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User Data Repository 10.2

Software Upgrade Procedure

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ORACLE®

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See more information on MOS in the Appendix section.

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1. INTRODUCTION

1.1 Purpose and Scope

This document describes methods utilized and procedures executed to perform a major upgrade from OCUDR 10.0.x release to a OCUDR 10.2 release. The audience for this document includes Oracle's Tekelec customers as well as the following internal groups: Software Development, Quality Assurance, Product Verification, Information Development, and Consulting Services including NPx. This document provides step-by-step instructions to execute any Release 10.2 or later software upgrade.

The OCUDR software includes all Oracle's Tekelec Platform Distribution (TPD) software. Any TPD upgrade necessary is included automatically as part of the OCUDR software upgrade. The execution of this procedure assumes that the OCUDR software load (ISO file, CD-ROM or other form of media) has already been delivered to the customer's premises. This includes delivery of the software load to the local workstation being used to perform this upgrade.

1.1.1 What is Not Covered by this Document

- Distribution of OCUDR 10.2 software loads. Please contact Oracle'sTekelec Customer Service for the same.
- Initial installation of OCUDR 10.2 software. Refer [1].
- PM&C upgrade. Refer to [8].

1.2 References

[1] OCUDR Initial Installation and Configuration Guide, *E59313,* latest revision

[2] TVOE 2.7 upgrade Document, E54523, latest revision

[3] TVOE 3.0 Software upgrade Document, E53018, latest revision

[4] *Site Survey (Domestic US),* SS005977, latest revision

[5] *Hardware Verification Plan,* VP005629, latest revision

[6] *Platform 6.x Configuration Procedure Reference,* 909-2209-001, latest revision

[7] http://docs.oracle.com/cd/E57832_01/index.htm

[8] PM&C 5.7/6.0 Incremental upgrade Procedure, E54387, latest revision.

[9] OCUDR Hardware Configuration and Performance10.2, FE007488, latest revision

[10] OCUDR Installation and Configuration Guide 10.2, E59313-01, latest revision

1.3 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
MP	Message Processing or Message Processor
MW	Maintenance Window
NE	Network Element
NO	Network OAM&P
NOAMP	Network OAM&P
OA	HP Onboard Administrator
OAM	Operations, Administration and Maintenance
OAM&P	Operations, Administration, Maintenance and Provisioning
OCUDR	Oracle Communications User Data Repository
PM&C	Platform Management and Configuration
RMS	Rack Mount Server
SO	System OAM
SOAM	System OAM
SPR	Subscriber Profile Repository
TPD	Tekelec Platform Distribution
TVOE	Tekelec Virtualized Operating Environment
UDR	User Data Repository
UI	User Interface
VIP	Virtual IP
VM	Virtual Machine
VPN	Virtual Private Network
XMI	External Management Interface
XSI	External Signaling Interface

Table 1 - Acronyms

1.4 Terminology

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

Term	Meaning
Upgrade	The process of converting an application from its current release on a System to a newer release.
Major Upgrade	An upgrade from a current release to a newer major release. An example of a major upgrade is: OCUDR 10.x to OCUDR 10.2.
Incremental Upgrade	An upgrade from a current build to a newer build within the same major release. An example of an incremental upgrade is: OCUDR 10.x to 10.y.
Release	Release is any particular distribution of software that is different from any other distribution.
Single Server Upgrade	The process of converting an OCUDR server from its current release on a single server to a newer 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 performed during upgrade that is necessitated by new feature content or bug fixes.
Backout	The process of converting a single OCUDR server to a prior version. This could be performed due to failure in Single Server Upgrade or the upgrade cannot be accepted for some other reason. Backout is a user initiated process.
Downgrade/Backout	The process of converting an OCUDR server from its current release to a prior release. This could be performed due to a misbehaving system. Once the upgrade is accepted, servers cannot be backed out to previous release.
Rollback	Automatic recovery procedure that puts a server into its pre-upgrade status. This procedure occurs automatically during upgrade if there is a failure.
Source Release	Software release to upgrade from.
Target Release	Software release to upgrade to.
Primary NOAM Network Element	The network element that contains the active and standby NOAM servers in an OCUDR. If the NOAMs are deployed on a rack-mount server (and often not co-located with any other site), that RMS is considered the primary NOAM network element. If the NOAMs are virtualized on a C-class blade that is part of one of the sites, then the primary NOAM network element and the signaling network element hosting the NOAMs are one and the same.
DR NOAM Network Element	Disaster Recovery NOAMs that are ready to take over as the primary Site if a disaster should occur.
Signaling Network Element	Any network element that contains MPs (and possibly other C-level servers), thus carrying out Diameter signaling functions. Each SOAM pair and its associated C-level servers are considered a single signaling network element. And if a signaling network element includes a server that hosts the NOAMs, that signaling network element is also considered to be the primary NOAM network element.
Site	Physical location where one or more network elements reside.
Health Check	Procedure used to determine the health and status of the network. This includes statuses displayed from the GUI. This can be observed Pre-Server Upgrade, In-Progress Server Upgrade, and Post-Server Upgrade.
Upgrade Ready	State that allows for graceful upgrade of a server without degradation of service. It is a state that a server is required to be in before it can be upgraded. The state is defined by the following attributes: • Server is Forced Standby • Server is Application Disabled (Signaling servers will not process any traffic)

UI	User interface. "Platcfg UI" refers specifically to the Platform Configuration Utility User Interface, which is a text-based user interface.
Management Server	Server deployed with HP c-class or RMS used to host PM&C application, to configure Cisco 4948 switches and to serve other configuration purposes.
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 upon the customer to procure the requisite hardware components. Oracle provides the hardware specifications, but does not provide the hardware, and is not responsible for hardware installation, configuration, or maintenance.
Enablement	The business practice of providing support services (hardware, software, documentation, etc) that enable a 3rd party entity to install, configuration, and maintain Oracle products for Oracle customers.
1+1	Setup with one active and one standby MP.
N+0	Setup with N active MP(s) but no standby MP.
NO	Network OAM for OCUDR.
SO	System OAM for OCUDR.

Table 2 - Terminology

1.5 How to use this Document

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

1. Before beginning a procedure, completely read the instructional text (it will appear immediately after the Section heading for each procedure) and all associated procedural WARNINGS or NOTES.
2. Before execution of a STEP within a procedure, completely read the left and right columns including any STEP specific WARNINGS or NOTES.
3. If a procedural STEP fails to execute successfully or fails to receive the desired output, STOP and contact Oracle's Tekelec Customer Care (*US: 1-888-367-8552, Intl: +1-919-460-2150)* for assistance before attempting to continue.

1.5.1 Executing Procedures

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

Column 1: **Step**

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

Column 2: **Procedure**

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

Column 3: **Result**

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

Procedure x: Verifying the Time in GMT

Step	Procedure	Result

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

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

Procedure x: Verifying the Time in GMT

Step	Procedure	Result

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

THIS PROCEDURE HAS BEEN COMPLETED		

Table 3 - Sample Procedure

1.6 Recommendations

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

1.6.1 Frequency of Health Checks

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

1.6.2 Logging of Upgrade Activities

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

2. GENERAL DESCRIPTION

This document defines the step-by-step actions performed to execute a software upgrade of an in-service OCUDR from the source release to the target release. A major upgrade advances the OCUDR from OCUDR 10.0.X source release to 10.2 target release. An incremental upgrade advances the OCUDR from 10.2.a-b.b.b to 10.2.b-c.c.c.

2.1 Supported Upgrade Paths

The supported OCUDR upgrade paths are shown in **Figure 1** below.

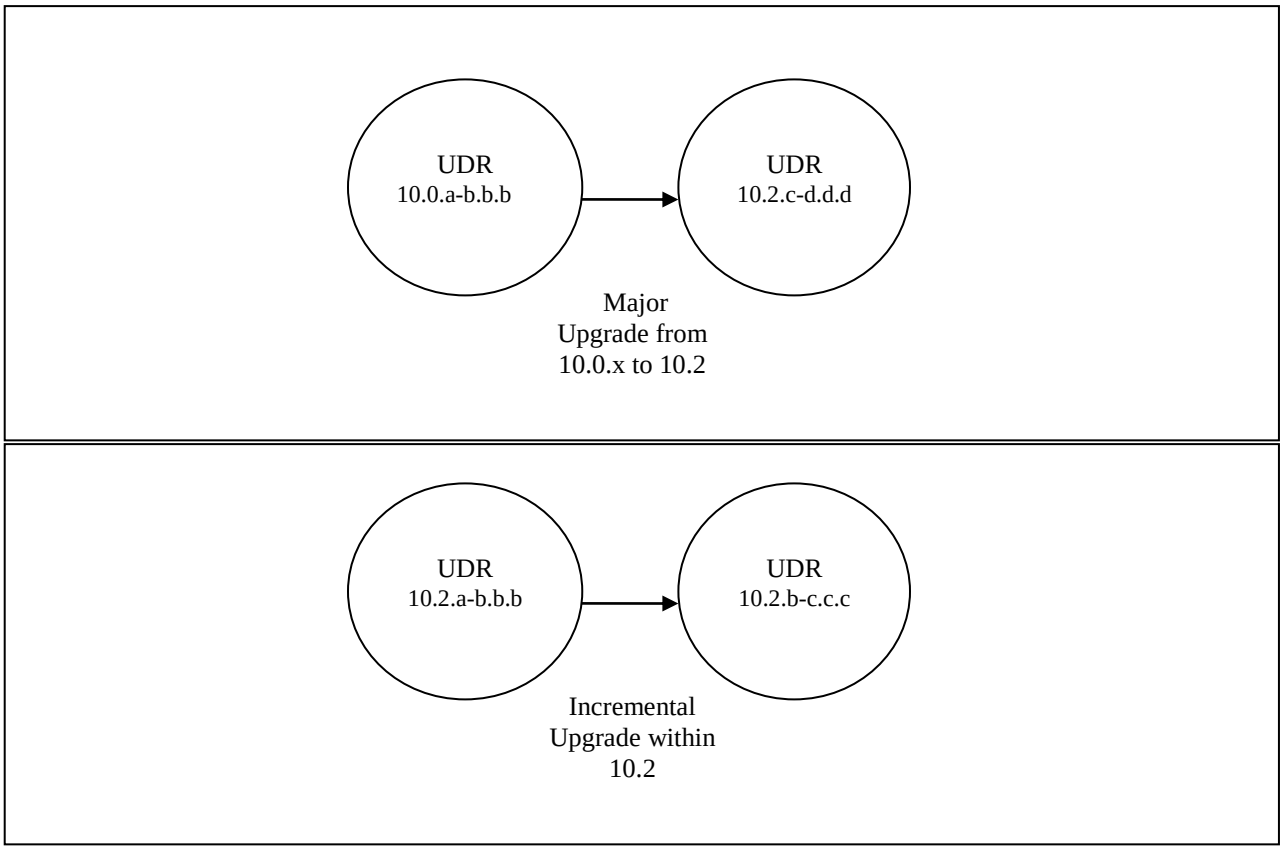


Figure 1: Supported Upgrade Paths

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

2.2 Firmware Updates

Firmware upgrades are not in the scope of this document, but may be required before upgrading OCUDR. It is assumed that these are done when needed by the hardware, and there is typically not a dependency between Firmware version and the OCUDR 10.2 release. Execute firmware upgrade procedures if required by [7].

2.3 PMAC (Management Server) Upgrades

Each site may have a PMAC (Management Server) that provides support for maintenance activities at the site. There is a separate procedure for PMAC upgrade, including TVOE. PMAC must be upgraded before the other servers at the site are upgraded. Please refer to [8].

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 OCUDR applications that do not require the full resources of a modern Hardware server.

In OCUDR architecture, TVOE Hosts are typically used to host several functions, including:

- PMAC
- OCUDR NOAMP, SOAM and MP Applications

TVOE Host servers (i.e. servers running TVOE + one or more OCUDR 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 PMAC, and the PMAC application, must be upgraded before other TVOE host upgrades, since PMAC 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 executed 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 SOAM Upgrade – stop application, upgrade TVOE, upgrade Application, start application; then repeat for Active SOAM.
  - 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 application(s) on the server. Note also that the TVOE virtual hosts may be hosting NOAMP/SOAM/MP applications.

The procedure for Upgrading TVOE environments in advance of the application upgrades (Option A) is documented in.3.3.7.

2.5 Traffic Management during Upgrade

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

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

2.6 Provisioning during Upgrade

For OCUDR 10.2, Provisioning (live traffic) will still continue while upgrade is being executed. While the standby NOAMP is being upgraded, the Active NOAMP will still receive provisioning requests. After the upgrade is complete, replication will be turned on to the Standby NOAMP to sync the most recent requests from the active NOAMP. Then the Standby NOAMP will become active to start receiving provisioning requests, while the previous Active NOAMP is being upgraded.

2.7 Configurations

2.7.1 Normal Capacity Configurations

This includes 2 MP Host Servers running on a TVOE virtualization environment in each server. The remaining 2 servers host the NOAMP server and database. The same servers can also be configured in a second site for a geo-redundant configuration.

Harware Supported:

- ProLiantBL460Gen8, ProLiantBL460Gen8+ or ProLiantBL460Gen9

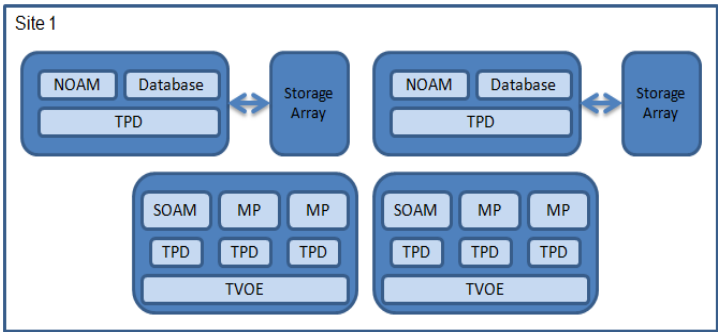


Figure 2: Normal Capacity Single-Site Configuration

2.7.2 Low Capacity Configurations

This includes all OCUDR 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, 1 SOAM and 1 MP instance).

Harware Supported:

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

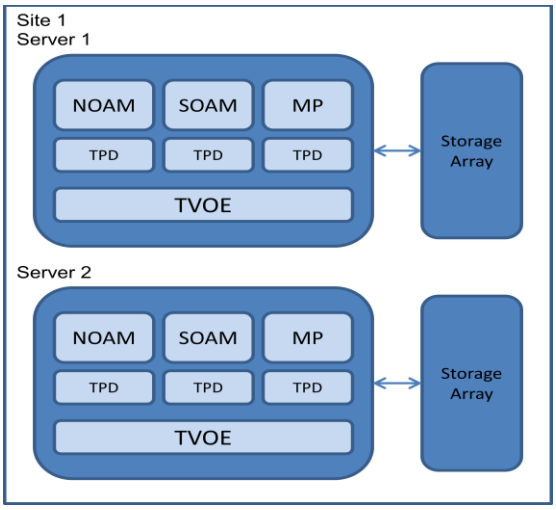


Figure 3: Low Capacity 2-C Class server Configuration Single Site

2.8 Multi Active MPs

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

3. UPGRADE PLANNING AND PRE-UPGRADE PROCEDURES

This section contains all information necessary to prepare for and execute an upgrade. The materials required to perform an upgrade are described, as are pre-upgrade procedures that should be run to ensure the system is fully ready for upgrade. Then, the actual procedures for each supported upgrade path are given.

There are overview tables throughout this section that help you plan the upgrade and estimate how long it will take to perform various actions. The stated time durations for each step or group of steps are estimates only. Do not use the overview tables to execute any actions on your system. Only the procedures should be used when performing upgrade actions, beginning with Procedure 1: Required Materials Check.

3.1 Required Materials

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

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

  NOTE: *All logins into the* OCUDR *NO servers are made via the External Management (XMI) VIP unless otherwise stated.*
- VPN access to the customer's network is required if that is the only method to log into the OAM servers.
- Direct access to the blades/RMS iLO/XMI IP addresses (whichever applicable) from the workstations directly connected to the servers is required.
- Direct access to server IMI IP addresses from the user's local workstation is preferable in the case of a Backout.

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

3.1.1 Application 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 OCUDR ISO image file will be in the following format:

Example: **UDR-10.2.0_12.1.0-UDR-x86_64.iso**

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

Prior to the execution of this upgrade procedure it is assumed that the OCUDR ISO image file has already been delivered to the customer's premises. The ISO image file must reside on the local workstation used to perform the upgrade, and any user performing the upgrade must have access to the ISO image file. If the user performing the upgrade is at a remote location, it is assumed the ISO file is already available to them 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 prior to an upgrade. 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 once the upgrade has been completed.

Item	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 NOAM&P	
	DR NOAM&P	
	XMI VIP address[4]	
	NO 1 XMI IP Address	
	NO 2 XMI IP Address	
SO	XMI VIP address	
	SO 1 XMI IP Address (Site 1)	
	SO 2 XMI IP Address (Site 1)	
	SOAM 1 XMI IP Address (Site 2)	
	SOAM 2 XMI IP Address (Site 2)	
	SO 2 iLO IP Address	
	MP 1 iLO IP Address	
	MP 2 iLO IP Address	
	……	
	MP(n) iLO IP Address (optional)	
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] Note: The user must have administrator privileges. This means the user belongs to the **admin** group in Group Administration.

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

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

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

Table 4 – Logins, Passwords and Site Information

3.2 Maintenance Window for PMAC and TVOE Upgrades (optional)

This document includes steps to upgrade PMAC and TVOE as an integrated activity with the upgrades of the OCUDR application. However, it is an **option** to perform these PMAC and TVOE upgrades as separately planned and executed activities.

- PMAC Upgrade procedure is provided in reference [8].
- TVOE Host environment upgrade procedures are included in architecture-specific sections this document.

Both PMAC and TVOE upgrades are backwards compatible to prior releases on OCUDR. It may be done a site-at-a-time.

3.3 Pre-Upgrade Procedures

The pre-upgrade procedures shown in the following table have no effect 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
Error! Reference source not found. or 3	*ISO Administration for Major Upgrades (10.0.x to 10.2) or ISO Administration for Incremental Upgrades (10.2)*	*	*
	Perform Health Check (depends on number of servers)	0:10-1:15	00:25-01:30

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

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

3.3.1 Hardware Upgrade Preparation

There is no hardware preparation necessary when upgrading to OCUDR release 10.2.

3.3.2 Review Release Notes

Before starting the upgrade, review the Release Notes for the new OCUDR 10.2 release to understand the functional differences and possible traffic impacts of the upgrade.

3.3.3 Required Materials Check

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

Procedure 1: Required Materials Check

Step	This procedure verifies that all required materials are present. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.	
1. ☐	Verify all required materials are present.	Materials are listed in Section 3.1. Verify all required materials are present.
2.	Verify all administration data needed during upgrade.	Double-check that all information in Section 3.1.2 is filled-in and accurate.
3. ☐	Contact Oracle CGBU Customer Care Center	Contact the Oracle CGBU Customer Care Center and inform them of plans to upgrade this system. See 9.5Appendix G for these instructions. Note that obtaining a new online support account can take up to 48 hours.

3.3.4 Perform Health Check (Upgrade Preparation)

☐ This procedure is part of Software Upgrade Preparation and is used to determine the health and status of the OCUDR network and servers. This may be executed multiple times but must also be executed at least once within the time frame of 24-36 hours prior to the start of the upgrade procedures.

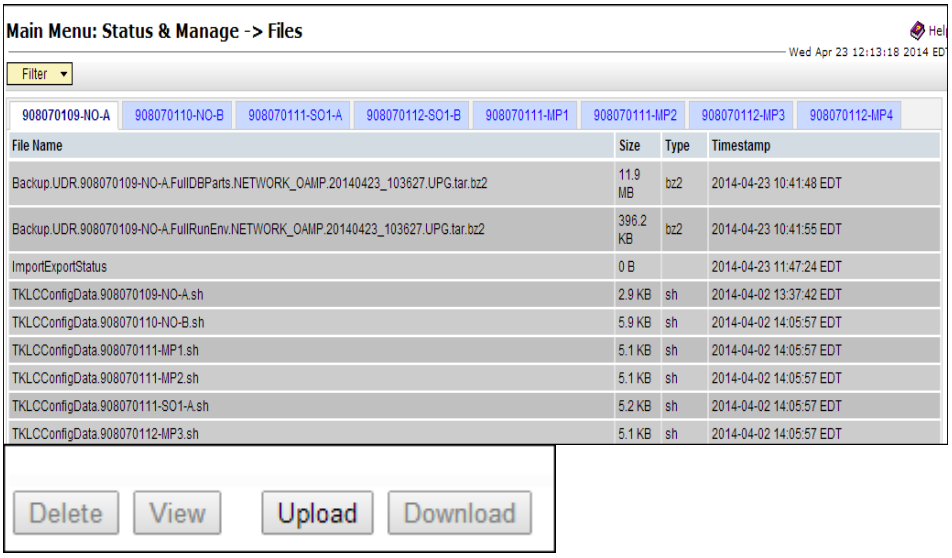
- Execute OCUDR Health Check procedures as specified in **Appendix B.**

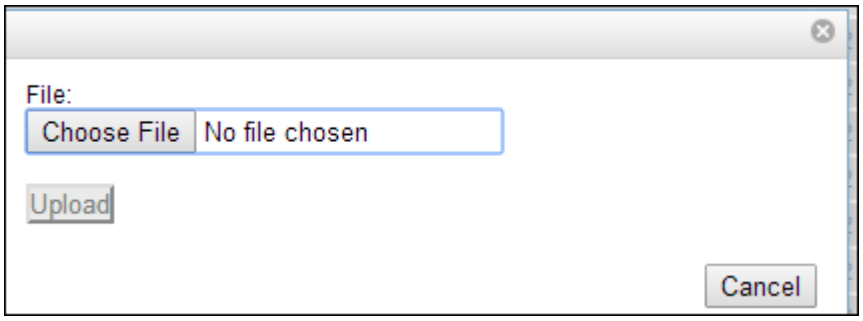
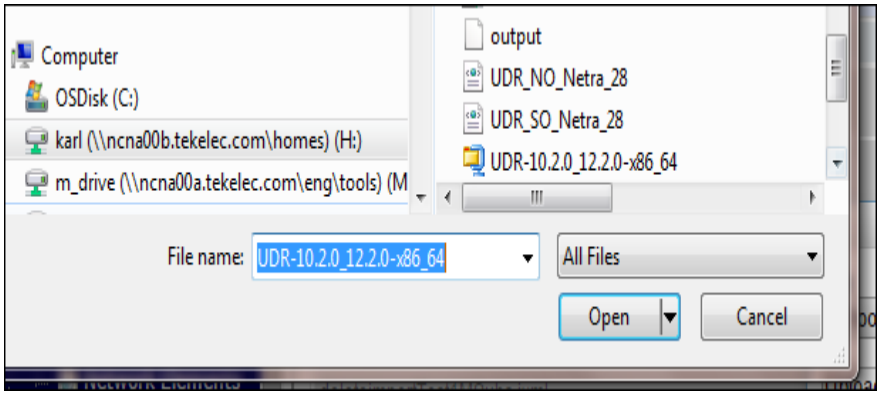
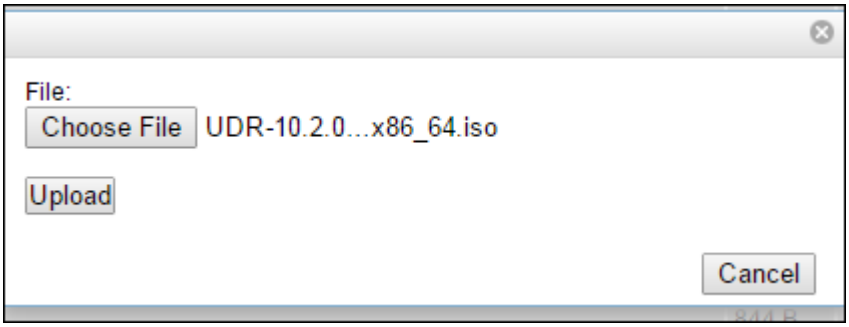
3.3.5 ISO Administration for Major Upgrades (10.0.x to 10.2)

ISO transfers to the target servers may require a significant amount of time depending on the number of systems and the speed of the network. These factors may significantly affect the total time needed to complete the entire upgrade procedure.

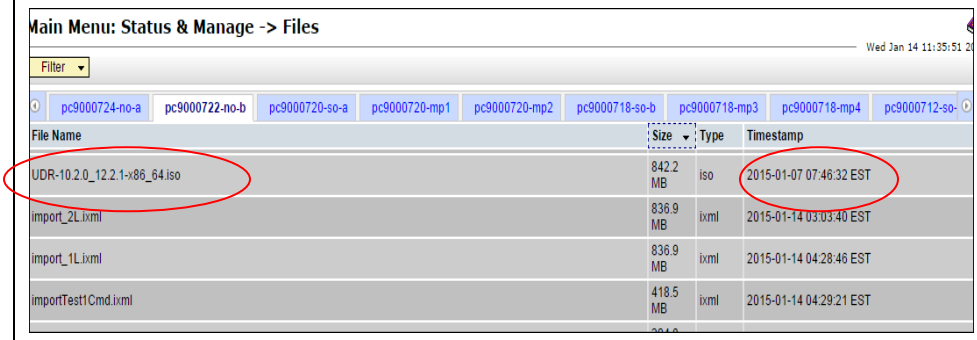
Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.

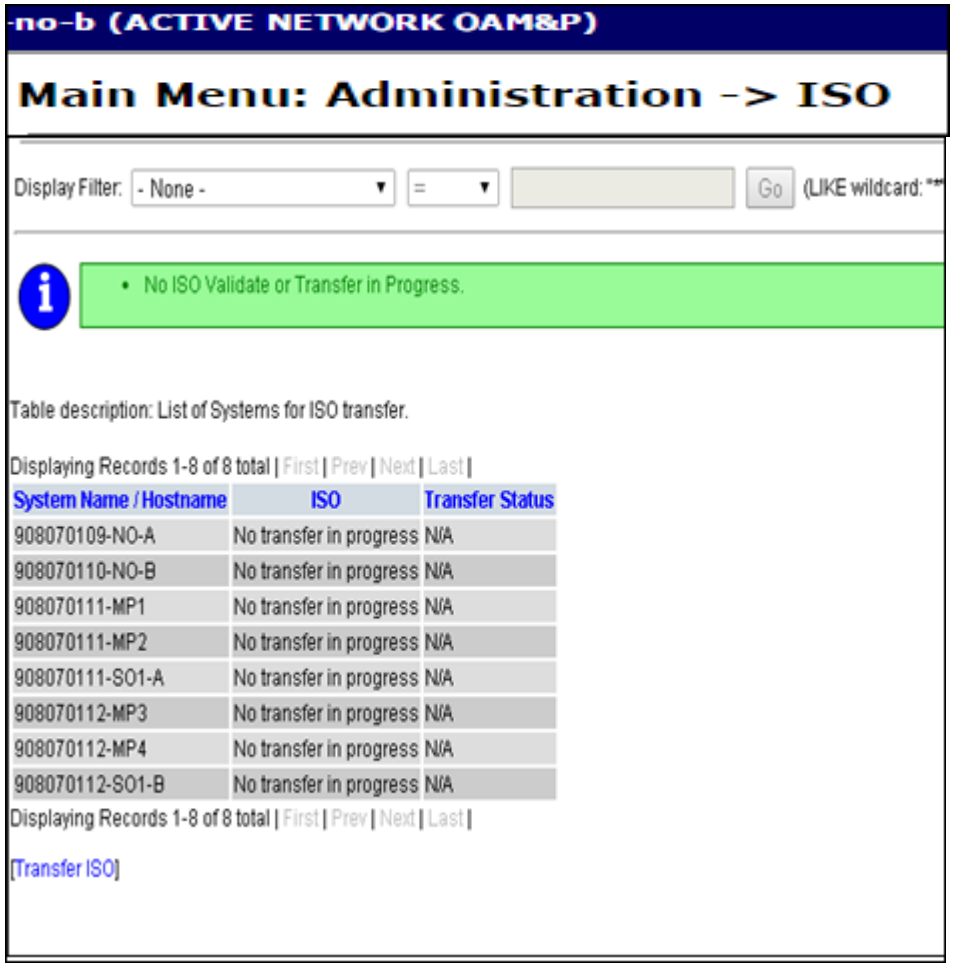
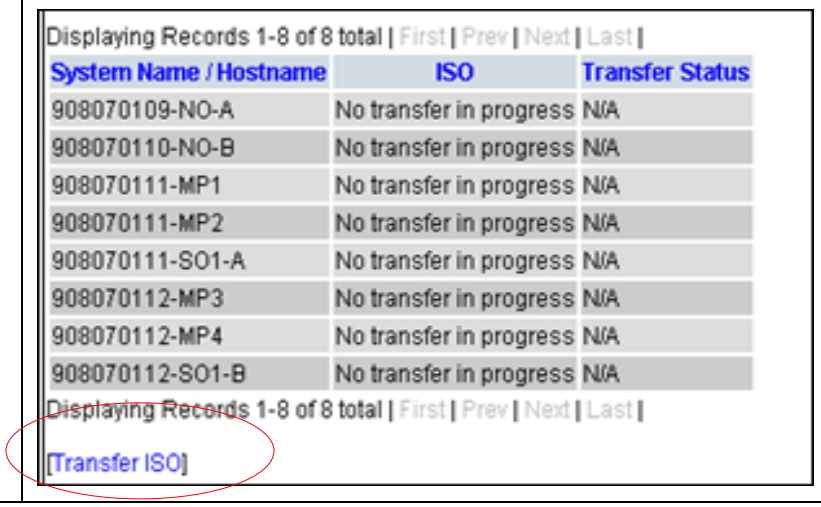
Procedure 2: ISO Administration for Major Upgrades (10.0.x to 10.2)

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	• Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Upload ISO file to the Active NOAMP server **1)** Select… **Main Menu** **→ Status & Manage** **→ *Files*** **2)** Using the cursor, select the active NOAMP server from the list tabs. **3)** Click on the **"Upload"** button.	

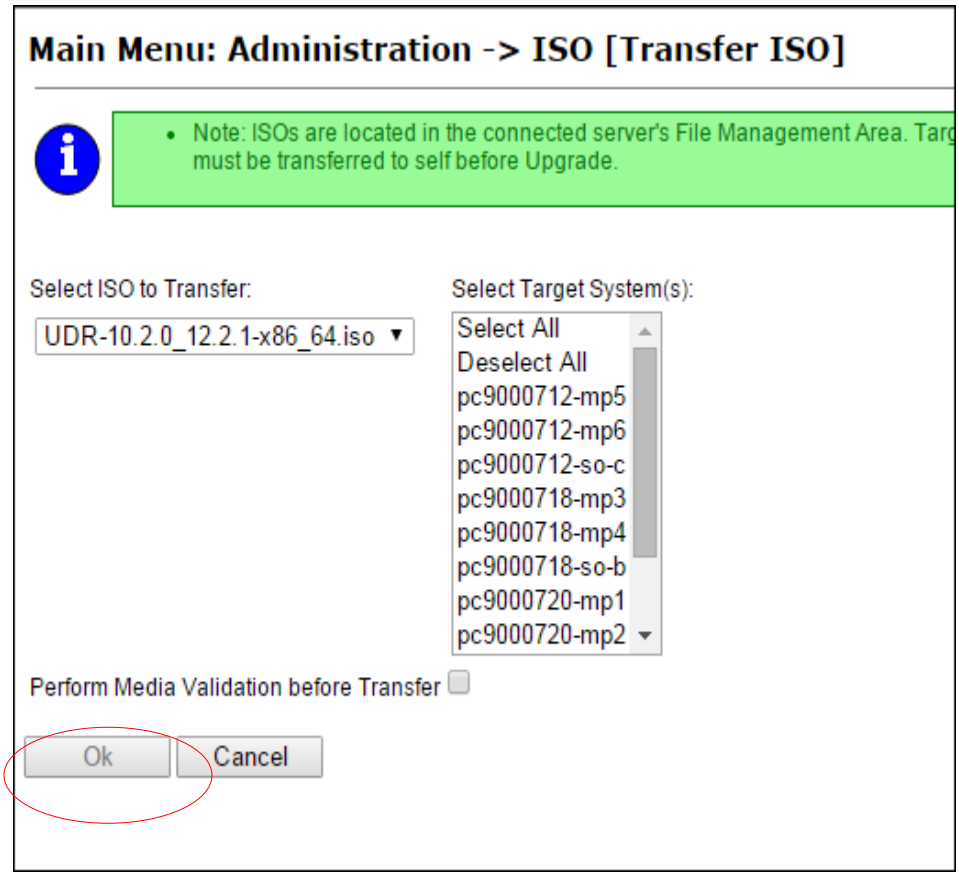
Step	Procedure	Result
3. ☐	**Active NOAMP VIP:** **1)** Click on the **"Choose File..."** dialogue button located in the middle of the screen. **2)** Select the Drive and directory location of the ISO file for the target release. Select the ISO file and click on the **"Open"** dialogue button. **3)** Click on the **"Upload"** dialogue button. **NOTE 1:** *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.* **NOTE 2:** *Depending on network conditions, this upload may take an extended period of time (> 60 secs.).* **NOTE 3:** *Alternatively, the ISO file can be manually transferred to the **"/var/TKLC/db/filemgmt"** directory of the **Primary Active NOAMP** server using **SFTP**.* **NOTE 4:** *The ISO in the file management directory must have global read permission or the GUI ISO transfer will fail, with a security log indicating the lack of read permission. If you upload the file using the GUI, the ISO will have global read permission. If you have already transferred the ISO to the NO without global read permission, you can log in as admusr and use "chmod 644 " to give it read permission.*	  

Procedure 2: ISO Administration for Major Upgrades (10.0.x to 10.2)

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** Click the **Timestamp** link located on the top right of the right panel. The user should be presented with a reverse-sorted list of files showing the newest files at the top. The ISO file uploaded in **Step 3** of this procedure should now appear at the top most position in the **"File Name"** column.	
5. ☐	**Active NOAMP VIP:** Upload ISO file to the Standby NOAMP server	Repeat steps 2, 3 and 4 of this Procedure to upload ISO file to the Primary Standby NOAMP server. (Select NO-B tab in step 2)

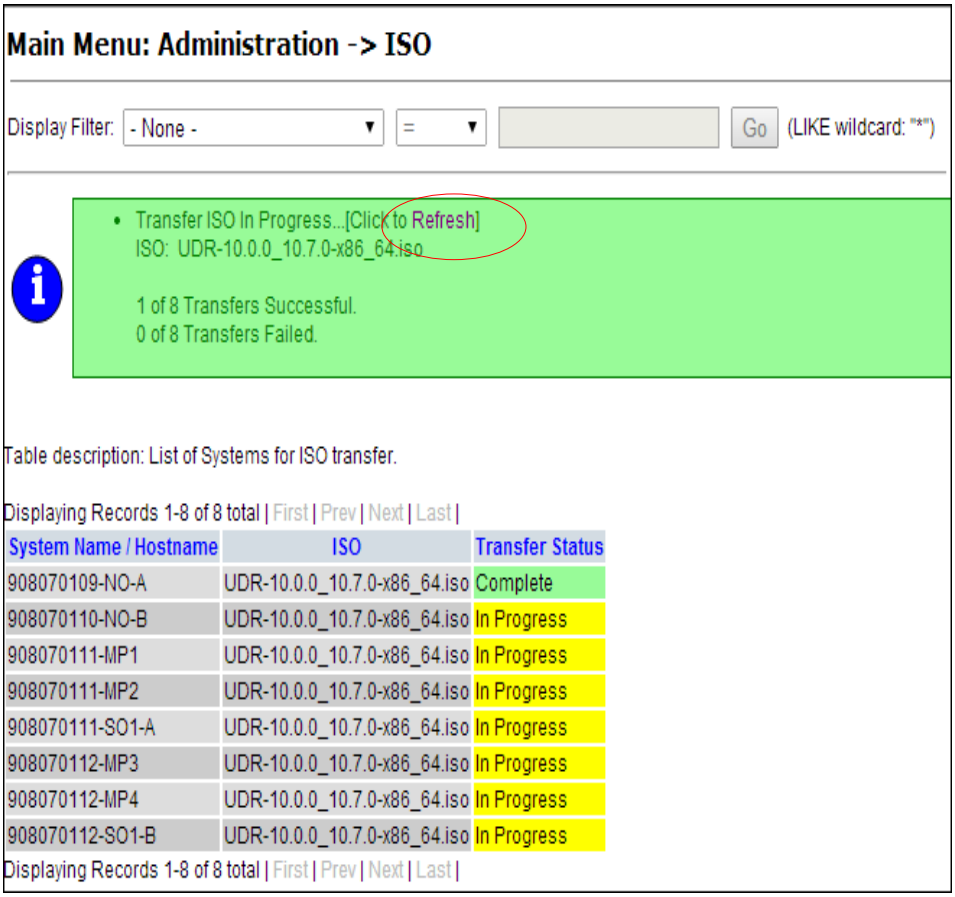
Step	Procedure	Result
6. ☐	**Active NOAMP VIP (GUI):** Transfer ISO to all remaining servers via the GUI session **a)** Select all servers or do a partial select – depends on how many servers need to be upgraded. **Main Menu** **→ Administration** **→ Software Management** **→ *ISO Deployment*** …as shown on the right.	
7. ☐	**Active NOAMP VIP:** Click on the **[Transfer ISO]** link located below Hostname.	

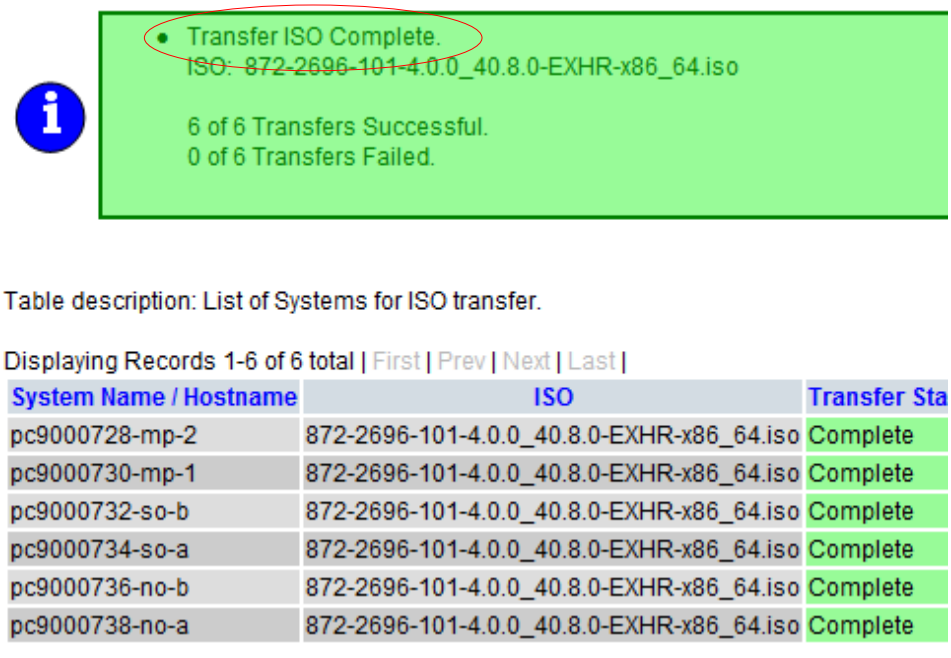
Procedure 2: ISO Administration for Major Upgrades (10.0.x to 10.2)

Step	Procedure	Result
8. ☐	**Active NOAMP VIP:** **1)** The user should be presented with the **ISO [Transfer ISO]** Administration screen. **2)** Using the pull-down menu, select the ISO file for the target release. **3)** Select all servers to be upgraded. **NOTE:** *This may be done one of two ways:* ***a) Select All:*** *If all servers are to be upgraded, they may be selected by clicking on the* ***"Select All"*** *option.* ***b) Multi-Select:*** *If only a group of servers are to be upgraded, they may be selected by holding down the* ***[CTRL]*** *key while using the cursor to click on the designated servers.* **4)** Don't Click on the **"Perform Media Validation before transfer"** check box. **5)** Click on the **"Ok"** dialogue button. *Alternatively, the ISO file can be manually transferred to the* ***"/var/TKLC/upgrade"*** *directory of each server using* ***SFTP****.*	

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>9.
☐</td><td>Active NOAMP VIP:

1) The user should be presented with the ISO Administration screen.

2) The progress of the individual file transfers may be monitored by periodically clicking on the [Click to <u>Refresh</u>] link.</td><td> 
</td></tr>
<tr><td>10.
☐</td><td>Active NOAMP VIP:

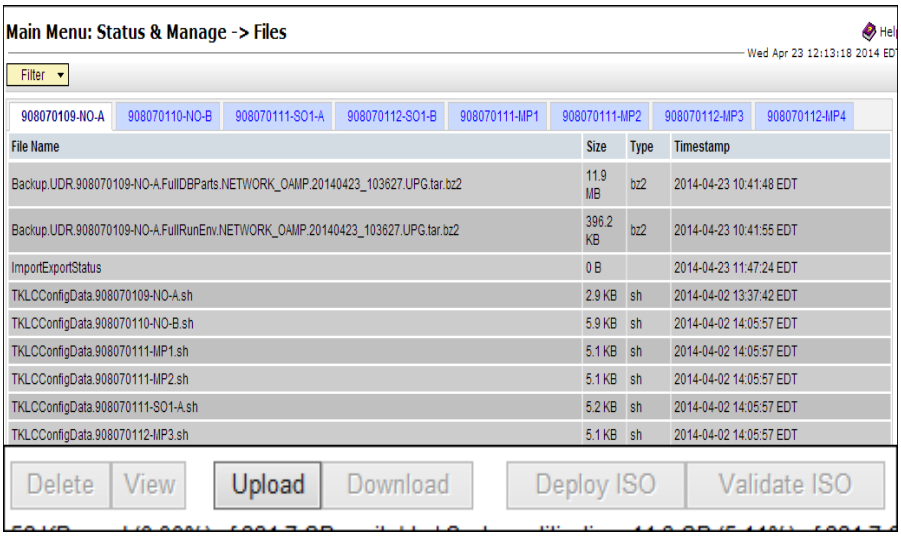
Continue to monitor the file transfer progress until a “Transfer Status” of “Complete” is received for all selected servers.</td><td> 
</td></tr>
<tr><td colspan="3">THIS PROCEDURE HAS BEEN COMPLETED</td></tr>
</table>

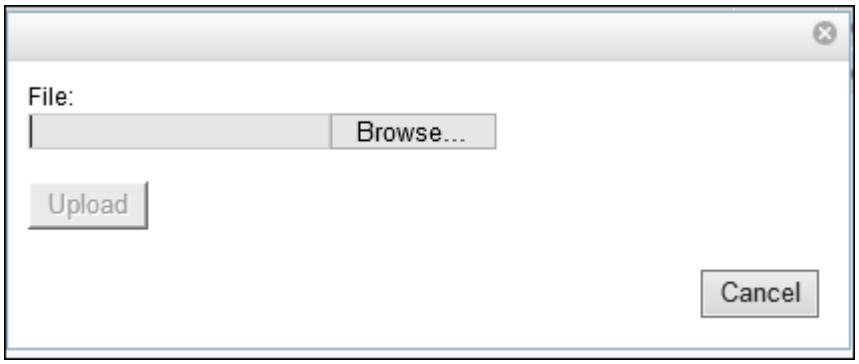
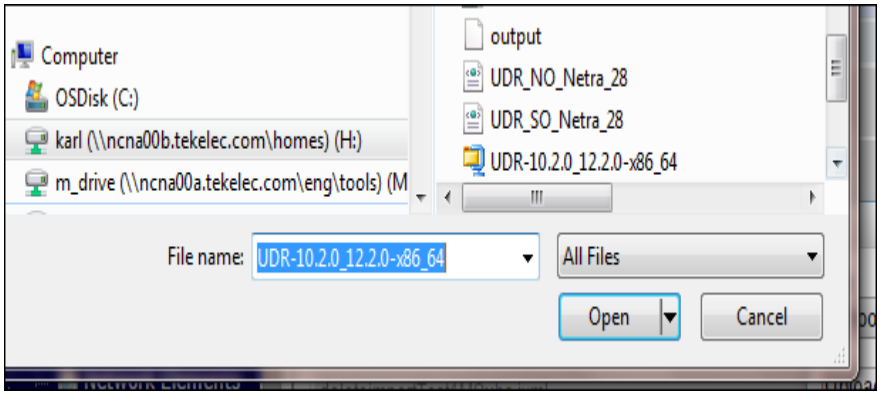
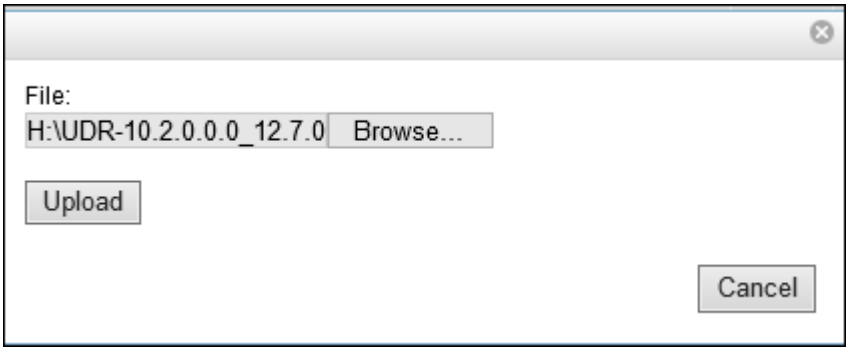
3.3.6 ISO Administration for Incremental Upgrades (10.2)

ISO transfers to the target servers may require a significant amount of time depending on the number of systems and the speed of the network. These factors may significantly affect the total time needed to complete the entire upgrade procedure.

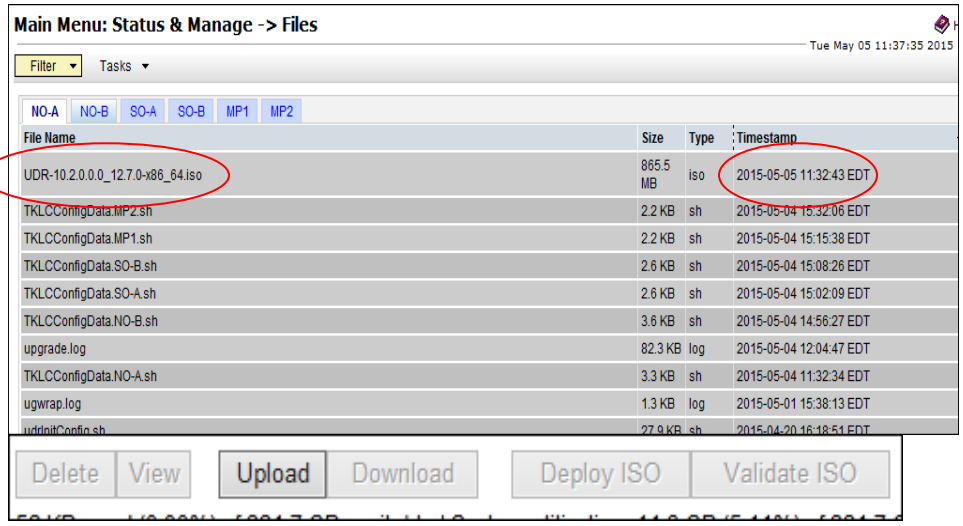
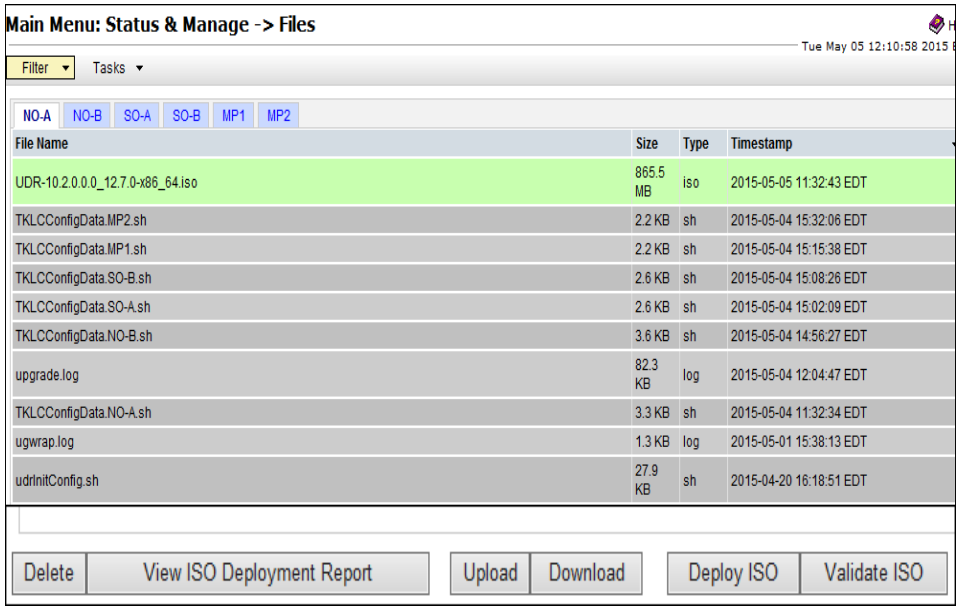
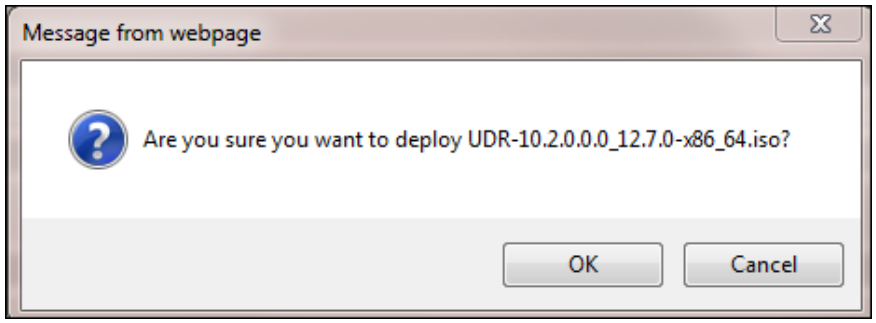
Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.

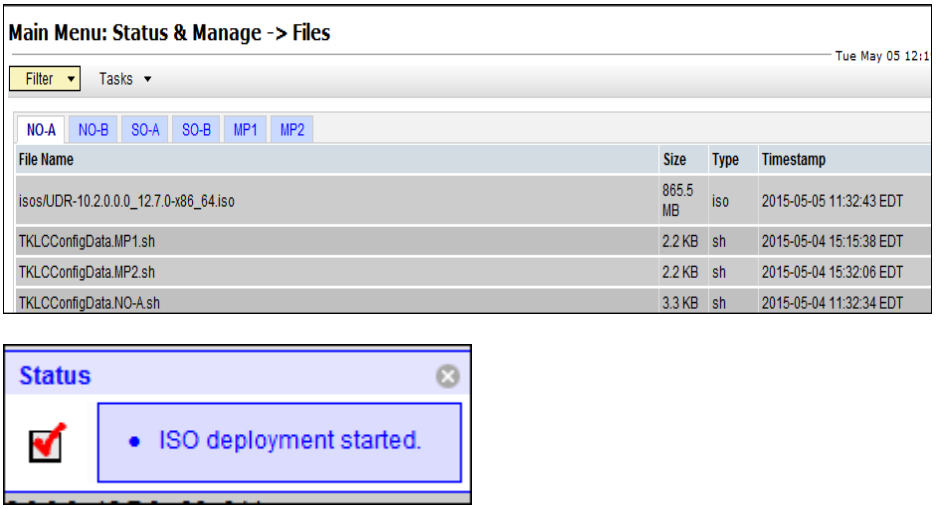
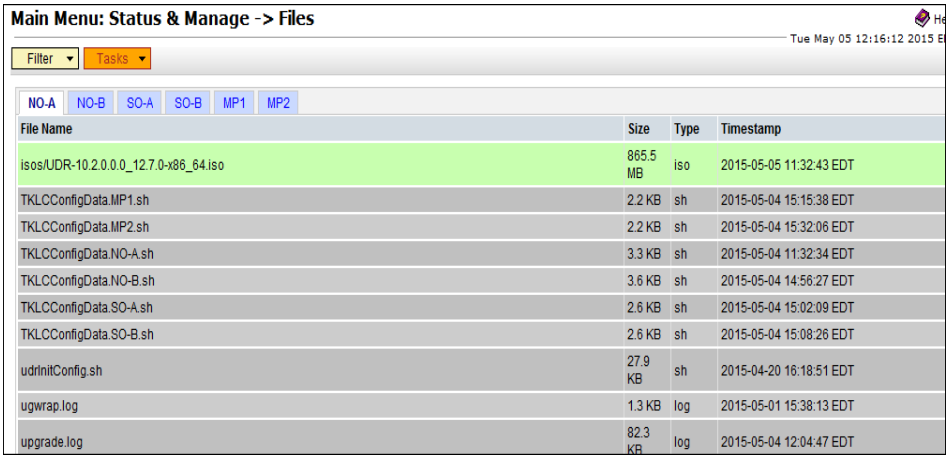
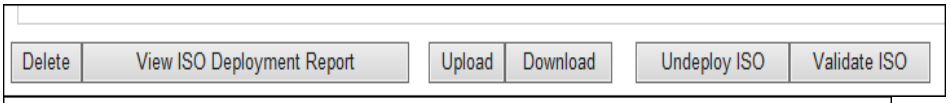
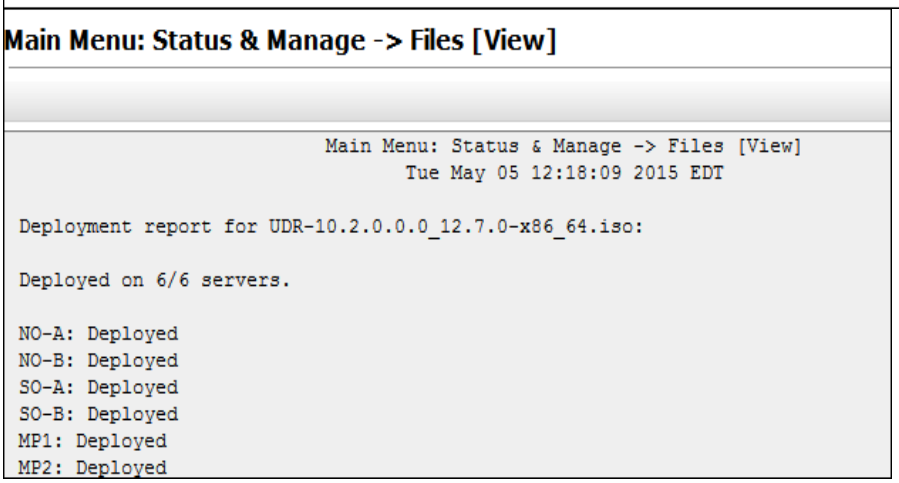
Procedure 3: ISO Administration for Incremental Upgrades (10.2)

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Upload ISO file to the Active NOAMP server **1)** Select… **Main Menu** **→ Status & Manage** **→ *Files*** **2)** Using the cursor, select the active NOAMP server from the list tabs. **3)** Click on the **"Upload"** button.	

Step	Procedure	Result
3. ☐	**Active NOAMP VIP:** **1)** Click on the **"Browse..."** dialogue button located in the middle of the screen. **2)** Select the Drive and directory location of the ISO file for the target release. Select the ISO file and click on the **"Open"** dialogue button. **3)** Click on the **"Upload"** dialogue button. **NOTE 1:** *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.* **NOTE 2:** *Depending on network conditions, this upload may take an extended period of time (> 60 secs.).* **NOTE 3:** *Alternatively, the ISO file can be manually transferred to the **"/var/TKLC/db/filemgmt"** directory of the **Active NOAMP** server using **SFTP**.* **NOTE 4:** *The ISO in the file management directory must have global read permission or the GUI ISO transfer will fail, with a security log indicating the lack of read permission. If you upload the file using the GUI, the ISO will have global read permission. If you have already transferred the ISO to the NO without global read permission, you can log in as admusr and use "chmod 644 " to give it read permission.*	  

Procedure 3: ISO Administration for Incremental Upgrades (10.2)

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** Click the **Timestamp** link located on the top right of the right panel. The user should be presented with a reverse-sorted list of files showing the newest files at the top. The ISO file uploaded in **Step 3** of this procedure should now appear at the top most position in the **"File Name"** column.	
5. ☐	**Active NOAMP VIP (GUI):** Transfer ISO to all remaining servers via the GUI session. Select the <ISO filename> and then click on "Deploy ISO" button. Select "OK" button	 

Step	Procedure	Result
6. ☐	**Active NOAMP VIP (GUI):** This will move the ISO file to the "isos" directory and start the secure copy of the ISO to each server in the system. A status window will pop up as well.	
7. ☐	**Active NOAMP VIP: (GUI):** To view the status of the deployed ISO, select the file "isos/<ISO filename>" and then select the "View ISO Deployment Report". (This button only appears when a deployed ISO is selected. The button is typically 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 depoyed), can select the "Validate ISO" button to ensure it's valid.	  

Procedure 3: ISO Administration for Incremental Upgrades (10.2)

Step	Procedure	Result
THIS PROCEDURE HAS BEEN COMPLETED		

3.3.7 Upgrade TVOE Hosts at a Site (prior to application upgrade MW)

This procedure applies if the TVOE Hosts at a site (primary or DR) will be upgraded BEFORE the start of the OCUDR 10.2 Upgrade of the NOs and other servers. Performing the TVOE upgrade BEFORE reduces the time required for OCUDR Application Upgrade procedures.

Precondition: The PMAC Application at each site (and the TVOE Host running the PMAC Virtual server, must be upgraded before performing TVOE Host OS Upgrade for servers that are managed by this PMAC.

Impact: TVOE Host upgrades require that the OCUDR Applications running on the host be shut down for up to 30 minutes during the upgrade.

Procedure	This Step	Cum.	Procedure Title	Impact
	0:01-0:05	0:01-0:05	Verify health of site	
Procedure 3	30 min per TVOE Host (see note)	0:01- 3:05	Upgrade TVOE Hosts at aSite (prior to application upgrade MW)	OCUDR servers running as virtual guests on the TVOE host will be stopped and unable to perform their OCUDR role while the TVOE Host is being upgraded.
	0:01-0:05	0:02- 3:10	Verify health of site	

Note: Depending on the risk tolerance of the customer, it is possible to execute multiple TVOE Upgrades in parallel.

Detailed steps are shown in the procedure below.

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

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

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 PMAC, "Software Inventory" form, will typically list the TVOE Hosts at a site, and their versions.
3. ☐	Upgrade the TVOE hosting the OCUDR standby server(s)	Upgrade the TVOE Host of a standby server: **Execute 9.5Appendix I**
4. ☐	Upgrade the TVOE hosting the OCUDR active server(s)	Upgrade TVOE of an Active server **Execute 9.5Appendix I** **Note: This will cause a failover of the OCUDR 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 Upgrade

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

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

3.5 Upgrade Execution Overview for Normal Capacity C-Class Configuration

3.5.1 Primary NOAMP / DR NOAMP Execution Overview

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

Procedure Number	Procedure Title	Elapsed Time (Hours:Minutes)	
		This Step	Cumulative
5	*Remove Additional GUI Sessions*	00:05	00:05
6	*Full Database* Backup	00:30	00:35
7 or 8	*Major Upgrade Primary NOAMP NE (10.0.x to 10.2)* or Incremental *Upgrade for Primary NOAMP NE (10.2)*.	03:30	04:05

Table 6 - Primary NOAMP Upgrade Procedures

Procedure Number	Procedure Title	Elapsed Time (Hours:Minutes)	
		This Step	Cumulative
9 or 10	*Major Upgrade DR NOAMP NE 10.0.x to 10.2*) or Incremental *Upgrade for DR NOAMP NE (10.2)*	03:30	03:30

Table 7 - DR NOAMP Upgrade Procedures

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

3.5.2 SOAM Server Upgrade Execution Overview

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

Procedure Number	Procedure Title	Elapsed Time (Hours:Minutes)	
		This Step	Cumulative
11 or 12	*Major Upgrade SOAM* NEs *or* *Incremental Upgrade for SOAM NE (*10.2)	00:45	00:45

Table 8 - SOAM Upgrade Procedures

3.5.3 MP Server Upgrade Execution Overview

The procedure shown in the following table is the estimated time for upgrading MP Servers. MP Servers should be upgraded one site at a time (site 1 followed by site 2).

Procedure Number	Procedure Title	Elapsed Time (Hours:Minutes)	
		This Step	Cumulative
13 or 14	*Major Upgrade MP NE (10.0.x to 10.2) or Incremental Upgrade for MP NE (*10.2)	00:45	00:45

Table 9 – MP Server Upgrade Procedures for C-Class Configuration

3.6 Upgrade Execution Overview for Low Capacity Configurations

3.6.1 Primary NOAMP / DR NOAMP Execution Overview

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

Procedure Number	Procedure Title	Elapsed Time (Hours:Minutes)	
		This Step	Cumulative
5	*Remove Additional GUI Sessions*	00:05	00:05
6	*Full Database Backup*	00:30	00:35

7 or 8	*Major Upgrade Primary NOAMP NE (10.0.x to 10.2)* or Incremental *Upgrade for Primary NOAMP NE (10.2)*.	01:00	01:35

Table 10 - Primary NOAMP Upgrade Procedures

Procedure Number	Procedure Title	Elapsed Time (Hours:Minutes)	
		This Step	Cumulative
9 or 10	*Major Upgrade DR NOAMP NE 10.0.x to 10.2*) or Incremental *Upgrade for DR NOAMP NE (10.2)*	01:00	01:00

Table 11 - DR NOAMP Upgrade Procedures

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

3.6.2 SOAM Server Upgrade Execution Overview

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

Procedure Number	Procedure Title	Elapsed Time (Hours:Minutes)	
		This Step	Cumulative
11 or **12**	*Major Upgrade SOAM* NEs *or* *Incremental Upgrade for SOAM NE (*10.2)	00:45	00:45

Table 12 - SOAM Upgrade Procedures

3.6.3 MP Server Upgrade Execution Overview

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

Procedure Number	Procedure Title	Elapsed Time (Hours:Minutes)	
		This Step	Cumulative
13 or 14	*Major Upgrade MP NE (10.0.x to 10.2) or Incremental Upgrade for MP NE (*10.2)	00:25	00:25

Table 13 – MP Server Upgrade Procedures for low capacity Configurations

3.7 Upgrade Acceptance Overview

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

Table 14 - Upgrade Acceptance Procedures

4. PRIMARY NOAMP / DR NOAMP UPGRADE EXECUTION

Call the **Oracle's Tekelec Customer Care** at **1-888-367-8552** or **1-919-460-2150** (international) and inform them of your plans to upgrade this system prior to executing this upgrade.

Before upgrade, users must perform the system Health Check **Appendix B.**

This check ensures that the system to be upgraded is in an upgrade-ready state. Performing the system health check determines which alarms are present in the system and if upgrade can proceed with alarms.

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

If there are servers in the system, which are not in Normal state, these servers should be brought to the Normal or the Application Disabled state before the upgrade process is started.

The sequence of upgrade is such that servers providing support services to other servers will be upgraded first.

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

Please read the following notes on this procedure:

Procedure completion times shown here are estimates. Times may vary due to differences in database size, user experience, and user preparation.

Where possible, command response outputs are shown as accurately as possible. EXCEPTIONS are as follows:

- Session banner information such as time and date.
- System-specific configuration information such as hardware locations, IP addresses and hostnames.
- ANY information marked with "XXXX" or "YYYY." Where appropriate, instructions are provided to determine what output should be expected in place of "XXXX or YYYY"
- Aesthetic differences unrelated to functionality such as browser attributes: window size, colors, toolbars and button layouts.

After completing each step and at each point where data is recorded from the screen, the technician performing the upgrade must mark the provided Check Box.

For procedures which are executed multiple times, a mark can be made below the Check Box (in the same column) for each additional iteration the step is executed.

Retention of Captured data is required for as a future support reference this procedure is executed by someone other than Oracle's Tekelec Customer Care.

4.1 **Perform Health Check** (Pre Upgrade)

This procedure is part of Software Upgrade Preparation and is used to determine the health and status of the OCUDRnetwork and servers. This may be executed multiple times but must also be executed at least once within the time frame of 24-36 hours prior to the start of a maintenance window.

☐

- Execute OCUDR Health Check procedures as specified in **Appendix B.**

4.2 Primary NOAMP / DR NOAMP Upgrade

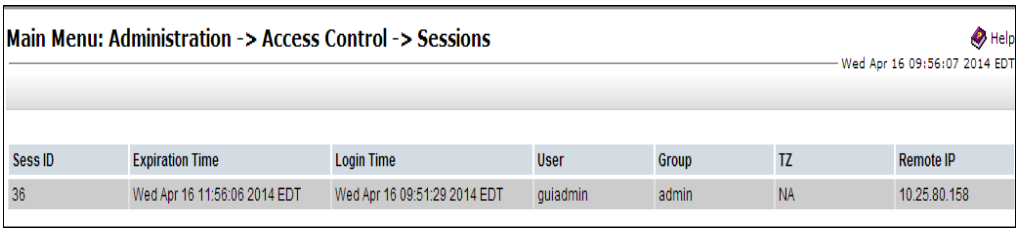
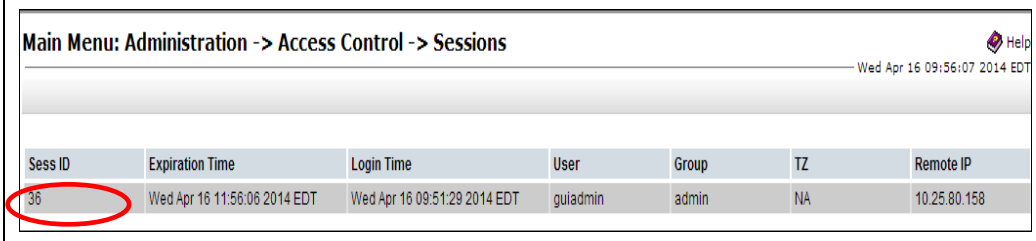
The following procedures detail how to perform upgrades for Primary NOAMP and DR NOAMP Servers.

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

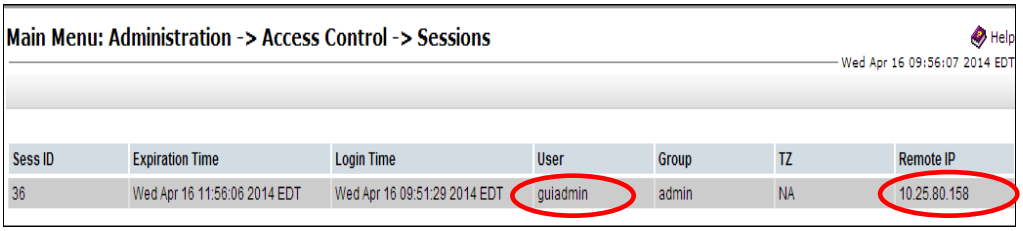
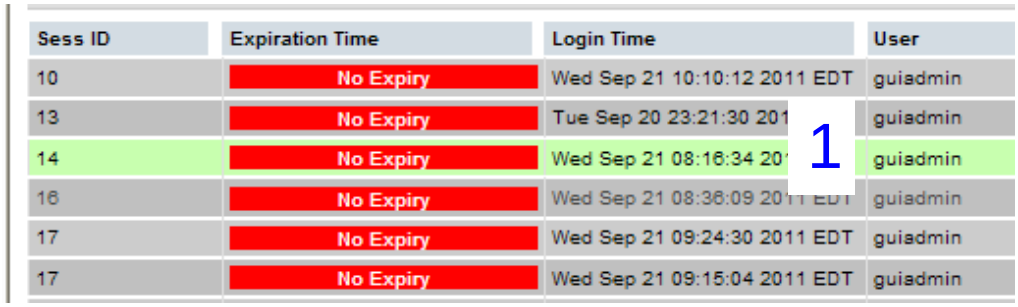
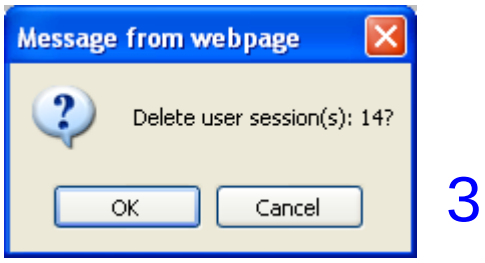
Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.

4.2.1 Remove Additional GUI Sessions

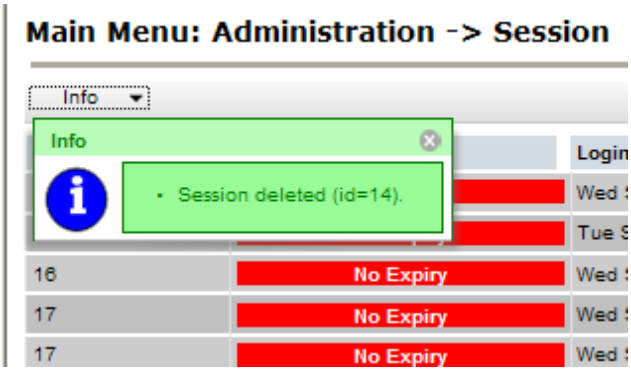
Procedure 5: Remove Additional GUI Sessions

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

Procedure 5: Remove Additional GUI Sessions

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

Procedure 5: Remove Additional GUI Sessions

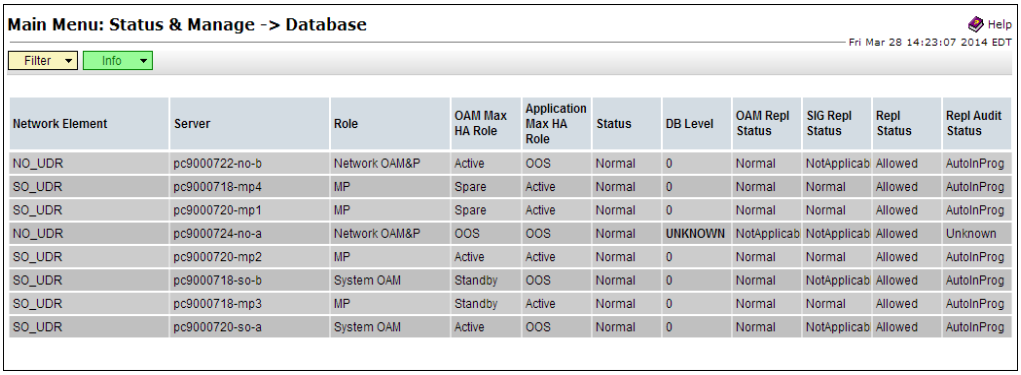
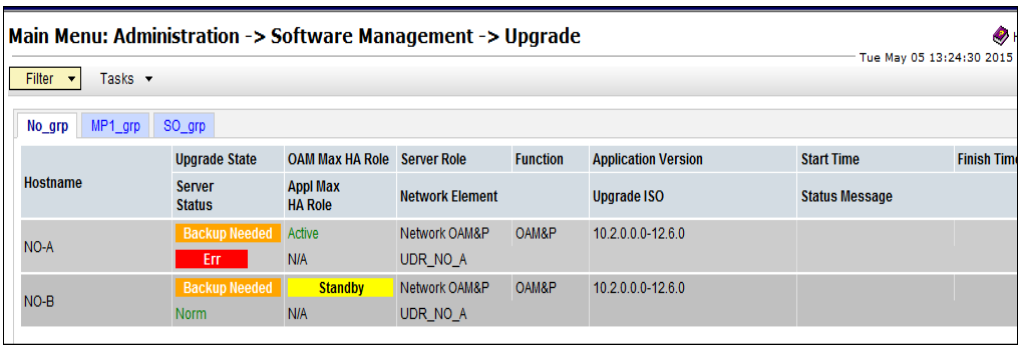
Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The user will receive a confirmation message in the Info tab indicating the session ID which was deleted.	
7. ☐	**Active NOAMP VIP:** Delete any additional GUI sessions as needed.	• Repeat **Steps** 5-6 of this Procedure for each additional GUI session to be deleted.
THIS PROCEDURE HAS BEEN COMPLETED		

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

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

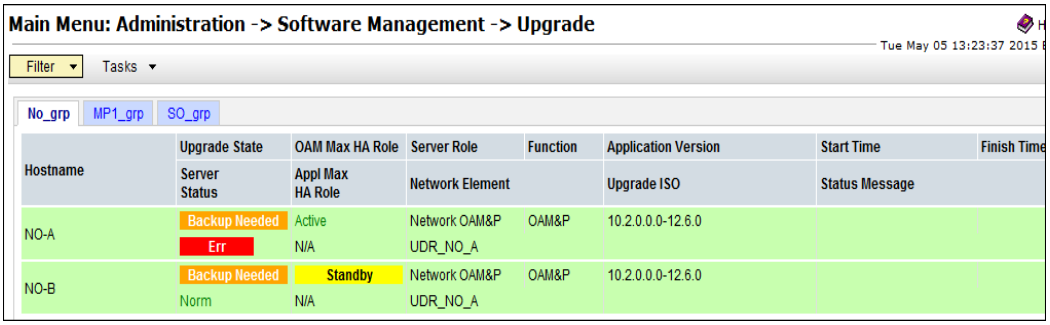
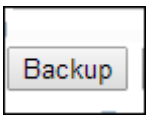
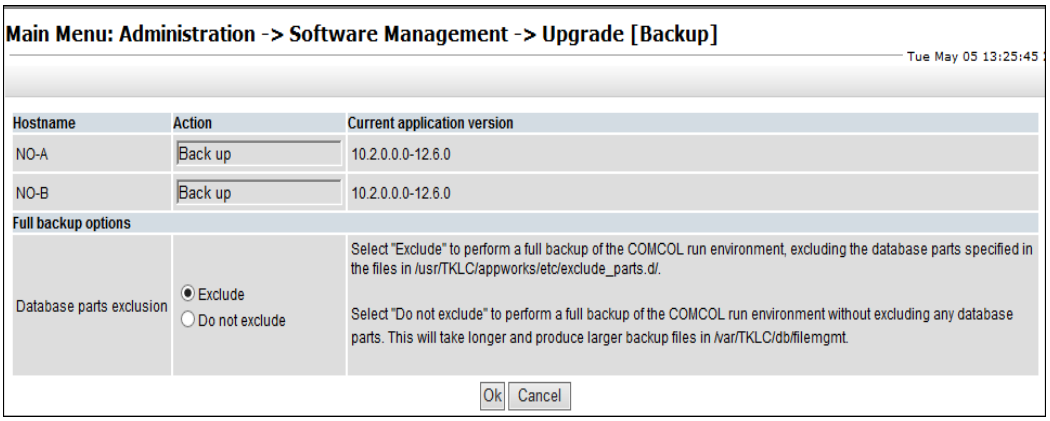
Procedure 6:

Full Database Backup

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *Database*** …as shown on the right.	
3. ☐	**Active NOAMP VIP:** Record the names of all servers.	• Using the information provided in Section 3.1.2 (*Logins, Passwords and Site Information*) record the names of all servers to the Servers Worksheet in Appendix C.6 (print or photocopy additional pages if necessary to accommodate your number of Network Elements). * The full backup on every server can be done from the NOAMP GUI.
4. ☐	**Active NOAMP VIP:** **Main Menu** **→ Administration** **→Software Management** **→ *Upgrade*** …as shown on the right. Backup the COMCOL run environment	

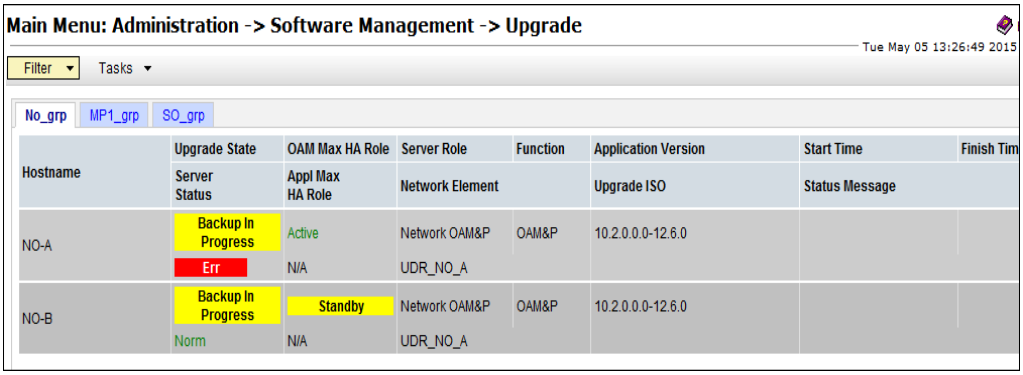
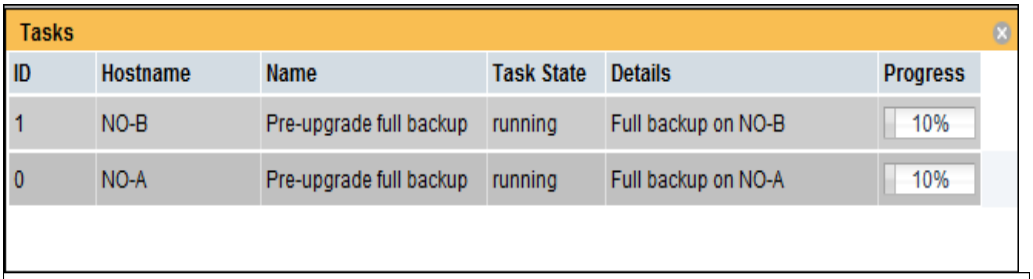
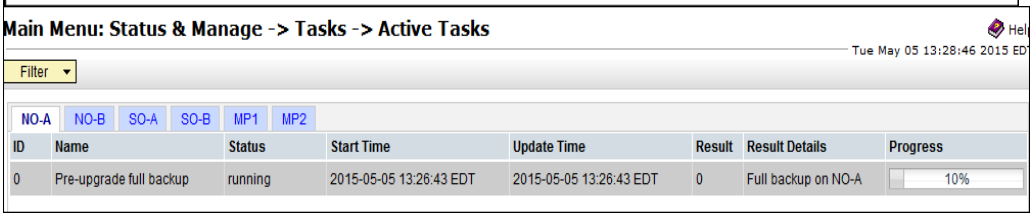
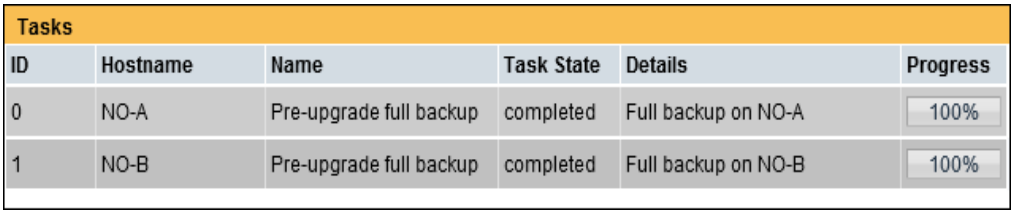
Procedure 6:

Full Database Backup

Step	Procedure	Result
5. ☐	**Active NOAMP VIP:** 1) Select the server(s) on which to perform a full backup. (Status should be "Backup Needed") 2) Click the "Backup" button at left bottom of the screen; the full backups will begin. 3) After clicking backup – an additional screen will pop up. 4) Default is to exclude the database parts (If the database parts are included – then the backup will take longer and produce larger backup files in /var/TKLC/db/filemgmt. They are not required for a full backup. 5) Click "OK" to begin the backup.	  

Procedure 6:

Full Database Backup

Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** 1. The "Server Status" box indicates "Backup in Progress" 2. The progress of the full backups can be viewed in the pulldown **Tasks** box, as well as from the **Status & Manage->Tasks->Active Tasks** screen. 3. As each full backup completes, its task will update to indicate its success or failure. 4. When all full backup tasks finish successfully, this procedure is complete.	  
7. ☐	**Active NOAMP VIP:** **Main Menu** → **Administration** →**Software Management** → ***Upgrade*** When complete, Progress should display 100%.	
8. ☐	Mark this server's backup as complete.	Reference the **Servers Worksheet in Appendix** C.6 and check off the server which just completed backup.
9. ☐	**Active NOAMP VIP:** Repeat for every server	Repeat step 4 through 8 for every server.

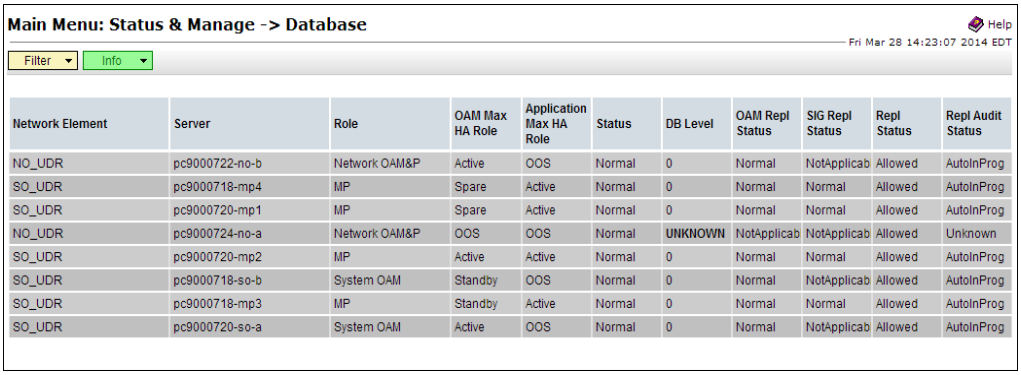
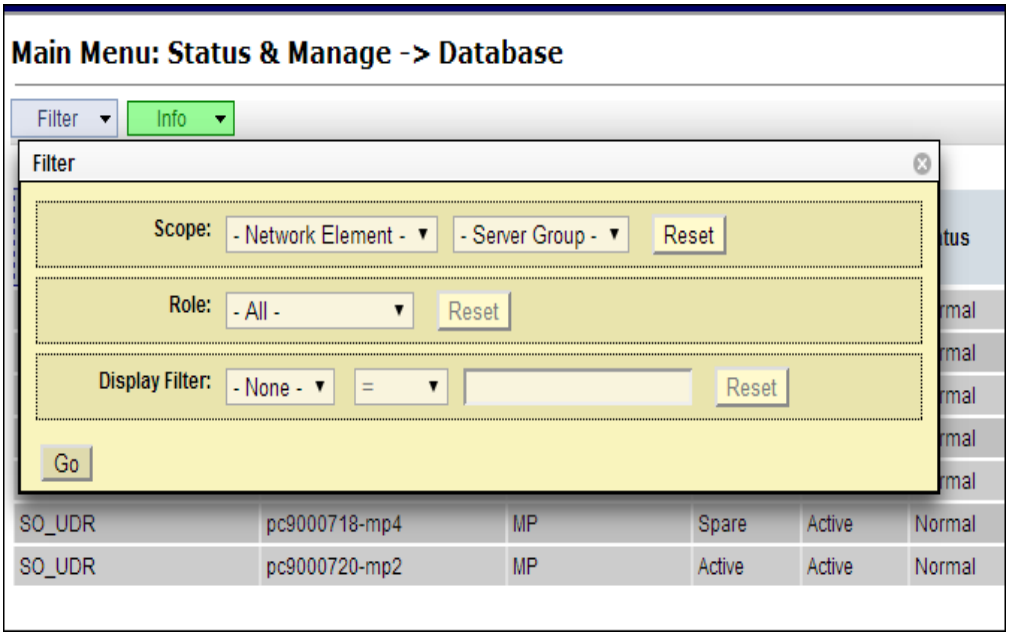
Procedure 6:

Full Database Backup

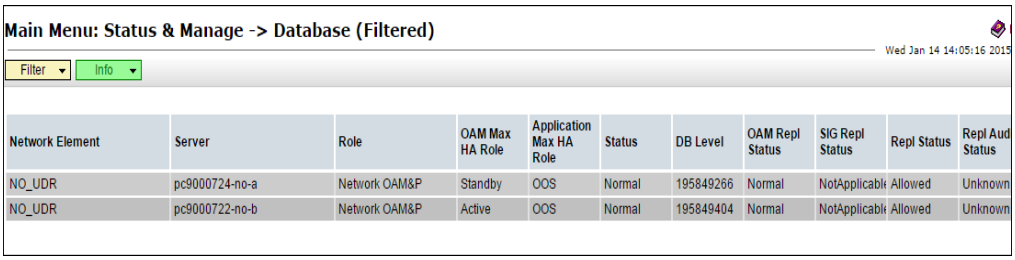
Step	Procedure	Result
THIS PROCEDURE HAS BEEN COMPLETED		

4.2.3 Major Upgrade Primary NOAMP NE (10.0.x to 10.2)

Procedure 7: Major Upgrade Primary NOAMP NE (10.0.x to 10.2)

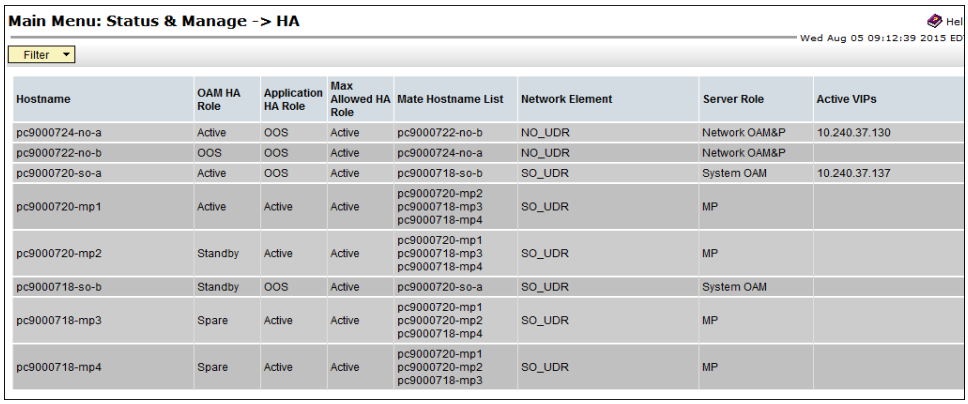
Step	Procedure	Result
1. ☐	Using the **VIP** address, access the **Primary NOAMP** GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *Database*** …as shown on the right.	
3. ☐	Record the name of the **Primary NOAMP**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

Procedure 7: Major Upgrade Primary NOAMP NE (10.0.x to 10.2)

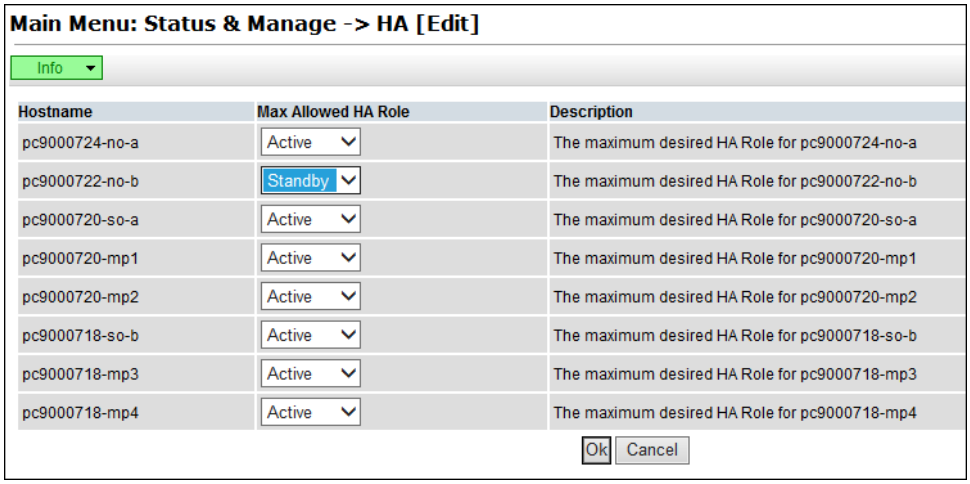
Step	Procedure	Result
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the right end of the filter bar.	
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with the **Primary NOAMP** Network Element. Identify each "**Server"** and its associated **"Role"** and **"HA Role"**.	
7. ☐	**Active NOAMP VIP:** Record the **"Server"** names appropriately in the space provided to the right.	• Identify the **Primary NOAMP "Server"** names and record them in the space provided below: **Standby NOAMP:** _____ **Active NOAMP:** _____

Procedure 7: Major Upgrade Primary NOAMP NE (10.0.x to 10.2)

Step	Procedure	Result
8. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *HA*** …as shown on the right.	• Change "Max Allowed HA Role" of all non-Active NOAMP Servers to Standby (including DR NOAMP Servers)

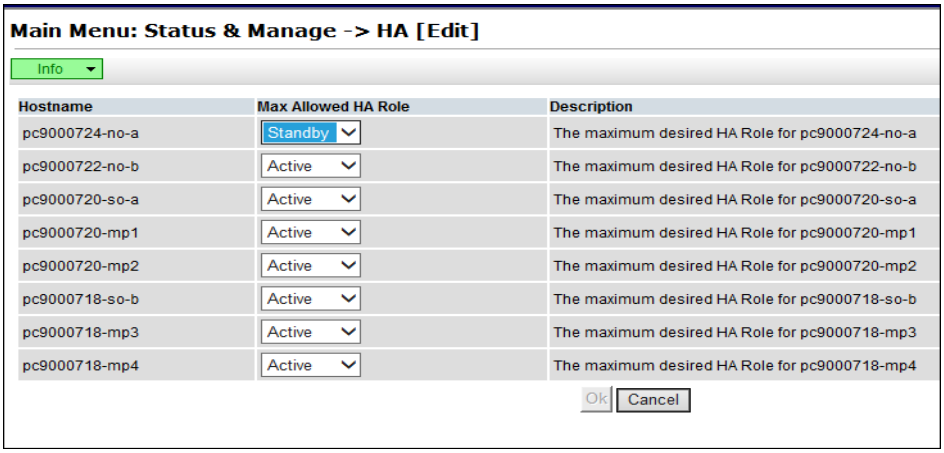


Hostname	OAM HA Role	Application HA Role	Max Allowed HA Role	Mate Hostname List	Network Element	Server Role	Active VIPs
pc9000724-no-a	Active	OOS	Active	pc9000722-no-b	NO_UDR	Network OAM&P	10.240.37.130
pc9000722-no-b	OOS	OOS	Active	pc9000724-no-a	NO_UDR	Network OAM&P	
pc9000720-so-a	Active	OOS	Active	pc9000718-so-b	SO_UDR	System OAM	10.240.37.137
pc9000720-mp1	Active	Active	Active	pc9000720-mp2 pc9000718-mp3 pc9000718-mp4	SO_UDR	MP	
pc9000720-mp2	Standby	Active	Active	pc9000720-mp1 pc9000718-mp3 pc9000718-mp4	SO_UDR	MP	
pc9000718-so-b	Standby	OOS	Active	pc9000720-so-a	SO_UDR	System OAM	
pc9000718-mp3	Spare	Active	Active	pc9000720-mp1 pc9000720-mp2 pc9000718-mp4	SO_UDR	MP	
pc9000718-mp4	Spare	Active	Active	pc9000720-mp1 pc9000720-mp2 pc9000718-mp3	SO_UDR	MP	



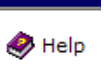
Procedure 7: Major Upgrade Primary NOAMP NE (10.0.x to 10.2)

Step	Procedure	Result

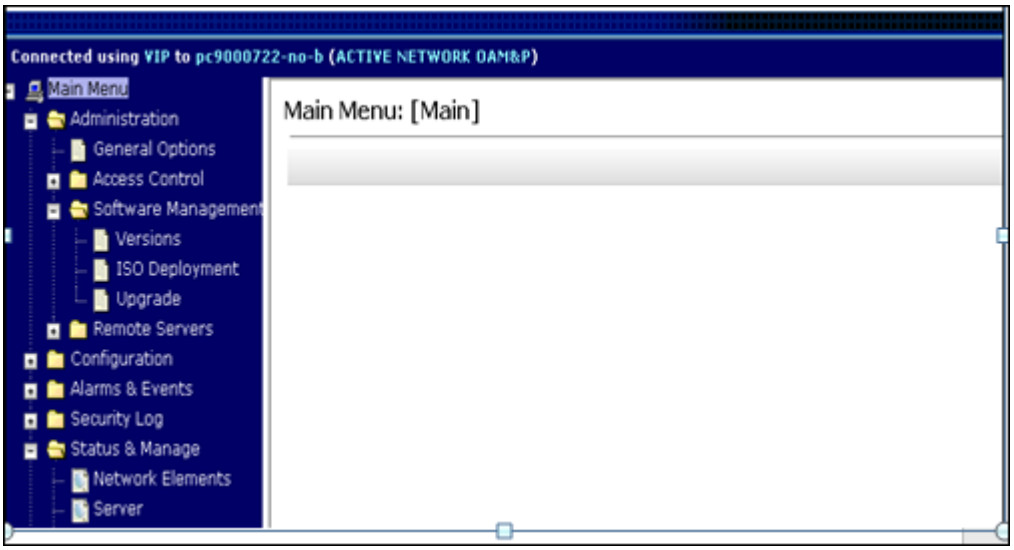
9. ☐	**Active NOAMP VIP:**
	
	Execute the following steps prior to starting Major Upgrade.
		a. Execute following commands on non-Active NOAMP Servers:
		isetPartAttr A_IdGenFactoryPart EnabFragRep=1;
		isetPartAttr A_IdDbLevelPart EnabFragRep=1;
		pm.set off inetrep;
		pm.set on inetrep
		b. Identify the Active NOAMP Server and execute irepstat on active NOAMP to ensure that the audits resulting from the previous step are all complete.
		c. Force a NOAMP switchover by changing HA Status from Main Menu: Status & Manage->HA Screen. Set the max HA role of the current standby NOAMP to Active and the max HA role of the current Active NOAMP to Standby.
		
		 
		
		d. Execute Step-a on server identified in Step-b. (NOTE: This server shall not be active now.)

	NOTE: ***Steps 10 - 13 are for the STANDBY NOAMP ONLY.***	
10. ☐	**Active NOAMP VIP:** Prepare Upgrade for the **Standby NOAMP Server**	• Prepare Upgrade for the **Standby NOAMP Server** *(identified in **Step** 7 of this Procedure)* as specified in **Appendix C.1** *(Prepare Upgrade).*
11. ☐	**Active NOAMP VIP:** Initiate Upgrade for the **Standby NOAMP Server**.	• Initiate Upgrade for the **Standby NOAMP Server** *(identified in **Step** 7 of this Procedure)* as specified in **Appendix C.2** *(Initiate Upgrade).*
12. ☐	**Active NOAMP VIP:** Monitor Upgrade for the**Standby Server**.	• Monitor Upgrade for the **Standby Server** *(identified in **Step** 7 of this Procedure)* as specified in **Appendix C.3** ***(Monitor Upgrade).***
13. ☐	**Active NOAMP VIP:** Complete Upgrade for the **Standby NOAMP Server**.	• Complete Upgrade for the **Standby Server** *(identified in **Step** 7 of this Procedure)* as specified in **Appendix C.4** ***(Complete Upgrade).***

Procedure 7: Major Upgrade Primary NOAMP NE (10.0.x to 10.2)

Step	Procedure	Result
	!! WARNING !!	**STEPS *10* - 13 MUST BE COMPLETED BEFORE CONTINUING ON TO STEP 14.**
14. ☐	**Active NOAMP VIP:**	• After Upgrade is complete, Verify the Server Status in Main Menu: Status & Manage->Server screen; If disabled, Restart the Server. • Restart inetrep on all non-Active NOAMP Servers (include the one that was just upgraded) pm.set off inetrep; pm.set on inetrep • Wait for the Replication link to become Active to the Upgraded NOAMP Server (can take 45 minutes or more) • Change Max HA Role of Upgraded NOAMP Server to be Active if not Active already from Main Menu: Status & Manage->HA Screen
15. ☐	**Active NOAMP VIP:** Prepare Upgrade for the **Active NOAMP Server**.	• ***** Verify the Databases are in sync using 9.5Appendix E before preparing the upgrade** • Prepare Upgrade for the **Active NOAMP Server** as specified in **Appendix C.1** *(Prepare Upgrade).*
	!! IMPORTANT !!	**ONCE THE USER COMPLETES STEP 5 IN APPENDIX C.1, THEN THE USER SESSION WILL AUTOMATICALLY TERMINATE AT THIS TIME AND THE USER WILL BE LOGGED OUT OF THE GUI.**
16. ☐	The **"Security Alert"** dialogue box shown to the right may or may not appear at this time depending on **"Internet Explorer"** settings. If experienced, click the **"Yes"** dialogue button to continue. ***Otherwise***: Select **"Logout"** at the top right of the screen.	 
		NOTE: Wait at least 30 seconds or longer for the **Standby NOAMP Server** to transition to the **"Active" NOAMP Server** and take control of the **VIP** address

Procedure 7: Major Upgrade Primary NOAMP NE (10.0.x to 10.2)

Step	Procedure	Result
17. ☐	**Active NOAM VIP:** The user's session will end and the screen shown to the right will appear as the **Standby NOAMP&P Server** goes through **HA switchover** and becomes the **"Active"** server. Login to the GUI using the default user and password.	
18. ☐	**Active NOAM VIP:** The user should be presented the OCUDR Main Menu as shown on the right. Verify that the message shown across the top of the right panel indicates that the browser is using the **"VIP"** connected to the **Active Network OAM&P** server.	

Procedure 7: Major Upgrade Primary NOAMP NE (10.0.x to 10.2)

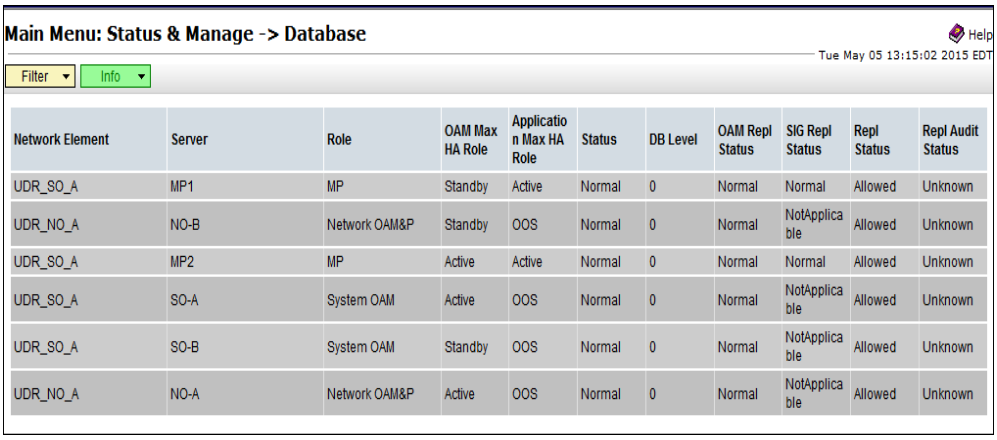
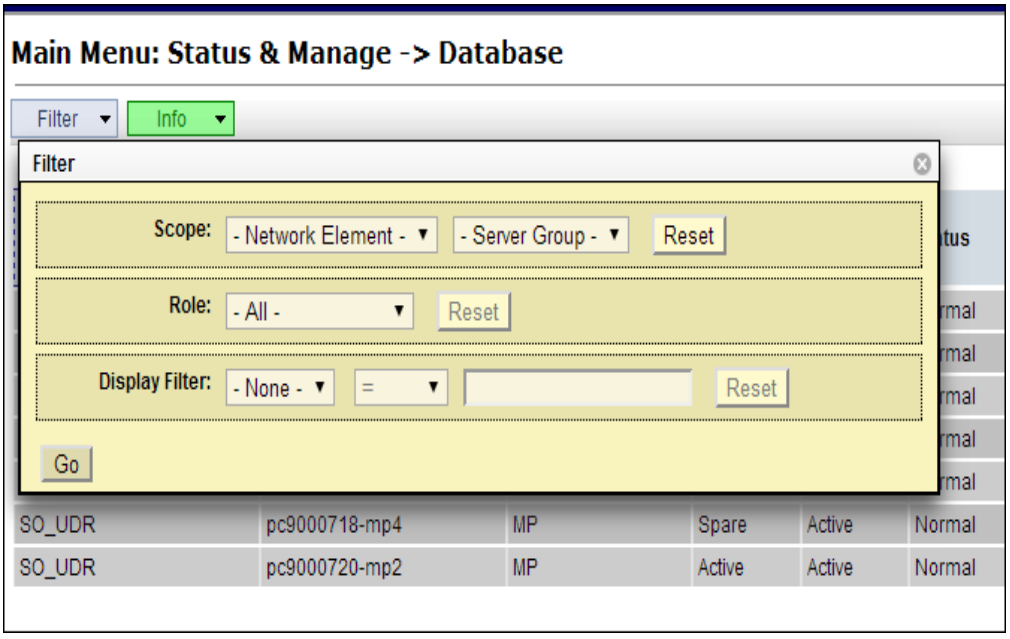
Step	Procedure	Result

19. ☐	**Active NOAMP VIP:**
	
	Upgrade Server for the **- Active NOAMP Server**.
		• Verify the Server Status in Main Menu: Status & Manage->Server screen for the Prepared NOAMP Server; If disabled, Restart the Server. (Note: Database Replication Audits may be triggered)
		• Wait for the Replication link to become Active to the Prepared Server (can be up to 30 minutes)
		• Upgrade Server for **Prepared NOAMP Server**as specified in **Appendix C.5** Upgrade Server**.**
		• After Upgrade is complete:
		  ◦ Verify the Server Status in Main Menu: Status & Manage->Server screen; If disabled, Restart the Server.
		  ◦ Verify the max HA role of the Upgraded NOAMP Server is Active on the Main Menu: Status & Manage->HA Screen. If not, swtich back to Active.

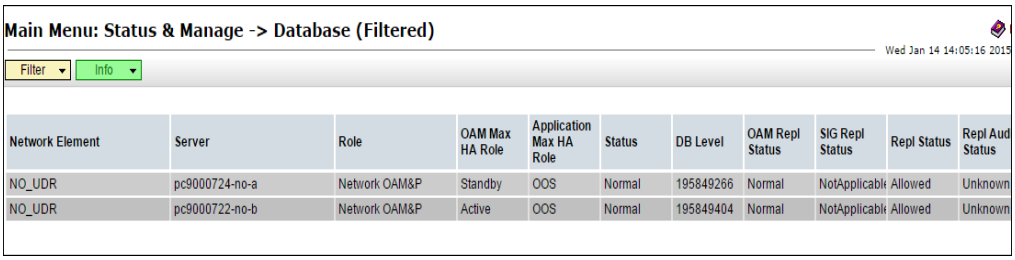
THIS PROCEDURE HAS BEEN COMPLETED		

4.2.4 Incremental Upgrade for Primary NOAMP NE (10.2)

Procedure 8: Incremental Upgrade for Primary NOAMP NE (10.2)

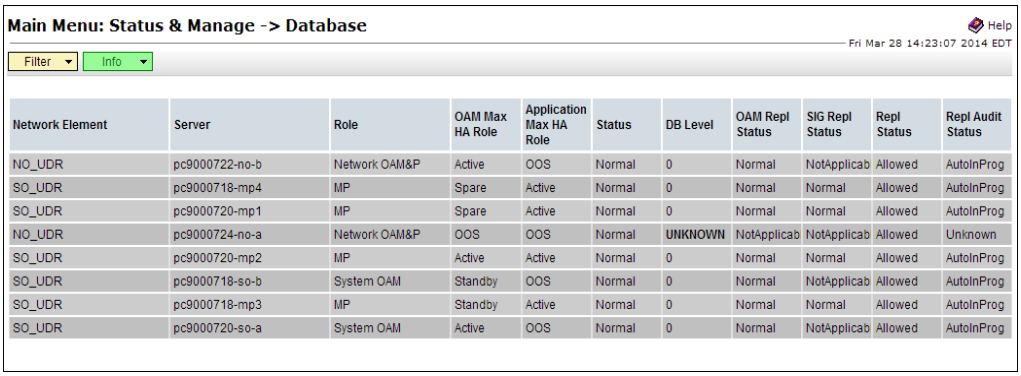
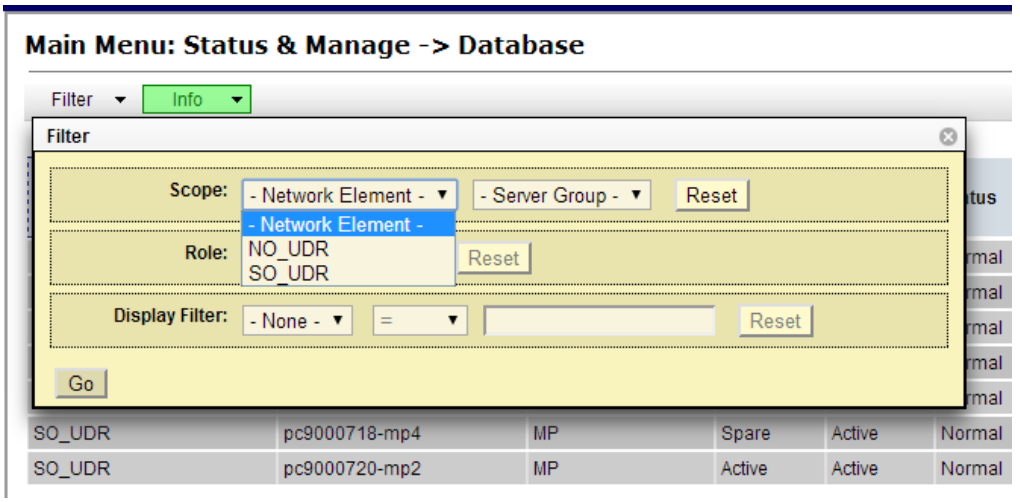
Step	Procedure	Result
1. ☐	Using the **VIP** address, access the **Primary NOAMP** GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *Database*** …as shown on the right.	
3. ☐	Record the name of the **Primary NOAMP**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

Procedure 8: Incremental Upgrade for Primary NOAMP NE (10.2)

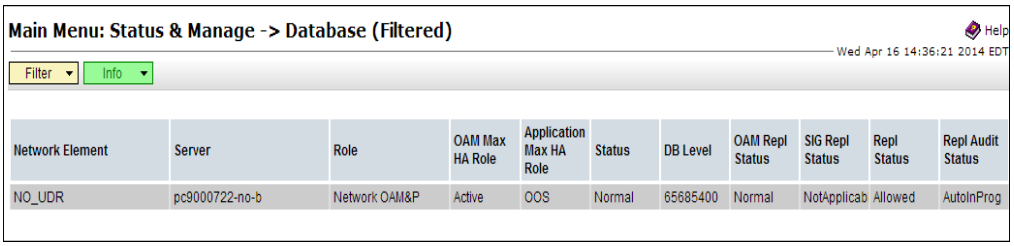
Step	Procedure	Result
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the right end of the filter bar.	
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with the **Primary NOAMP** Network Element. Identify each "**Server"** and its associated **"Role"** and **"HA Role"**.	
7. ☐	**Active NOAMP VIP:** Record the **"Server"** names appropriately in the space provided to the right.	• Identify the **Primary NOAMP "Server"** names and record them in the space provided below: **Standby NOAMP:** _____ **Active NOAMP:** _____
	NOTE: ***Step 10 is for the STANDBY NOAMP ONLY.***	
8. ☐	**Active NOAMP VIP:** Upgrade Server for the **Standby NOAMP Server**.	Upgrade Server for the **Standby NOAMP Server** *(identified in **Step** 7 of this Procedure)* as specified in **Appendix C.5** Upgrade Server
	!! WARNING !! STEP *10* MUST BE COMPLETED BEFORE CONTINUING ON TO STEP 9. ***** Verify the Databases are in sync using 9.5Appendix E before upgrading the Active Server**	
9. ☐	**Active NOAMP VIP:** Upgrade Server for the **Active NOAMP Server**.	1) Upgrade Server for the **Active NOAMP Server** *(identified in **Step** 7 of this Procedure)* as specified in **Appendix C.5** Upgrade Server**.**
	THIS PROCEDURE HAS BEEN COMPLETED	

4.2.5 Major Upgrade DR NOAMP NE (10.0.x to 10.2)

Procedure 9: Major Upgrade DR NOAMP NE (10.0.x to 10.2)

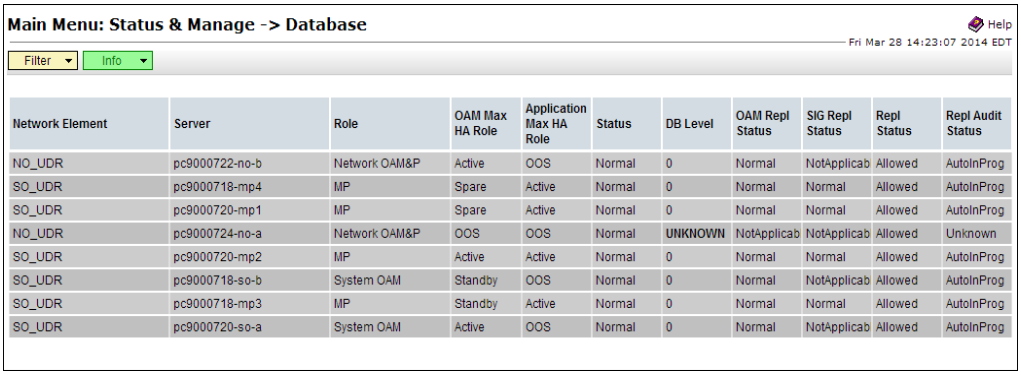
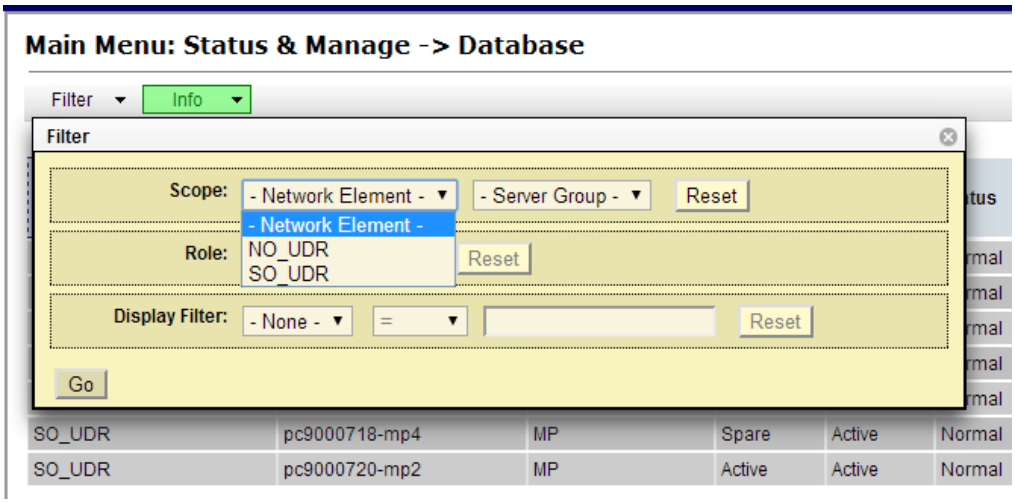
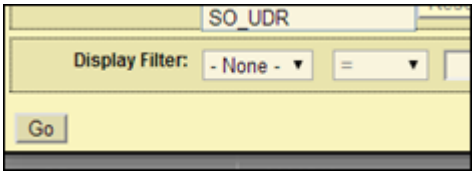
Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *Database*** …as shown on the right.	 Network Element | Server | Role | OAM Max HA Role | Application Max HA Role | Status | DB Level | OAM Repl Status | SIG Repl Status | Repl Status | Repl Audit Status NO_UDR | pc9000722-no-b | Network OAM&P | Active | OOS | Normal | 0 | Normal | NotApplicab | Allowed | AutoInProg SO_UDR | pc9000718-mp4 | MP | Spare | Active | Normal | 0 | Normal | Normal | Allowed | AutoInProg SO_UDR | pc9000720-mp1 | MP | Spare | Active | Normal | 0 | Normal | Normal | Allowed | AutoInProg NO_UDR | pc9000724-no-a | Network OAM&P | OOS | OOS | Normal | UNKNOWN | NotApplicab | NotApplicab | Allowed | Unknown SO_UDR | pc9000720-mp2 | MP | Active | Active | Normal | 0 | Normal | Normal | Allowed | AutoInProg SO_UDR | pc9000718-so-b | System OAM | Standby | OOS | Normal | 0 | Normal | NotApplicab | Allowed | AutoInProg SO_UDR | pc9000718-mp3 | MP | Standby | Active | Normal | 0 | Normal | Normal | Allowed | AutoInProg SO_UDR | pc9000720-so-a | System OAM | Active | OOS | Normal | 0 | Normal | NotApplicab | Allowed | AutoInProg
3. ☐	Record the name of the **DR NOAMP** Ntwork 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 **DR NOAMP** Network Element in the space provided below: **DR NOAMP Network Element:** _____
4. ☐	**Active NOAMP VIP:** From the **"Network Element"** filter pull-down, select the NE name for the **DR NOAMP**.	
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the left bottom of the filter bar.	

Procedure 9: Major Upgrade DR NOAMP NE (10.0.x to 10.2)

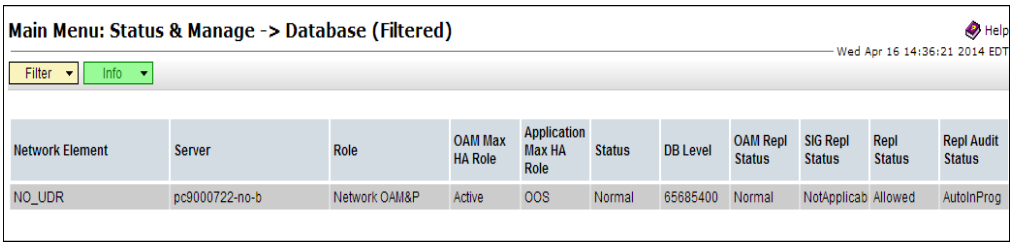
Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with **DR NOAMP** Network Element.	 Identify each "**Server"** and its associated **"Role"** and **"HA Role"**.
7. ☐	**Active NOAMP VIP:** Record the **"Server"** names appropriately in the space provided to the right.	• Identify the **DR NOAMP "Server"** names and record them in the space provided below: **Spare NOAMP Server:** _____ **Spare NOAMP Server:** _____
		NOTE 1: ***For Step 8 of this Procedure, select one spare DR NOAMP.*** **NOTE 2:** ***May need to change Max Allowed HA Role from standby to active for the DRNO so that the DRNO server is in an Upgrade Ready state. A previous procedure placed this in "Standby".***
8. ☐	**Active NOAMP VIP:** Upgrade Server for the first **DR NOAMP - Spare Server**.	• ***** Verify the Databases are in sync using 9.5Appendix E before preparing the upgrade** • Upgrade Server for the first **DR NOAMP – Spare NOAMP Server** *(identified in **Step** 7 of this Procedure)* as specified in **Appendix C.5** Upgrade Server**.**
		!! WARNING !! For STEP 9, upgrade the second spare DR NOAMP **NOTE:** ***May need to change Max Allowed HA Role from standby to active for the DRNO so that the DRNO server is in an Upgrade Ready state. A previous procedure placed this in "Standby".***
9. ☐	**Active NOAMP VIP:** Prepare Upgrade for the second **DR NOAMP - Spare NOAMP Server**.	• ***** Verify the Databases are in sync using 9.5Appendix E before preparing the upgrade** • Upgrade Server for the second **DR NOAMP - Spare NOAMP Server** *(identified in **Step** 7 of this Procedure)* as specified in **Appendix C.5** Upgrade Server**.**
		THIS PROCEDURE HAS BEEN COMPLETED

4.2.6 Incremental Upgrade for DR NOAMP NE (10.2)

Procedure 10: Incremental Upgrade for DR NOAMP NE (10.2)

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *Database*** …as shown on the right.	
3. ☐	Record the name of the **DR NOAMP** Ntwork 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 **DR NOAMP** Network Element in the space provided below: **DR NOAMP Network Element:** _____
4. ☐	**Active NOAMP VIP:** From the **"Network Element"** filter pull-down, select the NE name for the **DR NOAMP**.	
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the left bottom of the filter bar.	

Procedure 10: Incremental Upgrade for DR NOAMP NE (10.2)

Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with **DR NOAMP** Network Element.	 Identify each "**Server"** and its associated **"Role"** and **"HA Role"**.
7. ☐	**Active NOAMP VIP:** Record the **"Server"** names appropriately in the space provided to the right.	• Identify the **DR NOAMP "Server"** names and record them in the space provided below: **Spare NOAMP Server:** _____ **Spare NOAMP Server:** _____
	NOTE: For *Step 8 of this Procedure, select one spare DR NOAMP.* ***** Verify the Databases are in sync using 9.5Appendix E before upgrading each spare server.**	
8. ☐	**Active NOAMP VIP:** Upgrade Server for the first **Spare DR NOAMP Server**.	Upgrade Server for the first **Spare DR NOAMP Server** *(identified in **Step** 7 of this Procedure)* as specified in **Appendix C.5** Upgrade Server
9. ☐	**Active NOAMP VIP:** Upgrade Server for the second **Spare DR NOAMP Server**.	Upgrade Server for the second **Spare DR NOAMP Server** *(identified in **Step** 7 of this Procedure)* as specified in **Appendix C.5** Upgrade Server
THIS PROCEDURE HAS BEEN COMPLETED		

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

☐ This procedure is part of Software Upgrade Preparation and is used to determine the health and status of the OCUDR network and servers.

- Execute OCUDR Health Check procedures as specified in **Appendix B.**

5. SOAM SITE UPGRADE EXECUTION

Call **Oracle's Tekelec Customer Care** at **1-888-367-8552** or 1-919-460-2150 (international) and inform them of your plans to upgrade this system prior to executing this upgrade.

Before upgrade, users must perform the system Health Check **Appendix B.** This check ensures that the system to be upgraded is in an upgrade-ready state. Performing the system health check determines which alarms are present in the system and if upgrade can proceed with alarms.

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

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

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

Please read the following notes on this procedure:

Procedure completion times shown here are estimates. Times may vary due to differences in database size, user experience, and user preparation.

Where possible, command response outputs are shown as accurately as possible. EXCEPTIONS are as follows:

- Session banner information such as time and date.
- System-specific configuration information such as hardware locations, IP addresses and hostnames.
- ANY information marked with "XXXX" or "YYYY." Where appropriate, instructions are provided to determine what output should be expected in place of "XXXX or YYYY"
- Aesthetic differences unrelated to functionality such as browser attributes: window size, colors, toolbars and button layouts.

After completing each step and at each point where data is recorded from the screen, the technician performing the upgrade must mark the provided Check Box.

For procedures which are executed multiple times, a mark can be made below the Check Box (in the same column) for each additional iteration that is executed.

Retention of Captured data is required for as a future support reference this procedure is executed by someone other than Oracle's Tekelec Customer Care.

5.1 **Perform Health Check** (Pre Upgrade)

☐ This procedure is part of Software Upgrade Preparation and is used to determine the health and status of the OCUDRnetwork and servers. This may be executed multiple times but must also be executed at least once within the time frame of 24-36 hours prior to the start of a maintenance window.

- Execute OCUDR Health Check procedures as specified in **Appendix B.**

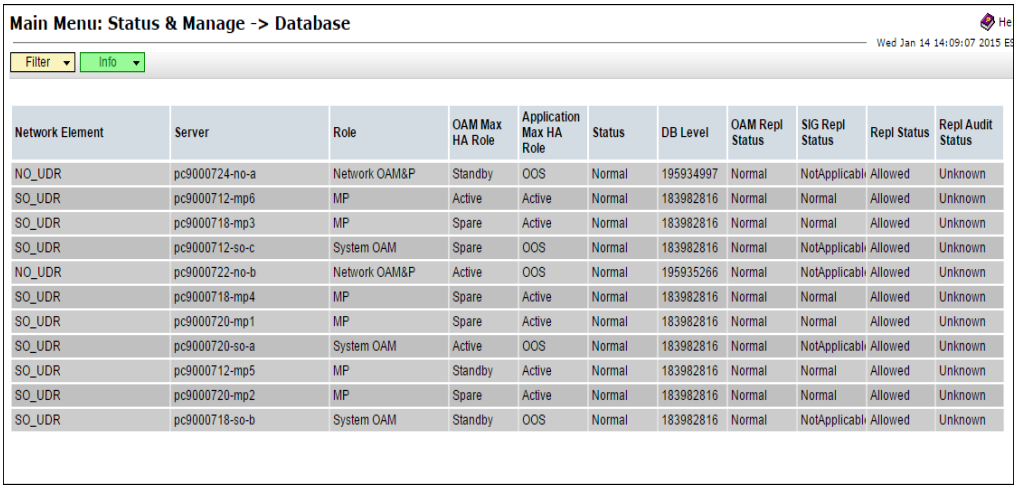
5.2 SOAM Upgrade

The following procedure details how to upgrade OCUDR SOAMs.

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

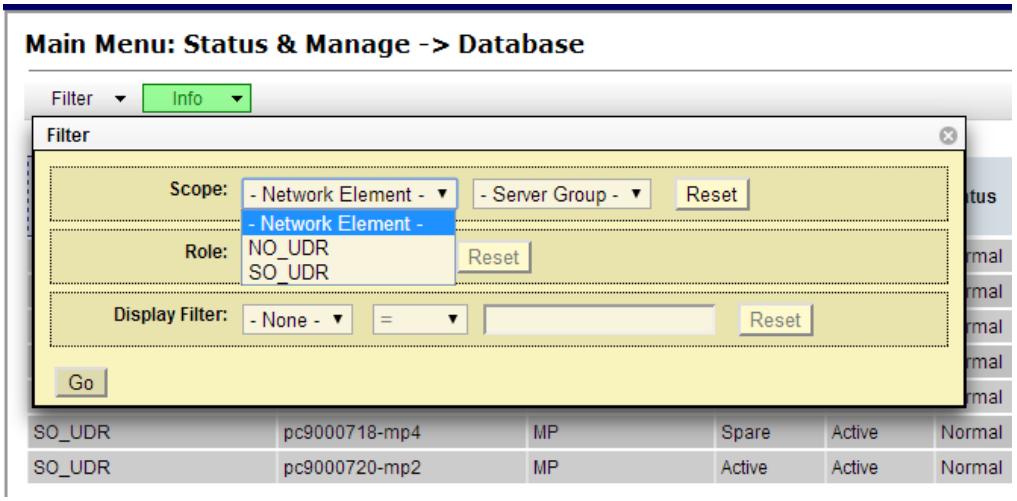
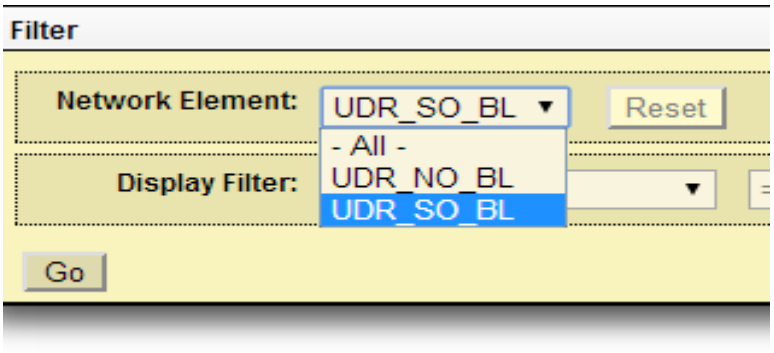
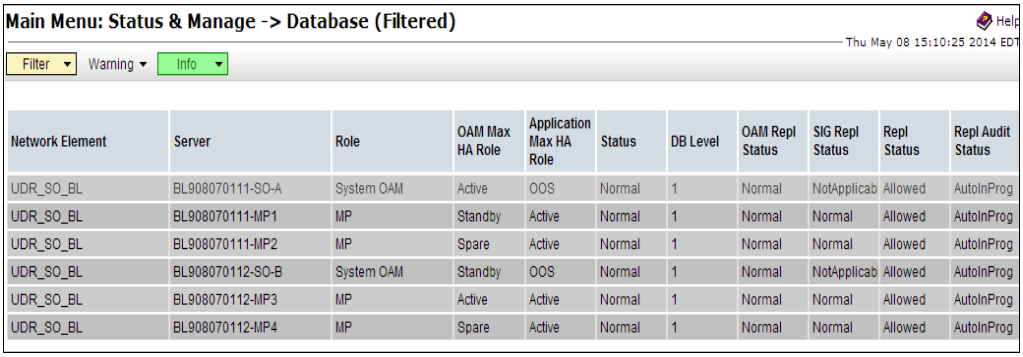
5.2.1 Major Upgrade SOAM NE (10.0.x to 10.2)

Procedure 11: Major Upgrade SOAM NE

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

Network Element	Server	Role	OAM Max HA Role	Application Max HA Role	Status	DB Level	OAM Repl Status	SIG Repl Status	Repl Status	Repl Audit Status
NO_UDR	pc9000724-no-a	Network OAM&P	Standby	OOS	Normal	195934997	Normal	NotApplicabl	Allowed	Unknown
SO_UDR	pc9000712-mp6	MP	Active	Active	Normal	183982816	Normal	Normal	Allowed	Unknown
SO_UDR	pc9000718-mp3	MP	Spare	Active	Normal	183982816	Normal	Normal	Allowed	Unknown
SO_UDR	pc9000712-so-c	System OAM	Spare	OOS	Normal	183982816	Normal	NotApplicabl	Allowed	Unknown
NO_UDR	pc9000722-no-b	Network OAM&P	Active	OOS	Normal	195935266	Normal	NotApplicabl	Allowed	Unknown
SO_UDR	pc9000718-mp4	MP	Spare	Active	Normal	183982816	Normal	Normal	Allowed	Unknown
SO_UDR	pc9000720-mp1	MP	Spare	Active	Normal	183982816	Normal	Normal	Allowed	Unknown
SO_UDR	pc9000720-so-a	System OAM	Active	OOS	Normal	183982816	Normal	NotApplicabl	Allowed	Unknown
SO_UDR	pc9000712-mp5	MP	Standby	Active	Normal	183982816	Normal	Normal	Allowed	Unknown
SO_UDR	pc9000720-mp2	MP	Spare	Active	Normal	183982816	Normal	Normal	Allowed	Unknown
SO_UDR	pc9000718-so-b	System OAM	Standby	OOS	Normal	183982816	Normal	NotApplicabl	Allowed	Unknown

Procedure 11: Major Upgrade SOAM NE

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** From the **"Network Element"** filter pull-down, select the name for the **SOAM** NE.	
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the left bottom of the filter bar.	
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with the **SOAM** NE.	
7. ☐	Using the list of servers associated with the **SOAM** NE shown in the above Step... Record the Server names of the **SOAMs** associated with the **SOAM** Network Element.	• Identify the **SOAM "Server"** names and record them in the space provided below: **Standby SOAM:** _____ **Active SOAM:** _____

Procedure 11: Major Upgrade SOAM NE

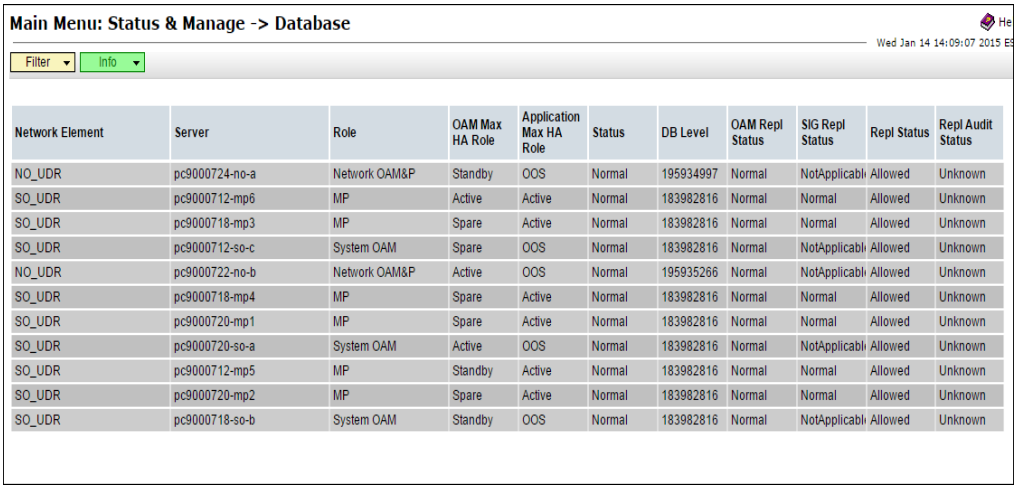
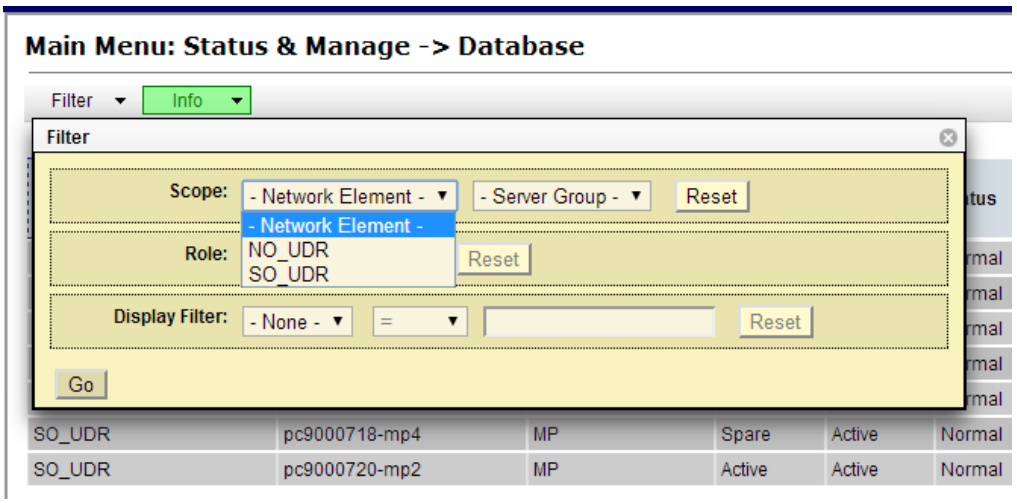
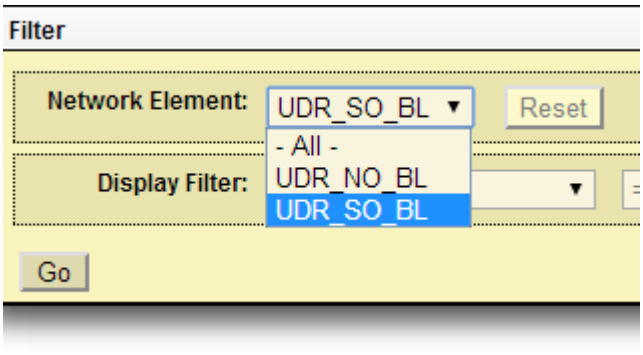
Step	Procedure	Result
8. ☐	**Active NOAMP VIP:**	Inspect KPI reports to verify traffic is at the expected condition. (There is no congestion and KPIs are consistent)
9. ☐	**Active NOAMP VIP:** Upgrade Server for the **Standby SOAM Server**.	***** Verify the Databases are in sync using 9.5Appendix E before preparing the upgrade** • Upgrade Server for the **Standby SOAM Server** *(identified in **Step 7** of this Procedure)* as specified in **Appendix C.5** Upgrade Server***).***
	!! WARNING !! STEP 9 MUST BE COMPLETED BEFORE CONTINUING ON TO STEP 10.	
10.	**Active NOAMP VIP:** Upgrade Server for the **Active SOAM Server**.	• **Verify the Databases are in sync using 9.5Appendix E before preparing the upgrade** • Upgrade Server for the **Active SOAM Server** *(identified in **Step 7** of this Procedure)* as specified in **Appendix C.5** Upgrade Server***.***
THIS PROCEDURE HAS BEEN COMPLETED		

5.2.2 Incremental Upgrade for SOAM NE (10.2)

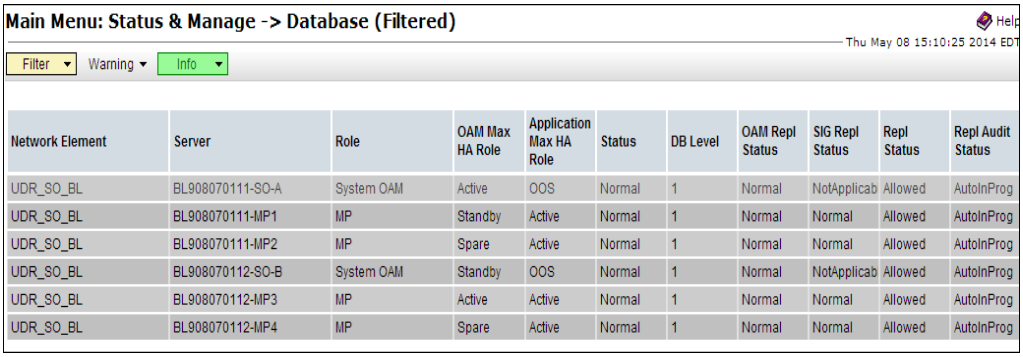
Procedure 12: Incremental Major Upgrade SOAM NE (10.2)

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

Procedure 12: Incremental Major Upgrade SOAM NE (10.2)

Step	Procedure	Result
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *Database*** …as shown on the right.	
3. ☐	Record the name of the **SOAM** NE in the space provided to the right.	• Using the information provided in Section 3.1.2 (*Logins, Passwords and Site Information*) record the name of the **SOAM** Network Element in the space provided below: **SOAM Network Element:** _____
4. ☐	**Active NOAMP VIP:** From the **"Network Element"** filter pull-down, select the name for the **SOAM** NE.	
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the left bottom of the filter bar.	

Procedure 12: Incremental Major Upgrade SOAM NE (10.2)

Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with the **SOAM** NE.	 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 UDR_SO_BL / BL908070111-SO-A / System OAM / Active / OOS / Normal / 1 / Normal / NotApplicab / Allowed / AutoInProg UDR_SO_BL / BL908070111-MP1 / MP / Standby / Active / Normal / 1 / Normal / Normal / Allowed / AutoInProg UDR_SO_BL / BL908070111-MP2 / MP / Spare / Active / Normal / 1 / Normal / Normal / Allowed / AutoInProg UDR_SO_BL / BL908070112-SO-B / System OAM / Standby / OOS / Normal / 1 / Normal / NotApplicab / Allowed / AutoInProg UDR_SO_BL / BL908070112-MP3 / MP / Active / Active / Normal / 1 / Normal / Normal / Allowed / AutoInProg UDR_SO_BL / BL908070112-MP4 / MP / Spare / Active / Normal / 1 / Normal / Normal / Allowed / AutoInProg
7. ☐	Using the list of servers associated with the **SOAM** NE shown in the above Step... Record the Server names of the **SOAMs** associated with the **SOAM** Network Element.	• Identify the **SOAM "Server"** names and record them in the space provided below: **Standby SOAM:** _____ **Active SOAM:** _____
8. ☐	**Active NOAMP VIP:**	Inspect KPI reports to verify traffic is at the expected condition. (There is no congestion and KPIs are consistent)
9. ☐	**Active NOAMP VIP:** Upgrade Server for the **Standby SOAM Server**.	• Upgrade Server for the **Standby SOAM Server** *(identified in **Step** 7 of this Procedure)* as specified in **Appendix C.5** Upgrade Server
	!! WARNING !! STEP 9 MUST BE COMPLETED BEFORE CONTINUING ON TO STEP 10. ***** Verify the Databases are in sync using 9.5Appendix E before preparing the upgrade**	
10. ☐	**Active NOAMP VIP:** Upgrade Server for the **Active SOAM Server**.	• Upgrade Server for the **Active SOAM Server** *(identified in **Step** 7 of this Procedure)* as specified in **Appendix C.5** Upgrade Server
	THIS PROCEDURE HAS BEEN COMPLETED	

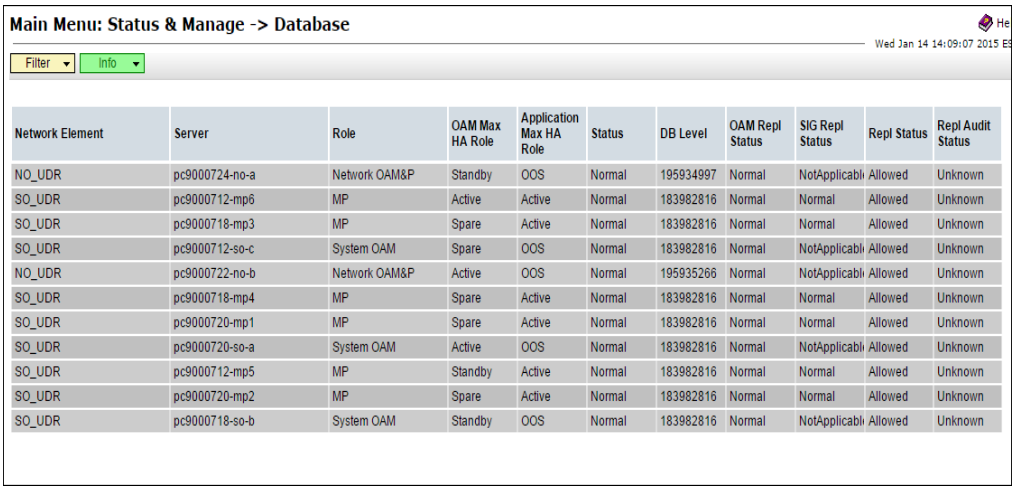
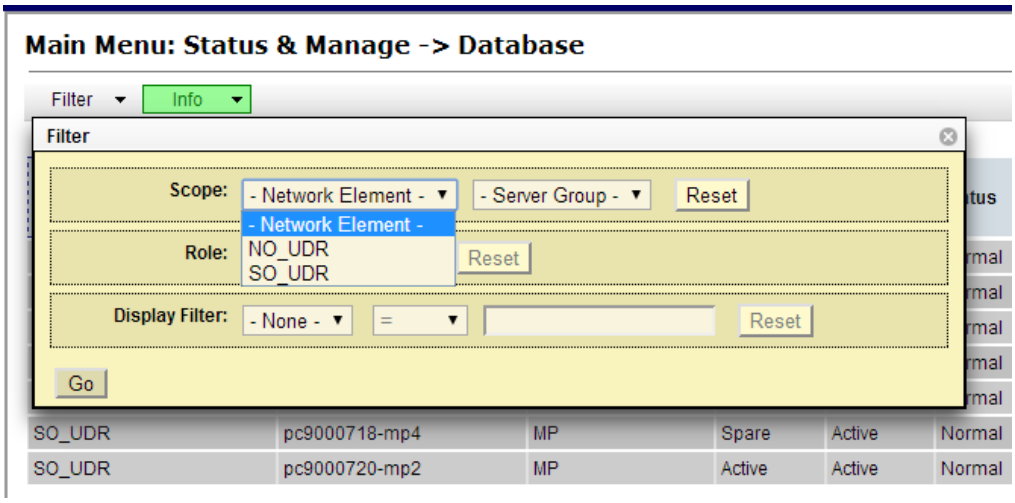
5.3 MP Upgrade

The following procedure details how to upgrade OCUDR MPs.

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

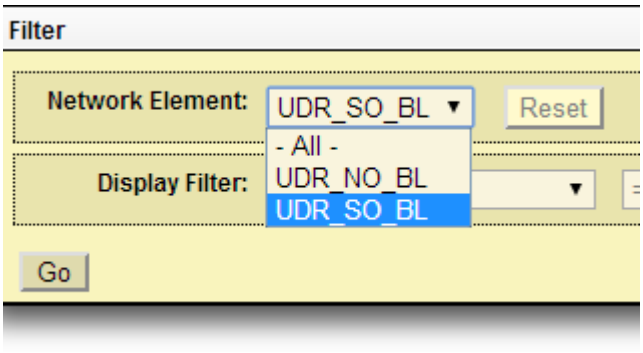
5.3.1 Major Upgrade MP NE (10.0.x to 10.2)

Procedure 13: Major Upgrade MP NE (10.0.x to 10.2)

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

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
NO_UDR	pc9000724-no-a	Network OAM&P	Standby	OOS	Normal	195934997	Normal	NotApplicabl	Allowed	Unknown
SO_UDR	pc9000712-mp6	MP	Active	Active	Normal	183982816	Normal	Normal	Allowed	Unknown
SO_UDR	pc9000718-mp3	MP	Spare	Active	Normal	183982816	Normal	Normal	Allowed	Unknown
SO_UDR	pc9000712-so-c	System OAM	Spare	OOS	Normal	183982816	Normal	NotApplicabl	Allowed	Unknown
NO_UDR	pc9000722-no-b	Network OAM&P	Active	OOS	Normal	195935266	Normal	NotApplicabl	Allowed	Unknown
SO_UDR	pc9000718-mp4	MP	Spare	Active	Normal	183982816	Normal	Normal	Allowed	Unknown
SO_UDR	pc9000720-mp1	MP	Spare	Active	Normal	183982816	Normal	Normal	Allowed	Unknown
SO_UDR	pc9000720-so-a	System OAM	Active	OOS	Normal	183982816	Normal	NotApplicabl	Allowed	Unknown
SO_UDR	pc9000712-mp5	MP	Standby	Active	Normal	183982816	Normal	Normal	Allowed	Unknown
SO_UDR	pc9000720-mp2	MP	Spare	Active	Normal	183982816	Normal	Normal	Allowed	Unknown
SO_UDR	pc9000718-so-b	System OAM	Standby	OOS	Normal	183982816	Normal	NotApplicabl	Allowed	Unknown

Procedure 13: Major Upgrade MP NE (10.0.x to 10.2)

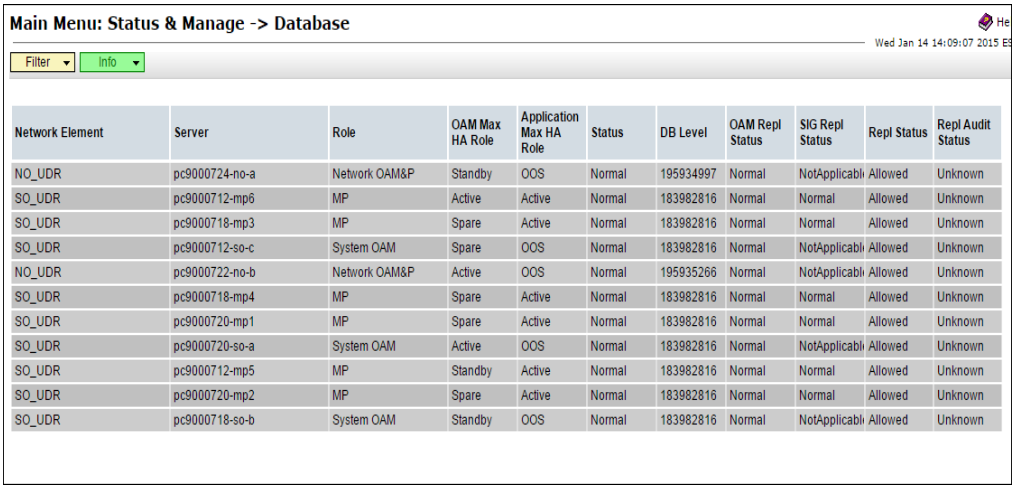
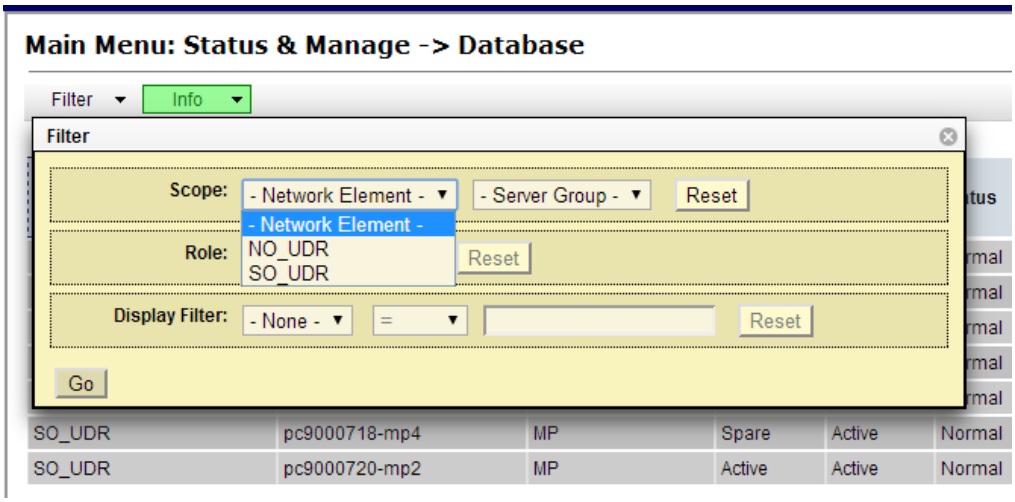
Step	Procedure	Result
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the left bottom of the filter bar.	
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of MPservers associated with the **SOAM** NE.	Main Menu: Status & Manage -> Database (Filtered) Thu May 08 15:10:25 2014 EDT Filter Warning Info 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 UDR_SO_BL | BL908070111-SO-A | System OAM | Active | OOS | Normal | 1 | Normal | NotApplicab | Allowed | AutoInProg UDR_SO_BL | BL908070111-MP1 | MP | Standby | Active | Normal | 1 | Normal | Normal | Allowed | AutoInProg UDR_SO_BL | BL908070111-MP2 | MP | Spare | Active | Normal | 1 | Normal | Normal | Allowed | AutoInProg UDR_SO_BL | BL908070112-SO-B | System OAM | Standby | OOS | Normal | 1 | Normal | NotApplicab | Allowed | AutoInProg UDR_SO_BL | BL908070112-MP3 | MP | Active | Active | Normal | 1 | Normal | Normal | Allowed | AutoInProg UDR_SO_BL | BL908070112-MP4 | MP | Spare | Active | Normal | 1 | Normal | Normal | Allowed | AutoInProg
7. ☐	Using the list of servers associated with the **SOAM** NE shown in the above Step... Record the Server names of the M**Ps** associated with the **SOAM** Network Element.	• Identify the **MP "Server"** names and record them in the space provided below: **MP1:** _____ **MP3:** _____ **MP2:** _____ **MP4:** _____
8. ☐	**Upgrade MPServers**	In a multi-active MP cluster, all of the MPs are Active; there are no Standby MPs. The effect on the Diameter network traffic must be considered, since any MP being upgraded will not be handling live traffic. OCUDR shall support upgrades while the Provisioning and Signaling traffic is running at 20% of the rated TPS.
9. ☐	**Active NOAMP VIP:** Upgrade Server for MP server(s) to be upgraded (start with the MP from the standby SOAM group)	• Upgrade Server for the **MP Server** *(identified in **Step** 7 of this Procedure)* as specified in **Appendix C.5** Upgrade Server**.** ***Note – After selecting the "upgrade server" button, the connections for that MP will automatically be taken down and traffic will be diverted to the active MP.***

Procedure 13: Major Upgrade MP NE (10.0.x to 10.2)

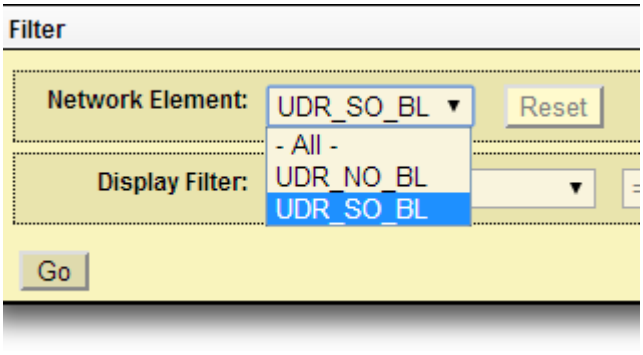
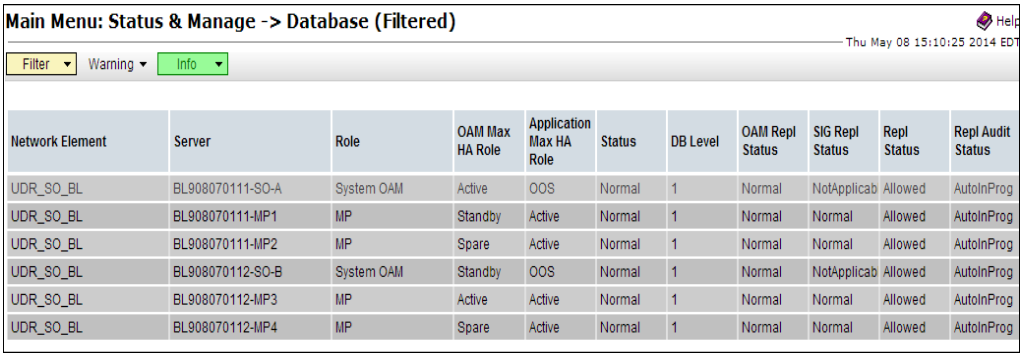
Step	Procedure	Result
10. ☐	**1)** For low capacity Configurations: Record the server name of the MP that was upgraded from the standby SOAM group. Repeat steps 9-15 for the MP server at the active SOAM group. **2)** For Normal Capactiy C-Class Configuration, Record the Server names of the 2 **MPs** that were upgraded from the standby SOAM Group (identified in **Step** 7 of this Procedure). Repeat steps 10-15 for the MPs	• **"Check off"** the associated **Check Box** as **Steps 9- 15** are completed for each **MP**. ☒ **MP1:** _____ ☐ **MP2:** _____ ☐ **MP3:** _____ ☐ **MP4:** _____
11. ☐	**TVOE Server**	Execute procedure 17: TvoE Performance tuning
THIS PROCEDURE HAS BEEN COMPLETED		

5.3.2 Incremental Upgrade for MP NE (10.2)

Procedure 14: Incremental Upgrade MP NE(10.2)

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

Procedure 14: Incremental Upgrade MP NE(10.2)

Step	Procedure	Result
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the left bottom of the filter bar.	
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of MPservers associated with the **SOAM** NE.	
7. ☐	Using the list of servers associated with the **SOAM** NE shown in the above Step... Record the Server names of the M**Ps** associated with the **SOAM** Network Element.	• Identify the **MP "Server"** names and record them in the space provided below: **MP1:** _____ **MP3:** _____ **MP2:** _____ **MP4:** _____
8. ☐	**Upgrade MPServers**	In a multi-active MP cluster, all of the MPs are Active; there are no Standby MPs. The effect on the Diameter network traffic must be considered, since any MP being upgraded will not be handling live traffic. OCUDR shall support upgrades while the Provisioning and Signaling traffic is running at 20% of the rated TPS.
9. ☐	**Active NOAMP VIP:** ****For low capacity configurations Only** Upgrade server for the first MP server to be upgraded (start with the MP from the standby SOAM group)	• Upgrade Server for the **MP Servers** *(identified in **Step** 7 of this Procedure)* as specified in **Appendix C.5** Upgrade Server ***Note – After selecting the "upgrade server" button, the connections for that MP will automatically be taken down and traffic will be diverted to the active MP.***

Procedure 14: Incremental Upgrade MP NE(10.2)

Step	Procedure	Result
10. ☐	**Active NOAMP VIP:** ****For Normal Capacity C-Class Configuration Only** Upgrade Server for 2 MP Servers (start with MP server from the standby SOAM group)	Upgrade Server for the **MP Servers** *(identified in **Step** 7 of this Procedure)* as specified in **Appendix C.5** Upgrade Server ***Note – After selecting the "upgrade server" button, the connections for the 2 MPs will automatically be taken down and traffic will be diverted to the active MPs.***
11. ☐	**1)** For low capacity Configurations: Record the server name of the MP that was upgraded from the standby SOAM group. Repeat steps 9 - 12 for the MP server at the active SOAM group. **2)** For Normal Capactiy C-Class Configuration, Record the Server names of the 2 **MPs** that were upgraded from the standby SOAM Group . Repeat steps 10-12 for the MPs.	• **"Check off"** the associated **Check Box** as **Steps 9- 15** are completed for each **MP**. ☒ **MP1:** _____ ☐ **MP2:** _____ ☐ **MP3:** _____ ☐ **MP4:** _____
12. ☐	**TVOE Server**	Execute procedure 17: TvoE Performance tuning
THIS PROCEDURE HAS BEEN COMPLETED		

5.4 **Perform Health Check** (Post SOAM Upgrade)

☐ This procedure is part of Software Upgrade Preparation and is used to determine the health and status of the OCUDR network and servers.

- Execute OCUDR Health Check procedures as specified in **Appendix B.**

6. SINGLE SERVER UPGRADE

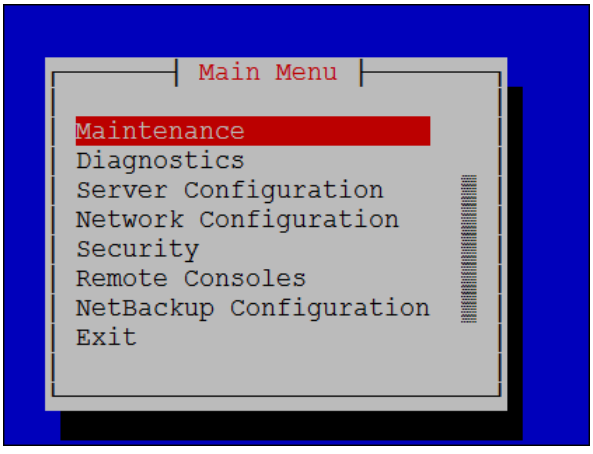
A 1-RMS server configuration is used for customer lab setup and for virtualization demonstration only. This configuration does not support HA and is not intended for production network.

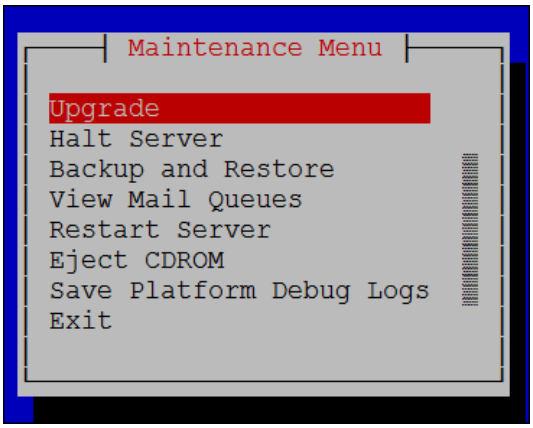
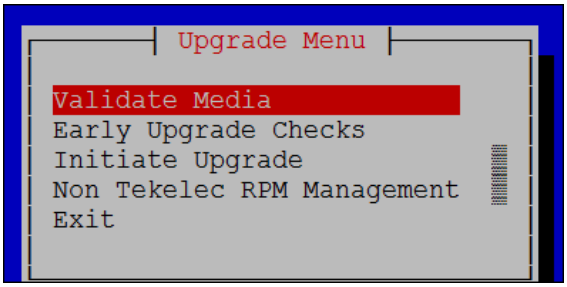
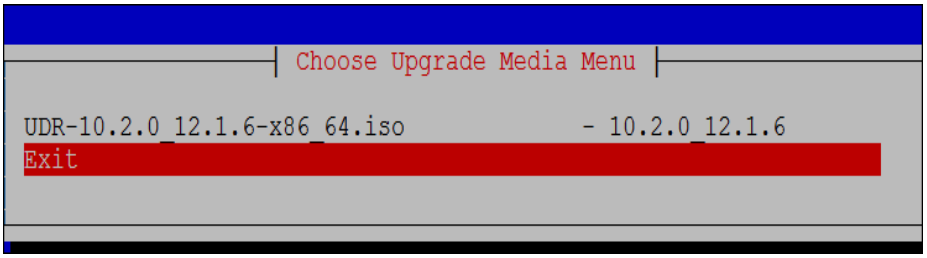
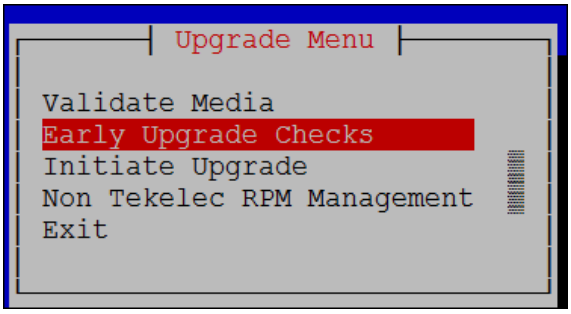
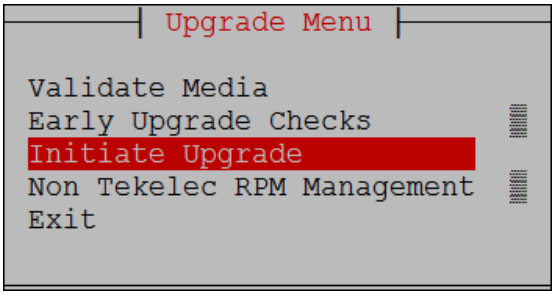
This One Server Lab RMS shall support the ability to perform and upgrade which allows all configuration data and database records to be carried forward to the next release.

6.1 Upgrading a Single Server

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

Procedure 15: Upgrading 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. ☐	Execute platcfg tool for running upgrade	su - platcfg
4. ☐	Select “Maintenance” with <Enter> key	

Step	Procedure	Result
5. ☐	Select “Upgrade” with <Enter> key	
6. ☐	Validate the Media by selecting “Validate Media” with <Enter> key Select the proper iso for the upgrade	 
7. ☐	Perform “Early Upgrade Checks” by selecting this option with the <Enter> key.	
8. ☐	Start the upgrade by selecting “Initiate Upgrade” with the <Enter> key. Wait for Upgrade to complete anywhere from 15 minutes to 1.5 hrs.	

Step	Procedure	Result
9. ☐	Accept the upgrade	Accept upgrade as specified in Procedure 16: Accept Upgrade.
10. ☐	Identify SOAM IP Address	Identify IP Address of the Single SOAM Server to be upgraded.
11. ☐	Upgrade SOAM Server	Repeat steps 2 through 9 for the SOAM Server
12. ☐	Identify MP IP Address	Identify IP Address of the Single MP Server to be upgraded.
13. ☐	Upgrade MP Server	Repeat Steps 2 through 9 for the MP Server
THIS PROCEDURE HAS BEEN COMPLETED		

7. UPGRADE ACCEPTANCE

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

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

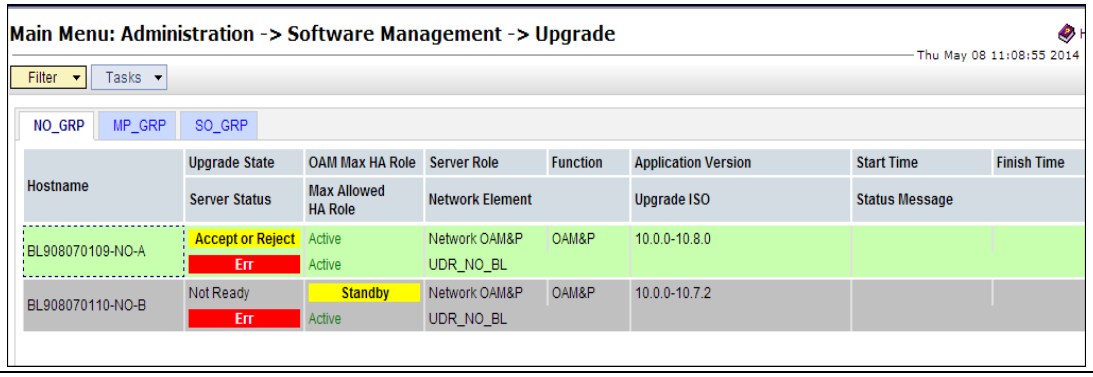
An upgrade should be accepted only after it was determined to be successful as the accept is final. This frees up file storage but prevents a backout from the previous upgrade.

7.1 Accept Upgrade

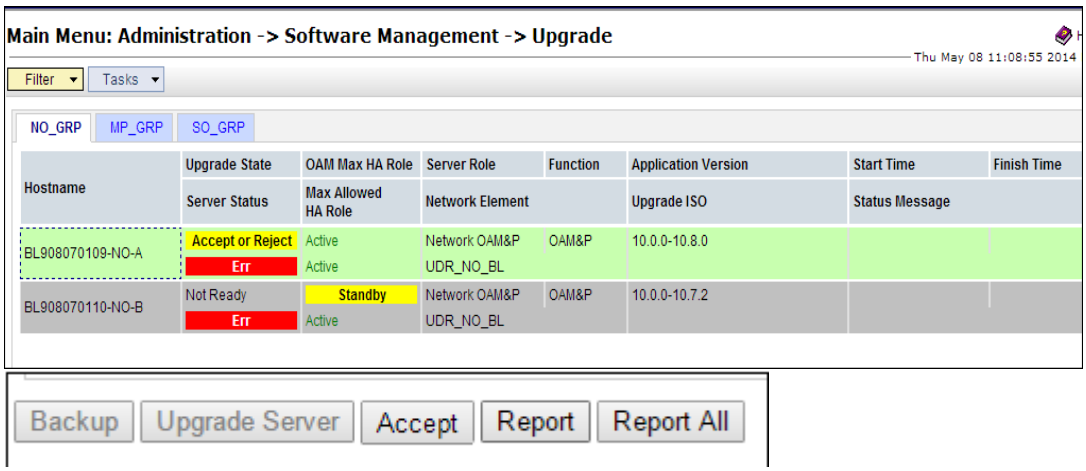
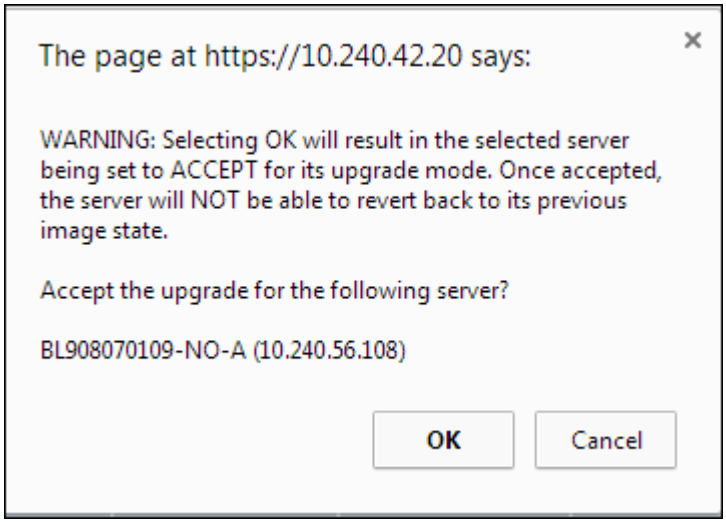
	NOTE:	**Once the upgrade is accepted for a server, that server will not be allowed to backout to previous release from which the upgrade was done**

The following procedure details how to accept a successful upgrade of OCUDR system.

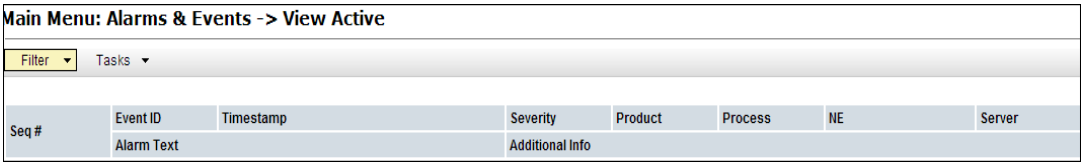
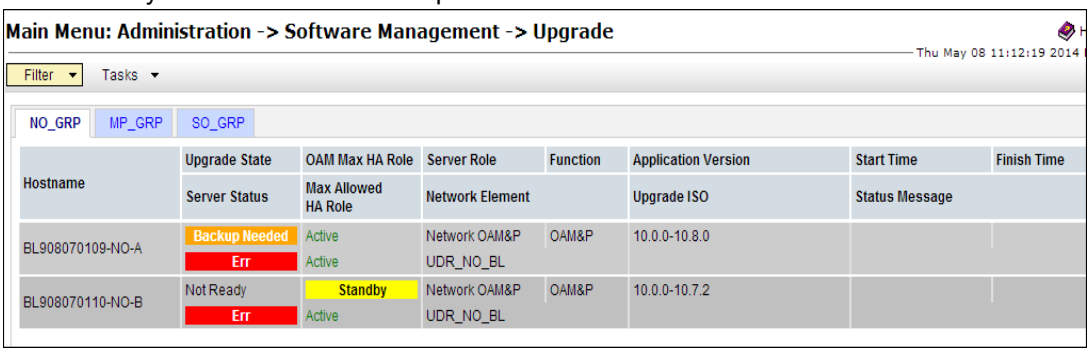
Procedure 16: Accept Upgrade

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

Procedure 16: Accept Upgrade

Step	Procedure	Result
3. ☐	**Active NOAMP VIP (GUI):** Accept upgrade for selected server(s)	Accept upgrade of selected server(s) • Select the server on which upgrade is to be accepted. • Click the "**Accept**" button  • A confirmation dialog will warn that once upgrade is accepted, the servers will not be able to revert back to their previous image states.  • Click "OK" • The Upgrade Administration screen re-displays. • A pulldown Info message will indicate the server(s) on which upgrade was accepted.

Procedure 16: Accept Upgrade

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** Accept upgrade of the rest of the OCUDR system	Accept Upgrade on all remaining servers in the OCUDR system: • Repeat all sub-steps of step 3 of this procedure on remaining serevrs until the upgrade of all servers in the OCUDR system has been accepted. Note: As upgrade is accepted on each server the corresponding Alarm ID **32532** (**Server Upgrade Pending Accept/Reject)** should be removed.
5. ☐	**Active NOAMP VIP:** Verify accept	Check that alarms are removed: • Navigate to this GUI page Alarms & Events > View Active  • Verify that Alarm ID **32532** (**Server Upgrade Pending Accept/Reject)** is not displayed under active alarms on OCUDR system
6. ☐	**Active NOAMP VIP:** Select… **<u>Main Menu</u>** **→ Administration** ***→ Software Management*** ***→ Upgrade*** …as shown on the right.	• Verify server status is “Backup Needed”. 
THIS PROCEDURE HAS BEEN COMPLETED		

8. TVOE PERFORMANCE TUNING

This script is necessary since it could be modified by the build. By making this script part of upgrade, it is ensuring that new changes/tuning will be applied after an upgrade is complete.

Procedure 17: 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>**
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 no failures are reported. A trace to display the settings for all VM Guests on this server should be shown in output. In case of failures, save the log file /var/TKLC/log/udrVMCfg/udrInitConfig.log and contact Tekelec Customer Care Center for assistance.
7. ☐	**TVOE host:** Reboot the server.	# **init 6**
THIS PROCEDURE HAS BEEN COMPLETED		

9. RECOVERY PROCEDURES

Upgrade procedure recovery issues should be directed to the Oracle's Tekelec Customer Care. Persons performing the upgrade should be familiar with these documents.

Recovery procedures are covered under the Diaster Recovery Guide. Execute this section only if there is a problem and it is desired to revert back to the pre-upgrade version of the software.

	!! WARNING !!	**Do not attempt to perform these backout procedures without first contacting the Oracle's Tekelec Customer Care. Refer to Appendix G.**

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

	NOTES:	**These recovery procedures are provided for the Backout of an Upgrade ONLY! (i.e. for the Backout from a failed target release to the previously installed release).** **Backout of an initial installation is not supported!**

9.1 Order of Backout

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

1. Site 1 MPs
2. Site 2 MPs (DR site)
3. Site 1 SOAMs (Active/Standby)
4. Site 2 SOAMs (DR site)
5. DR Standby NOAMP
6. DR Active NOAMP
7. Primary Standby NOAMP
8. Primary Active NOAMP
9. TVOE and/or PMAC (if necessary)

9.2 Backout Setup

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

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

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

NOTE: **Verify that the two backup archive files created using the procedure in 4.2.2** Full Database Backup (All Network Elements, All Servers) **are present on every server that is to be backed-out.**

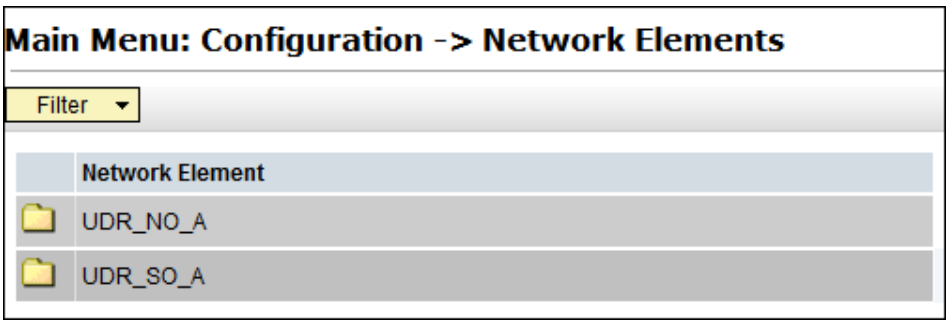
These archive files are located in the **/var/TKLC/db/filemgmt** directory and have different filenames than other database backup files.

The filenames will have the format:

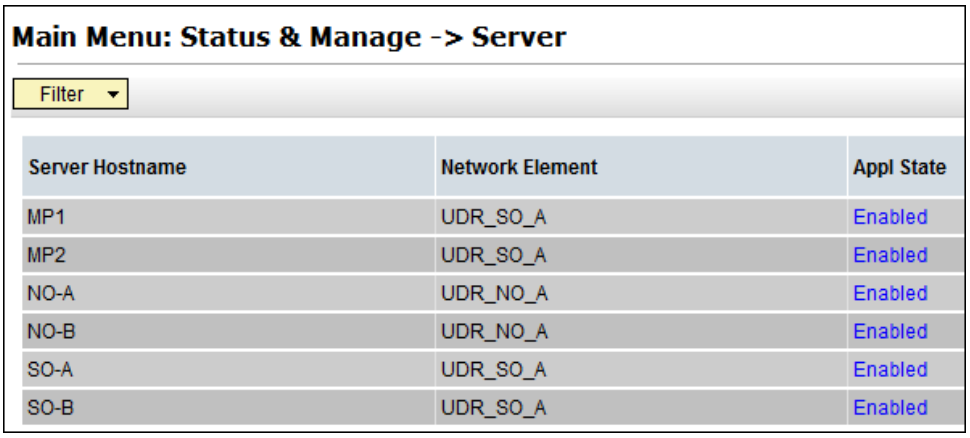
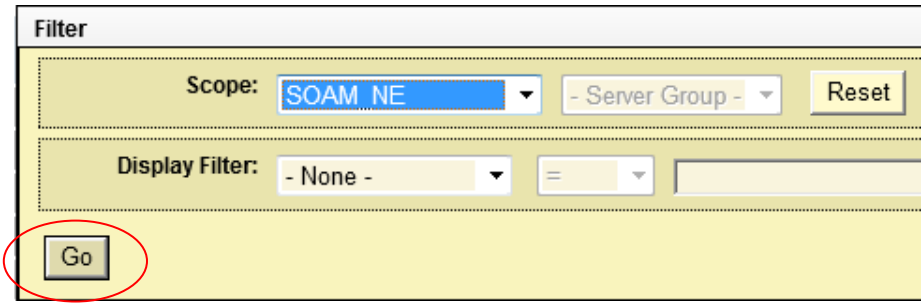
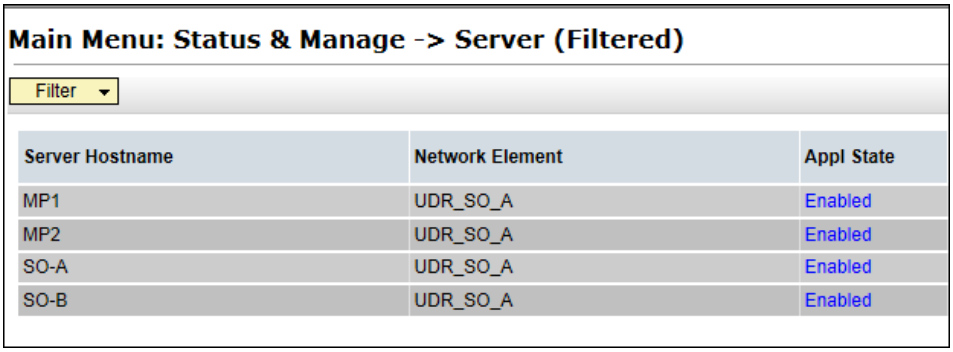
- **`Backup.<application>.<server>.FullDBParts.<role>.<date_time>.UPG.tar.bz2`**
- **`Backup. <application>.<server>.FullRunEnv.<role>.<date_time>.UPG.tar.bz2`**

9.3 Backout of SOAM / MP

Procedure 18: Backout of SOAM / MP

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

Procedure 18: Backout of SOAM / MP

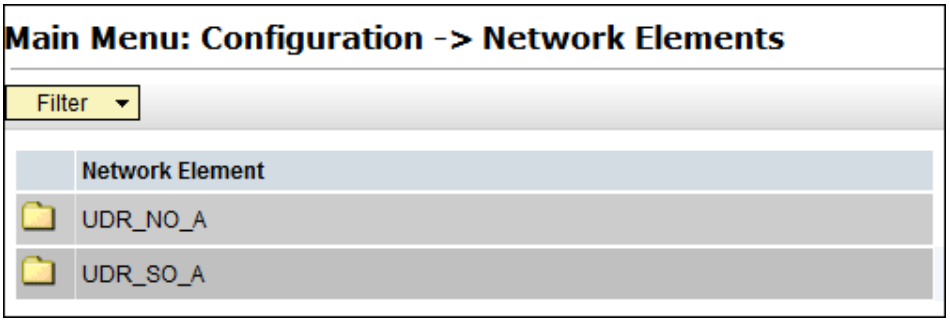
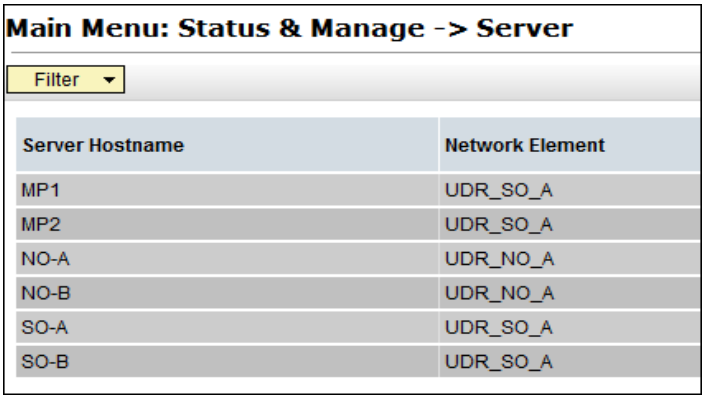
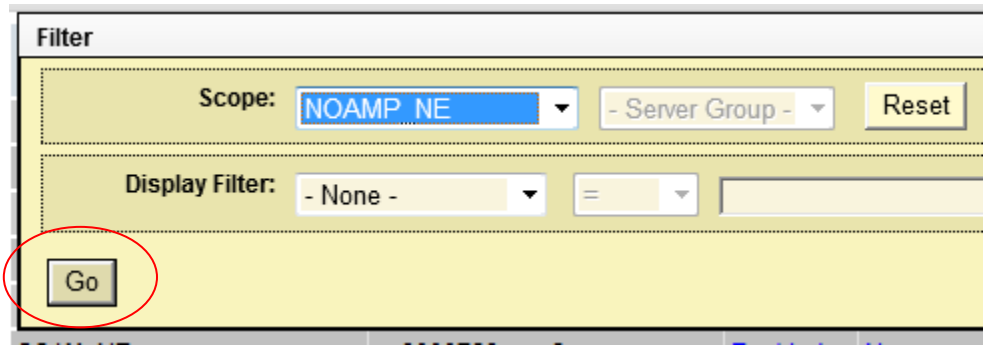
Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *Server*** …as shown on the right.	
5. ☐	**Active NOAMP VIP:** 1) From the **Status & Manage → Server** filter pull-down, select the name for the **SOAM** NE. 2) Click on the **"GO"** dialogue button located on the right end of the filter bar	
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with the S**OAM** NE. Identify each "**Server Hostname"** and its associated **"Reporting Status"** and **"Appl State"**.	
7. ☐	Using the list of servers associated with the **SOAM NE** shown in the above Step... Record the Server names of the **MPs** associated with the **SOAM NE**.	• Identify the **SOAM "Server"** names and record them in the space provided below: **Standby SOAM:** _____ **Active SOAM:** _____ **MP1:** _____ **MP3:** _____ **MP2:** _____ **MP4:** _____

Procedure 18: Backout of SOAM / MP

Step	Procedure	Result
8. ☐	**Active NOAMP VIP:** Referencing the list of servers recorded in **Step 7**, execute **Appendix D** for the **MP1 Server**.	• **Backout** the target release for the **MP1 Server** as specified in **Appendix D** *(Backout of a Server).*
9. ☐	**1)** Record the Server names of the **MPs** associated with the **SOAM** NE. **2)** Beginning with **MP2**, execute **Appendix D** for each **MP Server** associated with **SOAM NE** **3) "Check off"** each Check Box as **Appendix D** is completed for the **MP Server** listed to its right.	• Record the Server name of each **MP** to be **"Backed Out"** in the space provided below: • **"Check off"** the associated **Check Box** as **Appendix D** is completed for each **MP**. ☒ **MP1:** _____ ☐ **MP3:** _____ ☐ **MP2:** _____ ☐ **MP4:** _____
10. ☐	**Active NOAMP VIP:** Execute **Appendix D** for the **Standby SOAM Server**.	• **Backout** the target release for the **Standby SOAM Server** as specified in **Appendix D** *(Backout of a Server).*
11. ☐	**Active NOAMP VIP:** Execute **Appendix D** for the **Active SOAM Server**.	• **Backout** the target release for the **Active SOAM Server** as specified in **Appendix D** *(Backout of a Server).*
12. ☐	**Active NOAMP VIP:** Execute Health Check at this time only if no other servers require back Out. Otherwise, proceed with the next Backout.	• Execute Health Check procedures (Post Backout) as specified in **Appendix B**, if Backout procedures have been completed for all required servers.
THIS PROCEDURE HAS BEEN COMPLETED		

9.4 Backout of DR NOAMP NE

Procedure 19: Backout of DR NOAMP NE

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *Network Elements*** …as shown on the right.	
3. ☐	Record the name of the **DR NOAMP** NE to be downgraded (**backed out**) in the space provided to the right.	• Record the name of the **DR NOAMP** NE which will be **"Backed out"**. **DR NOAMP NE:** _____
4. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *Server*** …as shown on the right.	
5. ☐	**Active NOAMP VIP:** 1) From the **Status & Manage → Server** filter pull-down, select the name for the **DR NOAMP** NE. 2) Click on the **"GO"** dialogue button located on the right end of the filter bar	

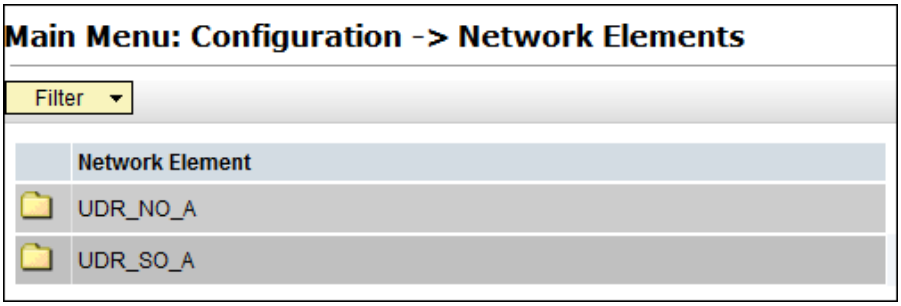
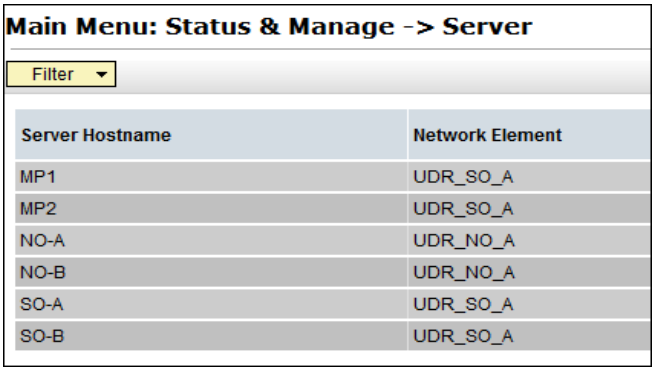
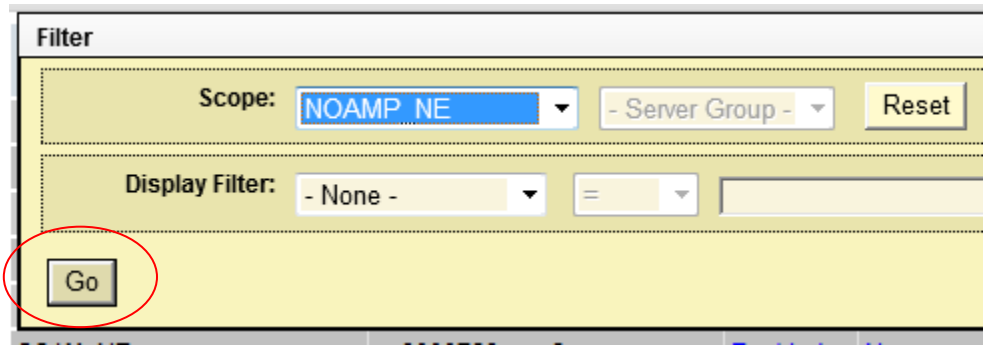
Procedure 19: Backout of DR NOAMP NE

Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with the **DR NOAMP** NE. Identify each "**Server Hostname"** and its associated **"Reporting Status"** and **"Appl State"**.	**Main Menu: Status & Manage -> Server (Filtered)** Filter Network Element | Server Hostname | Appl State | Alm | DB | Reporting Status NOAMP_NE | pc9000738-no-a | Enabled | Norm | Norm | Norm NOAMP_NE | pc9000736-no-b | Enabled | Err | Norm | Norm
7. ☐	Using the list of servers associated with the **DR NOAMP** NE shown in the above Step, record the Server names associated with the **DR NOAMP** NE.	• Identify the **DR NOAMP "Server"** names and record them in the space provided below: **Standby DR NOAMP:** _____ **Active DR NOAMP:** _____
8. ☐	**Active NOAMP VIP:** Execute **Appendix D** for the first **Spare - DR NOAMP Server**	• **Backout** the target release for the **Spare DR NOAMP Server** as specified in **Appendix D** *(Backout of a Single Server).*
9. ☐	**Active NOAMP VIP:** Execute **Appendix D** for the second **Spare - DR NOAMP Server**.	• **Backout** the target release for the **Spare DR NOAMP Server** as specified in 9.5Appendix D **Appendix D** *(Backout of a Single Server).*
10. ☐	**Active NOAMP VIP:** Execute Health Check at this time only if no other servers require back Out. Otherwise, proceed with the next Backout	• Execute Health Check procedures (Post Backout) as specified in **Appendix B**, if Backout procedures have been completed for all required servers.
THIS PROCEDURE HAS BEEN COMPLETED		

9.5 Backout of Primary NOAMP NE

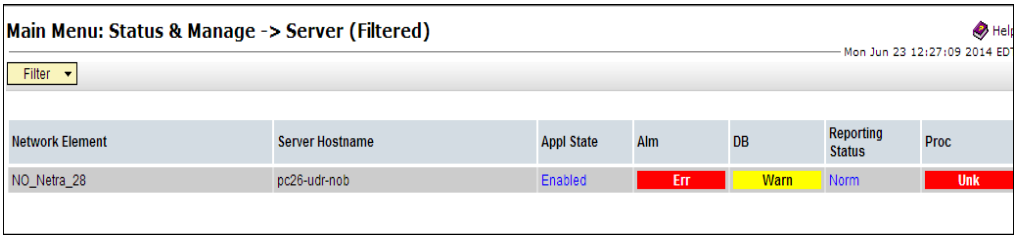
Procedure 20:

Backout of Primary NOAMP NE

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *Network Elements*** …as shown on the right.	
3. ☐	Record the name of the **NOAMP** NE to be downgraded (**Backed out**) in the space provided to the right.	• Record the name of the **Primary NOAMP** NE which will be **"Backed out"**. **Primary NOAMP NE:** _____
4. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *Server*** …as shown on the right.	
5. ☐	**Active NOAMP VIP:** 1) From the **Status & Manage/Server** filter pull-down, select the name for the **Primary NOAMP** NE. 2) Click on the **"GO"** dialogue button located on the right end of the filter bar	

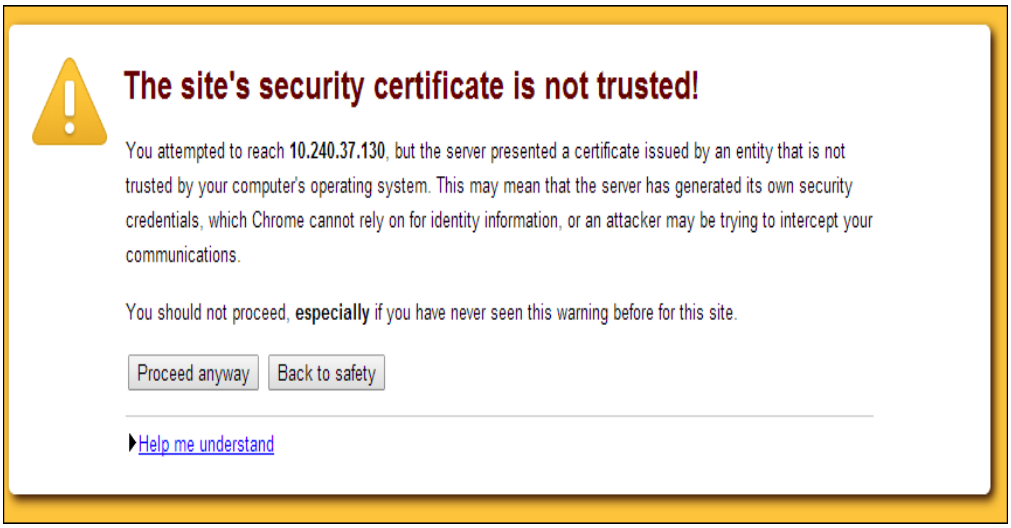
Procedure 20:

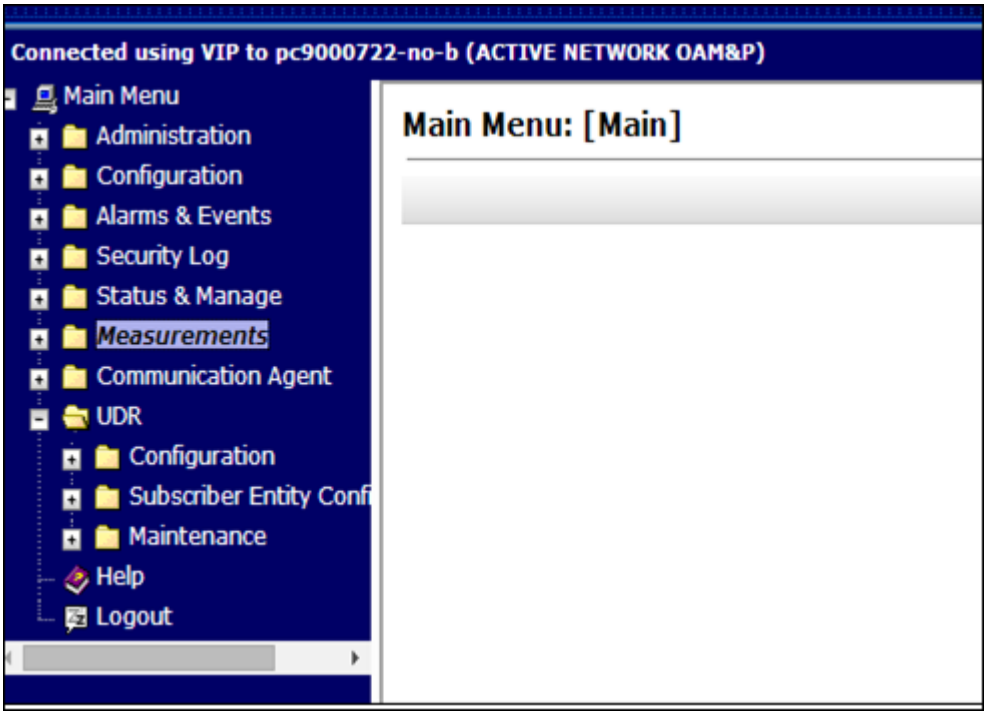
Backout of Primary NOAMP NE

Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with the **Primary NOAMP** NE. Identify each "**Server Hostname"** and its associated **"Reporting Status"** and **"Appl State"**.	
7. ☐	Using the list of servers associated with the **Primary NOAMP** NE shown in the above Step... Record the Server names associated with the **Primary NOAMP** NE.	• Identify the **Primary NOAMP "Server"** names and record them in the space provided below: **Standby Primary NOAMP:** _____ **Active Primary NOAMP:** _____
8. ☐	**Active NOAMP VIP:** Execute **Appendix D** for the **Standby Primary NOAMP Server**	• **Backout** the target release for the **Standby Primary NOAMP Server** as specified in **Appendix D** *(Backout of a Single Server).*
9. ☐	**Active NOAMP VIP:** Execute **Appendix D** for the **Active Primary NOAMP Server**.	• **Backout** the target release for the **Active Primary NOAMP Server** as specified in **Appendix D** *(Backout of a Single Server).*
10. ☐	**Active NOAMP VIP:** Execute Health Check at this time only if no other servers require backout.	• Execute Health Check procedures (Post Backout) as specified in **Appendix B**, if Backout procedures have been completed for all required servers.
11. ☐	Execute backout procedures for TVOE and/or PMAC if necessary	• Refer to the recovery procedures in TVOE 3.0 Upgrade document [3] if a TVOE backout is desired. • Refer to the recovery procedures in PM&C Incremental Upgrade Procedure [8] if a PMAC backout is desired.
THIS PROCEDURE HAS BEEN COMPLETED		

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

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

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

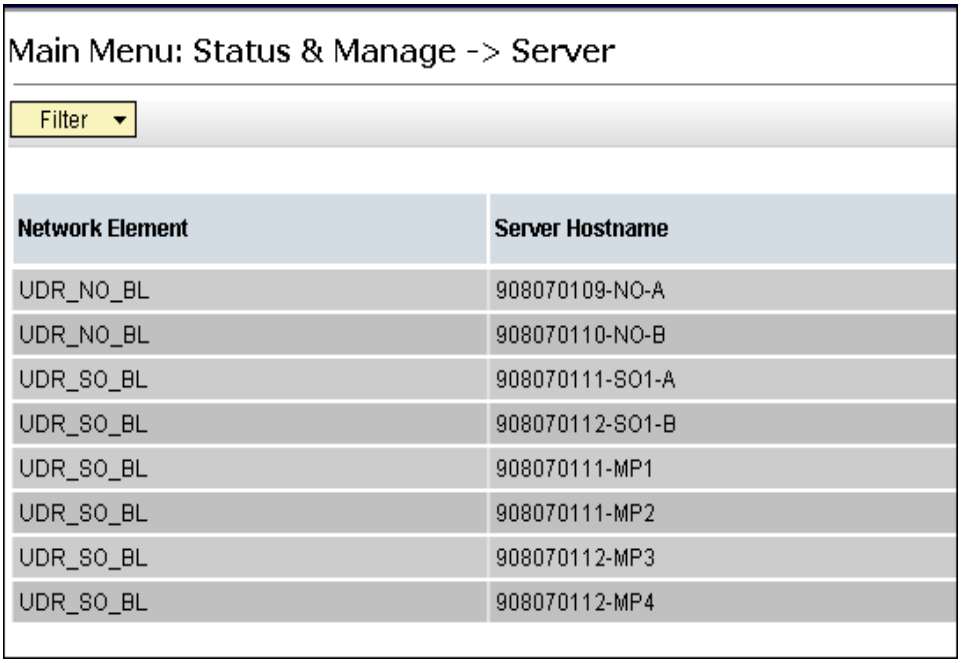
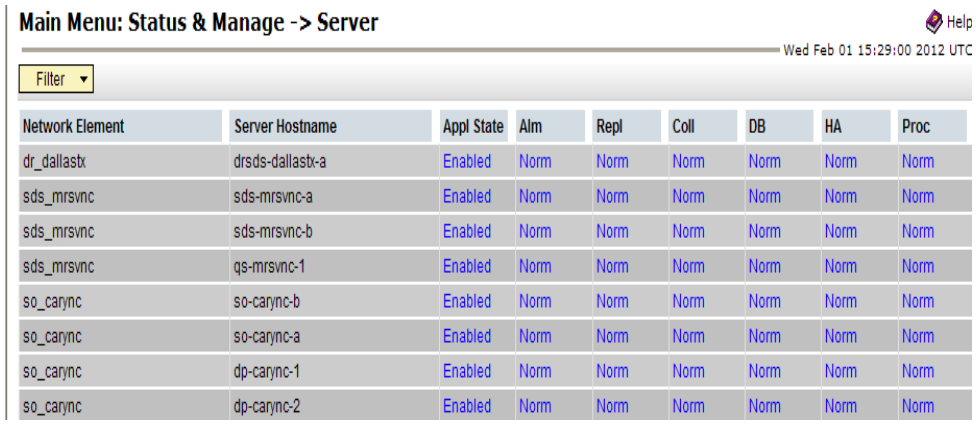
Step	Procedure	Result
3. ☐	**Active OAM VIP:** 1) The user should be presented the OCUDR Main Menu as shown on the right. 2) Verify that the message shown across the top of the right panel indicates that the browser is using the **"VIP"** connected to the **Active** OAM server.	 **NOTE:** *The message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

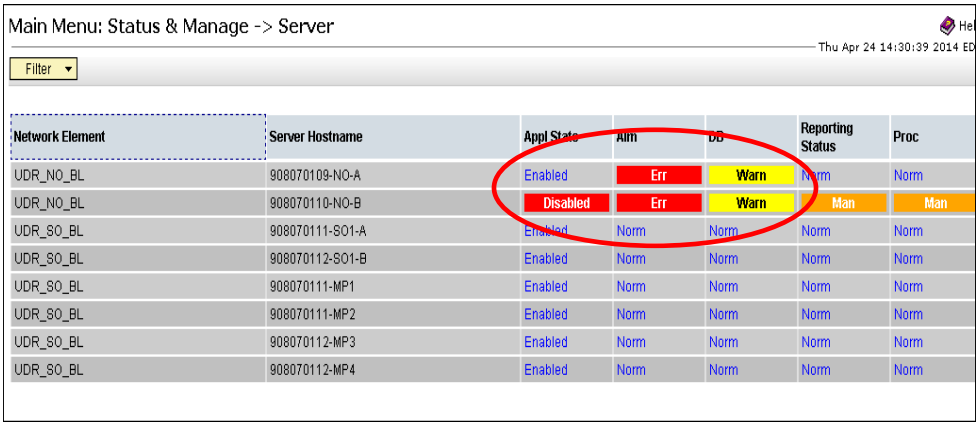
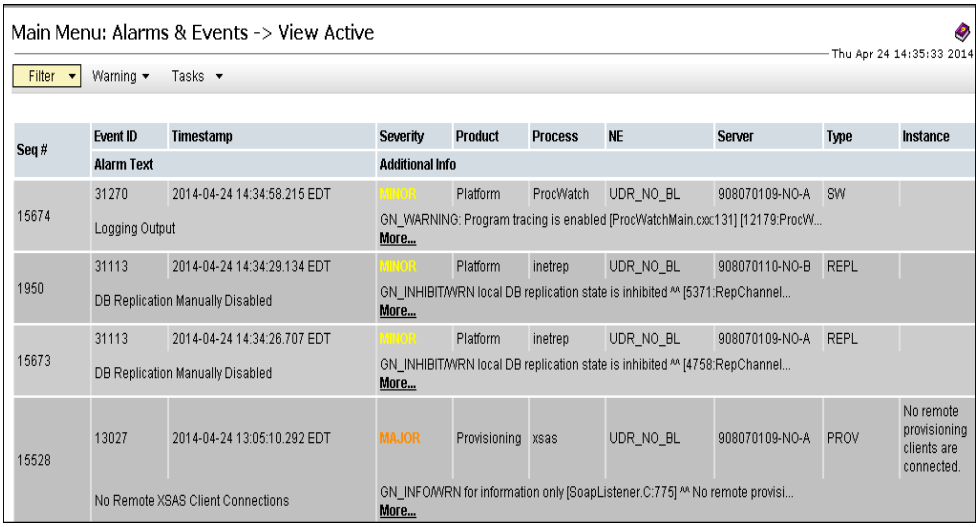
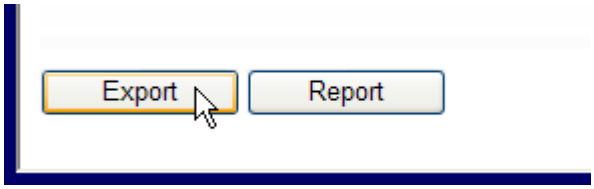
APPENDIX B. HEALTH CHECK PROCEDURES

This procedure is part of Software Upgrade Preparation and is used to determine the health and status of the OCUDR network and servers.

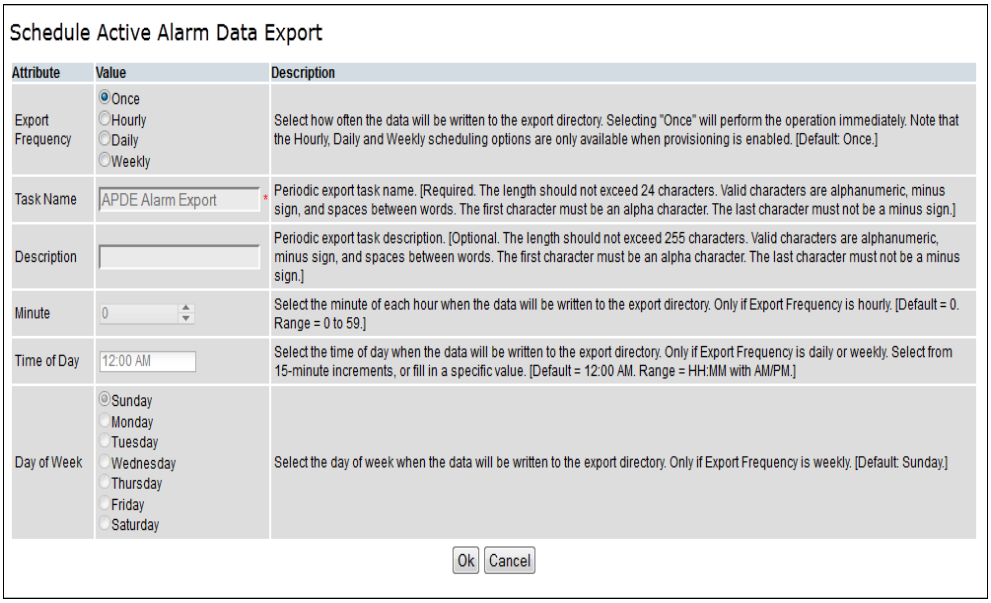
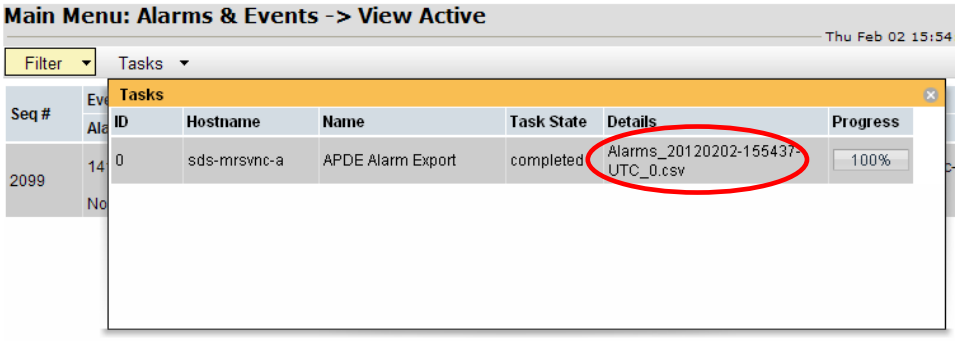
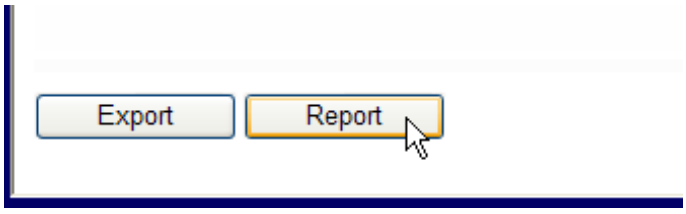
Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.

Appendix B: Health Check Procedures

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** → **Status & Manage** → ***Server*** …as shown on the right.	
3. ☐	**Active NOAMP VIP:** Verify that all server statuses show **"Norm"** as shown on the right.	

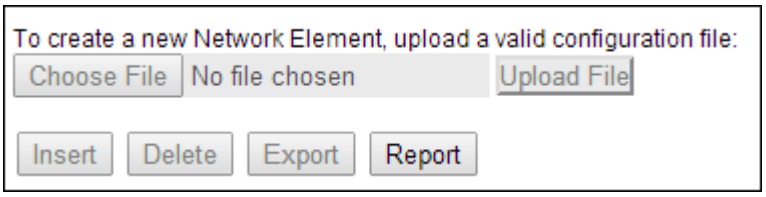
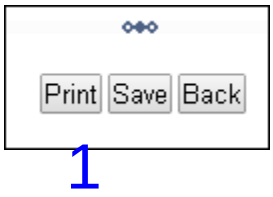
Step	Procedure	Result
4.	**Active NOAMP VIP:** If any other server statuses are present, they will appear in a colored box as shown on the right. **NOTE:** *Other server states include* ***"Err, Warn, Man, Unk and Disabled"****.*	
5. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Alarm & Events** **→** ***View Active*** …as shown on the right.	
6. ☐	**Active NOAMP VIP:** Select the **"Export"** dialogue button from the bottom left corner of the screen.	 **Note: This step cannot be performed if global provisioning is disabled. The "export" button will be grayed out in that scenario.**

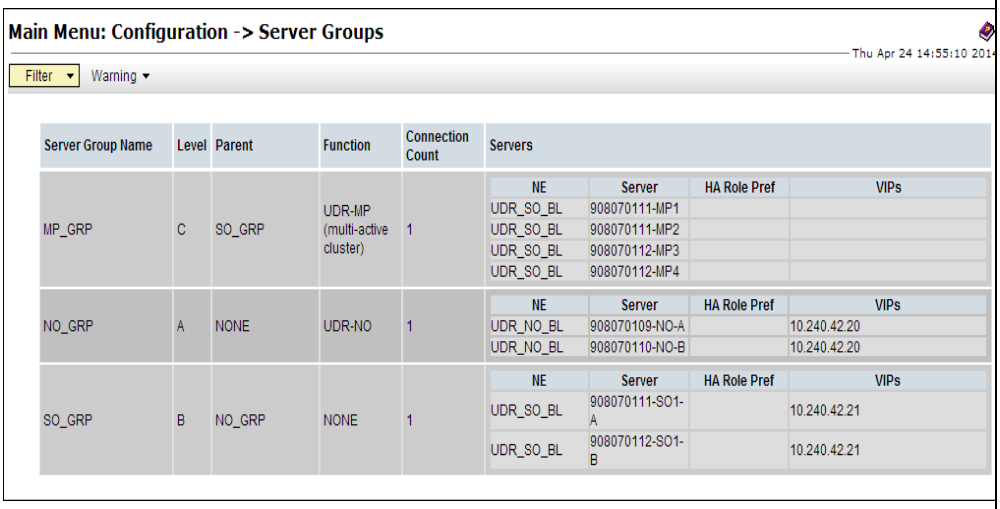
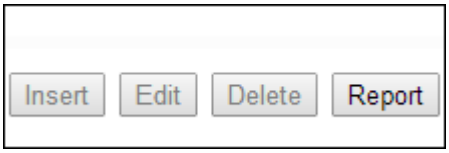
Appendix B: Health Check Procedures

Step	Procedure	Result
7. ☐	**Active NOAMP VIP:** Click the **"Ok"** button at the bottom of the screen.	
8. ☐	**Active NOAMP VIP:** The name of the exported Alarms CSV file will appear in the banner at the top of the right panel.	
9. ☐	**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
10. ☐	**Active NOAMP VIP:** Select the **"Report"** dialogue button from the bottom left corner of the screen.	

Step	Procedure	Result
11. ☐	**Active NOAMP VIP:** An **Active "Alarms & Events" Report** will be generated and displayed in the right panel.	Main Menu: Alarms & Events -> View Active [Report] Main Menu: Alarms & Events -> View Active [Report] Thu Apr 24 14:38:52 2014 EDT TIMESTAMP: 2014-04-24 10:11:24.702 EDT NETWORK_ELEMENT: UDR_NO_BL SERVER: 908070110-NO-B SEQ_NUM: 1575 EVENT_NUMBER: 10073 SEVERITY: MINOR PRODUCT: OAM PROCESS: oampAgent TYPE: HA INSTANCE: NO_GRP NAME: Server Group Max Allowed HA Role Warning DESCR: Server Group Max Allowed HA Role Warning ERR_INFO: GN_WARNING/WRN Only one server in server group has a Max Allowed HA Role of Active ^^ [5378:NodeInfoResponder.C:257] SECS: 1398348684 USECS: 702000 CISECS: 1398348684 CIUSECS: 702000 ID: 0
12. ☐	**Active NOAMP VIP:** **1)** Select the **"Save"** dialogue button from the bottom/middle of the right panel. **2)** Click the **"Save"** dialogue and save to a directory.	Print Save Back 1
13. ☐	**Active NOAMP VIP:** Select… **Main Menu** → **Configuration** → ***Network Elements*** …as shown on the right.	Connected using VIP to pc9000632-no-a (ACTIVE NETWORK OAM&P) Main Menu Administration Configuration Network Elements Services Servers Server Groups Network Devices Routes Main Menu: Configuration -> Network Elements Filter Network Element NOAMP_NE SOAM_NE

Appendix B: Health Check Procedures

Step	Procedure	Result
14. ☐	**Active NOAMP VIP:** Select the **"Report"** dialogue button from the bottom left corner of the screen.	
15. ☐	**Active NOAMP VIP:** A **"Network Element Report"** will be generated and displayed in the right panel.	``` ========== u d r N e t w o r k E l e m e n t R e p o r t ========== Report Generated: Thu Apr 24 14:52:40 2014 EDT From: Active NETWORK_OAMP on host 908070109-NO-A Report Version: 10.0.0-10.6.0 User: guiadmin ---------- Network Elements Summary NE Name: UDR_NO_BL ------------------------ NE Name: UDR_SO_BL ---------- Network Report UDR_NO_BL Network VLAN Name ID Network ID Netmask Gateway Type Default ------- ---- --------------- --------------- --------------- ---- ------- XMI 3 010.240.042.000 255.255.255.192 010.240.042.003 OAM Yes IMI 4 010.240.056.064 255.255.255.192 010.240.056.067 OAM No ------------------------ UDR_SO_BL Network VLAN ```
16. ☐	**Active NOAMP VIP:** **1)** Select the **"Save"** dialogue button from the bottom/middle of the right panel. **2)** Click the **"Save"** dialogue and save to a directory.	

Step	Procedure	Result
17. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Configuration** **→ *Server Groups*** …as shown on the right.	
18. ☐	**Active NOAMP VIP:** Select the **"Report"** dialogue button from the bottom left corner of the screen.	

Appendix B: Health Check Procedures

Step	Procedure	Result
19. ☐	**Active NOAMP VIP:** A **"Server Group Report"** will be generated and displayed in the right panel.	**Main Menu: Configuration -> Server Groups [Report]** Main Menu: Configuration -> Server Groups [Report] Thu Apr 24 14:56:13 2014 EDT Name: MP_GRP Level: C Connection Count: 1 Parent: SO_GRP Function: UDR-MP (multi-active cluster) Servers: 908070111-MP1: [HA Role Pref: DEFAULT, NE: UDR_SO_BL] 908070111-MP2: [HA Role Pref: DEFAULT, NE: UDR_SO_BL] 908070112-MP3: [HA Role Pref: DEFAULT, NE: UDR_SO_BL] 908070112-MP4: [HA Role Pref: DEFAULT, NE: UDR_SO_BL] Vips: --- Name: NO_GRP Level: A Connection Count: 1 Parent: NONE Function: UDR-NO Servers: 908070109-NO-A: [HA Role Pref: DEFAULT, NE: UDR_NO_BL] 908070110-NO-B: [HA Role Pref: DEFAULT, NE: UDR_NO_BL] Vips: 10.240.42.20: [NE: UDR_NO_BL]
20. ☐	**Active NOAMP VIP:** **1)** Select the **"Save"** dialogue button from the bottom/middle of the right panel. **2)** Click the **"Save"** dialogue and save to a directory.	 1

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>21.
☐</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 12]*
  - ***Network Elements Report*** *[Appendix B, Step 16]*
  - ***Server Group Report*** *[Appendix B, Step 20]*

</td></tr>
<tr><td>22.
☐</td><td>Active NOAMP VIP:
Select…

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

…as shown on the right.</td><td>

Main Menu: Status & Manage -> HA

Thu Apr 24 15:00:54 2014 ED

Filter ▾ Warning ▾

Hostname	OAM Max HA Role	Application Max HA Role	Max Allowed HA Role	Mate Hostname List	Network Element	Server Role	Active VIPs
908070109-NO-A	Active	OOS	Active	908070110-NO-B	UDR_NO_BL	Network OAM&P	10.240.42.20
908070110-NO-B	Standby	OOS	Standby	908070109-NO-A	UDR_NO_BL	Network OAM&P	
908070111-SO1-A	Active	OOS	Active	908070112-SO1-B	UDR_SO_BL	System OAM	10.240.42.21
908070112-SO1-B	Standby	OOS	Active	908070111-SO1-A	UDR_SO_BL	System OAM	
908070111-MP1	Active	Active	Active	908070111-MP2 908070112-MP3 908070112-MP4	UDR_SO_BL	MP	
908070111-MP2	Spare	Active	Active	908070111-MP1 908070112-MP3 908070112-MP4	UDR_SO_BL	MP	
908070112-MP3	Standby	Active	Active	908070111-MP1 908070111-MP2 908070112-MP4	UDR_SO_BL	MP	
908070112-MP4	Spare	Active	Active	908070111-MP1 908070111-MP2 908070112-MP3	UDR_SO_BL	MP	

</td></tr>
<tr><td>23.
☐</td><td>Active NOAMP VIP:

1) Verify that the "HA Status" for all servers shows either "Active" or "Standby" as shown to the right.</td><td>

Main Menu: Status & Manage -> HA

Thu Apr 24 15:00:54 2014 ED

Filter ▾ Warning ▾

Hostname	OAM Max HA Role	Application Max HA Role	Max Allowed HA Role	Mate Hostname List	Network Element	Server Role	Active VIPs
908070109-NO-A	Active	OOS	Active	908070110-NO-B	UDR_NO_BL	Network OAM&P	10.240.42.20
908070110-NO-B	Standby	OOS	Standby	908070109-NO-A	UDR_NO_BL	Network OAM&P	
908070111-SO1-A	Active	OOS	Active	908070112-SO1-B	UDR_SO_BL	System OAM	10.240.42.21
908070112-SO1-B	Standby	OOS	Active	908070111-SO1-A	UDR_SO_BL	System OAM	
908070111-MP1	Active	Active	Active	908070111-MP2 908070112-MP3 908070112-MP4	UDR_SO_BL	MP	
908070111-MP2	Spare	Active	Active	908070111-MP1 908070112-MP3 908070112-MP4	UDR_SO_BL	MP	
908070112-MP3	Standby	Active	Active	908070111-MP1 908070111-MP2 908070112-MP4	UDR_SO_BL	MP	
908070112-MP4	Spare	Active	Active	908070111-MP1 908070111-MP2 908070112-MP3	UDR_SO_BL	MP	

</td></tr>
<tr><td>24.
☐</td><td>Active NOAMP VIP:

Repeat Step 23 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**" to reach the next page.

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

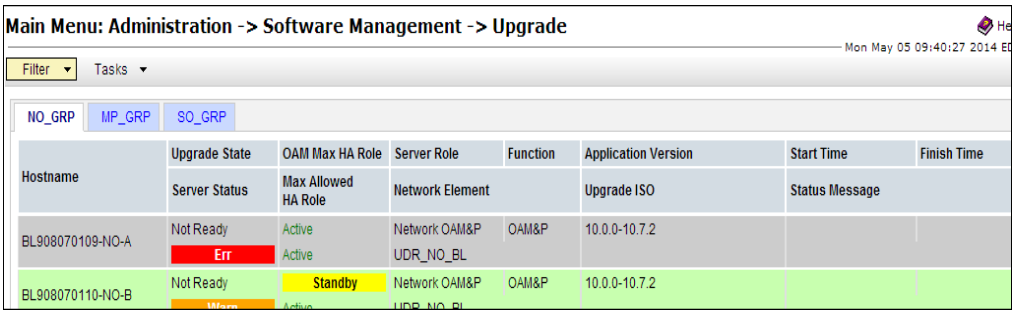
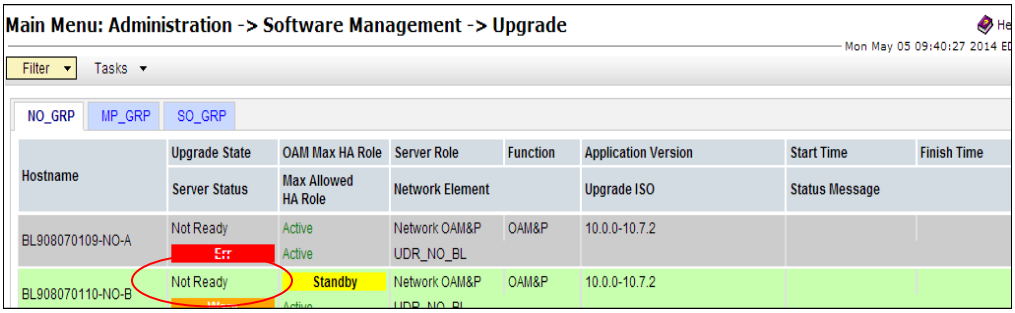
Appendix B: Health Check Procedures

Step	Procedure	Result
STEPS 25-27 ARE PRE-UPGRADE ONLY		
25. ☐	Check if a new Firmware Release may be required for the system.	Contact the Oracle CGBU Customer Care Center by referring to Appendix G of this document to determine the minimum supported firmware release required for the target OCUDR release. Target Firmware Rev: _____ Example: FW rev 2.2.4 If an upgrade is required, acquire the Firmware release package and follow procedures provided with the package to determine which specific system components (Switches, Servers, etc) may require an upgrade. Plan for Firmware Upgrade Maintenance windows, if needed, since this activity is typically performed before the OCUDR Upgrade.
26. ☐	Check the existing PM&C version and identify if PM&C upgrade is required, before starting with OCUDR upgrade(applies to servers that are already running PM&C)	1. Record the target OCUDR Release for the servers that need to be upgraded. 2. Determine the PM&C version installed by logging into PM&C GUI.. 3. For incremental upgrades, follow reference [8].
27. ☐	Check the TVOE Host server software version	1. Find the target OCUDR release. 2. Contact the Oracle CGBU Customer Care Center by referring to Appendix G of this document to determine the minimum supported TVOE OS version required for the target OCUDR release. Required TVOE Release: _____ Example: 872-2525-101-2.5.0_82.22.0-TVOE-x86_64.iso 3. Follow Appendix H 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 3.3.7 to plan for TVOE Host upgrades.
STEP 28 IS POST-UPGRADE ONLY		
28. ☐	**Active NOAMP VIP:** Determine if any errors were reported.	Use an SSH client to connect to the recently upgraded server(s) (e.g. ssh, putty): **ssh < server IMI IP address>** **login as: admusr** **password: <enter password>** Switch to root **su –** password: **<enter password>** **# verifyUpgrade** Examine the output of the above command to determine if any errors were reported. Contact the Oracle CGBU Customer Care Center in case of errors.
THIS PROCEDURE HAS BEEN COMPLETED		

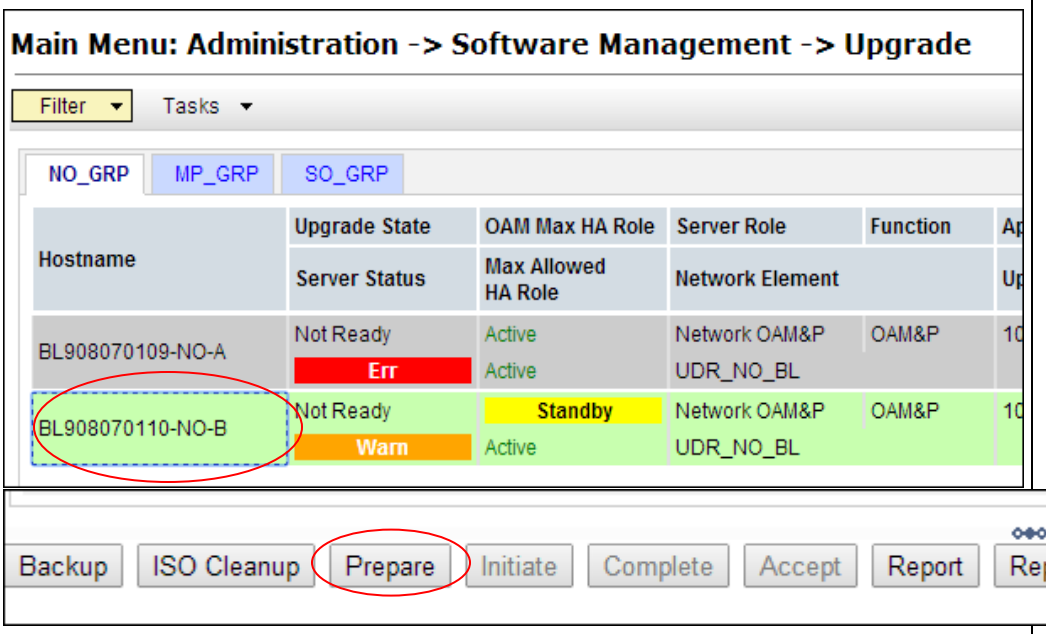
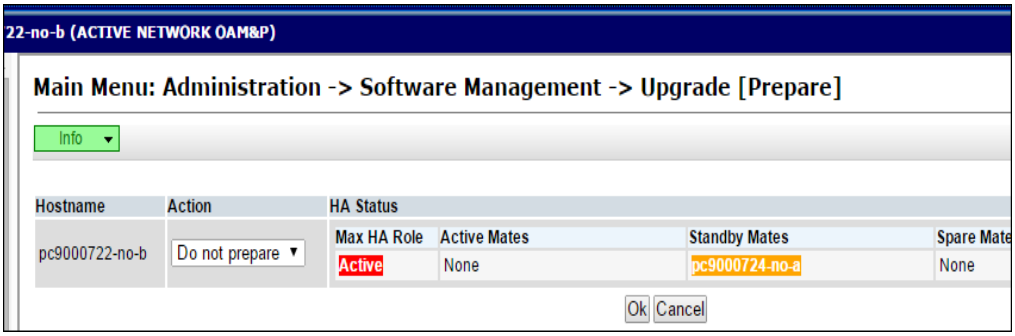
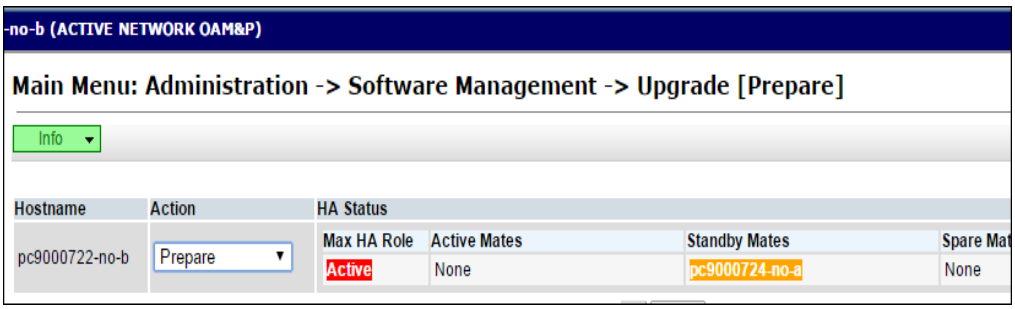
APPENDIX C. UPGRADE OF A SERVER

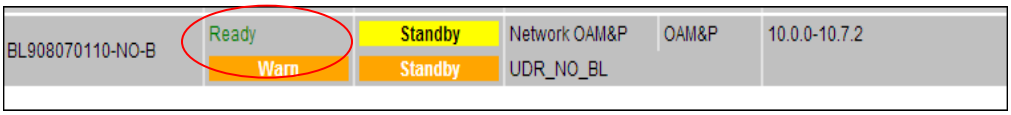
C.1 Prepare Upgrade for OCUDR 10.0.X

Appendix C.1: Prepare Upgrade for OCUDR 10.0.X

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **<u>Main Menu</u>** **→ Administration** **→ Software Management** **→ *Upgrade***	
3. ☐	**Active NOAMP VIP:** **1)** Select the appropriate tab (NO_GRP, MP_GRP or SO_GRP) and go to the row containing the **hostname** of the server to be upgraded. **2)** Verify that the **Upgrade State** shows **"Not Ready"**.	

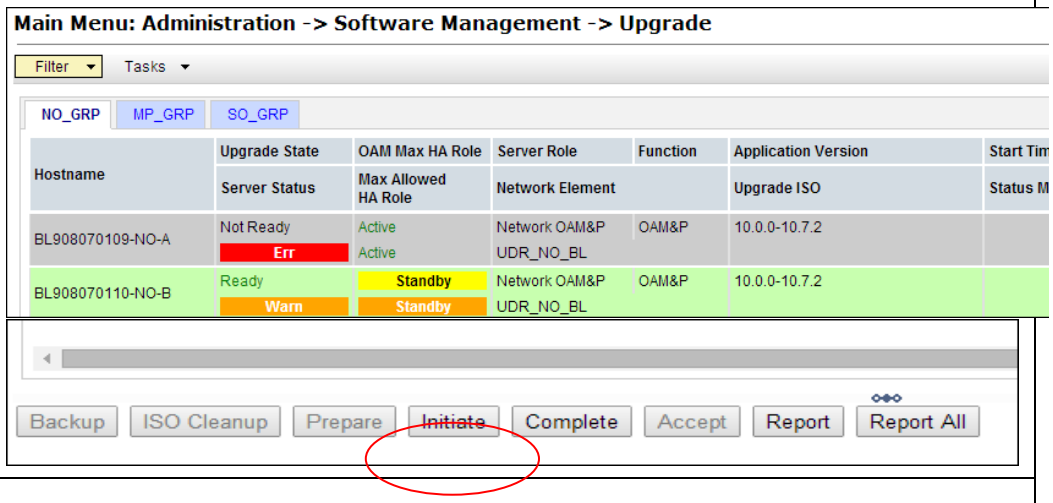
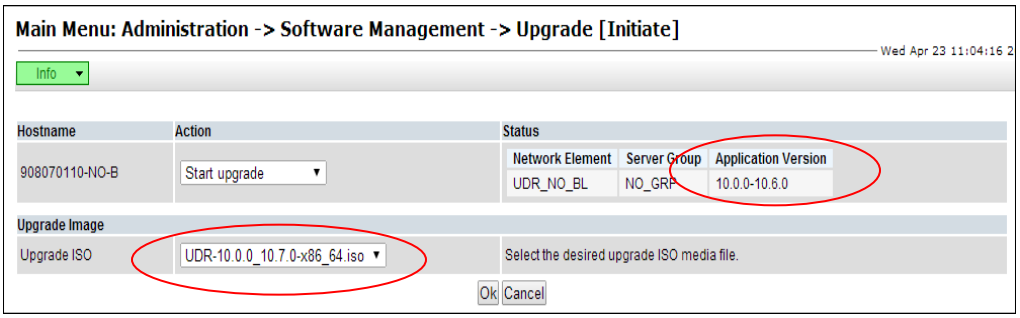
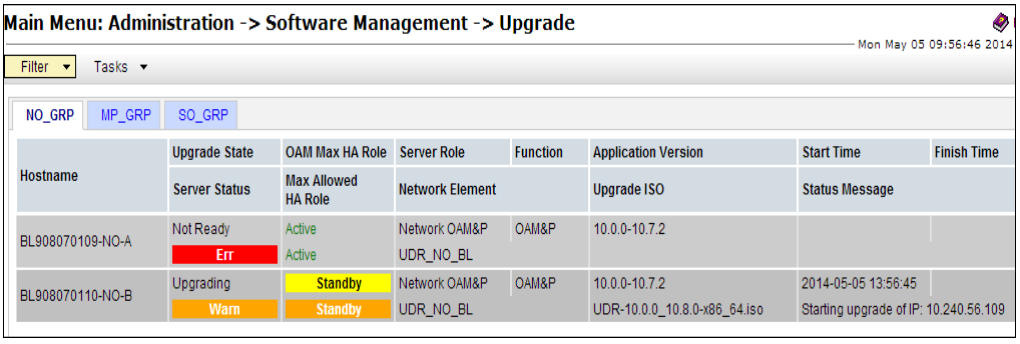
Appendix C.1: Prepare Upgrade for OCUDR 10.0.X

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** **1)** Using the cursor, select the row containing the **hostname** of the server to be upgraded. **2)** Click the **"Prepare"** dialogue button located in the bottom of the panel.	
5. ☐	**Active NOAMP VIP:** The user should be presented with the **Upgrade [Prepare]** The Active NO and Active SO defaults to "Do Not Prepare". Under Action Tab, select "Prepare" Click on **"Ok"** dialogue button.	 

6. ☐	**Active NOAMP VIP:** **1)** Select the appropriate tab (NO_GRP, MP_GRP or SO_GRP) and scroll to the row containing the **hostname** of the server to be upgraded. **2)** Verify that the **Upgrade State** shows **"Ready"**. **NOTE:** *If the **Upgrade State** fails to show **"Ready"**, the user may need to refresh the screen by selecting:* **Main Menu** **→ Administration** **→ Software Management** **→ *Upgrade*** *for a 2nd time and repeating sub-steps 1) & 2) associated with this step.*	
THIS PROCEDURE HAS BEEN COMPLETED		

C.2 Initiate Upgrade for OCUDR 10.0.X

Appendix C.2: Initiate Upgrade for OCUDR 10.0.X

Step	Procedure	Result
1. ☐	**Active NOAMP VIP:** **1)** Using the cursor, select the row containing the **hostname** of the server to be upgraded. **2)** Click the **"Initiate"** dialogue button located across the bottom of the panel.	
2. ☐	**Active NOAMP VIP:** Verify that the **Application Version** shows the ***<source_release>*** 1) In the "Action" column, select "Start Upgrade" 2) Using the pull-down menu, select ***<target_release>*.** 3) Click the **"ok** button	
3. ☐	**Active NOAMP VIP:** The user is returned to the… **<u>Main Menu</u>** **→ Administration** **→ Software Management** ***→ Upgrade*** …screen as shown on the right. Verify that the **Upgrade State** shows **"Upgrading"**.	
THIS PROCEDURE HAS BEEN COMPLETED		

C.3 Monitor Upgrade for OCUDR 10.0.X

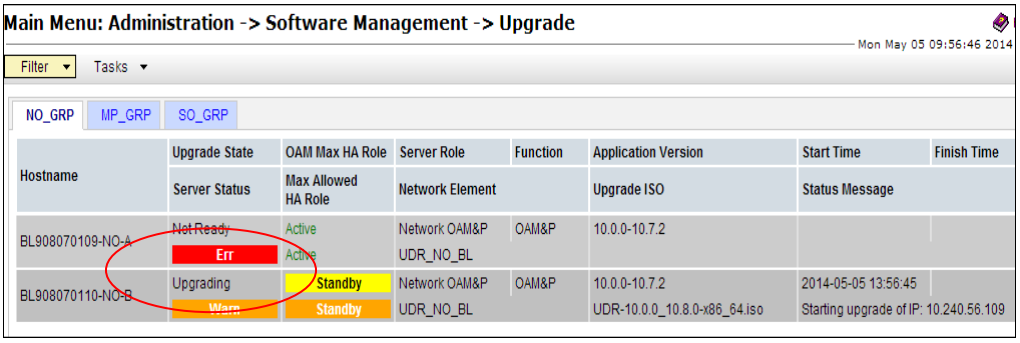
Appendix C.3:
Monitor Upgrade for OCUDR 10.0.X

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>1.
☐</td><td>Active NOAMP VIP:

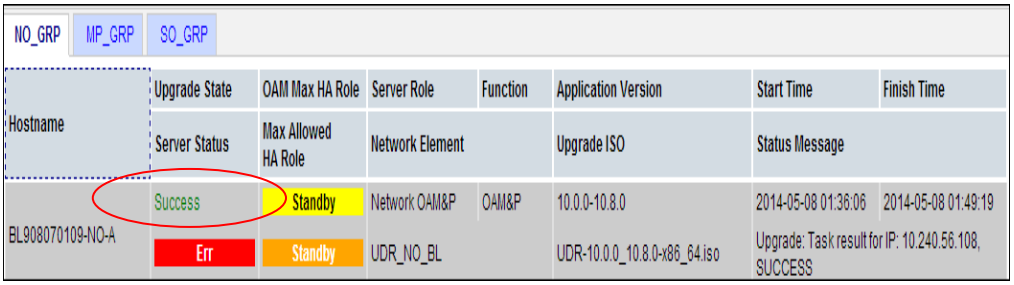
<u>Main Menu</u>
→ Administration
→ Software Management
→ Upgrade

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

2) Verify that the Upgrade State shows “Upgrading”.</td><td>Note: To motitor the upgrade process continue to refresh Main Menu → Administration → Software Management → Upgrade

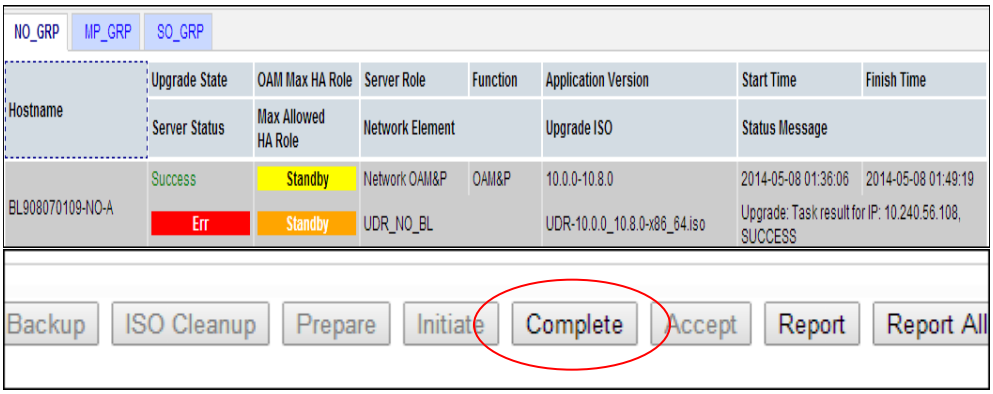
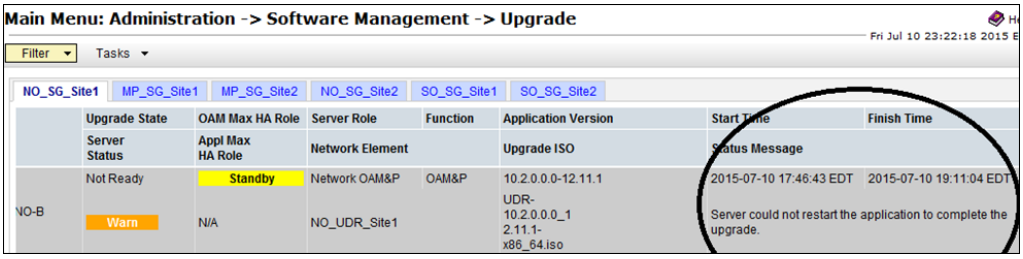
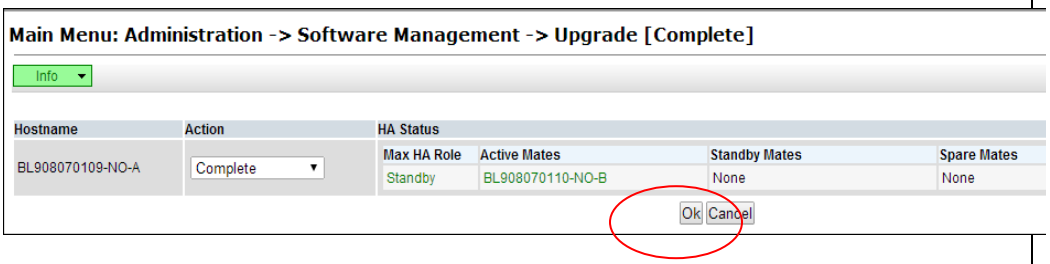
 
</td></tr>
<tr><td>2.
☐</td><td>Active NOAMP VIP:

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.

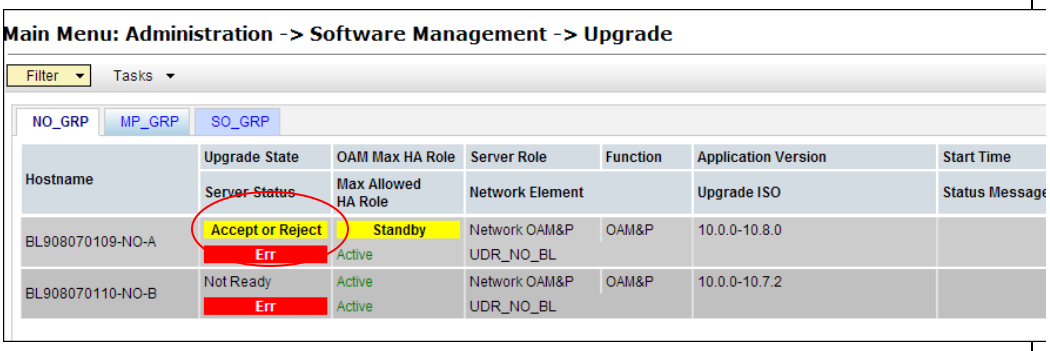
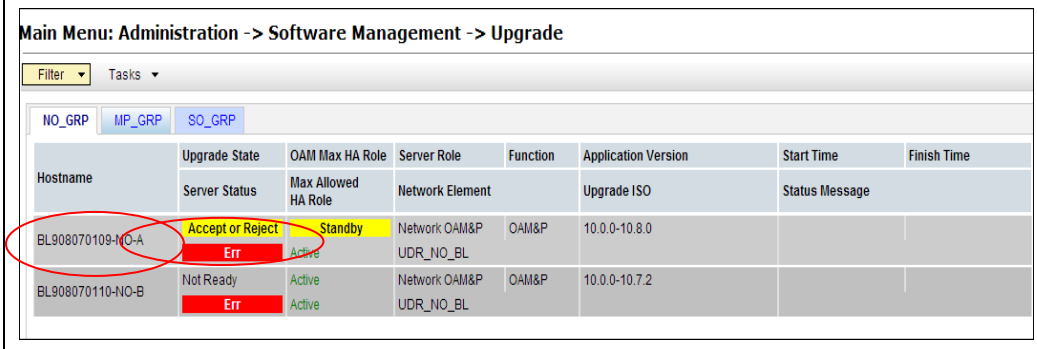
2) Verify that the Upgrade State shows “Success”.</td><td> 
</td></tr>
<tr><td colspan="3">THIS PROCEDURE HAS BEEN COMPLETED</td></tr>
</table>

C.4 Complete Upgrade for OCUDR 10.0.X

Appendix C.4: Complete Upgrade for OCUDR 10.0.X

Step	Procedure	Result
1. ☐	**Active NOAMP VIP:** **1)** Using the cursor, select the row containing the **hostname** of the server to be upgraded. **2)** Verify the Upgrade State says "Success" **3)** Click the **"Complete"** dialogue button located across the bottom of the right panel.	 **Note**: If the upgrade status indicates "Server could not restart the application to complete the upgrade" and the "Complete" button is grayed out, wait for replication to restart and the alarm should clear. The "Complete" button will become available and the status will change to "Success" too. 
2. ☐	**Active NOAMP VIP:** The user should be presented with the **Upgrade [Complete]** - Administration screen. Click any **"Ok"** dialogue button.	

Appendix C.4: Complete Upgrade for OCUDR 10.0.X

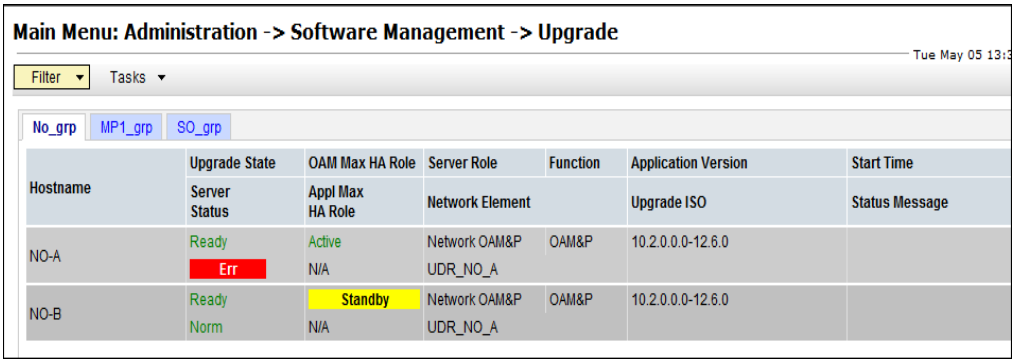
Step	Procedure	Result
3. ☐	**Active NOAMP VIP:** The user is returned to the… **<u>Main Menu</u>** **→ Administration** **→ Software Management** **→ *Upgrade*** …screen as shown on the right.	
4. ☐	**Active NOAMP VIP:** **1)** Select the appropriate tab (NO_SG, MP_SG or SO_SG) and select the row containing the **hostname** of the server to be upgraded. **2)** Verify that the **Application Version** now shows the ***<target_release>***. **3)** Verify that the **Upgrade State** shows **"Accept or Reject"**.	**NOTE:** *If the **Upgrade State** fails to show **"Accept or Reject"**, the user may need to refresh this screen "* 
5. ☐	**Active NOAMP VIP:** View post-upgrade status	View post-upgrade status of the server(s): You may also see the alarms: • Alarm ID = **10009** (Config and Prov DB not yet synchronized) • Alarm ID = **32532** (Server Upgrade Pending Accept/Reject)
THIS PROCEDURE HAS BEEN COMPLETED		

C.5 Upgrade Server for OCUDR 10.2

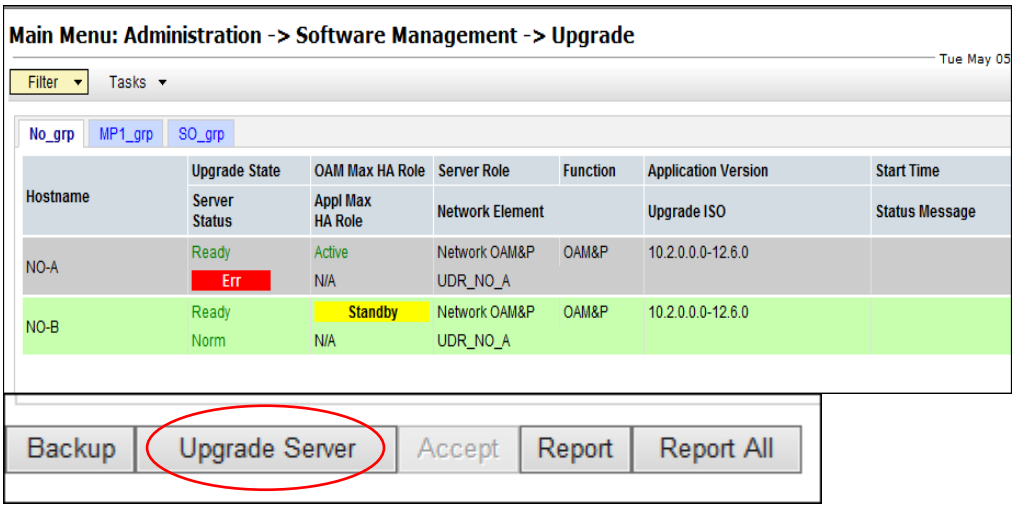
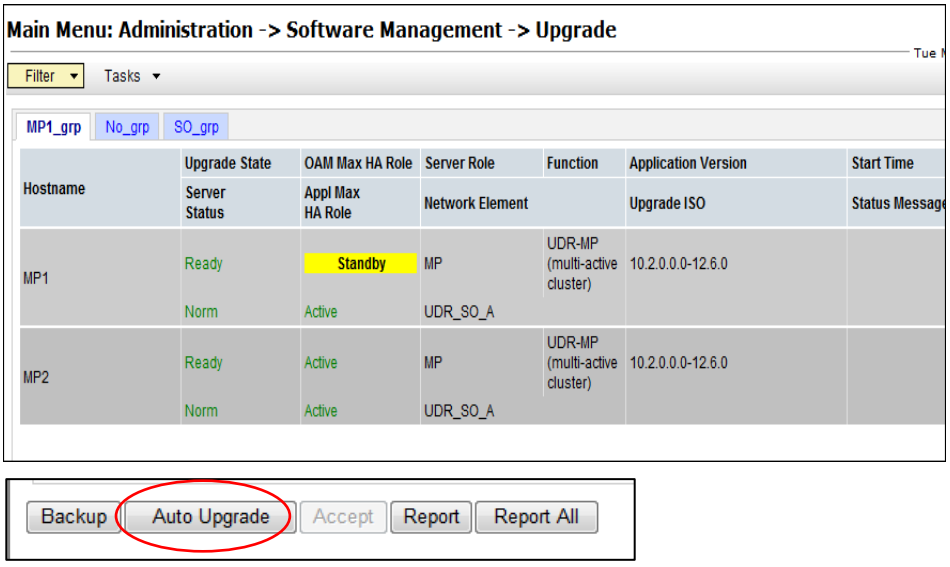
Appendix C.5**:** Initiate Upgrade Server for OCUDR 10.2

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

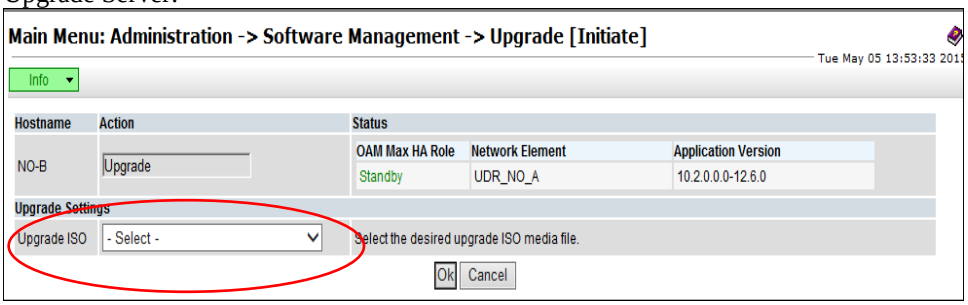
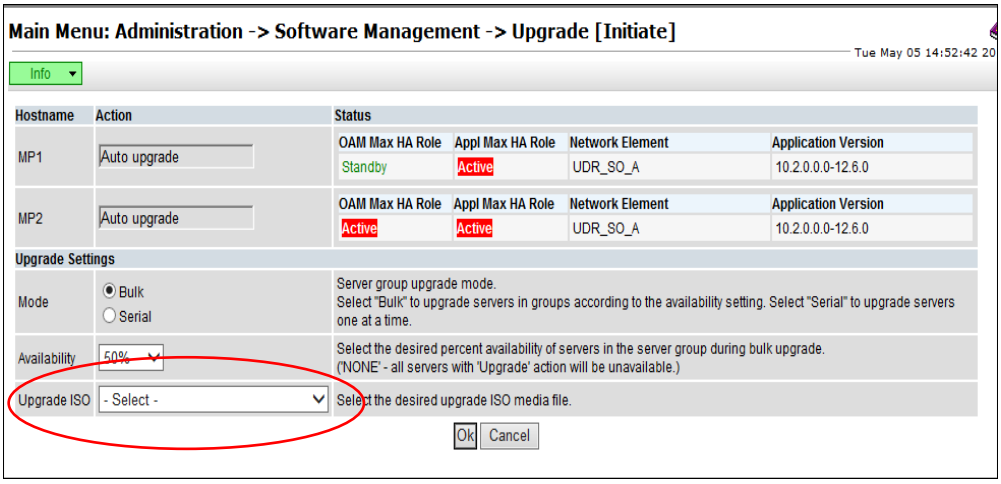
Appendix C.5**:** Initiate Upgrade Server for OCUDR 10.2

Step	Procedure	Result
2. ☐	**Active NOAMP VIP:** **1)** Select… **Main Menu** **→ Administration** **→Software Management** **→ Upgrade** **2)** Select server group tab for server(s) to be upgraded. **3)** Verify that the **Upgrade State** shows **"Ready"** for certain server(s) **4)** Verify the **Application Version** value for server(s) is the source software release version	

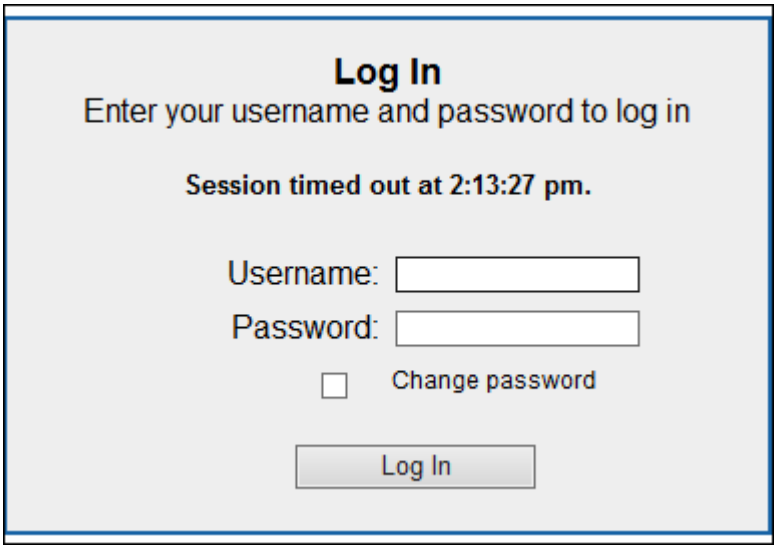
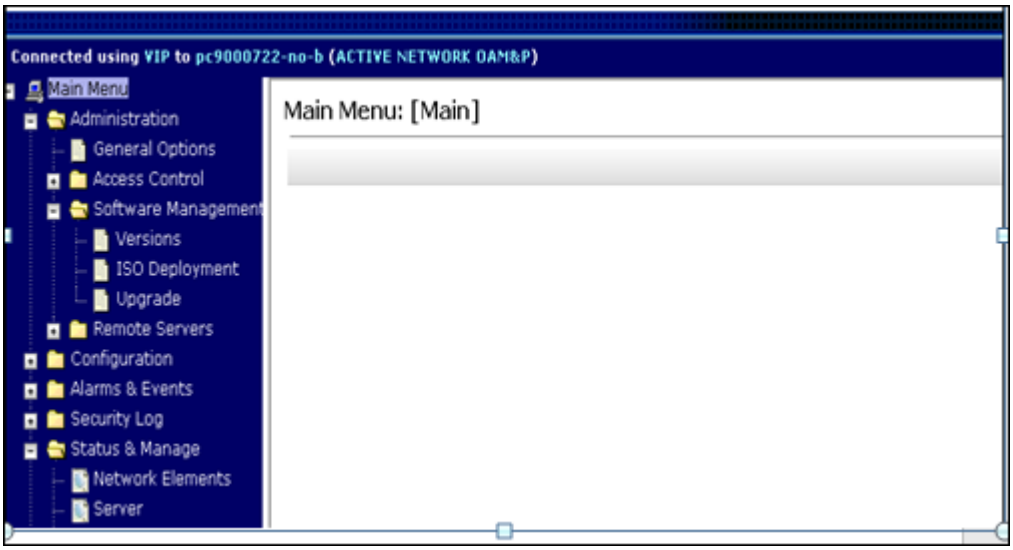
Appendix C.5**:** Initiate Upgrade Server for OCUDR 10.2

Step	Procedure	Result
3. ☐	**Active NOAMP VIP:** **1)** Select desired 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 the "**Auto Upgrade**" or "**Upgrade Server**" button **4) Note:** Auto Upgrade will not update the active NOAMP server.	 -OR- Group Based 

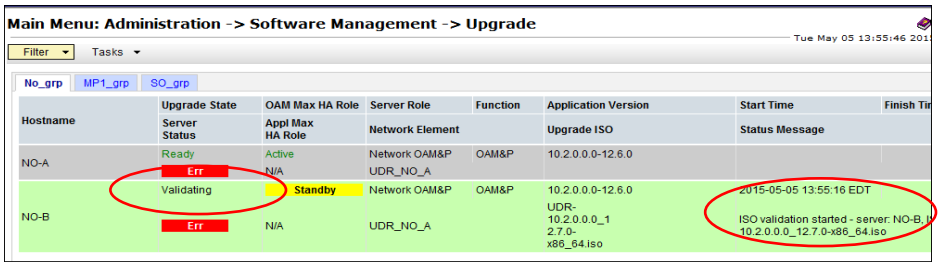
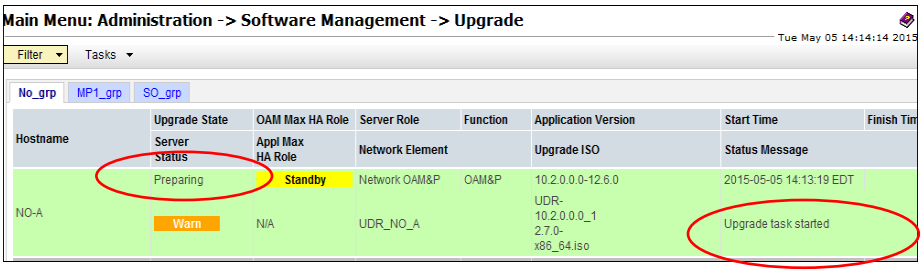
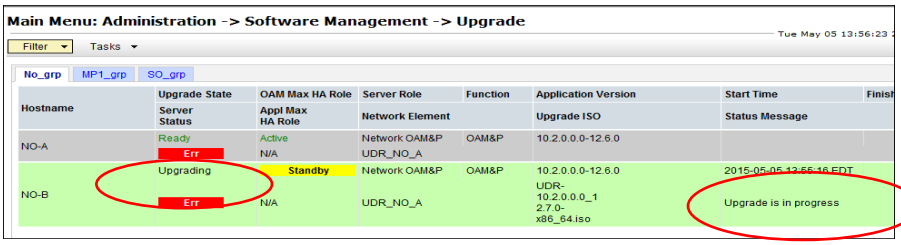
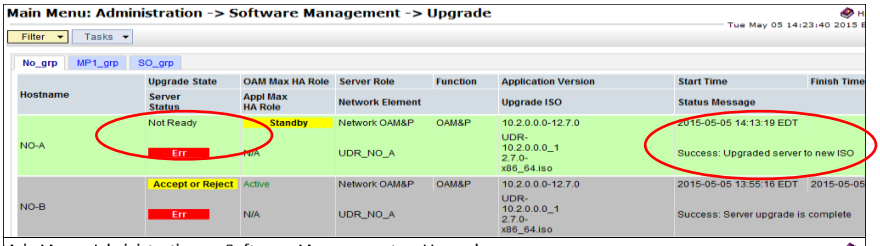
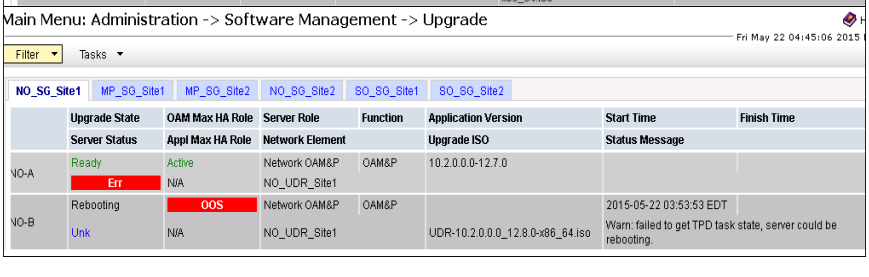
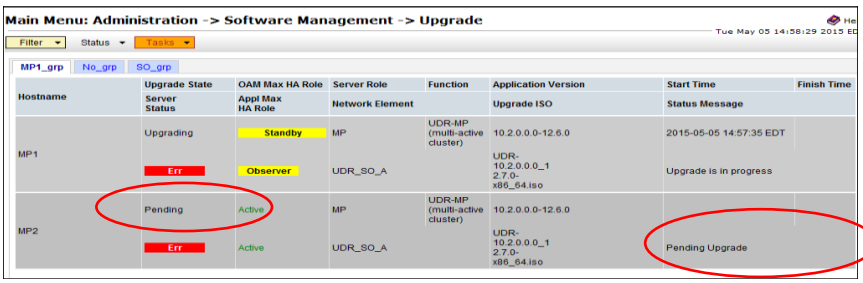
Appendix C.5**:** Initiate Upgrade Server for OCUDR 10.2

Step	Procedure	Result
4.	**Active NOAMP VIP:** 1) The user should be presented with the **Upgrade [Initiate]** screen **2)** Select the ISO to use in the server upgrade **3)** If "**Auto Upgrade**" option was selected for group-based upgrade, then "Bulk" upgrades servers in groups according to the availability setting. "Serial" upgrades servers one at a time starting with "standby server" **4) Note**: For MPs, you can select desired percent availability. (recommened to have at least 50% available) **5)** Click the "**Ok**" button 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: • Alarm ID = **31101** (DB Replication to a slave DB has failed) • Alarm ID = **31106** (DB Merging to a parent Merge Node has failed) • Alarm ID = **31107** (DB Merging from a child source Node has failed) • Alarm ID = **31114** (DB Replication of configuration data via …) • Alarm ID = **13001** No remote provisioning RAS Clients ..) • Alarm ID = **13027** No remote provisioning XSAS Clients ..) • Alarm ID = **10073** (Server Group Max Allowed HA Role Warning) • Alarm ID = **10075** (Application processes have been manually stopped) • Alarm ID = **32515** (Server HA Failover Inhibited) • Alarm ID = **31283** (HA Highly available server failed to receive) • Alarm ID = **31226** (The High Availability Status is degraded)

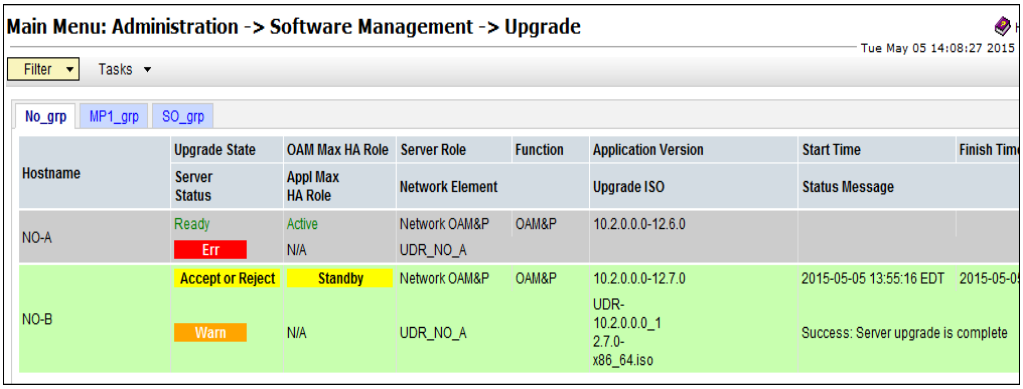
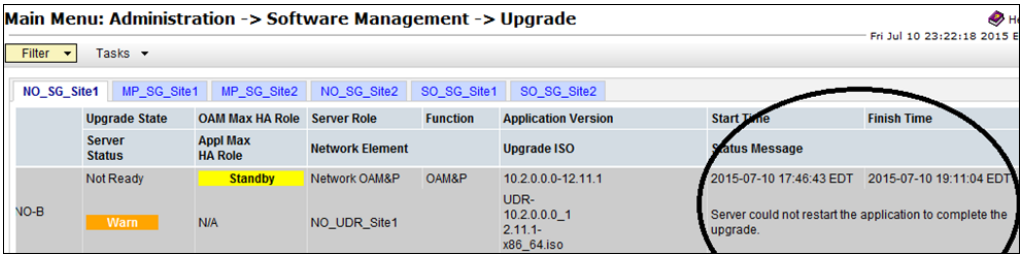
Appendix C.5**:** Initiate Upgrade Server for OCUDR 10.2

Step	Procedure	Result
5.	**Active NOAMP VIP:** **** For Active NOAMP only – Once the User completes Step 4, the session will automatically terminate and the user will be logged out of the GUI.** The screen shown to the right will appear as the **Standby NOAMP&P 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 user should be presented the OCUDR Main Menu as shown on the right. Verify that the message shown across the top of the right panel indicates that the browser is using the **"VIP"** connected to the **Active Network OAM&P** server.	

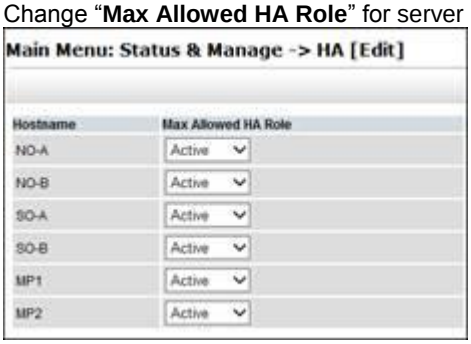
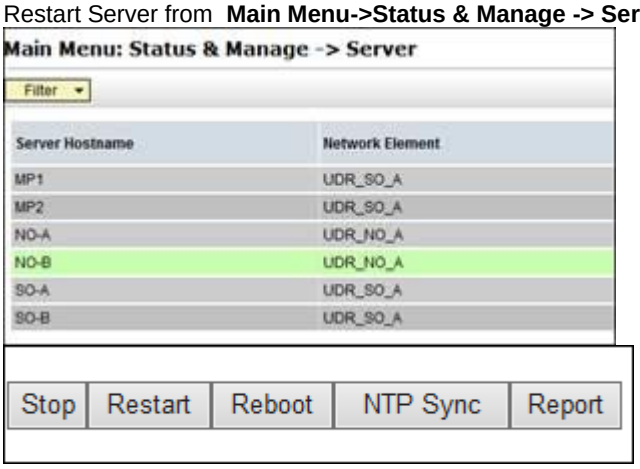
Appendix C.5: Initiate Upgrade Server for OCUDR 10.2

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. 3) "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. 4) Wait for each upgrade to report Success before proceeding to the next step.	     

Appendix C.5**:** Initiate Upgrade Server for OCUDR 10.2

Step	Procedure	Result
8. ☐	**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**"	 **Note**: If the upgrade status indicates "Server could not restart the application to complete the upgrade" and alarm 10134 –Server Upgrade Failed" appears; ensure replication is up for (use irepstat command on active server and verify status is "active"): 1) The Status to change to "Success" 2) Alarm 10134 to clear 

Appendix C.5**:** Initiate Upgrade Server for OCUDR 10.2

Step	Procedure	Result
9. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *HA [Edit]***	**NOTE:** Only execute the following step if "Upgrade State" is "DEGRADED". Change "**Max Allowed HA Role**" for server (Server that was already upgraded) to Active  **Main Menu: Status & Manage -> HA [Edit]** Hostname / Max Allowed HA Role NO-A: Active NO-B: Active SO-A: Active SO-B: Active MP1: Active MP2: Active Restart Server from **Main Menu->Status & Manage -> Server** screen  **Main Menu: Status & Manage -> Server** Filter Server Hostname / Network Element MP1: UDR_SO_A MP2: UDR_SO_A NO-A: UDR_NO_A NO-B: UDR_NO_A SO-A: UDR_SO_A SO-B: UDR_SO_A Stop Restart Reboot NTP Sync Report
10. ☐	**Active NOAMP VIP:** View post-upgrade status	View post-upgrade status of the server(s): (The following alarms may be present) Active NO server will have the following expected alarms: • Alarm ID = 13001 No remote provisioning RAS Clients ..) • Alarm ID = 13027 No remote provisioning XSAS Clients ..) You may also see the alarm: • Alarm ID = 32532 (Server Upgrade Pending Accept/Reject) You may also see this alarm due to DRNO *servers Max Allowed HA Role being set to standby* in Procedure 7. • Alarm ID =10073 (Server Group Max Allowed HA Role Warning)
11. ☐	**Active NOAMP VIP:** Clear browser cache	JavaScript libraries, images and other objects are often modified in the upgrade. Browsers can sometimes cause GUI problems by holding on to the old objects in the built-in cache. To prevent these problems always clear the browser cache before logging in to an NO or SO which has been upgraded: • Simultaneously hold down the Ctrl, Shift and Delete keys. • Select the appropriate type of objects and delete from the cache via the pop-up dialog. For Internet Explorer the relevant object type is "Temporary Internet Files". Other browsers may label these objects differently.

Appendix C.5**:** Initiate Upgrade Server for OCUDR 10.2

Step	Procedure	Result
THIS PROCEDURE HAS BEEN COMPLETED		

C.6 Server Worksheet

Select the worksheet that matches the site configuration.

RMS Site Configuration (Low Capacity):

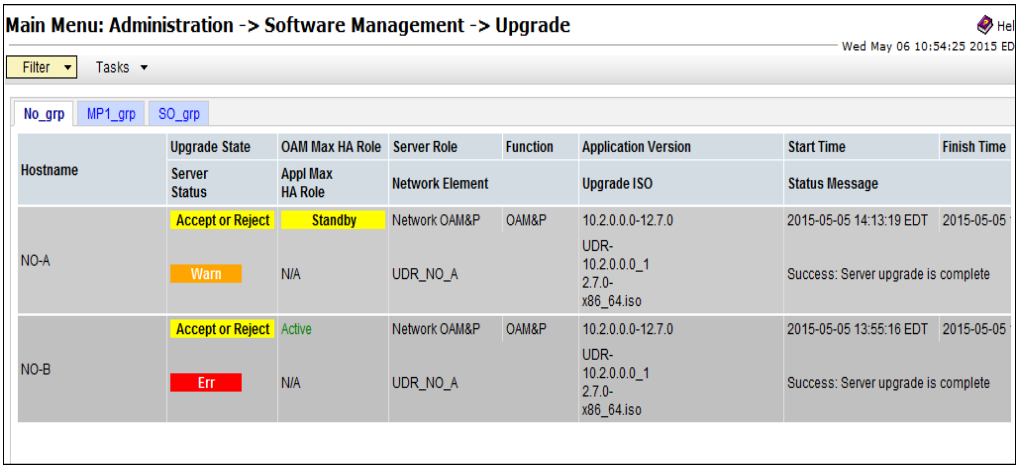
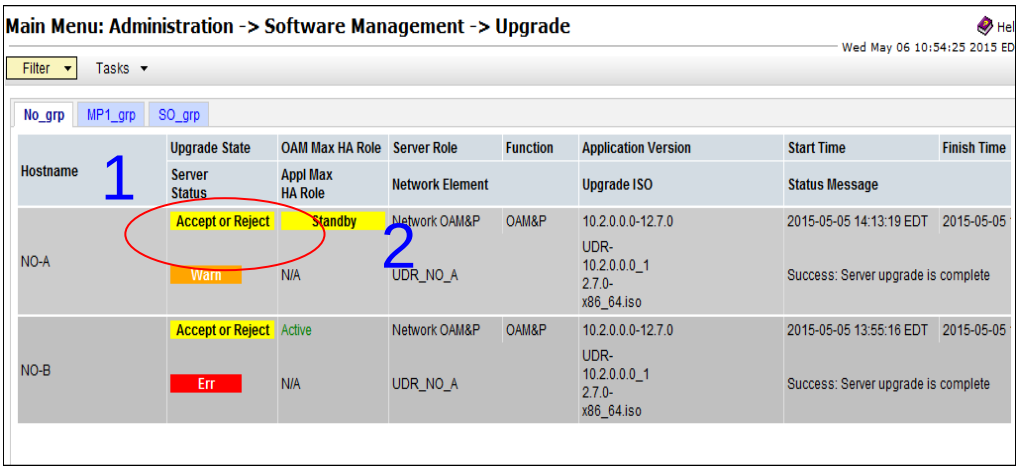
ACTIVE SITE	DR SITE
☐ Active NOAMP: _____	☐ Active DR NOAMP: _____
☐ Active SOAM: _____	☐ Active SOAM: _____
☐ MP1: _____	☐ MP1: _____
☐ Standby NOAMP: _____	☐ Standby DR NOAMP: _____
☐ Standby SOAM: _____	☐ Standby SOAM: _____
☐ MP2: _____	☐ MP2: _____

C-Class Site Configuration (Normal Configuration):

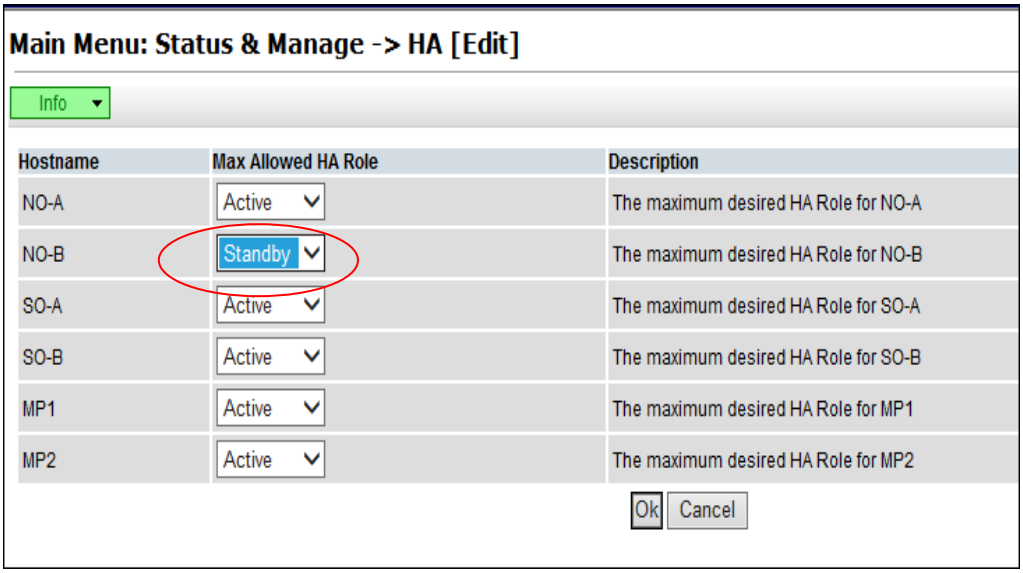
ACTIVE SITE	DR SITE
☐ Active Primary NOAMP: _____	☐ Active DR NOAMP: _____
☐ Standby Primary NOAMP:_____	☐ Standby DR NOAMP:_____
☐ Active SOAM: _____	☐ Active SOAM: _____
☐ MP1: _____	☐ MP1: _____
☐ MP2: _____	☐ MP2: _____
☐ Standby SOAM: _____	☐ Standby SOAM: _____
☐ MP3: _____	☐ MP3: _____
☐ MP4: _____	☐ MP4: _____

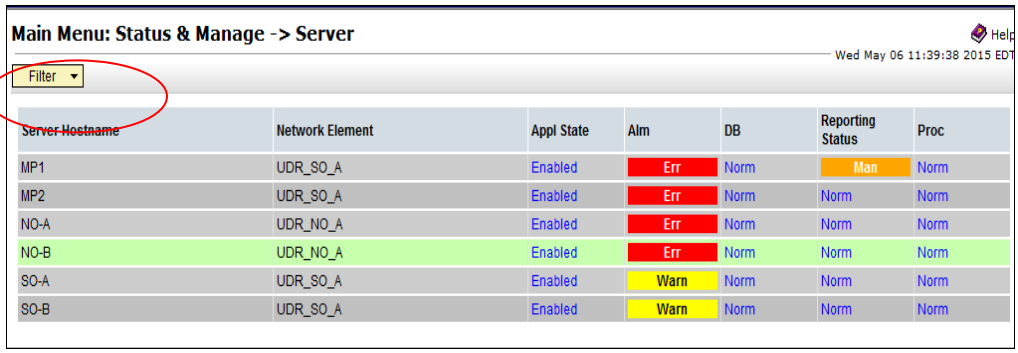
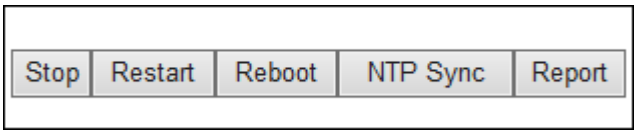
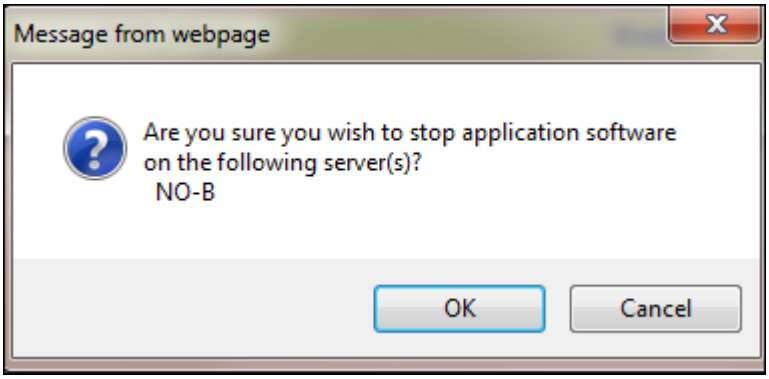
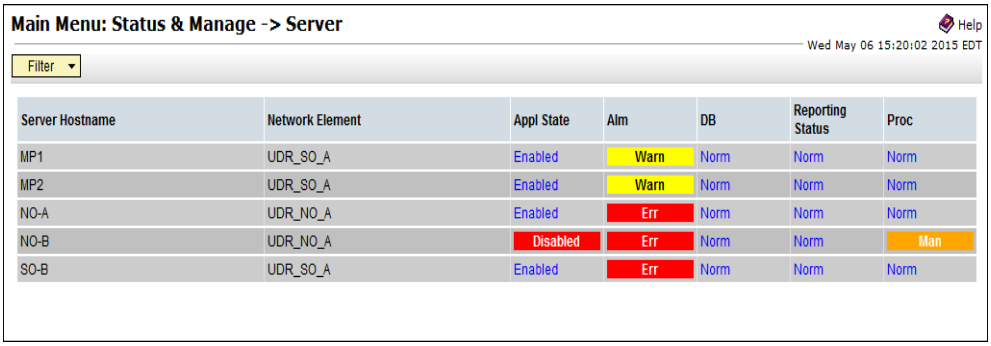
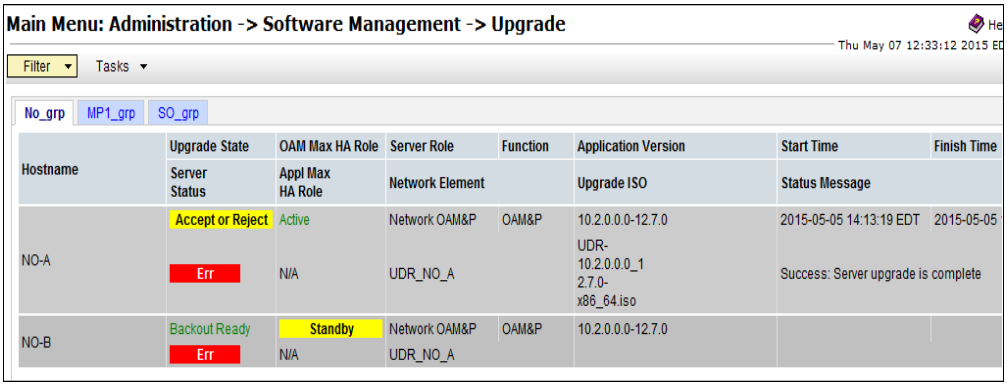
APPENDIX D. BACKOUT OF A SERVER

Appendix D: Backout of a Server

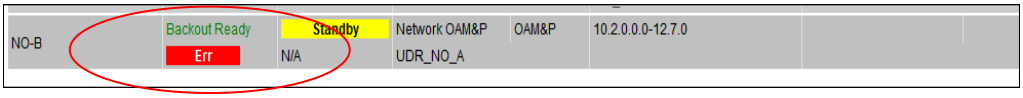
Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **<u>Main Menu</u>** **→ Administration** **→ Software Management** **→ *Upgrade*** …as shown on the right.	
3. ☐	**Active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

Appendix D: Backout of a Server

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

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

Appendix D: Backout of a Server

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)	
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):** Exexcute the backout	1. Find out the state of the server which is going to be backed out. Server shall be in Standby/Spare. Execute following command to find the HA state: **# ha.mystate** **NOTE:** If the state of the server is Active then follow these steps to move to standby. a. Go to Main Menu: Status & Manage -> HA b. Click edit c. Switch Max Allowed HA role to "standby" 2. Execute 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	Many informational messages will come across the terminal screen as the backout proceeds. Finally, after backout is complete, the server will automatically reboot.

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):**	Execute 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 will be 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 can take several minutes and will terminate 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 or SOAM server,** verify httpd service is running. Execute the command: **# service httpd status** Verify expected output displays httpd is running (the process IDs are variable so the list of numbers can be ignored): **httpd <process IDs will be listed here> is running...** If httpd is still not running after ~3 minutes, then services have failed to restart. Exit from the command line of backed-out server. # **exit**
17. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**

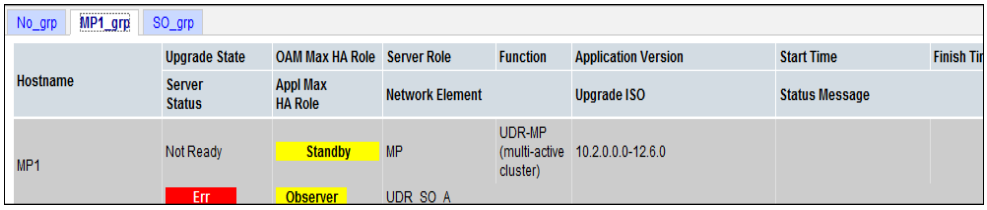
Appendix D: Backout of a Server

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>18.
☐</td><td>Active NOAMP VIP:

Verify server states:

Select…

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

…as shown on the right.</td><td> 

If the state Ready, finished with procedure, skip to the end.

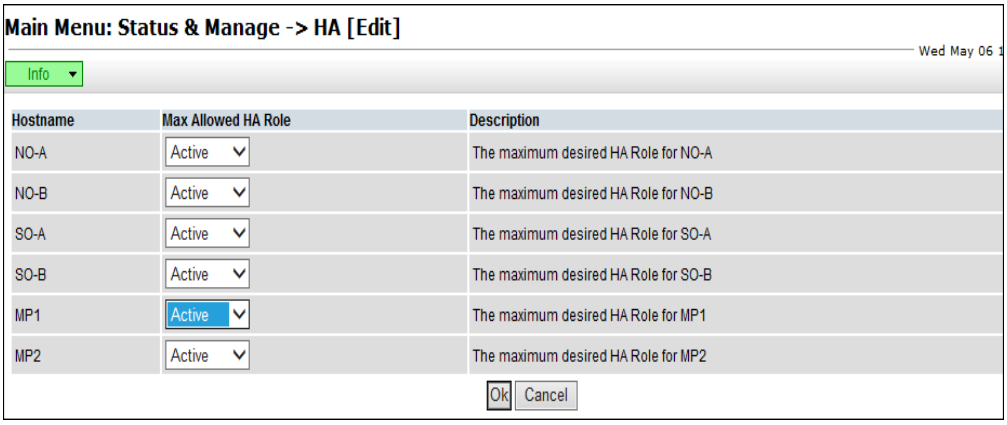
If the state is “Not Ready”, continue to next step.</td></tr>
<tr><td>19.</td><td>Active NOAMP VIP:

Correct Upgrade State on downgraded server

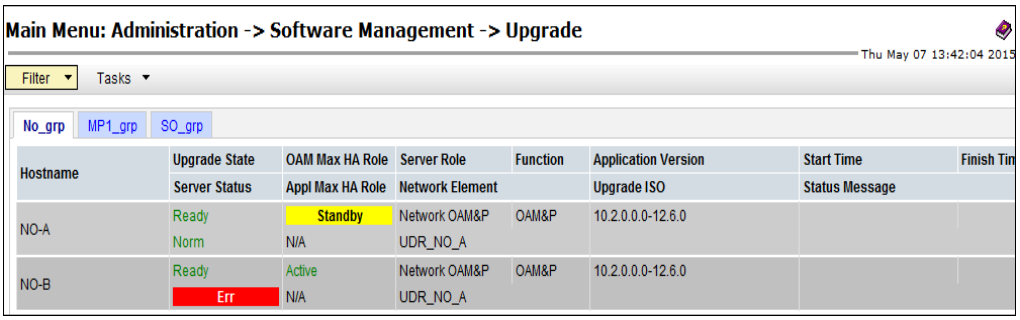
Select…

<u>Main Menu</u>
Status & Manage→HA[Edit]

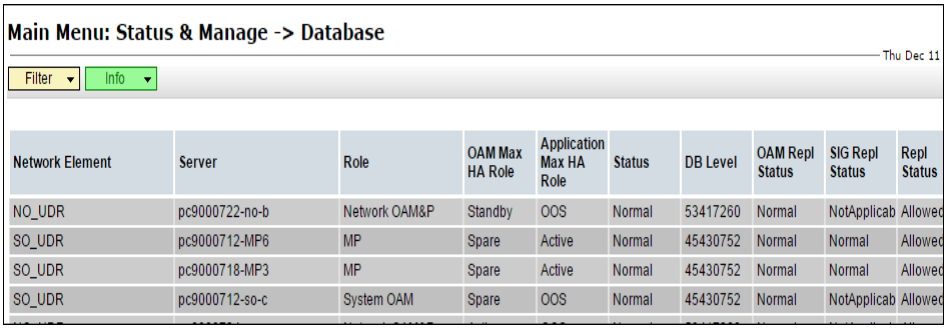
1) Select the downgraded server and choose a Max Allowed HA Role value of Active (Press the Ok button.
2) Verify the Max Allowed HA Role is set to the desired value for the server.</td><td>Due to backout being initiated from the command line instead of through the GUI, you will have to modify the downgraded server so its Upgrade State moves to Ready.

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

Appendix D: Backout of a Server

Step	Procedure	Result
20.	**Active NOAMP VIP:** Select **Main Menu Administration→ Software Management→ Upgrade**; Select the tab of the server group containing the server to be downgraded. Verify its Upgrade State is now "**Ready"**. (It might take a couple minutes for the grid to update.)	
21.	Verify applilcation 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

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

Main Menu: Status & Manage -> Database

Thu Dec 11

Filter Info

Network Element	Server	Role	OAM Max HA Role	Application Max HA Role	Status	DB Level	OAM Repl Status	SIG Repl Status	Repl Status
NO_UDR	pc9000722-no-b	Network OAM&P	Standby	OOS	Normal	53417260	Normal	NotApplicab	Allowed
SO_UDR	pc9000712-MP6	MP	Spare	Active	Normal	45430752	Normal	Normal	Allowed
SO_UDR	pc9000718-MP3	MP	Spare	Active	Normal	45430752	Normal	Normal	Allowed
SO_UDR	pc9000712-so-c	System OAM	Spare	OOS	Normal	45430752	Normal	NotApplicab	Allowed

APPENDIX F. INHIBITING SERVERS

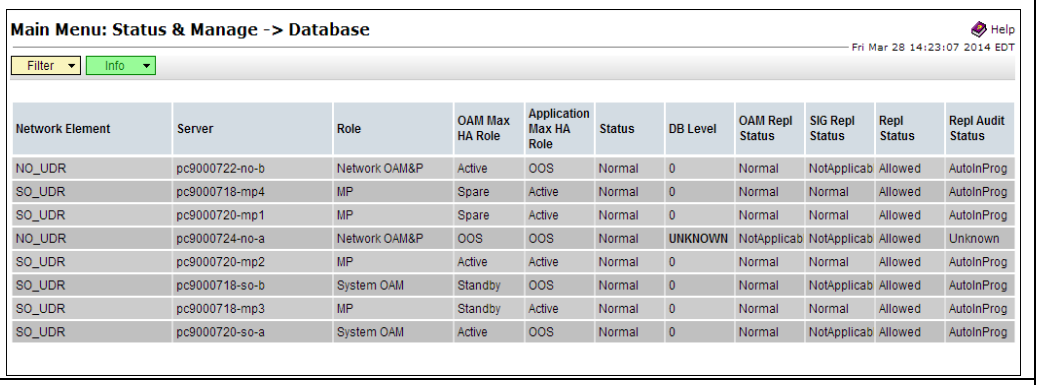
This is simply here for reference, not used in this Upgrade procedure.

F.1 Inhibit DR NOAMP Server

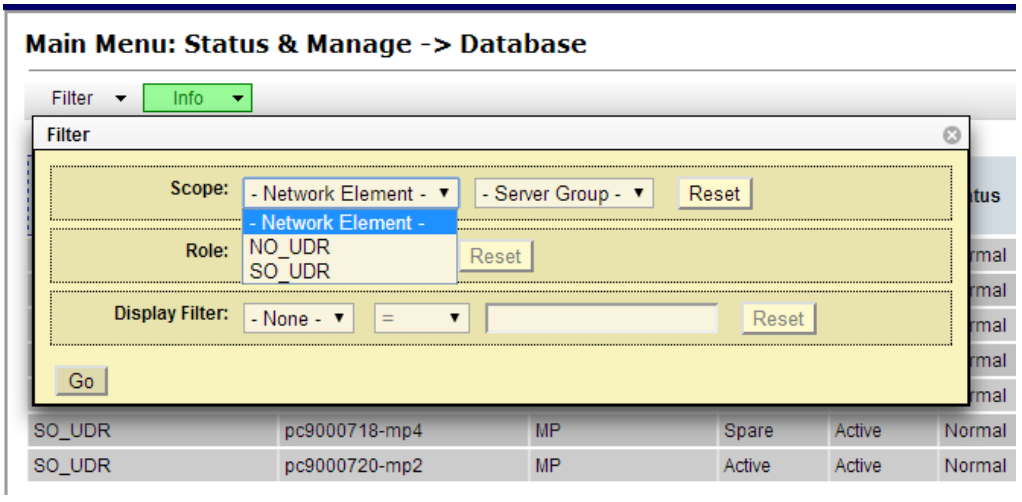
<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>1.
☐</td><td>Using the VIP address, access the Primary NOAMP GUI.</td><td>Access the Primary NOAMP GUI as specified in Appendix A.</td></tr>
<tr><td>2.
☐</td><td>Active NOAMP VIP:

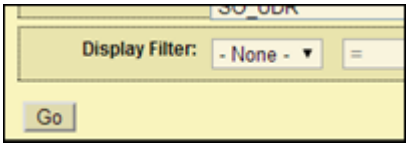
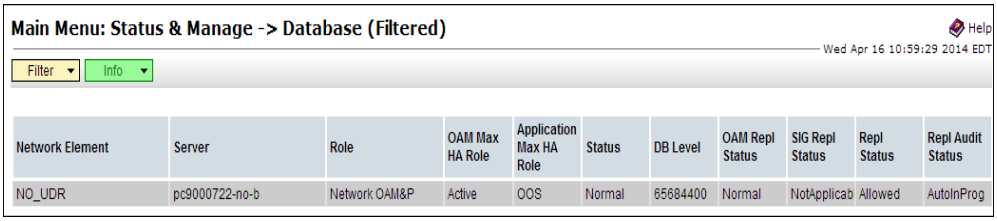
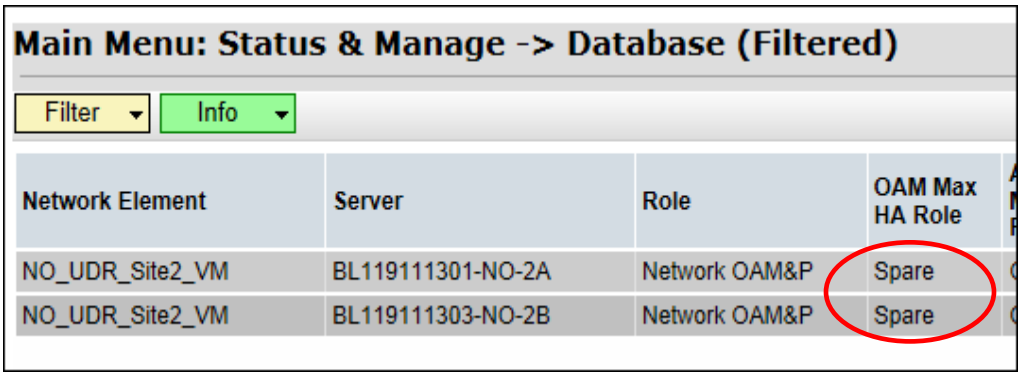
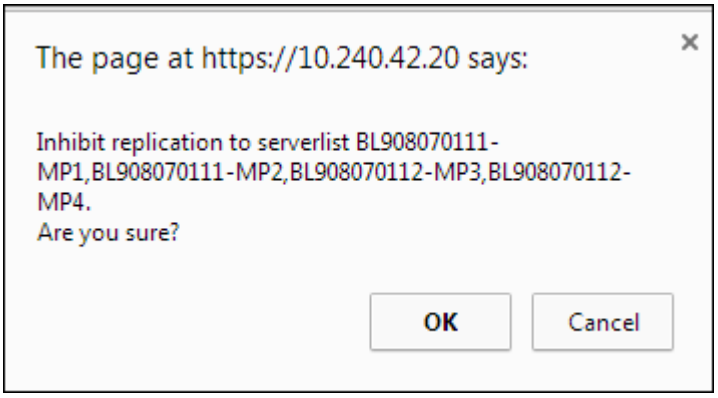
Select…

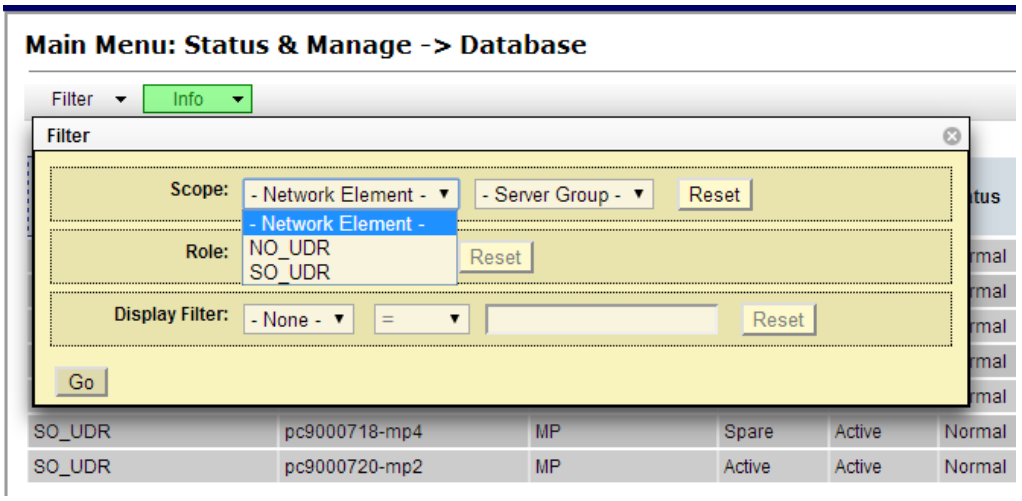
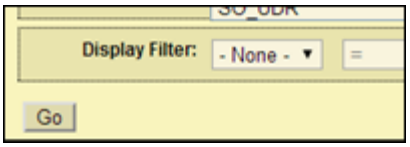
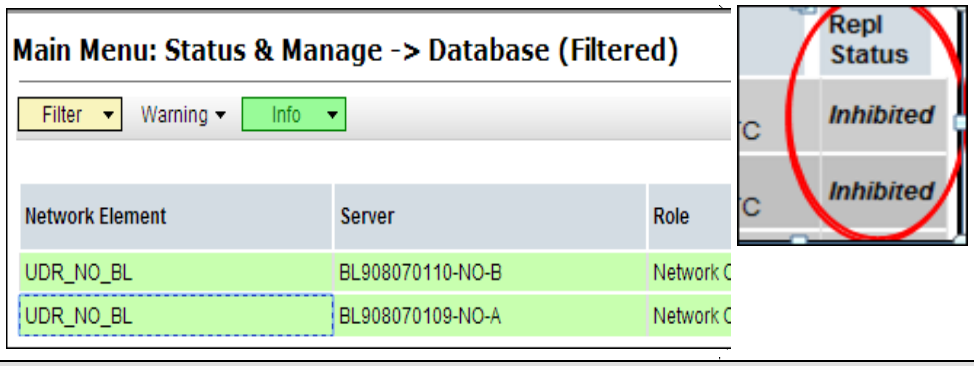
<u>Main Menu</u>
→ Status & Manage
→ Database

…as shown on the right.</td><td> 
</td></tr>
<tr><td>3.
☐</td><td>Record the name of the Primary DR NOAMP Network Element in the space provided to the right.</td><td>• Using the information provided in Section 3.1.2 (Logins, Passwords and Site Information) record the name of the DR NOAMP NE in the space provided below:

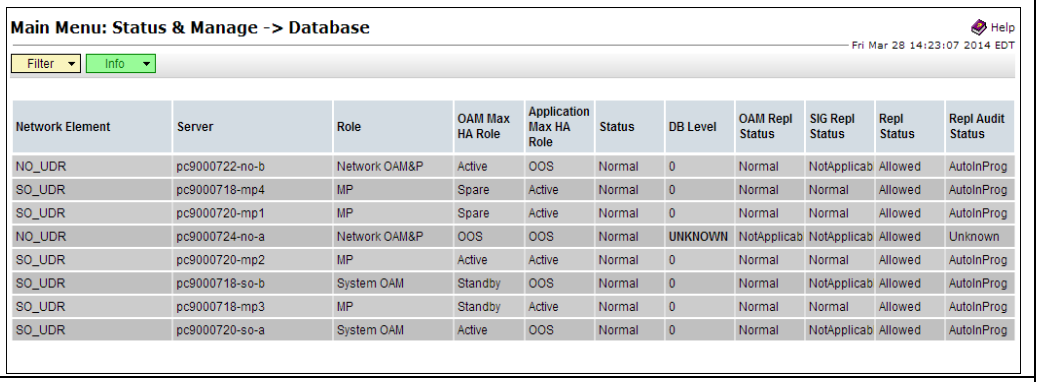
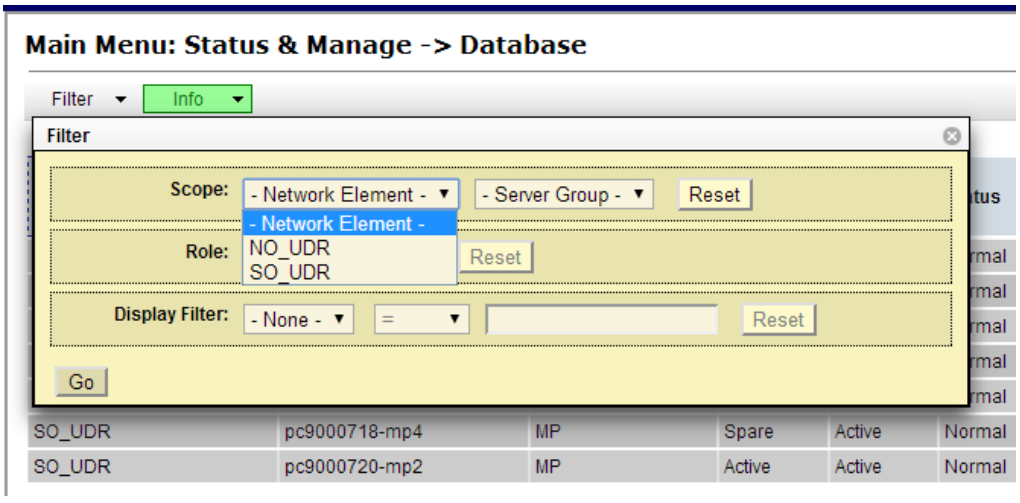
DR NOAMP NE: _____</td></tr>
<tr><td>4.
☐</td><td>Active NOAMP VIP:

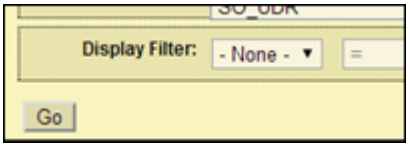
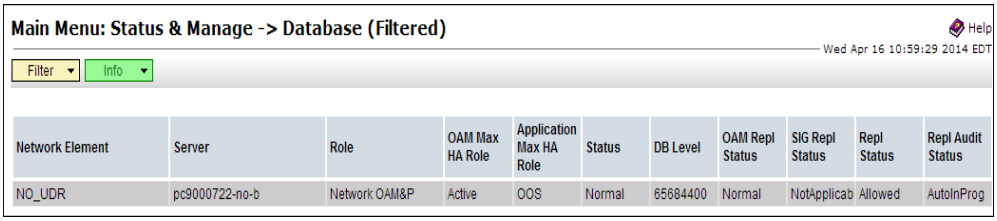
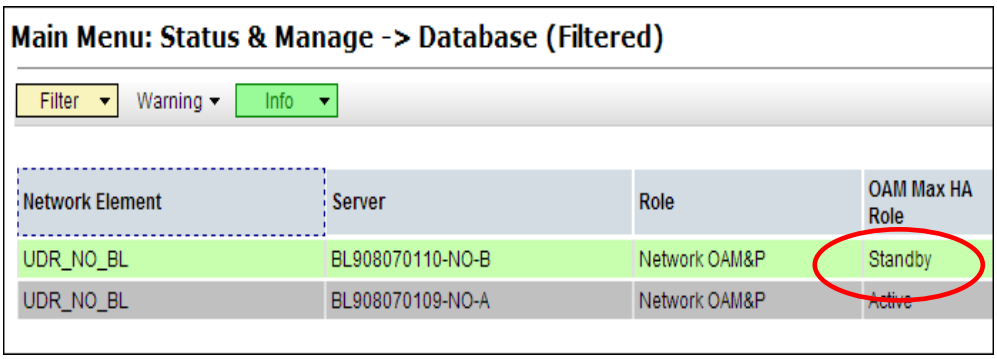
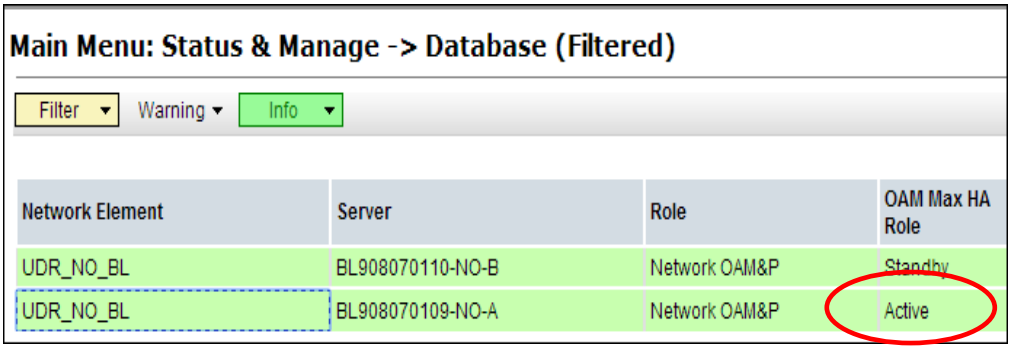
From the “Network Element” filter pull-down, select the NE name for the DR NOAMP.</td><td> 
</td></tr>
</table>

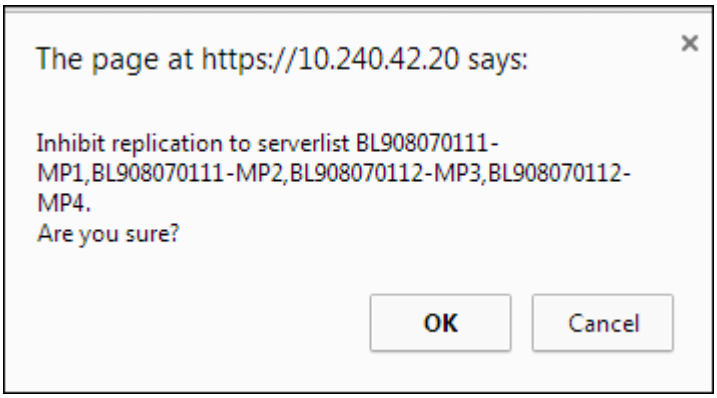
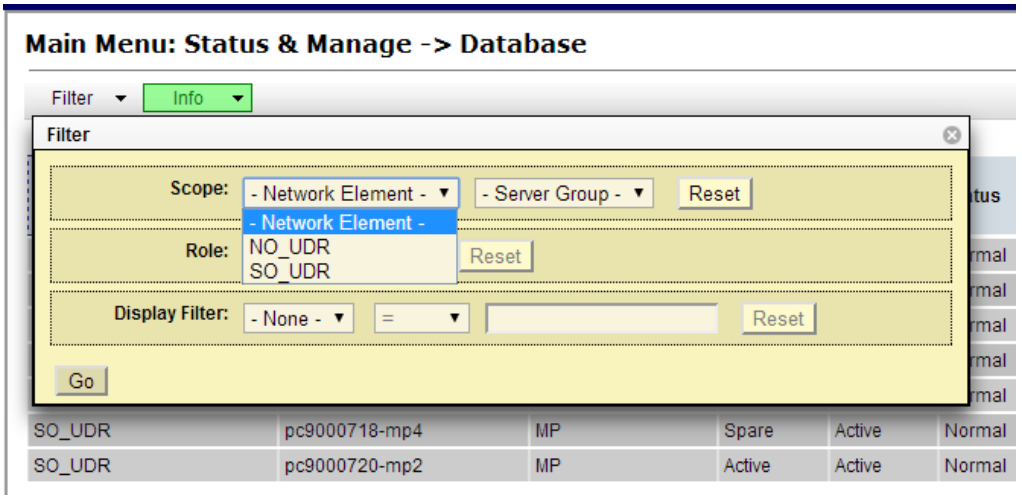
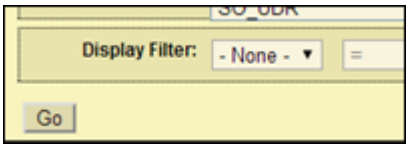
Step	Procedure	Result
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the left bottom of the filter bar.	
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with the **DR NOAMP** NE.	
7. ☐	**Active NOAMP VIP:** Use the cursor to select the desired server to inhibit and it should display **"Spare"** under the **"OAM Max HA Role"** column.	
8. ☐	**Active NOAMP VIP:** **1)** Click on the **"Inhibit Replication"** dialogue button in the bottom left of the right panel. **2)** In the pop-up window, click on the **"OK"** dialogue button. **NOTE:** *As a result of Allowing Replication to the server, Minor Alarm (**Event ID 31113**): "Replication Manually Disabled" should clear momentarily.*	  **NOTE**: It may take a minute or more for the servers to transmission to "**Inhibited**" state.

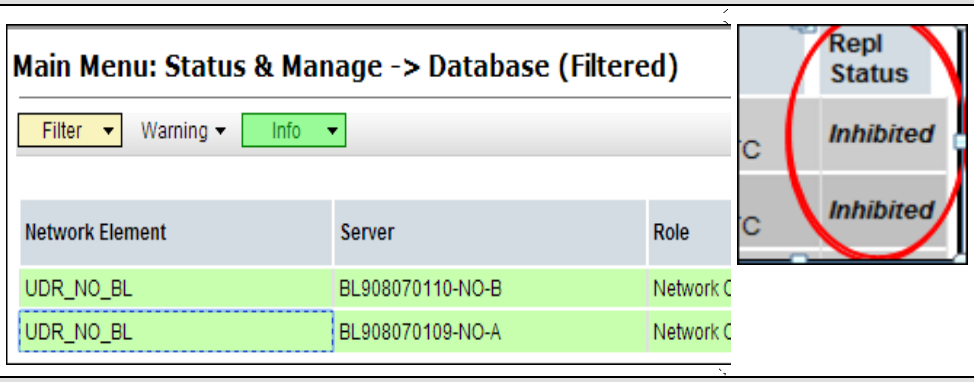
Step	Procedure	Result
9.	**Active NOAMP VIP:** From the **"Network Element"** filter pull-down, select the NE name for the **DR NOAMP**.	
10. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the left bottom of the filter bar.	
11. ☐	**Active NOAMP VIP:** Verify the desired server in this Network Element now shows it is **"Inhibited"** under the **"Repl Status"** column.	
THIS PROCEDURE HAS BEEN COMPLETED		

F.2 Inhibit Primary NOAMP Server

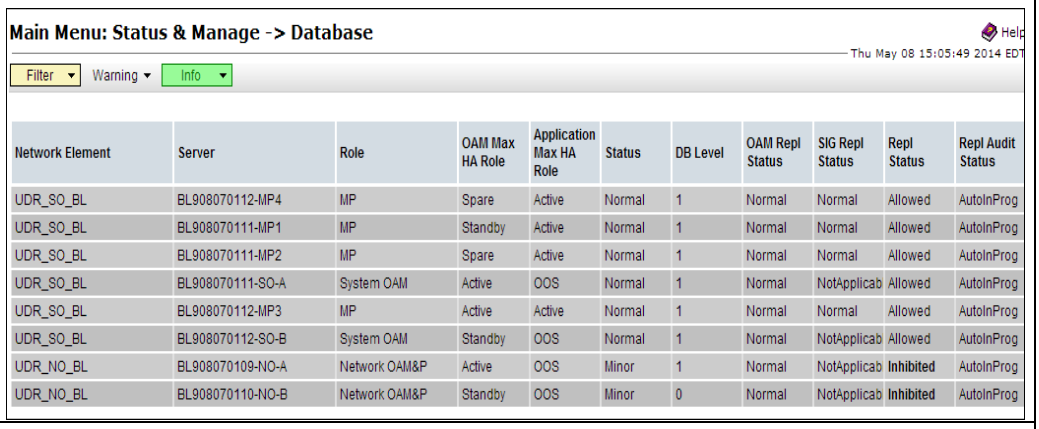
Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	• Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *Database*** …as shown on the right.	
3. ☐	**Active NOAMP VIP:** Ensure **DR NOAMP** servers are “spare” so they do not become active.	1. Select [Main Menu: Status & Manage → HA] screen 2. Verify OAM Max HA role is “spare”
4. ☐	Record the name of the **Primary NOAMP** NE in the space provided to the right.	• Using the information provided in Section 3.1.2 (*Logins, Passwords and Site Information*) record the name of the **Primary NOAMP** NE in the space provided below: **Primary NOAMP NE:** _____
5. ☐	**Active NOAMP VIP:** From the **“Network Element”** filter pull-down, select the NE name for the **Primary NOAMP**.	

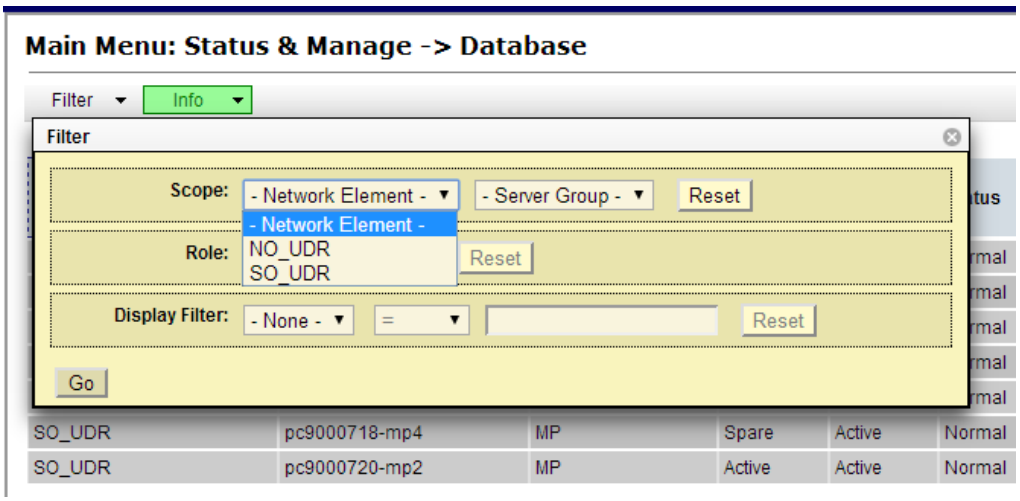
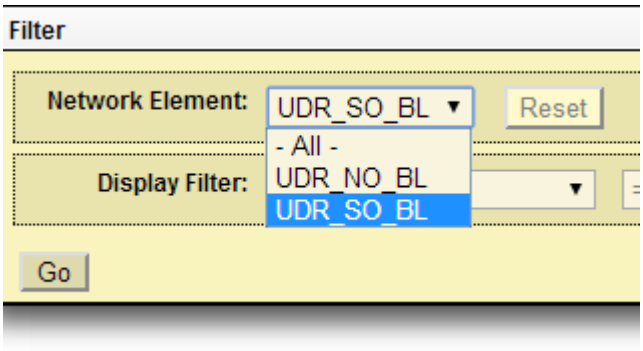
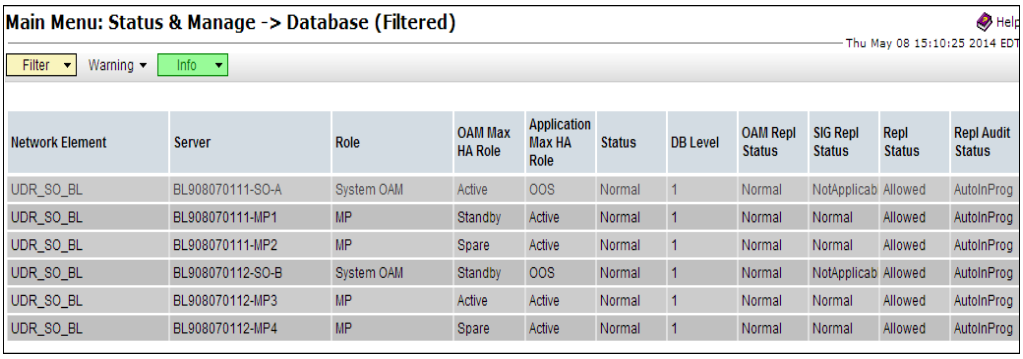
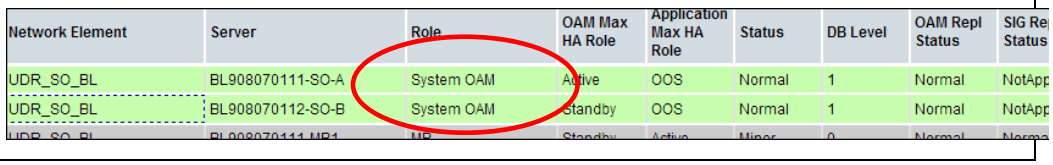
Step	Procedure	Result
6. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the left bottom of the filter bar.	
7. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with the **Primary NOAMP** NE.	
8. ☐	**Active NOAMP VIP:** ** For Standby Server Use the cursor to select the server which displays **"Standby"** under the **"OAM Max HA Role"** column.	
9. ☐	**Active NOAMP VIP:** ** For Active Server Use the cursor to select the server which displays **"Active"** under the **"OAM Max HA Role"** column.	

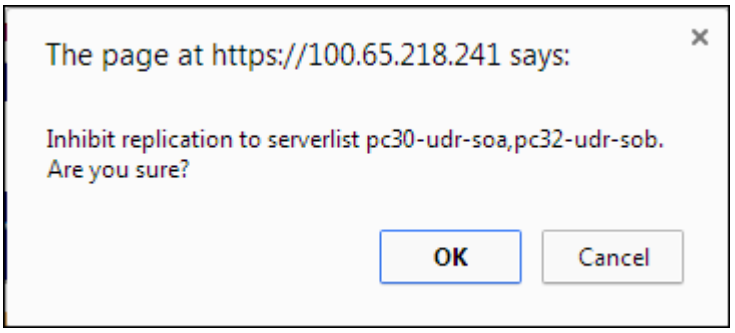
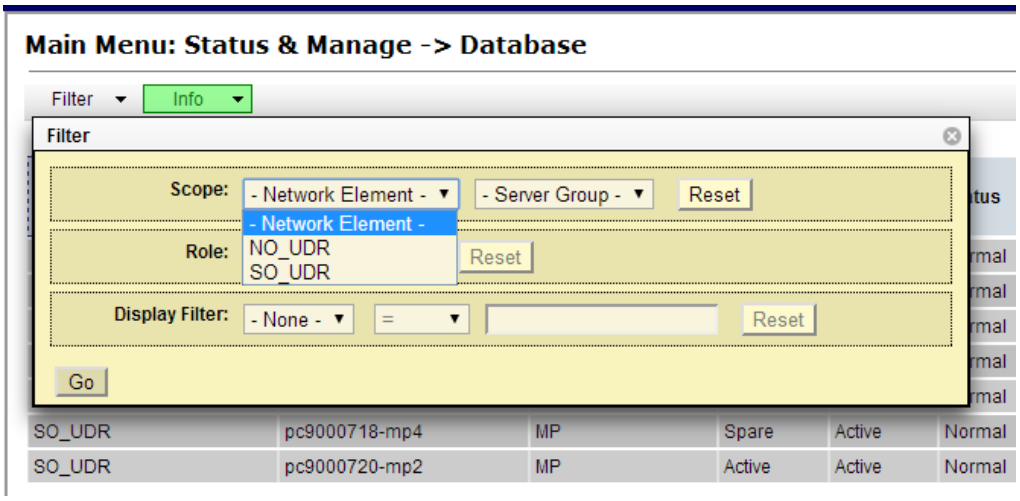
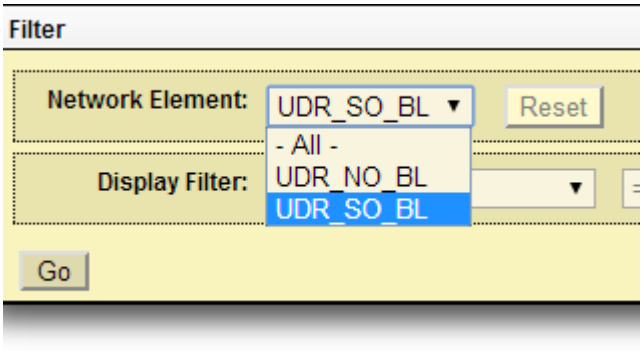
Step	Procedure	Result
10. ☐	**Active NOAMP VIP:** **1)** Click on the **"Inhibit Replication"** dialogue button in the bottom left of the right panel. **2)** In the pop-up window, click on the **"OK"** dialogue button. **NOTE:** As a result of inhibiting Replication to the server, Minor Alarm ***(Event ID 31113)****: "Replication Manually Disabled"* will alarm until Replication is once again allowed.	1  2 **NOTE**: It may take a minute or more for the servers to transmission to "**Inhibited**" state
11. ☐	**Active NOAMP VIP:** From the **"Network Element"** filter pull-down, select the NE name for the **NOAMP**.	
12. ☐	**Active NOAMP VIP:** ***Wait*** until each server shows as inhibited before proceding.	

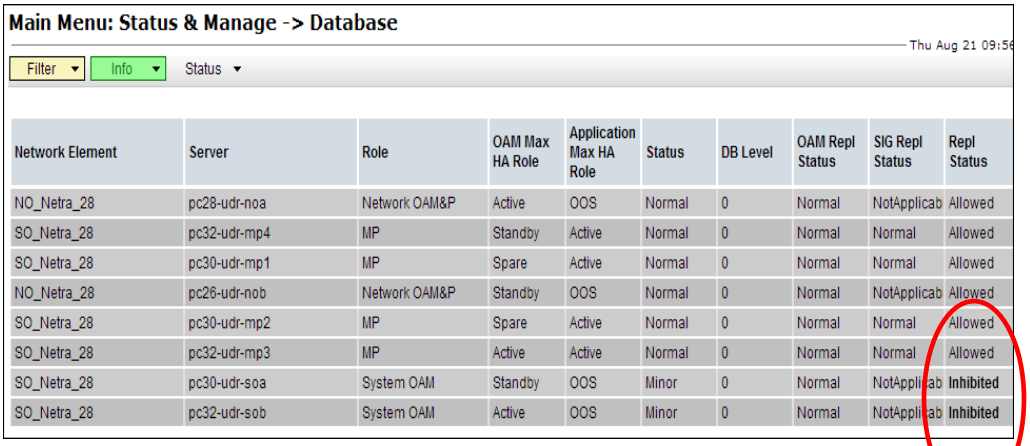
Step	Procedure	Result
13. ☐	**Active NOAMP VIP:** Verify that the desired server in this Network Element now shows it is **"Inhibited"** under the **"Repl Status"** column.	
THIS PROCEDURE HAS BEEN COMPLETED		

F.3 Inhibit SOAM Server

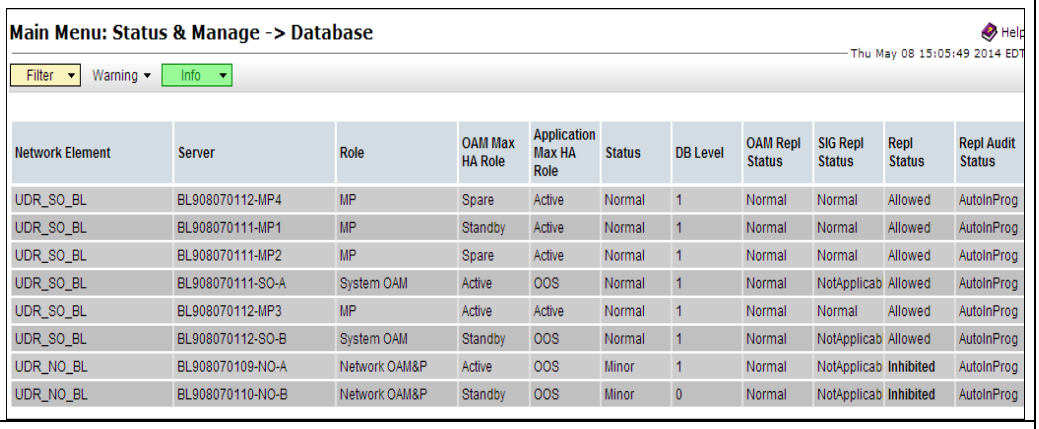
Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *Database*** …as shown on the right.	
3. ☐	Record the name of the **SOAM** NE to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

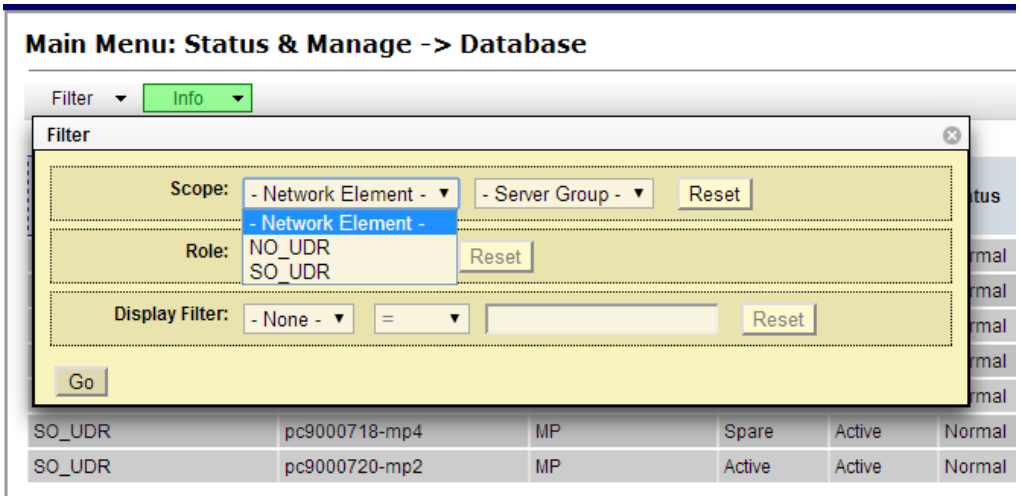
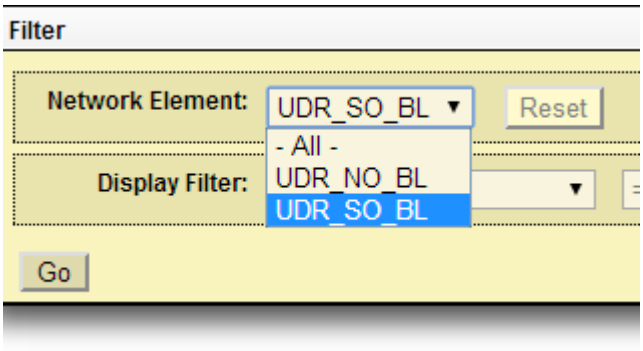
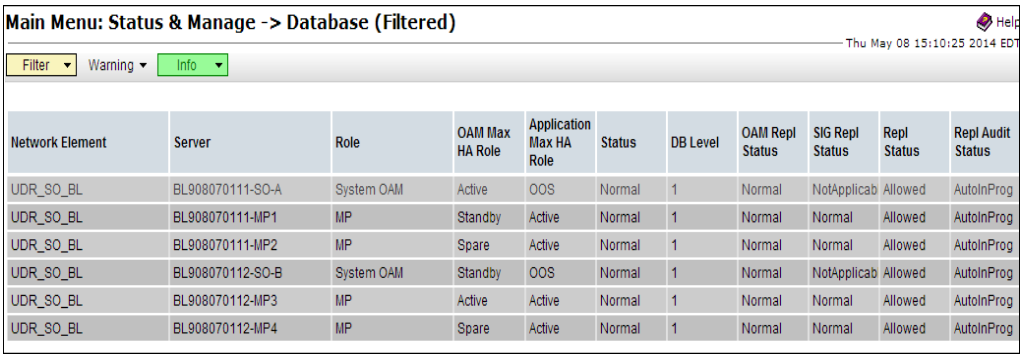
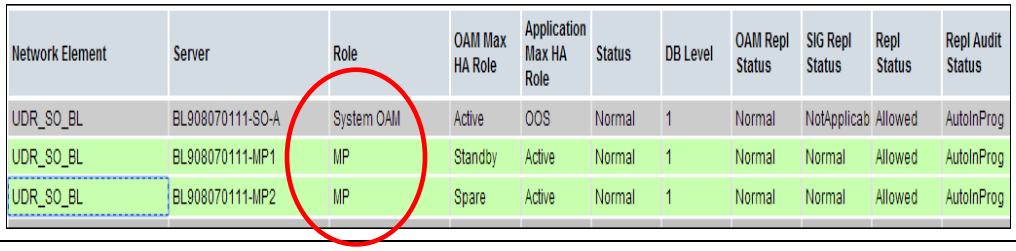
Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** From the **"Network Element"** filter pull-down, select the name for the **SOAM** NE.	
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on left bottom of the filter bar.	
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with the **SOAM** NE.	
7. ☐	**Active NOAMP VIP:** Select a server that displays **"SYSTEM OAM"** under the **"Role"** column.	

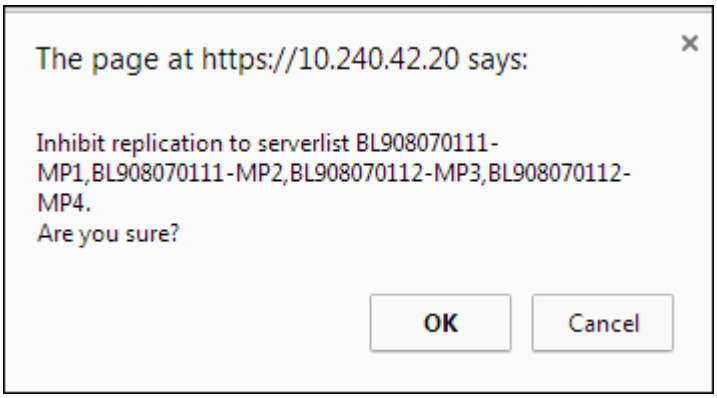
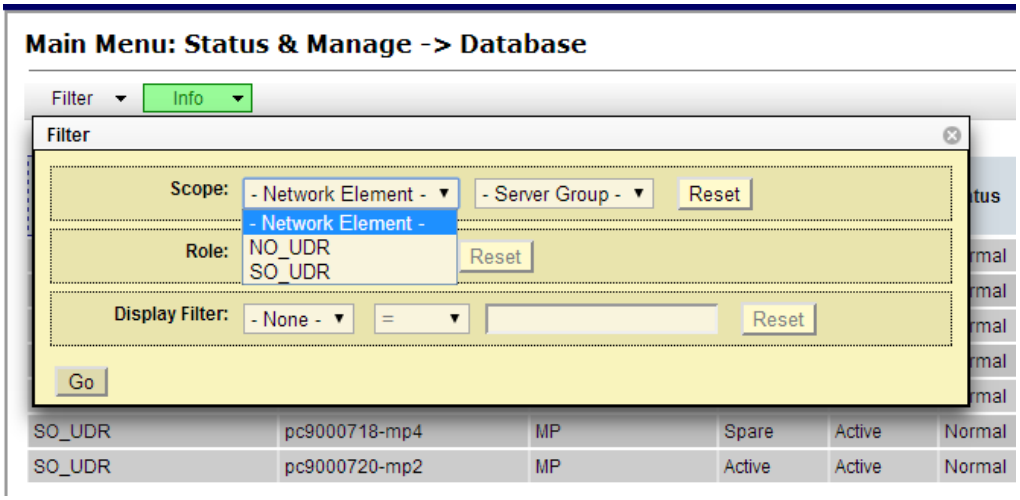
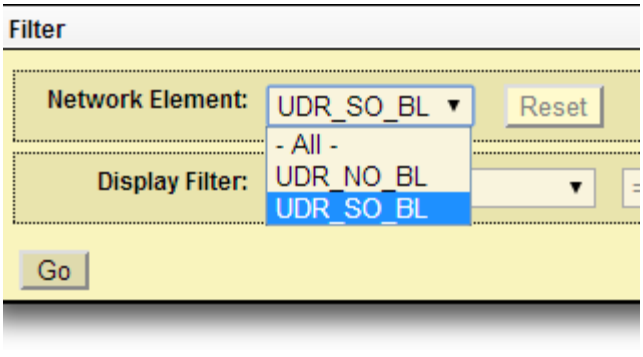
Step	Procedure	Result
1. ☐	**Active NOAMP VIP:** **1)** Click on the **"Inhibit Replication"** dialogue button in the bottom left of the right panel. **2)** In the pop-up window, click on the **"OK"** dialogue button.	1  2 **NOTE:** *As a result of inhibiting Replication to the server, Minor Alarm (**Event ID 31113**): "Replication Manually Disabled" will alarm until Replication is once again allowed.*
2. ☐	**Active NOAMP VIP:** From the **"Network Element"** filter pull-down, select the name for the **SOAM** NE.	
3. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the right end of the filter bar.	

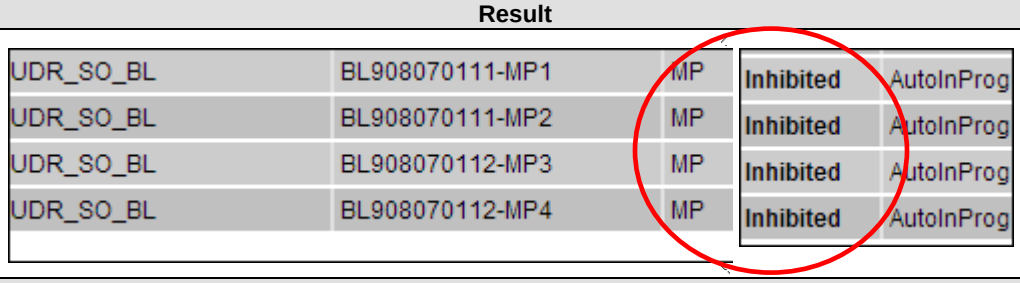
Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** Verify desired server displays **"SYSTEM OAM"** under the **"Role"** column. **"Inhibited"** under the **"Repl Status"** column.	 Network Element / Server / Role / OAM Max HA Role / Application Max HA Role / Status / DB Level / OAM Repl Status / SIG Repl Status / Repl Status NO_Netra_28 / pc28-udr-noa / Network OAM&P / Active / OOS / Normal / 0 / Normal / NotApplicab / Allowed SO_Netra_28 / pc32-udr-mp4 / MP / Standby / Active / Normal / 0 / Normal / Normal / Allowed SO_Netra_28 / pc30-udr-mp1 / MP / Spare / Active / Normal / 0 / Normal / Normal / Allowed NO_Netra_28 / pc26-udr-nob / Network OAM&P / Standby / OOS / Normal / 0 / Normal / NotApplicab / Allowed SO_Netra_28 / pc30-udr-mp2 / MP / Spare / Active / Normal / 0 / Normal / Normal / Allowed SO_Netra_28 / pc32-udr-mp3 / MP / Active / Active / Normal / 0 / Normal / Normal / Allowed SO_Netra_28 / pc30-udr-soa / System OAM / Standby / OOS / Minor / 0 / Normal / NotApplicab / **Inhibited** SO_Netra_28 / pc32-udr-sob / System OAM / Active / OOS / Minor / 0 / Normal / NotApplicab / **Inhibited**
THIS PROCEDURE HAS BEEN COMPLETED		

F.4 Inhibit MP Server

Step	Procedure	Result
1. ☐	Using the **VIP** address, access the Primary NOAMP GUI.	Access the Primary NOAMP GUI as specified in **Appendix A.**
2. ☐	**Active NOAMP VIP:** Select… **Main Menu** **→ Status & Manage** **→ *Database*** …as shown on the right.	 Network Element / Server / Role / OAM Max HA Role / Application Max HA Role / Status / DB Level / OAM Repl Status / SIG Repl Status / Repl Status / Repl Audit Status UDR_SO_BL / BL908070112-MP4 / MP / Spare / Active / Normal / 1 / Normal / Normal / Allowed / AutoInProg UDR_SO_BL / BL908070111-MP1 / MP / Standby / Active / Normal / 1 / Normal / Normal / Allowed / AutoInProg UDR_SO_BL / BL908070111-MP2 / MP / Spare / Active / Normal / 1 / Normal / Normal / Allowed / AutoInProg UDR_SO_BL / BL908070111-SO-A / System OAM / Active / OOS / Normal / 1 / Normal / NotApplicab / Allowed / AutoInProg UDR_SO_BL / BL908070112-MP3 / MP / Active / Active / Normal / 1 / Normal / Normal / Allowed / AutoInProg UDR_SO_BL / BL908070112-SO-B / System OAM / Standby / OOS / Normal / 1 / Normal / NotApplicab / Allowed / AutoInProg UDR_NO_BL / BL908070109-NO-A / Network OAM&P / Active / OOS / Minor / 1 / Normal / NotApplicab / **Inhibited** / AutoInProg UDR_NO_BL / BL908070110-NO-B / Network OAM&P / Standby / OOS / Minor / 0 / Normal / NotApplicab / **Inhibited** / AutoInProg
3. ☐	Record the name of the **SOAM** NE to be upgraded.	• Using the information provided in Section 3.1.2 (*Logins, Passwords and Site Information*) record the name of the **SOAM** NE to be upgraded in the space provided below: **SOAM Network Element:** _____

Step	Procedure	Result
4. ☐	**Active NOAMP VIP:** From the **"Network Element"** filter pull-down, select the name for the **SOAM** NE.	
5. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on left bottom of the filter bar.	
6. ☐	**Active NOAMP VIP:** The user should be presented with the list of servers associated with the **SOAM** NE.	
7. ☐	**Active NOAMP VIP:** Select desired server which displays **"MP"** under the **"Role"** column.	

Step	Procedure	Result
8. ☐	**Active NOAMP VIP:** **1)** Click on the **"Inhibit Replication"** dialogue button in the bottom left of the right panel. **2)** In the pop-up window, click on the **"OK"** dialogue button.	  **NOTE:** *As a result of inhibiting Replication to the server, Minor Alarm (**Event ID 31113**): "Replication Manually Disabled" will alarm until Replication is once again allowed.*
9. ☐	**Active NOAMP VIP:** From the **"Network Element"** filter pull-down, select the name for the **SOAM** NE.	
10. ☐	**Active NOAMP VIP:** Click on the **"GO"** dialogue button located on the right end of the filter bar.	

Step	Procedure	Result
11. ☐	**Active NOAMP VIP:** Verify that the desired **MP** server now shows **"Inhibited"** under the **"Repl Status"** column.	
THIS PROCEDURE HAS BEEN COMPLETED		

APPENDIX G. ACCESSING ORACLE'S TEKELEC CUSTOMER CARE SITE

The Oracle CGBU Customer Care Center is the initial point of contact for all product support needs. A Representative takes the call or email, creates a Consulting Services Request (CSR) and directs the requests to the Oracle CGBU Technical Assistance Center (TAC). Each CSR includes an individual tracking number. Together with TAC Engineers, the representative will resolve the request. The Customer Care Center is available 24 hours a day, 7 days a week, 365 days a year, and is linked to TAC Engineers around the globe.

Oracle CGBU TAC Engineers are available to provide solutions to technical questions and issues 7 days a week, 24 hours a day. After a CSR is issued, the TAC Engineer determines the classification of the trouble. If a critical problem exists, emergency procedures are initiated. If the problem is not critical, normal support procedures apply. A primary Technical Engineer is assigned to work on the CSR and provide a solution to the problem. The CSR is closed when the problem is resolved.

Oracle CGBU Technical Assistance Centers are located around the globe in the following locations:

Oracle CGBU – Global

Email (All Regions): support@Oracle CGBU.com

- **USA and Canada**
  Phone:
  1-888-367-8552 (toll-free, within continental USA and Canada)
  1-919-460-2150 (outside continental USA and Canada)
  TAC Regional Support Office Hours:
  8:00 a.m. through 5:00 p.m. (GMT minus 5 hours), Monday through Friday, excluding holidays

- **Caribbean and Latin America (CALA)**
  Phone:
  +1-919-460-2150
  TAC Regional Support Office Hours (except Brazil):
  10:00 a.m. through 7:00 p.m. (GMT minus 6 hours), Monday through Friday, excluding holidays
- **Argentina**
  Phone:
  0-800-555-5246 (toll-free)
- **Brazil**
  Phone: 0-800-891-4341 (toll-free)
  TAC Regional Support Office Hours:
  8:00 a.m. through 5:48 p.m. (GMT minus 3 hours), Monday through Friday, excluding holidays
- **Chile**
  Phone:
  1230-020-555-5468
- **Colombia**
  Phone:
  01-800-912-0537
- **Dominican Republic**
  Phone:
  1-888-367-8552
- **México**
  Phone:
  001-888-367-8552
- **Perú**
  Phone:
  0800-53-087

- **Puerto Rico**
  Phone:
  1-888-367-8552
- **Venezuela**
  Phone:
  0800-176-6497
- **Europe, Middle East, and Africa**
  Regional Office Hours:
  8:30 a.m. through 5:00 p.m. (GMT), Monday through Friday, excluding holidays
- **Signaling**
  Phone:
  +44 1784 467 804 (within UK)
- **Software Solutions**
  Phone:
  +33 3 89 33 54 00**Asia**
- **India**
  Phone:
  +91-124-465-5098 or +1-919-460-2150
  TAC Regional Support Office Hours:
  10:00 a.m. through 7:00 p.m. (GMT plus 5 1/2 hours), Monday through Saturday, excluding holidays.
- **Singapore**
  Phone:
  +65 6796 2288
  TAC Regional Support Office Hours:
  9:00 a.m. through 6:00 p.m. (GMT plus 8 hours), Monday through Friday, excluding holidays

APPENDIX H. 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 (i.e. the "bare-metal") server must first be upgraded to a newer release of TVOE.

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

Step	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.	
1. ☐	Determine the version of TVOE already running on the server that hosts the virtual guest currently being upgraded.	1. Log into the host server on which TVOE is installed. 2. Execute 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-CentOS6.2-x86_64.iso** **OS: CentOS 6.2**
2. ☐	Check the TVOE release version required for target OCUDR release	Contact Oracle's Tekelec Customer Care by referring to Appendix G 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 I.

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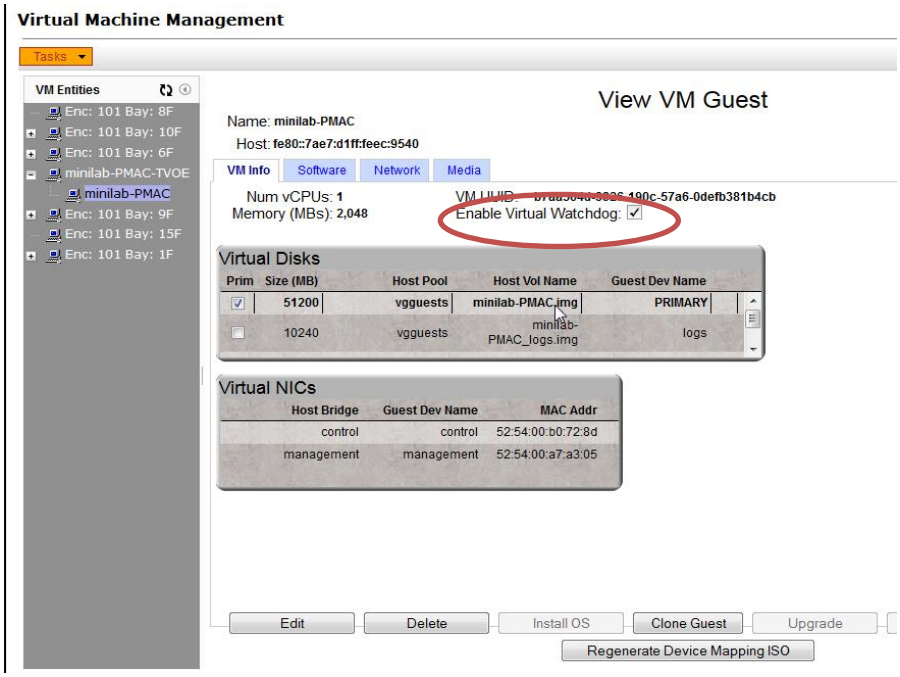
APPENDIX I. UPGRADE TVOE PLATFORM

This Appendix provides the procedure for upgrading TVOE on a host server that supports one or more OCUDR virtual guests.

If upgrading a OCUDR 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 H to determine if a TVOE upgrade is required.

If you are upgrading a OCUDR server that is not virtualized, then this Appendix does not apply.

Step	This procedure verifies that all required materials are present. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.	
1. ☐	Disable all the applications running on current TVOE.	1. Log into the NOAM VIP GUI 2. Select **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 the '**Stop**' button. 5. Confirm the operation by clicking **Ok** in the popup dialog box. 6. Verify that the 'Appl State' for all the selected servers is changed to '**Disabled**'.
2. ☐	Find out the guests running on TVOE host.	1. 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 above command will list all the guests running on current TVOE host.
3. ☐	Shutdown each guest running on TVOE host. Note: Alternatively, can use "Manage software inventory" screen on PMAC to shutdown the guests.	1. Execute the following command for each guest identified in Step 2 : **# virsh shutdown <guestname>**

4. ☐	Upgrade TVOE	1. Periodically execute following command until the command displays no entries. This means that all VMs have been properly shut down : `# virsh list` 2. Once all VMs have been properly shut down: **Upgrade TVOE** using "PMAC Aided TVOE Upgrade Procedure" from Reference *TVOE 2.7 upgrade Document* or *TVOE 3.0 Software upgrade Document*, E53018, latest revision [If the "PMAC Aided TVOE Upgrade" procedure is not possible, it is also possible to upgrade TVOE using the alternate procedure provided in Reference [2]. **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 Application(s) 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 PMAC VM Management form, verify that the "Enable Virtual Watchdog" is checked. 

7. ☐	Enable all the applications disabled in step1	Enable all applications running on current TVOE: Log into the NOAM VIP GUI a) Select **Status & Manage > Server.** The Server Status screen is displayed b) Select all the applications (NO(s)/SO(s)) running on current TVOE, excluding the server which is in upgrade 'Ready' state. The Upgrade State can be verified from the Administration->Upgrade screen. c) Click the '**Restart**' button. d) Confirm the operation by clicking **Ok** in the popup dialog box. e) Verify that the 'Appl State' for all the selected servers is changed to '**Enabled**'.