB Level: 0, OAM Repl Status: Normal, SIG Repl Status: NotApplicable, Repl Status: Allowed, Repl Audit Status: NotApplicable Network Element: Site1_NE_NO, Server: OCUDR-A, Role: Network OAM&P, OAM Max HA Role: Active, Application Max HA Role: N/A, Status: Normal, DB Level: 0, OAM Repl Status: Normal, SIG Repl Status: NotApplicable, Repl Status: Allowed, Repl Audit Status: NotApplicable Network Element: Site1_NE_NO, Server: OCUDR-B, Role: Network OAM&P, OAM Max HA Role: Standby, Application Max HA Role: N/A, Status: Normal, DB Level: 0, OAM Repl Status: Normal, SIG Repl Status: NotApplicable, Repl Status: Allowed, Repl Audit Status: NotApplicable Network Element: Site2_NE_DR_NO, Server: DR-OCUDR-A, Role: Network OAM&P, OAM Max HA Role: Spare, Application Max HA Role: N/A, Status: Normal, DB Level: 0, OAM Repl Status: Normal, SIG Repl Status: NotApplicable, Repl Status: Allowed, Repl Audit Status: NotApplicable

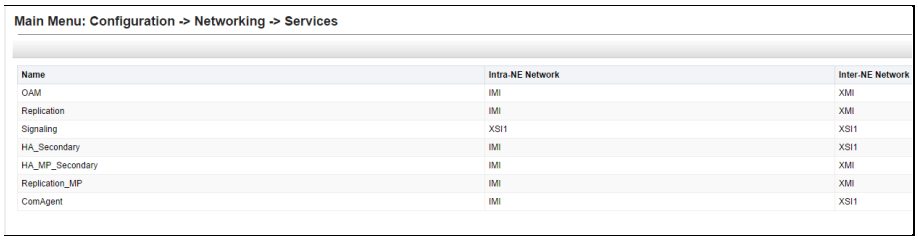
Appendix G. Configuring Services for Dual Path HA

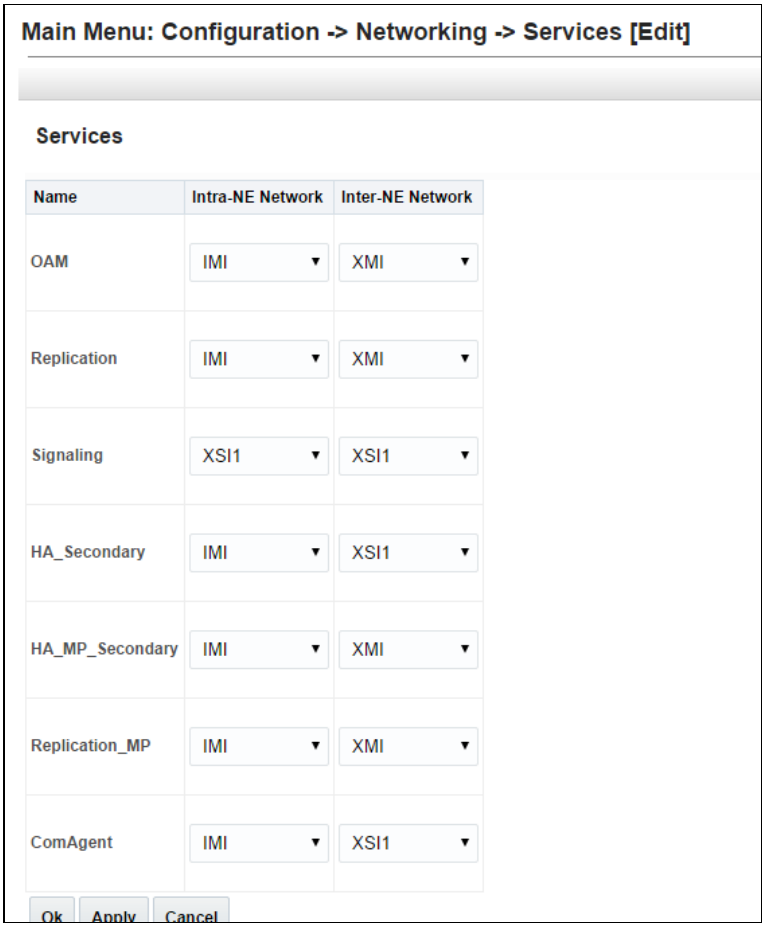
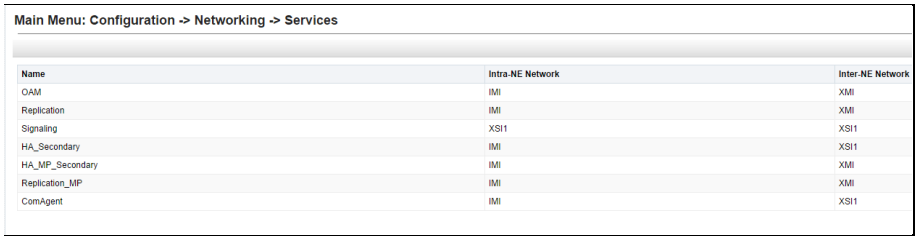
This Appendix provides the procedure for updating Oracle Communications User Data Repository Services for the Dual Path HA feature. This applies to all configurations that make use of a Secondary/DR Site.

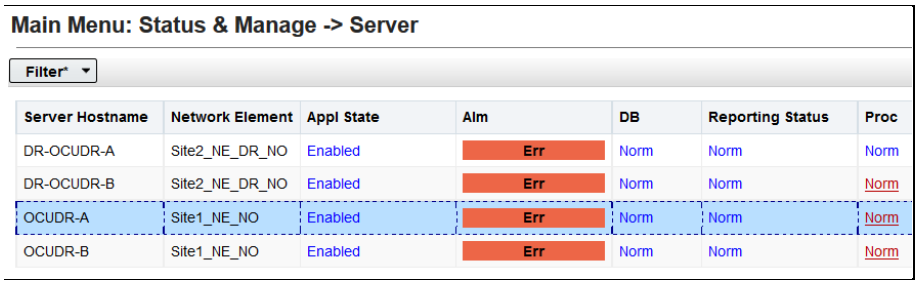
This procedure verifies that all required materials are present.

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

Procedure 122: Configuring Services for Dual Path HA

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:** Navigate to **Main Menu → Configuration → Networking → Services**	 Main Menu: Configuration -> Networking -> Services Name / Intra-NE Network / Inter-NE Network OAM / IMI / XMI Replication / IMI / XMI Signaling / XSI1 / XSI1 HA_Secondary / IMI / XSI1 HA_MP_Secondary / IMI / XMI Replication_MP / IMI / XMI ComAgent / IMI / XSI1

Step	Procedure	Result
3. ☐	**Active NOAMP VIP:** Change Service value. 1. Change Inter-NE HA_Secondary to **XSI1**. 2. Click **Apply**. 3. Click **OK**.	 NOAMP and MP servers need to be restarted.
4. ☐	**Active NOAMP VIP:** The Services configuration screen opens.	

Step	Procedure	Result
5. ☐	Reboot all NOAMP servers	Reboot all NOAMP servers either by using: • The active **NOAMP GUI Status & Manage → Server** screen and click **Reboot**:  Main Menu: Status & Manage -> Server Filter Server Hostname | Network Element | Appl State | Alm | DB | Reporting Status | Proc DR-OCUDR-A | Site2_NE_DR_NO | Enabled | Err | Norm | Norm | Norm DR-OCUDR-B | Site2_NE_DR_NO | Enabled | Err | Norm | Norm | Norm OCUDR-A | Site1_NE_NO | Enabled | Err | Norm | Norm | Norm OCUDR-B | Site1_NE_NO | Enabled | Err | Norm | Norm | Norm Stop Restart Reboot NTP Sync Report • The terminal of each server with the reboot command: `$ sudo reboot` **NOTE:** This is performed on all NOAMPs.
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix H. RESIZING VM GUEST DISK FOR UPGRADE

Since OL6 to OL8 upgrade, we are going to do hop by hop upgrade and not by rpm to rpm. Hence, we need extra space and that should not be part of existing OL6 based file system.

So, we need to re-size guest on cloud with minimum of 50 GB.

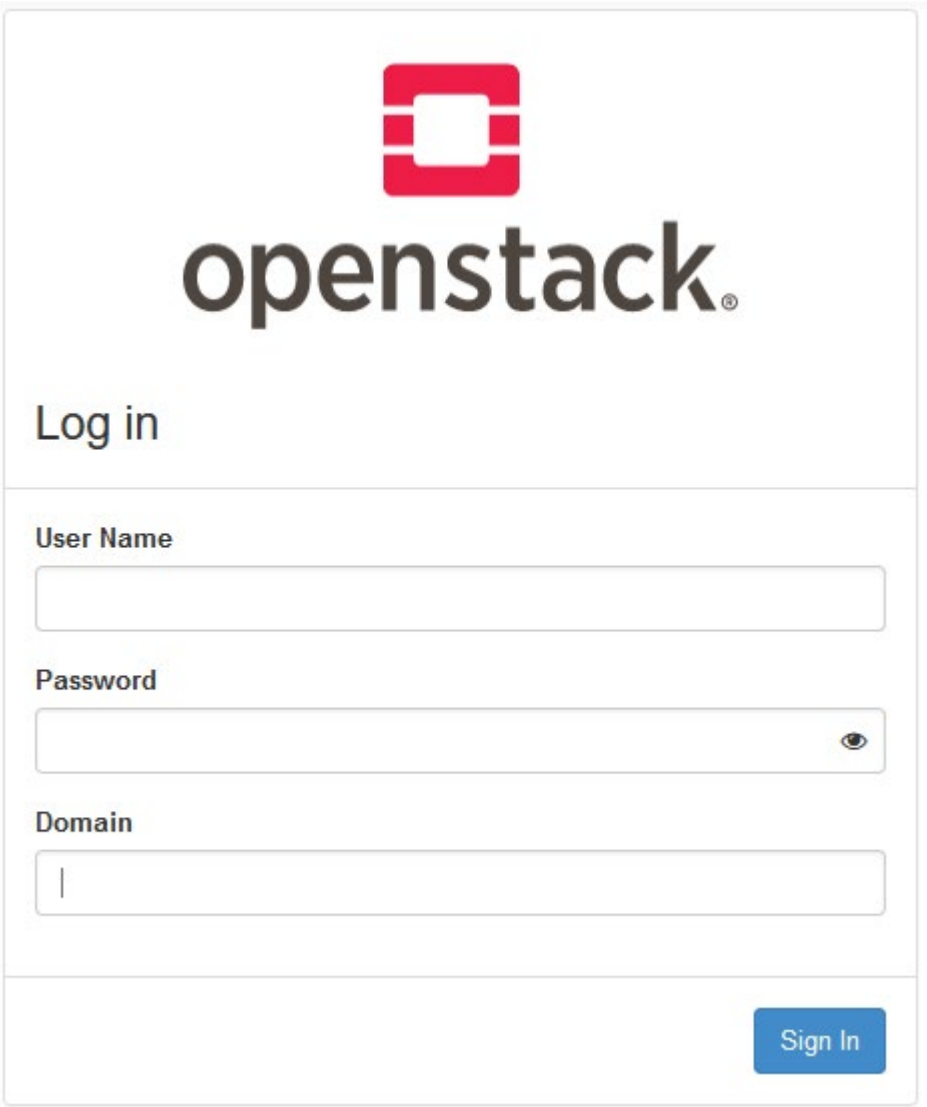
Note: Create New resource profiles as per the Appendix-G from Installation user guide for OL8 based TPD server and to support DIU.

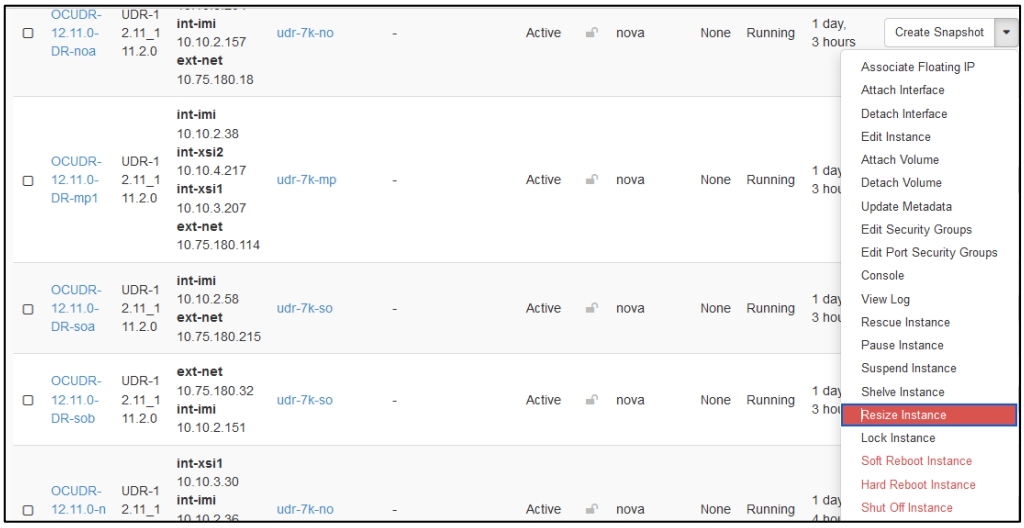
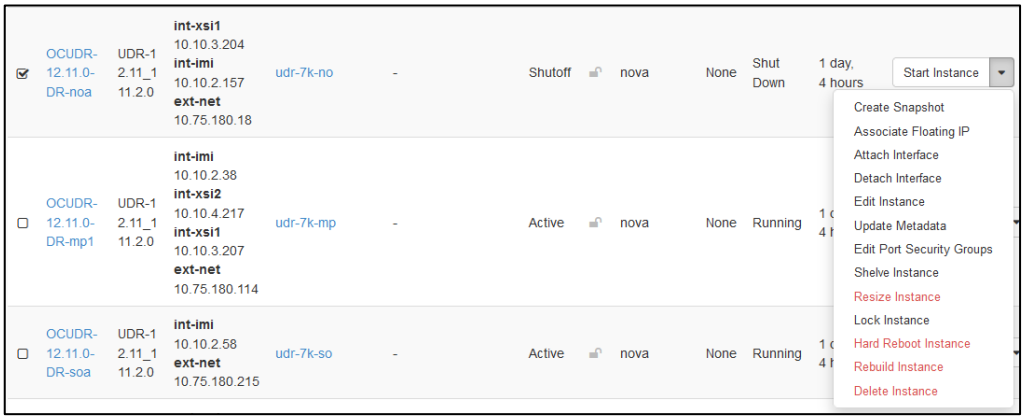
So, we need to re-size guest on cloud with extra 50 GB.

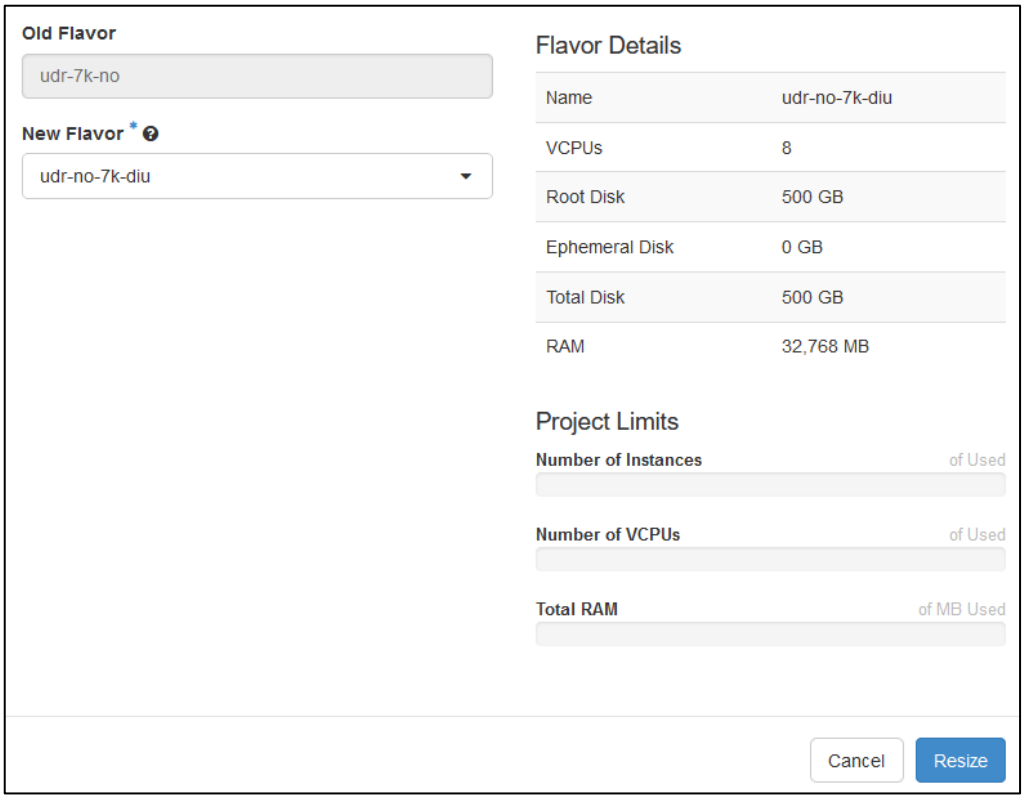
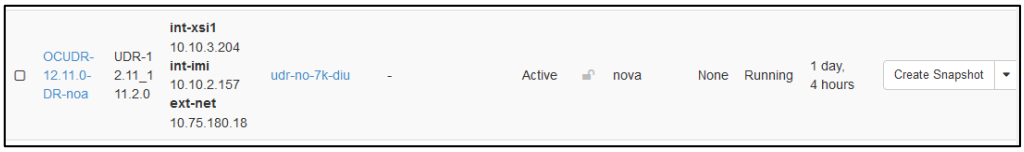
Example: Suppose if we have setup created with vMNP flavour then create new flavour vMNP_Diu with resource details provided in Appendix -G from installation user guide.

H.1 RESIZING VM GUEST DISK FOR UPGRADE ON OPENSTACK

Resizng is required for Dual Image upgrade

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

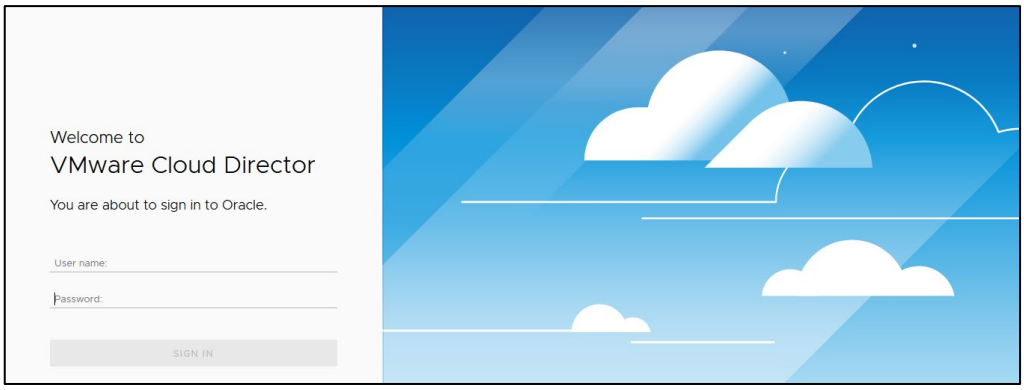
2.	Go to instance page and shut off instance	
3.	Select the instance and resize using 'Resize Instance' option.	

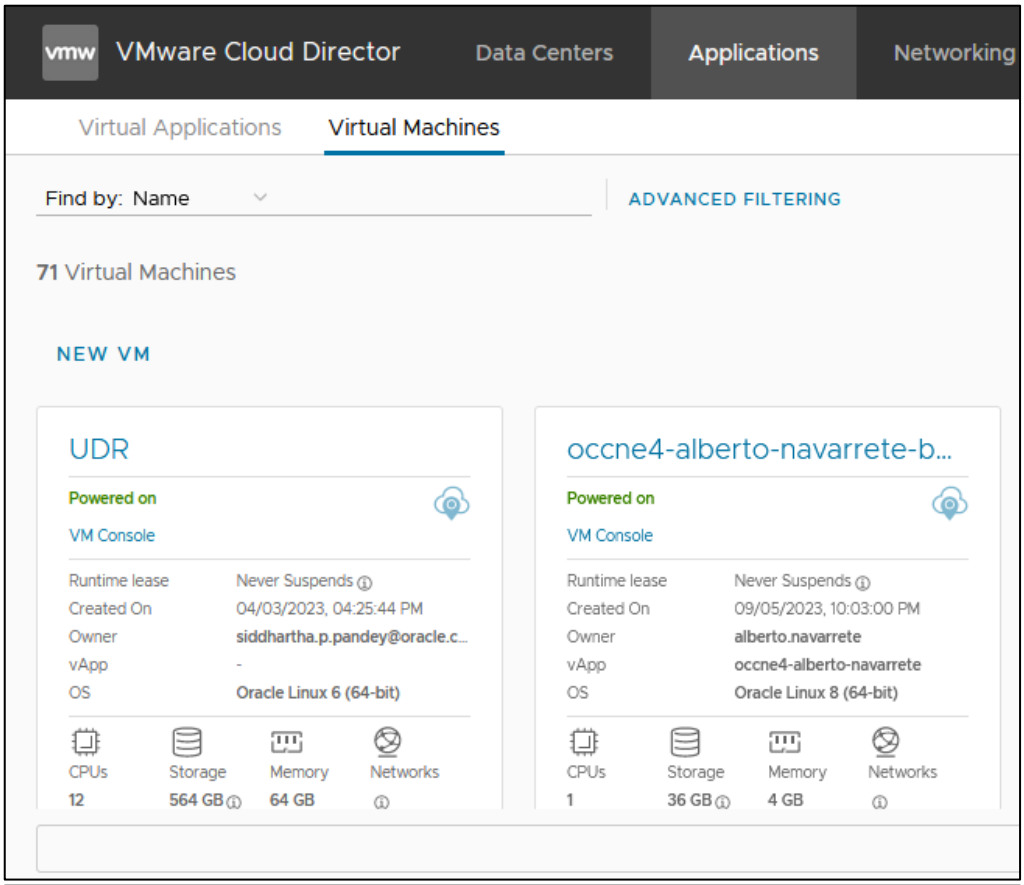
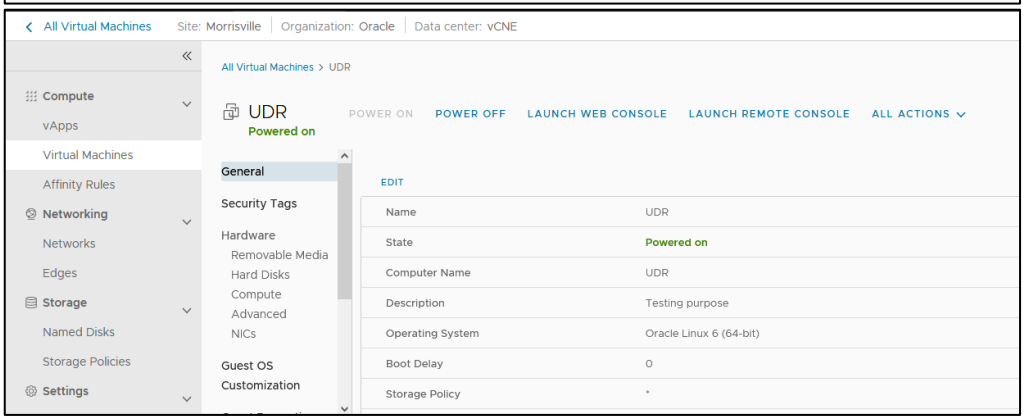
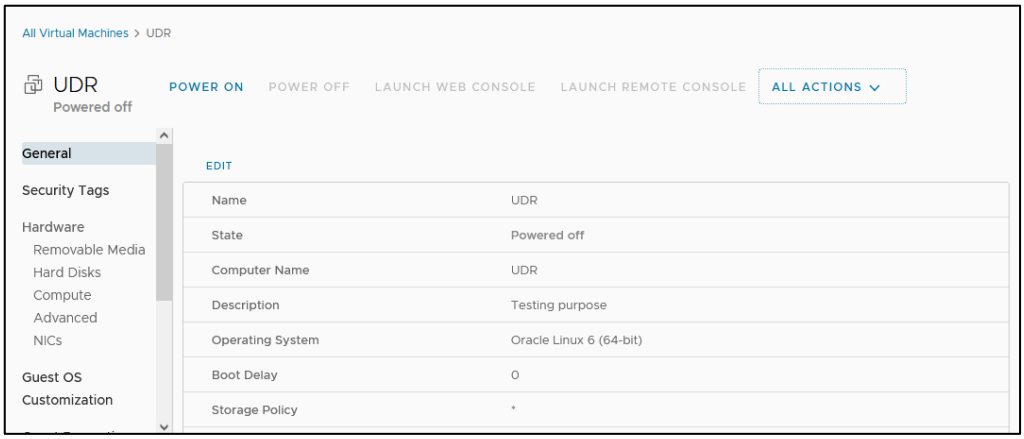
4.	Please specify the new flavor that has 50 GB disk more than existing flavor used. And press 'Resize'	
5.	Click on 'Confirm Resize Migrate' button and start instance	 

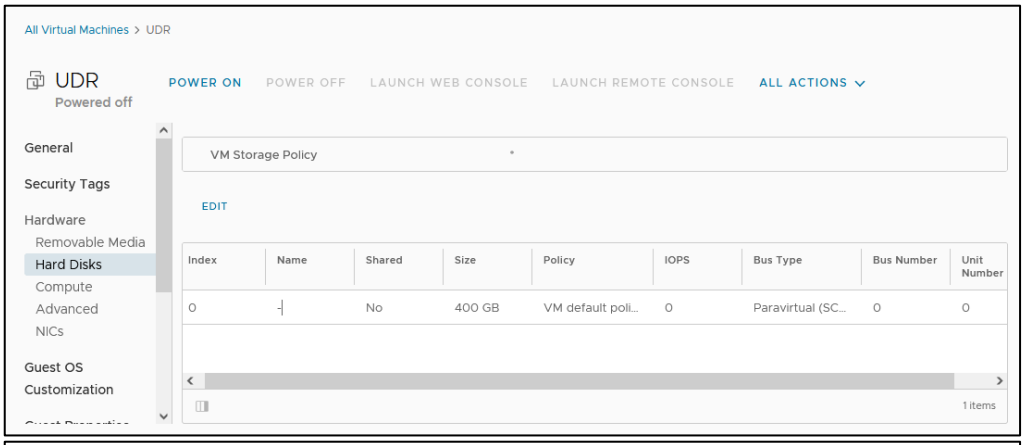
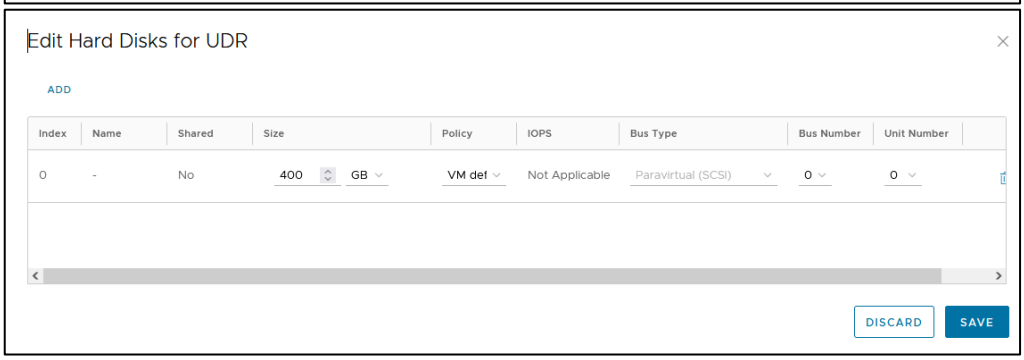
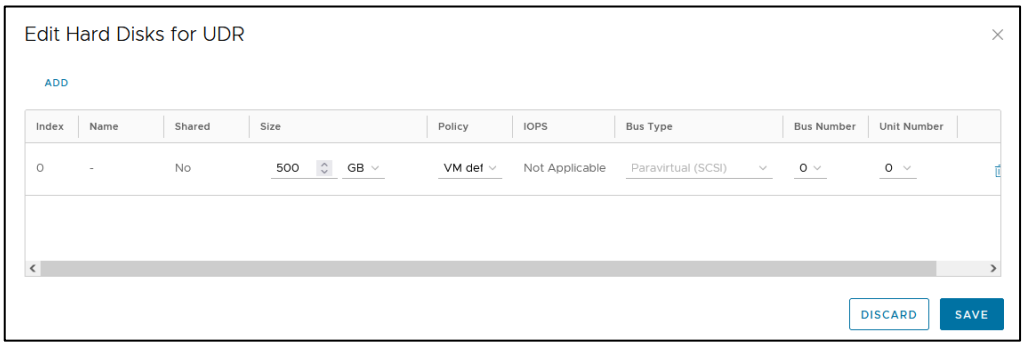
6.	Login to console of instance and execute the listed commands	**# fdisk -c /dev/vda** **Note:** Device name may differe from vda to some other name like sda, vdb, vdc etc.. ➔ Press letter 'm' (It will display all possible operations) ➔ Press letter 'n' (To add a new partition) ➔ Press letter 'p' (Primary 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) 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**

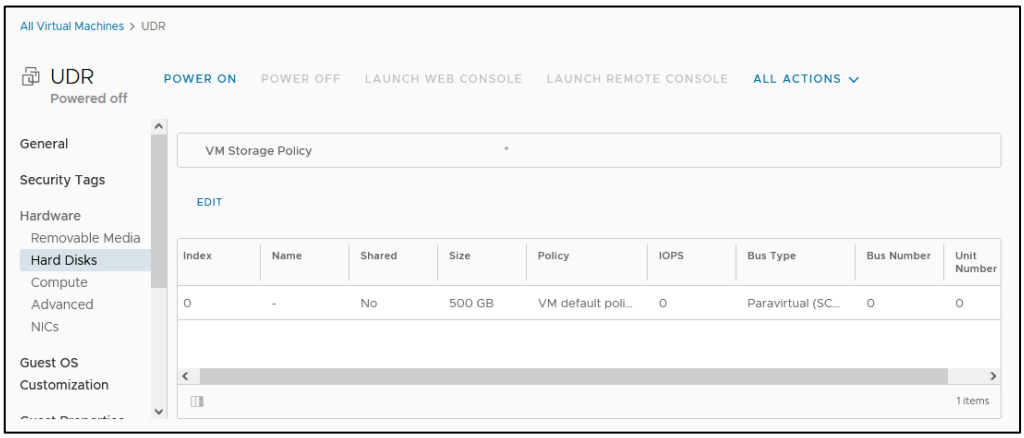
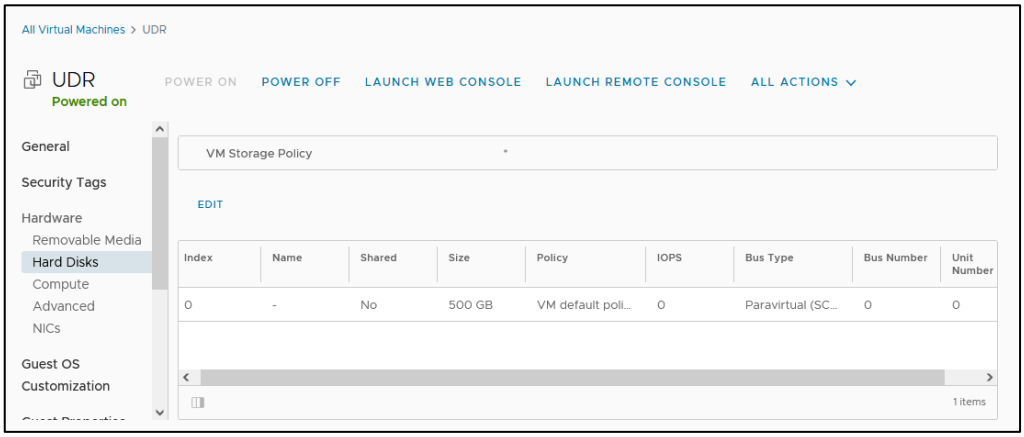
8.	After reboot, create physical volume and extend the volume group using it	**Note:** Once partition is done then create physical volum using pvcreate command but after reboot. **# vgextend <vgname> <physical volume name>** Example: vgextend vgroot /dev/vda3 [root@OCUDR-DR-NOAMP-A admusr]# pvs PV VG 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 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	 

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) 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.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-12.7.0.2.0_19.9.0** [root@X5-2-OCUDR-OL-6 ~]# virsh list --all Id Name State ---------- 139 UDR-12.10.0.0.0_110.4.0 running - **UDR-12.7.0.2.0_19.9.0** shut off
3.	Extend the disk side of VM.	**# qemu-img resize /home/image/UDR-UDR-12.7.0.2.0_19.9.0.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-12.10.0.0.0_110.4.0 running - **UDR-12.7.0.2.0_19.9.0** shut off [root@X6-2-OCUDR-OL8 ~]#

5.	Start the VM	**# virsh start UDR-12.7.0.2.0_19.9.0** Domain **UDR-12.7.0.2.0_19.9.0** started [root@X5-2-OCUDR-OL6 ~]# virsh list --all Id Name State ---------- 139 UDR-12.10.0.0.0_110.4.0 running 224 **UDR-12.7.0.2.0_19.9.0** 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) 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 ~]# 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 [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		

Appendix I. My Oracle Support

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

Call the CAS main number at 1-800-223-1711 (toll-free in the US), or call the Oracle Support hotline for your local country from the list at *http://www.oracle.com/us/support/contact/index.html*. When calling, make these selections 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 Service Request (SR), Select **1**
   - For Non-technical issues such as registration or assistance with My Oracle Support, Select **2**

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

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

Appendix 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 **Find a product**
3. Enter `User Data Repository`

   Takes you to CGBU Documentation.
   A list of the documentation set for the selected product and release displays.

4. Select **User Data Repository** followed by version
5. To download a file to your location, right-click the **PDF**, select **Save target as** (or similar command based on your browser), and save to a local folder.