Oracle® Communications

Upgrade Procedure

Diamter Signal Routing User Data Repository (DB Only) Software Upgrade Procedure for Release 8.3

E99969-01

September 2018

ORACLE

CAUTION:

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

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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 in the Appendix J.

Oracle Communications User Data Repository Software Upgrade Procedure, Release 12.4

E99969-01

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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 12.1/12.2 to Oracle Communications User Data Repository 12.4 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 12.4 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 12.4 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 12.4 software. Refer [1].
- PM&C upgrade. Refer to [3].
- Firmware upgrade. Use the upgrade procedures and release notes documents contained in the Firmware Upgrade Packs to assess whether a firmware upgrade is necessary. Refer to [3].

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
5. Select **platform/Tekelec** for Platform and TVOE documents

[1] Oracle Communications User Data Repository 12.4 Installation and Configuration Guide, E83421-01, latest revision
[2] TVOE 3.4 Software Upgrade Document, E80324, latest revision
[3] Oracle Communications PM&C 6.4 Incremental Upgrade Procedure, E82636-01, latest revision.
[4] Oracle Communications User Data Repository Cloud Installation and Configuration Guide, E83397-01, 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
DR	Disaster Recovery
FOA	First Office Application
GA	General Availability
GPS	Global Product Solutions
GUI	Graphical User Interface
HA	High Availability
IMI	Internal Management Interface
IP	Internet Protocol
IPM	Initial Product Manufacture
ISO	ISO 9660 file system (when used in the context of this document)
LA	Limited Availability
MOP	Method of Procedure
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

Acronym	Meaning
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 12.1 to 12.4, or release 12.2 to release 12.4
Incremental Upgrade	An upgrade from a current build to a new build in the same major release. An example of an incremental upgrade is: release 12.4.x to 12.4.y.
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.
Blade (or Managed Blade) Upgrade	Single server upgrade performed on a blade. This upgrade requires the use of the PM&C GUI.
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

Term	Meaning
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.
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.
PM&C Application	PM&C is an application that provides platform-level management functionality for HPC/RMS system, such as the capability to manage and provision platform components of the system so it can host applications.
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 also 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 ~]$`

Step	Procedure	Result

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 off line 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 from12.1.x source release, or 12.2.x source release to 12.4 target release. An incremental upgrade advances the software from 12.4.a-b.b.b to 12.4.b-c.c.c.

2.1 Supported Upgrade Paths

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

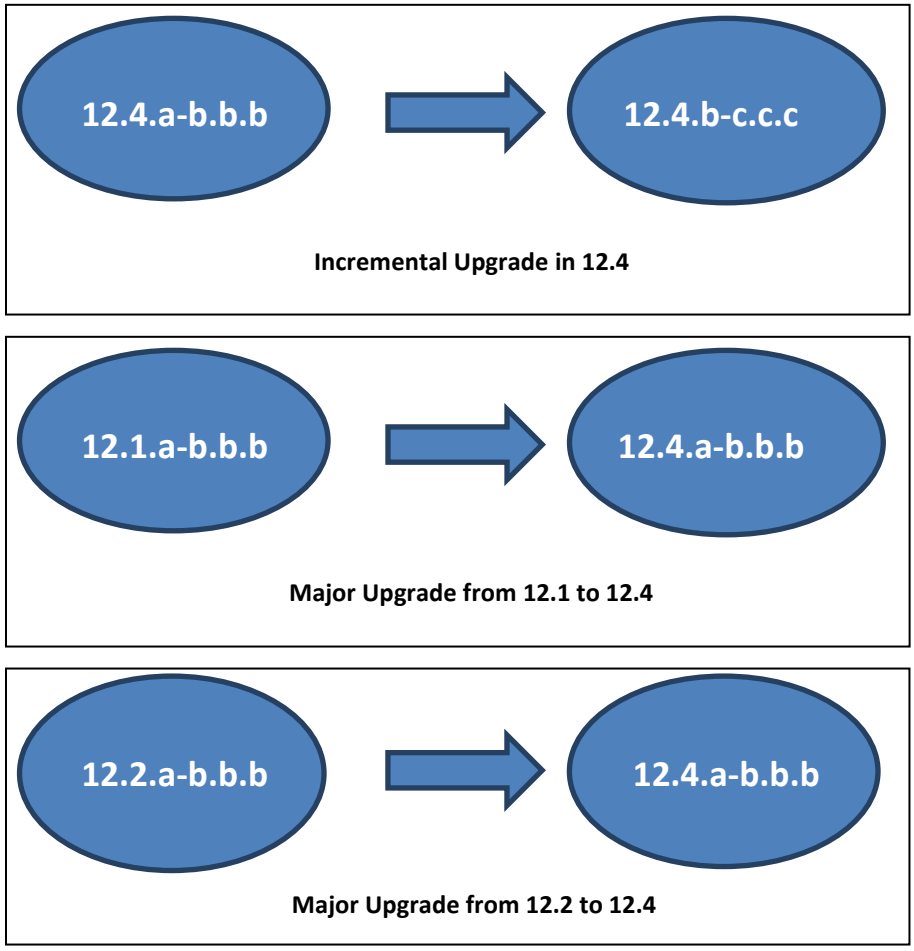


Figure 1: Supported Upgrade Paths

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

2.2 Firmware Updates

Firmware upgrades are not in the scope of this document, but may be required before upgrading Oracle Communications User Data Repository. It is assumed that these are done when needed by the hardware, and there is typically not a dependency between firmware version and the 12.4 release. Use the Upgrade Procedures and Release Notes documents contained in the Firmware Upgrade Packs to assess whether a firmware upgrade is necessary. Perform firmware upgrade procedures if required by [3].

2.3 PM&C (Management Server) Upgrades

Each site may have a PM&C (Management server) that provides support for maintenance activities at the site. There is a separate procedure for PM&C upgrade, including TVOE. PM&C must be upgraded before the other servers at the site are upgraded on partially virtualized configurations. Refer to [3].

2.4 TVOE Upgrade

TVOE (Virtual Operating Environment) is an operating system for a server, which hosts multiple virtual servers on the same hardware. It is typically used to make more efficient use of a Hardware server (Rack Mount or Blade), while maintaining application independence, for Oracle Communications User Data Repository applications that do not require the full resources of a modern Hardware server.

In Oracle Communications User Data Repository architecture, TVOE hosts are used to host several functions, including:

- PM&C
- Oracle Communications User Data Repository NOAMP, applications

TVOE host servers (that is, servers running TVOE and one or more Oracle Communications User Data Repository applications) must be upgraded before upgrading the guest applications, to assure compatibility. However, TVOE is backward compatible with older application revs, so the TVOE host and the applications do not have to be upgraded in the same Maintenance window.

The TVOE server hosting PM&C, and the PM&C application, must be upgraded before other TVOE host upgrades, since PM&C is used to perform the TVOE upgrades.

There are three supported strategies for TVOE upgrade (Options A, B and C):

- Option A: Upgrade TVOE environments as a separate activity that is planned and performed days or weeks before the application upgrades (perhaps site-at-a-time)
- Options to Upgrade TVOE and application at the same maintenance window:
    - Option B: Upgrade TVOE and application, followed by another TVOE and application. Example: for standby NOAMP Upgrade:
        i. Stop the application
        ii. Upgrade TVOE
        iii. Upgrade the application
        iv. Start the application
        v. Repeat for the active NOAMP.
    - Option C: Upgrade multiple TVOE hosts at a site, and then start upgrading the applications (same Maintenance Window)

Note that TVOE upgrades require a brief shutdown of the guest applications on the server. Note also that the TVOE virtual hosts may be hosting NOAMP applications.

The procedure for upgrading TVOE environments before the application upgrades (Option A) is documented in 3.3.6.

2.5 Traffic Management during Upgrade

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

2.6 Provisioning during Upgrade

For Oracle Communications User Data Repository 12.4, rovisioning (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.

2.7 Configurations

2.7.1 Low Capacity Configurations (Fully Virtualized with TVOE)

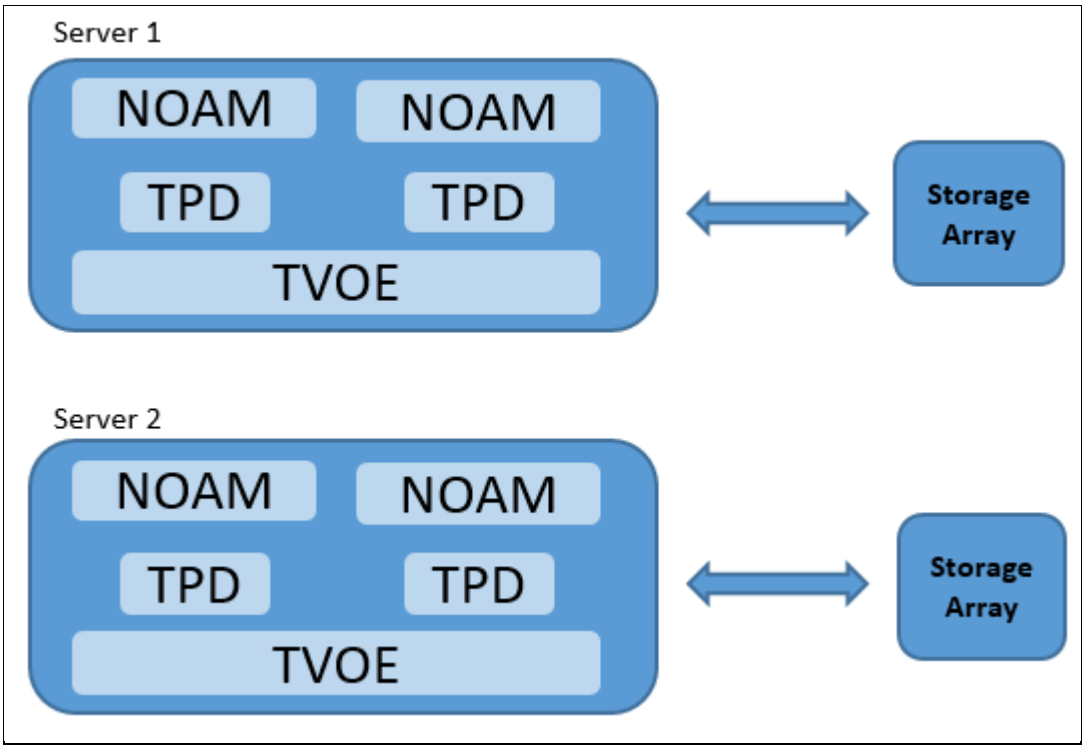
This includes all Oracle Communications User Data Repository software running on a TVOE virtualization environment in each server, resulting in a fully-virtualized, fully-redundant HA configuration. This can be deployed either as a single site or as a geo-redundant deployment, with 2 servers at each site. (Each blade/server hosts 1 NOAMP or 2 NOAMP instance).

DL380 RMS server supports 2 disk configurations: 12 x146GB 15K RPM drives and 6x600GB 10K RPM drives (Low Speed Drive Configuration)

Harware IDs Supported:

- ProLiantBL460Gen8, ProLiantBL460Gen8+ or ProLiantBL460Gen9
- ProLiantDL380Gen8, ProLiantDL380Gen8+ or ProLiantDL380Gen9
- ORACLESERVERX5-2

Figure 2: Low Capacity Single-Site Configuration



2.7.2 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

2.8 Sequence of Upgrade

Oracle Communications User Data Repository supports fully virtualized configurations, partially virtualized configurations, and cloud configurations. In fully virtualized configurations PM&C, NOAMPs functions are hosted over TVOE on one server. In cloud configurations, TVOE and PM&C upgrade operations do not apply. The upgrade procedures vary slightly between these configurations.

Table 4: Sequence of upgrade

Fully Virtualized configurations	Partially Virtualized configurations	Cloud configurations
Required Materials Check	Required Materials Check	Required Materials Check
Update firmware if required. Use the Upgrade Procedures and Release Notes documents contained in the Firmware Upgrade Packs to assess whether a firmware upgrade is necessary.	Update firmware if required. Refer to Use the Upgrade Procedures and Release Notes documents contained in the Firmware Upgrade Packs to assess whether a firmware upgrade is necessary.	N/A
Upgrade TVOE if required. Refer to [2]	Upgrade PM&C if required. Refer to [3].	N/A
Upgrade PM&C, if required refer [3]	Upgrade TVOE, if required Refer [2].	N/A
Upgrade Oracle Communications User Data Repository application	Upgrade Oracle Communications User Data Repository application	Upgrade Oracle Communications User Data Repository application

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 ISO image file, or target-release application media.
- 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 the blades/RMS iLO IP addresses (whichever applicable) from the workstations directly connected to the servers is required.
- 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 ISO Image File/Media

You must obtain a copy of the target release ISO image file. This file is necessary to perform the upgrade. The Oracle Communications User Data Repository ISO image file is in the format:

```
UDR-12.4.0_16.14.0-UDR-x86_64.iso
```

NOTE: Actual number values may vary between releases.

When performing this upgrade procedure, it is assumed that the Oracle Communications User Data Repository ISO image file has been delivered to the premises. The ISO image file must reside on the local workstation used to perform the upgrade, and anybody performing the upgrade must have access to the ISO image file. If you are at a remote location, it is assumed the ISO file 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 of 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]	
	Blades iLO Admin Username	
	Blades iLO Admin Password	
	PM&C GUI Admin Username	
	PM&C GUI Admin Password	
	PM&C root Password	
	PM&C pmacftpusr password	
	OA GUI Username	
	OA GUI Password	
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	
PM&C	PM&C Management IP Address (Site 1)	
PM&C	PM&C Management IP Address(Site 2)	
Software	Source Release Number	
	Target Release Number	
	ISO Image (.iso) file name	

[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 Maintenance Window for PM&C and TVOE Upgrades

This document includes steps to upgrade PM&C and TVOE as an integrated activity with the upgrades of the Oracle Communications User Data Repository application. However, it is an option to perform these PM&C and TVOE upgrades as separately planned activities.

- PM&C Upgrade procedure is provided in reference [3].
- TVOE host environment upgrade procedures are included in architecture-specific sections this document.

Both PM&C and TVOE upgrades are backwards compatible to prior releases on Oracle Communications User Data Repository. It may be done a site-at-a-time.

3.3 Pre-Upgrade Procedures

The pre-upgrade procedures in Table 5 do not have an affect on the live system.

Table 5: Pre-Upgrade Overview

Procedure Number	Procedure Title	Elapsed Time (Hours:Minutes)	
		This Step	Cumulative
1	Required Materials Check	00:15	00:15
2	ISO Administration	*	*
Appendix B	Health Check Procedures (depends on number of servers)	0:10-1:15	00:25-01:30

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

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

3.3.1 Hardware Upgrade Preparation

Hardware preparation is not necessary when upgrading to release 12.4.

3.3.2 Review Release Notes

Before starting the upgrade, review the release notes for the Oracle Communications User Data Repository 12.4 release to understand the functional differences and possible traffic impacts of the upgrade.

It is important to check Oracle Communications UDR-PCRF 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.

3.3.3 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 J for these instructions.

3.3.4 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)

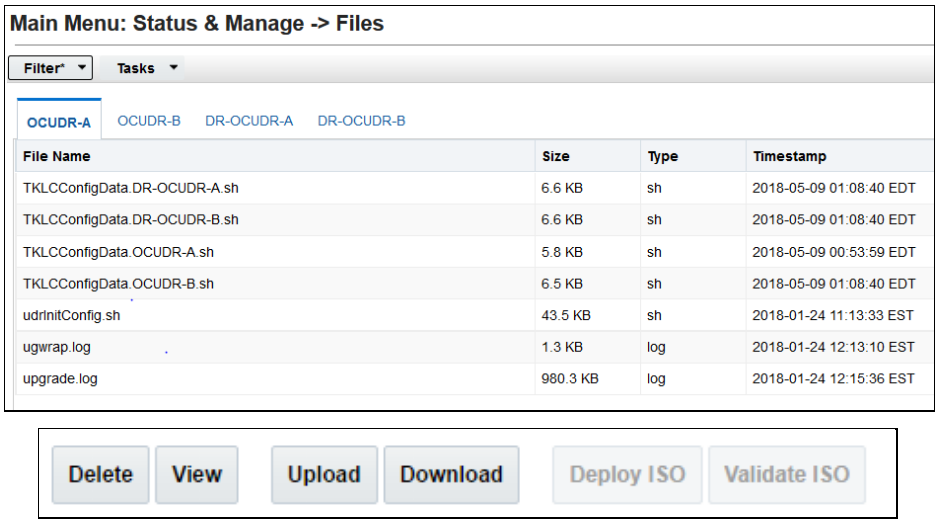
Step	Procedure
1. ☐	This procedure is part of software upgrade preparation and is used to determine the health and status of the Oracle Communications User Data Repository network and servers. This may be performed multiple times but must also be performed at least once in 24 to 36 hours before the start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

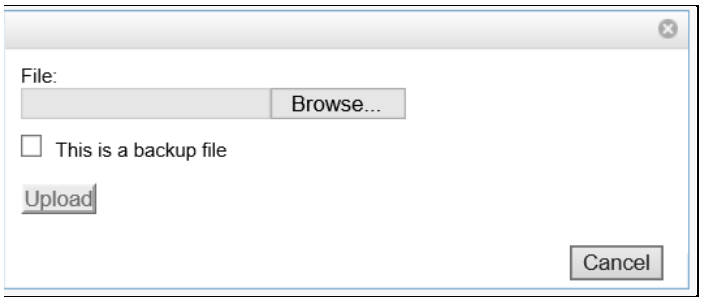
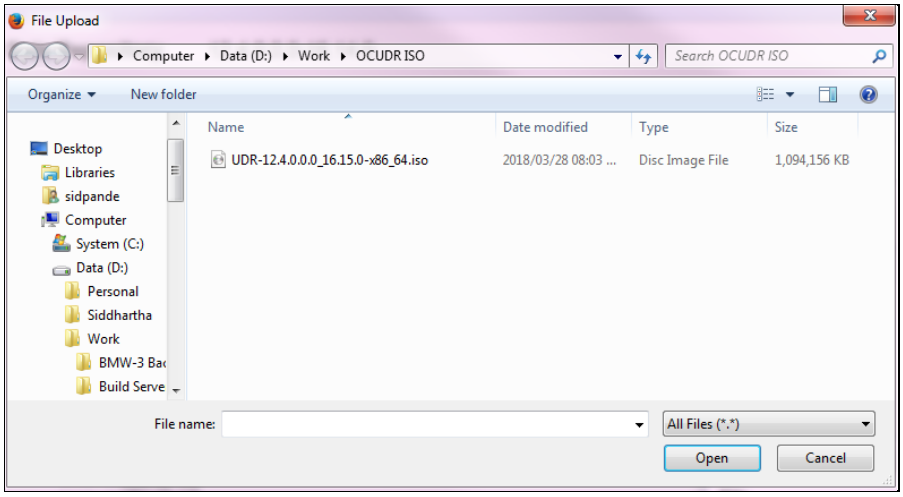
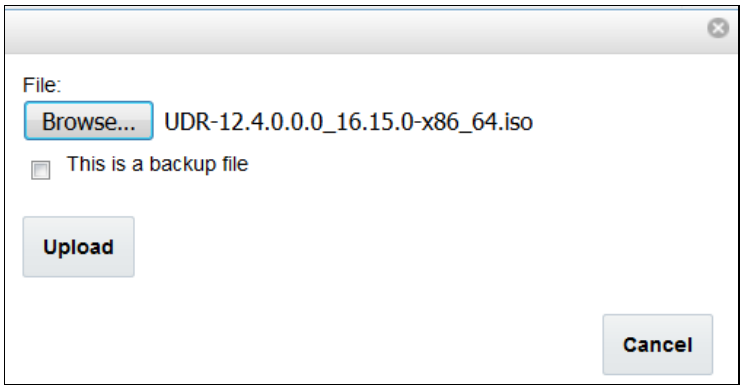
3.3.5 ISO Administration

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

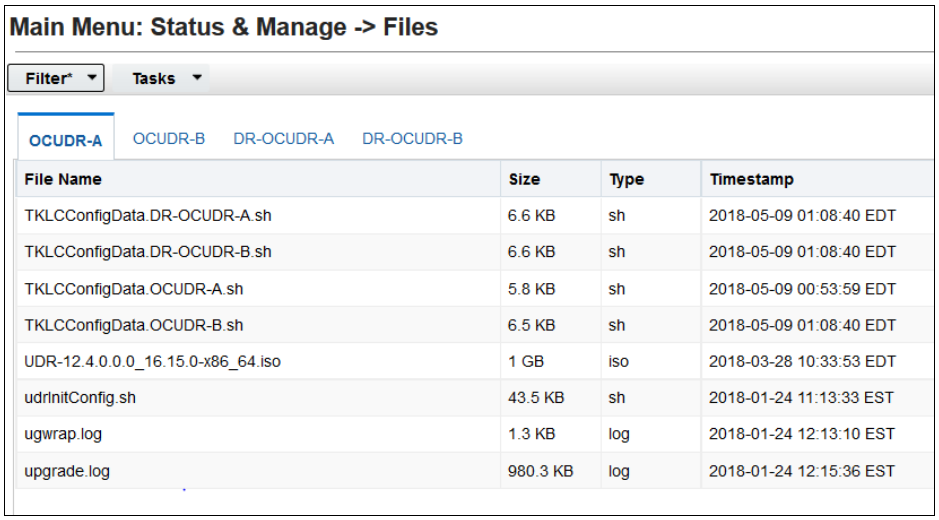
Step	Procedure	Result
1. ☐	Using the VIP address, access the primary NOAMP GUI.	Access the primary NOAMP GUI as specified in **Appendix A**.

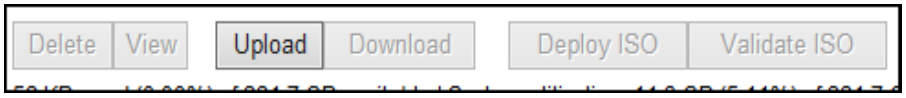
Step	Procedure	Result
2. ☐	**Active NOAMP VIP:** Upload ISO file to the active NOAMP server 1. Navigate to **Main Menu→ Status & Manage →Files** 2. Using the cursor, select the active NOAMP server from the list tabs. 3. Click **Upload**.	

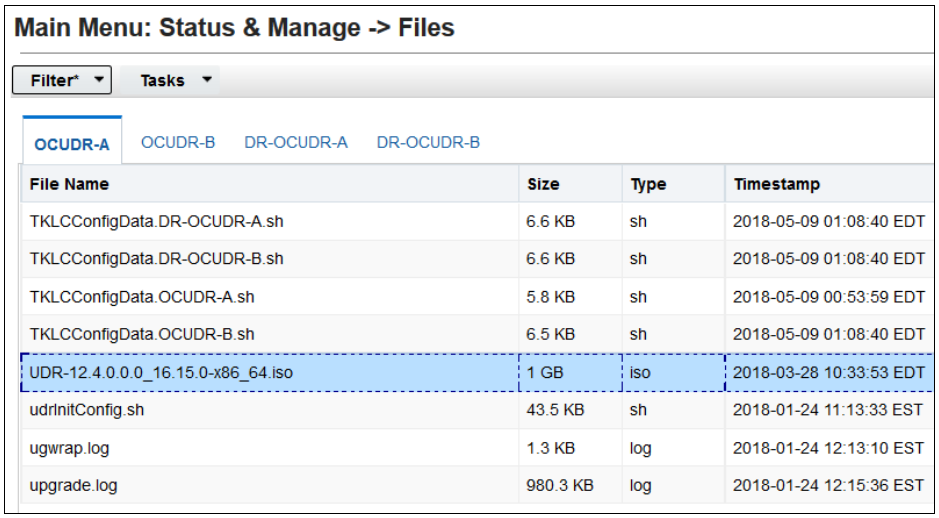
Step	Procedure	Result
3. ☐	**Active NOAMP VIP:** 1. Click **Browse**. 2. Select the Drive and directory location of the ISO file for the target release. Select the ISO file and click **Open**. 3. Click **Upload**.	**NOTES:** • It is recommended to access the ISO file for the target release from a local 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 sacs.). • Alternatively, the ISO file can be manually transferred to the `/var/TKLC/db/filemgmt` directory of the active NOAMP server using SFTP. • The 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 ISO to the NO without global read permission, you can log in as admusr and use `chmod 644` to give it read permission. • When scp files use `scp -p` command.   

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>4. ☐</td><td>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.

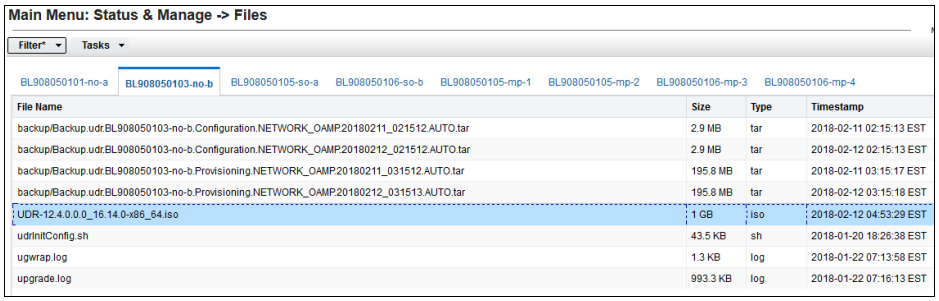
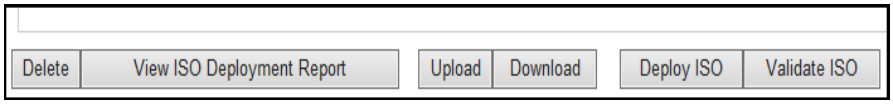
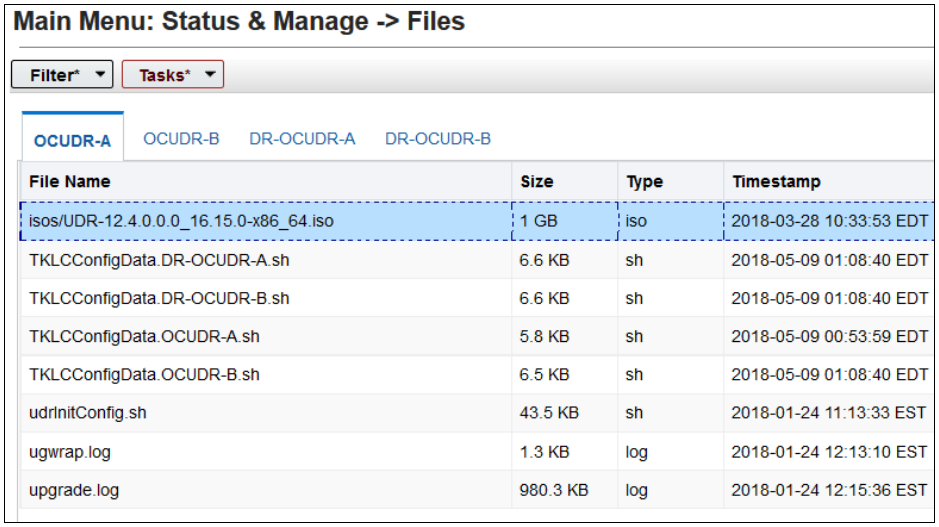
The ISO file uploaded in Step 3 of this procedure is at the top most position in the File Name column.</td><td>


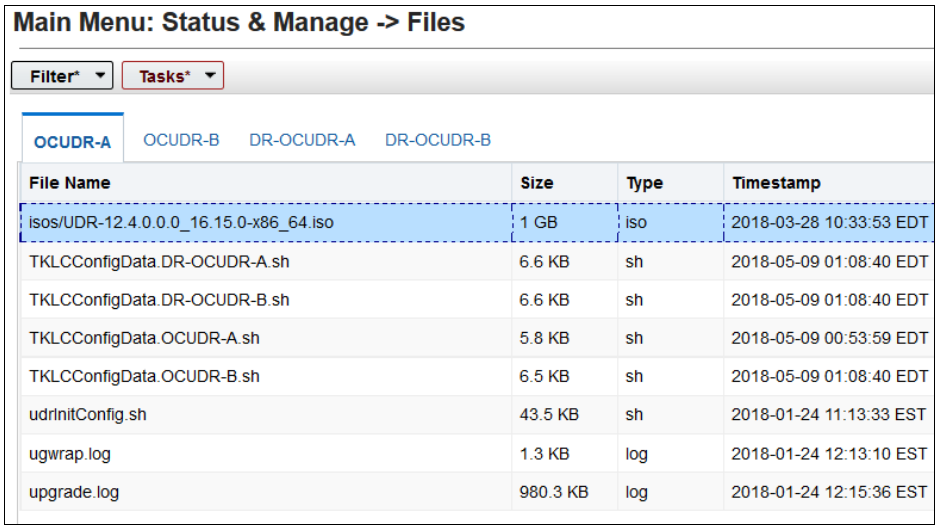
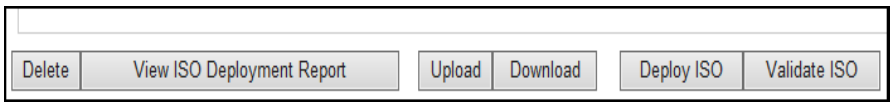
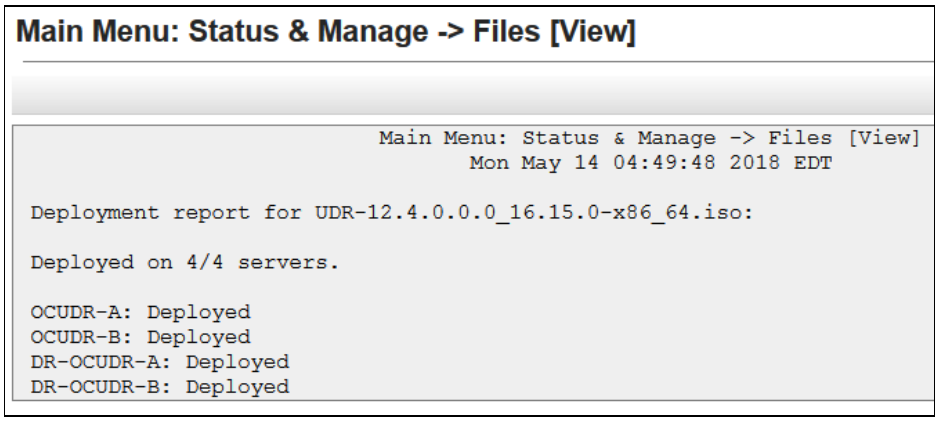


</td></tr>
<tr><td>5. ☐</td><td>Active NOAMP VIP:
UNDEPLOY all unneeded ISO images.</td><td>
1. Select Status & Manage → Files from the left-side menu; the Files screen displays.


2. Select the 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 ISO and clicking View ISO Deployment Report.
</td></tr>
</table>

Step	Procedure	Result
6. ☐	**Active NOAMP VIP (GUI):** Transfer ISO to all remaining servers via the GUI session. Select the *<ISO filename>* and then click **Deploy ISO**. Click **OK**.	 
7. ☐	**Active NOAMP VIP (GUI):** This moves the ISO file to the `isos` directory and starts the secure copy of the ISO to each server in the system. A status window opens as well.	

Step	Procedure	Result
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.	  

9. ☐	**Active NOAMP terminal**
	Log on to the active NOAMP terminal using the credentials provided
		Use your SSH client to connect to the server (For example: ssh or putty):
		`ssh<server address>`
		`login as: admusr`
		`password: <enter password>`

10. ☐	**Active NOAMP terminal:** Mount the ISO image.	Mount the ISO image that is used for upgrade `$ sudo mount -o loop /var/TKLC/db/filemgmt/isos/UDR-12.4.0.0.0_16.15.0-x86_64.iso /mnt/upgrade`

Step	Procedure	Result
11. ☐	**Active NOAMP terminal:** Extract and copy the script to `/var/tmp`	Copy the file to /var/tmp for execution. `$ cp /mnt/upgrade/upgrade/bin/changeLinksToFiles.php /var/tmp`
12. ☐	**Active NOAMP terminal:** Unmount the ISO image	`$ sudo umount /mnt/upgrade`
13. ☐	**Active NOAMP terminal:** Verify that the script copied is executable	`$ chmod +x /var/tmp/changeLinksToFiles.php`
14. ☐	**Active NOAMP terminal:** Run the script	`$ /var/tmp/changeLinksToFiles.php`
THIS PROCEDURE HAS BEEN COMPLETED		

3.3.6 Upgrade TVOE Hosts at a Site (before application upgrade MW)

This procedure applies if the TVOE hosts at a site (primary or DR) are upgraded before the start of the Oracle Communications User Data Repository 12.4 Upgrade of the NOs and other servers. Performing the TVOE upgrade before reduces the time required for Oracle Communications User Data Repository application upgrade procedures.

Precondition: The PM&C application at each site (and the TVOE host running the PM&C Virtual server, must be upgraded before performing TVOE host OS Upgrade for servers that are managed by this PM&C.

Impact: TVOE host upgrades require that the Oracle Communications User Data Repository applications running on the host be shut down for up to 30 minutes during the upgrade.

Procedure	This Step	Cum.	Procedure Title	Impact
Appendix B	0:01-0:05	0:01-0:05	Perform Health Check (Upgrade Preparation)	
Refer to [2]	30 min per TVOE host (see note)	0:01- 3:05	Upgrade TVOE Hosts at a Site (before application upgrade MW)	Oracle Communications User Data Repository servers running as virtual guests on the TVOE host is stopped and unable to perform their Oracle Communications User Data Repository role while the TVOE host is being upgraded.
Appendix B	0:01-0:05	0:02- 3:10	Verify health of site	

NOTE: Depending on the risk tolerance, it is possible to perform multiple TVOE upgrades in parallel.

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

Procedure 4: Upgrade TVOE Hosts at a Site (before application upgrade MW)

Step	Procedure	Result
1. ☐	Record site	Record Site to be upgraded _____
2. ☐	Select Order of TVOE server upgrades	Record the TVOE hosts to be upgraded, in order: (It is best to upgrade standby servers before active servers, to minimize failovers. Otherwise, any order is OK.) _____ _____ _____ _____ _____ _____ **NOTE:** The site PM&C Software Inventory form typically lists the TVOE hosts at a site, and their versions.
3. ☐	Upgrade the TVOE hosting the standby servers	Upgrade the TVOE host of a standby server: Perform Appendix G,Upgrade TVOE Platform
4. ☐	Upgrade the TVOE hosting the active servers	Upgrade TVOE of the active server Perform Appendix G,Upgrade TVOE Platform **NOTE:** This causes a failover of the Oracle Communications User Data Repository on the TVOE.
5. ☐	Repeat for TVOE hosts at a Site	Repeat steps 3 and 4 for multiple TVOE hosts at a site, as time permits.

3.4 Order of Application Upgrade

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

4. Site 2 NOAMPs (DR spares)
5. Primary standby NOAMP
6. Primary active NOAMP

3.5 Upgrade Execution Overview for Normal Capacity C-Class Configuration

3.5.1 Primary NOAMP/DR NOAMP Execution Overview

The times in Table 6 and Table 7 are the estimated times for upgrading 2 NOAMPs and 2 DR NOAMPs. The DR NOAMPs are upgraded first, followed by the primary NOAMPs.

Table 6: DR NOAMP Upgrade Procedures for Normal Capacity C-Class Configurations

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

Table 7: Primary NOAMP Upgrade Procedures for Normal Capacity C-Class Configurations

Procedure Number	Procedure Title	Elapsed Time (Hours:Minutes)	
		This Step	Cumulative
8 or 9	Major Upgrade Primary NOAMP NE or *Incremental Upgrade Primary NOAMP NE*	03:30	03:30

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

3.6 Upgrade Execution Overview for Low Capacity Configurations

3.6.1 Primary NOAMP/DR NOAMP Execution Overview

The times in Table 8 and Table 9 are the estimated times for upgrading 2 NOAMPs and 2 DR NOAMPs. The primary NOAMPs are upgraded first, followed by the DR NOAMPs.

Table 8: DR NOAMP Upgrade Procedures for Low Capacity Configurations

Procedure Number	Procedure Title	Elapsed Time (Hours:Minutes)	
		This Step	Cumulative
4	Remove Additional GUI Sessions	00:05	00:05
5	Full Database Backup	00:30	00:35
6 or 7	Major Upgrade DR NOAMP NE or Incremental Upgrade DR NOAMP NE	01:00	01:35

Table 9: Primary NOAMP Upgrade Procedures for Low Capacity Configurations

Procedure Number	Procedure Title	Elapsed Time (Hours:Minutes)	
		This Step	Cumulative
8 or 9	Major Upgrade Primary NOAMP NE or Incremental Upgrade Primary NOAMP NE	01:00	01:00

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

3.7 Upgrade Acceptance Overview

Table 10: Upgrade Acceptance overview

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

Chapter 4. Primary NOAMP/DR NOAMP Upgrade Execution

Open A Service Ticket at My Oracle Support (Appendix J) 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.

4.1 Perform Health Check (Pre Upgrade)

Procedure 5: 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**.

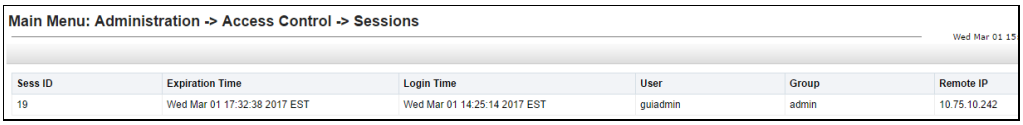
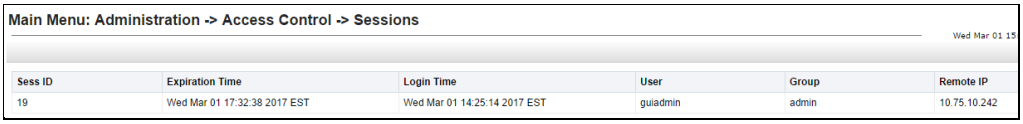
4.2 Primary NOAMP/DR NOAMP Upgrade

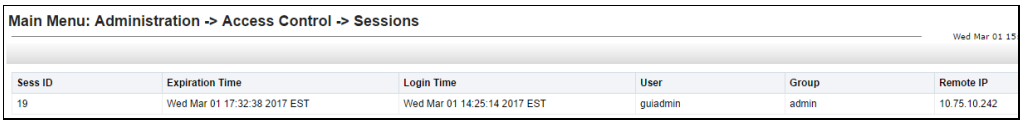
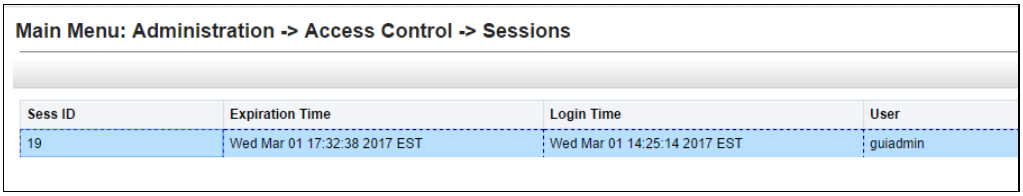
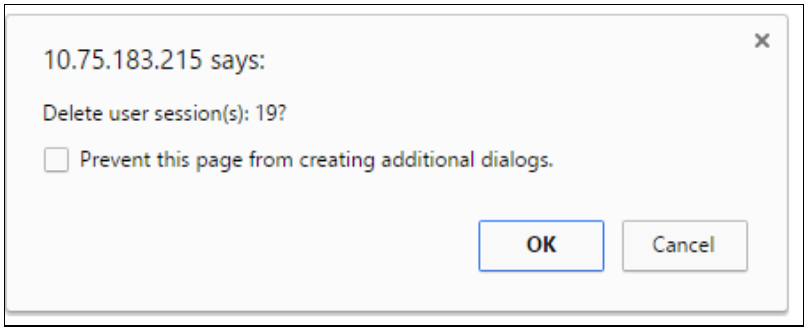
This procedures detail how to perform upgrades for primary NOAMP and DR NOAMP servers.

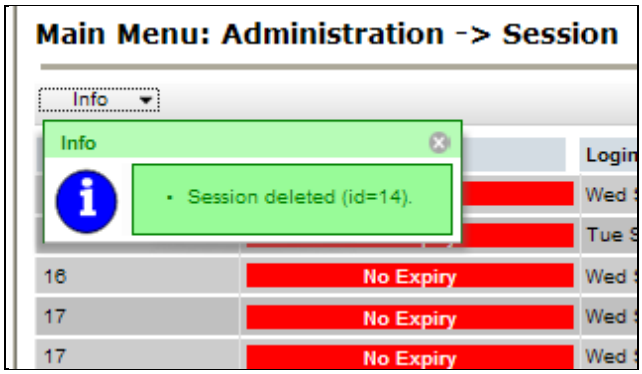
4.2.1 Remove Additional GUI Sessions

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

Procedure 6: 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.	

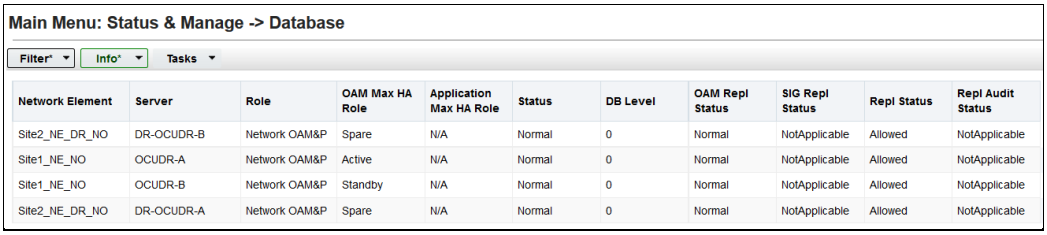
Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** The User ID and Remote IP address of each session are displayed as seen on the right. Every attempt is made to contact users not engaged in this Upgrade activity and request that they discontinue GUI access until the upgrade activity has completed.	
5. ☐	**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).`

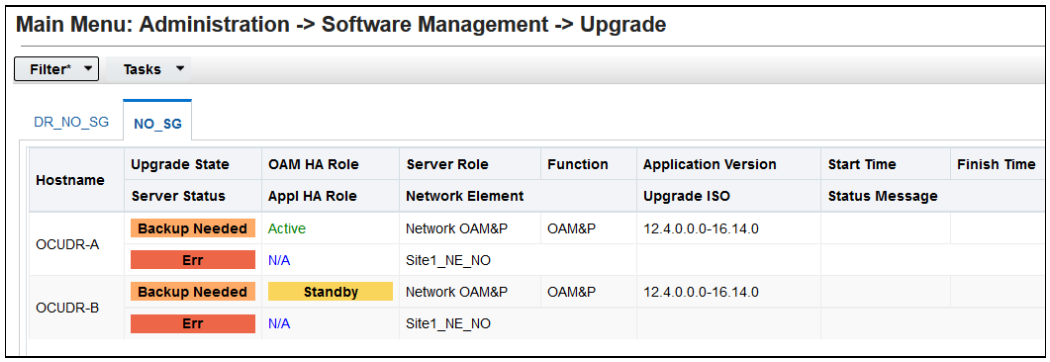
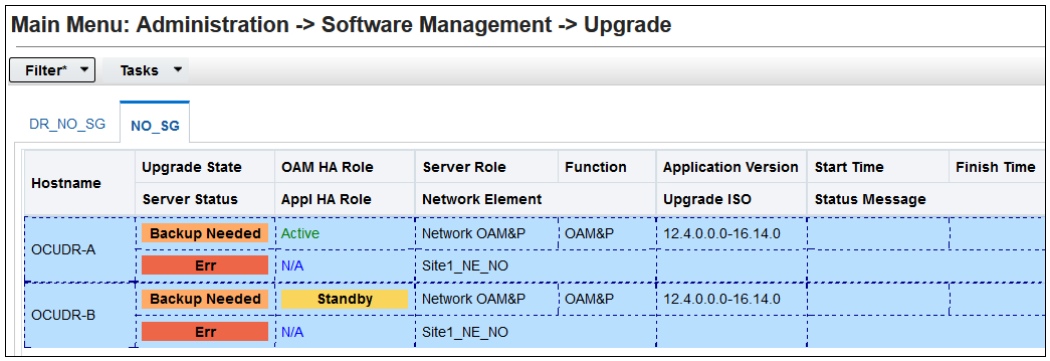
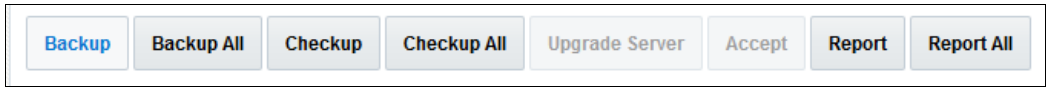
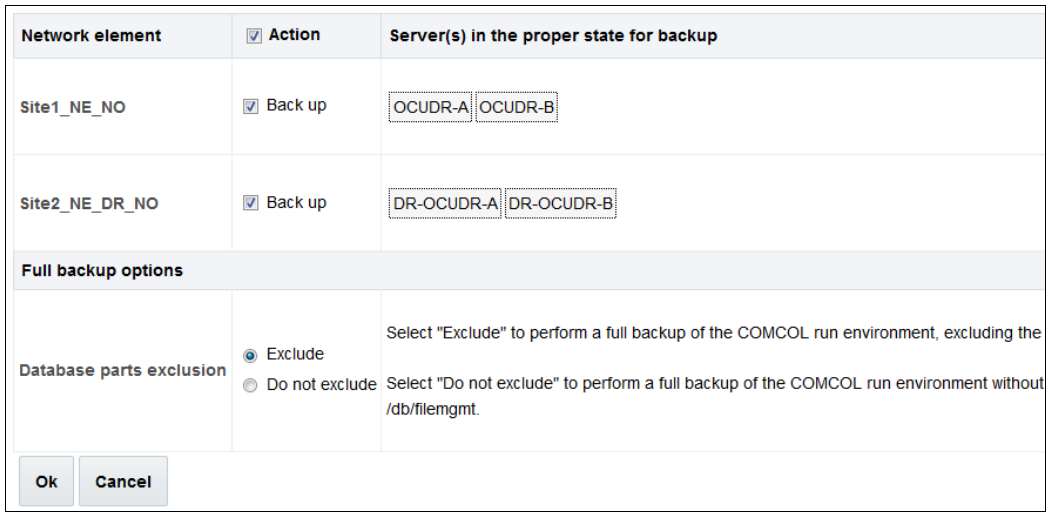
Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** A confirmation message displays in the Info tab indicating the session ID which was deleted.	
7. ☐	**Active NOAMP VIP:** Delete any additional GUI sessions as needed.	Repeat Steps **Error! Reference source not found.** and **Error! Reference source not found.** of this Procedure for each additional GUI session to be deleted.
THIS PROCEDURE HAS BEEN COMPLETED		

4.2.2 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 7: 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 to the Servers Worksheet in Appendix C.2 (print or photocopy additional pages if necessary to accommodate your number of Network Elements). **NOTE:** The full backup on every server can be done from the NOAMP GUI.

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Administration → Software Management → Upgrade** Backup the COMCOL run environment	
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.	  

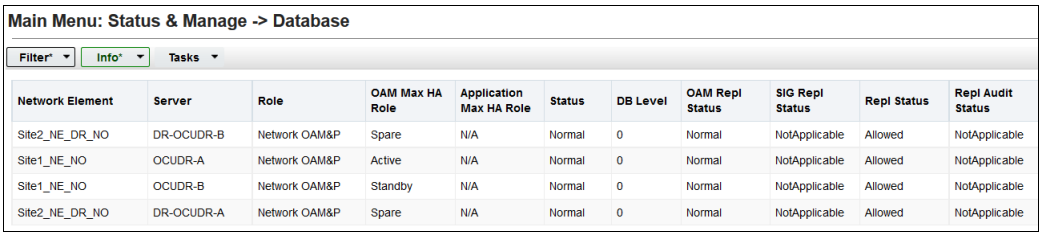
Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The Server Status indicates Backup in Progress The progress of the full backups can be viewed in the Tasks box, as well as from the **Status & Manage->Tasks->Active Tasks** screen. As each full backup completes, its task updates to indicate its success 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%.
8. ☐	Mark the backup of the server as complete.	Reference the Servers Worksheet in Appendix C.2 and check off the server which just completed backup.
THIS PROCEDURE HAS BEEN COMPLETED		

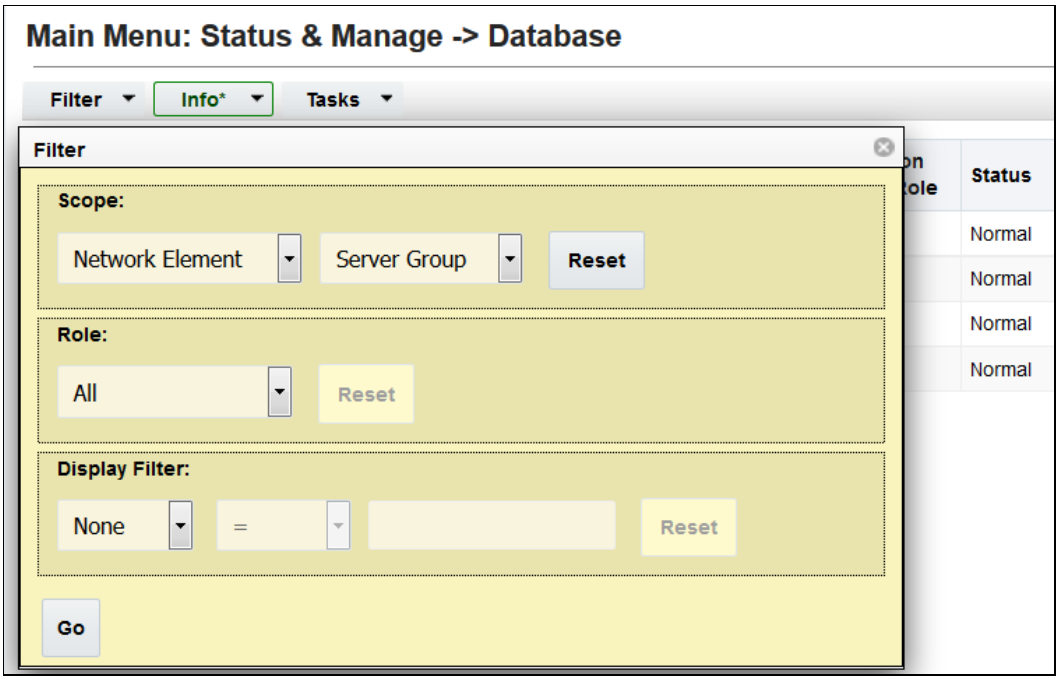
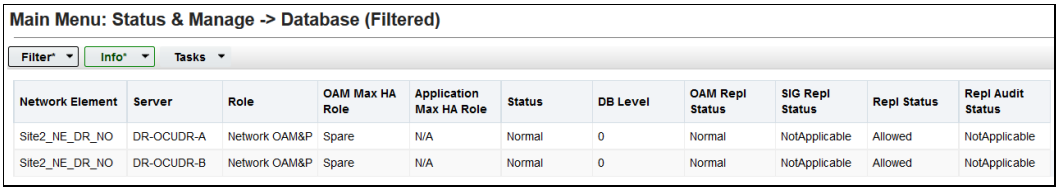
4.2.3 Major Upgrade DR NOAMP NE

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 from Release 12.1 to 12.4.

Procedure 8: 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**	 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: _____

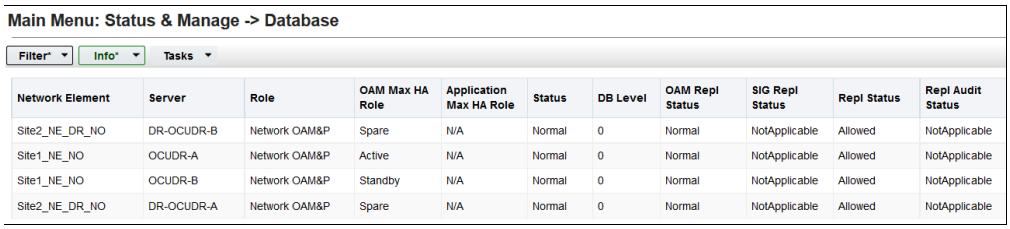
Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** From the Network Element filter list, select the NE name for the DR NOAMP.	
5. ☐	**Active NOAMP VIP:** Click **Go**.	
6. ☐	**Active NOAMP VIP:** The list of servers associated with DR NOAMP Network Element displays.	 Identify each server and its associated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

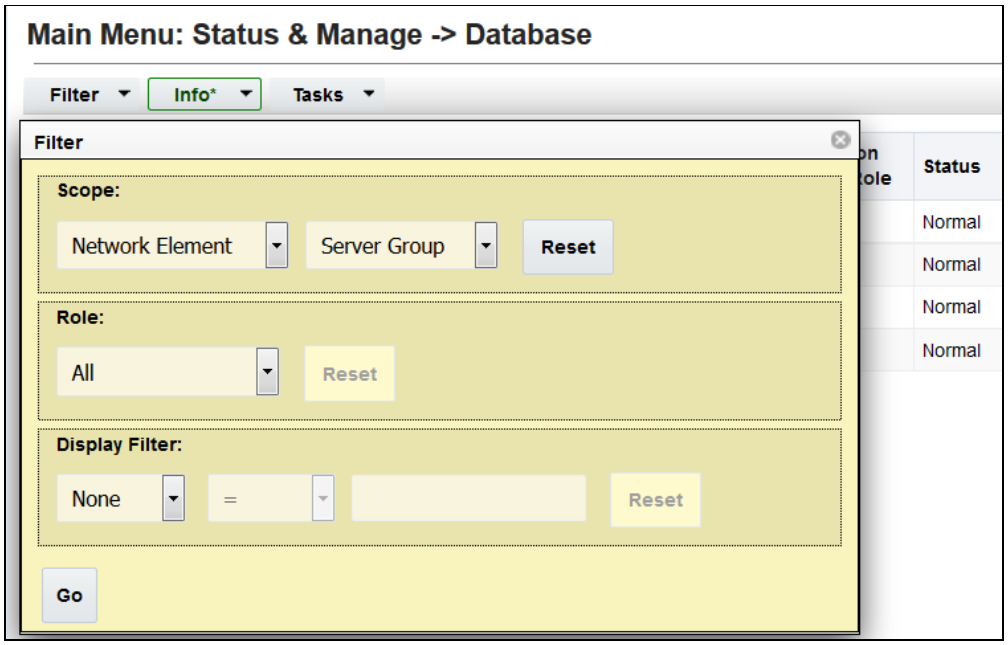
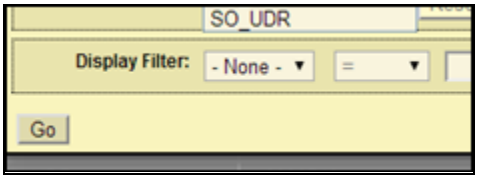
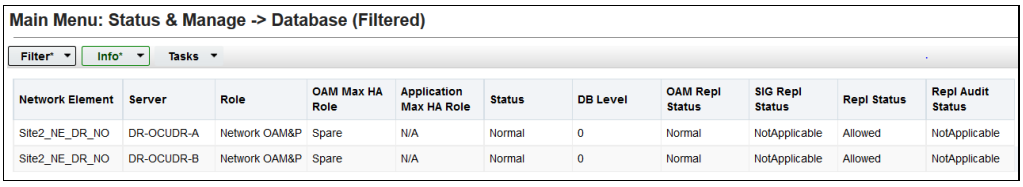
Network Element	Server	Role	OAM Max HA Role	Application Max HA Role	Status	DB Level	OAM Repl Status	SIG Repl Status	Repl Status	Repl Audit Status
Site2_NE_DR_NO	DR-OCUDR-A	Network OAM&P	Spare	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable
Site2_NE_DR_NO	DR-OCUDR-B	Network OAM&P	Spare	N/A	Normal	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 ***Error! Reference source not found.*** 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 ***Error! Reference source not found.*** of this Procedure) as specified in Appendix C.1 Upgrade Server
THIS PROCEDURE HAS BEEN COMPLETED		

4.2.4 Incremental Upgrade DR NOAMP NE

Procedure 9: Incremental 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: _____

NOTE: For Step **Error! Reference source not found.** of this Procedure, select one spare DR NOAMP.

*** Verify the Databases are in sync using Appendix E before upgrading each spare 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

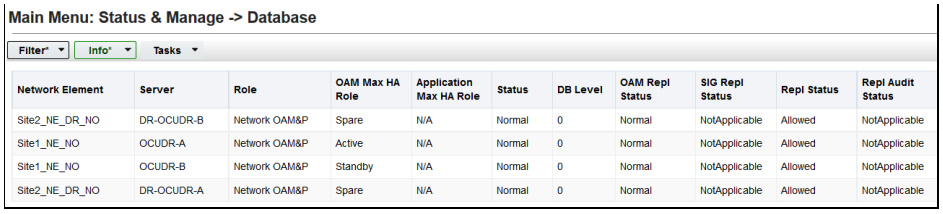
Step	Procedure	Result
8. ☐	**Active NOAMP VIP:** Upgrade server for the first spare DR NOAMP server.	Upgrade server for the first spare DR NOAMP server (identified in Step ***Error! Reference source not found.*** of this Procedure) as specified in Appendix C.1 Upgrade Server
9. ☐	**Active NOAMP VIP:** Upgrade server for the second spare DR NOAMP server.	Upgrade server for the second spare DR NOAMP server (identified in Step ***Error! Reference source not found.*** of this Procedure) as specified in Appendix C.1 Upgrade Server
THIS PROCEDURE HAS BEEN COMPLETED		

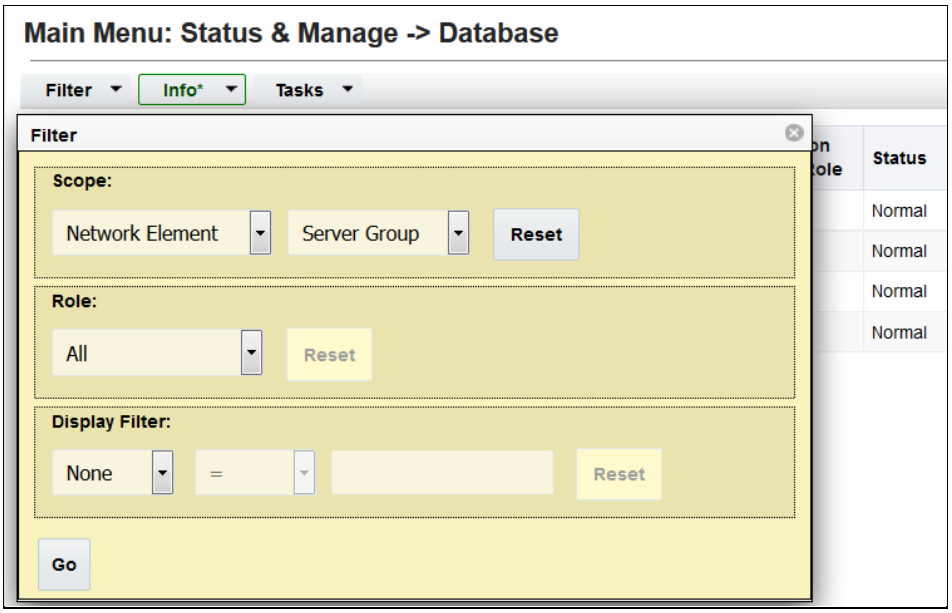
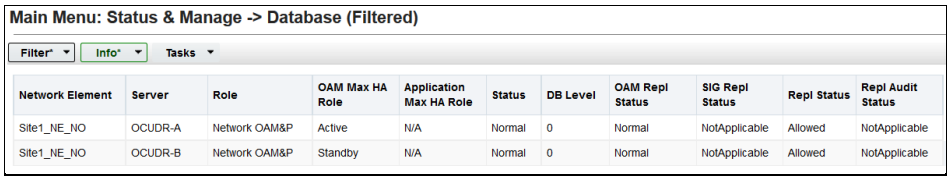
4.2.5 Major Upgrade Primary NOAMP NE

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 12.1 to 12.4.

Procedure 10: 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.	 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: Steps 8 through 10 must be performed on an active NOAMP if upgrade is being done from 12.1.0.0.0-13.8.0 to 12.4

Step	Procedure	Result

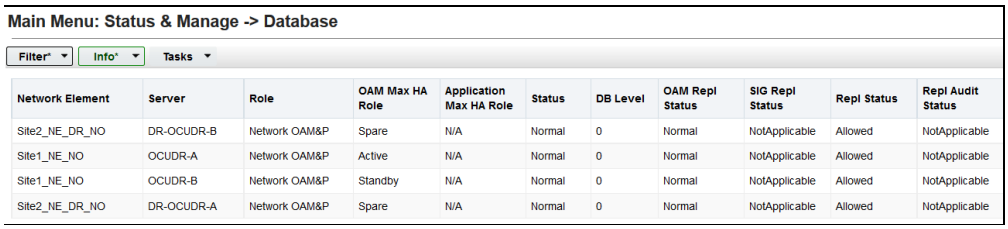
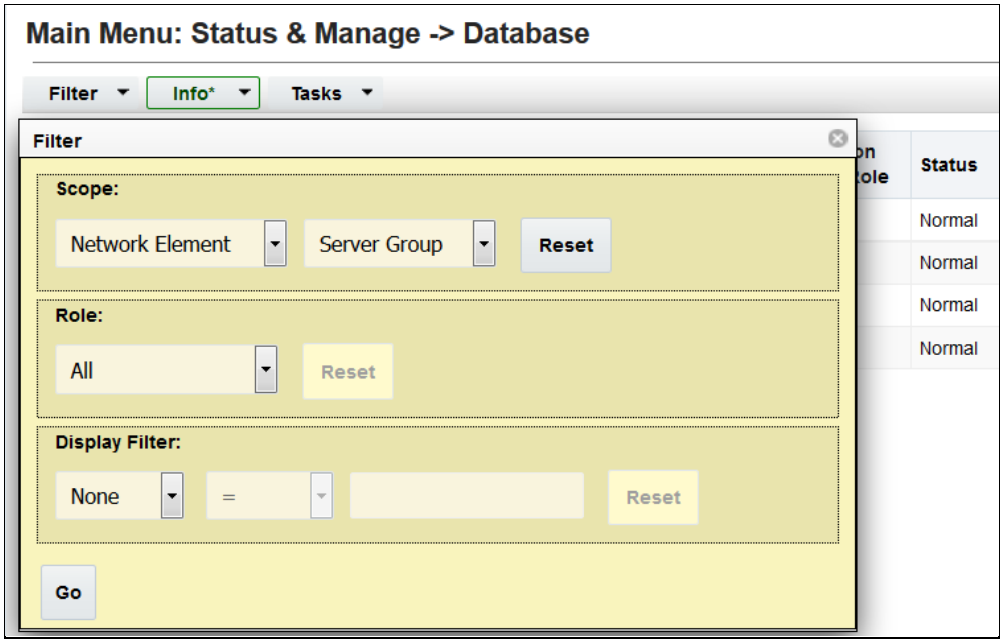
8. ☐	**Active NOAMP Server:** Access the command prompt and login into the active NOAMP server as admusr user	`login as: admusr`
		`root@10.250.xx.yy's password:<admusr_password>`
		`Last login: Mon Jul 30 10:33:19 2012 from 10.250.80.199`
		`[root@pc9040833-no-a ~]#`

9. ☐	**Active NOAMP Server:** Switch to root user.	`[admusr@ pc9040833-no-a ~]$ su -` `password: <root_password>`
10. ☐	**Active NOAMP Server:** **NOTE:** Subscription Flags are set to a random value before upgrade, you must manually reset the flags.	Run the `iset` command using the console for the active NOAMP. `# iset -fflags=0 Subscription where "1=1"`
11. ☐	**Active NOAMP Server:** Performing workarounds for known bugs	Refer to the Oracle Communications UDR 12.4 Release Notes document for known customer bugs, evaluate for applicability and perform the workarounds as documented.
NOTE: Step 12 is for the STANDBY NOAMP ONLY.		
12. ☐	**Active NOAMP VIP:** Upgrade server for the standby NOAMP server.	Upgrade server for the standby NOAMP server (identified in Step **Error! Reference source not found.** of this Procedure) as specified in Appendix **C.1** Upgrade Server
	!! WARNING !! STEP 12 MUST BE COMPLETED BEFORE CONTINUING ON TO STEP 13. *** Verify the Databases are in sync using Appendix E before upgrading the active server	
13. ☐	**Active NOAMP VIP:** Upgrade server for the active NOAMP server.	Upgrade server for the active NOAMP server (identified in Step **Error! Reference source not found.** of this Procedure) as specified in Appendix **C.1** Upgrade Server.

Step	Procedure	Result
THIS PROCEDURE HAS BEEN COMPLETED		

4.2.6 Incremental Upgrade Primary NOAMP NE

Procedure 11: Incremental 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: _____
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

Step	Procedure	Result
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 its associated Role and HA Role.	**Main Menu: Status & Manage -> Database (Filtered)** Filter* Info* Tasks 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
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 *Error! Reference source not found.* 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 E 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 *Error! Reference source not found.* of this Procedure) as specified in Appendix **C.1**Upgrade Server.
THIS PROCEDURE HAS BEEN COMPLETED		

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

Procedure 12: 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 5. Single server upgrade

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

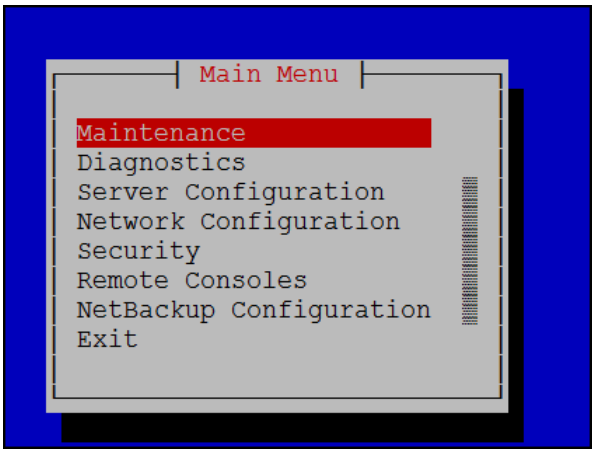
5.1 Upgrading a Single Server

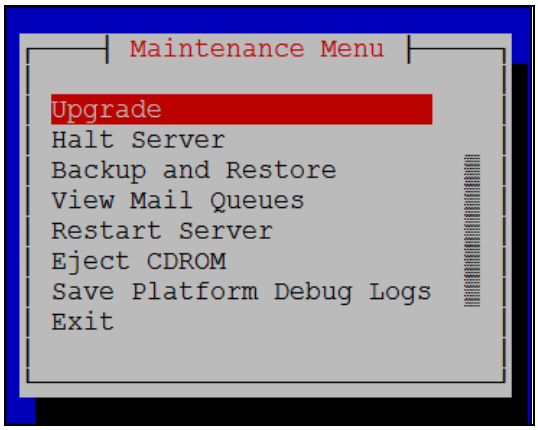
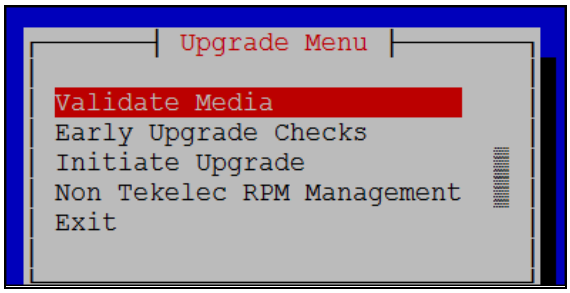
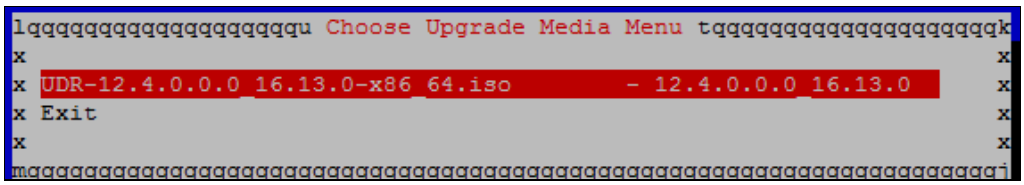
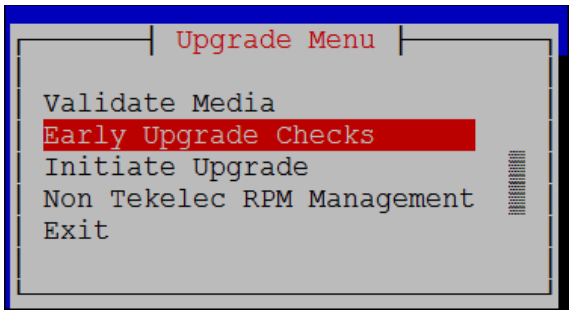
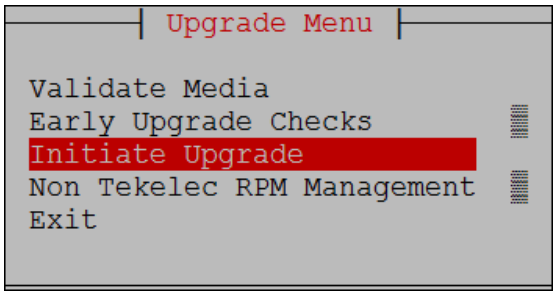
This procedure is for upgrading a one server Lab RMS only.

Procedure 13: Upgrade Single Server

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. ☐	Open the platcfg tool	`su - platcfg`
4. ☐ ☐	Exit `/var/TKLC/db/filemgmt` directory on server to be upgraded	Verify that there is not a user in the `/var/TKLC/db/filemgmt` directory
5. ☐	Select **Maintenance** and press **Enter**	

Step	Procedure	Result
6. ☐	Select **Upgrade** and press **Enter**	
7. ☐	Validate the Media by selecting **Validate Media** and presssing **Enter** Select the proper iso for the upgrade	 
8. ☐	Select **Early Upgrade Checks** and press **Enter**.	
9. ☐	Start the upgrade by selecting **Initiate Upgrade** and pressing **Enter**. Wait for Upgrade to complete anywhere from 15 minutes to 1.5 hrs.	

Step	Procedure	Result
10. ☐	Accept the upgrade	Accept upgrade as specified in Procedure 15:Accept Upgrade.
THIS PROCEDURE HAS BEEN COMPLETED		

Chapter 6. Upgrade Acceptance

The upgrade must be accepted or rejected before any subsequent upgrades are performed.

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

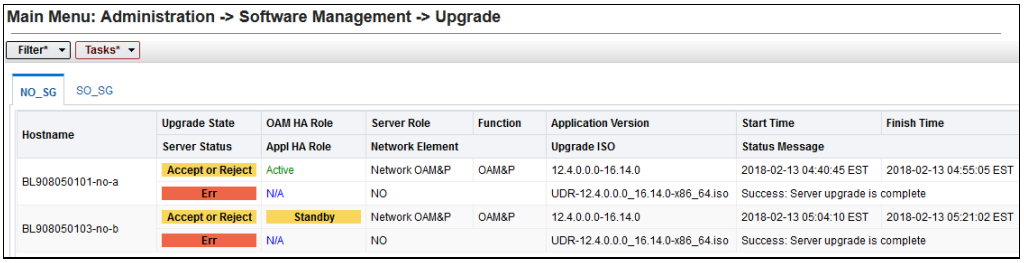
An upgrade is only accepted after it is determined to be successful beacuse the accept action is final. This frees up file storage but prevents a backout from the previous upgrade.

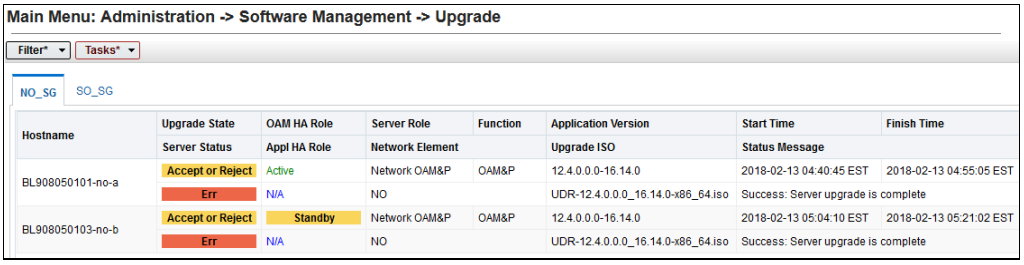
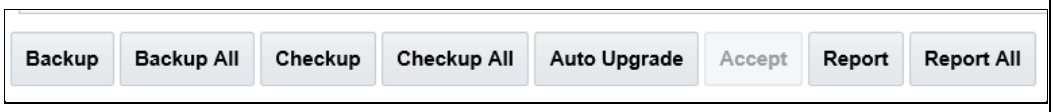
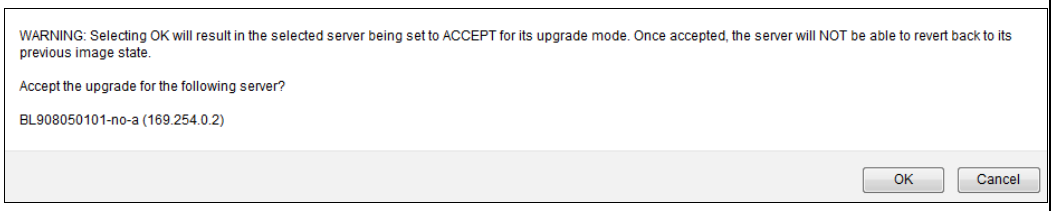
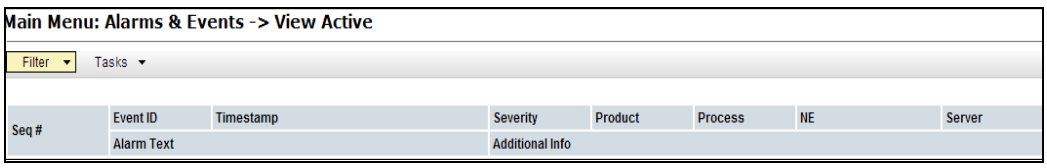
6.1 Accept Upgrade

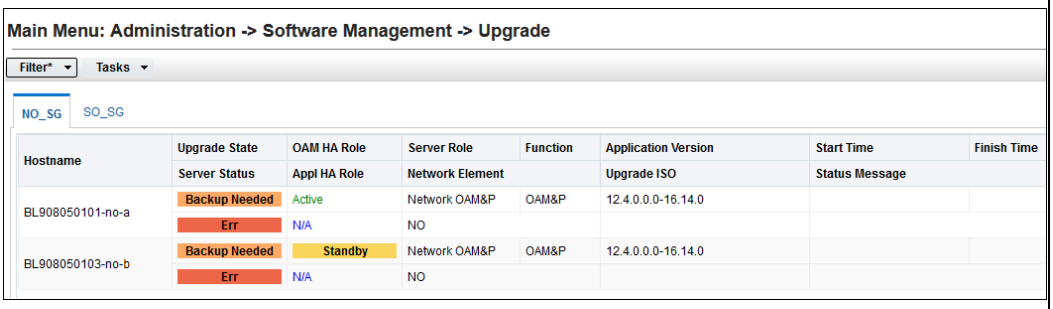
NOTE: After the upgrade is accepted for a server, that server is not allowed to backout to previous release from which the upgrade was done

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

Procedure 14: 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:** Navigate to **Main Menu → Administration → Software Management → Upgrade**	

Step	Procedure	Result
3. ☐	**Active NOAMP VIP (GUI):** Accept upgrade for selected servers	Accept upgrade of selected servers 1. Select the server. 2. Click the **Accept**   A confirmation dialog warns that afer the upgrade is accepted, the servers cannot be reverted back to their previous image states.  3. Click **OK** The Upgrade Administration screen displays. An informational message indicates the servers where the upgrade was accepted.
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 the upgrade is accepted on each server the corresponding Alarm ID 32532 (Server Upgrade Pending Accept/Reject) is removed.
5. ☐	**Active NOAMP VIP:** Verify accept	Check that alarms are removed: Navigate to **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:**	Verify server status is Backup Needed.

Step	Procedure	Result
	Navigate to **Main Menu → Administration → Software Management → Upgrade**	
7. ☐	**Active NOAMP VIP:** Configure services	Run the procedure specified in Appendix I: Configuring Services for Dual Path HA.
THIS PROCEDURE HAS BEEN COMPLETED		

Chapter 7. TVOE Performance tuning

This script is necessary because it can be modified by the build. By making this script part of the upgrade, it is ensuring that new changes and tuning are applied after the upgrade is complete.

NOTE: This procedure does not apply to Oracle Communications User Data Repository Cloud based systems.

Procedure 15: TVOE Performance Tuning

Step	Procedure	Result

1. ☐	**NOAMP:** Transfer file to TVOE host	Login to NOAMP and transfer file to TVOE HOST
		`# scp /var/TKLC/db/filemgmt/udrInitConfig.sh \`
		`admusr@<tvoe_host_name>:/var/tmp`
		`admusr@<tvoe_host_name>'s password:<admusr_password>`
		If an error message such as `scp: /var/tmp/udrInitConfig.sh: Permission denied` displays, delete the old file from TVOE or copy the old file with a new name such as `udrInitConfig_1.sh` and attempt the transfer again.

2. ☐	**Login to TVOE host:** 1. SSH to server. 2. Log into the server as the admusr user.	`# ssh admusr@<tvoe_host_name>` `admusr@<tvoe_host_name>'s password:<admusr_password>`
3. ☐	**TVOE host:** Switch to root user.	`[admusr@hostname1326744539 ~]$ su -` `password: <root_password>`
4. ☐	**TVOE host:** Change directory.	`# cd /var/tmp`
5. ☐	**TVOE host:** Update script permissions.	`# chmod 555 udrInitConfig.sh`
6. ☐	**TVOE host:** Run configuration script as root	`# ./udrInitConfig.sh` Verify that failures are not reported. A trace to display the settings for all VM Guests on this server are listed in the output. If a failure occurrs, save the log file `/var/TKLC/log/udrVMCfg/udrInitConfig.log` and contact My Oracle Support (Appendix J) for assistance.

Step	Procedure	Result
7. ☐	**TVOE host:** Reboot the server.	`# init 6` **NOTE:** Rebooting the TVOE host brings down the Oracle Communications User Data Repository servers running there. Be advised that this operation can affect traffic processing and HA status of related Oracle Communications User Data Repository servers in the network.
THIS PROCEDURE HAS BEEN COMPLETED		

Chapter 8. Recovery Procedures

Upgrade procedure recovery issues are directed to the My Oracle Support (Appendix J). 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.

8.1 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
4. TVOE and/or PM&C (if necessary, if upgraded as part of this procedure)

8.2 Backout Setup

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

1. Select **Administration → Software Management →Upgrade**
2. Based on the Application Version column, identify all the hostnames that need to be backed out.
3. Select **Configuration → Servers**
4. Identify the IMI IP addresses of all the hostnames identified in step 2. These 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 4.2.2Full 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.

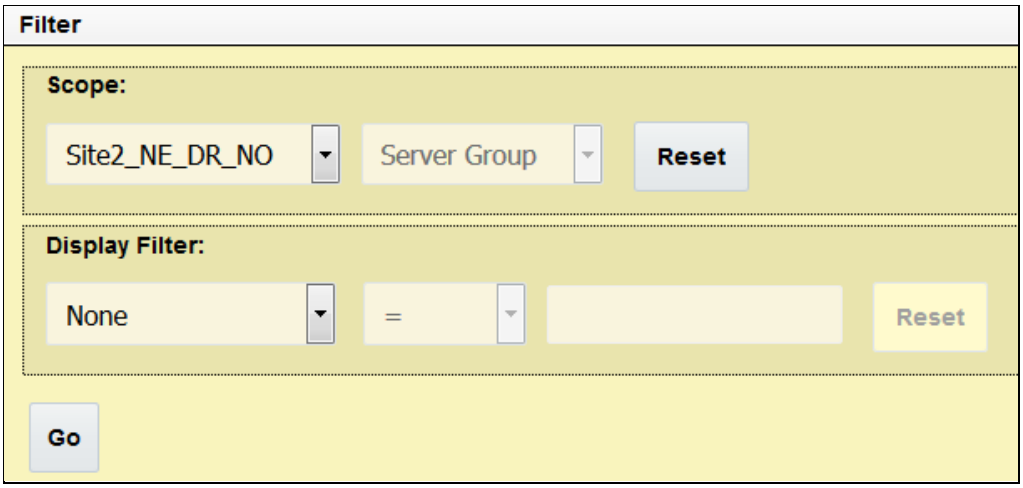
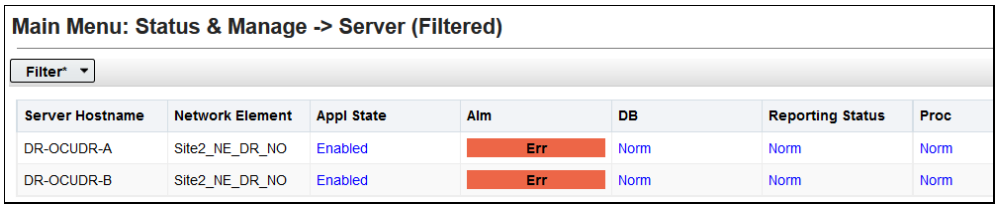
The filenames have the format:

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

8.3 Backout of DR NOAMP NE

Procedure 16: Backout of DR NOAMP NE

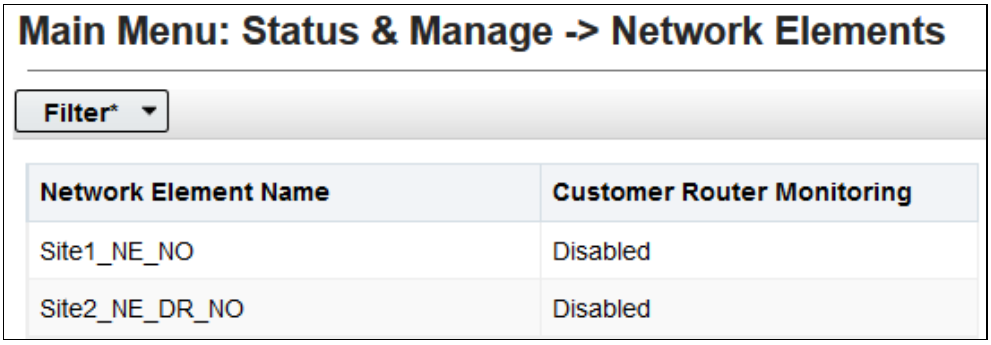
Step	Procedure	Result
1. ☐	Using the VIP address, access the primary NOAMP GUI.	Access the primary NOAMP GUI as specified in Appendix A.
2. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Status & Manage → Network Elements**	**Main Menu: Status & Manage -> Network Elements** **Filter*** **Network Element Name** / **Customer Router Monitoring** Site1_NE_NO / Disabled Site2_NE_DR_NO / Disabled
3. ☐	Record the name of the DR NOAMP NE to be downgraded (backed out) in the space provided to the right.	Record the name of the DR NOAMP NE to be backed out. DR NOAMP NE: _____
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

Step	Procedure	Result
5. ☐	**Active NOAMP VIP:** 3. From the **Status & Manage→ Server** filter list, select the name for the DR NOAMP NE. 4. 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		

8.4 Backout of Primary NOAMP NE

Procedure 17: Backout of Primary NOAMP NE

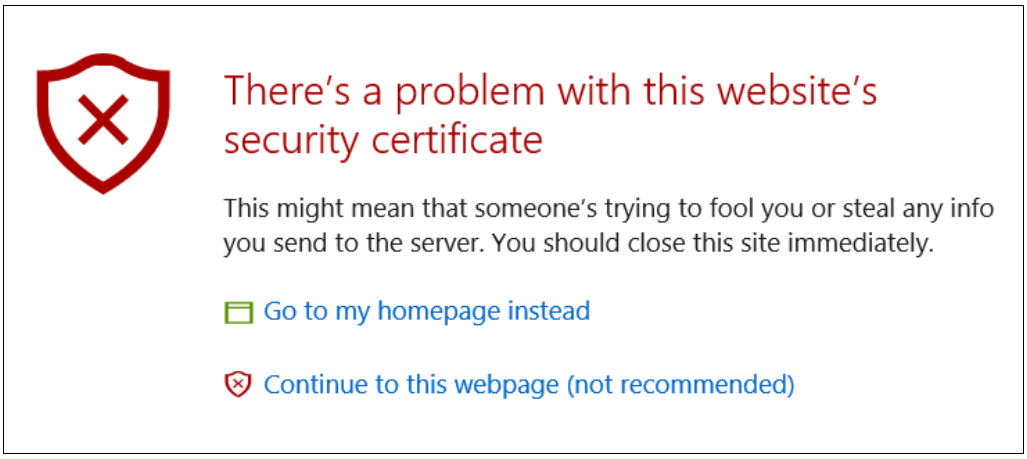
Step	Procedure	Result
1. ☐	Using the VIP address, access the primary NOAMP GUI.	Access the primary NOAMP GUI as specified in Appendix A.
2. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Status & Manage → Network Elements**	
3. ☐	Record the name of the NOAMP NE to be downgraded (backed out) in the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

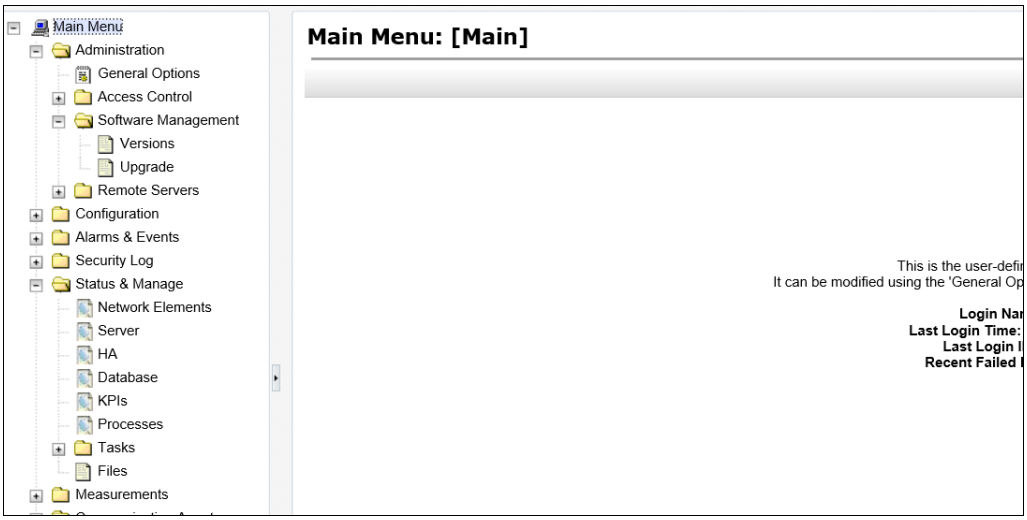
Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Status & Manage → Server**	**Main Menu: Status & Manage -> Server** Filter* Server Hostname | Network Element | Appl State | Alm | DB | Reporting Status | Proc DR-OCUDR-A | Site2_NE_DR_NO | Enabled | Err | Norm | Norm | Norm DR-OCUDR-B | 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.
11. ☐	Perform backout procedures for TVOE and/or PM&C if necessary	• Refer to the recovery procedures in TVOE 3.4 Upgrade document [2] if a TVOE backout is required. • Refer to the recovery procedures in PM&C Incremental Upgrade Procedure [3] if a PM&C backout is required.
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix A. Accessing the OAM Server GUI (NOAMP)

Procedure 18: 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

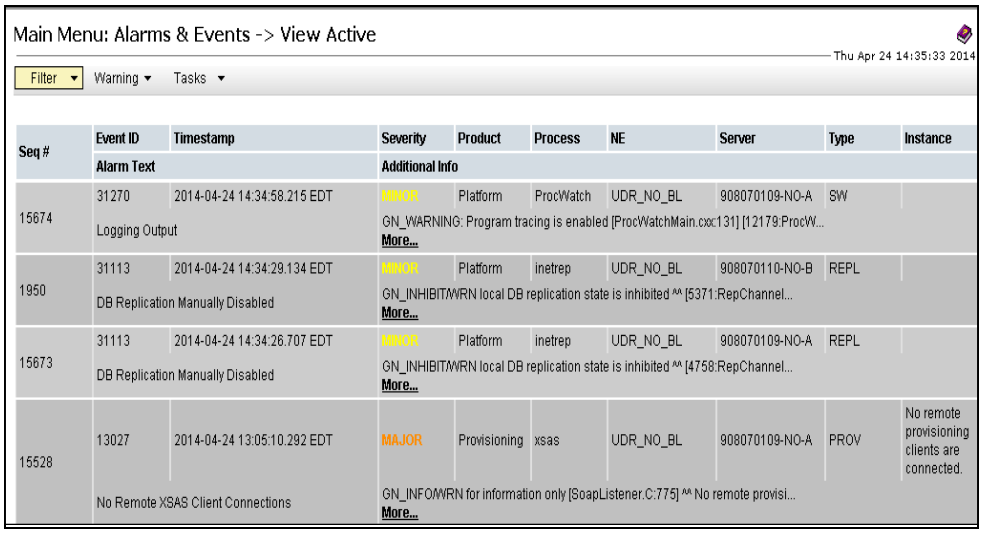
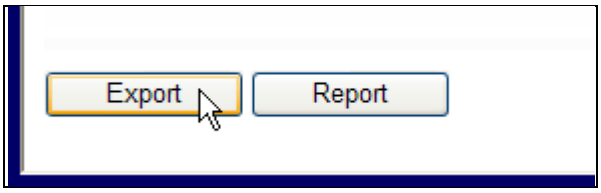
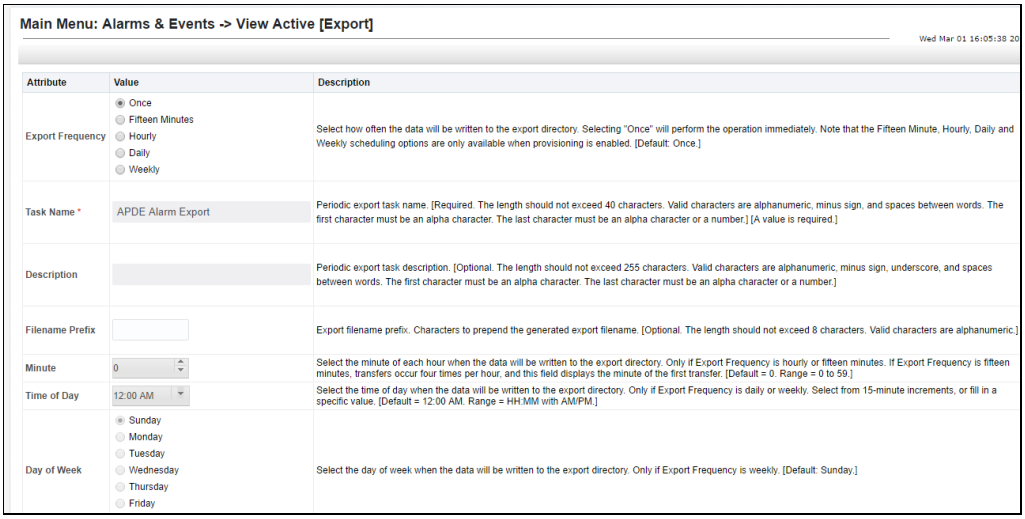
This procedure is part of software upgrade preparation and is used to determine the health and status of the Oracle Communications User Data Repository network and servers.

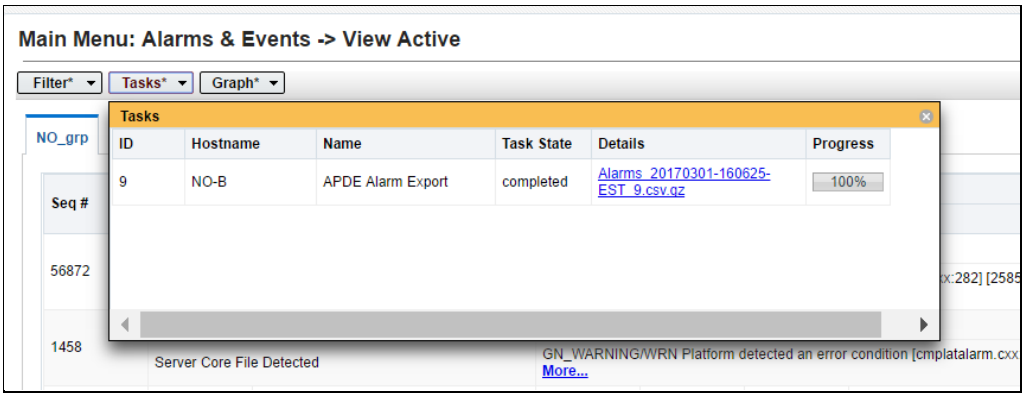
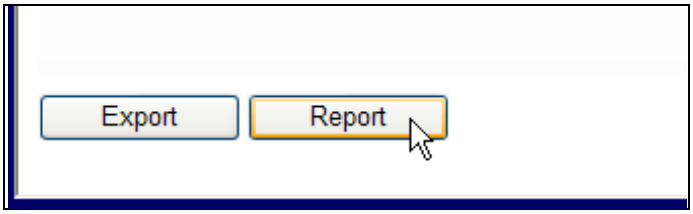
Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.

Procedure 19: 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* 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* If server state is any value besides NORM, follow Appendix J to contact My Oracle Support.

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

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

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>17. ☐</td><td>Provide the saved files to the Customer Care Center for Health Check Analysis.</td><td>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 Error! Reference source not found.]
• Network Elements Report [Appendix B, Step Error! Reference source not found.]
• Server Group Report [Appendix B, Step Error! Reference source not found.]</td></tr>
<tr><td>18. ☐</td><td>Active NOAMP VIP:
Navigate to Main Menu → Status & Manage → HA</td><td>Main Menu: Status & Manage -> HA
Filter*
<table><tr><th>Hostname</th><th>OAM HA Role</th><th>Application HA Role</th><th>Max Allowed HA Role</th><th>Mate Hostname List</th><th>Network Element</th><th>Server Role</th><th>Active VIPs</th></tr><tr><td>OCUDR-A</td><td>Active</td><td>N/A</td><td>Active</td><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Network OAM&P</td><td>10.10.1.6</td></tr><tr><td>OCUDR-B</td><td>Standby</td><td>N/A</td><td>Active</td><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Network OAM&P</td><td></td></tr><tr><td>DR-OCUDR-A</td><td>Spare</td><td>N/A</td><td>Active</td><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Network OAM&P</td><td>10.10.1.39</td></tr><tr><td>DR-OCUDR-B</td><td>Spare</td><td>N/A</td><td>Active</td><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Network OAM&P</td><td></td></tr></table></td></tr>
<tr><td>19. ☐</td><td>Active NOAMP VIP:
Verify that the HA Status for all servers shows either Active or Standby.</td><td>Main Menu: Status & Manage -> HA
Filter*
<table><tr><th>Hostname</th><th>OAM HA Role</th><th>Application HA Role</th><th>Max Allowed HA Role</th><th>Mate Hostname List</th><th>Network Element</th><th>Server Role</th><th>Active VIPs</th></tr><tr><td>OCUDR-A</td><td>Active</td><td>N/A</td><td>Active</td><td>OCUDR-B</td><td>Site1_NE_NO</td><td>Network OAM&P</td><td>10.10.1.6</td></tr><tr><td>OCUDR-B</td><td>Standby</td><td>N/A</td><td>Active</td><td>OCUDR-A</td><td>Site1_NE_NO</td><td>Network OAM&P</td><td></td></tr><tr><td>DR-OCUDR-A</td><td>Spare</td><td>N/A</td><td>Active</td><td>DR-OCUDR-B</td><td>Site2_NE_DR_NO</td><td>Network OAM&P</td><td>10.10.1.39</td></tr><tr><td>DR-OCUDR-B</td><td>Spare</td><td>N/A</td><td>Active</td><td>DR-OCUDR-A</td><td>Site2_NE_DR_NO</td><td>Network OAM&P</td><td></td></tr></table></td></tr>
<tr><td>20. ☐</td><td>Active NOAMP VIP:
Repeat Step 19 of this procedure until the last page of the [Main Menu: Status & Manage →HA] screen is reached.</td><td>Verify the HA Status for each page of the [Main Menu: Status & Manage →HA] screen, and click Next.</td></tr>
<tr><td colspan="3">Steps 21 to 23 are for pre-upgrade only</td></tr>
<tr><td>21. ☐</td><td>Check if a new firmware release is required for the system.</td><td>1. Contact the Oracle CGBU Customer Care Center by referring to Appendix J of this document to determine the minimum supported firmware release required for the target Oracle Communications User Data Repository release.
Target Firmware Rev: _____
Example: FW rev 2.2.9
2. Consult My Oracle Support (Appendix J) to determine if a firmware upgrade is requierd. If an upgrade is required, acquire the firmware release package and follow procedures suggested by My Oracle Support.
3. Plan for firmware upgrade maintenance windows, if needed, since this activity is typically performed before the Oracle Communications User Data Repository upgrade.</td></tr>
</table>

Step	Procedure	Result
22. ☐	Check the existing PM&C version and identify if PM&C upgrade is required, before starting with upgrade(applies to servers that are running PM&C)	Determine the PM&C version installed by logging into PM&C GUI. For incremental upgrades, follow reference [3].
23. ☐	Check the TVOE host server software version	1. Find the target Oracle Communications User Data Repository release. 2. Contact the My Oracle Support by referring to (Appendix J) of this document to determine the minimum supported TVOE OS version required for the target release. Required TVOE Release: _____ Example: 872-2525-101-3.4.0_82.22.0-TVOE-x86_64.iso 3. Follow Appendix F for the procedure to check the current TVOE HOST OS version, for all TVOE hosts. ***IMPORTANT: If TVOE hosts are not on the correct release, refer to Section 3.3.6 to plan for TVOE host upgrades.***
STEP 24 IS POST-UPGRADE ONLY		

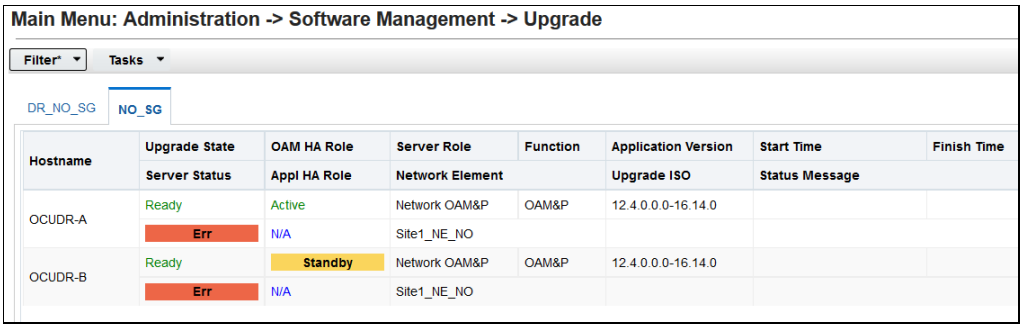
24. ☐	**Active NOAMP VIP:**
	Determine if any errors were reported.
		Use an SSH client to connect to the recently upgraded servers (for example: ssh or putty):
		`ssh<server IMI IP address>`
		`login as: admusr`
		`password: <enter password>`
		`Switch to root su -`
		`password: <enter password>`
		
		`# verifyUpgrade`
		Examine the output of the command to determine if any errors were reported. Contact the Oracle CGBU Customer Care Center if errors occur.

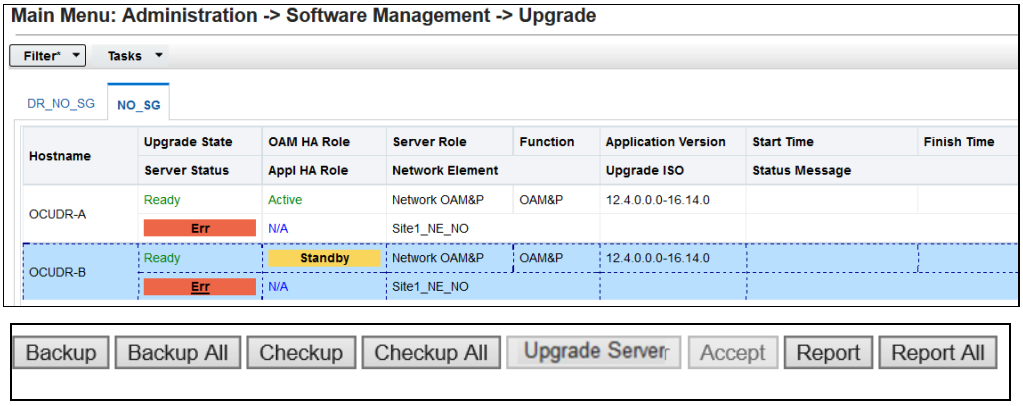
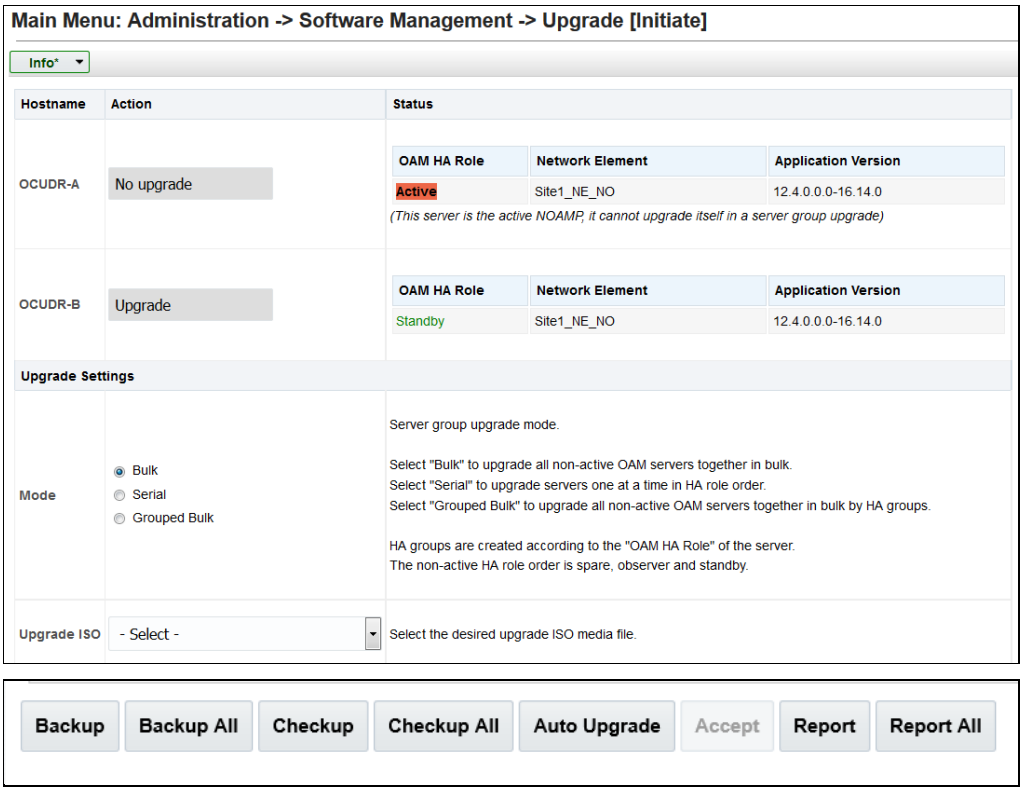
THIS PROCEDURE HAS BEEN COMPLETED		

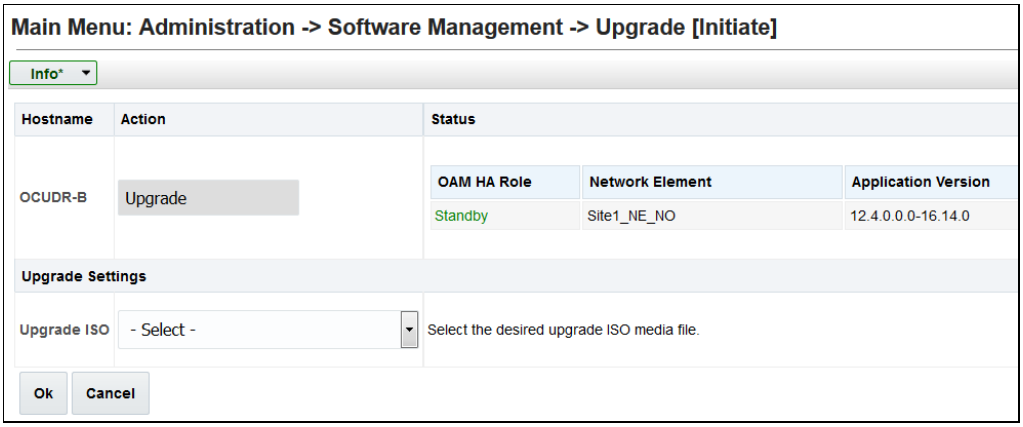
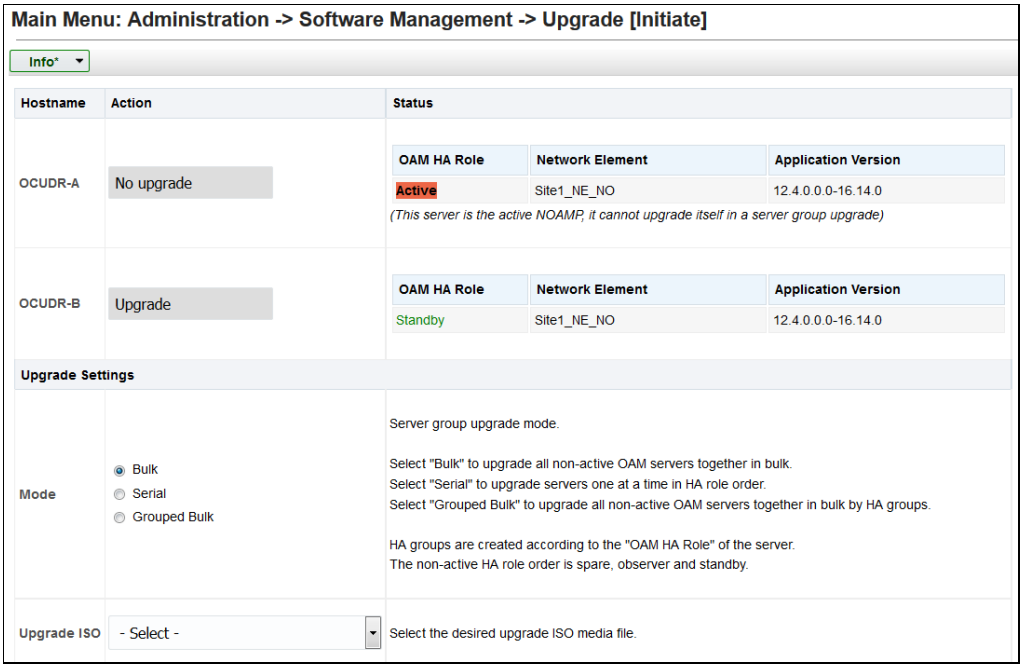
Appendix C. Upgrade of a Server

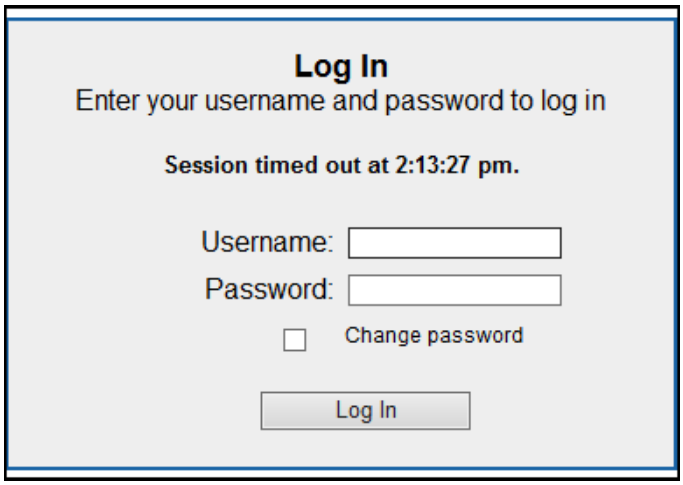
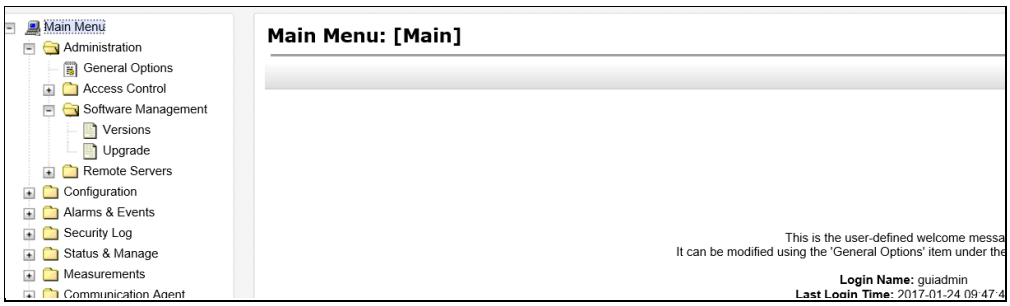
C.1 UPGRADE SERVER

Procedure 20: Initiate Upgrade Server

Step	Procedure	Result
1. ☐	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
2. ☐	**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
3. ☐	**Active NOAMP VIP:** 1. Select the server (for one server at a time) or select no servers (for group-based auto upgrade) 2. Ensure the Upgrade Server or Auto Upgrade button is enabled. 3. Click **Auto Upgrade** or **Upgrade Server** **NOTE:** Auto Upgrade does not update the active NOAMP server.	**Single Server**  **Group Based** 

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** 1. The Upgrade[Initiate] screen displays 2. Select the ISO to use in the server upgrade If Auto Upgrade option was selected for group-based upgrade: • NO/SO: Bulk upgrades servers in groups according to the availability setting. • MP: Serial upgrades servers one at a time starting with standby server **NOTE:** For MPs, you can select the required percent availability. (recommended to have at least 50% available) 3. Click **Ok** to start the upgrade	**Upgrade Server:**  **Auto 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
5. ☐	**Active NOAMP VIP:** ***** For active NOAMP only: After Step 4 completes, the session automatically terminates and you are logged out of the GUI.*** The Log In screen displays as the standby NOAMP server goes through HA switchover and becomes the active server. Login to the GUI using the default user and password.	
6. ☐	**Active NOAM VIP:** ***** For active NOAMP only*** 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 NOAMP server.	

Step	Procedure	Result
7. ☐	**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.	

Main Menu: Administration -> Software Management -> Upgrade

Filter* Status Tasks

DR_NO_SG NO_SG

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	Ready	Active	Network OAM&P	OAM&P	12.4.0.0.0-16.14.0		
	Err	N/A	Site1_NE_NO				
OCUDR-B	Pending	Standby	Network OAM&P	OAM&P	12.4.0.0.0-16.14.0		
	Err	N/A	Site1_NE_NO		UDR-12.4.0.0.0_16.15.0-x86_64.iso	Upgrade task started	

Main Menu: Administration -> Software Management -> Upgrade

Filter* Status Tasks*

DR_NO_SG NO_SG

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	Ready	Active	Network OAM&P	OAM&P	12.4.0.0.0-16.14.0		
	Err	N/A	Site1_NE_NO				
OCUDR-B	Upgrading	OOS	Network OAM&P	OAM&P		2018-05-15 05:57:49 EDT	
	Unk	N/A	Site1_NE_NO		UDR-12.4.0.0.0_16.15.0-x86_64.iso	Upgrade is in progress	

Main Menu: Administration -> Software Management -> Upgrade

Filter* Tasks*

DR_NO_SG NO_SG

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	Ready	Active	Network OAM&P	OAM&P	12.4.0.0.0-16.14.0		
	Err	N/A	Site1_NE_NO				
OCUDR-B	Rebooting	OOS	Network OAM&P	OAM&P	12.4.0.0.0-16.15.0	2018-05-15 05:57:49 EDT	
	Unk	N/A	Site1_NE_NO		UDR-12.4.0.0.0_16.15.0-x86_64.iso	Warn: failed to get TPD task state, server could be rebooting.	

Main Menu: Administration -> Software Management -> Upgrade

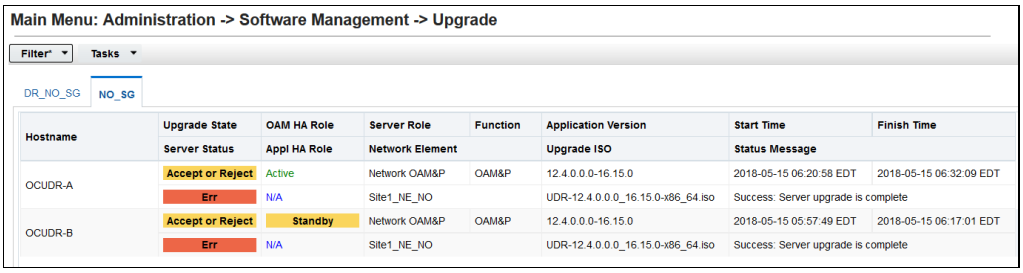
Filter* Tasks*

DR_NO_SG NO_SG

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	Ready	Active	Network OAM&P	OAM&P	12.4.0.0.0-16.14.0		
	Err	N/A	Site1_NE_NO				
OCUDR-B	Not Ready	Standby	Network OAM&P	OAM&P	12.4.0.0.0-16.15.0	2018-05-15 05:57:49 EDT	
	Err	N/A	Site1_NE_NO		UDR-12.4.0.0.0_16.15.0-x86_64.iso	Upgraded server to new ISO	

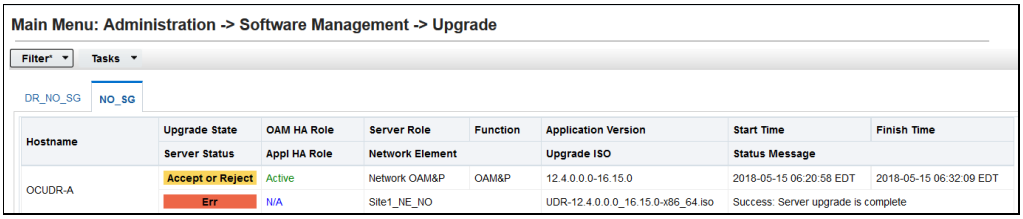
Tasks

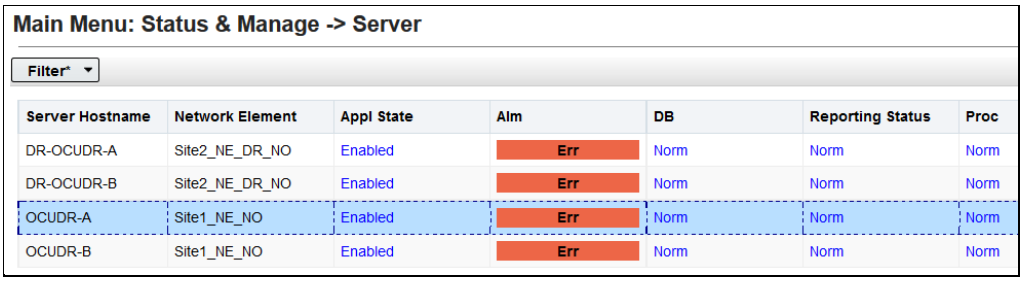
ID	Hostname	Name	Task State	Details	Progress
3	OCUDR-A	OCUDR-B Server Upgrade	running	Upgrade is in progress	28%
2	OCUDR-A	DR-OCUDR-A Server Upgrade	completed	Server upgrade execution complete.	100%
1	OCUDR-A	DR-OCUDR-B Server Upgrade	completed	Server upgrade execution complete.	100%
75	DR-OCUDR-A	Pre-upgrade full backup	completed	Full backup on DR-OCUDR-A	100%

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>8. ☐</td><td>Active NOAMP VIP:
1. Select the appropriate tab (NO_SG, MP_SG or SO_SG) and select the row containing the hostname of the server that was upgraded.
2. Verify that the Status Message shows Success and Upgrade State is Accept or Reject</td><td>


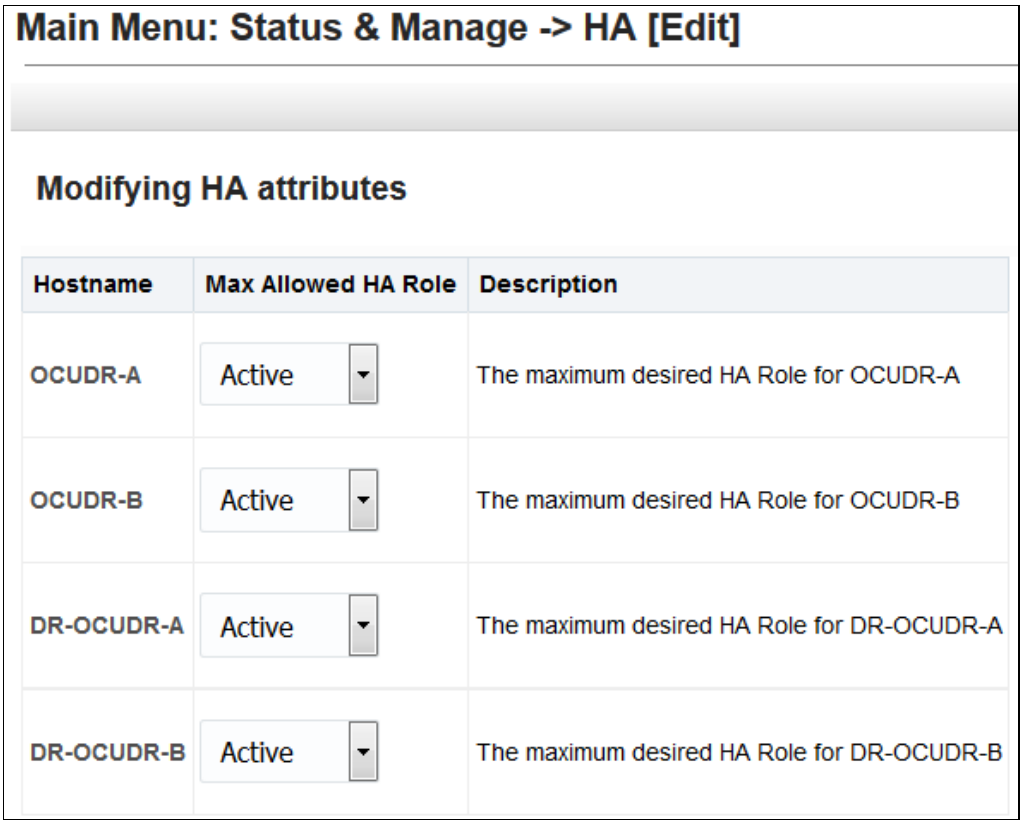
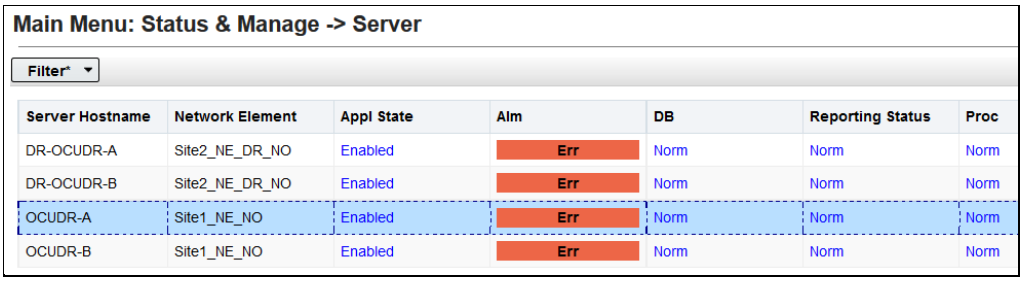
NOTE: If the upgrade status indicates that the server could not restart the application to complete the upgrade and alarm 10134 (Server Upgrade Failed) displays; ensure that replication is up. Use `irepstat` command on active server and verify status is Active:

- The Status changes to Success
- Alarm 10134 to clear



</td></tr>
<tr><td>9. ☐</td><td>1. If upgrade status still indicates that server could not restart the application to complete the upgrade, restart the server by clicking the Restart.
2. Verify that the Status Message shows Success and Upgrade State is Accept or Reject</td><td>Restart server that is being upgraded from Main Menu → Status & Manage→ Server screen


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

Step	Procedure	Result
10. ☐	**Active NOAMP VIP:** Navigate to **Main Menu → Status & Manage → HA [Edit]**	**NOTE:** Only perform the following step if Upgrade State is DEGRADED. Change Max Allowed HA Role for server (server that was upgraded) to Active  Restart server from **Main Menu->Status & Manage -> Server** screen 

Step	Procedure	Result
11. ☐	**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)
12. ☐	**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 SERVER WORKSHEET

Select the worksheet that matches the site configuration.

RMS Site Configuration (Low Capacity):

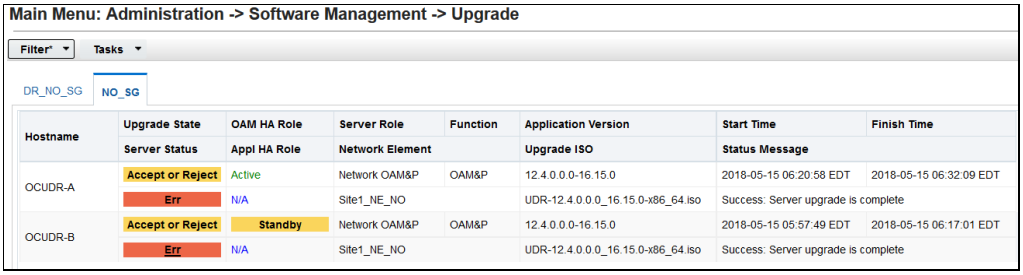
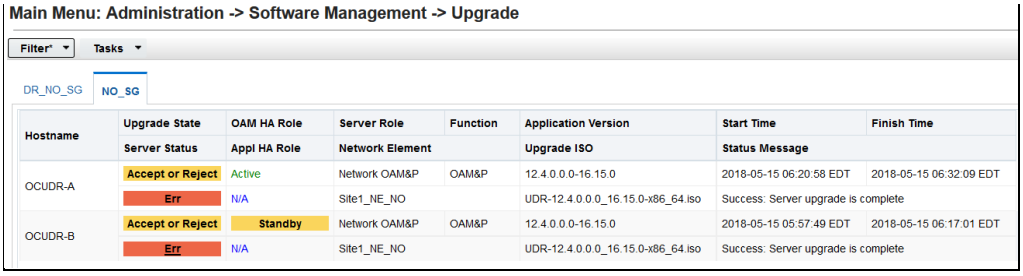
ACTIVE SITE	DR SITE
☐Active NOAMP: _____ ☐Standby NOAMP: _____	☐Active DR NOAMP: _____ ☐Standby DR NOAMP: _____

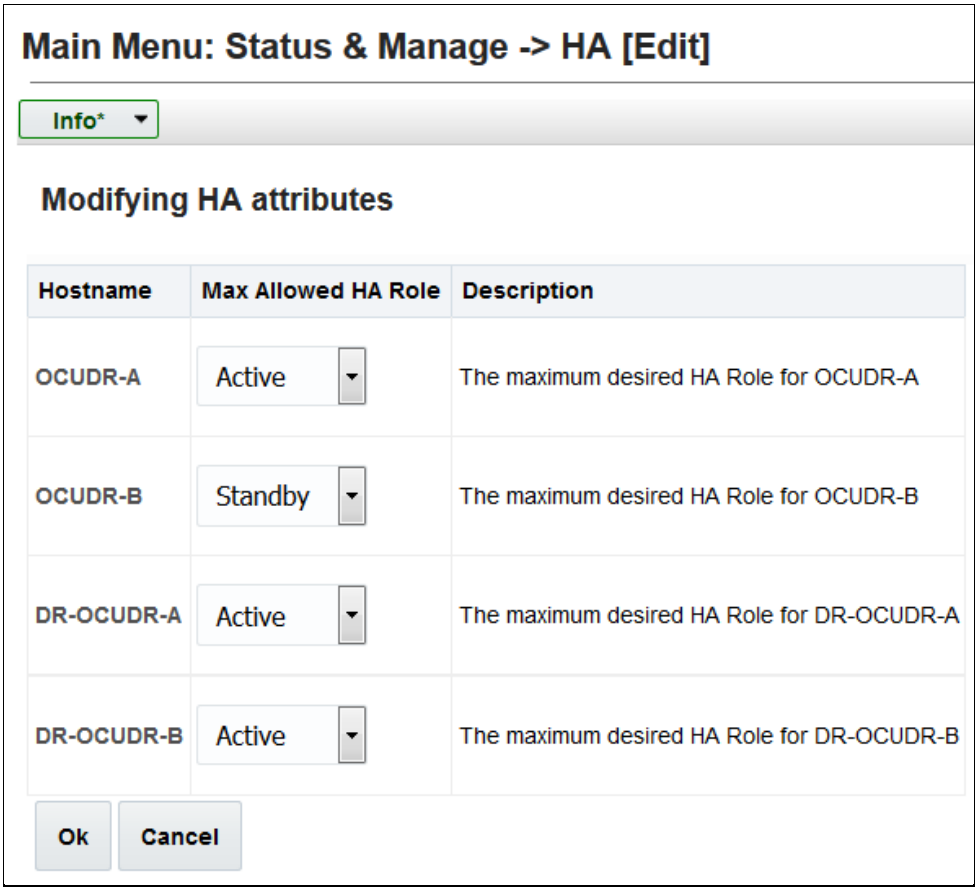
C-Class Site Configuration (Normal Configuration):

ACTIVE SITE	DR SITE
☐Active Primary NOAMP: _____ ☐Standby Primary NOAMP:_____	☐Active DR NOAMP: _____ ☐Standby DR NOAMP:_____

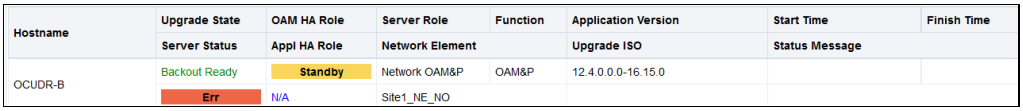
Appendix D. Backout of a Server

Procedure 21: 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**	 Main Menu: Administration -> Software Management -> Upgrade Filter* Tasks DR_NO_SG NO_SG Hostname: OCUDR-A Upgrade State: Accept or Reject; OAM HA Role: Active; Server Role: Network OAM&P; Function: OAM&P; Application Version: 12.4.0.0.0-16.15.0; Start Time: 2018-05-15 06:20:58 EDT; Finish Time: 2018-05-15 06:32:09 EDT Server Status: Err; Appl HA Role: N/A; Network Element: Site1_NE_NO; Upgrade ISO: UDR-12.4.0.0.0_16.15.0-x86_64.iso; Status Message: Success: Server upgrade is complete Hostname: OCUDR-B Upgrade State: Accept or Reject; OAM HA Role: Standby; Server Role: Network OAM&P; Function: OAM&P; Application Version: 12.4.0.0.0-16.15.0; Start Time: 2018-05-15 05:57:49 EDT; Finish Time: 2018-05-15 06:17:01 EDT Server Status: Err; Appl HA Role: N/A; Network Element: Site1_NE_NO; Upgrade ISO: UDR-12.4.0.0.0_16.15.0-x86_64.iso; Status Message: Success: Server upgrade is complete
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.	 Main Menu: Administration -> Software Management -> Upgrade Filter* Tasks DR_NO_SG NO_SG Hostname: OCUDR-A Upgrade State: Accept or Reject; OAM HA Role: Active; Server Role: Network OAM&P; Function: OAM&P; Application Version: 12.4.0.0.0-16.15.0; Start Time: 2018-05-15 06:20:58 EDT; Finish Time: 2018-05-15 06:32:09 EDT Server Status: Err; Appl HA Role: N/A; Network Element: Site1_NE_NO; Upgrade ISO: UDR-12.4.0.0.0_16.15.0-x86_64.iso; Status Message: Success: Server upgrade is complete Hostname: OCUDR-B Upgrade State: Accept or Reject; OAM HA Role: Standby; Server Role: Network OAM&P; Function: OAM&P; Application Version: 12.4.0.0.0-16.15.0; Start Time: 2018-05-15 05:57:49 EDT; Finish Time: 2018-05-15 06:17:01 EDT Server Status: Err; Appl HA Role: N/A; Network Element: Site1_NE_NO; Upgrade ISO: UDR-12.4.0.0.0_16.15.0-x86_64.iso; Status Message: Success: Server upgrade is complete

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	 Main Menu: Status & Manage -> HA [Edit] Info* Modifying HA attributes Hostname / Max Allowed HA Role / Description OCUDR-A / Active / The maximum desired HA Role for OCUDR-A OCUDR-B / Standby / The maximum desired HA Role for OCUDR-B 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 Ok Cancel

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 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 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 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
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 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 / 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: Status Message: Finish Time:
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`
		`# /var/TKLC/backout/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:
		`#/usr/TKLC/appworks/sbin/backout_restore`
		NOTE: If asked if you would like to proceed, answer y.
		If the restore was successful, the following message is displayed:
		`Success: Full restore of COMCOL run env has completed.`
		Return to the backout procedure document for further instruction.

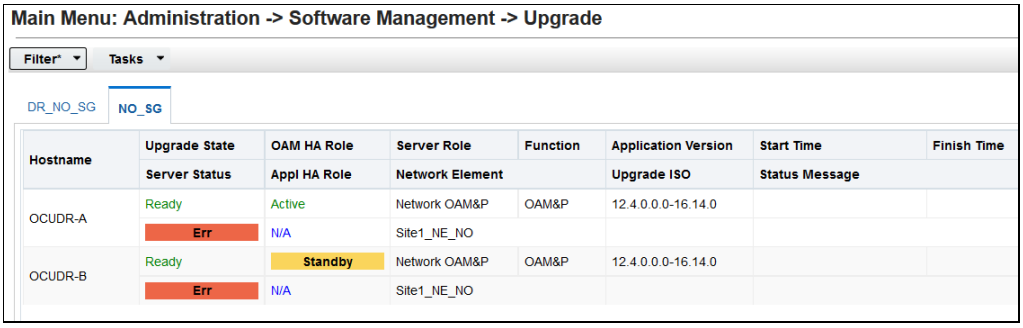
14. ☐		Enter the following command to reboot the server. If logged in as admusr, it is necessary to use sudo. `# init 6` This step takes several minutes and terminates the SSH session.

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 / 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: Ready / Err / Active / N/A / Network OAM&P / Site1_NE_NO / OAM&P / 12.4.0.0.0-16.14.0 OCUDR-B: Ready / Err / Standby / N/A / Network OAM&P / Site1_NE_NO / OAM&P / 12.4.0.0.0-16.14.0 • 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 / 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: Ready, Err, Active, N/A, Network OAM&P, Site1_NE_NO, OAM&P, 12.4.0.0.0-16.14.0 OCUDR-B: Ready, Err, Standby, N/A, Network OAM&P, Site1_NE_NO, OAM&P, 12.4.0.0.0-16.14.0
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. Verifying servers are Syncronized

Procedure 22: 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 <table><tr><th>Network Element</th><th>Server</th><th>Role</th><th>OAM Max HA Role</th><th>Application Max HA Role</th><th>Status</th><th>DB Level</th><th>OAM Repl Status</th><th>SIG Repl Status</th><th>Repl Status</th><th>Repl Audit Status</th></tr><tr><td>Site2_NE_DR_NO</td><td>DR-OCUDR-B</td><td>Network OAM&P</td><td>Spare</td><td>N/A</td><td>Normal</td><td>0</td><td>Normal</td><td>NotApplicable</td><td>Allowed</td><td>NotApplicable</td></tr><tr><td>Site1_NE_NO</td><td>OCUDR-A</td><td>Network OAM&P</td><td>Active</td><td>N/A</td><td>Normal</td><td>0</td><td>Normal</td><td>NotApplicable</td><td>Allowed</td><td>NotApplicable</td></tr><tr><td>Site1_NE_NO</td><td>OCUDR-B</td><td>Network OAM&P</td><td>Standby</td><td>N/A</td><td>Normal</td><td>0</td><td>Normal</td><td>NotApplicable</td><td>Allowed</td><td>NotApplicable</td></tr><tr><td>Site2_NE_DR_NO</td><td>DR-OCUDR-A</td><td>Network OAM&P</td><td>Spare</td><td>N/A</td><td>Normal</td><td>0</td><td>Normal</td><td>NotApplicable</td><td>Allowed</td><td>NotApplicable</td></tr></table>

Appendix F. Determine if TVOE Upgrade is Required

When upgrading a server that exists as a virtual guest on a TVOE host, it is first necessary to determine whether the TVOE host (that is, bare-metal) server must first be upgraded to a newer release of TVOE.

NOAM servers are often implemented as TVOE guests in C-class deployments, so the TVOE upgrade check is necessary. MPs are deployed as guests on the same TVOE host as the OAM servers, and so by the time the MP servers are being upgraded, TVOE has been upgraded and there is no need to do so again.

NOTE: This procedure does not apply to Oracle Communications User Data Repository Cloud based systems.

This procedure checks if TVOE upgrade is required.

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

Procedure 23: Determine if TVOE Upgrade is Required

Step	Procedure	Result

1. ☐	Determine the version of TVOE running on the server that hosts the virtual guest being upgraded.	1. Log into the host server where TVOE is installed.
		2. Run the following command to get the current TVOE installed version:
		`[root@udrTVOEblade2 ~]# appRev`
		`Install Time: Tue Aug 7 08:17:52 2012`
		`Product Name: TVOE`
		`Product Release: 2.0.0_80.16.0`
		`Part Number ISO: 872-2290-104`
		`Part Number USB: 872-2290-104`
		`Base Distro Product: TPD`
		`Base Distro Release: 6.0.0_80.16.0`
		`Base Distro ISO: TPD.install-6.0.0_80.16.0-CentOS7.4 -x86_64.iso`
		`OS: CentOS 6.2`

2. ☐	Check the TVOE release version required for target release	Contact My Oracle Support referring Appendix J of this document to determine the appropriate release version.
3. ☐	If the release in Step 1 is less than what is required in Step 2 then upgrade of TVOE is required	The procedure to upgrade TVOE on the host server is in Appendix G.

Appendix G. Upgrade TVOE Platform

This appendix provides the procedure for upgrading TVOE on a host server that supports one or more Oracle Communications User Data Repository virtual guests.

If upgrading an Oracle Communications User Data Repository server that is deployed as a virtual guest on a bare-metal server running the TVOE host software, then TVOE itself may have to be upgraded first. Refer to Appendix F to determine if a TVOE upgrade is required.

NOTES:

- If you are upgrading a server that is not virtualized by TVOE, then this Appendix does not apply.
- This procedure does not apply to Oracle Communications User Data Repository Cloud based systems.

This procedure verifies that all required materials are present.

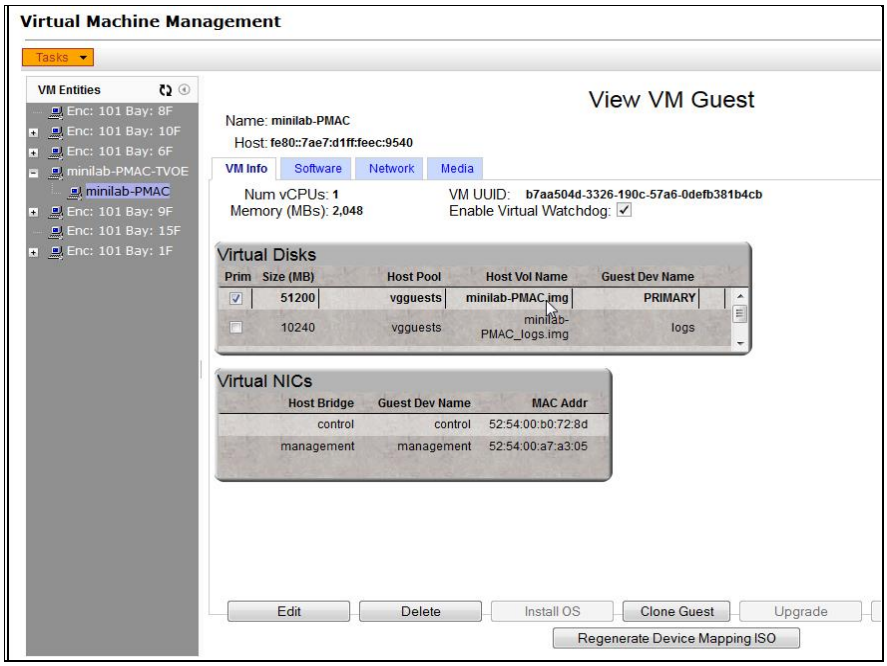
Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.

Procedure 24: Upgeade TVOE Platform

Step	Procedure	Result
1. ☐	Disable all the applications running on current TVOE.	1. Access the primary NOAMP GUI as specified in **Appendix A** 2. Navigate to **Status & Manage → Server** The Server Status screen is displayed 3. Identify the SO or MP (virtual) servers that are running on the TVOE environment to be upgraded, and select these 4. Click **Stop**. 5. Confirm the operation by clicking **OK** 6. Verify that the Appl State for all the selected servers changed to Disabled

2. ☐	Find out the guests running on TVOE host.	List the guests running on the TVOE host by using following command:
		`# ssh admusr@<TVOE IP>`
		`login as: admusr`
		`password: <enter password>`
		`Switch to root su -`
		`password: <enter password>`
		`# virsh list --all`
		NOTE: The output of the `virsh list` command lists all the guests running on current TVOE host.

3. ☐	Shutdown each guest running on TVOE host.	Run the following command for each guest identified in Step 2: `# virsh shutdown <guestname>` **NOTES** • Alternatively, you can use the Manage software inventory screen on PM&C to shutdown the guests. • Server is not listed on the Status & Manage screen after being shutdown from the TVOE host.

Step	Procedure	Result
4. ☐	Upgrade TVOE	Periodically run the following command until the command displays no entries. This means that all VMs have been shut down: `# virsh list` After all VMs are down, upgrade TVOE using PM&C Aided TVOE Upgrade Procedure from *TVOE 3.4 Software Upgrade Document,* E80324, latest revision. **NOTE**: If active NO is hosted on the TVOE which is being upgraded, then VIP may be lost until TVOE is successfully upgraded.
5. ☐	After completed	After the TVOE upgrade is completed on the host server, the applications may not be started automatically. Proceed with the next step to restore service.
6. ☐	Verify Enable Virtual Guest Watchdog is set for VM	From the PM&C VM Management form, verify that Enable Virtual Watchdog is selected. 
7. ☐	Enable all the applications disabled in step1	1. Enable all applications running on current TVOE: 2. Log into the NOAM VIP GUI 3. Navigate to **Status & Manage → Server**. The Server Status screen is displayed 4. Select all the applications (NOs/SOs) running on current TVOE, excluding the server which is in upgrade Ready state. The Upgrade State can be verified from the **Administration → Upgrade** screen. 5. Click **Restart**. 6. Confirm the operation by clicking **OK**. 7. Verify that the Appl State for all the selected servers is Enabled.

Appendix H. Change Resources Allocated To VM Guests

H.1 CHANGE VCPU CORES AND RAM ALLOCATED TO NOAMP GUESTS

This Appendix provides the procedure for changing VCPU cores and RAM allocated to NOAMP virtual guests.

This needs PM&C GUI screen.

This procedure has to be followed only if it is being done for either of the following cases:

1. upgrade is being done from G8 profile to G9 profile;
2. upgrade is being done from Oracle Communications User Data Repository 10.2.x Oracle RMS low capacity setup;

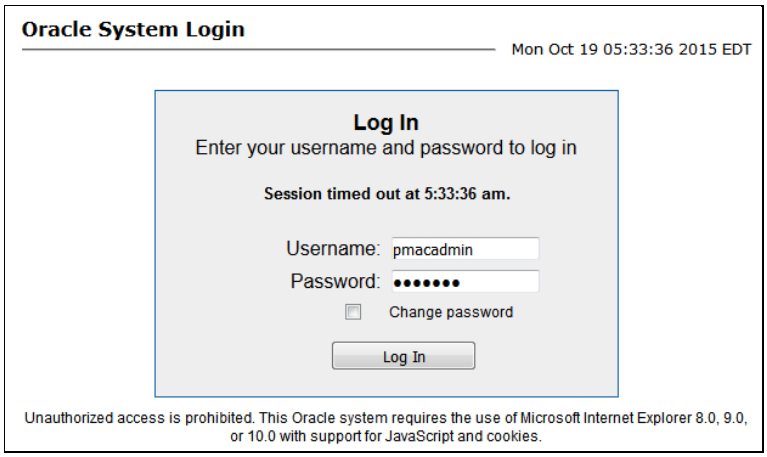
NOTE: If you are upgrading to a G8 profile then this appendix does not apply.

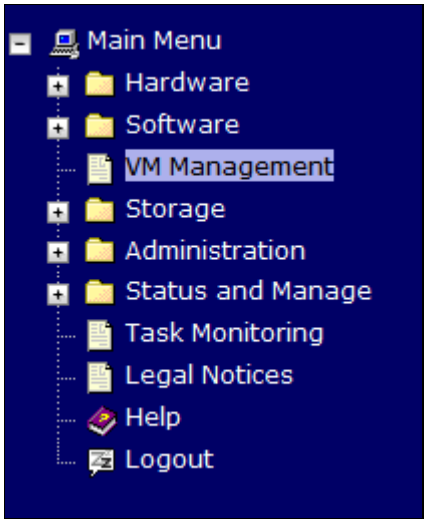
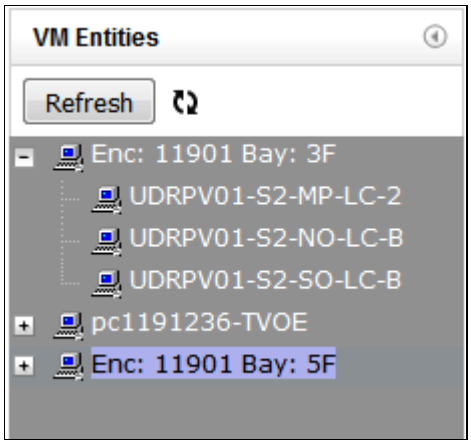
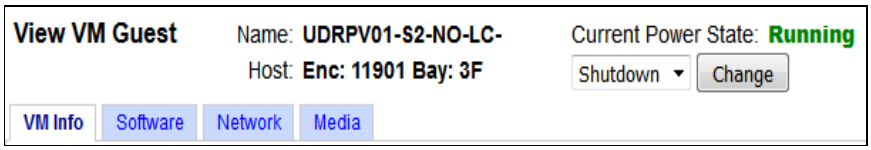
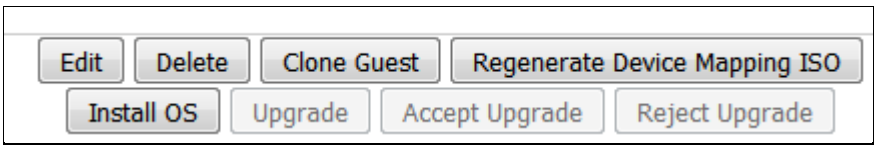
NOTE: This procedure does not apply to Oracle Communications User Data Repository Cloud based systems.

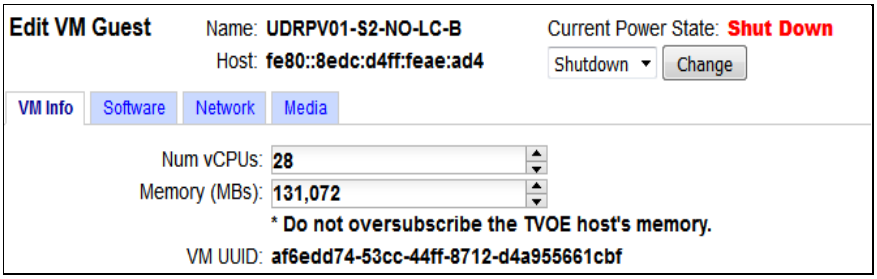
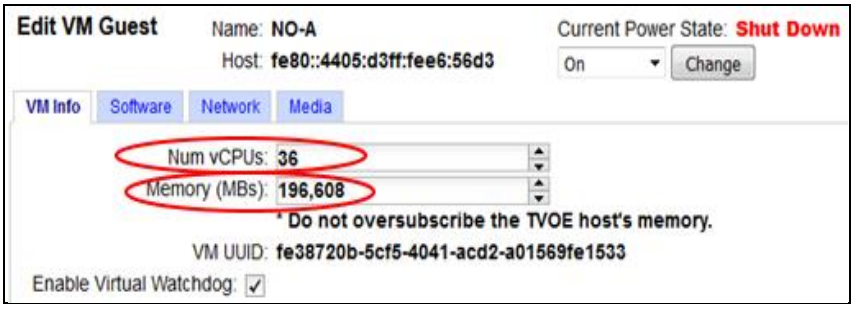
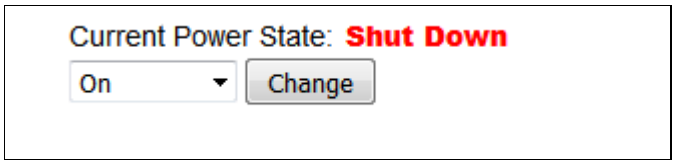
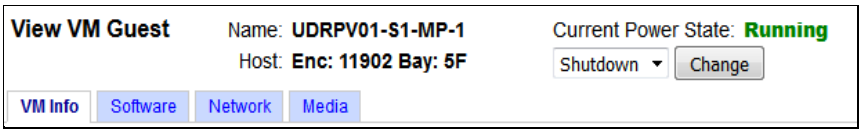
This procedure verifies that all required materials are present.

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

Procedure 25: Change VCPU Cores and RAM Allocated To NOAMP Guests

Step	Procedure	Result
1. ☐	Login to PM&C GUI screen.	

Step	Procedure	Result
2. ☐	Navigate to **Main Menu->VM Management**	
3. ☐	Select the TVOE that contains NO server from VM Entities list	
4. ☐	Change Current Power State to Shutdown	
5. ☐	Click **Edit**.	

Step	Procedure	Result
6. ☐	**For Gen9 upgrade only:** Change Num vCPUs to 28	
7. ☐	**For Oracle RMS upgrade only:** Change Num vCPUs to 36 and Memory (MBs) to 196608	 If an error displays in the GUI and it inhibits allocating 36 vCPU cores to NOAMP, ensure that the PM&C has been upgraded to version 6.0.1.0.1-60.22.0 or higher.
8. ☐	Click **Save**.	
9. ☐	Change Current Power State to On	 **NOTE: Power-up procedure takes a while.**
10. ☐	When the Power is on, the current power state should show running.	
THIS PROCEDURE HAS BEEN COMPLETED		

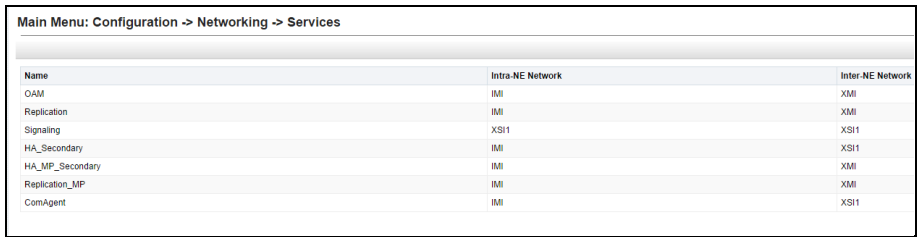
Appendix I. Configuring Services for Dual Path HA

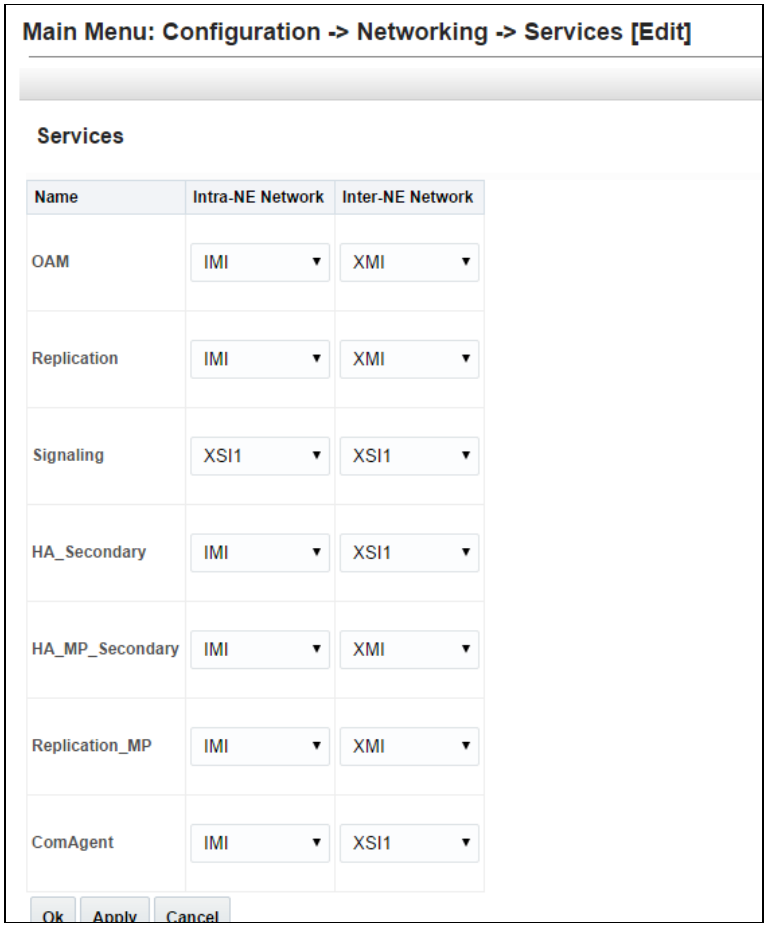
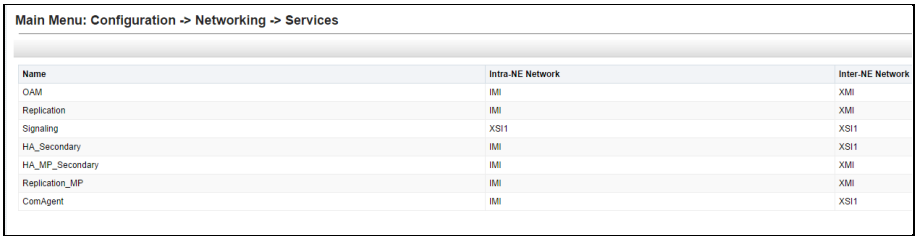
This Appendix provides the procedure for updating Oracle Communications User Data Repository Services for the Dual Path HA feature. This applies to all configurations that make use of a Secondary/DR Site.

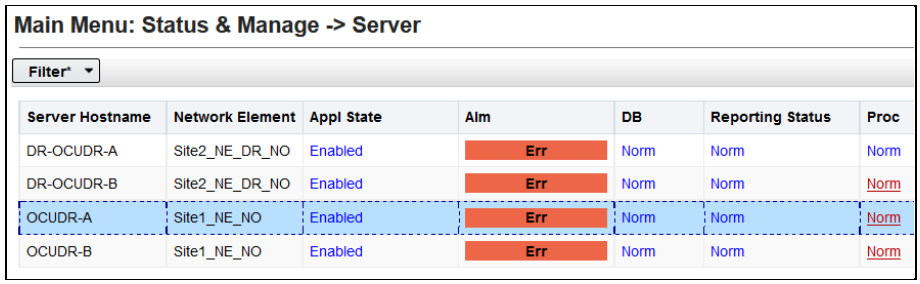
This procedure verifies that all required materials are present.

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

Procedure 26: 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 J. 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 K. 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.