5200 Paramount Parkway
Morrisville, NC 27560 USA

Oracle CGBU

User's Guide

HLR Router 4.1 Initial Installation and Configuration for T1200

E76020-01

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Oracle® Communications Tekelec HLR Router 4.1, Initial Installation and Configuration User's Guide for T1200

CAUTION: Before installing any system, please access My Oracle Support (MOS) and review any Technical Service Bulletins (TSBs) that relate to this installation.

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

Refer to **Appendix K** - *Accessing My Oracle Support (MOS)*, for more information on contacting Oracle Customer Service.

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1.0 INTRODUCTION

1.1 Purpose and Scope

This document describes how install HLR Router product from within a customer network. It makes use of the automated network installation and is intended to cover the initial network configuration steps for a NOAM, Query Server, SOAM or MP server which include switch configuration (Telco T5C-24GT switches), and validation of initial configuration.

This document only describes HLR Router automated SW installation on the T1200 application server, deployed within HLR Router cabinet using Telco switches. It does not cover hardware installation, site survey, customer network configuration, IP assignments, customer router configurations, or the configuration of any device outside of the HLR Router cabinet.

1.2 References

[1] TPD Initial Product Manufacture, Release 5.0+, E54521
[2] T1200 Solutions Firmware Upgrade Pack, 909-1618-001
[3] Platform 7.0 Configuration Guide, E53486
[4] HLR Router Network Implementation Guide, WI006024
[5] HLR Router Site Survey (Domestic US), WI006034
[6] HLR Router Hardware Verification Plan, VP005230
[7] HLR Router 4.1 Disaster Recovery Guide for T1200, E76021-01

1.3 Acronyms

Acronym	Meaning
CGBU	Communications Global Business Unit
DR	Disaster Recovery
GUI	Graphical User Interface
HA	High Availability
IMI	Internal Management Interface
IPM	Initial Product Manufacture
MP	Message Processing or Message Processor
NE	Network Element
NOAMP	Network OAM&P
OAM&P	Operations, Administration, Maintenance and Provisioning
SOAM	System OAM
TPD	Tekelec Platform Distribution
VIP	Virtual IP
VPN	Virtual Private Network
XMI	External Management Interface
XSI	External Signaling Interface

Table 1 - Acronyms

1.4 Assumptions

This procedure assumes the following;

- All T1200 servers in HLRR systems are installed with TPD 7.0.3 or higher as described in the TPD Initial Product Manufacture Procedure, Release 5.0+ [1].
- The user has reviewed the HLR Router Network Implementation Guide and has received assigned values for all requested information related to NOAM, Query Server, SOAM and MP installation.
- The user has taken assigned values from the HLR Router Network Implementation Guide [4] and used them to compile a **vlan.conf** file to be used for configuring Telco switches. The customer is ultimately responsible for maintaining this **vlan.conf** file for use in Disaster Recovery operations.
- The user conceptually understands HLR Router topology and network configuration as described in the HLR Router Network Implementation Guide [4].
- The user has at least an intermediate skill set with command prompt activities on an Open Systems computing environment such as Linux or TPD.

1.5 XML Files

The XML files compiled for installation of each NOAM, SOAM or DR-NOAM Network Element must be maintained and accessible for use in Disaster Recovery procedures. Oracle's Consulting Practices Engineer (if retained) will provide a copy of each XML file used for NE installation to a designated Customer Operations POC. The customer is ultimately responsible for maintaining and providing the XML files to **"My Oracle Support"** (MOS) personnel if needed for use in Disaster Recovery operations. Refer to **Appendix K** - *Accessing My Oracle Support (MOS)*, for more information on contacting Oracle Customer Service.

1.6 How to use this Document

Although this document is primarily to be used as an Initial Installation guide, its secondary purpose is to be used as a reference for Disaster Recovery procedures. When executing this document for either purpose, there are a few 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 panels including any STEP specific WARNINGS or NOTES.

If a procedural STEP fails to execute successfully, **STOP** and contact **"My Oracle Support"** (MOS) for assistance before attempting to continue. Refer to **Appendix K** - *Accessing My Oracle Support (MOS)*, for more information on contacting Oracle Customer Service.

NOTE: *Selected procedures within this document have been modularized for use with Disaster Recovery (DR) procedures (e.g. Procedure 7.1, 7.2, 7.3, etc.). It should be understood by the user that this restructuring has no relevance during intial installation procedures.*

Proper execution of these procedures has been clarified in the examples provided below:

- *If executing Proccedure 7 during initial installation, the user would execute all sub-sections contained within Procedure 7 in the order in which they appear (e.g. Procedure 7.1, 7.2, 7.3, etc.).*
- *If executing Proccedure 7 during Disaster Recovery, the user would only execute specific sub-sections (e.g. Procedure 7.2, 7.4) as directed by the HLR Router 4.1 Disaster Recovery Guide for T1200* [7]*.*

2.0 PRE-INSTALLATION SETUP

2.1 Installation Prerequisites

The following items/settings are required in order to perform an installation of an Oracle's Tekelec provided T1200 cabinet:

- A laptop or desktop computer equipped as follows:
  - DB9M Serial port.
  - 10/100 Base-TX Ethernet Interface.
  - Administrative privileges for the OS.
  - Microsoft Internet Explorer 8.0, or higher with support for JavaScript and cookies.
- A DB9F / RJ-45 serial cable (Tekelec P/N: 830-1229-xx).
- An IEEE compliant 10/100 Base-TX Ethernet Cable, RJ-45, Straight-Through.
- USB flash drive with at least 1GB of available space.
- TPD "root" user password.
- TPD "admusr" user password.

2.2 Installation Prerequisites

A serial connection to the RJ-45 console port on the T1200 rear panel is required to initiate and monitor the progress of HLR Router installation procedures.

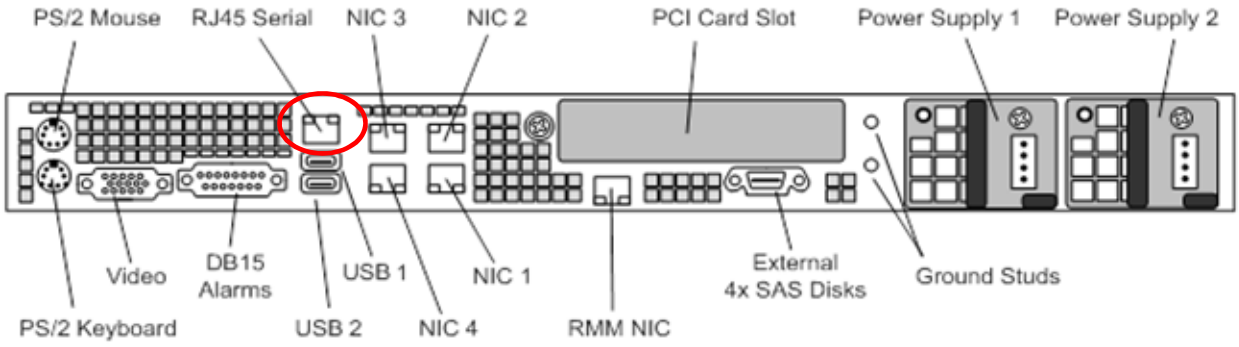


Figure 1 - T1200 Rear Panel: **RJ45 Serial Port**

Terminal Settings are as follows:

- Terminal Emulations supported are **VT100 / VT100+** (i.e. VT-102, VT-220, VT-320).
- Console serial port settings are as follows:

Baud Rate	Parity	Data Bits	Stop Bit	Flow Control
115200	None	8	1	None

Table 2 - Serial Port settings

2.3 Alternative Access for Application Install

In the event that the materials needed for direct serial access are unavailable, this procedure may also be executed using VGA access via one of the methods described below:

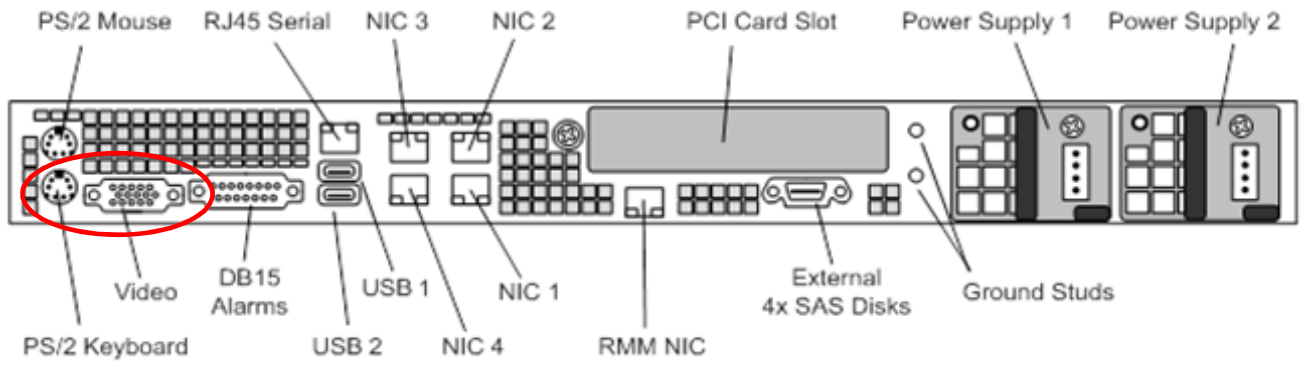


Figure 2 - T1200 Rear Panel: **VGA / PS2 Keyboard Port**

One of the **VGA Access Methods** shown to the right may be used in the event that serial port access is not available.

NOTE: *Method 3) may only be used on a T1200 with an RMM that has been previously configured with a statically assigned IP address. It is not intended for use with a new, out-of-the-box server.*

- ☐ **Method 1)** VGA Monitor and PS2 Keyboard.
- ☐ **Method 2)** Laptop + epiphan SYSTEMS INC. KVM2USB Switch. http://www.epiphan.com/products/kvm2usb/downloads/
- ☐ **Method 3)** RMM VGA Redirection Window, Ethernet cable. (See **Appendix B**)

2.4 Activity Logging

All activity while connected to the system should be logged using a convention which notates the **Customer Name**, **Site/Node** location, **Server hostname** and the **Date**. All logs should be provided to Oracle's Tekelec for archiving post installation.

3.0 INSTALLATION MATRIX

3.1 Installing HLR Router on the Customer Network

Installing the HLR Router product is a task which requires multiple installations of varying types. The matrix below provides a guide to the user as to which procedures are to be performed on which site types. The user should be aware that this document only covers the necessary configuration required to complete product install. Refer to the online help or contact the Tekelec Customer Care Center for assistance with post installation configuration options.

NOTE: *Although the NOAM sites are fully redundant by function, we must distinguish between them during installation due to procedural changes based on the installation sequence. The user should be aware that any reference to the "NOAMP" site refers to the 1st installation of a NOAMP pair on the customer network while references to the "DR NOAMP" site refers to the 2nd NOAMP pair to be installed.*

HLR Router Installation Matrix

		Procedures to Perfom										
		1	2	3	4	5	6	7	8	9	10	11
☐	Primary NOAM / Query Server	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗
☐	DR NOAM / Query Server	✓	✓	✓	✗	✗	✓	✓	✗	✗	✗	✗
☐	SOAM	✓	✓	✓	✗	✗	✗	✓	✓	✗	✗	✗
☐	MP	✓	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓

Table 3 - HLR Router Installation Matrix

HLR Router Installation: List of Procedures

Table 4 - HLR Router Installation: List of Procedures

4.0 APPLICATION INSTALL

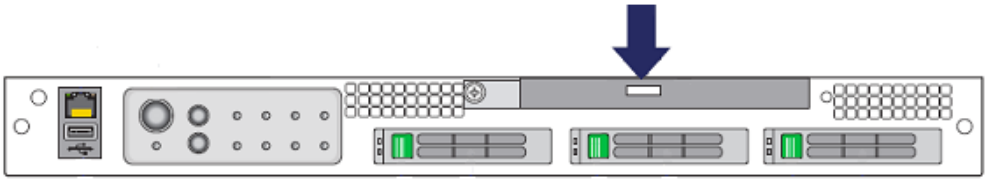
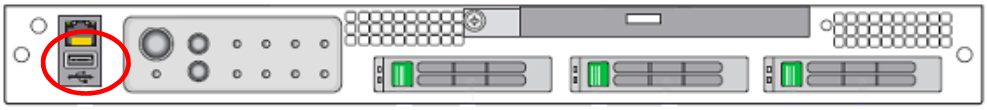
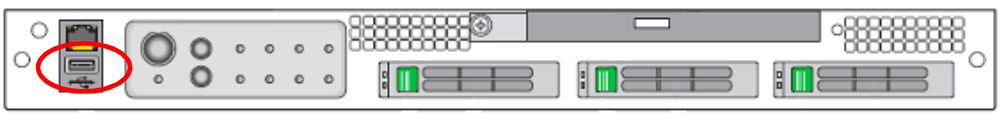
4.1 Installing the HLR Router Application

The user should confirm that the server has been verified through the HLR Router Hardware Verification Plan [5] before beginning this procedure.

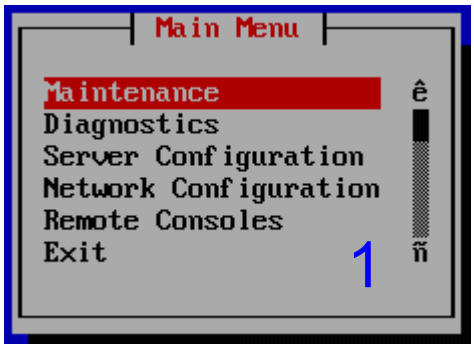
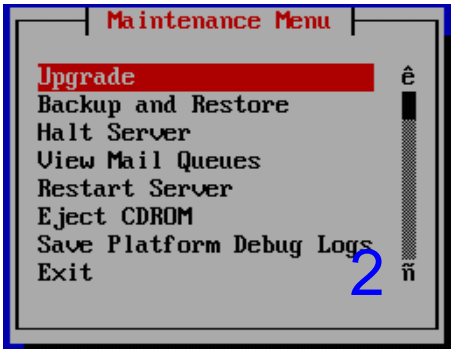
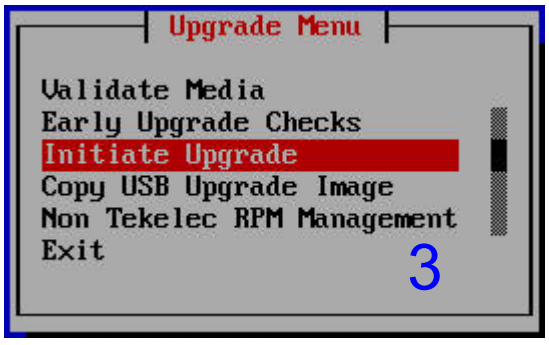
Procedure 1: Installing the HLR Router Application

Step	Procedure	Result
1. ☐	Access the T1200 server's console.	Connect to the T1200 server's console using one of the access methods described in **Section 0.**
2. ☐	Log into the T1200 server as the "**root**" user.	`login: root` `Password: <root_password>`
3. ☐	Verify the date and time are displayed in GMT (+/- 4 min)	`# date -u` `Thu Jan 28 23:12:23 UTC 2014`
	• **If the correct date and time (in GMT) are NOT shown** in previous step, then stop and execute the section entitled ***"Verify the server BIOS"*** from **VP005230** [5]. • Otherwise, if the correct date and time (in GMT) are shown in previous step, then continue on to **Step** 4 of this procedure.	
4. ☐	Verify that the TPD release is **7.0.x.**	`[root@hostname1260476221 ~]# getPlatRev` `7.0.3.0.0-86.38.0` `[root@hostname1260476221 ~]#`
	• **If the Platform Revision shown in the previous step does NOT start with "7.0.x" or "6.5.x"** then Execute ***TPD Initial Product Manufacture, Release 5.0+***, **E54521** [1] for **T1200**. • Otherwise, if the Platform Revision shown is valid, then continue on to **Step 5** of this procedure.	
5. ☐	Execute **"syscheck"** to verify the state of the server before Application install.	`# syscheck` `Running modules in class disk... OK` `Running modules in class hardware... OK` `Running modules in class net... OK` `Running modules in class proc... OK` `Running modules in class system... OK` `LOG LOCATION: /var/TKLC/log/syscheck/fail_log` **NOTE:** *The user should stop and resolve any errors returned from "syscheck" before continuing on to the next step.*

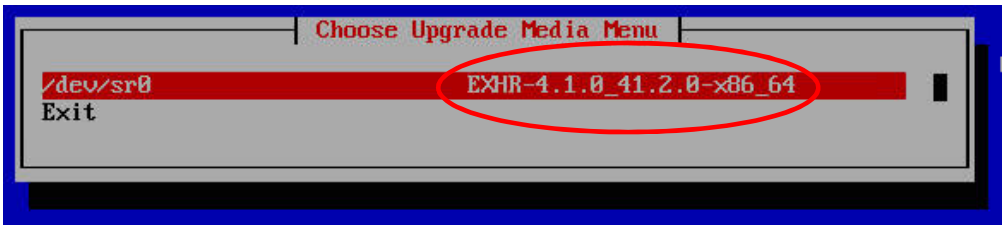
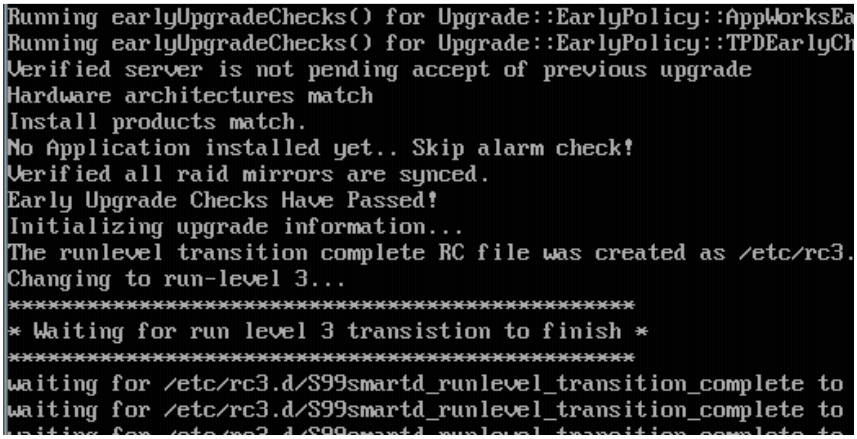
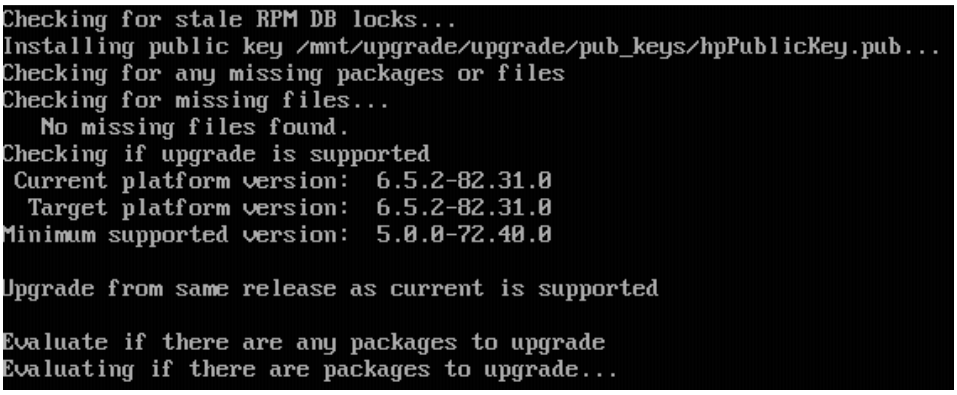
Procedure 1: Installing the HLR Router Application

Step	Procedure	Result
6. ☐	If **CDROM media** is to be used to perform the HLR Router Application install, place the **CDROM** into the **Optical Drive** and **SKIP** to **Step 15** of this procedure. If a **USB flash drive** is to be used, then **CONTINUE** to **Step 7** of this procedure.	 **Figure 3 -** T1200 Front Panel: **Optical Drive**
7. ☐	If the HLR Router **Application ISO** file has been placed on a **USB flash drive**, insert the **USB flash drive** into the USB port on the front panel of **server1A**.	 **Figure 4 -** T1200 Front Panel: **USB Port**
8. ☐	Output similar to that shown on the right may appear on the terminal. Press the **<ENTER>** key to return to the command prompt.	`# sdd: assuming drive cache: write through` `sdd: assuming drive cache: write through` **<ENTER>** `#`
9. ☐	Verify that the USB flash drive's partition has been mounted .	`# df | grep media` `/dev/sdd1  1018088  603372  414716  60% /media/sdd1`
10. ☐	Copy the HLR Router **Application ISO** file to the directory path specified on the right.	`# cp -p /media/sdd1/EXHR-4.1.0_41.2.0-x86_64.iso /var/TKLC/upgrade/`
11. ☐	Unmount the USB flash drive partition.	`# umount /media/sdd1` `#`
12. ☐	Once the command prompt returns to the terminal, **REMOVE** the **USB flash drive** from the USB port on the front panel of the server.	 **Figure 4 -** T1200 Front Panel: **USB Port**

Procedure 1: Installing the HLR Router Application

Step	Procedure	Result
13. ☐	Output similar to that shown on the right may appear on the terminal as the **USB flash drive** is removed. Press the **<ENTER>** key to return to the command prompt.	`scsi 7:0:0:0: rejecting I/O to dead device` `FAT: Directory bread(block 538) failed` **<ENTER>** `#`
14. ☐	Verify that the disk partitions are not in resync *(command should return no output)*. **NOTE:** *If the command output shows that there is a resync in progress, then wait and periodically repeat this command until it returns no output before continuing to the next step.*	`# cat /proc/mdstat |grep resync` `#` ***Example Output (resync in progress):*** `# cat /proc/mdstat |grep resync` `resync=DELAYED` `resync=DELAYED` `resync=DELAYED` `[==========>.........] resync = 51.5% (73166912/141950976)` `finish=17.1min speed=66944K/sec` `#`
15. ☐	Login to the **"platcfg"** utility.	`# su - platcfg`
16. ☐	From the **"platcfg"** Main Menu… Select each option as shown on the right, pressing the **<ENTER>** key after each selection.	  

Procedure 1: Installing the HLR Router Application

Step	Procedure	Result
17. ☐	Verify that HLRR application release level shown matches the target release.	
18. ☐	Output similar to that shown on the right may be observed as HLRR application install progresses.	
19. ☐	Output similar to that shown on the right may be observed as HLRR application install progresses.	

Procedure 1: Installing the HLR Router Application

Step	Procedure	Result
20. ☐	Output similar to that shown on the right may be observed as the Application install progresses.	UMVT Validate Utility v2.2.2, (c)Tekelec, June 2012 Validating /dev/sr1 Date&Time: 2014-04-02 15:57:54 Volume ID: tklc_872-2696-101_Rev_A_40.14.0 Part Number: 872-2696-101_Rev_A Version: 40.14.0 Disc Label: EXHR Disc description: EXHR The media validation is complete, the result is: PASS CDROM is Valid Executing any special platform directives Setting up application for install/upgrade Running upgrade script... Starting upgrade_server... Performing preupgrade processing Scanning package database for config files... Will allocate application storage if necessary... Called with options: --verbose /mnt/upgrade/upgrade/etc/fs.d
21. ☐	Output similar to that shown on the right may be observed as the Application install progresses.	Installing the /var/TKLC/log/upgrade/manifest.normal.UPGRADE manifest! Preparing... ########## Repackaging... ########## comcol ########## ======================== COMCOL Installation Notes ======================== - Link made for /opt/TKLCcomcol/cm6.2 and /opt/TKLCcomcol/conf/cm6.2.env - Link made for /opt/comcol and /opt/TKLCcomcol/conf/comcol.env - Base run directory created: /opt/TKLCcomcol/runcm6.2 - Copied prod/cmbin to system cmbin - Added comcol group Successfully set COMCOL capabilities - Set comcol program capabilities comcol-mysql ########## ace ########## zend-framework ########## log4cplus ########## TKLCawpcommon-6.5.0-6.5.0_65.27.0: Pre-install started... TKLCawpcommon-6.5.0-6.5.0_65.27.0: do_pre_install() TKLCawpcommon-6.5.0-6.5.0_65.27.0: Pre-install complete! TKLCawpcommon ########## TKLCawpcommon-6.5.0-6.5.0_65.27.0: Post-install started... TKLCawpcommon-6.5.0-6.5.0_65.27.0: do_post_install() Make awpcommon as trusted library... TKLCawpcommon-6.5.0-6.5.0_65.27.0: Post-install complete! dojo ######
22. ☐	Output similar to that shown on the right may be observed at the completion of the Application install.	Executing da01_exhr_app_enable.sh... da01_exhr_app_enable.sh: 'Nothing to do if fresh install.' Applications Enabled. Running /usr/TKLC/plat/bin/service_conf reconfig UPGRADE IS COMPLETE Waiting for reboot Updating platform revision file... A reboot of the server is required. The server will be rebooted in 10 seconds ▮

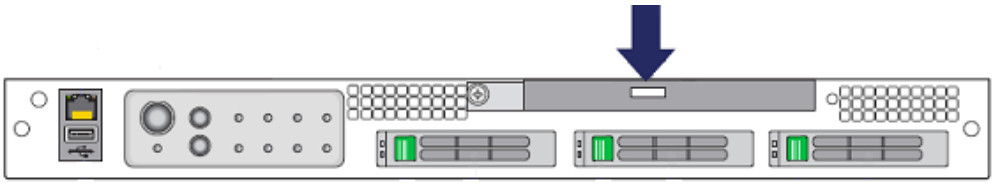
Procedure 1: Installing the HLR Router Application

Step	Procedure	Result
23. ☐	Output similar to that shown on the right may be observed as the server initiates a post-install reboot.	`scsi7 : SCSI emulation for USB Mass Storage devices` `scsi8 : SCSI emulation for USB Mass Storage devices` `input: Intel(R) Multidevice as /class/input/input3` `input: USB HID v1.01 Mouse [Intel(R) Multidevice] on usb-0000:00:1d.3-1` `input: Intel(R) Multidevice as /class/input/input4` `input: USB HID v1.01 Keyboard [Intel(R) Multidevice] on usb-0000:00:1d.3-1` `Restarting system.` `.` `machine restart`
24. ☐	After the server has completed the reboot, log back into the T1200 server as the "**root**" user.	`login: root` `Password: <root_password>`
25. ☐	Output similar to that shown on the right will appear as the server returns to a command prompt.	`CentOS release 6.5 (Final)` `Kernel 2.6.32-431.3.1.el6prerel6.5.2_82.30.0.x86_64 on an x86_64` `hostname1396462623 login: root` `Password:` `Last login: Wed Apr  2 14:18:08 on tty1` `¦============================================================¦` `¦ This system has been upgraded but the upgrade has not yet  ¦` `¦ been accepted or rejected.  Please accept or reject the    ¦` `¦ upgrade soon.                                              ¦` `¦============================================================¦` `VPATH=/opt/TKLCcomcol/runcm6.2:/opt/TKLCcomcol/cm6.2` `PRODPATH=` `RELEASE=6.2` `RUNID=00` `VPATH=/var/TKLC/rundb:/usr/TKLC/appworks` `PRODPATH=/opt/comcol/prod` `RUNID=00` `VPATH=/opt/TKLCcomcol/runcm6.2:/opt/TKLCcomcol/cm6.2` `PRODPATH=` `RELEASE=6.2` `RUNID=00` `VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon` `PRODPATH=/opt/comcol/prod` `RUNID=00` `VPATH=/opt/TKLCcomcol/runcm6.2:/opt/TKLCcomcol/cm6.2` `PRODPATH=` `RELEASE=6.2` `RUNID=00` `VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr/TKL` `PRODPATH=/opt/comcol/prod` `RUNID=00` `VPATH=/opt/TKLCcomcol/runcm6.2:/opt/TKLCcomcol/cm6.2` `PRODPATH=` `RELEASE=6.2`
26. ☐	Verify successful installation of the Application software.	`# grep COMPLETE /var/TKLC/log/upgrade/upgrade.log` `1395014258::  UPGRADE IS COMPLETE`

Procedure 1: Installing the HLR Router Application

Step	Procedure	Result
27. ☐	Verify that HLRR application release level shown on the console matches the target release.	`# appRev` `Install Time: Wed Jan 27 18:12:44 2016` `Product Name: EXHR` `Product Release: 4.1.0_41.2.0` `Base Distro Product: TPD` `Base Distro Release: 7.0.3.0.0_86.38.0` `Base Distro ISO: TPD.install-7.0.3.0.0_86.38.0-OracleLinux6.7-x86_64.iso` `ISO name: EXHR-4.1.0_41.2.0-x86_64.iso` `OS: OracleLinux 6.7`
28. ☐	Accept HLRR application install	`# /var/TKLC/backout/accept`
29. ☐	Output similar to that shown on the right will appear as the server returns to a command prompt.	`[root@hostname1396462623 Process]# /var/TKLC/backout/accept` `Called with options: --accept` `Loading Upgrade::Backout::RPM` `Accepting Upgrade` `Executing common accept tasks` `Setting POST_UPGRADE_ACTION to ACCEPT in upgrade info.` `Cleaning backout directory.` `Clearing Upgrade Accept/Reject alarm.` `Cleaning message from MOTD.` `Cleaning up RPM config backup files...` `Checking /` `Checking /boot` `Checking /tmp` `Checking /usr` `Checking /var` `Checking /var/TKLC` `Checking /tmp/appworks_temp` `Checking /usr/openv` `Checking /var/TKLC/appw/logs/Process` `Checking /var/TKLC/appw/logs/Security` `Checking /var/TKLC/db/filemgmt` `Checking /var/TKLC/rundb` `Starting cleanup of RCS repository.` `INFO: Removing '/var/lib/prelink/force' from RCS repository` `INFO: Removing '/etc/my.cnf' from RCS repository` `[root@hostname1396462623 Process]#`
30. ☐	Verify that the default remoteConsole settings are present.	`# remoteConsole -query` `switch1A` `switch1B`

Procedure 1: Installing the HLR Router Application

Step	Procedure	Result
31. ☐	If installing the HLR Router application on a **NOAM** or **SOAM** server, add additional **remoteConsole** settings as required. Otherwise, if installing the application on a **Query Server** or **MP**, **SKIP** to the next step.	• Refer to **Appendix J** - *Quad-Serial card Configuration for NOAM / SOAM servers,* to configure additional remoteConsole settings as required.
32. ☐	Configure the desired **time zone**. **NOTE:** *If not otherwise specified by the customer, use **"Etc/UTC"** for the time zone setting.*	`# set_ini_tz.pl <time zone>` *Example:* `# set_ini_tz.pl "Etc/UTC"`
33. ☐	Verify that the **date** now reflects the **time zone** chosen in the previous step.	`# date` `Fri Jan 29 15:03:30 UTC 2016`
34. ☐	If **CDROM** media was used to perform the Application install, then eject the **CDROM** from the server's Optical drive as shown to the right. Otherwise, **SKIP** to **Step 36** of this procedure. **NOTE:** *The device name uses a numerical **zero**, not the letter "O".*	`# eject /dev/sr0`
35. ☐	Remove the **CDROM** from the server's optical drive.	 **Figure 3 -** T1200 Front Panel: **Optical Drive**

Procedure 1: Installing the HLR Router Application

Step	Procedure	Result
36. ☐	Initiate a reboot of this server. Wait until the reboot completes	`# init 6` `Broadcast message from root@tks5031301` `(/dev/pts/0) at 15:14 ...` `The system is going down for reboot NOW!`
37. ☐	Repeat this procedure for each additional server to be installed at the site.	• **Repeat this procedure for each HLRR server installed in the cabinet before continuing on to the next procedure.**
THIS PROCEDURE HAS BEEN COMPLETED		

5.0 CONFIGURATION PROCEDURES

5.1 Configuring Telco switch1A *(All Sites)*

This procedure will configure a Telco Systems T5C-24GT Switch **(switch1A)** with a Tekelec HLR Router configuration pushed from a corresponding management server **(server1A)**.

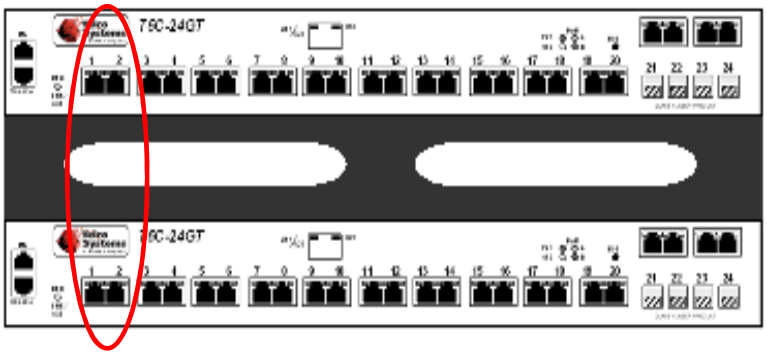
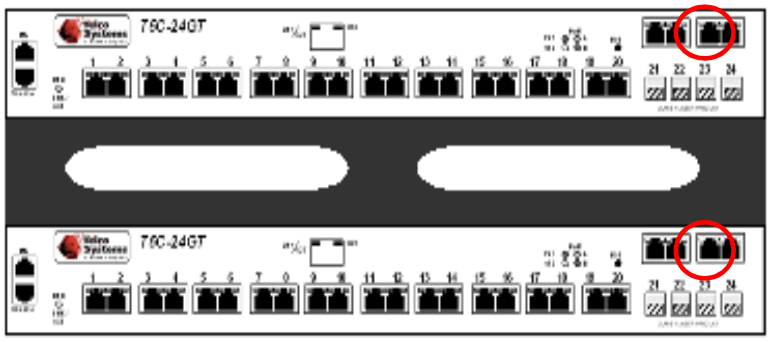
Configuration of the Telco Switch requires a configured **vlan.conf** file for use by the Platform **switchconfig** utility. An example template of a configured vlan.conf file has been documented in **Appendix I** - *Creating a vlan.conf file for Telco Switch Configuration.* An example template file is also located on the HLR Router server in the following location:

/usr/TKLC/exhr/install/switch/telco_switch_template_vlan.conf.

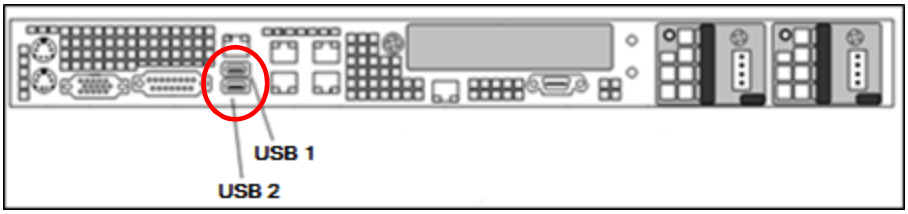
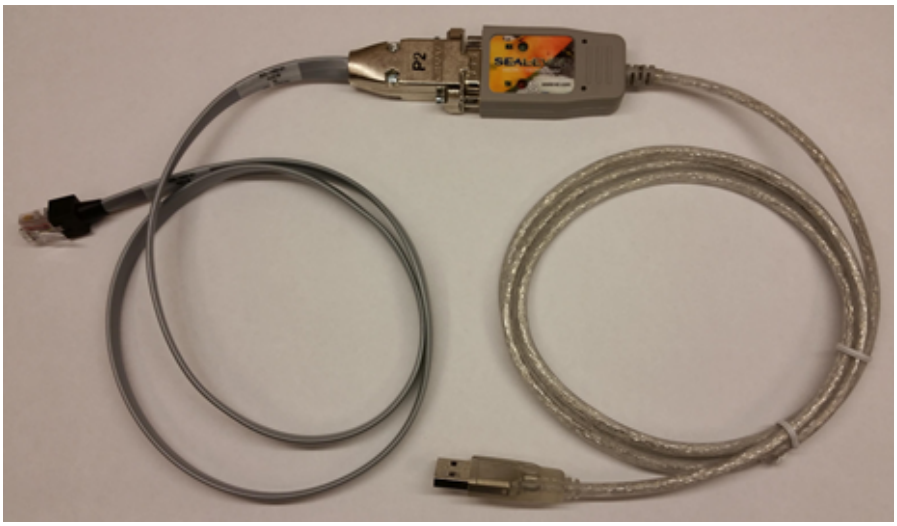
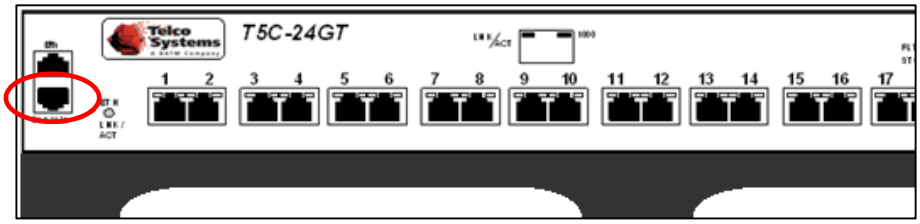
CAUTION: *If an existing **vlan.conf** file was backed up from the **"/usr/TKLC/plat/etc/"** directory for a previous installation of a given site, then it may be reused for that site only. The user should be aware that the **vlan.conf** file must be customized with **"site specific"** network configuration information for each **Network Element** site.*

NOTE: *This procedure assumes a management **server1A** running **TPD 7.0.3** (or higher) and connected serially to the Telco T5C-24GT **switch1A** console port via access port /***dev/ttyUSB1***.*

Procedure 2: Configuring Telco switch1A *(All Sites)*

Step	Procedure	Result
1. ☐	Set/verify the following cable configuration at the **Telco Switches**: **1)** Verify that the ISL from… **switch1A, Port 1** to **switch1B, Port 1** is **CONNECTED.** **2)** Verify that the ISL from… **switch1A, Port 2** to **switch1B, Port 2** is **DISCONNECTED.**	**switch1A** (top) **switch1B** (bottom)  **Figure 5 -** Telco Switches: **ISL Connections**
2. ☐	Set/Verify the following cable configuration at the **Telco Switches**: **1)** Verify that **switch1A, Port 23** is **DISCONNECTED.** **2)** Verify that **switch1B, Port 23** is **DISCONNECTED.**	**switch1A** (top) **switch1B** (bottom)  **Figure 6 -** Telco Switches: **Uplink Connections**

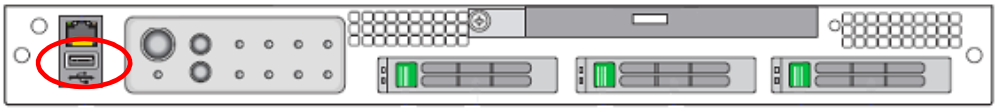
Procedure 2: Configuring Telco switch1A *(All Sites)*

Step	Procedure	Result
3. ☐	**1)** Verify that **server1A** (top-most server in the cabinet) has a **"SEALEVEL" USB-to-DB9M** Serial adaptor (**OEM P/N: 2105R**) connected to the upper **USB Port 1** on the rear panel. **2)** Verify that the **USB-to-DB9M** Serial adaptor referenced above is connected to a **DB9F-to-RJ45** Serial cable (**TKLC P/N: 830-1229-xx**). **3)** Verify that the **DB9F-to-RJ45** Serial cable is connected to the **RJ45 Console** port of **switch1A**.	 **Figure 7 -** T1200 Rear Panel: **USB Port 1**  **Figure 8 -** Telco Switch Console cable: **USB-to-DB9M** Serial adapter / **DB9F-to-RJ45** Serial cable  **Figure 9 -** Telco Switches: **switch1A Console Port**
4. ☐	**OAM Server A:** Access the **server1A** console.	Connect to the **server1A** console using one of the access methods described in **Section 0.**
5. ☐	**OAM Server A:** Log into the server as the "**root**" user.	`login: root` `Password: <root_password>`

Procedure 2: Configuring Telco switch1A *(All Sites)*

Step	Procedure	Result
6. ☐	**OAM Server A:** Output similar to that shown on the right will appear as the server access the command prompt.	VPATH=/opt/TKLCcomcol/runcm6.2:/opt/TKLCcomcol/cm6.2 PRODPATH= RELEASE=6.2 RUNID=00 VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/u PRODPATH=/opt/comcol/prod RUNID=00 VPATH=/opt/TKLCcomcol/runcm6.2:/opt/TKLCcomcol/cm6.2 PRODPATH= RELEASE=6.2 RUNID=00 VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/u PRODPATH=/opt/comcol/prod RUNID=00 [root@hostname1396462623 ~]#
7. ☐	**OAM Server A:** Create an independent login shell.	`# screen`
8. ☐	**OAM Server A:** Create interface bond1.	`# netAdm add --device=bond1` `Interface bond1 added`
9. ☐	**OAM Server A:** Add interface eth01 to bond1. **NOTE:** *When connected to the console, erroneous errors such as those shown to the right may be safely ignored as long as the output ends with* ***"Interface eth01 updated"****.*	`# netAdm set --device=eth01 --bootproto=none --type=Ethernet --master=bond1 --slave=yes --onboot=yes` `/sys/class/net/bond1/bonding/primary has 0 lines, nothing to do.` `bond1: cannot release eth01` `bond1: option slaves: invalid value (-eth01)` **`Interface eth01 updated`**
10. ☐	**OAM Server A:** Verify that interface eth01 has been added to bond1.	`# cat /sys/class/net/bond1/bonding/slaves` `eth01`
11. ☐	**OAM Server A:** Set the management IP address of server1A on the **bond1.1** interface	`# netAdm add --device=bond1.1 --netmask=255.255.255.0 --address=169.254.1.11 --onboot=yes` `Interface bond1.1 added`

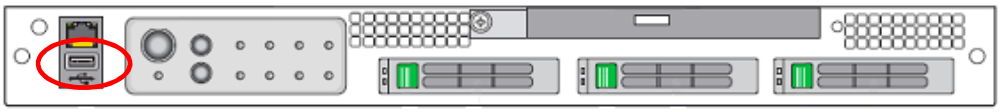
Procedure 2: Configuring Telco switch1A *(All Sites)*

Step	Procedure	Result
12. ☐	**OAM Server A:** Verify that **bond1.1** has been configured with the IP address specified in the previous step.	**# ifconfig bond1.1** bond1.1 Link encap:Ethernet HWaddr 00:1E:67:00:AB:74 inet addr:169.254.1.11 Bcast:169.254.1.255 Mask:255.255.255.0 inet6 addr: fe80::21e:67ff:fe00:ab74/64 Scope:Link UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1 RX packets:0 errors:0 dropped:0 overruns:0 frame:0 TX packets:197 errors:0 dropped:0 overruns:0 carrier:0 collisions:0 txqueuelen:0 RX bytes:0 (0.0 b) TX bytes:14482 (14.1 KiB)
13. ☐	**OAM Server A:** Add aliases for the management IP addresses of **switch1A** and **switch1B.**	**# delHost --alias=switch1A** **# addHost --force --alias=switch1A --ip=169.254.1.1** **# delHost --alias=switch1B** **# addHost --force --alias=switch1B --ip=169.254.1.2**
14. ☐	**OAM Server A:** Determine and record the access port which should be mapped to **switch1A**.	**# ls -la /dev/ttyUSB*** *Example output:* crw-rw---- 1 root dialout 188, 0 Apr 25 15:39 /dev/ttyUSB1 **Record the value: /dev/ttyUSB___**
15. ☐	**OAM Server A:** **1)** Place the **vlan.conf** file containing switch configuration for the HLRR site on a **USB flash drive**. **2)** Insert the **USB flash drive** into the USB port on the front panel of **server1A**.	 **Figure 4 -** T1200 Front Panel: **USB Port**
16. ☐	**OAM Server A:** Output similar to that shown on the right may appear on the terminal. Press the **<ENTER>** key to return to the command prompt.	# sdd: assuming drive cache: write through sdd: assuming drive cache: write through **<ENTER>** #
17. ☐	**OAM Server A:** Verify that the USB flash drive's partition has been mounted .	**# df | grep usb** /dev/sdd1 1018088 603372 414716 60% **/var/tmp/usb_flash**

Procedure 2: Configuring Telco switch1A *(All Sites)*

Step	Procedure	Result
18. ☐	**OAM Server A:** Copy **vlan.conf** file to the directory path specified on the right.	`# cp -p /var/tmp/usb_flash/vlan.conf /usr/TKLC/plat/etc/`
19. ☐	**OAM Server A:** Change file ownship to the "root" user as shown to the right.	`# chown root:root /usr/TKLC/plat/etc/vlan.conf`
20. ☐	**OAM Server A:** Change file permissions as shown to the right.	`# chmod 755 /usr/TKLC/plat/etc/vlan.conf`
21. ☐	**OAM Server A:** Verify that the file permissions and ownship have been successfully updated as shown to the right.	`# ls -l /usr/TKLC/plat/etc/vlan.conf` `-rwxr-xr-x 1 root root 10102 Aug 1 2014  usr/TKLC/plat/etc/vlan.conf`
22. ☐	**OAM Server A:** Remove any non-**ASCII** characters from the file. **NOTE:** *This command is necessary in cases where the vlan.conf file was edited using a non-ASCII compliant Editor.*	`# dos2unix /usr/TKLC/plat/etc/vlan.conf`
23. ☐	**OAM Server A:** Verify that **accessport** name displayed matches the value recorded in **Step 14** of this procedure. **NOTE**: *If the output doesn't match the value recorded in **Step 14**, then edit the file to correct it.* *Otherwise, continue to the next step.*	**`# grep USB /usr/TKLC/plat/etc/vlan.conf`** *Example output:* `--accessport=/dev/ttyUSB1 \` `--accessport=/dev/ttyUSB1 \`

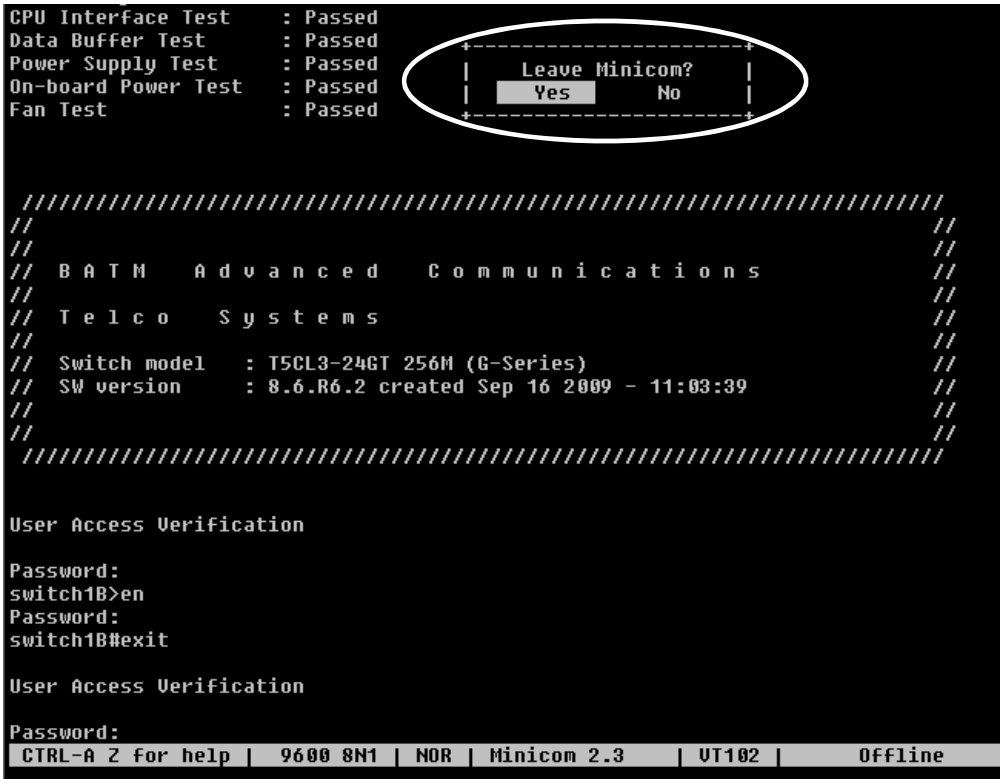
Procedure 2: Configuring Telco switch1A *(All Sites)*

Step	Procedure	Result
24. ☐	**OAM Server A:** Remove the USB flash drive from the USB port on the front panel of **server1A**.	 **Figure 4 -** T1200 Front Panel: **USB Port**
25. ☐	**OAM Server A:** Output similar to that shown on the right may appear on the terminal as the **USB flash drive** is removed. Press the **<ENTER>** key to return to the command prompt.	`scsi 7:0:0:0: rejecting I/O to dead device` `FAT: Directory bread(block 538) failed` **<ENTER>** `#`
26. ☐	**OAM Server A:** Verify that minicom files are available on the server. If **switch1A** minicom file was listed in the ouput for this command, then **SKIP** to **Step 28** of this procedure.	**`# ls -1 /etc/minirc.*`** *Example output:* `/etc/minirc.switch1A` `/etc/minirc.switch1B`
27. ☐	**OAM Server A:** If the **switch1A** minicom file was **NOT** listed in the previous step, setup the remoteConsole connection to switch1A as shown to the right.	**`# /usr/TKLC/plat/bin/remoteConsole --add --name=switch1A --bps=9600 --port=ttyUSB1`**
28. ☐	**OAM Server A:** Verify if that the **switch1A** minicom file is configured for the correct access port. **NOTE**: *If the output doesn't match the value recorded in **Step 14**, then edit the file to correct it.* *Otherwise, continue to the next step.*	**`# grep USB /etc/minirc.switch1A`** *Example output:* `pr port  /dev/ttyUSB1`

Procedure 2: Configuring Telco switch1A *(All Sites)*

Step	Procedure	Result
29. ☐	**OAM Server A:** Connect serially to the **switch1A** console by issuing the following command on **server1A**. **NOTE**: *If the Telco Switch does not accept the factory default password, then a previous configuration may be present.* *If the switch **console** and switch **enable** passwords are known, then login and continue to the next step.* *Otherwise, **STOP** and contact "My Oracle Support" (MOS) for assistance [refer to **Appendix K** - Accessing My Oracle Support (MOS), for more information on contacting Oracle Customer Service].*	`# minicom switch1A` `Welcome to minicom 2.3` `OPTIONS: I18n` `Compiled on Aug 19 2010, 05:50:19.` `Port /dev/ttyUSB0` `Press CTRL-A Z for help on special keys` **<ENTER>** `Password:` ***<factory_default_password>*** `T5C-24GT>` `Switch>` **enable** `T5C-24GT#`
30. ☐	**OAM Server A (switch console session):** Restore **switch1A** to **factory default** settings.	`T5C-24GT#` **reload to-defaults** `Restore factory setting and reboot the Switch ? [y/n] :` **y** `Rebooting…` [Additional output omitted] The switch will reboot to a factory default configuration. Once the reboot has completed, the user will be presented with the following prompt: `User Access Verification` `Password:`

Procedure 2: Configuring Telco switch1A *(All Sites)*

Step	Procedure	Result
31. ☐	**OAM Server A (switch console session):** Exit from the **switch1A** console and minicom session At the **"Password:"** prompt, exit the minicom session by pressing the following keyboard sequence: **1) CTRL-a** **2) a** **3) x** **4) <ENTER>** **NOTE:** If you are at the **"T5C-24GT# "** or **"T5C-24GT>"** prompt, log out by typing **"exit"** and pressing the **<ENTER>** key.	
32. ☐	**OAM Server A:** Verify that the Telco Switch firmware binary version present on the server matches the one displayed to the right. **NOTE**: *If the correct binary image file is not displayed, then refer to the **T1200 Solutions Firmware Upgrade Pack** [2], or contact "My Oracle Support" (MOS) for assistance [refer to **Appendix K** - Accessing My Oracle Support (MOS), for more information on contacting Oracle Customer Service].*	`# ls /var/TKLC/switchconfig/*.bin` `/var/TKLC/switchconfig/BiNOS-T5CL3_24G-G_v8.6.R6.2.bin`

Procedure 2: Configuring Telco switch1A *(All Sites)*

Step	Procedure	Result
33. ☐	**OAM Server A:** **1)** Turn on the **tftp** service using the **chkconfig** utility. **2)** Verify that the **tftp** service has been enabled.	`# chkconfig tftp on` `# chkconfig --list tftp` `tftp on`
34. ☐	**OAM Server A:** **1)** Start the **xinetd** service as shown to the right. **2)** Verify that the **xinetd** service is running.	`# service xinetd start` `Starting xinetd: [  OK  ]` `# service xinetd status` `xinetd (pid  24261) is running...`
35. ☐	**OAM Server A:** Run the **prepswconf** script to modify server **iptables** *(firewall)* to allow **tftp** between the switch and the server. **NOTE:** *This command will temporarily open up iptables on the server to allow tftp access to the switch for **120 minutes**.* *The following step must be completed within that time frame. If not, the **prepswconf** script must be re-run before any subsequent attempt to complete the remaining steps of this procedure.*	`# /usr/TKLC/plat/sbin/prepswconf --prepare`

Procedure 2: Configuring Telco switch1A *(All Sites)*

Step	Procedure	Result
36. ☐	**OAM Server A:** Configure **switch1A** using the **switchconfig** utility. **NOTE:** *This step will take approximately 20 minutes to complete.* *If the output fails to indicate a successful configuration,* ***STOP*** *and contact "My Oracle Support" (MOS) for assistance [refer to* ***Appendix K*** *- Accessing My Oracle Support (MOS), for more information on contacting Oracle Customer Service].*	`# /usr/TKLC/plat/sbin/switchconfig --swname=switch1A` `Successfully enabled on switch switch1A.` `Reloading switch switch1A with defaults, please standby…` `Switch switch1A successfully set to default configuration.` `Successfully started management VLAN on switch1A.` `Startup configuration created OK.` `Successfully uploaded startup config for switch1A.` `Removing config file switch1A.startup-config from /var/lib/tftpboot.` `Reloading switch switch1A, please standby…` `Reload of switch switch1A complete.` `Switch switch1A successfully configured.`
37. ☐	**OAM Server A:** Restore the iptables configuration *(firewall)* to its original state.	`# /usr/TKLC/plat/sbin/prepswconf --clean`
38. ☐	**OAM Server A:** Stop the **xinetd** service.	`# service xinetd stop` `Stopping xinetd: [ OK ]`
39. ☐	**OAM Server A:** **1)** Turn off the **tftp** service using the **chkconfig** utility. **2)** Verify that the **tftp** service has been disabled.	`# chkconfig tftp off` `# chkconfig --list tftp` `tftp off`
40. ☐	**OAM Server A:** Exit the **screen** session and logout of the server.	`# exit` `[screen is terminating]` `# exit` `logout`
THIS PROCEDURE HAS BEEN COMPLETED		

5.2 Configuring Telco switch1B *(All Sites)*

This procedure will configure a Telco Systems T5C-24GT Switch **(switch1B)** with a Tekelec HLR Router configuration pushed from a corresponding management server **(server1B)**.

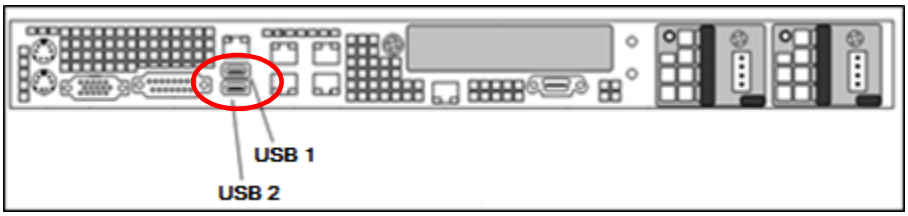
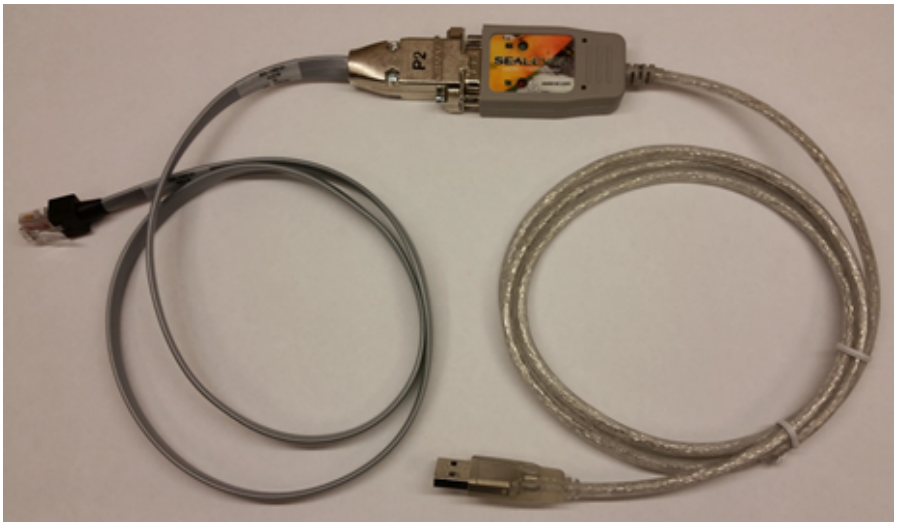
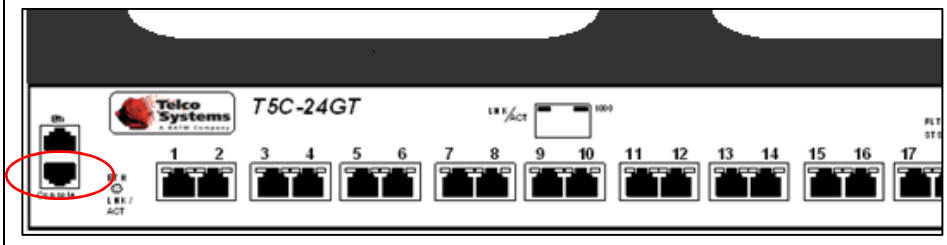
Configuration of the Telco Switch requires a configured **vlan.conf** file for use by the Platform **switchconfig** utility. An example template of a configured vlan.conf file has been documented in **Appendix I** - *Creating a vlan.conf file for Telco Switch Configuration*. An example template file is also located on the HLR Router server in the following location:

/usr/TKLC/exhr/install/switch/telco_switch_template_vlan.conf.

CAUTION*: If an existing **vlan.conf** file was backed up from the* **"/usr/TKLC/plat/etc/"** *directory for a previous installation of a given site, then it may be reused for that site only. The user should be aware that the **vlan.conf** file must be customized with **"site specific"** network configuration information for each **Network Element** site.*

NOTE: *This procedure assumes a management **server1B** running **TPD 7.0.3** (or higher) and connected serially to the Telco T5C-24GT **switch1B** console port via access port /***dev/ttyUSB1**.

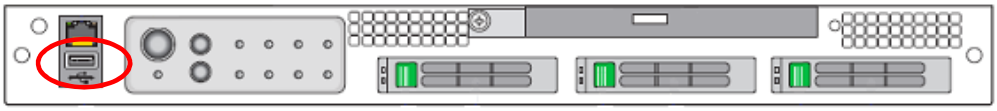
Procedure 3: Configuring Telco switch1B *(All Sites)*

Step	Procedure	Result
1. ☐	**1)** Verify that **server1B** (2nd server from the top in the cabinet) has a **"SEALEVEL" USB-to-DB9M** Serial adaptor (**OEM P/N: 2105R**) connected to the upper **USB Port 1** on the rear panel. **2)** Verify that the **USB-to-DB9M** Serial adaptor referenced above is connected to a **DB9F-to-RJ45** Serial cable (**TKLC P/N: 830-1229-xx**). **3)** Verify that the **DB9F-to-RJ45** Serial cable is connected to the **RJ45 Console** port of **switch1B**.	 **Figure 7 -** T1200 Rear Panel: **USB Port 1**  **Figure 8 -** Telco Switch Console cable: **USB-to-DB9M** Serial adapter / **DB9F-to-RJ45** Serial cable  **Figure 10 -** Telco Switches: **switch1B Console Port**
2. ☐	**OAM Server B:** Access the **server1B** console.	Connect to the **server1B** console using one of the access methods described in **Section 0**
3. ☐	**OAM Server B:** Log into the server as the "**root**" user.	`login: root` `Password: <root_password>`

Procedure 3: Configuring Telco switch1B *(All Sites)*

Step	Procedure	Result
4. ☐	**OAM Server B:** Output similar to that shown on the right will appear as the server access the command prompt.	VPATH=/opt/TKLCcomcol/runcm6.2:/opt/TKLCcomcol/cm6.2 PRODPATH= RELEASE=6.2 RUNID=00 VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/u PRODPATH=/opt/comcol/prod RUNID=00 VPATH=/opt/TKLCcomcol/runcm6.2:/opt/TKLCcomcol/cm6.2 PRODPATH= RELEASE=6.2 RUNID=00 VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/u PRODPATH=/opt/comcol/prod RUNID=00 [root@hostname1396462623 ~]#
5. ☐	**OAM Server B:** Create an independent login shell.	`# screen`
6. ☐	**OAM Server B:** Create interface bond1.	`# netAdm add --device=bond1` `Interface bond1 added`
7. ☐	**OAM Server A:** Add interface eth01 to bond1. **NOTE:** *When connected to the console, erroneous errors such as those shown to the right may be safely ignored as long as the output ends with* ***"Interface eth03 updated"****.*	`# netAdm set --device=eth03 --bootproto=none --type=Ethernet --master=bond1 --slave=yes --onboot=yes` `/sys/class/net/bond1/bonding/primary has 0 lines, nothing to do.` `bond1: cannot release eth01` `bond1: option slaves: invalid value (-eth01)` **`Interface eth03 updated`**
8. ☐	**OAM Server A:** Verify that interface eth03 has been added to bond1.	`# cat /sys/class/net/bond1/bonding/slaves` `eth03`
9. ☐	**OAM Server B:** Set management IP address of server1B on the **bond1.1** interface	`# netAdm add --device=bond1.1 --netmask=255.255.255.0 --address=169.254.1.12 --onboot=yes` `Interface bond1.1 added`

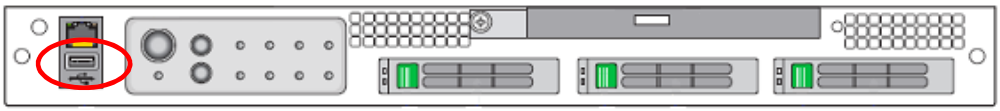
Procedure 3: Configuring Telco switch1B *(All Sites)*

Step	Procedure	Result
10. ☐	**OAM Server B:** Verify that **bond1.1** has been configured with the IP address specified in the previous step.	**# ifconfig bond1.1** bond1.1 Link encap:Ethernet HWaddr 00:1E:67:00:AB:74 inet addr:169.254.1.12 Bcast:169.254.1.255 Mask:255.255.255.0 inet6 addr: fe80::21e:67ff:fe00:ab74/64 Scope:Link UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1 RX packets:0 errors:0 dropped:0 overruns:0 frame:0 TX packets:197 errors:0 dropped:0 overruns:0 carrier:0 collisions:0 txqueuelen:0 RX bytes:0 (0.0 b) TX bytes:14482 (14.1 KiB)
11. ☐	**OAM Server B:** Add aliases for management IP addresses of **switch1A** and **switch1B.**	**# delHost --alias=switch1A** **# addHost --force --alias=switch1A --ip=169.254.1.1** **# delHost --alias=switch1B** **# addHost --force --alias=switch1B --ip=169.254.1.2**
12. ☐	**OAM Server B:** Determine and record the access port which should be mapped to **switch1B**.	**# ls -la /dev/ttyUSB*** *Example output:* crw-rw---- 1 root dialout 188, 0 Apr 25 15:39 /dev/ttyUSB1 **Record the value: /dev/ttyUSB___**
13. ☐	**OAM Server B:** **1)** Place the **vlan.conf** file containing HLRR cabinet's configuration on a **USB flash drive**. **2)** Insert the **USB flash drive** into the USB port on the front panel of **server1B**.	 **Figure 4 -** T1200 Front Panel: **USB Port**
14. ☐	**OAM Server B:** Output similar to that shown on the right will appear. Press the **<ENTER>** key to return to the command prompt.	# sdd: assuming drive cache: write through sdd: assuming drive cache: write through **<ENTER>** #
15. ☐	**OAM Server B:** Verify that the USB flash drive's partition has been mounted .	**# df | grep usb** /dev/sdd1 1018088 603372 414716 60% **/var/tmp/usb_flash**

Procedure 3: Configuring Telco switch1B *(All Sites)*

Step	Procedure	Result
16. ☐	**OAM Server B:** Copy **vlan.conf** file to the directory path specified on the right.	`# cp -p /var/tmp/usb_flash/vlan.conf /usr/TKLC/plat/etc/`
17. ☐	**OAM Server B:** Change file ownship to the "root" user as shown to the right.	`# chown root:root /usr/TKLC/plat/etc/vlan.conf`
18. ☐	**OAM Server B:** Change file permissions as shown to the right.	`# chmod 755 /usr/TKLC/plat/etc/vlan.conf`
19. ☐	**OAM Server B:** Verify that the file permissions and ownship have been successfully updated as shown to the right.	`# ls -l /usr/TKLC/plat/etc/vlan.conf` `-rwxr-xr-x 1 root root 10102 Aug 1 2014  usr/TKLC/plat/etc/vlan.conf`
20. ☐	**OAM Server B:** Remove any non-**ASCII** characters from the file. **NOTE:** *This command is necessary in cases where the vlan.conf file was edited using a non-ASCII compliant Editor.*	`# dos2unix /usr/TKLC/plat/etc/vlan.conf`
21. ☐	**OAM Server B:** Verify that **accessport** name displayed matches the value recorded in **Step 12** of this procedure. **NOTE**: *If the output doesn't match the value recorded in* ***Step*** 12*, then edit the file to correct it.* *Otherwise, continue to the next step.*	**`# grep USB /usr/TKLC/plat/etc/vlan.conf`** *Example output:* `--accessport=/dev/ttyUSB1 \` `--accessport=/dev/ttyUSB1 \`

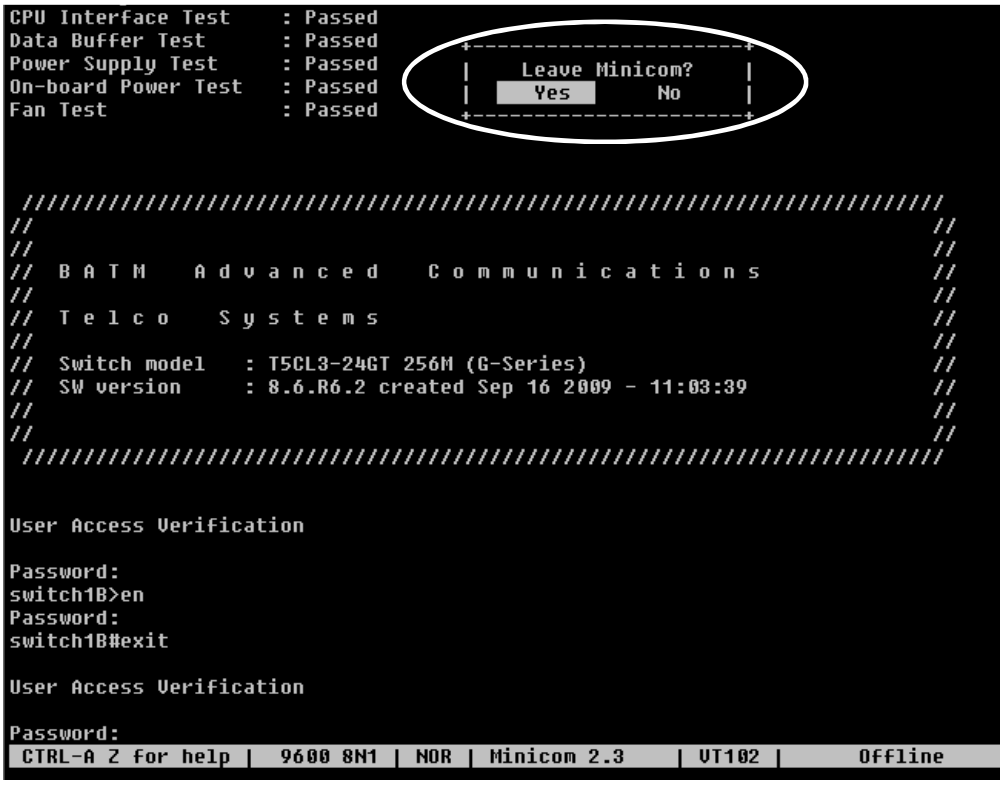
Procedure 3: Configuring Telco switch1B *(All Sites)*

Step	Procedure	Result
22. ☐	**OAM Server B:** Remove the USB flash drive from the USB port on the front panel of **server1B**.	 **Figure 4 -** T1200 Front Panel: **USB Port**
23. ☐	**OAM Server B:** Output similar to that shown on the right may appear on the terminal as the **USB flash drive** is removed. Press the **<ENTER>** key to return to the command prompt.	`scsi 7:0:0:0: rejecting I/O to dead device` `FAT: Directory bread(block 538) failed` **<ENTER>** `#`
24. ☐	**OAM Server B:** Verify that minicom files are available on the server. If **switch1B** minicom file was listed in the ouput for this command, then **SKIP** to **Step 26** of this procedure.	**`# ls -1 /etc/minirc.*`** *Example output:* `/etc/minirc.switch1A` `/etc/minirc.switch1B`
25. ☐	**OAM Server B:** If the **switch1B** minicom file was **NOT** listed in the previous step, setup the remoteConsole connection to switch1B as shown to the right.	**`# /usr/TKLC/plat/bin/remoteConsole --add --name=switch1B --bps=9600 --port=ttyUSB1`**

Procedure 3: Configuring Telco switch1B *(All Sites)*

Step	Procedure	Result
26. ☐	**OAM Server B:** Verify if that the **switch1B** minicom file is configured for the correct access port. **NOTE**: *If the output doesn't match the value recorded in **Step** 12, then edit the file to correct it.* *Otherwise, continue to the next step.*	**# grep USB /etc/minirc.switch1B** *Example output:* pr port /dev/ttyUSB1
27. ☐	**OAM Server B:** Connect serially to the **switch1B** console by issuing the following command on **server1B**. **NOTE**: *If the Telco Switch does not accept the factory default password, then a previous configuration may be present.* *If the switch **console** and switch **enable** passwords are known, then login and continue to the next step.* *Otherwise, **STOP** and contact "My Oracle Support" (MOS) for assistance [refer to **Appendix K** - Accessing My Oracle Support (MOS), for more information on contacting Oracle Customer Service].*	# **minicom switch1B** Welcome to minicom 2.3 OPTIONS: I18n Compiled on Aug 19 2010, 05:50:19. Port /dev/ttyUSB0 Press CTRL-A Z for help on special keys **<ENTER>** Password: ***<factory_default_password>*** T5C-24GT> Switch> **enable** T5C-24GT#

Procedure 3: Configuring Telco switch1B *(All Sites)*

Step	Procedure	Result
28. ☐	**OAM Server B (switch console session):** Restore **switch1B** to **factory default** settings.	`T5C-24GT# reload to-defaults` `Restore factory setting and reboot the Switch ? [y/n] : y` `Rebooting…` [Additional output omitted] The switch will reboot to a factory default configuration. Once the reboot has completed, the user will be presented with the following prompt: `User Access Verification` `Password:`
29. ☐	**OAM Server B (switch console session):** Exit from the **switch1B** console and minicom session At the **"Password:"** prompt, exit the minicom session by pressing the following keyboard sequence: **1) CTRL-a** **2) a** **3) x** **4) <ENTER>** **NOTE:** If you are at the **"T5C-24GT# "** or **"T5C-24GT>"** prompt, log out by typing **"exit"** and pressing the **<ENTER>** key.	

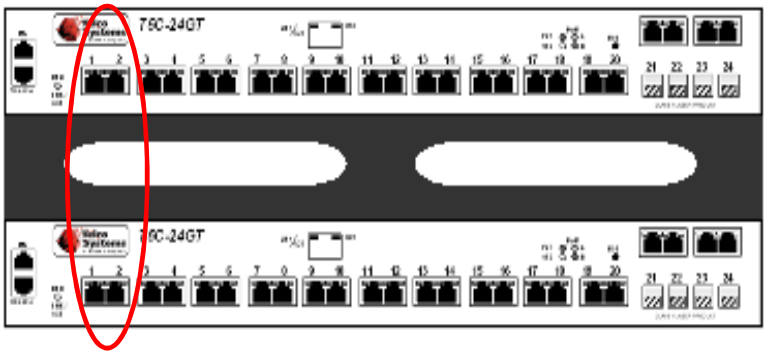
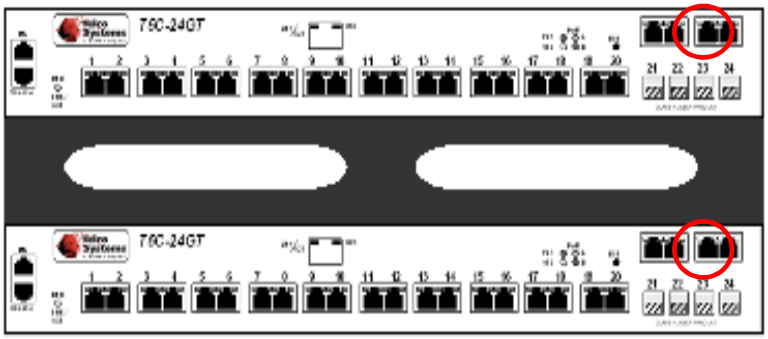
Procedure 3: Configuring Telco switch1B *(All Sites)*

Step	Procedure	Result
30. ☐	**OAM Server B:** Verify that the Telco Switch firmware binary version present on the server matches the one displayed to the right. **NOTE**: *If the correct binary image file is not displayed, then refer to the **T1200 Solutions Firmware Upgrade Pack** [2], or contact "My Oracle Support" (MOS) for assistance [refer to **Appendix K** - Accessing My Oracle Support (MOS), for more information on contacting Oracle Customer Service].*	`# ls /var/TKLC/switchconfig/*.bin` `/var/TKLC/switchconfig/BiNOS-T5CL3_24G-G_v8.6.R6.2.bin`
31. ☐	**OAM Server B:** **1)** Turn on the **tftp** service using the **chkconfig** utility. **2)** Verify that the **tftp** service has been enabled.	`# chkconfig tftp on` `# chkconfig --list tftp` `tftp on`
32. ☐	**OAM Server B:** **1)** Start the **xinetd** service as shown to the right. **2)** Verify that the **xinetd** service is running.	`# service xinetd start` `Starting xinetd: [  OK  ]` `# service xinetd status` `xinetd (pid  24261) is running...`

Procedure 3: Configuring Telco switch1B *(All Sites)*

Step	Procedure	Result
33. ☐	**OAM Server B:** Run the **prepswconf** script to modify server **iptables** *(firewall)* to allow **tftp** between the switch and the server. **NOTE:** *This command will temporarily open up iptables on the server to allow tftp access to the switch for **120 minutes**.* *The following step must be completed within that time frame. If not, the **prepswconf** script must be re-run before any subsequent attempt to complete the remaining steps of this procedure.*	`# /usr/TKLC/plat/sbin/prepswconf --prepare`
34. ☐	**OAM Server B:** Configure **switch1B** using the **switchconfig** utility. **NOTE:** *This step will take approximately 20 minutes to complete.* *If the output fails to indicate a successful configuration, **STOP** and contact "My Oracle Support" (MOS) for assistance [refer to **Appendix K** - Accessing My Oracle Support (MOS), for more information on contacting Oracle Customer Service].*	`# /usr/TKLC/plat/sbin/switchconfig --swname=switch1B` `Successfully enabled on switch switch1B.` `Reloading switch switch1B with defaults, please standby…` `Switch switch1B successfully set to default configuration.` `Successfully started management VLAN on switch1B.` `Startup configuration created OK.` `Successfully uploaded startup config for switch1B.` `Removing config file switch1B.startup-config from /var/lib/tftpboot.` `Reloading switch switch1B, please standby…` `Reload of switch switch1B complete.` `Switch switch1B successfully configured.`
35. ☐	**OAM Server B:** Restore the iptables configuration *(firewall)* to its original state.	`# /usr/TKLC/plat/sbin/prepswconf --clean`

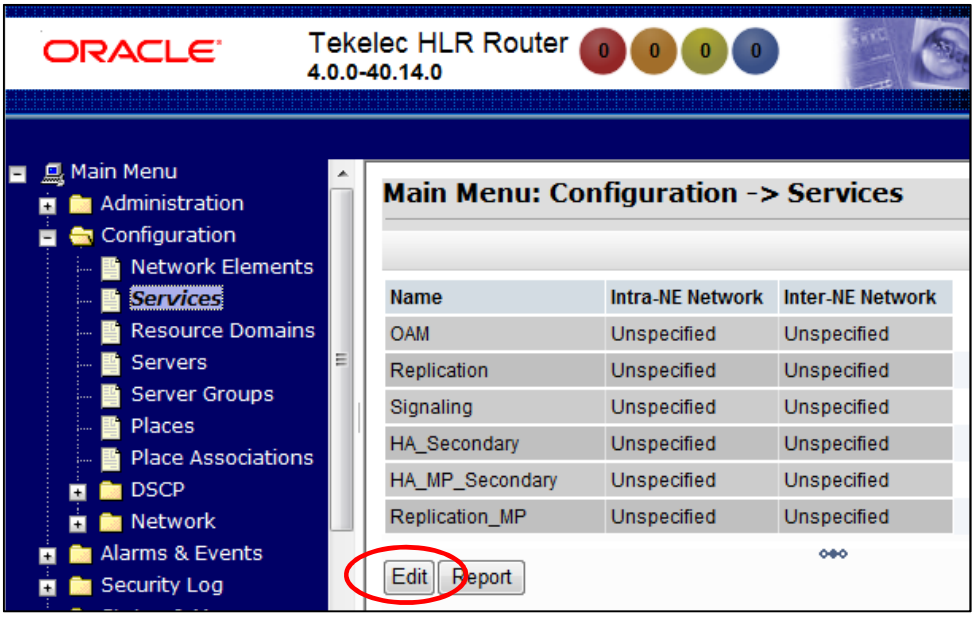
Procedure 3: Configuring Telco switch1B *(All Sites)*

Step	Procedure	Result
36. ☐	**OAM Server B:** Stop the **xinetd** service.	`# service xinetd stop` `Stopping xinetd: [ OK ]`
37. ☐	**OAM Server B:** **1)** Turn off the **tftp** service using the **chkconfig** utility. **2)** Verify that the **tftp** service has been disabled.	`# chkconfig tftp off` `# chkconfig --list tftp` `tftp off`
38. ☐	**OAM Server B:** Exit the **screen** session and logout of the server.	`# exit` `[screen is terminating]` `# exit` `logout`
39. ☐	Set/Verify the following cable configuration at the **Telco Switches**: **1)** Verify that the ISL from… **switch1A, Port 1** to **switch1B, Port 1** is **CONNECTED.** **2)** Verify that the ISL from… **switch1A, Port 2** to **switch1B, Port 2** is **CONNECTED.**	**switch1A** (top) **switch1B** (bottom)  **Figure 5 -** Telco Switches: **ISL Connections**
40. ☐	Reconnect the **Telco Switches** to the customer network: **1)** Verify that… **switch1A, Port 23** is **CONNECTED.** **2)** Verify that… **switch1B, Port 23** is **CONNECTED.**	**switch1A** (top) **switch1B** (bottom)  **Figure 6 -** Telco Switches: **Uplink Connections**
THIS PROCEDURE HAS BEEN COMPLETED		

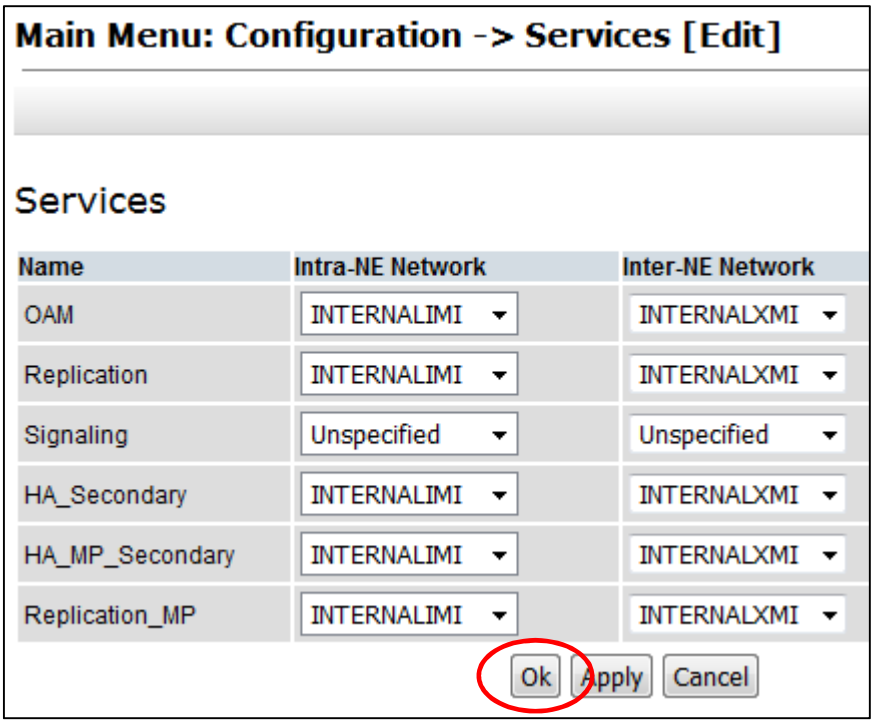
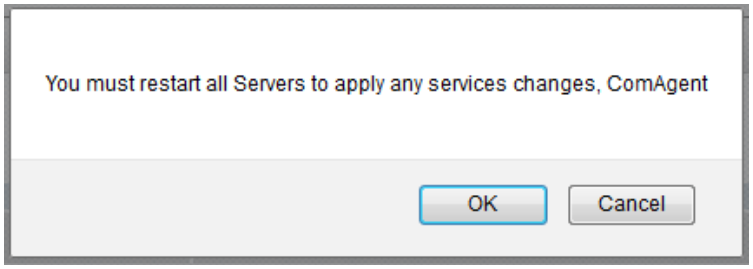
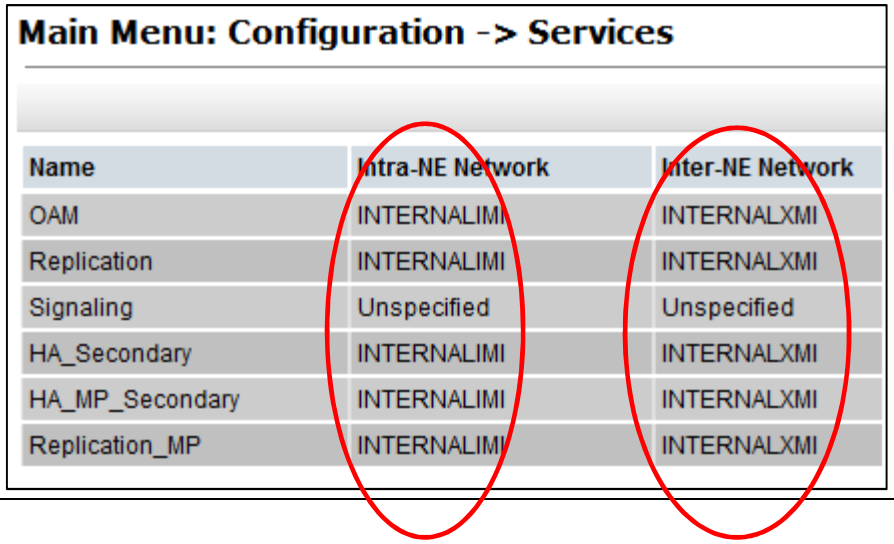
5.3 Configuring the Primary NOAM Site *(1st NOAMP Site Only)*

NOTE: This procedure assumes that the XML file for configuring the Primary NOAM Network Element has been previously prepared, as described in **Appendix A**.

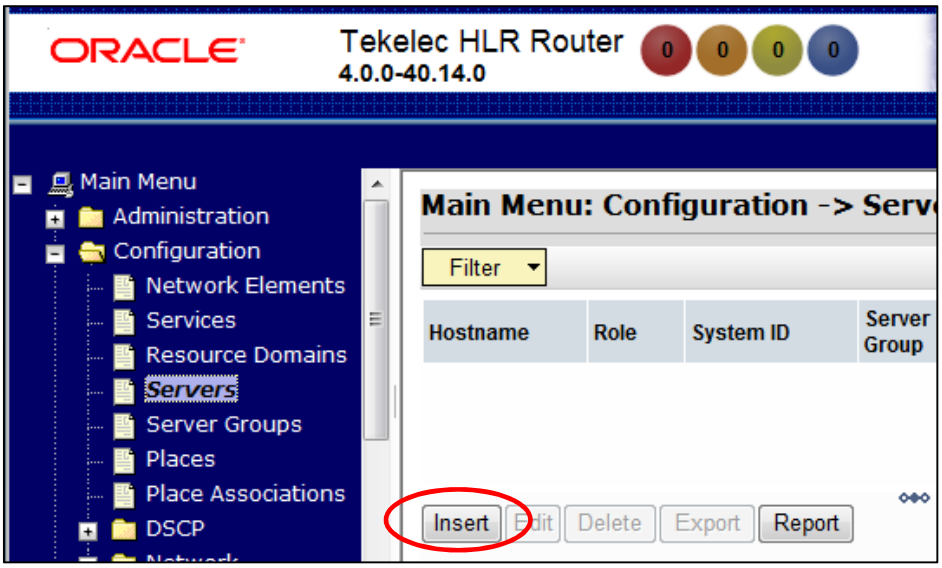
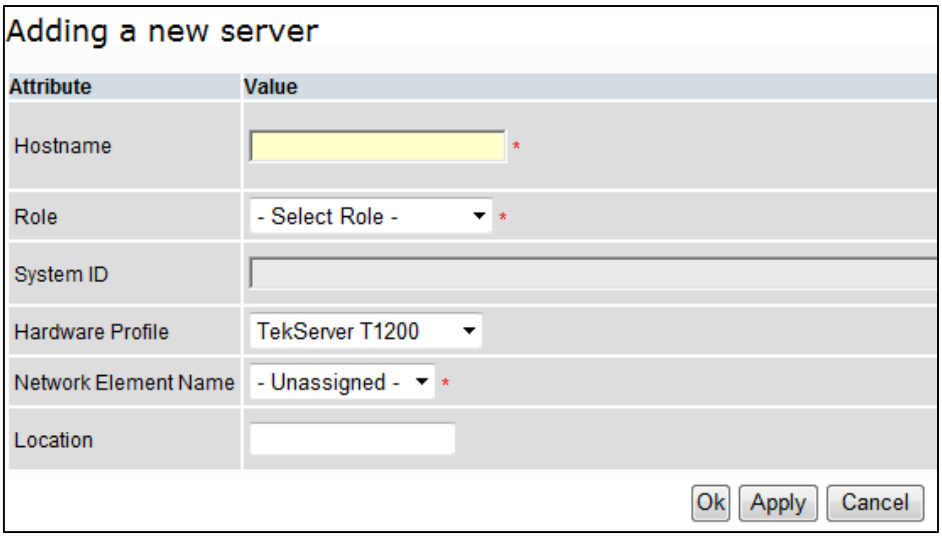
Procedure 4: Configuring the Primary NOAM Site (*1st NOAM Site Only)*

Step	Procedure	Result
1. ☐	**Primary NOAM-A GUI (XMI):** Access the **NOAM server A** GUI.	Connect to the **NOAM server A** GUI as described in **Appendix G** *(Establishiing a local Ethernet connection to access the HLRR GUI)*.
2. ☐	**Primary NOAM-A GUI (XMI):** Configure the **Primary NOAM Network Element**.	Configure the **Primary NOAM Network Element** as described in **Appendix H** *(Configuring the Network Element from XML file)*.
3. ☐	**Primary NOAM-A GUI (XMI):** ***Configuring Services*** **1)** Select… **Main Menu** → **Configuration** → ***Services*** **2)** The configuration screen "**Services**" will appear. **3)** Click on **"Edit"** dialogue button.	

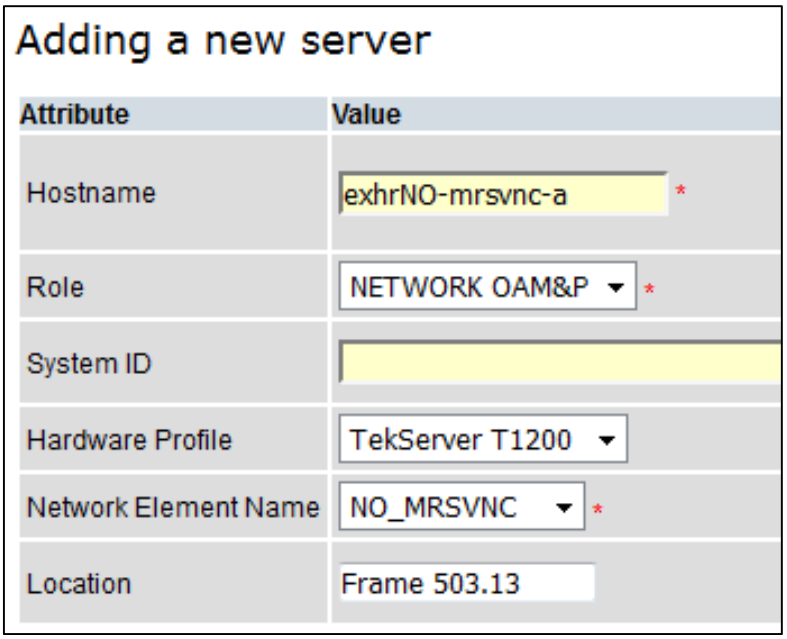
Procedure 4: Configuring the Primary NOAM Site (*1st NOAM Site Only)*

Step	Procedure	Result
4. ☐	**Primary NOAM-A GUI (XMI):** ***Configuring Services*** **1)** Set the services values as shown on the right. **2)** Click the **"OK"** dialogue button at the bootom of the Edit screen. **3)** Click the **"OK"** dialogue button on the pop-up confirmation box.	 
5. ☐	**Primary NOAM-A GUI (XMI):** ***Configuring Services*** The configuration screen "**Services**" will appear and display newly set values for service as shown to the right.	

Procedure 4: Configuring the Primary NOAM Site (*1st NOAM Site Only)*

Step	Procedure	Result
6. ☐	**Primary NOAM-A GUI (XMI):** **1)** Select… **Main Menu** → **Configuration** → ***Servers*** **2)** The configuration screen "**Servers**" will appear. **3)** Click on **"Insert"** dialogue button.	
7. ☐	**Primary NOAM-A GUI (XMI):** The configuration screen **"Adding a new server"** will appear.	

Procedure 4: Configuring the Primary NOAM Site (*1st NOAM Site Only)*

Step	Procedure	Result
8. ☐	**Primary NOAM-A GUI (XMI):** **NOTE:** *If executing this procedure for the 1st time, use values associated with the **Primary NOAM-A** server.* **1)** Enter the assigned **Hostname**. **2)** Select the **Role.** For a **NOAM** server, select **"NETWORK OAM&P"**. For a **Query Server** select **"Query Server"**. **3)** Enter the **System ID** if known *(optional)*, otherwise, leave it blank. **3)** Select "**TekServer 1200**" as Hardware Profile. **4)** From the pull-down, select the Primary NOAM NE name as the **Network Element Name.** **5)** Enter the site **Location** *(optional)*	

Procedure 4: Configuring the Primary NOAM Site (*1st NOAM Site Only)*

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr>
<td>9.
☐</td>
<td>Primary NOAM GUI (VIP):

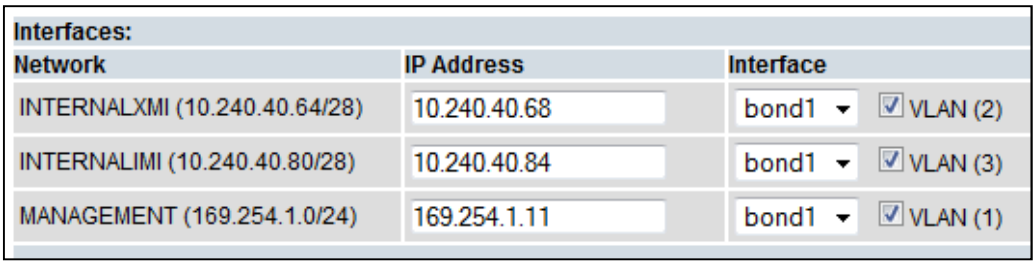
NOTE: If executing this procedure for the 1st time during initial installation, use values associated with the Primary NOAM-A server.

1) Enter the INTERNALXMI and INTERNALIMI IP addresses of the server.

2) Enter the MANAGEMENT IP address based on the chart shown to the right.

3) Set all "Interface" values to "bond1".

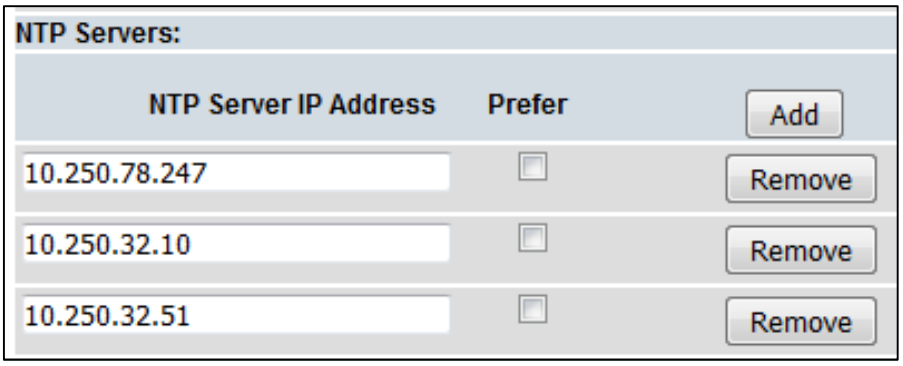
4) Make sure that both the INTERNALXMI and INTERNALIMI VLAN checkboxes are CHECKED.

5) Check the MANAGEMENT VLAN checkbox according to the chart shown to the right.</td>
<td>


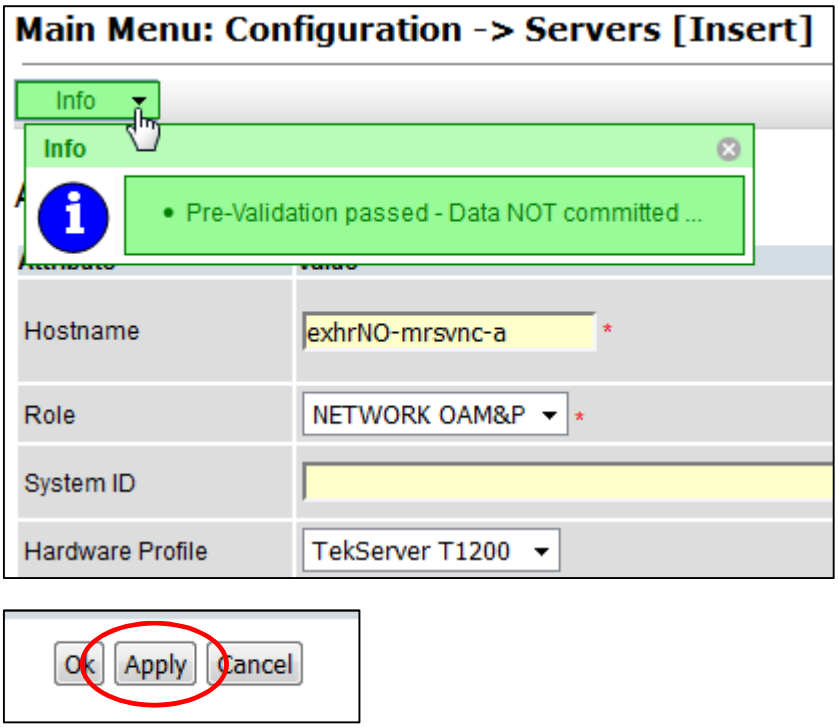
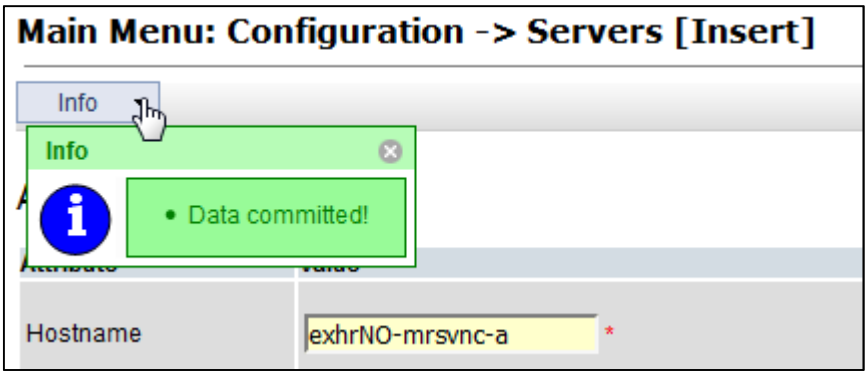
<table>
<tr><th>HLR Router
(Primary NOAM)</th><th>Network</th><th>IP Address</th><th>Interface</th><th>VLAN Checkbox</th></tr>
<tr><td>NOAM-A</td><td>MANAGEMENT</td><td>169.254.1.11</td><td>bond1</td><td>✓</td></tr>
<tr><td>NOAM-B</td><td>MANAGEMENT</td><td>169.254.1.12</td><td>bond1</td><td>✓</td></tr>
<tr><td>Query Server</td><td>MANAGEMENT</td><td>N/A (Leave Blank)</td><td>bond1</td><td>✗</td></tr>
</table>

NOTE: After the "Network Element Name" field is populated (in the previous step), the "Interfaces" fields will be displayed.
</td>
</tr>
</table>

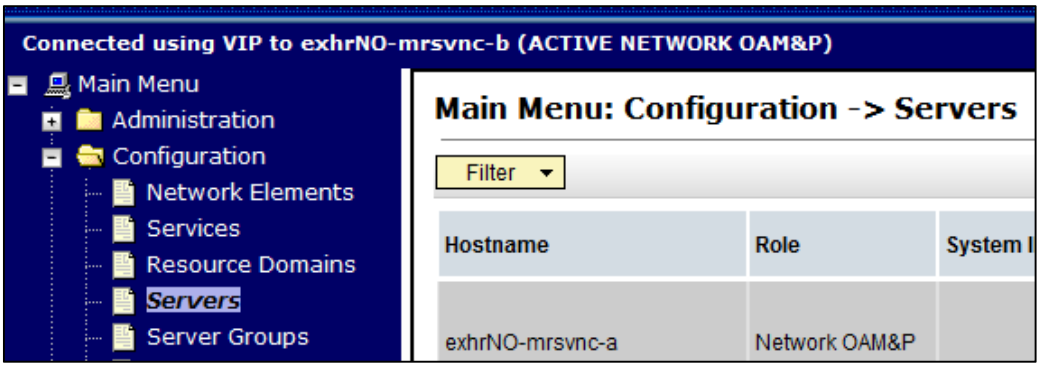
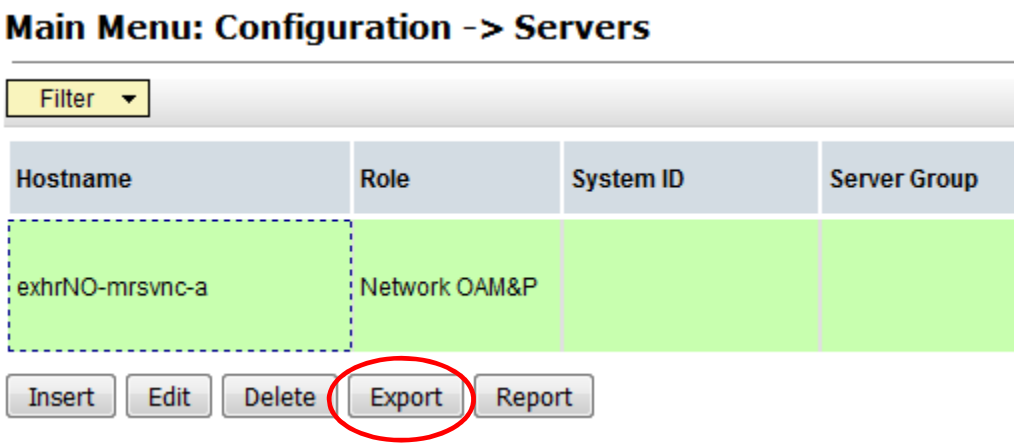
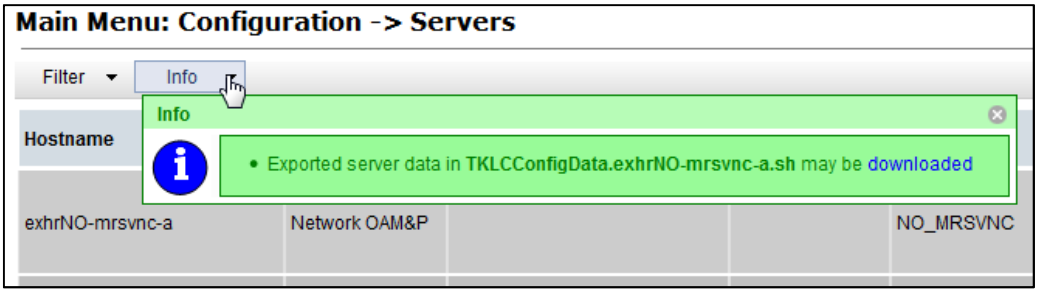
Procedure 4: Configuring the Primary NOAM Site (*1st NOAM Site Only)*

Step	Procedure	Result
10. ☐	**Primary NOAM-A GUI (XMI):** **1)** Click "**Add"** button and assign IP address for the 1st **NTP Server** **2)** Click the "**Add"** button to assign an IP address for the 2nd **NTP Server** *(required).* **3)** Click the "**Add"** button to assign an IP address for the 3rd **NTP Server** *(required).* **4)** Click the "**Add"** button to assign an IP address any desired additional **NTP Servers** *(optional).* **5)** Check the **"Prefer"** checkbox to select any preferred NTP Servers *(optional).*	

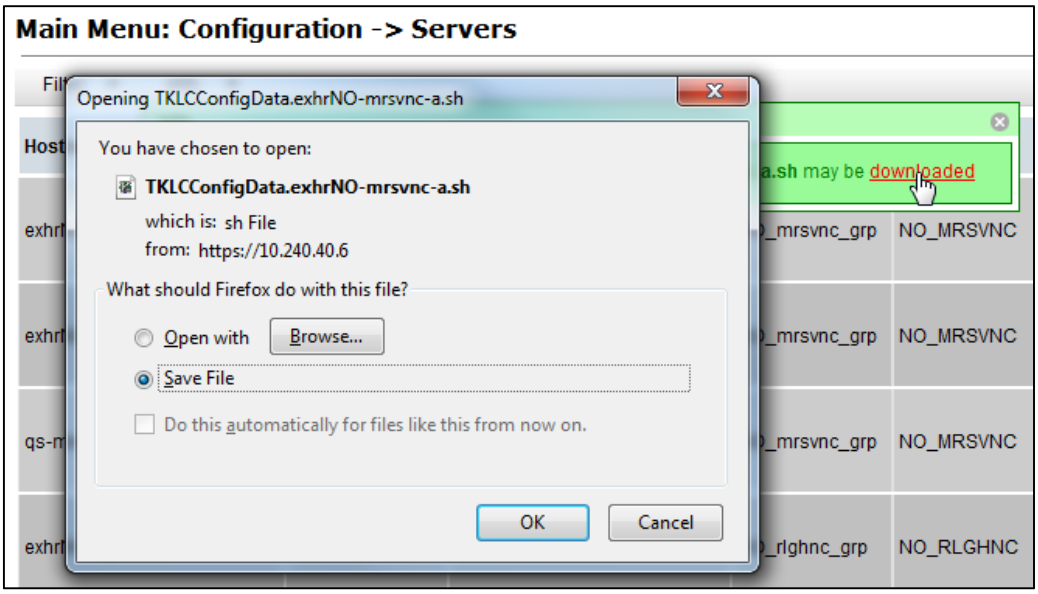
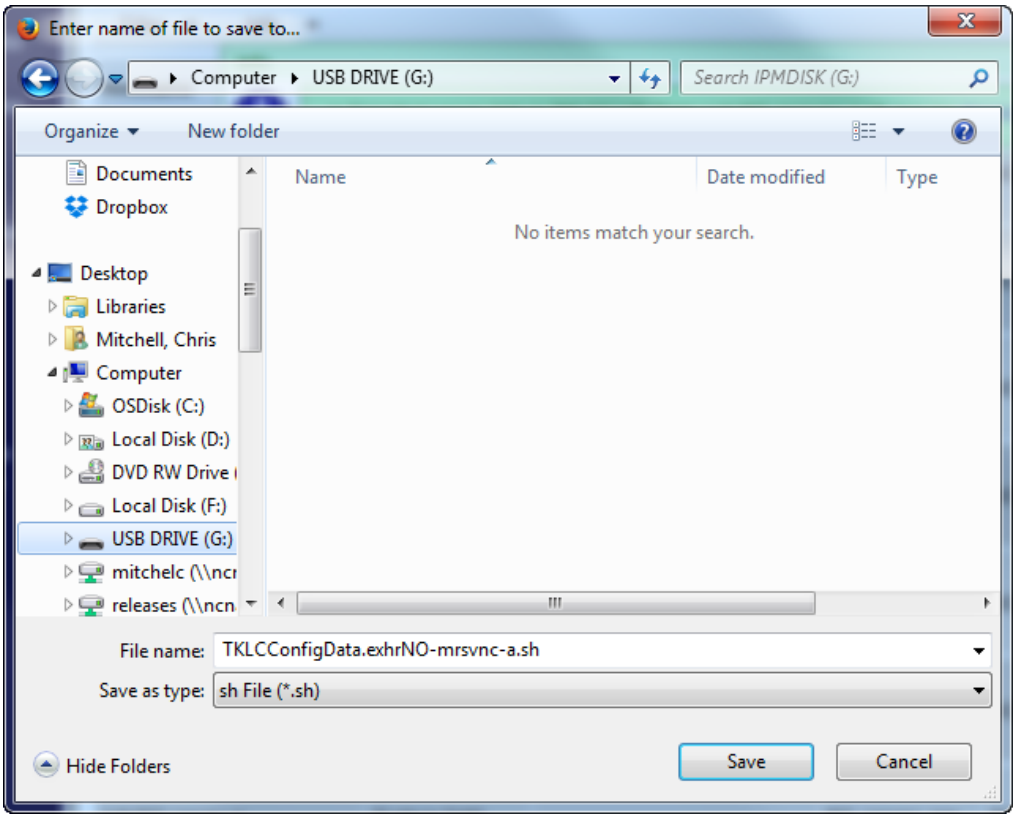
Procedure 4: Configuring the Primary NOAM Site (*1st NOAM Site Only)*

Step	Procedure	Result
11. ☐	**Primary NOAM-A GUI (XMI):** **1)** If the values provided by the user matches the network ranges assigned to the NOAMP NE, the user will receive a banner information message stating **"Pre-Validation passed"**. **2)** Click the **"Apply"** dialogue button.	
12. ☐	**Primary NOAM-A GUI (XMI):** The user will receive a banner information message showing that the data has been committed to the DB.	

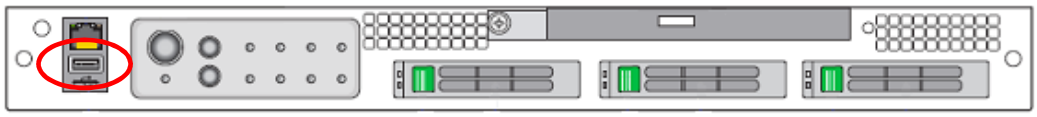
Procedure 4: Configuring the Primary NOAM Site (*1st NOAM Site Only)*

Step	Procedure	Result
13. ☐	**Primary NOAM-A GUI (XMI):** ***Applying the Server Configuration File*** **1)** Select… **Main Menu** **→ Configuration** **→ *Servers*** **2)** The configuration screen "**Servers**" will appear.	
14. ☐	**Primary NOAM-A GUI (XMI):** **1)** Use the cursor to select the Server configured in **Steps** 7-**11** of this procedure. *The selected row will be highlighted in* ***GREEN*** **2)** Select the **"Export"** dialogue button.	
15. ☐	**Primary NOAM-A GUI (XMI):** **1)** A banner information message will show a download link for the **Server** configuration file. **2)** Click on the word **"downloaded"** to download and save the configuration file.	 ***Note**: The configuration file will be created and stored in the /var/TKLC/db/filemgmt directory. The configuration file will have a file name like TKLCConfigData.<**hostname**>.sh.*

Procedure 4: Configuring the Primary NOAM Site (*1st NOAM Site Only)*

Step	Procedure	Result
16. ☐	**Primary NOAM-A GUI (XMI):** **1)** Click the **"download"** link. **2)** When prompted to open or **save the file**, save the Server configuration file to a **USB flash drive**.	 
17. ☐	**Server Console:** Access server console.	Connect to the **Server Console** using one of the access methods described in **Section 0**

Procedure 4: Configuring the Primary NOAM Site (*1st NOAM Site Only)*

Step	Procedure	Result
18. ☐	**Server Console:** Login to the server as the **"admusr"** user.	`login: admusr` `Password: <admusr_password>`
19. ☐	**Server Console:** Output similar to that shown on the right will appear as the server accesses the command prompt.	`PRODPATH=/opt/comcol/prod` `RUNID=00` `VPATH=/opt/TKLCcomcol/runcm6.2:/opt/TKLCcomcol/cm6.2` `PRODPATH=` `RELEASE=6.2` `RUNID=00` `VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr/` `TKLC/awptransportmgr:/usr/TKLC/awpss7:/usr/TKLC/exhr` `PRODPATH=/opt/comcol/prod` `RUNID=00` `[admusr@hostname1396462623 ~]$`
20. ☐	Insert the **USB flash drive** containing the server configuration file into the **USB port** on the front panel .	 **Figure 4 -** T1200 Front Panel: **USB Port**
21. ☐	**Server Console:** Output similar to that shown to the right will appear on the console. Press the **<ENTER>** key to return to the command prompt.	`$ sde: assuming drive cache: write through` `sde: assuming drive cache: write through <ENTER>` `$`
22. ☐	**Server Console:** Verify that the USB flash drive has been mounted by the OS.	`$ df | grep usb` `/dev/sde1  1018088  603372  414716  60% /var/tmp/usb_flash`
23. ☐	**Server Console:** Copy the **server** configuration file to the **"/var/tmp"** directory on the server, rename the file by omitting the server hostname from the file name.	***Example:*** TKLCConfigData.<server_hostname>.sh → will translate to →TKLCConfigData.sh `$ cp -p /var/tmp/usb_flash/TKLCConfigData.tks5031301.sh` `/var/tmp/TKLCConfigData.sh` ***NOTE:*** *The server will poll the **/var/tmp** directory for the presence of the configuration file and automatically execute it when found.*

Procedure 4: Configuring the Primary NOAM Site (*1st NOAM Site Only)*

Step	Procedure	Result
24. ☐	**Server Console:** After the script completes, a broadcast message will appear Press the **<ENTER>** key to return to the command prompt.	***** NO OUTPUT FOR ≈ 3…20 MINUTES ***** Broadcast message from root@tks5031301 (Thu Apr 10 15:13:15 2014): Server configuration completed successfully! See /var/TKLC/appw/logs/Process/install.log for details. Please remove the USB flash drive if connected and reboot the server. **<ENTER>**
25. ☐	**Server Console:** Initiate a reboot of this server. Wait until the reboot completes	$ **sudo init 6** **Broadcast message from root@tks5031301** **(/dev/pts/0) at 15:14 ...** **The system is going down for reboot NOW!**
26. ☐	**Server Console:** Log into the server as the "**root**" user	login: **root** Password: ***<root_password>***
27. ☐	**Server Console:** Output similar to that shown on the right will appear as the server accesses the command prompt.	PRODPATH=/opt/comcol/prod RUNID=00 VPATH=/opt/TKLCcomcol/runcm6.2:/opt/TKLCcomcol/cm6.2 PRODPATH= RELEASE=6.2 RUNID=00 VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr /TKLC/awptransportmgr:/usr/TKLC/awpss7:/usr/TKLC/exhr PRODPATH=/opt/comcol/prod RUNID=00 [admusr@exhrNO-mrsvnc-a ~]$
28. ☐	**Server Console:** Verify that XMI and IMI IP addresses entered in *Step 30* have been applied **NOTE:** *Full path is required to execute this command as the "admusr" user.*	$ **/sbin/ifconfig |grep in |grep -v inet6** bond0 Link encap:Ethernet HWaddr 00:00:00:00:00:00 bond1 Link encap:Ethernet HWaddr 00:1E:67:00:90:DA bond1.2 Link encap:Ethernet HWaddr 00:1E:67:00:90:DA inet addr:192.168.182.21 Bcast:192.168.182.31 bond1.3 Link encap:Ethernet HWaddr 00:1E:67:00:90:DA inet addr:192.168.182.37 Bcast:192.168.182.47 eth01 Link encap:Ethernet HWaddr 00:1E:67:00:90:DA eth03 Link encap:Ethernet HWaddr 00:1E:67:00:90:DA lo Link encap:Local Loopback inet addr:127.0.0.1 Mask:255.0.0.0

Procedure 4: Configuring the Primary NOAM Site (*1st NOAM Site Only)*

Step	Procedure	Result
29. ☐	**Server Console:** **Ping** the **XMI Gateway** IP address to ensure network connectivity.	**$ ping -c 5 <XMI_Gateway_IP_address>** *Example output:* PING 192.168.182.1 (192.168.182.1) 56(84) bytes of data. 64 bytes from 192.168.182.1: icmp_seq=1 ttl=64 time=0.056 ms 64 bytes from 192.168.182.1: icmp_seq=2 ttl=64 time=0.046 ms 64 bytes from 192.168.182.1: icmp_seq=3 ttl=64 time=0.018 ms 64 bytes from 192.168.182.1: icmp_seq=1 ttl=64 time=0.056 ms 64 bytes from 192.168.182.1: icmp_seq=2 ttl=64 time=0.046 ms --- 192.168.182.1 ping statistics --- 3 packets transmitted, 3 received, 0% packet loss, time 2573ms
30. ☐	**Server Console:** Verify that the server has connectivity to the assigned Primary and Secondary NTP server(s).	$ **ntpq -np** `remote refid st t when poll reach delay` `*10.250.32.51 192.5.41.209 2 u 17 64 177 0.202` `+10.250.32.10 192.5.41.209 2 u 18 64 177 0.191`
31. ☐	**Server Console:** Verify alarm status of this server	$ **sudo alarmMgr --alarmStatus** ***NOTE**: This command should return no output on a healthy system. If any alarms are reported, please stop and contact Oracle's Tekelec Customer Care Center for the assistance.*
32. ☐	**Server Console:** Verify the current health of this server	$ **sudo syscheck** `Running modules in class disk... OK` `Running modules in class hardware... OK` `Running modules in class net... OK` `Running modules in class proc... OK` `Running modules in class system... OK` `LOG LOCATION: /var/TKLC/log/syscheck/fail_log` ***NOTE**: If any errors are reported on the output, please stop and contact Oracle's Tekelec Customer Care Center for the assistance.*
33. ☐	**Server Console:** **Exit** the console session.	$ **exit** logout

Procedure 4: Configuring the Primary NOAM Site (*1st NOAM Site Only)*

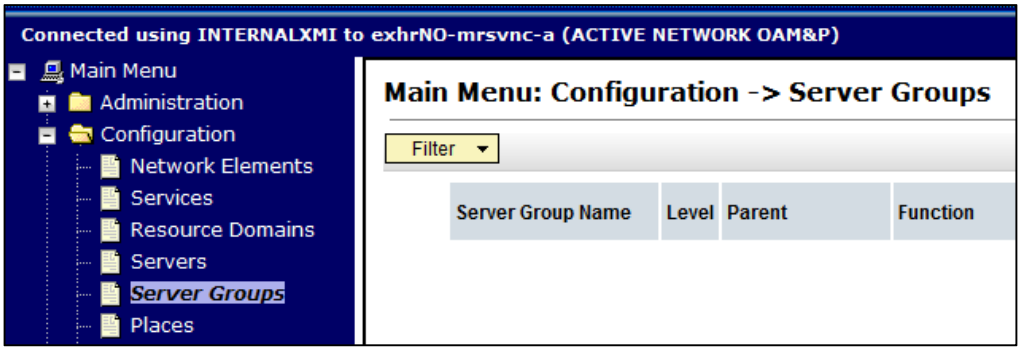
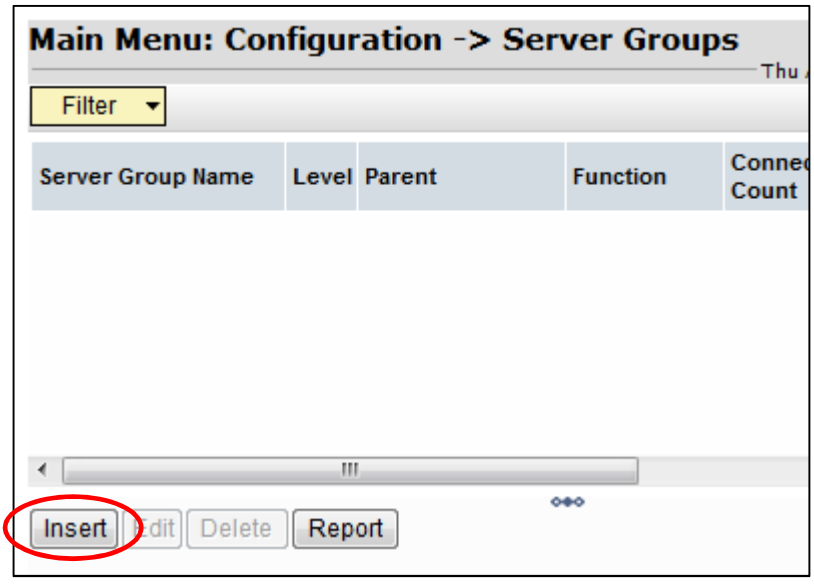
Step	Procedure	Result
34. ☐	Configure the **Primary NOAM-B** server.	• Repeat **Steps** 6 **- 33** of this procedure to configure the **Primary NOAM-B** Server. ☐ **Primary NOAM-B**
35. ☐	Configure the **Query Server** *(if equipped)*.	• Repeat **Steps** 6 **- 33** of this procedure to configure the **Query Server** *(if equipped)*. ☐ **Primary Query Server**
THIS PROCEDURE HAS BEEN COMPLETED		

5.4 OAM Pairing for the Primary NOAM Site *(1st NOAM Site Only)*

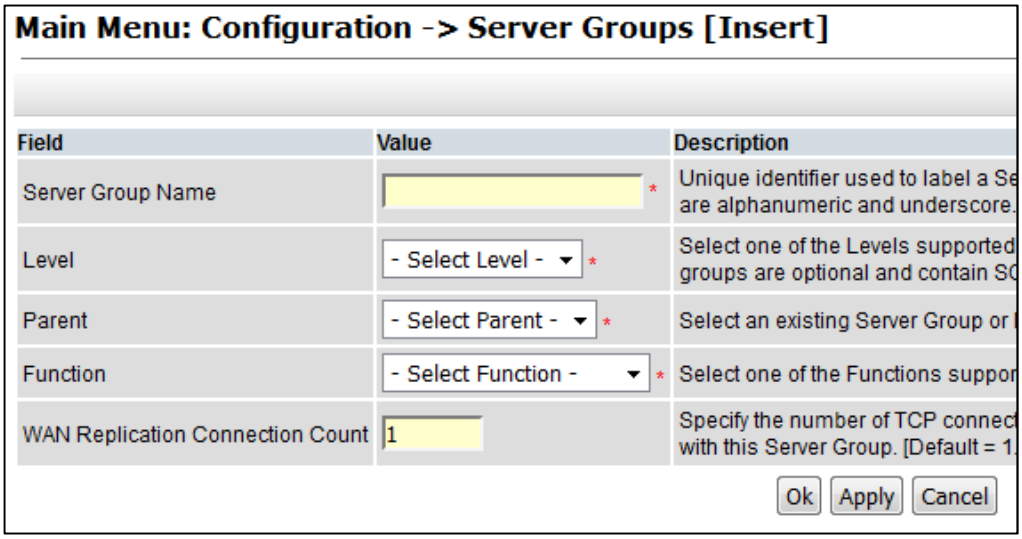
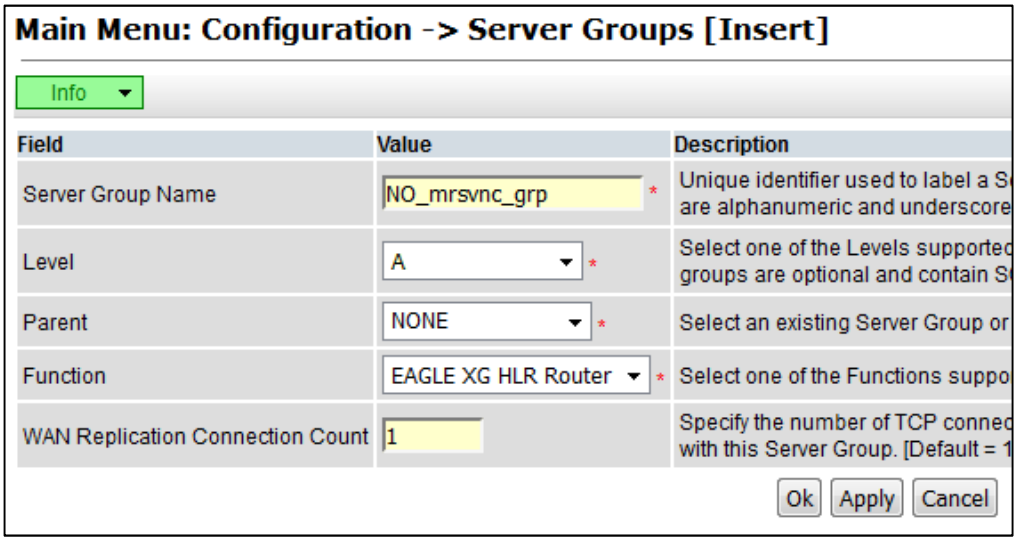
The user should be aware that during the NOAM Pairing procedure, various errors may be seen at different stages of the procedure. During the execution of a step, the user is directed to ignore errors related to values other than the ones referenced by that step.

This procedure creates a NOAM Server Group which will establish an Active/Standby relationship for the NOAM server pair (A & B) at the Primary Provisioning Site. This procedure will also integrate the Query Server (if equipped) into the NOAM Server Group.

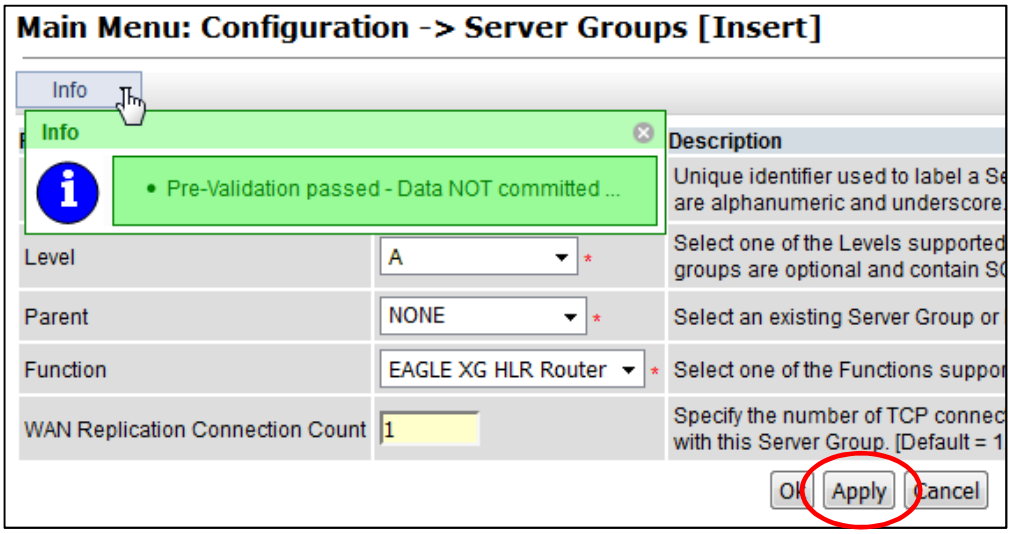
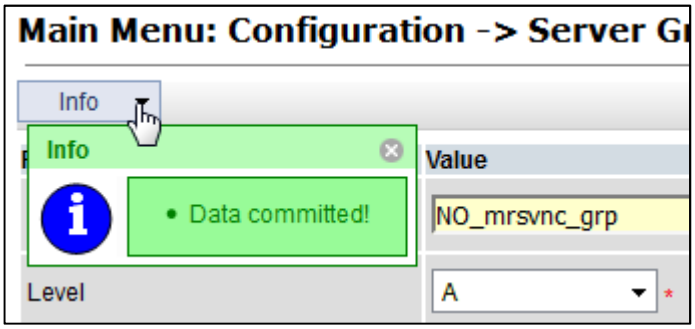
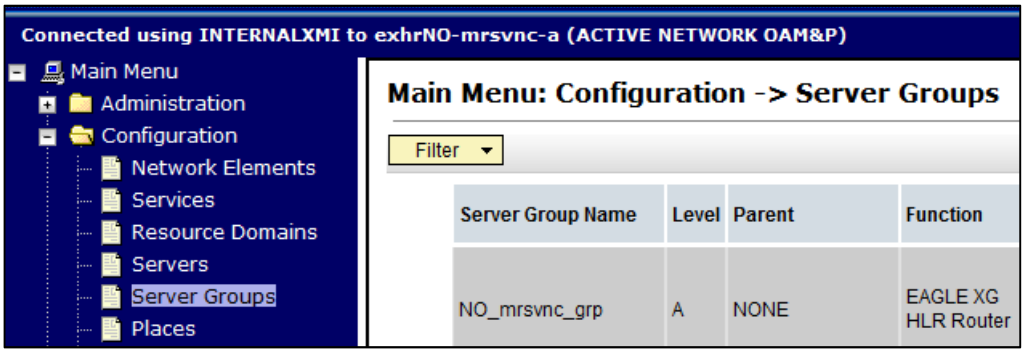
Procedure 5: OAM Pairing for the Primary NOAM Site *(1st NOAM Site Only)*

Step	Procedure	Result
1. ☐	**Primary NOAM-A GUI (XMI):** Access the **NOAM server A** GUI.	Connect to the **NOAM server A** GUI as described in **Appendix G** *(Establishiing a local Ethernet connection to access the HLRR GUI)*.
2. ☐	**Primary NOAM-A GUI (XMI):** Select… **Main Menu** → **Configuration** → ***Server Groups*** …as shown on the right.	
3. ☐	**Primary NOAM-A GUI (XMI):** **1)** The user will be presented with the **"Server Groups"** configuration screen as shown on the right. **2)** Select the **"Insert"** dialogue button from the bottom left corner of the screen.	

Procedure 5: OAM Pairing for the Primary NOAM Site *(1st NOAM Site Only)*

Step	Procedure	Result
4. ☐	**Primary NOAM-A GUI (XMI):** The configuration screen **"Server Groups [Insert]"** will appear	
5. ☐	**Primary NOAM-A GUI (XMI):** **1)** Input the **Server Group Name**. **2)** Select **"A"** on the **"Level"** pull-down menu. **3)** Select **"None"** on the **"Parent"** pull-down menu. **4)** Select **"EAGLE XG HLR Router"** on the **"Function"** pull-down menu. **5)** Leave the value for "**WAN Replication Connection Count**" field defaulted to **"1"**.	

Procedure 5: OAM Pairing for the Primary NOAM Site *(1st NOAM Site Only)*

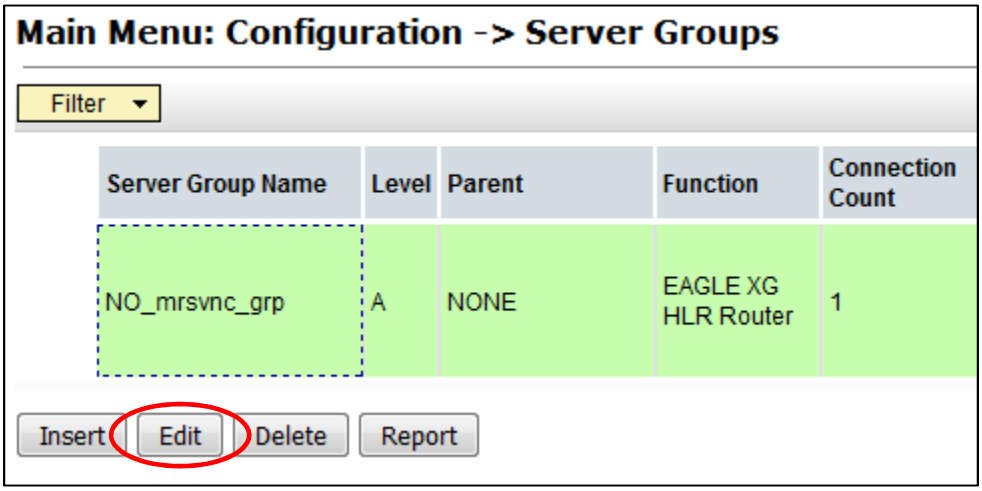
Step	Procedure	Result
6. ☐	**Primary NOAM-A GUI (XMI):** **1)** The user should be presented with a banner information message stating **"Pre-Validation passed"**. **2)** Click on **"Apply"** button.	
7. ☐	**Primary NOAM-A GUI (XMI):** The user should be presented with a banner information message stating **"Data committed"**.	
8. ☐	**Primary NOAM-A GUI (XMI):** Select… **Main Menu** → **Configuration** → ***Server Groups*** …as shown on the right.	

Procedure 5: OAM Pairing for the Primary NOAM Site *(1st NOAM Site Only)*

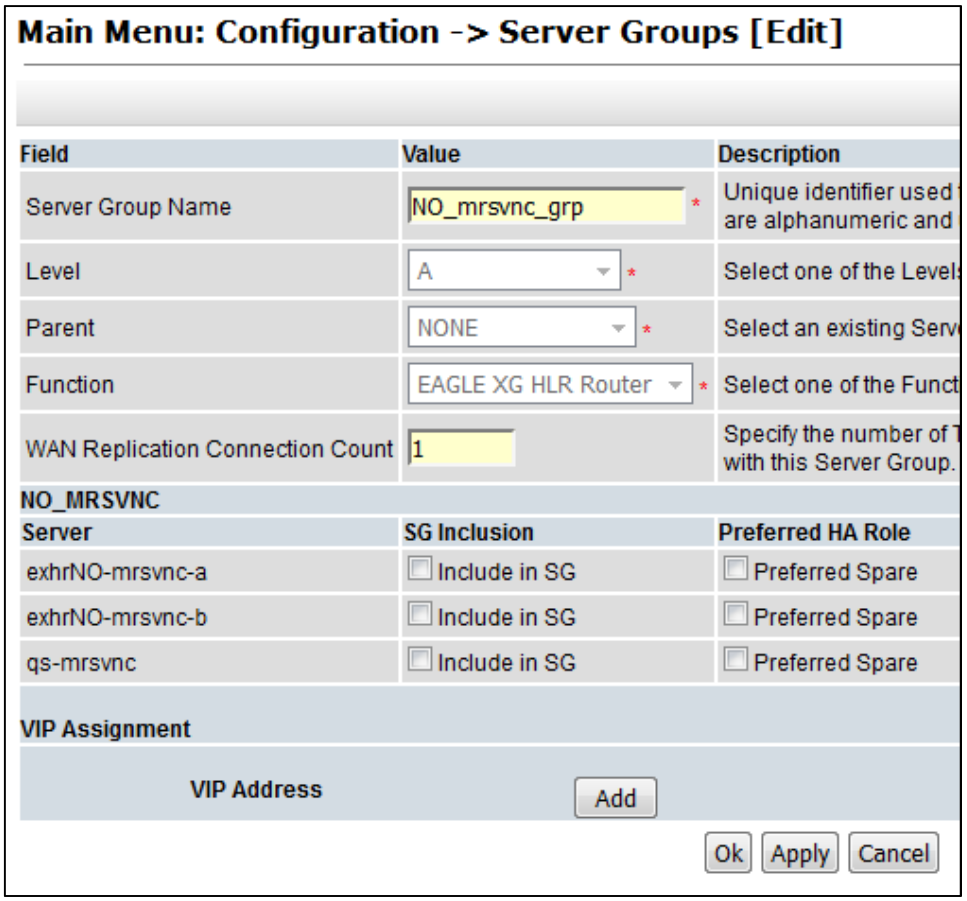
<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>9.
☐</td><td>Primary NOAM-A GUI (XMI):

The Server Group entry applied in Step 6 should now appear on the "Server Groups" configuration screen

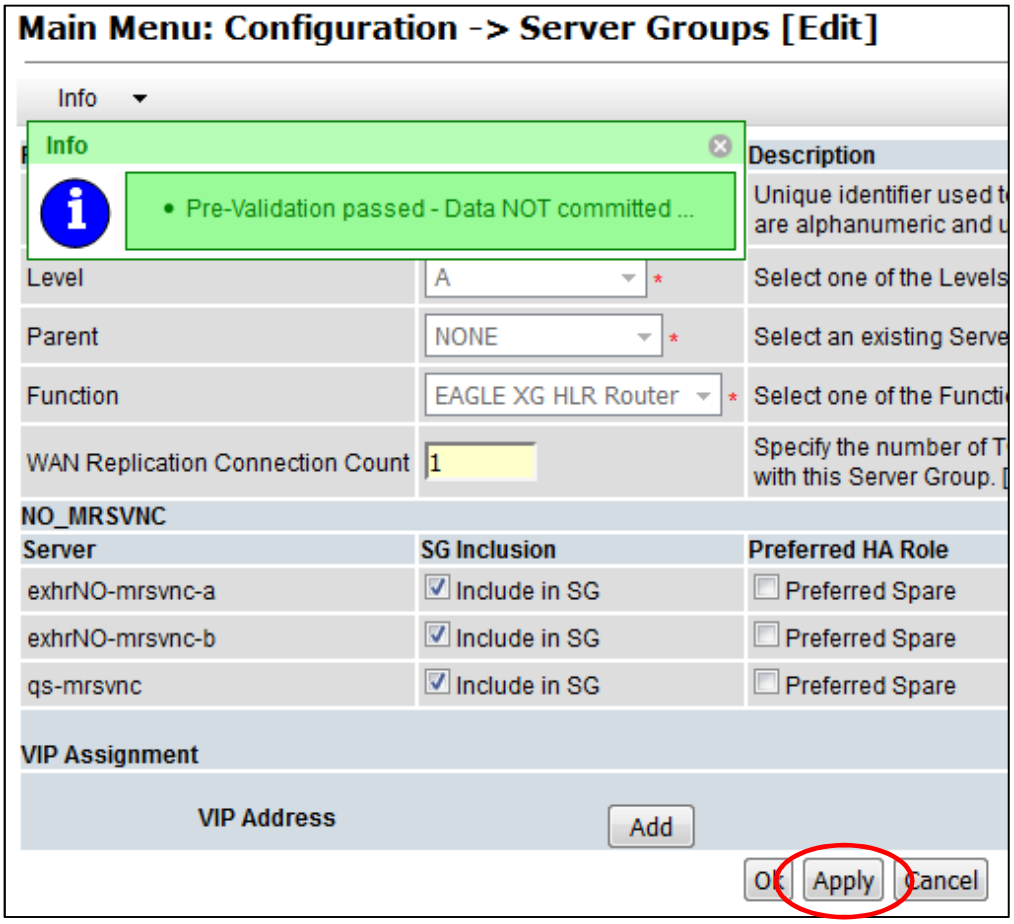
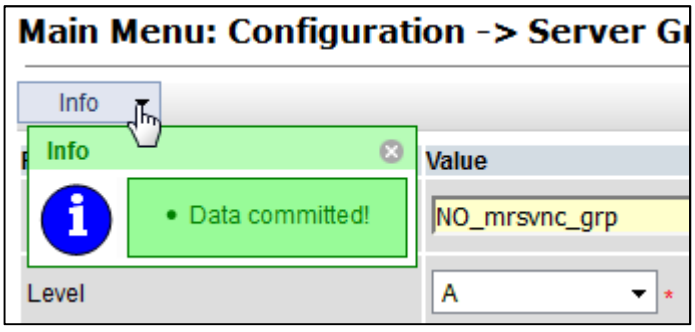
1) Select the Server Group entry. The line entry should now be highlighted in GREEN.

2) Select the "Edit" dialogue button</td><td> 

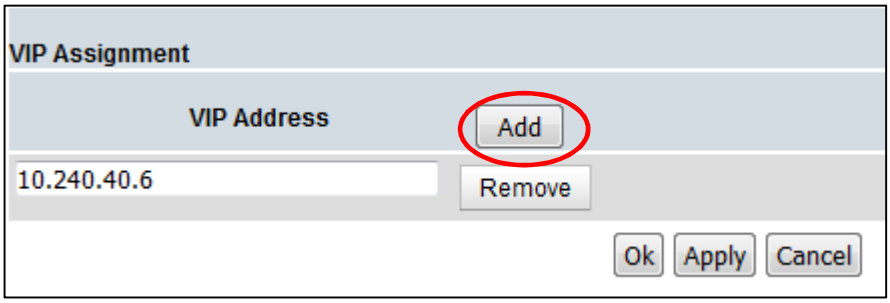
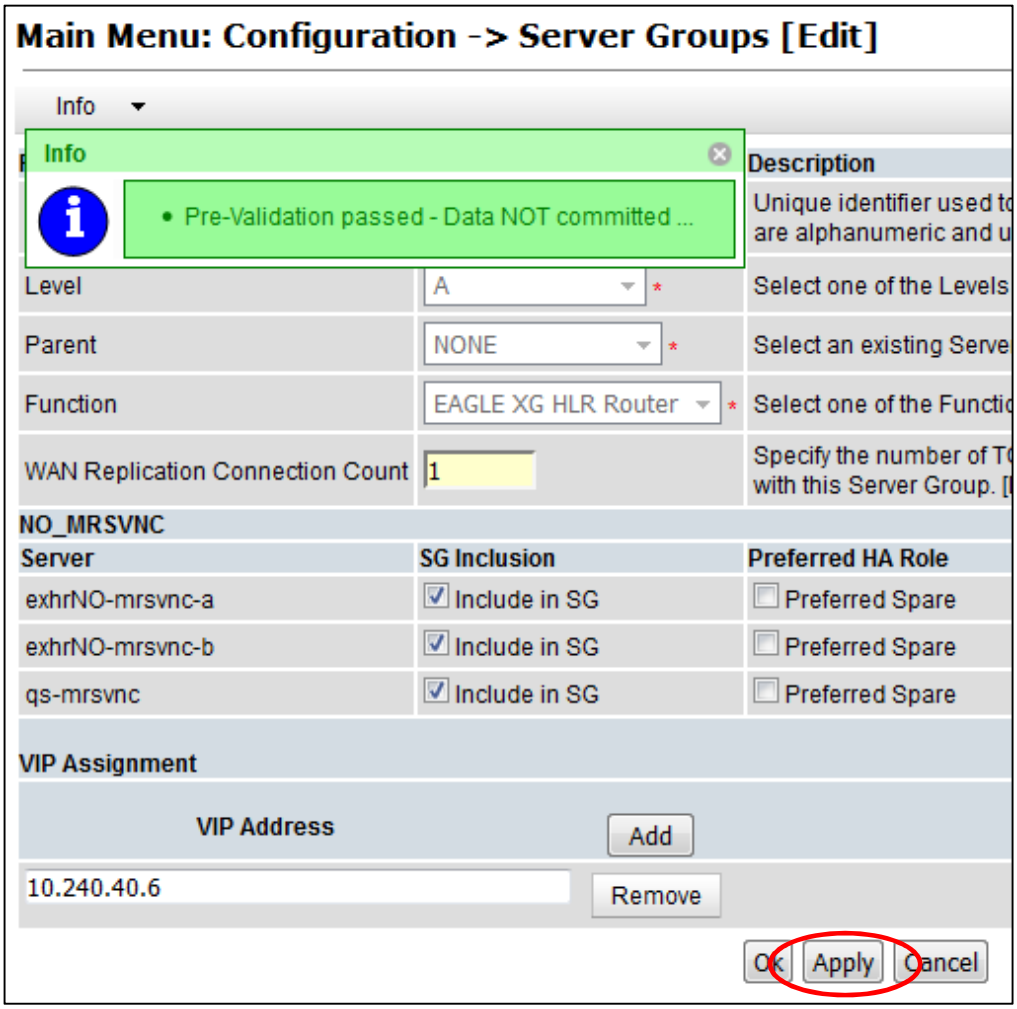
NOTE: The user may need to use the vertical scroll-bar in order to make the "Edit" dialogue button visible.</td></tr>
<tr><td>10.
☐</td><td>Primary NOAM-A GUI (XMI):

The user will be presented with the "Server Groups [Edit]" screen as shown on the right</td><td> 
</td></tr>
</table>

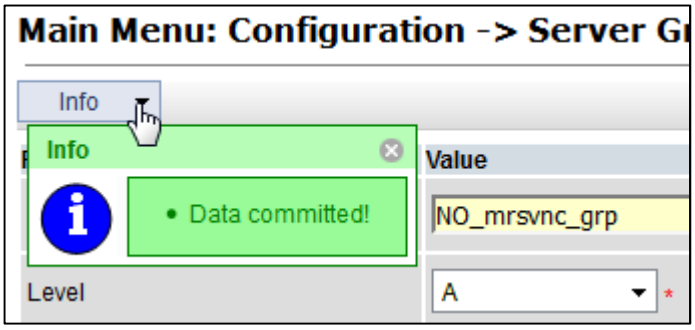
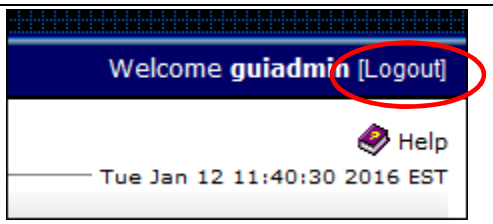
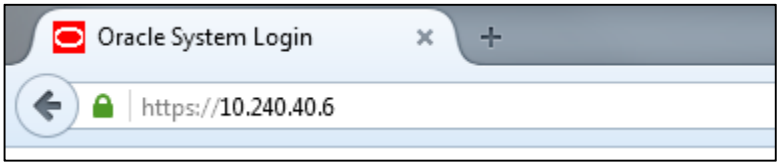
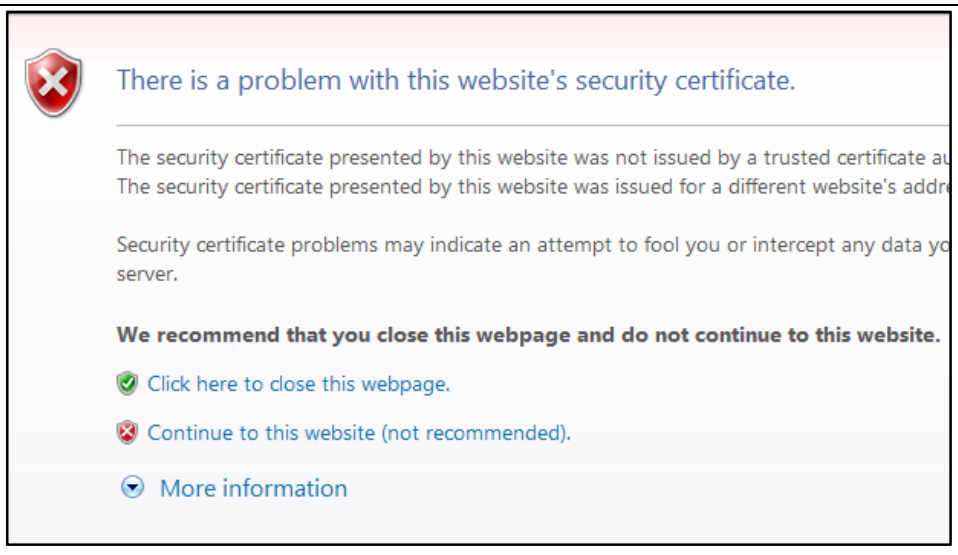
Procedure 5: OAM Pairing for the Primary NOAM Site *(1st NOAM Site Only)*

Step	Procedure	Result
11. ☐	**Primary NOAM-A GUI (XMI):** **1) CHECK** the "**Include in SG"** checkbox for both **NOAM** Servers (A & B) and the **Query Server** (if equipped). **2)** If desired, the user may set one of the two **NOAM** servers as a **"Preferred Spare"** *(optional)*. **NOTE:** *If **"Preferred Spare"** is checked for a NOAM server, then that NOAM server will default to **"Standby"** mode whenever possible.* *It is recommended that the **"Preferred Spare"** option be left unchecked to allow for both servers to be automatically system managed.* **3)** The user should be presented with a banner information message stating **"Pre-Validation passed"**. **4)** Click "**Apply"** to submit.	
12. ☐	**Primary NOAM-A GUI (XMI):** The user should be presented with a banner information message stating **"Data committed".**	

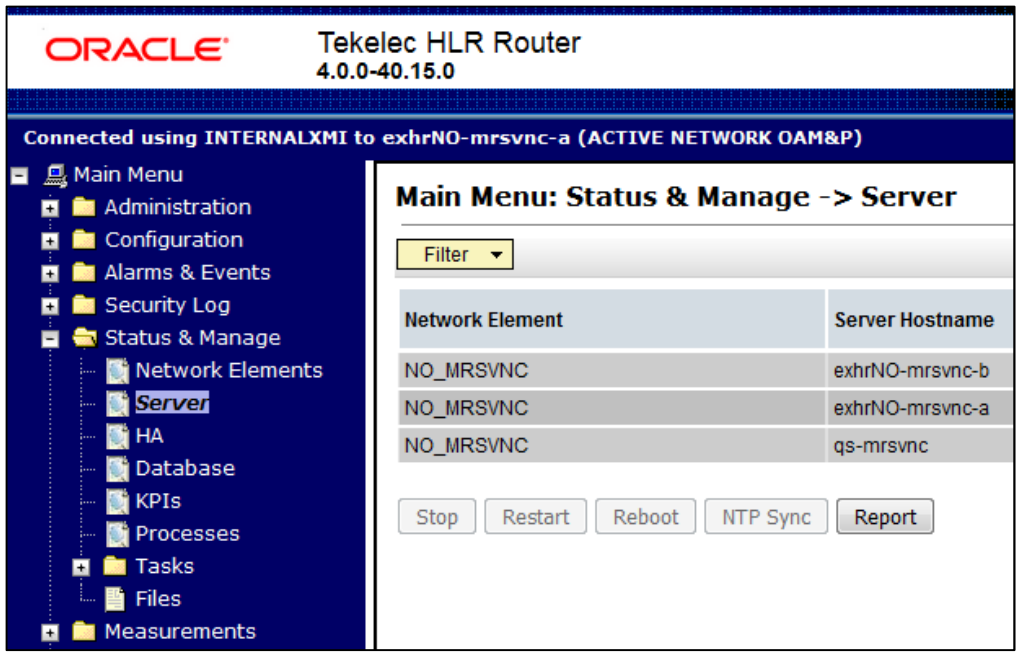
Procedure 5: OAM Pairing for the Primary NOAM Site *(1st NOAM Site Only)*

Step	Procedure	Result
13. ☐	**Primary NOAM-A GUI (XMI):** **1)** To add a Virtual IP address (VIP), click on **"Add"** dialogue button in the **VIP Assignment** section. **2)** Enter the Virtual IP address in the **VIP Address** field.	
14. ☐	**Primary NOAM-A GUI (XMI):** **1)** The user should be presented with a banner information message stating **"Pre-Validation passed"**. **2)** Click on **"Apply"** button.	

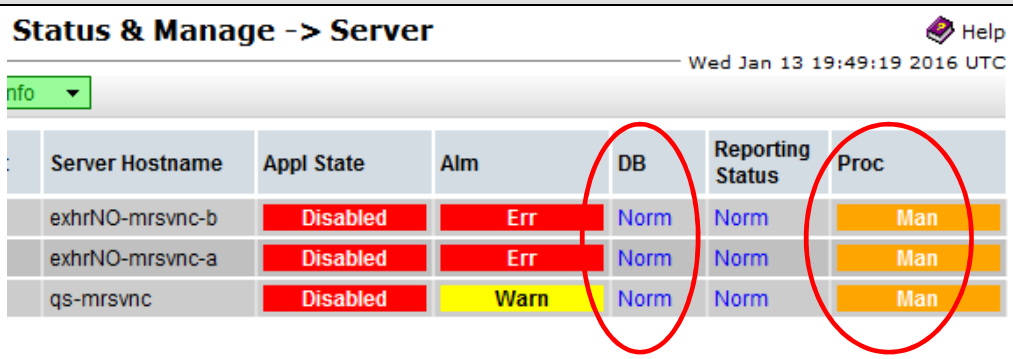
Procedure 5: OAM Pairing for the Primary NOAM Site *(1st NOAM Site Only)*

Step	Procedure	Result
15. ☐	**Primary NOAM-A GUI (XMI):** The user should be presented with a banner information message stating **"Data committed"**.	
16. ☐	**Primary NOAM-A GUI (XMI):** Click the **"Logout"** link on the Primary NOAMP GUI.	
17. ☐	**IMPORTANT:** Wait at least **5 minutes** before proceeding on to the next Step.	• Now that the server(s) have been paired within a Server Group they must establish a master/slave relationship for High Availability (HA). It may take several minutes for this process to be completed. • Allow a minimum of **5 minutes** before continuing to the next Step.
18. ☐	**Primary NOAM GUI (VIP):** Launch IE web browser and connect to the XMI **VIP** IP address assigned in **Step 14** above.	
19. ☐	If a security certificate error is received, click on the following link: **"Continue to this website (not recommended)."**	

Procedure 5: OAM Pairing for the Primary NOAM Site *(1st NOAM Site Only)*

Step	Procedure	Result
20. ☐	**Primary NOAM GUI (VIP):** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	
21. ☐	**Primary NOAM GUI (VIP):** The user should be presented the Main Menu as shown on the right. Select… **Main Menu** **→ Status & Manage** **→ *Server*** …as shown on the right.	

Procedure 5: OAM Pairing for the Primary NOAM Site *(1st NOAM Site Only)*

Step	Procedure	Result
22. ☐	**Primary NOAM GUI (VIP):** **1)** The **"A"** and **"B"** **Primary NOAM servers** and **Query Server** *(if equipped)* should now appear in the right panel. **2)** Monitor the fields *(screen will auto-refresh)* until the **"DB"** status shows **"Norm"** and the **"Proc"** status shows **"Man"** for each of the servers **before proceeding to the next Step.** **NOTE:** If the desired status values are not reached within 15 minutes, **STOP** and contact **"My Oracle Support"** (MOS) for assistance before attempting to continue. *Refer to **Appendix K** - Accessing My Oracle Support (MOS), for more information on contacting Oracle Customer Service.*	

Procedure 5: OAM Pairing for the Primary NOAM Site *(1st NOAM Site Only)*

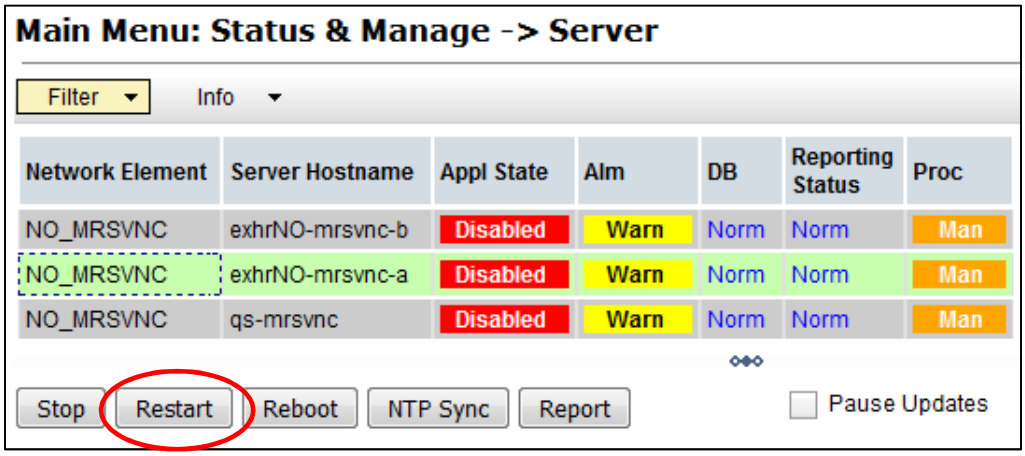
<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>23.
☐</td><td>Primary NOAM GUI (VIP):

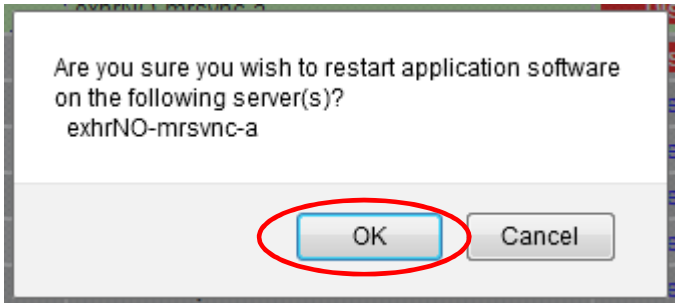
1) Using the mouse, select Primary NOAM-A server. The line entry will be highlighted in GREEN.

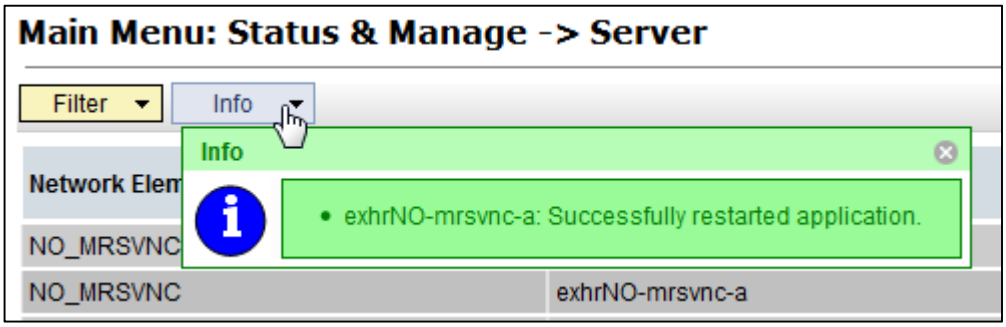
2) Select the "Restart" dialogue button

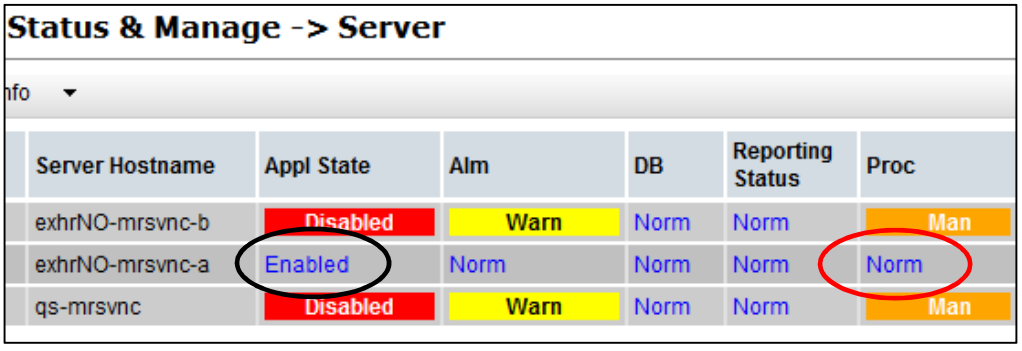
3) Click the "OK" button on the confirmation dialogue box.

4) The user should be presented with a confirmation message (in the banner area) for Primary NOAM-A server stating: "Successfully restarted application".

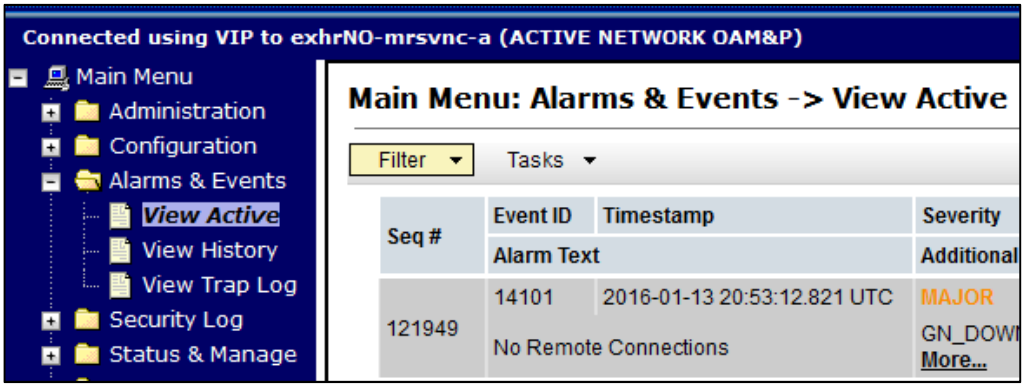
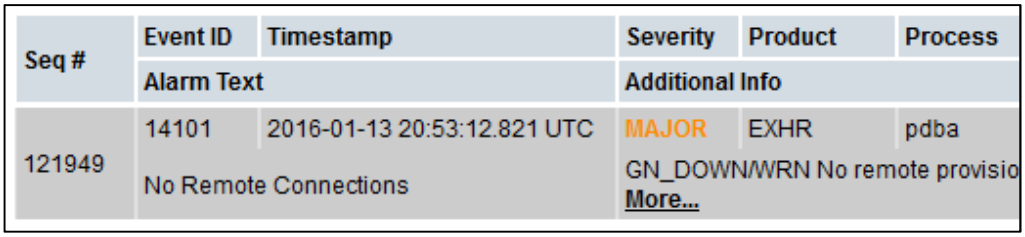
NOTE: The user may need to use the vertical scroll-bar in order to make the "Restart" dialogue button visible.</td><td> 



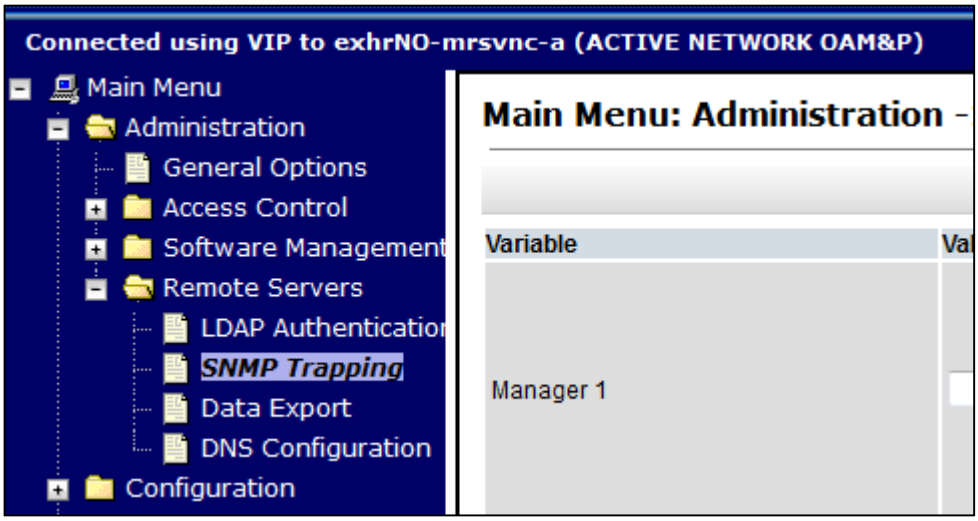
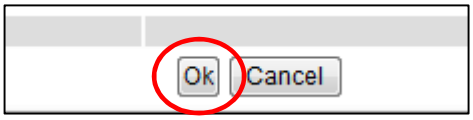
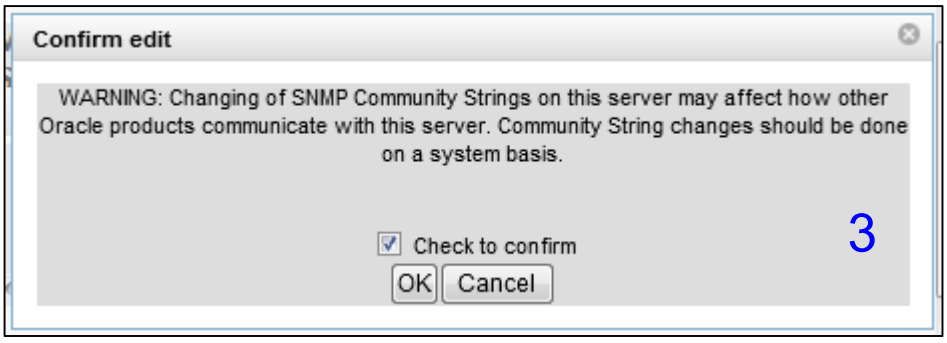
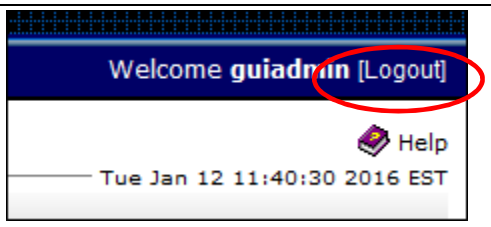

</td></tr>
<tr><td>24.
☐</td><td>Primary NOAM GUI (VIP):

Verify that the "Appl State" now shows "Enabled" and the "Proc" status column show "Norm" for the NOAM-A server before proceeding to the next Step.</td><td> 
</td></tr>
</table>

Procedure 5: OAM Pairing for the Primary NOAM Site *(1st NOAM Site Only)*

Step	Procedure	Result
25. ☐	**Primary NOAM GUI (VIP):** Restart the Application on the **Primary NOAM-B** server and verify the **"Appl State"** and the **"Proc"** status post restart.	• Repeat **Steps 23 - 24** of this procedure for the **Primary NOAM-B** server.
26. ☐	**Primary NOAM GUI (VIP):** Restart the Application on the **Query Server** *(if equipped)* and verify the **"Appl State"** and the **"Proc"** status post restart.	• Repeat **Steps 23 - 24** of this procedure for the **Primary Query Server** *(if equipped)*.
27. ☐	**Primary NOAM GUI (VIP):** Select… **Main Menu** → **Alarms & Events** → ***View Active*** …as shown on the right.	
28. ☐	**Primary NOAM GUI (VIP):** Verify that **Event ID 14101** ("*No remote provisioning clients are connected")* is the only alarm present on the HLRR system	

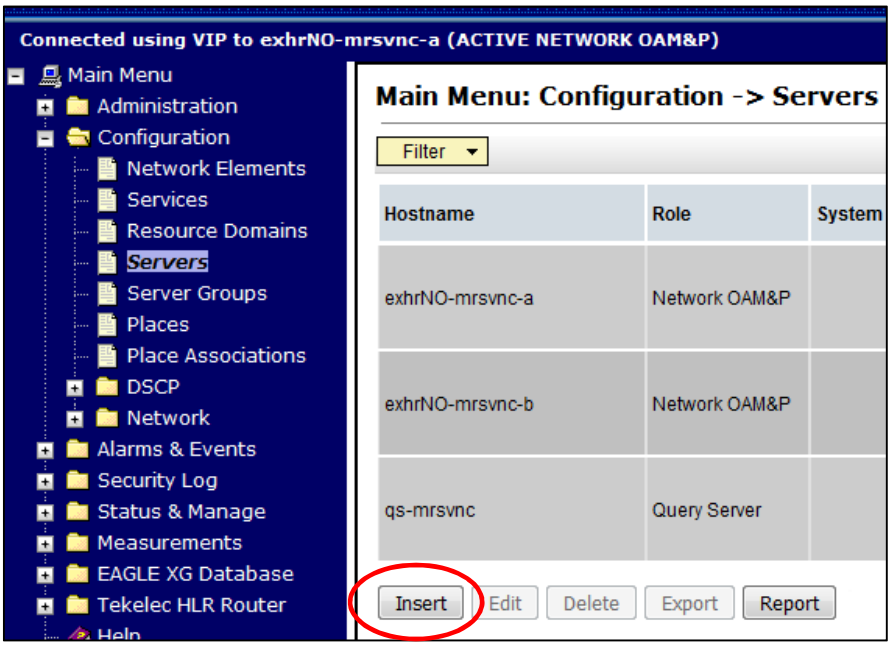
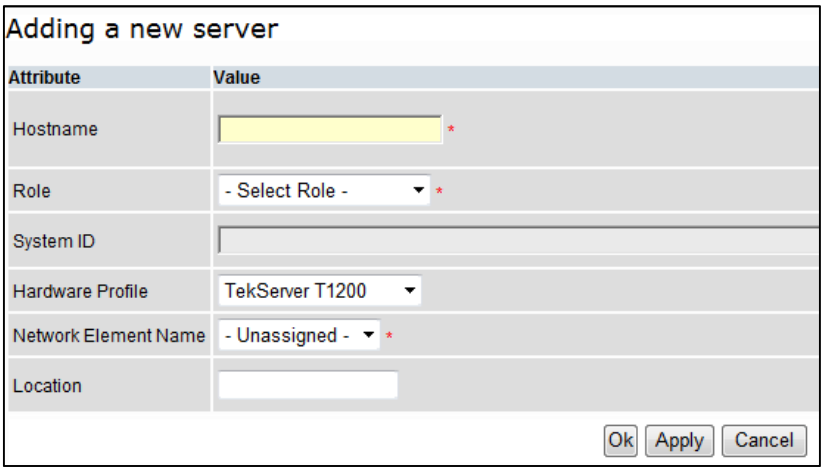
Procedure 5: OAM Pairing for the Primary NOAM Site *(1st NOAM Site Only)*

Step	Procedure	Result
29. ☐	**Primary NOAM GUI (VIP):** Select… **Main Menu** **→ Administration** **→ Remote Servers** **→ *SNMP Trapping*** …as shown on the right.	
30. ☐	**Primary NOAM GUI (VIP):** **1)** Using the cursor, place a "check" in the check box for **"Traps from Individual Servers"**. **2)** Click the **"OK"** dialogue button located at the bottom of screen **3)** Check the "Check to confirm" box on the new window, and then click on the "**OK**" button to make the change	 1  2 
31. ☐	**Primary NOAM GUI (VIP):** Click the **"Logout"** link on the GUI.	
THIS PROCEDURE HAS BEEN COMPLETED		

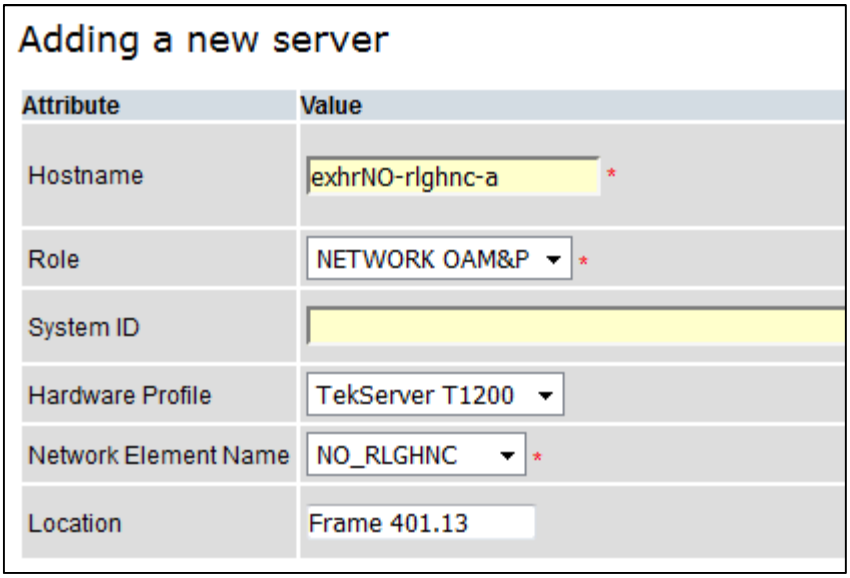
5.5 Configuring the DR NOAM Site *(Optional)*

NOTE: This procedure assumes that the XML file for configuring the DR NOAM Network Element has been previously prepared, as described in **Appendix A**.

Procedure 6.1: Configuring the DR NOAM Site / Servers *(Optional)*

Step	Procedure	Result
1. ☐	**Primary NOAM GUI (VIP):** Access the **Primary NOAM GUI** *(via the VIP)* and configure the **DR NOAM Network Element**.	Connect to the **Primary NOAM GUI** *(via the VIP)* and configure the **DR NOAM Network Element** as described in **Appendix H** *(Configuring the Network Element from XML file)*.
2. ☐	**Primary NOAM GUI (VIP):** **1)** Select… **Main Menu** → **Configuration** → ***Servers*** **2)** The configuration screen "**Servers**" will appear. **3)** Click on **"Insert"** dialogue button.	
3. ☐	**Primary NOAM GUI (VIP):** The configuration screen **"Adding a new server"** will appear.	

Procedure 6.1: Configuring the DR NOAM Site / Servers *(Optional)*

Step	Procedure	Result
4. ☐	**Primary NOAM GUI (VIP):** **NOTE:** *If executing this procedure for the 1st time, use values associated with the **DR NOAM-A** server.* **1)** Enter the assigned **Hostname**. **2)** Select the **Role.** For a **NOAM** server, select **"NETWORK OAM&P"**. For a **Query Server** select **"Query Server"**. **3)** Enter the **System ID** if known *(optional)*, otherwise, leave it blank. **3)** Select "**TekServer 1200**" as Hardware Profile. **4)** From the pull-down, select the Primary NOAM NE name as the **Network Element Name.** **5)** Enter the site **Location** *(optional)*	

Procedure 6.1: Configuring the DR NOAM Site / Servers *(Optional)*

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr>
<td>5.
☐</td>
<td>Primary NOAM GUI (VIP):

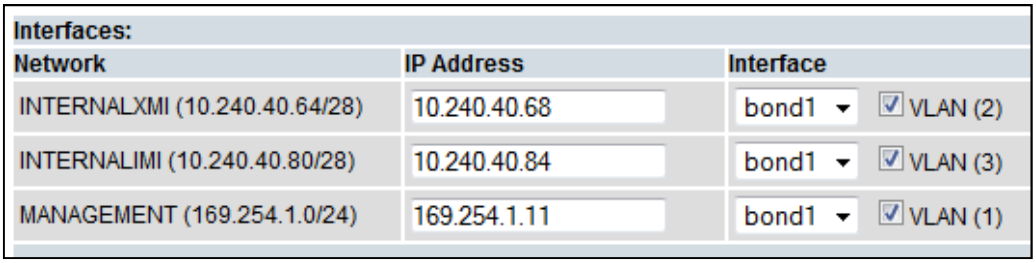
NOTE: If executing this procedure for the 1st time during initial installation, use values associated with the DR NOAM-A server.

1) Enter the INTERNALXMI and INTERNALIMI IP addresses of the server.

2) Enter the MANAGEMENT IP address based on the chart shown to the right.

3) Set all "Interface" values to "bond1".

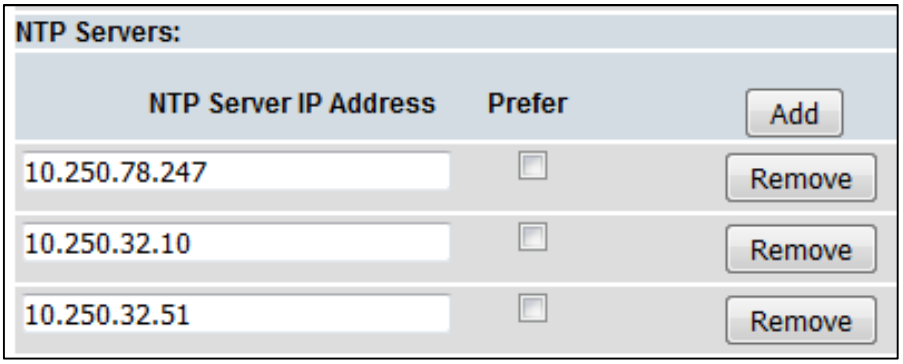
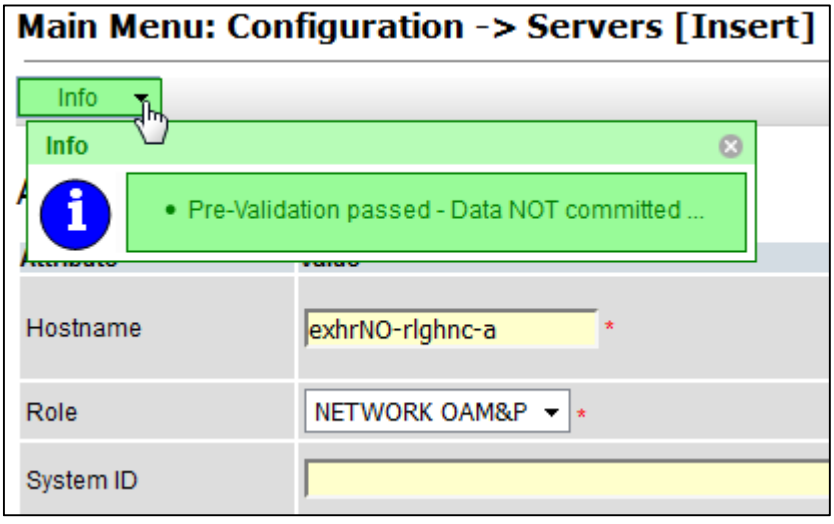
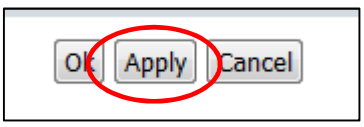
4) Make sure that both the INTERNALXMI and INTERNALIMI VLAN checkboxes are CHECKED.

5) Check the MANAGEMENT VLAN checkbox according to the chart shown to the right.</td>
<td>


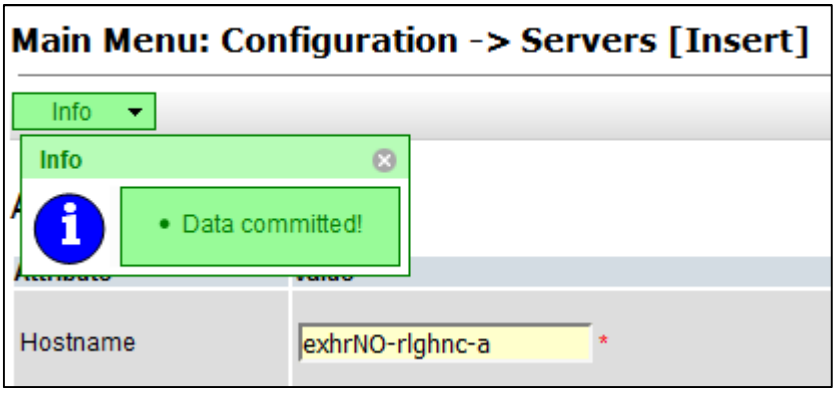
<table>
<tr><th>HLR Router
(Primary NOAM)</th><th>Network</th><th>IP Address</th><th>Interface</th><th>VLAN Checkbox</th></tr>
<tr><td>DR NOAM-A</td><td>MANAGEMENT</td><td>169.254.1.11</td><td>bond1</td><td>✓</td></tr>
<tr><td>DR NOAM-B</td><td>MANAGEMENT</td><td>169.254.1.12</td><td>bond1</td><td>✓</td></tr>
<tr><td>DR Query Server</td><td>MANAGEMENT</td><td>N/A (Leave Blank)</td><td>bond1</td><td>✗</td></tr>
</table>

NOTE: After the "Network Element Name" field is populated (in the previous step), the "Interfaces" fields will be displayed.
</td>
</tr>
</table>

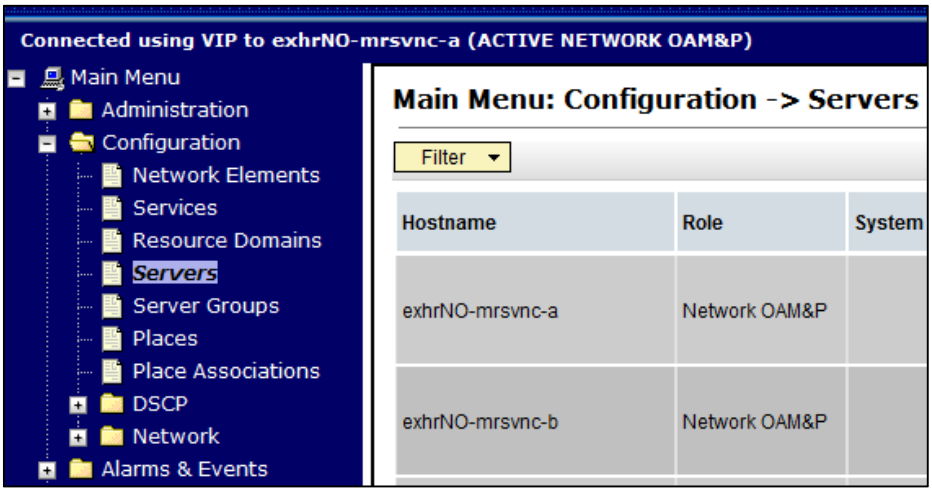
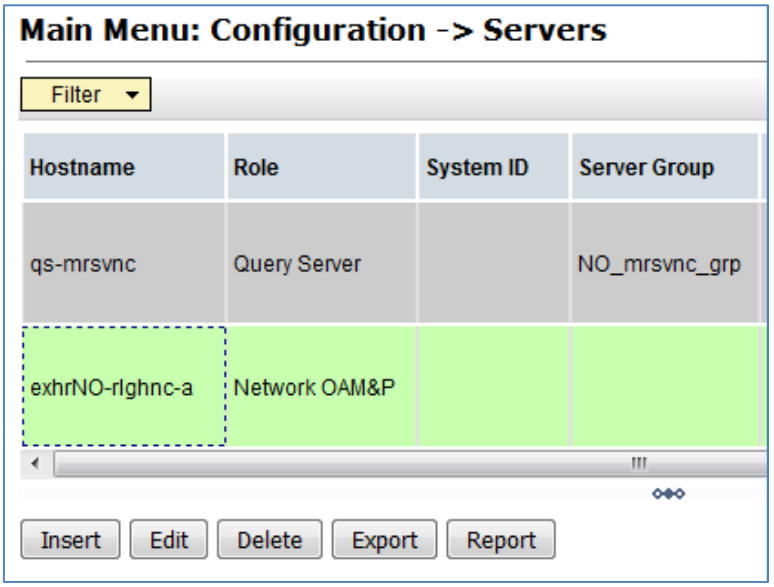
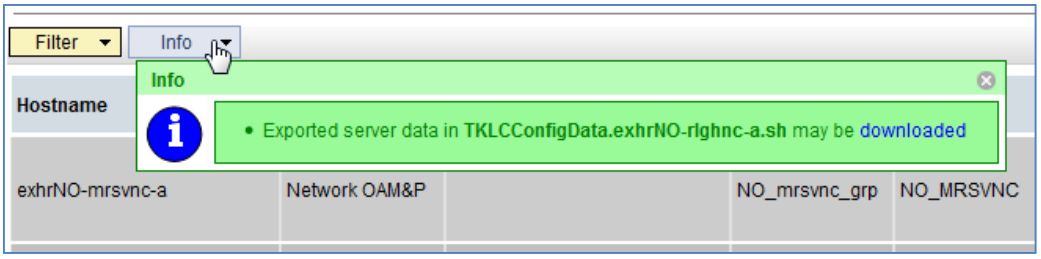
Procedure 6.1: Configuring the DR NOAM Site / Servers *(Optional)*

Step	Procedure	Result
6. ☐	**Primary NOAM GUI (VIP):** **1)** Click "**Add**" button and assign IP address for the 1st **NTP Server** *(required)*. **2)** Click the "**Add**" button to assign an IP address for the 2nd **NTP Server** *(required)*. **3)** Click the "**Add**" button to assign an IP address for the 3rd **NTP Server** *(required)*. **4)** Click the "**Add**" button to assign an IP address any desired additional **NTP Servers** *(optional)*. **5)** Check the **"Prefer"** checkbox to select any preferred NTP Servers *(optional)*.	
7. ☐	**Primary NOAM GUI (VIP):** **1)** If the values provided by the user matches the network ranges assigned to the NOAMP NE, the user will receive a banner information message stating **"Pre-Validation passed"**. **2)** Click the **"Apply"** dialogue button.	 

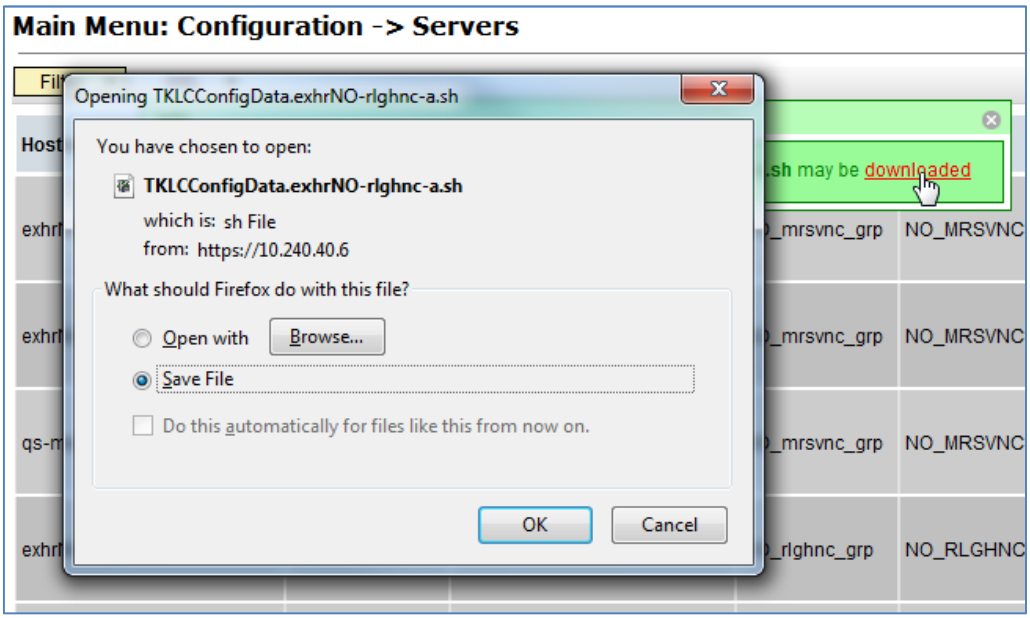
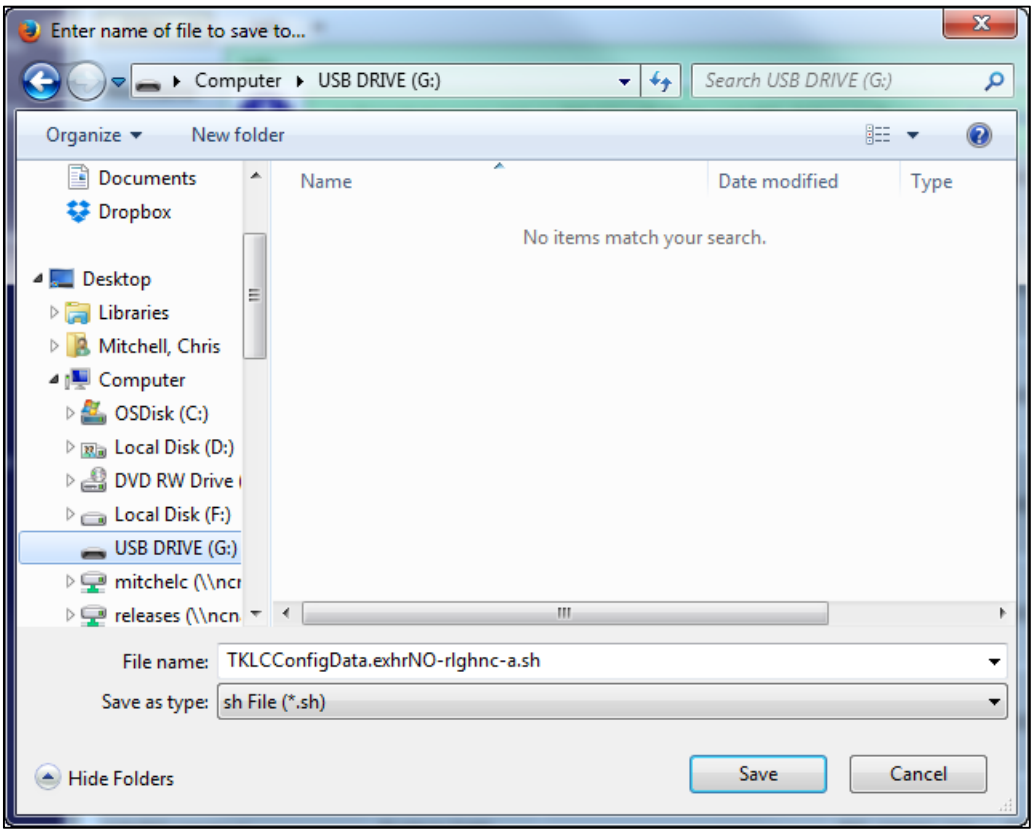
Procedure 6.1: Configuring the DR NOAM Site / Servers *(Optional)*

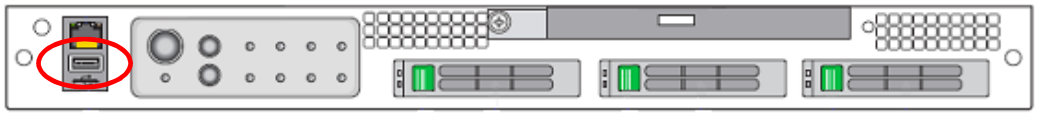
Step	Procedure	Result
8. ☐	**Primary NOAM GUI (VIP):** The user will receive a banner information message showing that the data has been committed to the DB.	
PROCEDURE 6.1 HAS BEEN COMPLETED		

Procedure 6.2: Exporting the Server Configuration file

Step	Procedure	Result
9. ☐	**Primary NOAM GUI (VIP):** ***Applying the Server Configuration File*** **1)** Select… **Main Menu** → **Configuration** → ***Servers*** **2)** The configuration screen "**Servers**" will appear.	
10. ☐	**Primary NOAM GUI (VIP):** **1)** Use the cursor to select the Server configured in **Steps** 7-**11** of this procedure. *The selected row will be highlighted in* ***GREEN*** **2)** Select the **"Export"** dialogue button.	
11. ☐	**Primary NOAM GUI (VIP):** **1)** A banner information message will show a download link for the **Server** configuration file. **2)** Click on the word **"downloaded"** to download/ssave the configuration file.	 ***Note**: The configurationt file will be created and stored in the /var/TKLC/db/filemgmt directory. The configuration file will have a file name like TKLCConfigData.<**hostname**>.sh.*

Procedure 6.2: Exporting the Server Configuration file

12. ☐	**Primary NOAM GUI (VIP):** **1)** Click the **"download"** link. **2)** When prompted to open or **save the file**, save the Server configuration file to a **USB flash drive**.	 
13. ☐	**Server Console:** Access server console.	Connect to the **Server Console** using one of the access methods described in **Section 0**

Procedure 6.2: Exporting the Server Configuration file		
14. ☐	**Server Console:** Login to the server as the **"admusr"** user.	`login: admusr` `Password: <admusr_password>`
15. ☐	**Server Console:** Output similar to that shown on the right will appear as the server accesses the command prompt.	`PRODPATH=/opt/comcol/prod` `RUNID=00` `VPATH=/opt/TKLCcomcol/runcm6.2:/opt/TKLCcomcol/cm6.2` `PRODPATH=` `RELEASE=6.2` `RUNID=00` `VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr/` `TKLC/awptransportmgr:/usr/TKLC/awpss7:/usr/TKLC/exhr` `PRODPATH=/opt/comcol/prod` `RUNID=00` `[admusr@hostname1396462623 ~]$`
16. ☐	Insert the **USB flash drive** containing the server configuration file into the **USB port** on the front panel .	 **Figure 4 -** T1200 Front Panel: **USB Port**
17. ☐	**Server Console:** Output similar to that shown to the right will appear on the console. Press the **<ENTER>** key to return to the command prompt.	`$ sde: assuming drive cache: write through` `sde: assuming drive cache: write through <ENTER>` `$`
18. ☐	**Server Console:** Verify that the USB flash drive has been mounted by the OS.	`$ df | grep usb` `/dev/sde1  1018088  603372  414716  60% /var/tmp/usb_flash`
19. ☐	**Server Console:** Copy the **server** configuration file to the **"/var/tmp"** directory on the server, rename the file by omitting the server hostname from the file name.	***Example:*** TKLCConfigData.<server_hostname>.sh → will translate to →TKLCConfigData.sh `$ cp -p /var/tmp/usb_flash/TKLCConfigData.tks5031301.sh` `/var/tmp/TKLCConfigData.sh` ***NOTE:*** *The server will poll the* ***/var/tmp*** *directory for the presence of the configuration file and automatically execute it when found.*

Procedure 6.2: Exporting the Server Configuration file

20. ☐	**Server Console:** After the script completes, a broadcast message will appear Press the **<ENTER>** key to return to the command prompt.	***** NO OUTPUT FOR ≈ 3…20 MINUTES ***** Broadcast message from root@tks5031301 (Thu Apr 10 15:13:15 2014): Server configuration completed successfully! See /var/TKLC/appw/logs/Process/install.log for details. Please remove the USB flash drive if connected and reboot the server. **<ENTER>**
21. ☐	**Server Console:** Initiate a reboot of this server. Wait until the reboot completes	$ **sudo init 6** **Broadcast message from root@tks5031301** **(/dev/pts/0) at 15:14 ...** **The system is going down for reboot NOW!**
22. ☐	**Server Console:** Log into the server as the "**root**" user	login: **root** Password: ***<root_password>***
23. ☐	**Server Console:** Output similar to that shown on the right will appear as the server accesses the command prompt.	PRODPATH=/opt/comcol/prod RUNID=00 VPATH=/opt/TKLCcomcol/runcm6.2:/opt/TKLCcomcol/cm6.2 PRODPATH= RELEASE=6.2 RUNID=00 VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr /TKLC/awptransportmgr:/usr/TKLC/awpss7:/usr/TKLC/exhr PRODPATH=/opt/comcol/prod RUNID=00 [admusr@exhrNO-rlghnc-a ~]$
24. ☐	**Server Console:** Verify that XMI and IMI IP addresses entered in *Step 30* have been applied **NOTE:** *Full path is required to execute this command as the "admusr" user.*	$ **/sbin/ifconfig |grep in |grep -v inet6** bond0 Link encap:Ethernet HWaddr 00:00:00:00:00:00 bond1 Link encap:Ethernet HWaddr 00:1E:67:00:90:DA bond1.2 Link encap:Ethernet HWaddr 00:1E:67:00:90:DA inet addr:192.168.182.21 Bcast:192.168.182.31 bond1.3 Link encap:Ethernet HWaddr 00:1E:67:00:90:DA inet addr:192.168.182.37 Bcast:192.168.182.47 eth01 Link encap:Ethernet HWaddr 00:1E:67:00:90:DA eth03 Link encap:Ethernet HWaddr 00:1E:67:00:90:DA lo Link encap:Local Loopback inet addr:127.0.0.1 Mask:255.0.0.0

Procedure 6.2: Exporting the Server Configuration file

25. ☐

Server Console:

Ping the **XMI Gateway** IP address to ensure network connectivity.

```
$ ping -c 5 <XMI_Gateway_IP_address>
```

Example output:

```
PING 192.168.182.1 (192.168.182.1) 56(84) bytes of data.
64 bytes from 192.168.182.1: icmp_seq=1 ttl=64 time=0.056 ms
64 bytes from 192.168.182.1: icmp_seq=2 ttl=64 time=0.046 ms
64 bytes from 192.168.182.1: icmp_seq=3 ttl=64 time=0.018 ms
64 bytes from 192.168.182.1: icmp_seq=1 ttl=64 time=0.056 ms
64 bytes from 192.168.182.1: icmp_seq=2 ttl=64 time=0.046 ms

--- 192.168.182.1 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2573ms
```

26. ☐

Server Console:

Verify that the server has connectivity to the assigned Primary and Secondary NTP server(s).

```
$ ntpq -np
```

```
     remote           refid      st t when poll reach   delay
==============================================================
*10.250.32.51    192.5.41.209     2 u   17   64  177    0.202
+10.250.32.10    192.5.41.209     2 u   18   64  177    0.191
```

27. ☐

Server Console:

Verify alarm status of this server

```
$ sudo alarmMgr --alarmStatus
```

***NOTE**: This command should return no output on a healthy system. If any alarms are reported, please stop and contact Oracle's Tekelec Customer Care Center for the assistance.*

28. ☐

Server Console:

Verify the current health of this server.

NOTE: *If any errors are reported on the output, please stop and contact Oracle's Tekelec Customer Care Center for the assistance.*

```
$ sudo syscheck
```

```
Running modules in class disk...
                                        OK

Running modules in class hardware...
                                        OK

Running modules in class net...
                                        OK

Running modules in class proc...
                                        OK

Running modules in class system...
                                        OK

LOG LOCATION: /var/TKLC/log/syscheck/fail_log
```

29. ☐

Server Console:

Exit the console session.

```
$ exit
logout
```

PROCEDURE 6.2 HAS BEEN COMPLETED

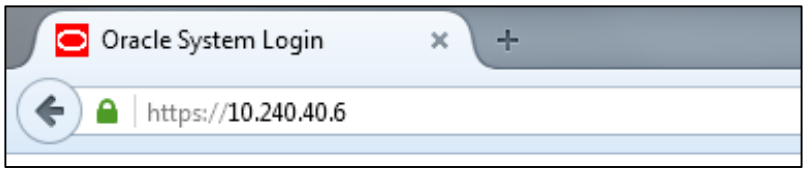
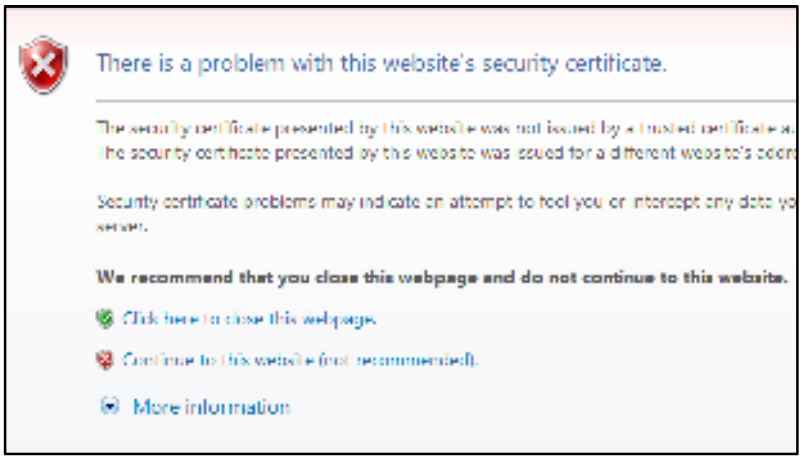
Procedure 6.3: Configuring Additional Servers		
Step	**Procedure**	**Result**
30. ☐	Configure the **Primary NOAM-B** server.	• Repeat **Steps** 2 **- 29** of this procedure to configure the **DR NOAM-B** Server. ☐ **DR NOAM-B**
31. ☐	Configure the **Query Server** *(if equipped)*.	• Repeat **Steps** 2 **- 29** of this procedure to configure the **DR Query Server** *(if equipped)*. ☐ **DR Query Server**
THIS PROCEDURE HAS BEEN COMPLETED		

5.6 OAM Pairing for DR NOAM / SOAM Sites *(DR NOAM / SOAM Sites Only)*

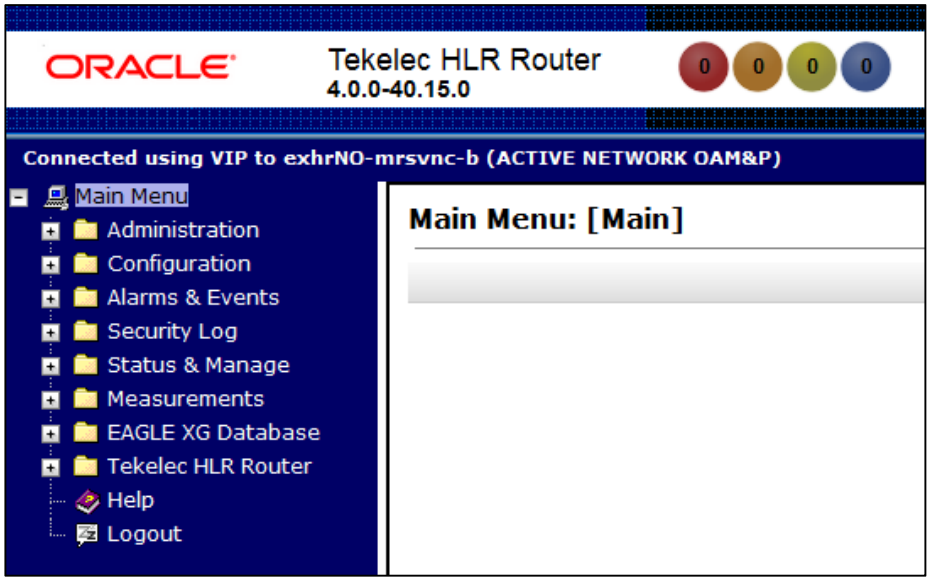
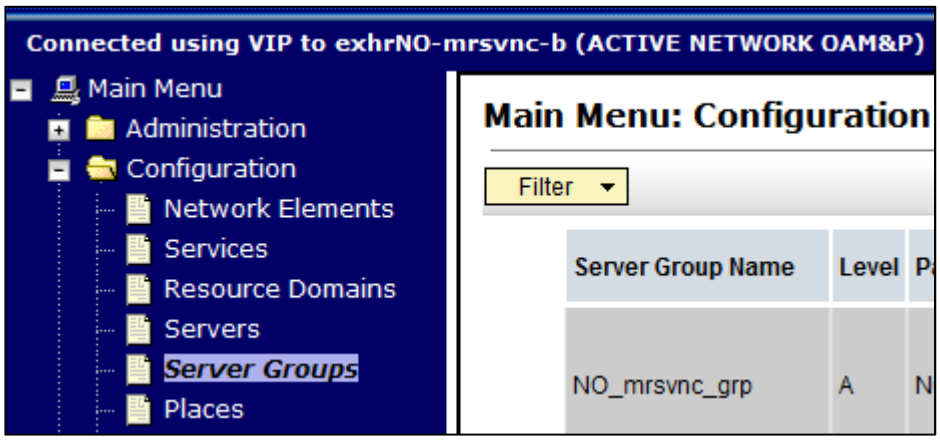
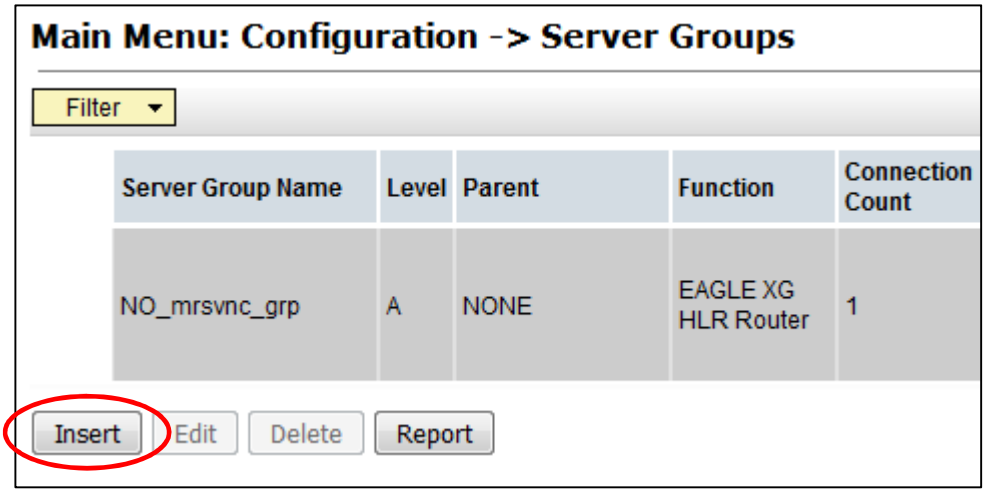
The user should be aware that during the OAM Pairing procedure, various errors may be seen at different stages of the procedure. During the execution of a step, the user is directed to ignore errors related to values other than the ones referenced by that step.

This procedure creates a Server Group which will establish an Active/Standby relationship for the OAM server pair (A & B). This procedure will also integrate the Query Server (if equipped) into the DR NOAM Server Group.

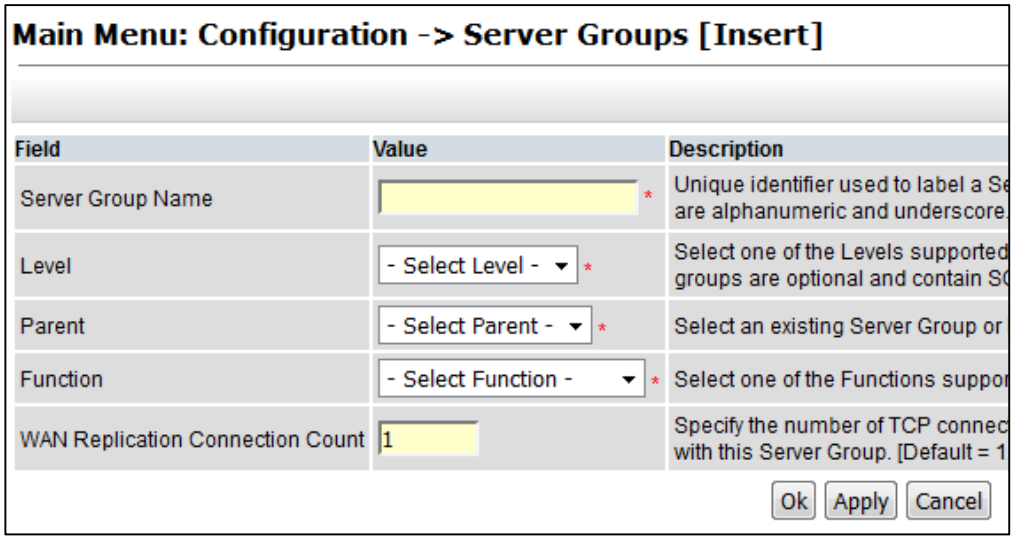
Procedure 7.1: Configuring the OAM Server Group

Step	Procedure	Result
1. ☐	**Primary NOAM GUI (VIP):** Connect to the **Primary NOAM VIP GUI** (XMI VIP) via web browser.	
2. ☐	**Primary NOAM GUI (VIP):** If a security certificate error is received, click on the following link: **"Continue to this website (not recommended)."**	
3. ☐	**Primary NOAM GUI (VIP):** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	

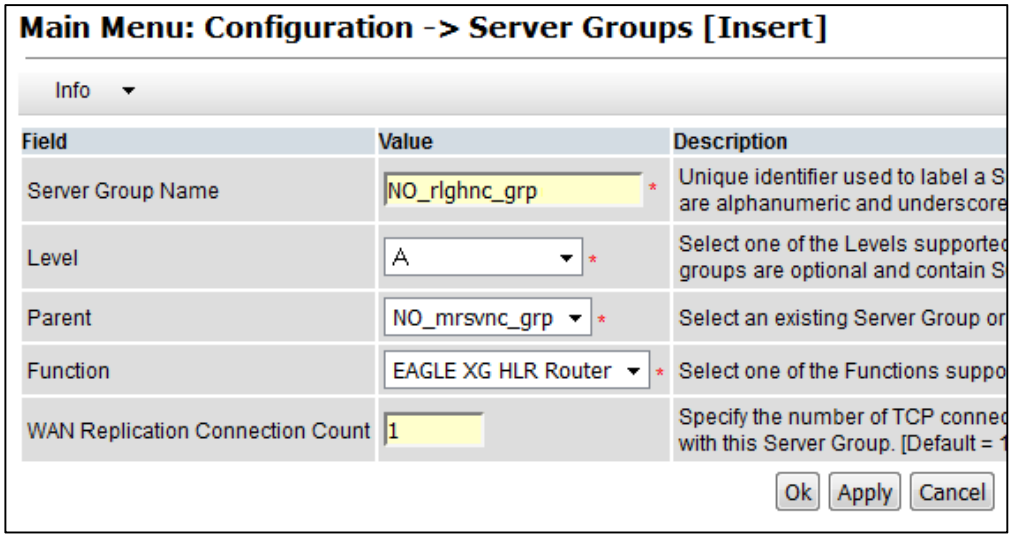
Procedure 7.1: Configuring the OAM Server Group

Step	Procedure	Result
4. ☐	**Primary NOAM GUI (VIP):** The user should be presented with the HLRR Main Menu as shown on the right.	
5. ☐	**Primary NOAM GUI (VIP):** Select… **Main Menu** → **Configuration** → ***Server Groups*** …as shown on the right.	
6. ☐	**Primary NOAM GUI (VIP):** **1)** The user will be presented with the **"Server Groups"** configuration screen as shown on the right. **2)** Select the **"Insert"** dialogue button	

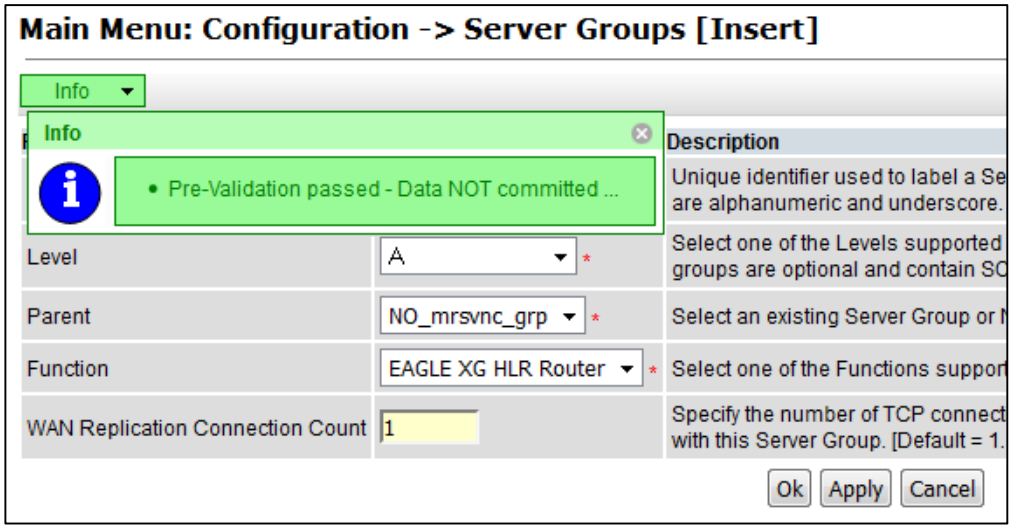
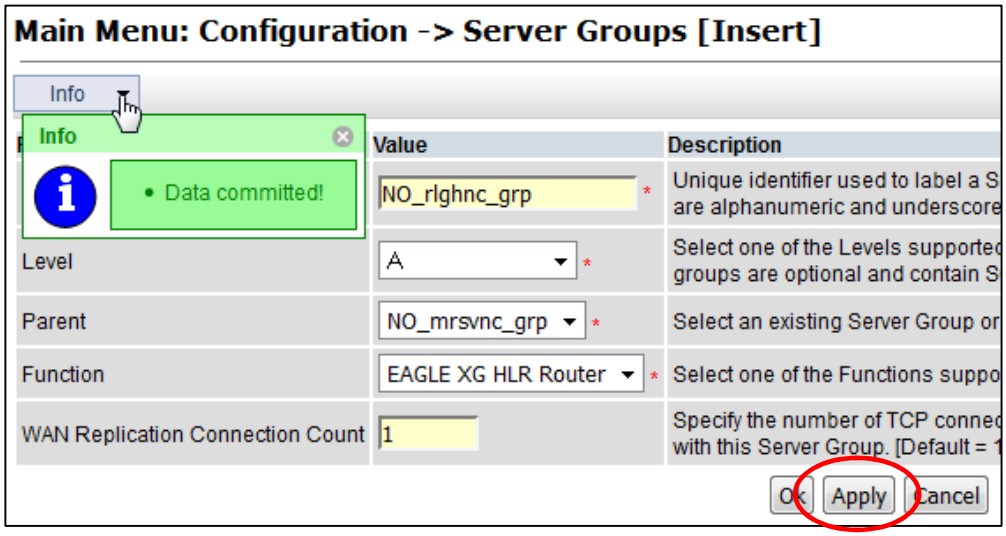
Procedure 7.1: Configuring the OAM Server Group

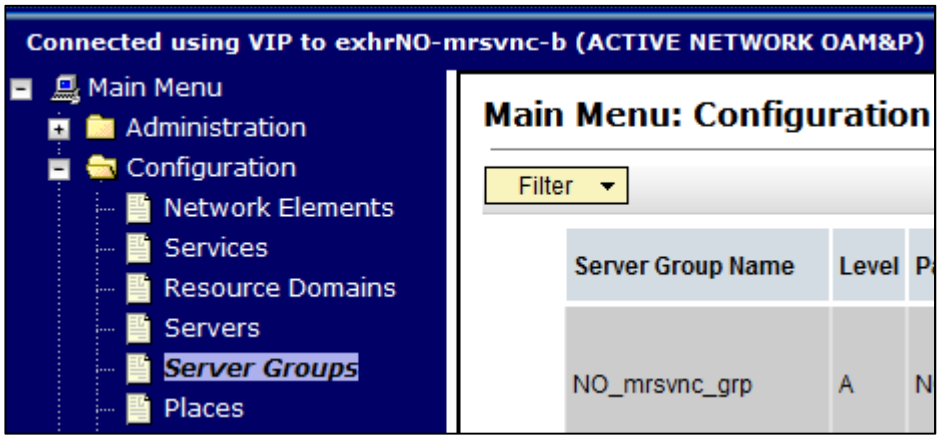
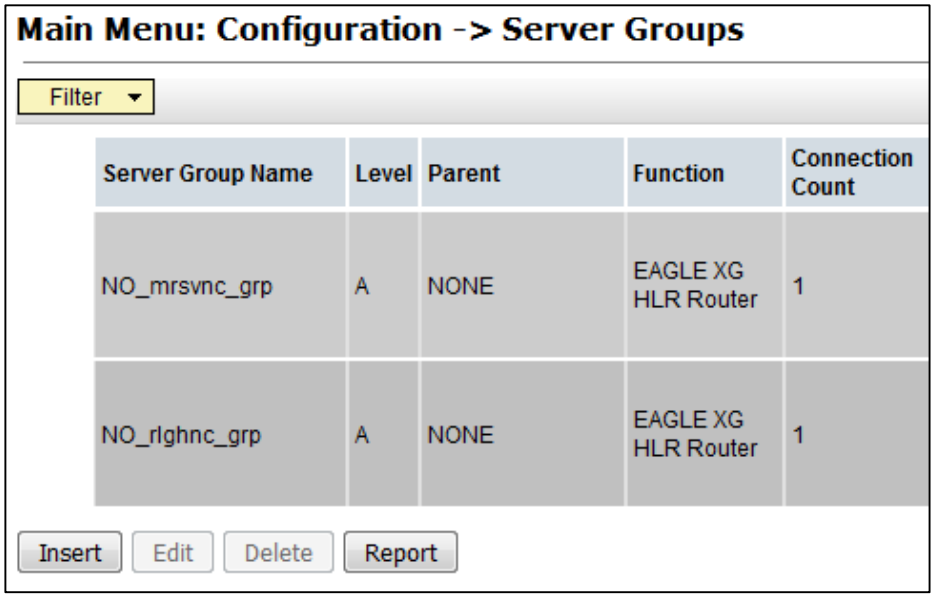
Step	Procedure	Result
7. ☐	**Primary NOAM GUI (VIP):** The configuration screen **"Server Groups [Insert]"** will appear	

Procedure 7.1: Configuring the OAM Server Group

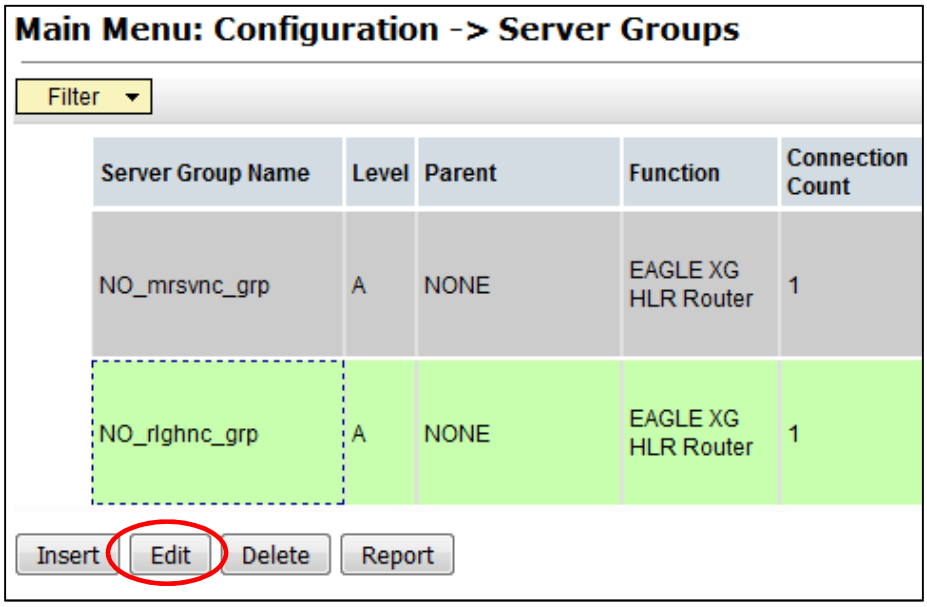
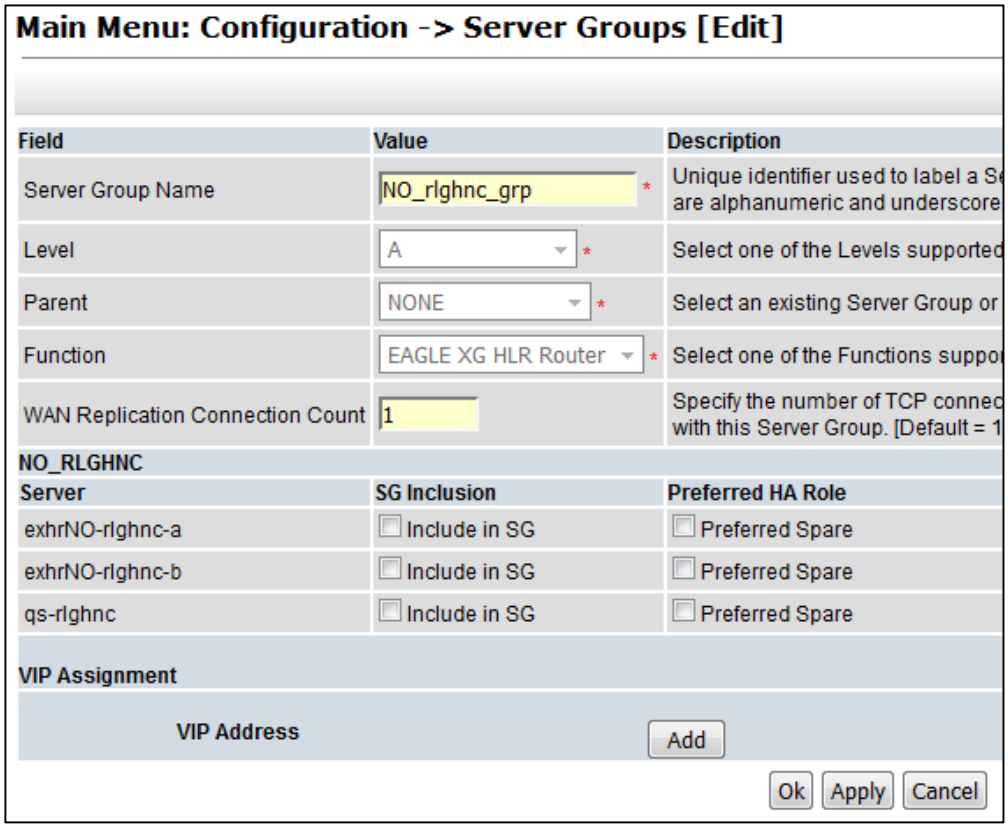
Step	Procedure	Result
8. ☐	**Primary NOAM GUI (VIP):** **1)** Input the **Server Group Name**. **2)** Select the **"Level"** from the pull-down menu: For **DR NOAM** Server Group, select **"A"**. For **SOAM** Server Group, select **"B"**. **3)** Select a **Parent** from the pull-down menu: For the **DR NOAM Server Group**, select **"NONE"**. For a **SOAM Server Group**, select the **Primary NOAM Server Group**. **4)** Select **"EAGLE XG HLR Router"** on the **"Function"** pull-down menu. **5)** Leave the value for "**WAN Replication Connection Count**" field defaulted to **"1"**.	

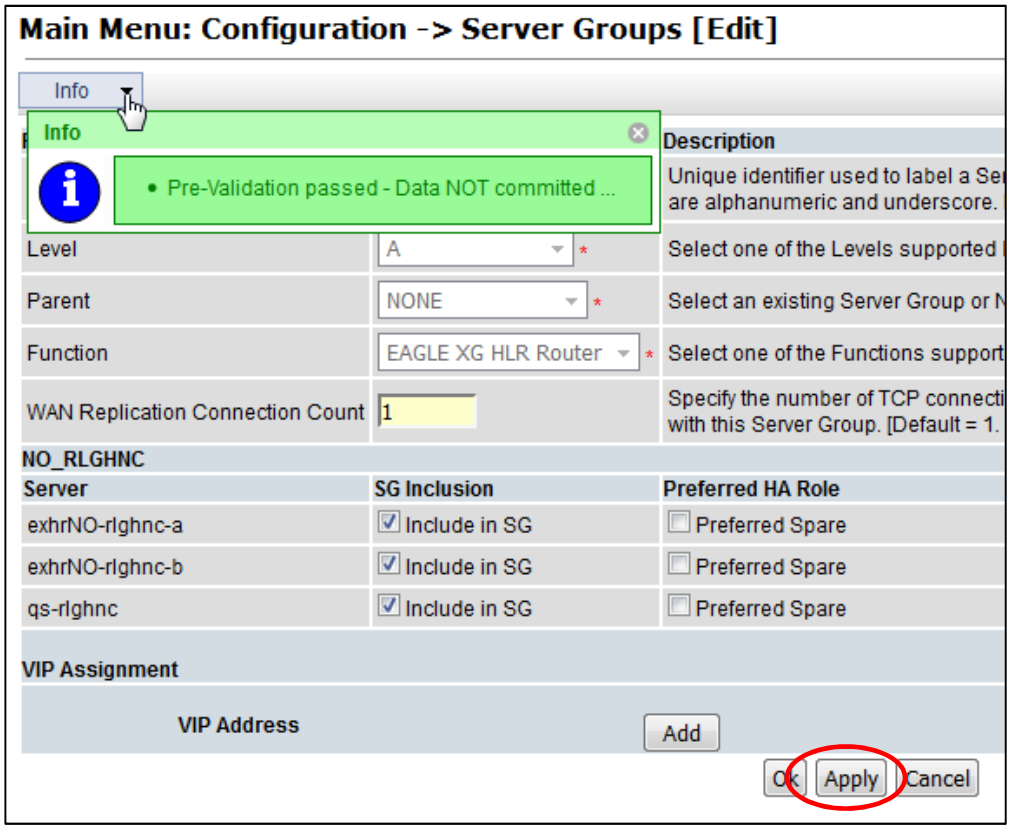
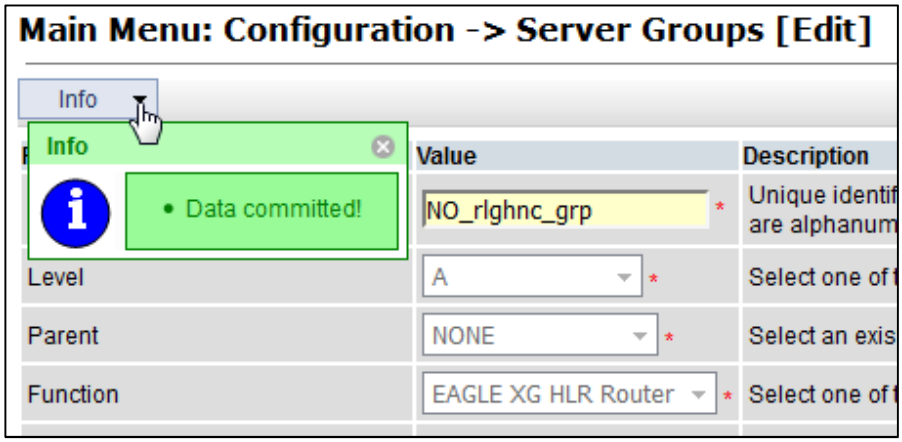
Procedure 7.1: Configuring the OAM Server Group

Step	Procedure	Result
9. ☐	**Primary NOAM GUI (VIP):** The user should be presented with a banner information message stating **"Pre-Validation passed"**.	
10. ☐	**Primary NOAM GUI (VIP):** Click "**Apply**" button to submit The user should be presented with a banner information message stating **"Data committed"**.	
PROCEDURE 7.1 HAS BEEN COMPLETED		

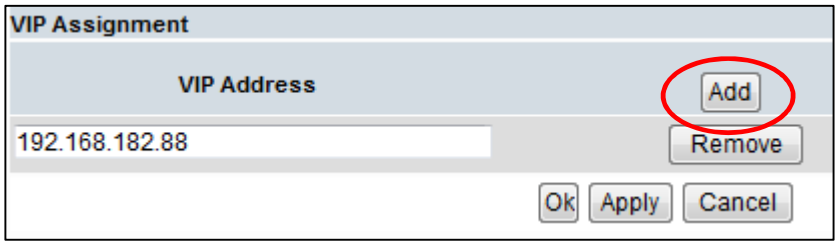
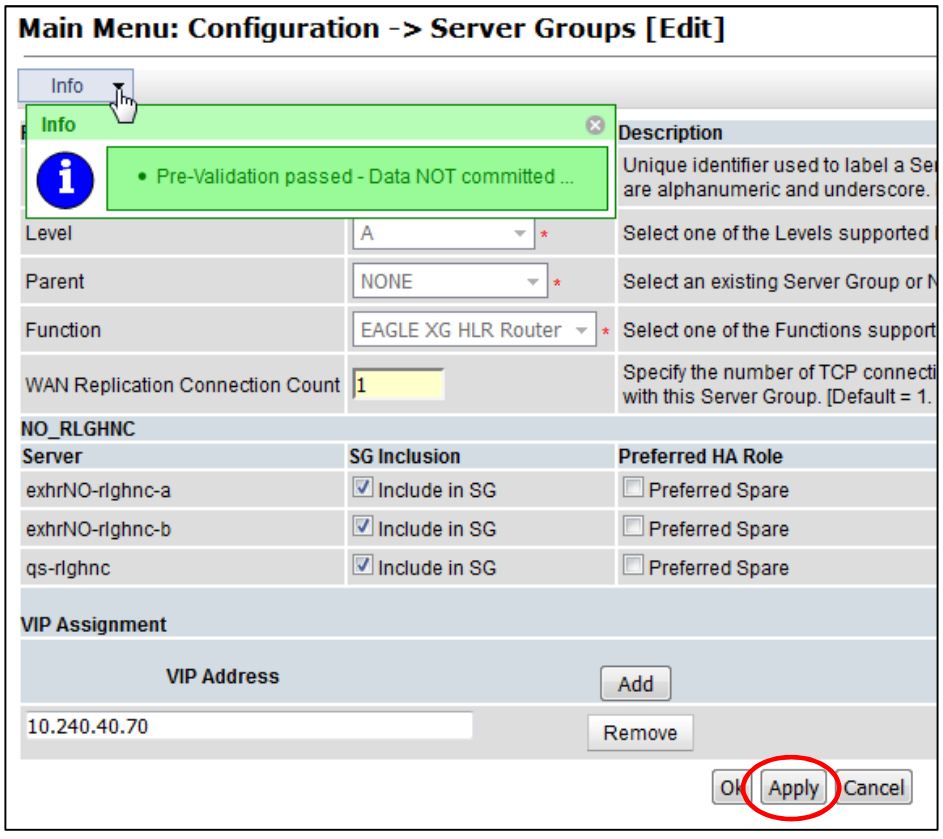
Procedure 7.2: Adding the OAM server to the OAM Server Group		
Step	**Procedure**	**Result**
11. ☐	**Primary NOAM GUI (VIP):** Select… **Main Menu** → **Configuration** → ***Server Groups*** …as shown on the right.	
12. ☐	**Primary NOAM GUI (VIP):** The **Server Group** entry should be shown on the **"Server Groups"** configuration screen as shown on the right.	

Procedure 7.2: Adding the OAM server to the OAM Server Group

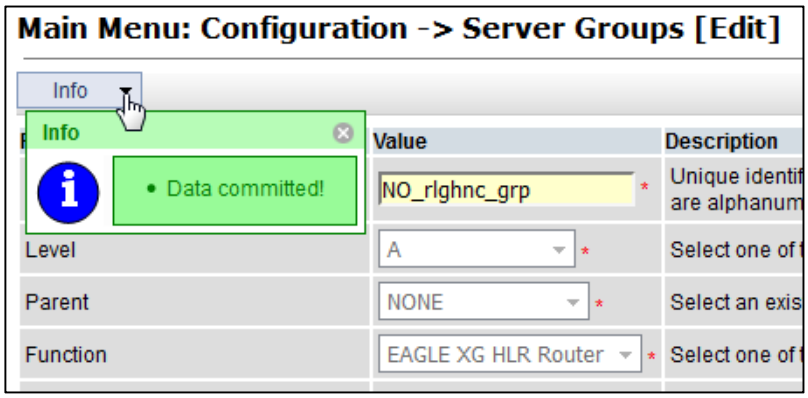
Step	Procedure	Result
13. ☐	**Primary NOAM GUI (VIP):** **1)** Select the **Server Group** entry created in **Step 5 through Step 9**. The line entry will be highlighted in **GREEN**. **2)** Click **"Edit"** dialogue button	
14. ☐	**Primary NOAM GUI (VIP):** ***Adding a Server to the OAM Server Group*** *(DR NOAM or SOAM)* The configuration screen **"Server Groups [Edit]"** will appear	

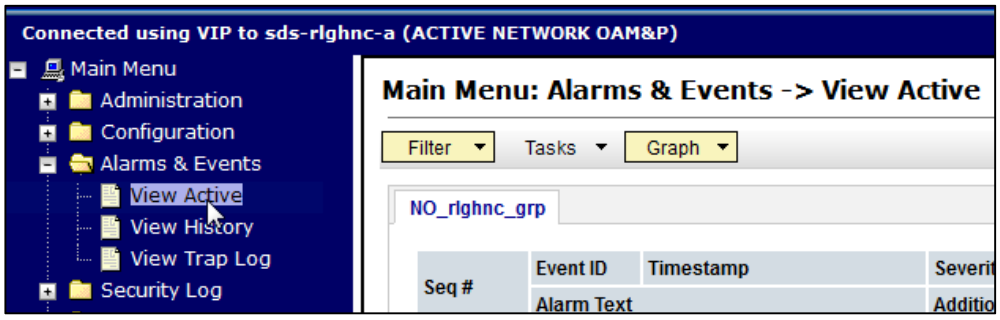
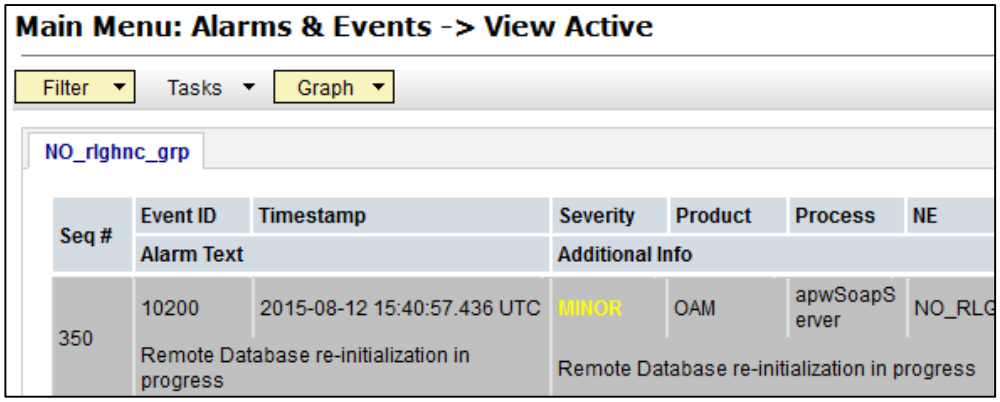
Procedure 7.2: Adding the OAM server to the OAM Server Group		
Step	**Procedure**	**Result**
15. ☐	**Primary NOAM GUI (VIP):** **1) CHECK** the "**Include in SG**" checkbox for both **OAM** Servers (A & B) and the **Query Server** *(if equipped)*. **2)** If desired, the user may set one of the two **OAM** servers as a **"Preferred Spare"** *(optional)*. **NOTE:** *If **"Preferred Spare"** is checked for an OAM server, then that OAM server will default to **"Standby"** mode whenever possible.* *It is recommended that the **"Preferred Spare"** option be left unchecked to allow for both servers to be automatically system managed.* **3)** The user should be presented with a banner information message stating **"Pre-Validation passed"**. **4)** Click "**Apply**" to submit.	
16. ☐	**Primary NOAM GUI (VIP):** The user should be presented with a banner information message stating **"Data committed"**.	
PROCEDURE 7.2 HAS BEEN COMPLETED		

Procedure 7.3: Adding the VIP to the OAM Server Group

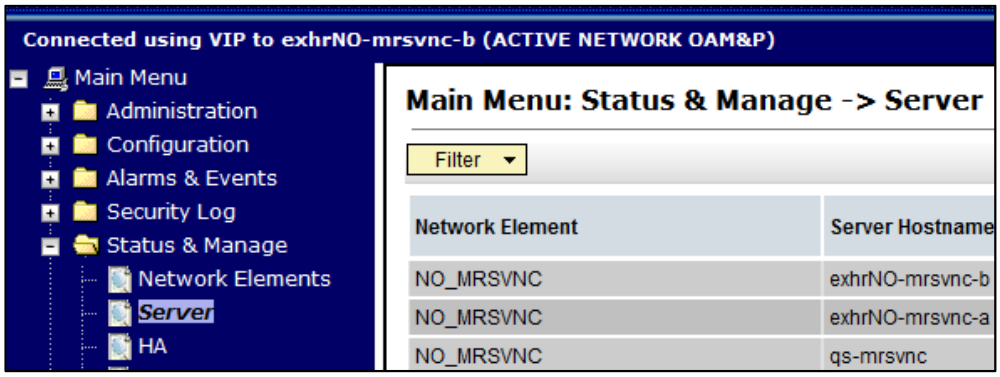
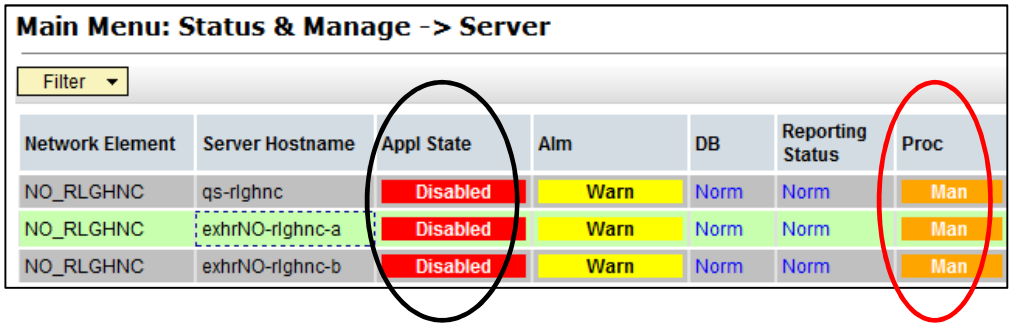
Step	Procedure	Result
17. ☐	**Primary NOAM-A GUI (XMI):** **1)** To add a Virtual IP address (VIP), click on **"Add"** dialogue button in the **VIP Assignment** section. **2)** Enter the Virtual IP address in the **VIP Address** field.	
18. ☐	**Primary NOAM-A GUI (XMI):** **1)** The user should be presented with a banner information message stating **"Pre-Validation passed"**. **2)** Click on **"Apply"** button.	

Procedure 7.3: Adding the VIP to the OAM Server Group

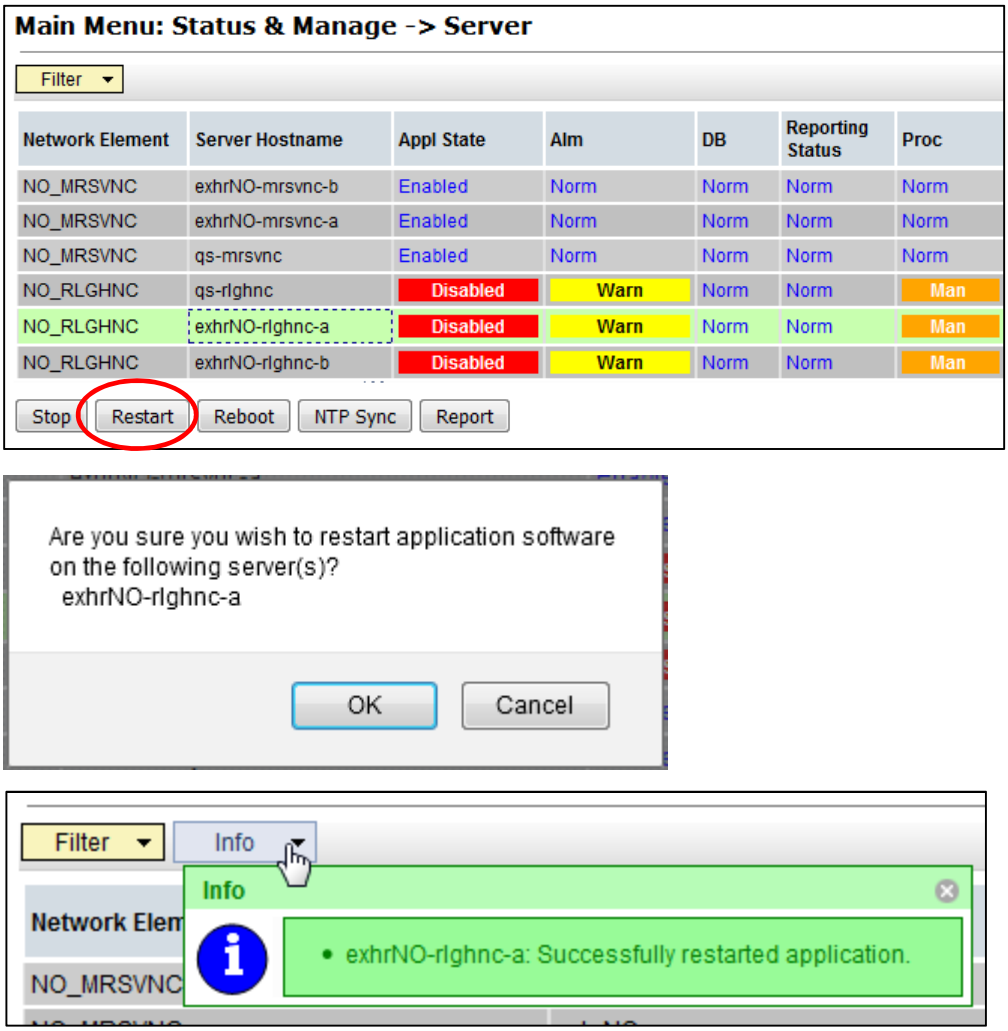
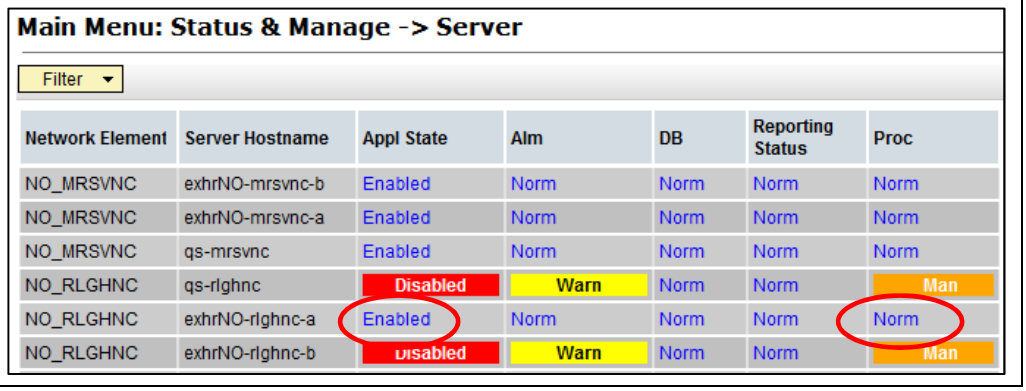
Step	Procedure	Result
19. ☐	**Primary NOAM GUI (VIP):** The user should be presented with a banner information message stating **"Data committed"**.	
PROCEDURE 7.3 HAS BEEN COMPLETED		

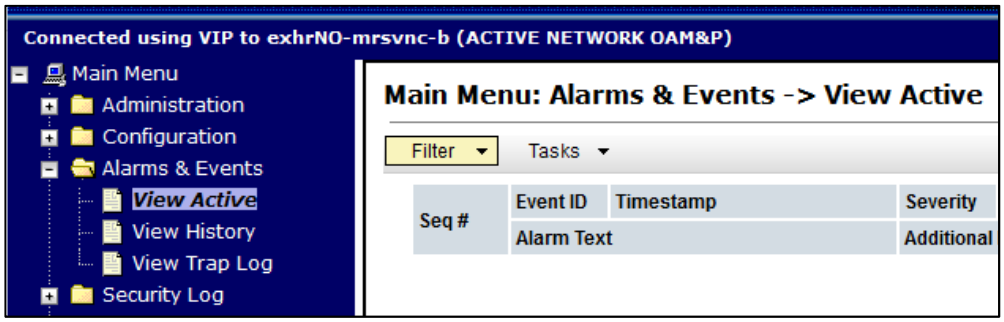
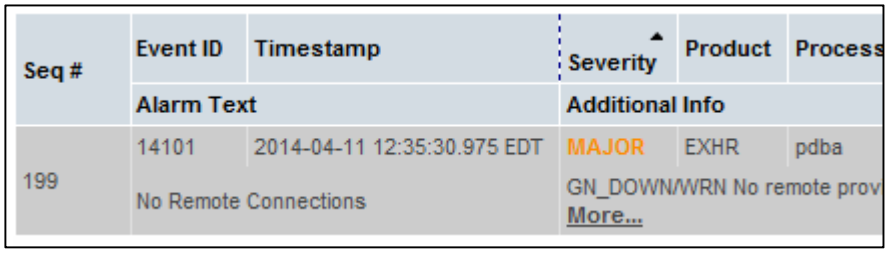
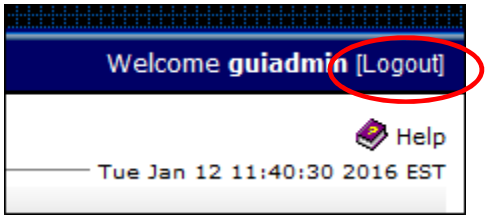
Procedure 7.4: Restarting the Appplication SW on the OAM server		
Step	**Procedure**	**Result**
20. ☐	**Primary NOAM GUI (VIP):** Select… **Main Menu** **→ Alarms & Events** **→ *View Active*** …as shown on the right.	
21. ☐	**Primary NOAM GUI (VIP):** Verify that **Event ID 10200** (*Remote Database re-initialization in progress)* alarms are present with the server **hostnames** in the **"Instance"** field. **NOTE: *Event ID(s) such as 10009, 10073 & 31000 may also Fire/Clear during this time.*** ***Multiple instances of Event ID 10075 are expected and will remain after Event ID 10200 clears.***	
22. ☐		• **MONITOR THE EVENT ID 10200 (*Remote Database re-initialization in progress)* ALARMS.** • **DO NOT PROCEED TO THE NEXT STEP UNTIL THE ALARM CLEAR FOR EVENT ID 10200 IS RECEIVED FOR BOTH OAM SERVERS AND THE QUERY SERVER** *(DR NOAM Server Group, if equipped).*

Procedure 7.4: Restarting the Appplication SW on the OAM server

Step	Procedure	Result
23. ☐	**Primary NOAM GUI (VIP):** Select… **Main Menu** → **Status & Manage** → ***Server*** …as shown on the right.	
24. ☐	**Primary NOAM GUI (VIP):** **1)** The **"A"** and **"B"** **OAM servers** and **Query Server** *(DR NOAM Server Group, if equipped)* should now appear in the right panel. **2)** Verify that **"DB"** status shows **"Norm"** and the **"Proc"** status shows **"Man"** for each of the servers **before proceeding to the next Step.** **NOTE:** If the desired status values are not present, **STOP** and contact **"My Oracle Support"** (MOS) for assistance before attempting to continue. *Refer to **Appendix K** - Accessing My Oracle Support (MOS), for more information on contacting Oracle Customer Service.*	

Procedure 7.4: Restarting the Appplication SW on the OAM server

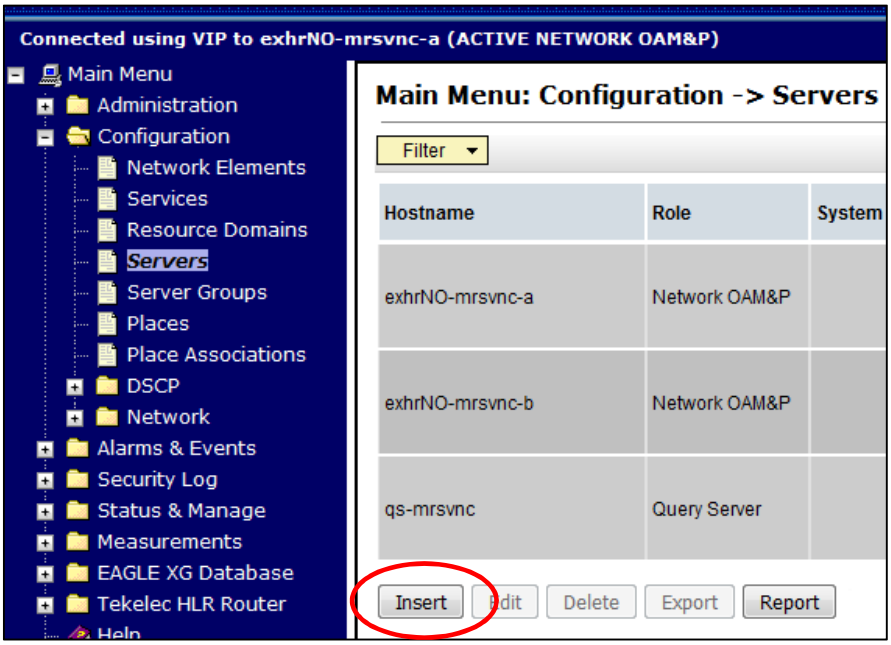
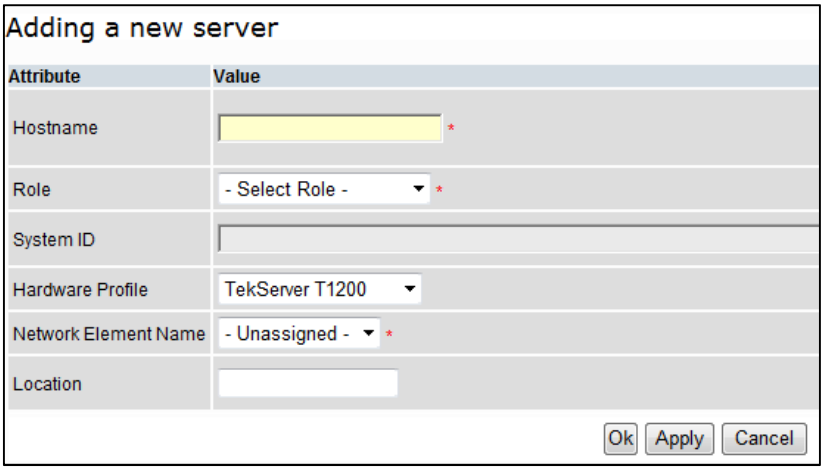
Step	Procedure	Result
25. ☐	**Primary NOAM GUI (VIP):** **1)** Using the mouse, select **OAM-A** server. The line entry will be highlighted in **GREEN**. **2)** Select the **"Restart"** dialogue button **3)** Click the **"OK"** button on the confirmation dialogue box. **4)** The user should be presented with a confirmation message (in the banner area) for **OAM-A** server stating: **"Successfully restarted application"**. **NOTE:** *The user may need to use the vertical scroll-bar in order to make the **"Restart"** dialogue button visible.*	
26. ☐	**Primary NOAM GUI (VIP):** Verify that the **"Appl State"** now shows **"Enabled"** and the **"Proc"** status column show **"Norm"** for the **OAM-A** server before proceeding to the next Step.	

Procedure 7.4: Restarting the Appplication SW on the OAM server		
Step	**Procedure**	**Result**
27. ☐	**Primary NOAM GUI (VIP):** Restart the Application on the **OAM-B** server and verify the **"Appl State"** and the **"Proc"** status post restart.	• Repeat **Steps 25 - 26** of this procedure for the **OAM-B** server.
28. ☐	**Primary NOAM GUI (VIP):** Restart the Application on the **Query Server** *(if equipped)* and verify the **"Appl State"** and the **"Proc"** status post restart.	• Repeat **Steps 25 - 26** of this procedure for the **DR Query Server** *(if equipped)*.
29.	**Primary NOAM GUI (VIP):** Select… **Main Menu** **→ Alarms & Events** **→ *View Active*** …as shown on the right.	
30. ☐	**Primary NOAM GUI (VIP):** Verify that no alarms other than **Event ID 14101** (*"No remote provisioning clients are connected") are* present on the HLRR system.	
31. ☐	**Primary NOAM GUI (VIP):** Click the **"Logout"** link on the GUI.	
THIS PROCEDURE HAS BEEN COMPLETED		

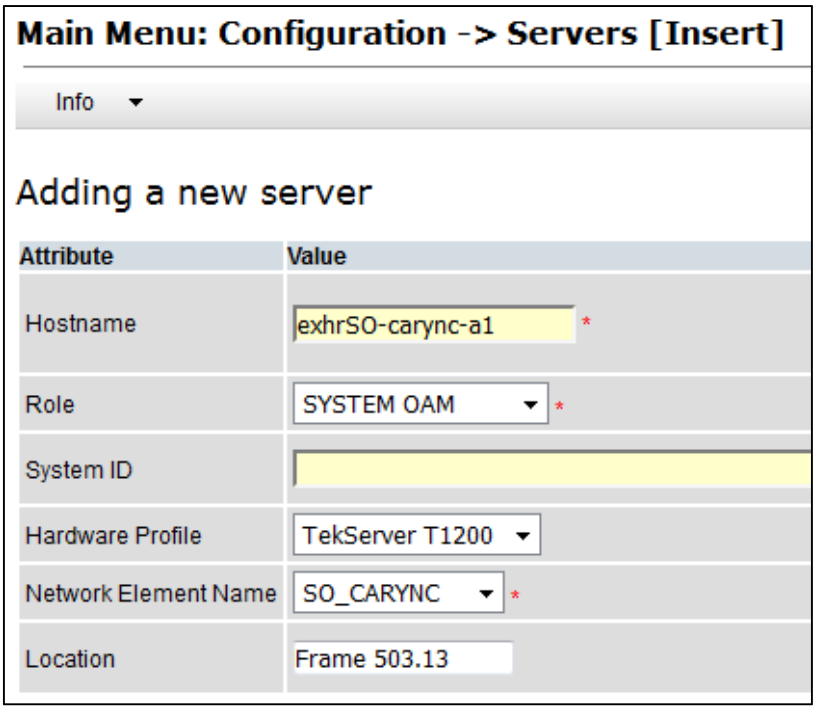
5.7 Configuring the SOAM Site

NOTE: This procedure assumes that the XML file for configuring the SOAM Network Element has been previously prepared, as described in **Appendix A**.

Procedure 8.1: Configuring the SOAM Site / Servers

Step	Procedure	Result
1. ☐	**Primary NOAM GUI (VIP):** Access the **Primary NOAM GUI** *(via the VIP)* and configure the **SOAM Network Element**.	Connect to the **Primary NOAM GUI** *(via the VIP)* and configure the **SOAM Network Element** as described in **Appendix H** *(Configuring the Network Element from XML file)*.
2. ☐	**Primary NOAM GUI (VIP):** **1)** Select… **Main Menu** → **Configuration** → ***Servers*** **2)** The configuration screen "**Servers**" will appear. **3)** Click on **"Insert"** dialogue button.	
3. ☐	**Primary NOAM GUI (VIP):** The configuration screen **"Adding a new server"** will appear.	

Procedure 8.1: Configuring the SOAM Site / Servers

Step	Procedure	Result
4. ☐	**Primary NOAM GUI (VIP):** **NOTE:** *If executing this procedurte for the 1st time, use values associated with the **SOAM-A** server.* **1)** Enter the assigned **Hostname**. **2)** Select the **Role.** For a **SOAM** server, select **"SYSTEM OAM"**. **3)** Enter the **System ID** if known *(optional)*, otherwise, leave it blank. **3)** Select **"TekServer 1200"** as Hardware Profile. **4)** From the pull-down, select the SOAM NE name as the **Network Element Name.** **5)** Enter the site **Location** *(optional)*	

Procedure 8.1: Configuring the SOAM Site / Servers

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr>
<td>5.
☐</td>
<td>
Primary NOAM GUI (VIP):

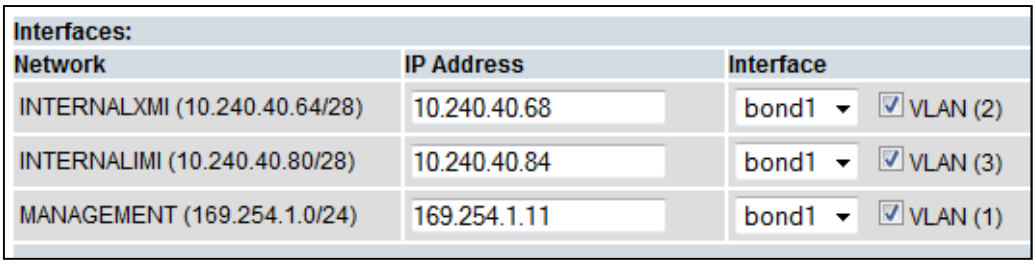
NOTE: If executing this procedurte for the 1st time, use values associated with the SOAM-A server.

1) Enter the INTERNALXMI and INTERNALIMI IP addresses of the server.

2) Enter the MANAGEMENT IP address based on the chart shown to the right.

3) Set all "Interface" values to "bond1".

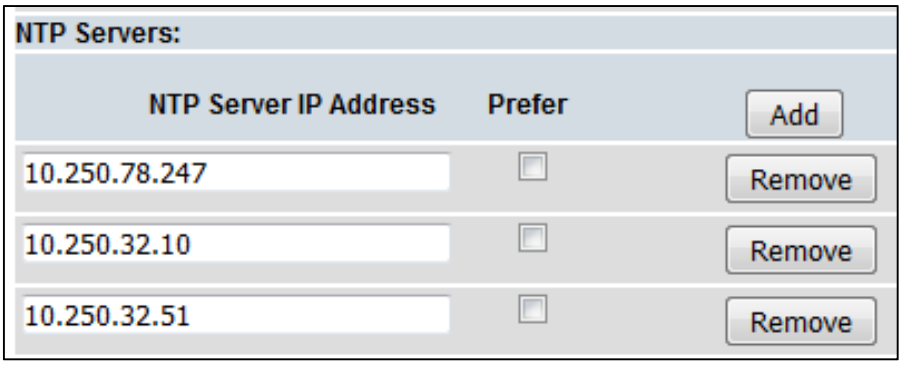
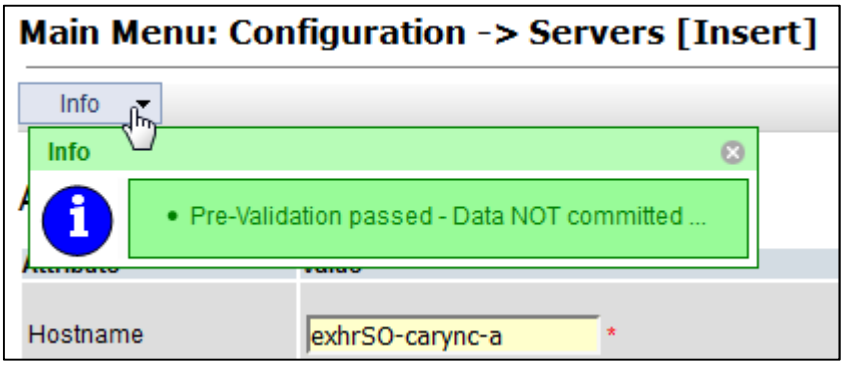
4) Make sure that both the INTERNALXMI and INTERNALIMI VLAN checkboxes are CHECKED.

5) Check the MANAGEMENT VLAN checkbox according to the chart shown to the right.
</td>
<td>


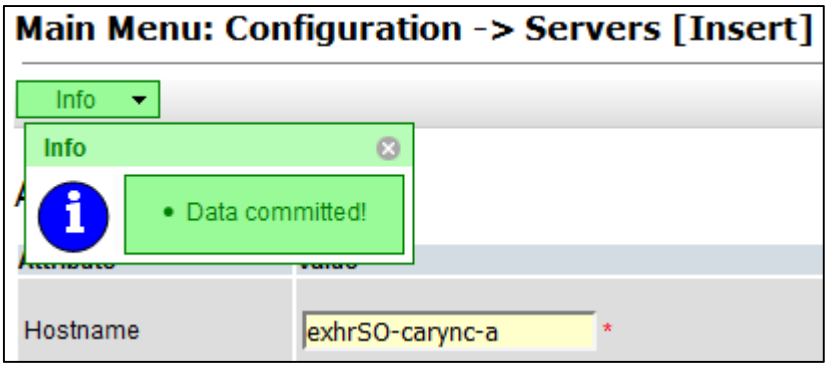
<table>
<tr><th>HLR Router
(Primary NOAM)</th><th>Network</th><th>IP Address</th><th>Interface</th><th>VLAN Checkbox</th></tr>
<tr><td>SOAM-A</td><td>MANAGEMENT</td><td>169.254.1.11</td><td>bond1</td><td>✓</td></tr>
<tr><td>SOAM-B</td><td>MANAGEMENT</td><td>169.254.1.12</td><td>bond1</td><td>✓</td></tr>
</table>

NOTE: After the "Network Element Name" field is populated (in the previous step), the "Interfaces" fields will be displayed.
</td>
</tr>
</table>

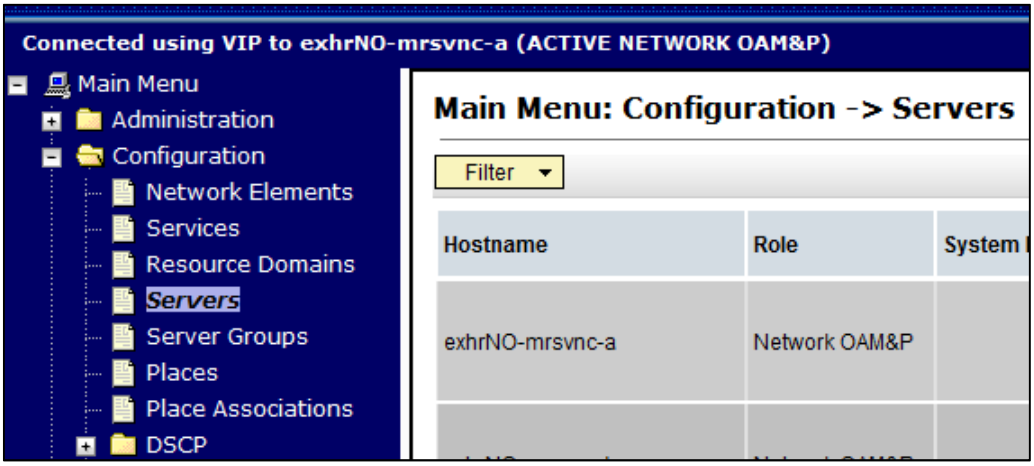
Procedure 8.1: Configuring the SOAM Site / Servers

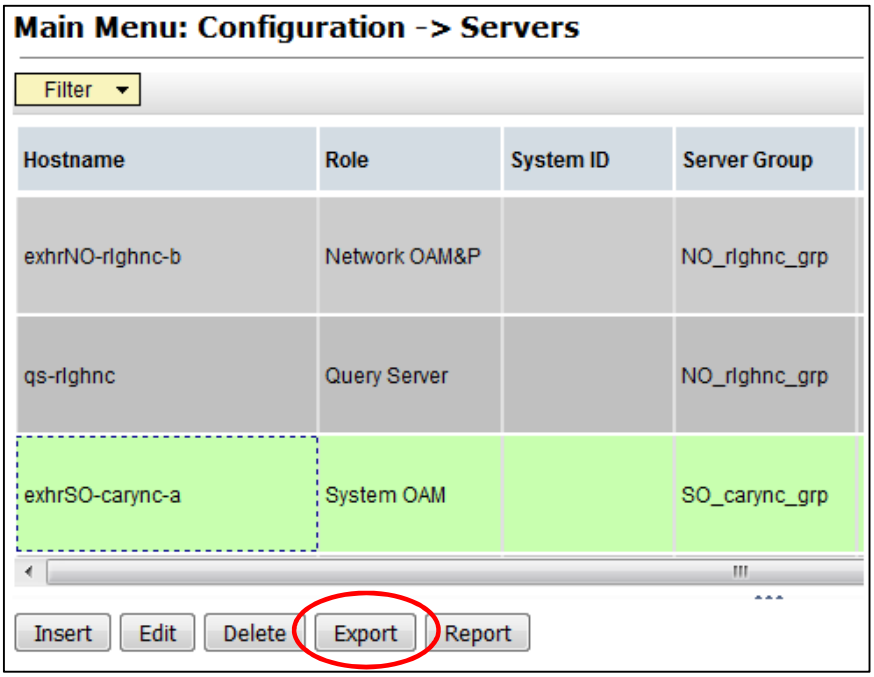
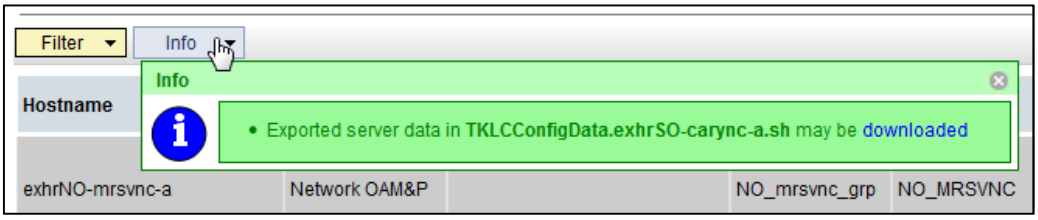
Step	Procedure	Result
6. ☐	**Primary NOAM GUI (VIP):** **1)** Click "**Add**" button and assign IP address for the 1st **NTP Server** **2)** Click the "**Add**" button to assign an IP address for the 2nd **NTP Server** *(required)*. **3)** Click the "**Add**" button to assign an IP address for the 3rd **NTP Server** *(required)*. **4)** Click the "**Add**" button to assign an IP address any desired additional **NTP Servers** *(optional)*. **5)** Check the **"Prefer"** checkbox to select any preferred NTP Servers *(optional)*.	
7. ☐	**Primary NOAM GUI (VIP):** **1)** If the values provided by the user matches the network ranges assigned to the SOAM NE, the user will receive a banner information message stating **"Pre-Validation passed"**. **2)** Click the **"Apply"** dialogue button.	

Procedure 8.1: Configuring the SOAM Site / Servers

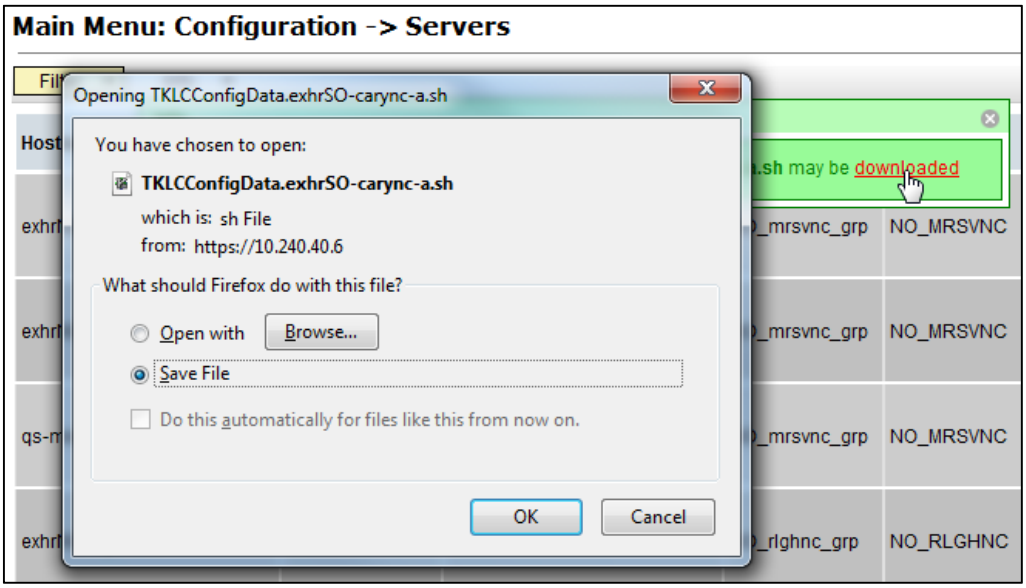
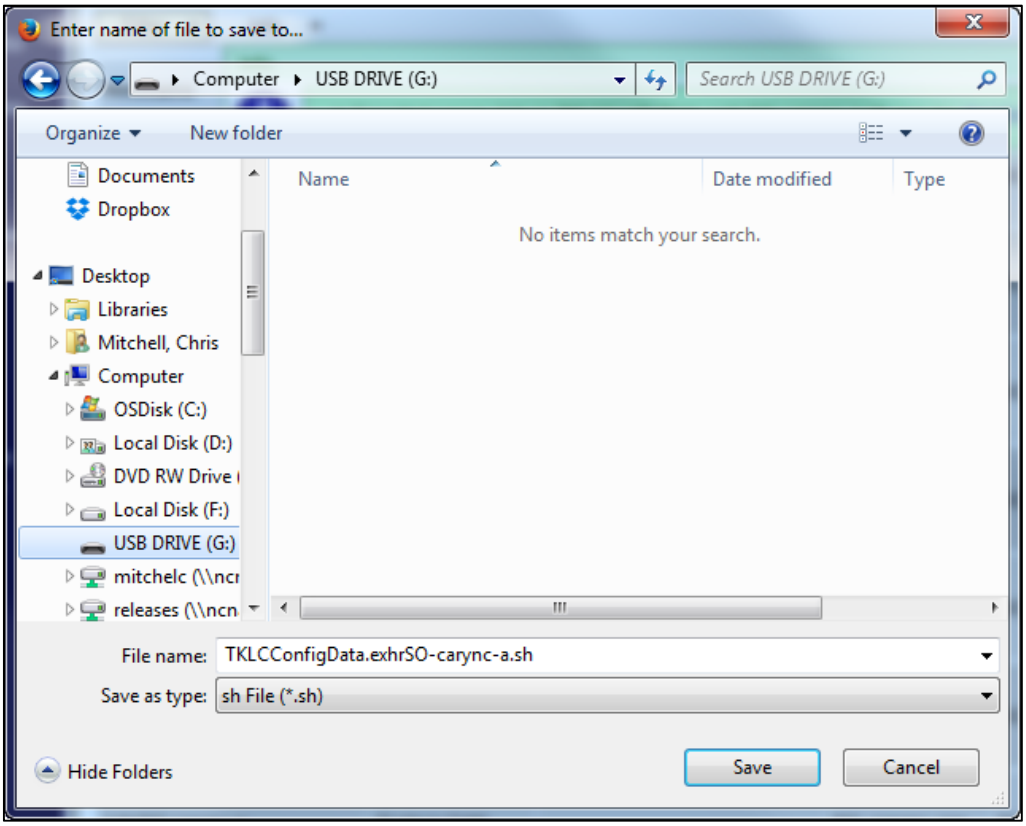
Step	Procedure	Result
8. ☐	**Primary NOAM GUI (VIP):** The user will receive a banner information message showing that the data has been committed to the DB.	
PROCEDURE 8.1 HAS BEEN COMPLETED		

Procedure 8.2: Applying the Server Configuration file to the SOAM

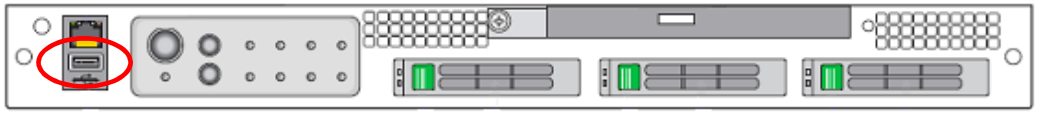
Step	Procedure	Result
9. ☐	**Primary NOAM GUI (VIP):** **1)** Select… **<u>Main Menu</u>** **→ Configuration** **→ *Servers*** **2)** The configuration screen "**Servers**" will appear.	

Procedure 8.2: Applying the Server Configuration file to the SOAM		
Step	**Procedure**	**Result**
10. ☐	**Primary NOAM GUI (VIP):** **1)** Use the cursor to select the Server configured in **Steps 2 - 8** of this procedure. *The selected row will be highlighted in **GREEN*** **2)** Select the **"Export"** dialogue button.	
11. ☐	**Primary NOAM GUI (VIP):** **1)** A banner information message will show a download link for the **Server** configuration file. **2)** Click on the word **"downloaded"** to download and save the configuration file.	 ***Note**: The configurationt file will be created and stored in the /var/TKLC/db/filemgmt directory. The configuration file will have a file name like TKLCConfigData.<**hostname**>.sh.*

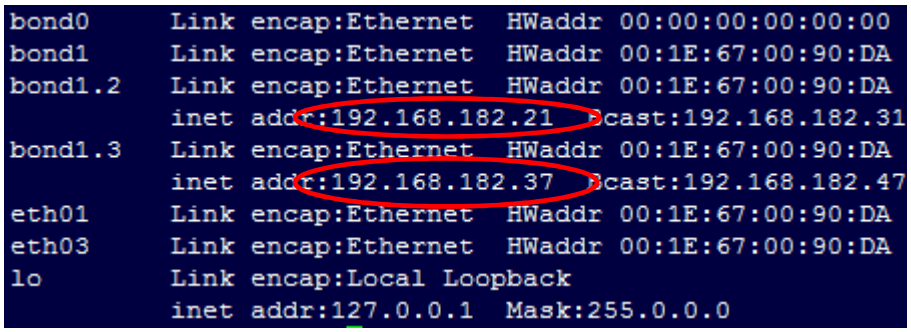
Procedure 8.2: Applying the Server Configuration file to the SOAM

Step	Procedure	Result
12. ☐	**Primary NOAM GUI (VIP):** **1)** Click the **"download"** link. **2)** When prompted to open or **save the file**, save the Server configuration file to a **USB flash drive**.	 
13. ☐	**Server Console:** Access server console.	Connect to the **Server Console** using one of the access methods described in **Section 0**

Procedure 8.2: Applying the Server Configuration file to the SOAM

Step	Procedure	Result
14. ☐	**Server Console:** Login to the server as the **"admusr"** user.	`login: admusr` `Password: <admusr_password>`
15. ☐	**Server Console:** Output similar to that shown on the right will appear as the server accesses the command prompt.	`PRODPATH=/opt/comcol/prod` `RUNID=00` `VPATH=/opt/TKLCcomcol/runcm6.2:/opt/TKLCcomcol/cm6.2` `PRODPATH=` `RELEASE=6.2` `RUNID=00` `VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr/` `TKLC/awptransportmgr:/usr/TKLC/awpss7:/usr/TKLC/exhr` `PRODPATH=/opt/comcol/prod` `RUNID=00` `[admusr@hostname1396462623 ~]$`
16. ☐	Insert the **USB flash drive** containing the server configuration file into the **USB port** on the front panel .	 **Figure 4 -** T1200 Front Panel: **USB Port**
17. ☐	**Server Console:** Output similar to that shown to the right will appear on the console. Press the **<ENTER>** key to return to the command prompt.	`$ sde: assuming drive cache: write through` `sde: assuming drive cache: write through <ENTER>` `$`
18. ☐	**Server Console:** Verify that the USB flash drive has been mounted by the OS.	`$ df | grep usb` `/dev/sde1  1018088  603372  414716  60% /var/tmp/usb_flash`
19. ☐	**Server Console:** Copy the **server** configuration file to the **"/var/tmp"** directory on the server, rename the file by omitting the server hostname from the file name.	***Example:*** TKLCConfigData.<server_hostname>.sh → will translate to →TKLCConfigData.sh `$ cp -p /var/tmp/usb_flash/TKLCConfigData.tks5031301.sh` `/var/tmp/TKLCConfigData.sh` ***NOTE:*** *The server will poll the **/var/tmp** directory for the presence of the configuration file and automatically execute it when found.*

Procedure 8.2: Applying the Server Configuration file to the SOAM

Step	Procedure	Result
20. ☐	**Server Console:** After the script completes, a broadcast message will appear Press the **<ENTER>** key to return to the command prompt.	***** NO OUTPUT FOR ≈ 3…20 MINUTES ***** `Broadcast message from root@tks5031301 (Thu Apr 10 15:13:15 2014):` `Server configuration completed successfully!` `See /var/TKLC/appw/logs/Process/install.log for details.` `Please remove the USB flash drive if connected and reboot the server.` **<ENTER>**
21. ☐	**Server Console:** Initiate a reboot of this server. Wait until the reboot completes	`$ sudo init 6` **Broadcast message from root@tks5031301** **(/dev/pts/0) at 15:14 ...** **The system is going down for reboot NOW!**
22. ☐	**Server Console:** Log into the server as the "**root**" user	`login: root` `Password: <root_password>`
23. ☐	**Server Console:** Output similar to that shown on the right will appear as the server accesses the command prompt.	`PRODPATH=/opt/comcol/prod` `RUNID=00` `VPATH=/opt/TKLCcomcol/runcm6.2:/opt/TKLCcomcol/cm6.2` `PRODPATH=` `RELEASE=6.2` `RUNID=00` `VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr` `/TKLC/awptransportmgr:/usr/TKLC/awpss7:/usr/TKLC/exhr` `PRODPATH=/opt/comcol/prod` `RUNID=00` `[admusr@exhrSO-carync-a ~]$`
24. ☐	**Server Console:** Verify that XMI and IMI IP addresses entered in *Step 30* have been applied **NOTE:** *Full path is required to execute this command as the "admusr" user.*	`$ /sbin/ifconfig |grep in |grep -v inet6` 

Procedure 8.2: Applying the Server Configuration file to the SOAM

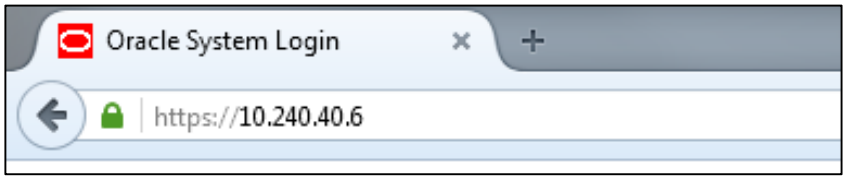
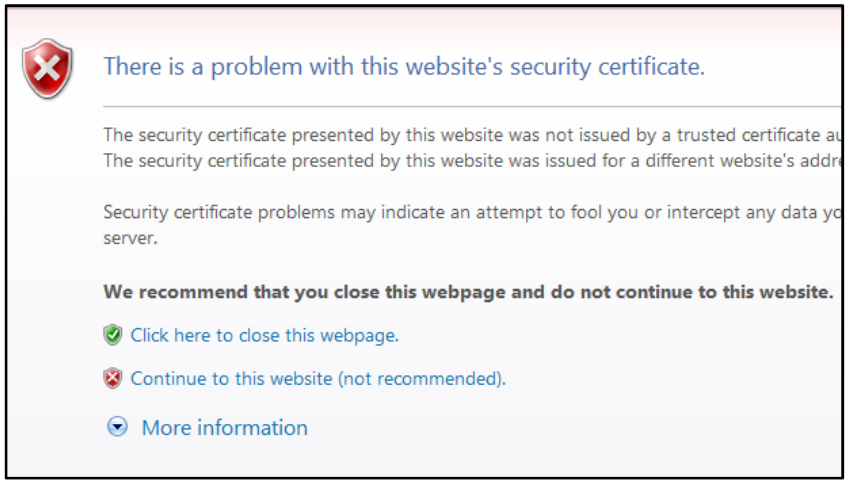
Step	Procedure	Result
25. ☐	**Server Console:** **Ping** the **XMI Gateway** IP address to ensure network connectivity.	**$ ping -c 5 <XMI_Gateway_IP_address>** *Example output:* PING 192.168.182.1 (192.168.182.1) 56(84) bytes of data. 64 bytes from 192.168.182.1: icmp_seq=1 ttl=64 time=0.056 ms 64 bytes from 192.168.182.1: icmp_seq=2 ttl=64 time=0.046 ms 64 bytes from 192.168.182.1: icmp_seq=3 ttl=64 time=0.018 ms 64 bytes from 192.168.182.1: icmp_seq=1 ttl=64 time=0.056 ms 64 bytes from 192.168.182.1: icmp_seq=2 ttl=64 time=0.046 ms --- 192.168.182.1 ping statistics --- 3 packets transmitted, 3 received, 0% packet loss, time 2573ms
26. ☐	**Server Console:** Verify that the server has connectivity to the assigned Primary and Secondary NTP server(s).	$ **ntpq -np** `remote refid st t when poll reach delay` `*10.250.32.51 192.5.41.209 2 u 17 64 177 0.202` `+10.250.32.10 192.5.41.209 2 u 18 64 177 0.191`
27. ☐	**Server Console:** Verify alarm status of this server	$ **sudo alarmMgr --alarmStatus** ***NOTE**: This command should return no output on a healthy system. If any alarms are reported, please stop and contact Oracle's Tekelec Customer Care Center for the assistance.*
28. ☐	**Server Console:** Verify the current health of this server	$ **sudo syscheck** `Running modules in class disk... OK` `Running modules in class hardware... OK` `Running modules in class net... OK` `Running modules in class proc... OK` `Running modules in class system... OK` `LOG LOCATION: /var/TKLC/log/syscheck/fail_log` ***NOTE**: If any errors are reported on the output, please stop and contact Oracle's Tekelec Customer Care Center for the assistance.*
29. ☐	**Server Console:** **Exit** the console session.	$ **exit** logout

Procedure 8.2: Applying the Server Configuration file to the SOAM		
Step	**Procedure**	**Result**
30. ☐	Configure the **SOAM-B** server.	• Repeat **Steps** 2 **- 29** of this procedure to configure the **SOAM-B** Server. ☐ **SOAM-B**
31. ☐	Create the **SOAM Server Group** and pair the **SOAM-A** and **SOAM-B** servers.	• Create the **SOAM Server Group** and place the **SOAM-A** and **SOAM-B** servers in it in accordance with the following procedure: **Procedure** 7 - **OAM Pairing for DR NOAM / SOAM Sites** *(DR NOAM / SOAM Sites Only)*
THIS PROCEDURE HAS BEEN COMPLETED		

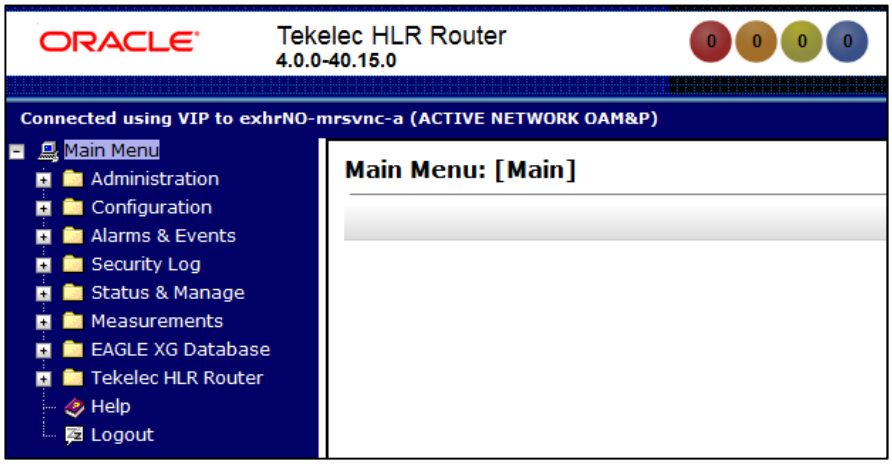
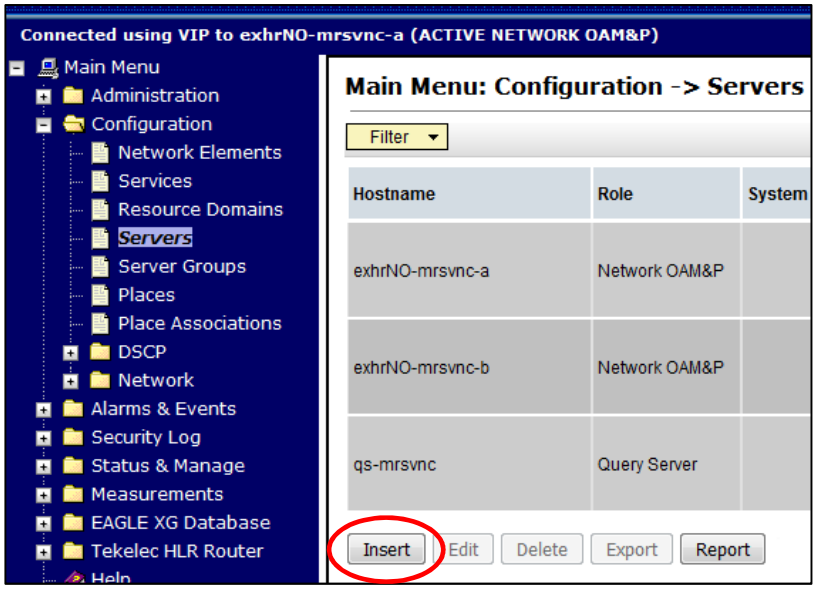
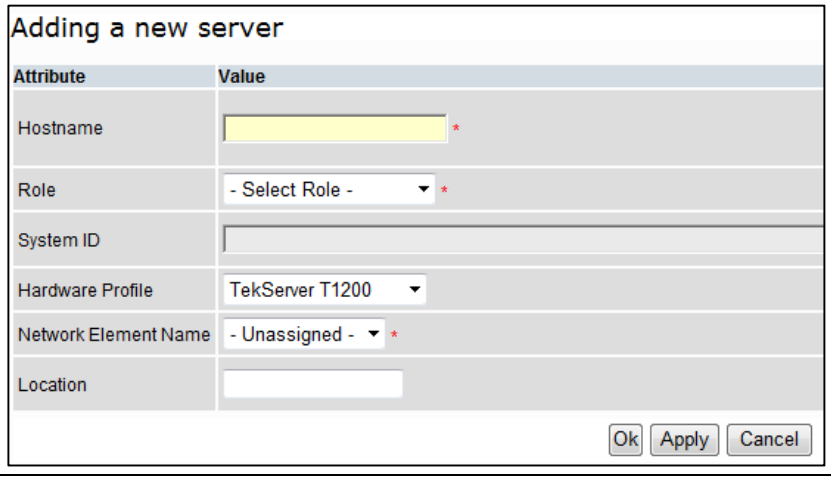
5.8 Configuring the MP Server *(All SOAM Sites)*

The user should be aware that during the Message Processor (MP) installation procedure, various errors may be seen at different stages of the procedure. During the execution of a step, the user is directed to ignore errors related to values other than the ones referenced by that step. This procedure creates the each MP server and its associated MP Server Group.

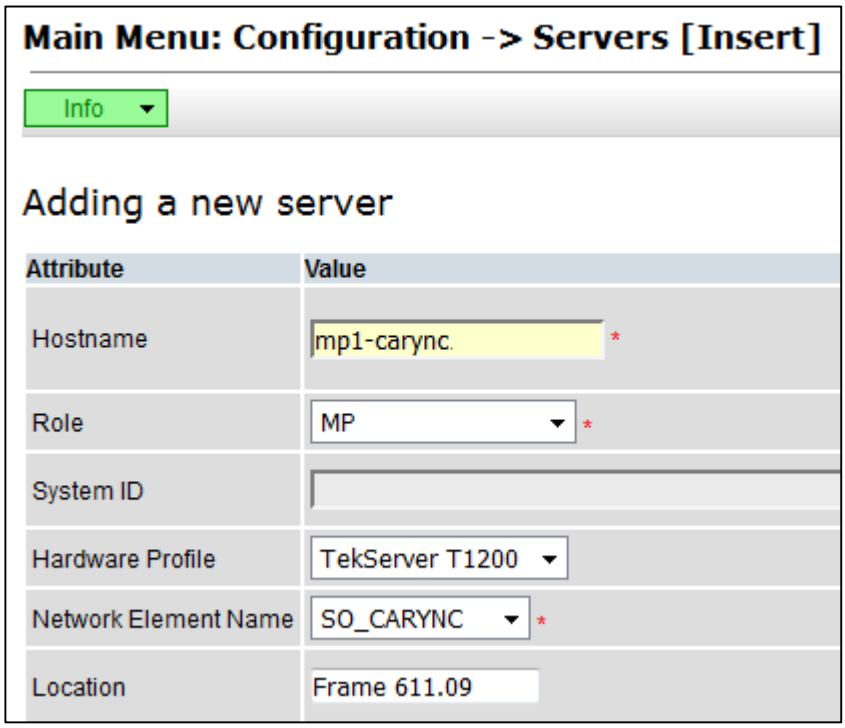
Procedure 9.1: Configuring the MP Server *(All SOAM Sites)*

Step	Procedure	Result
1. ☐	**Primary NOAM GUI (VIP):** Connect to the **Primary NOAM VIP GUI** (XMI VIP) via web browser.	
2. ☐	If a security certificate error is received, click on the following link: **"Continue to this website (not recommended)."**	
3. ☐	**Primary NOAM GUI (VIP):** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	

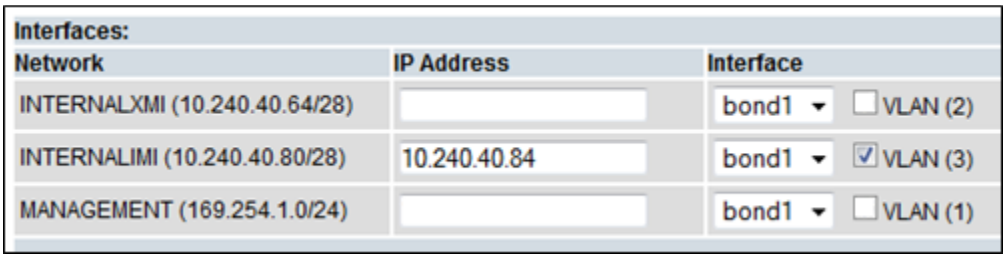
Procedure 9.1: Configuring the MP Server *(All SOAM Sites)*

Step	Procedure	Result
4. ☐	**Primary NOAM GUI (VIP):** The user should be presented the Main Menu as shown on the right.	
5. ☐	**Primary NOAM GUI (VIP):** **1)** Select… **Main Menu** → **Configuration** → ***Servers*** **2)** The configuration screen "**Servers**" will appear. **3)** Click on **"Insert"** dialogue button.	
6. ☐	**Primary NOAM GUI (VIP):** The configuration screen **"Adding a new server"** will appear.	

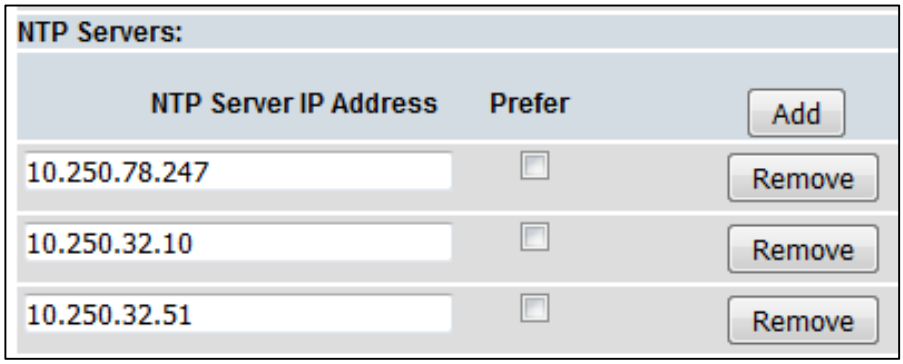
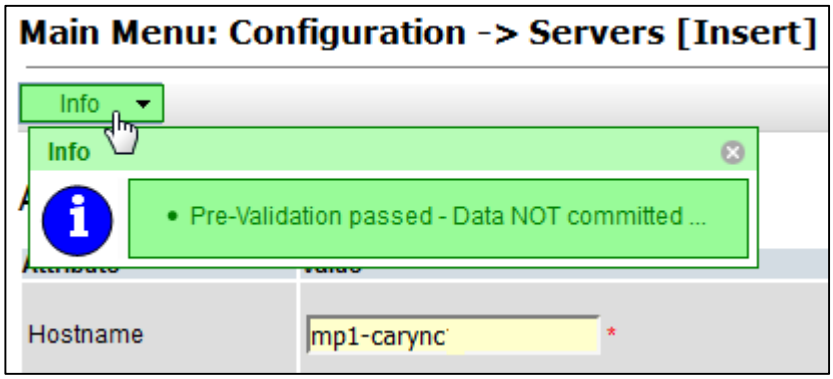
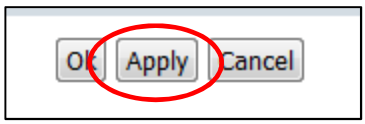
Procedure 9.1: Configuring the MP Server *(All SOAM Sites)*

Step	Procedure	Result
7. ☐	**Primary NOAM GUI (VIP):** **NOTE:** *If executing this procedurte for the 1st time, use values associated with the **MP-1** server.* **1)** Enter the assigned **Hostname**. **2)** Select the **Role.** For an **MP** server, select **"MP"**. **3)** Enter the **System ID** if known *(optional)*, otherwise, leave it blank. **3)** Select "**TekServer 1200**" as Hardware Profile. **4)** From the pull-down, select the SOAM NE name as the **Network Element Name.** **5)** Enter the site **Location** *(optional)*	

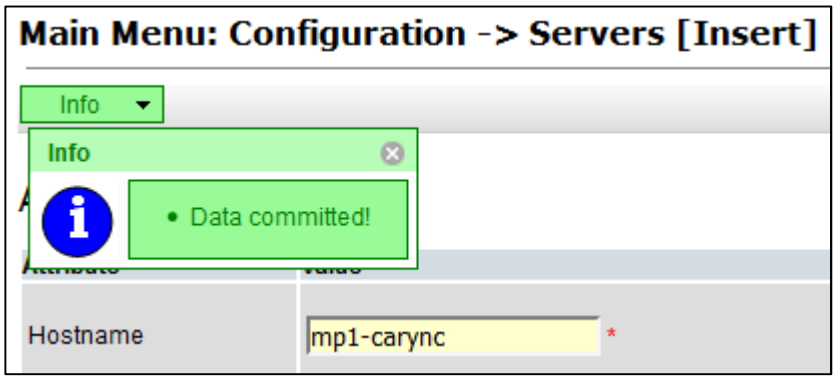
Procedure 9.1: Configuring the MP Server *(All SOAM Sites)*

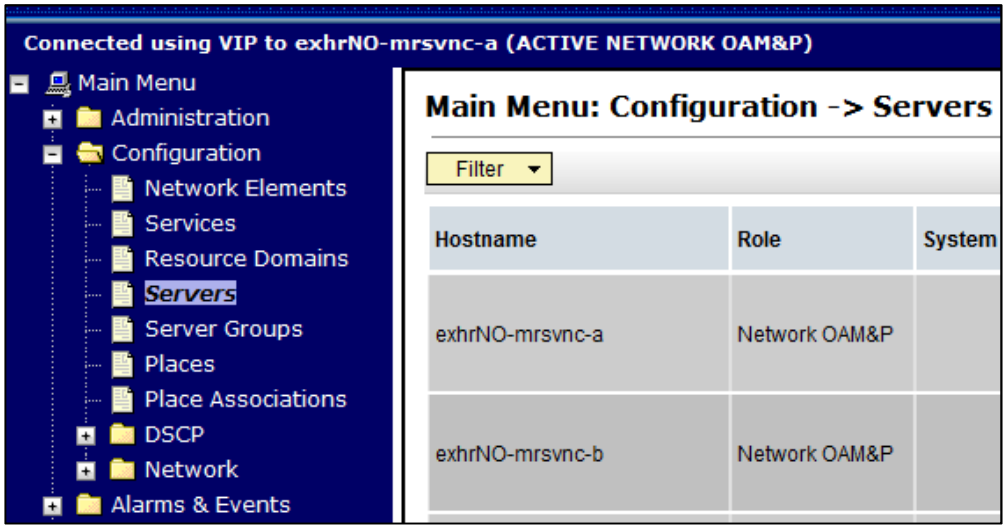
Step	Procedure	Result
8. ☐	**Primary NOAM GUI (VIP):** **NOTE:** *If executing this procedure for the 1st time, use values associated with the **MP-1** server.* **1)** Enter the **INTERNALIMI** IP addresses of the server. 2) Set **INTERNALIMI "Interface"** value to **"bond1".** **3)** Make sure that the **INTERNALIMI VLAN** box is **CHECKED**. **NOTE:** *T1200 MP servers are assigned **INTERNALIMI** IP addresses only.* *The **INTERNALXMI** and **MANAGEMENT** fields are purposely left blank.*	 Interfaces: Network / IP Address / Interface INTERNALXMI (10.240.40.64/28) — bond1 — VLAN (2) INTERNALIMI (10.240.40.80/28) — 10.240.40.84 — bond1 — VLAN (3) MANAGEMENT (169.254.1.0/24) — bond1 — VLAN (1) **NOTE:** *After the **"Network Element Name" field** is populated (in the previous step), the **"Interfaces"** fields will be displayed.*

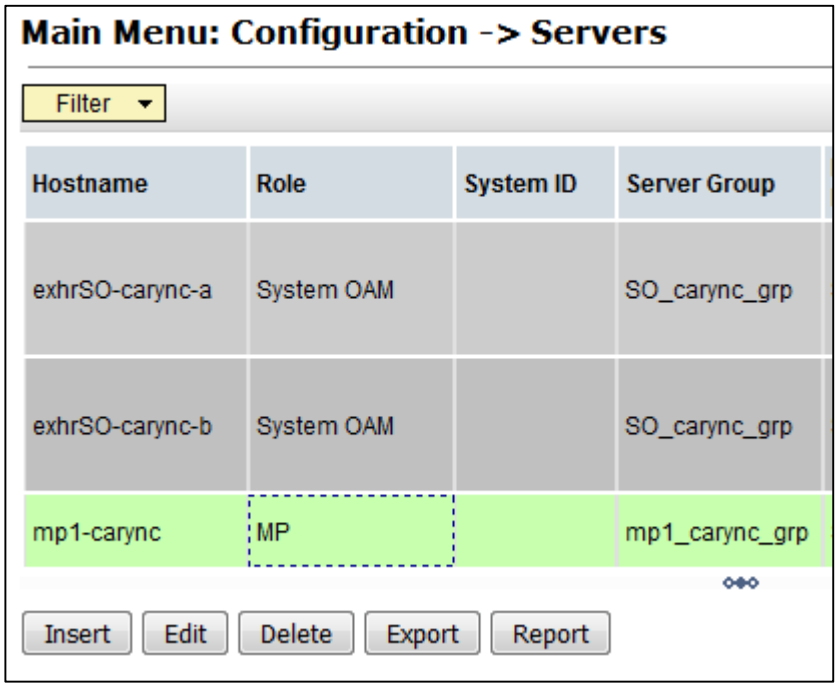
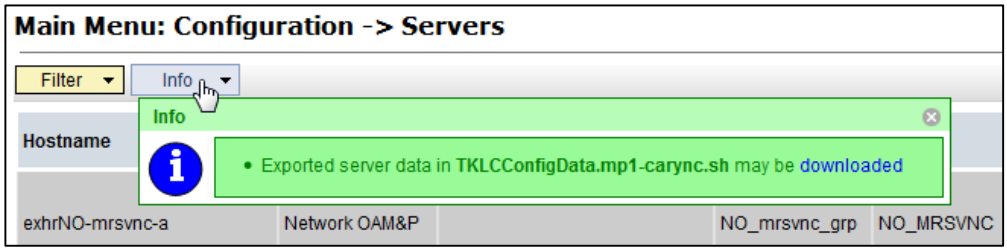
Procedure 9.1: Configuring the MP Server *(All SOAM Sites)*

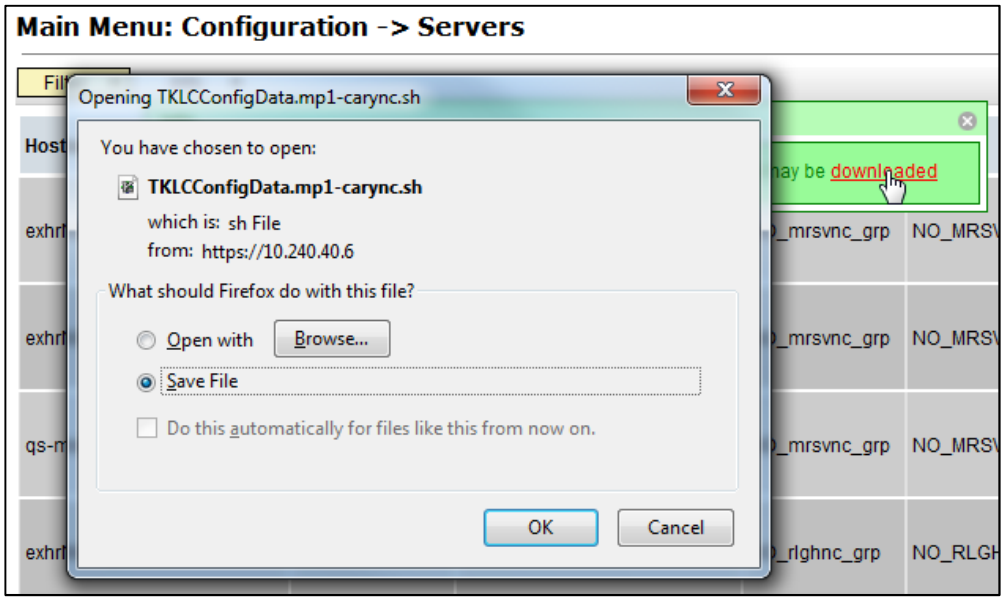
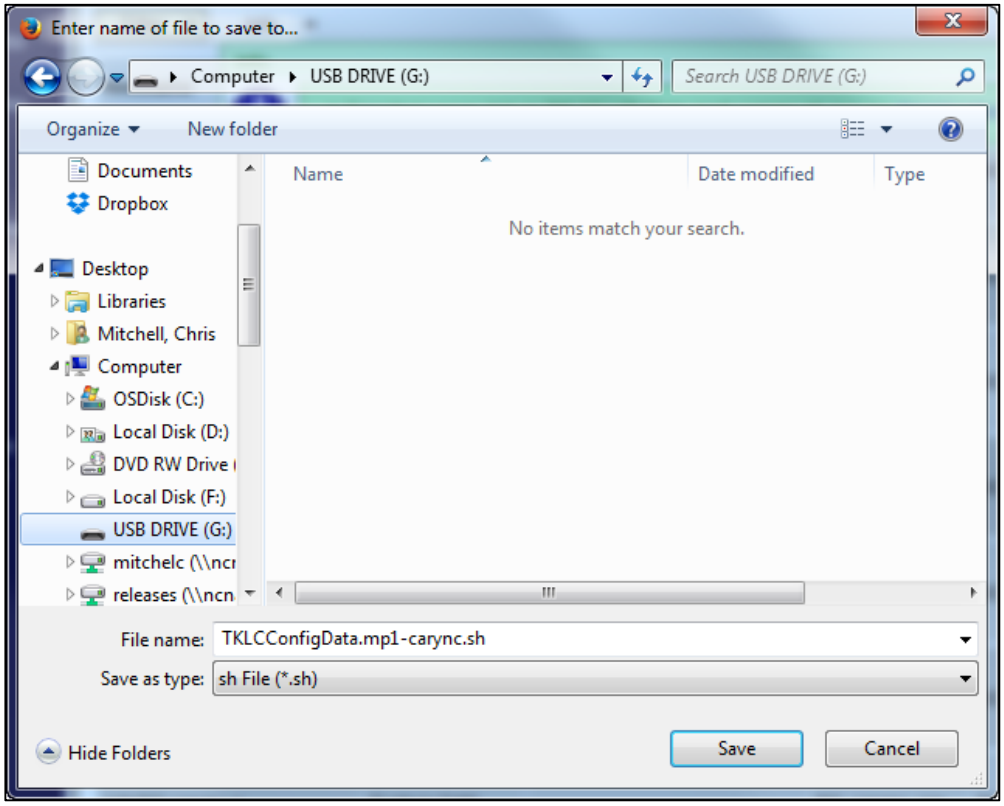
Step	Procedure	Result
9. ☐	**Primary NOAM GUI (VIP):** **1)** Click "**Add**" button and assign IP address for the 1st **NTP Server** *(required)*. **2)** Click the "**Add**" button to assign an IP address for the 2nd **NTP Server** *(required)*. **3)** Click the "**Add**" button to assign an IP address for the 3rd **NTP Server** *(required)*. **4)** Click the "**Add**" button to assign an IP address any desired additional **NTP Servers** *(optional)*. **5)** Check the **"Prefer"** checkbox to select any preferred NTP Servers *(optional)*.	
10. ☐	**Primary NOAM GUI (VIP):** **1)** If the values provided by the user matches the network ranges assigned to the SOAM NE, the user will receive a banner information message stating **"Pre-Validation passed"**. **2)** Click the **"Apply"** dialogue button.	 

Procedure 9.1: Configuring the MP Server *(All SOAM Sites)*

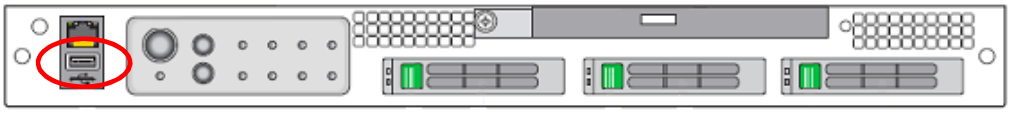
Step	Procedure	Result
11. ☐	**Primary NOAM GUI (VIP):** The user will receive a banner information message showing that the data has been committed to the DB.	
PROCEDURE 9.1 HAS BEEN COMPLETED		

Procedure 9.2: Applying the Server Configuration file to the MP		
Step	**Procedure**	**Result**
12. ☐	**Primary NOAM GUI (VIP):** ***Applying the Server Configuration File*** **1)** Select… **Main Menu** → **Configuration** → ***Servers*** **2)** The configuration screen "**Servers**" will appear.	

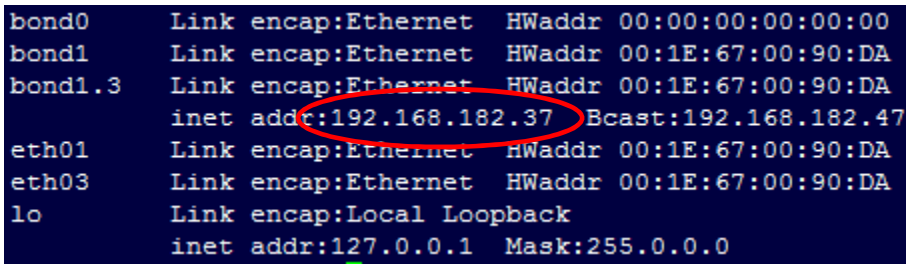
Procedure 9.2: Applying the Server Configuration file to the MP		
Step	**Procedure**	**Result**
13. ☐	**Primary NOAM GUI (VIP):** **1)** Use the cursor to select the Server configured in **Steps** 5 **- 11** of this procedure. *The selected row will be highlighted in **GREEN.*** **2)** Select the **"Export"** dialogue button.	
14. ☐	**Primary NOAM GUI (VIP):** **1)** A banner information message will show a download link for the **Server** configuration file. **2)** Click on the word **"downloaded"** to download and save the configuration file.	 ***Note**: The configuration file will be created and stored in the /var/TKLC/db/filemgmt directory. The configuration file will have a file name like TKLCConfigData.<**hostname**>.sh.*

Procedure 9.2: Applying the Server Configuration file to the MP		
Step	**Procedure**	**Result**
15. ☐	**Primary NOAM GUI (VIP):** **1)** Click the **"download"** link. **2)** When prompted to open or **save the file**, save the Server configuration file to a **USB flash drive**.	 
16. ☐	**Server Console:** Access server console.	Connect to the **Server Console** using one of the access methods described in **Section 0**

Procedure 9.2: Applying the Server Configuration file to the MP

Step	Procedure	Result
17. ☐	**Server Console:** Login to the server as the **"admusr"** user.	login: **admusr** Password: **<admusr_password>**
18. ☐	**Server Console:** Output similar to that shown on the right will appear as the server accesses the command prompt.	PRODPATH=/opt/comcol/prod RUNID=00 VPATH=/opt/TKLCcomcol/runcm6.2:/opt/TKLCcomcol/cm6.2 PRODPATH= RELEASE=6.2 RUNID=00 VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr/ TKLC/awptransportmgr:/usr/TKLC/awpss7:/usr/TKLC/exhr PRODPATH=/opt/comcol/prod RUNID=00 [admusr@hostname1396462623 ~]$
19. ☐	Insert the **USB flash drive** containing the server configuration file into the **USB port** on the front panel .	 **Figure 4 -** T1200 Front Panel: **USB Port**
20. ☐	**Server Console:** Output similar to that shown to the right will appear on the console. Press the **<ENTER>** key to return to the command prompt.	$ sde: assuming drive cache: write through sde: assuming drive cache: write through **<ENTER>** $
21. ☐	**Server Console:** Verify that the USB flash drive has been mounted by the OS.	$ **df | grep usb** /dev/sde1 1018088 603372 414716 60% **/var/tmp/usb_flash**
22. ☐	**Server Console:** Copy the **server** configuration file to the **"/var/tmp"** directory on the server, rename the file by omitting the server hostname from the file name.	***Example:*** TKLCConfigData.<server_hostname>.sh → will translate to →TKLCConfigData.sh $ **cp -p /var/tmp/usb_flash/TKLCConfigData.tks5031301.sh** **/var/tmp/TKLCConfigData.sh** ***NOTE:*** *The server will poll the* ***/var/tmp*** *directory for the presence of the configuration file and automatically execute it when found.*

Procedure 9.2: Applying the Server Configuration file to the MP

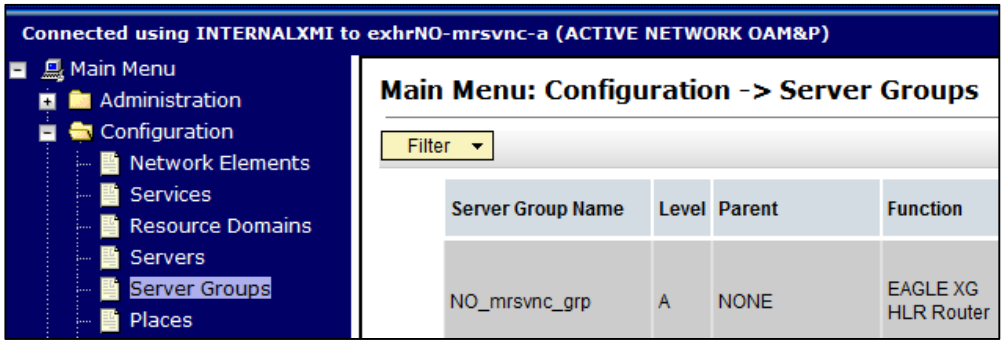
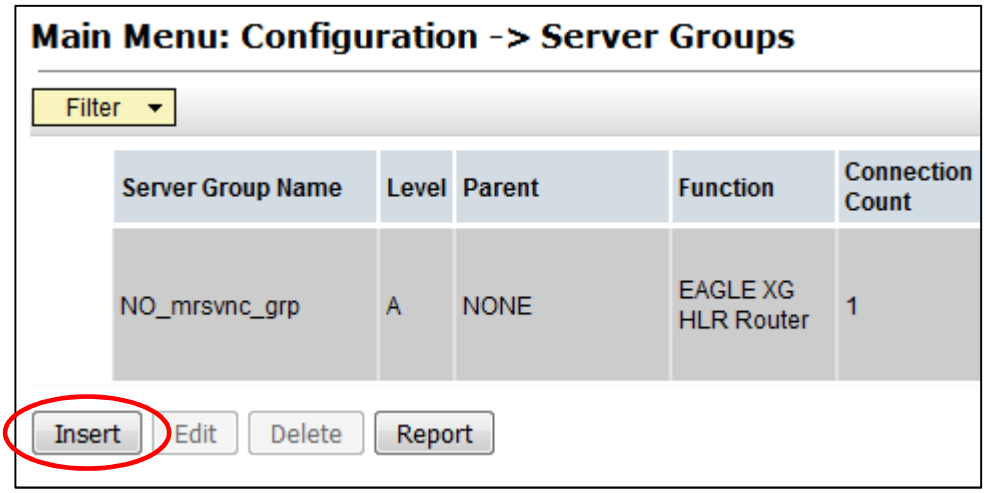
Step	Procedure	Result
23. ☐	**Server Console:** After the script completes, a broadcast message will appear Press the **<ENTER>** key to return to the command prompt.	***** NO OUTPUT FOR ≈ 3…20 MINUTES ***** Broadcast message from root@tks5031301 (Thu Apr 10 15:13:15 2014): Server configuration completed successfully! See /var/TKLC/appw/logs/Process/install.log for details. Please remove the USB flash drive if connected and reboot the server. **<ENTER>**
24. ☐	**Server Console:** Initiate a reboot of this server. Wait until the reboot completes	$ **sudo init 6** **Broadcast message from root@tks5031301** **(/dev/pts/0) at 15:14 ...** **The system is going down for reboot NOW!**
25. ☐	**Server Console:** Log into the server as the "**root**" user	login: **root** Password: ***<root_password>***
26. ☐	**Server Console:** Output similar to that shown on the right will appear as the server accesses the command prompt.	PRODPATH=/opt/comcol/prod RUNID=00 VPATH=/opt/TKLCcomcol/runcm6.2:/opt/TKLCcomcol/cm6.2 PRODPATH= RELEASE=6.2 RUNID=00 VPATH=/var/TKLC/rundb:/usr/TKLC/appworks:/usr/TKLC/awpcommon:/usr /TKLC/awptransportmgr:/usr/TKLC/awpss7:/usr/TKLC/exhr PRODPATH=/opt/comcol/prod RUNID=00 [admusr@mp1-carync ~]$
27. ☐	**Server Console:** Verify that IMI IP address entered in **Step** 8 of this procedure have been applied **NOTE:** *Full path is required to execute this command as the "admusr" user.*	$ **/sbin/ifconfig |grep in |grep -v inet6** 

Procedure 9.2: Applying the Server Configuration file to the MP

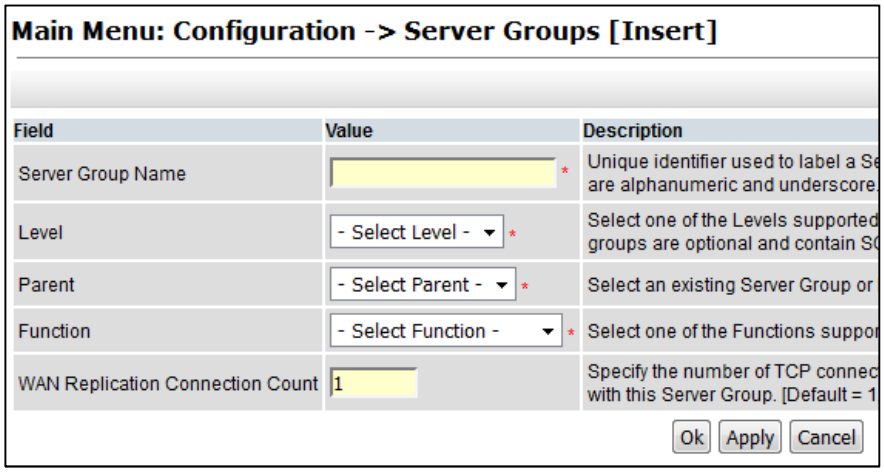
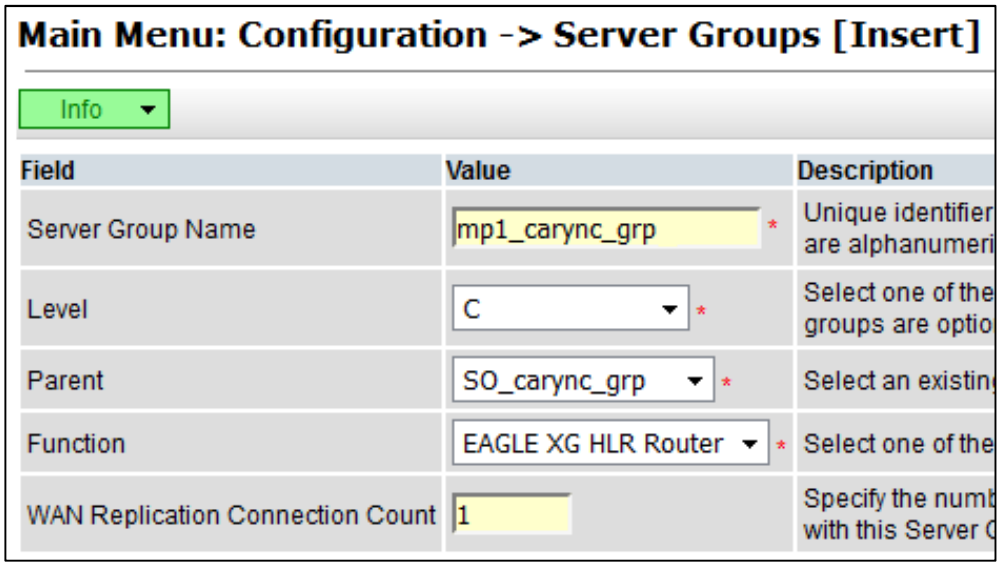
Step	Procedure	Result
28. ☐	**Server Console:** **Ping** the **IMI Gateway** IP address to ensure network connectivity.	**$ ping -c 5 <IMI_Gateway_IP_address>** *Example output:* PING 192.168.182.1 (192.168.182.1) 56(84) bytes of data. 64 bytes from 192.168.182.1: icmp_seq=1 ttl=64 time=0.056 ms 64 bytes from 192.168.182.1: icmp_seq=2 ttl=64 time=0.046 ms 64 bytes from 192.168.182.1: icmp_seq=3 ttl=64 time=0.018 ms 64 bytes from 192.168.182.1: icmp_seq=1 ttl=64 time=0.056 ms 64 bytes from 192.168.182.1: icmp_seq=2 ttl=64 time=0.046 ms --- 192.168.182.1 ping statistics --- 3 packets transmitted, 3 received, 0% packet loss, time 2573ms
29. ☐	**Server Console:** Verify that the server has connectivity to the assigned Primary and Secondary NTP server(s).	$ **ntpq -np** `remote refid st t when poll reach delay` `*10.250.32.51 192.5.41.209 2 u 17 64 177 0.202` `+10.250.32.10 192.5.41.209 2 u 18 64 177 0.191`
30. ☐	**Server Console:** Verify alarm status of this server	$ **sudo alarmMgr --alarmStatus** ***NOTE**: This command should return no output on a healthy system. If any alarms are reported, please stop and contact Oracle's Tekelec Customer Care Center for the assistance.*
31. ☐	**Server Console:** Verify the current health of this server	$ **sudo syscheck** `Running modules in class disk... OK` `Running modules in class hardware... OK` `Running modules in class net... OK` `Running modules in class proc... OK` `Running modules in class system... OK` `LOG LOCATION: /var/TKLC/log/syscheck/fail_log` ***NOTE**: If any errors are reported on the output, please stop and contact Oracle's Tekelec Customer Care Center for the assistance.*
32. ☐	**Server Console:** **Exit** the console session.	$ **exit** logout

Procedure 9.2: Applying the Server Configuration file to the MP		
Step	***Procedure***	***Result***
33. ☐	Configure each additional **MP** server(s) to be installed at the **SOAM** site.	• Repeat **Steps** 5 **- 32** of this procedure for each additional **MP** Server to be installed at the SOAM site. ☐ **MP-2** ☐ **MP-3** ☐ **MP-4** ☐ **MP-5** ☐ **MP-6**
PROCEDURE 9.2 HAS BEEN COMPLETED		

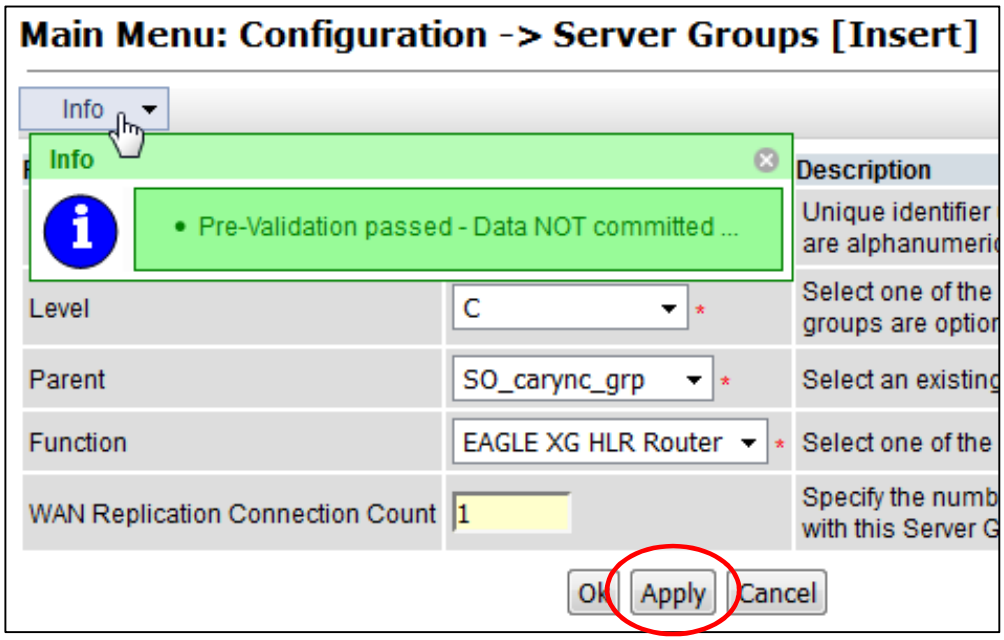
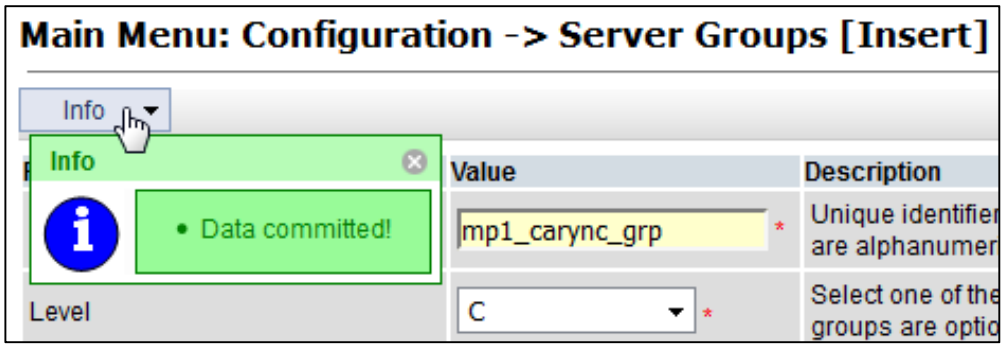
Procedure 9.3: Configuring the MP Server Group

Step	***Procedure***	***Result***
34. ☐	**Primary NOAM GUI (VIP):** Select… **Main Menu** **→ Configuration** **→ Server Groups** …as shown on the right.	
35. ☐	**Primary NOAM GUI (VIP):** **1)** The user will be presented with the **"Server Groups"** configuration screen as shown on the right. **2)** Click on **"Insert"** dialogue button **NOTE:** The user may need to use the vertical scroll-bar in order to make the **"Insert"** dialogue button visible.	

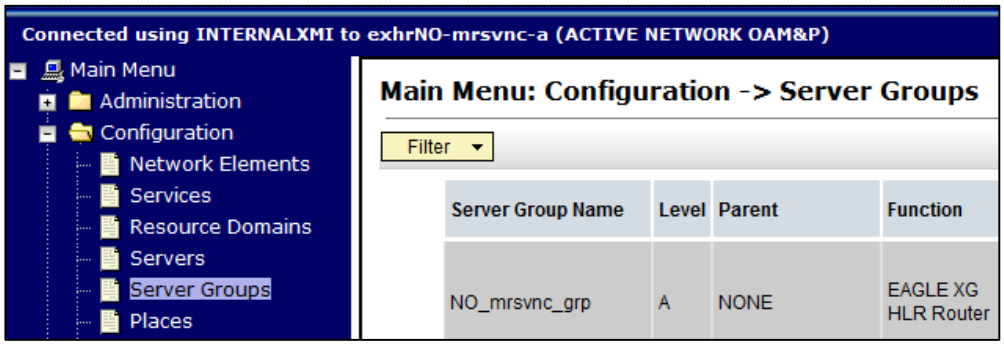
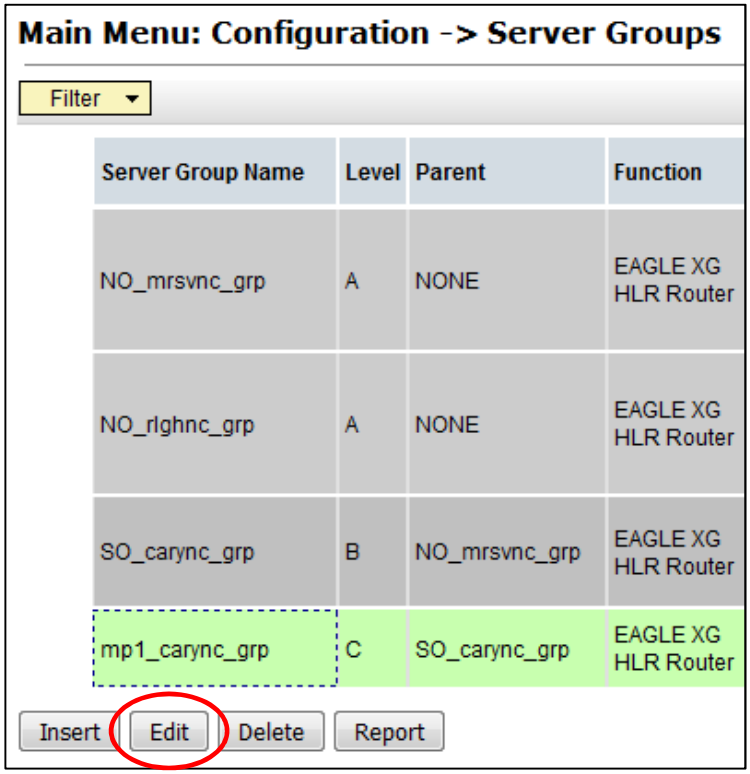
Procedure 9.3: Configuring the MP Server Group

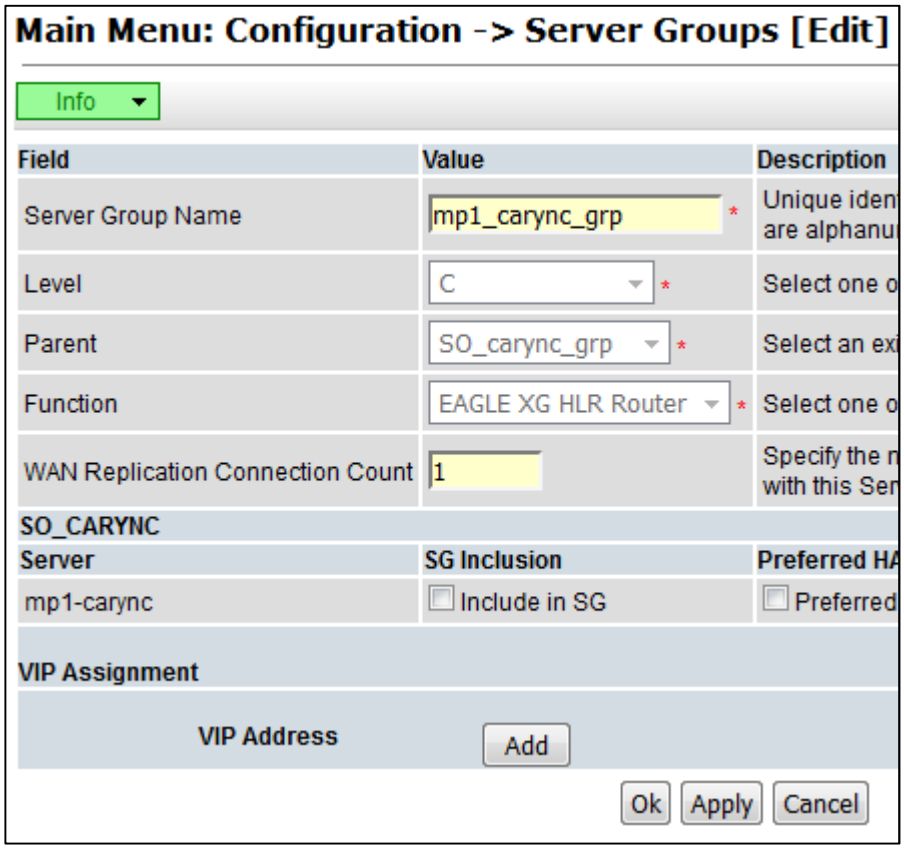
Step	Procedure	Result
36. ☐	**Primary NOAM GUI (VIP):** The configuration screen **"Server Groups [Insert]"** will appear. **NOTE:** The user should be aware that the association between each **MP** and its **Server Group** is **1-to-1**. *(i.e. each **MP** requires its own **dedicated** Server Group).*	
37. ☐	**Primary NOAM GUI (VIP):** **1)** Input the **Server Group Name**. **2)** For an **MP** Server Group, select **"C"** on the **"Level"** pull-down menu. **3)** Select the site local **SOAM Server Group** from the **"Parent"** pull-down menu. **4)** Select **"EAGLE XG HLR Router"** on the **"Function"** pull-down menu. **5)** Leave the value for "**WAN Replication Connection Count**" field defaulted to **"1"**.	

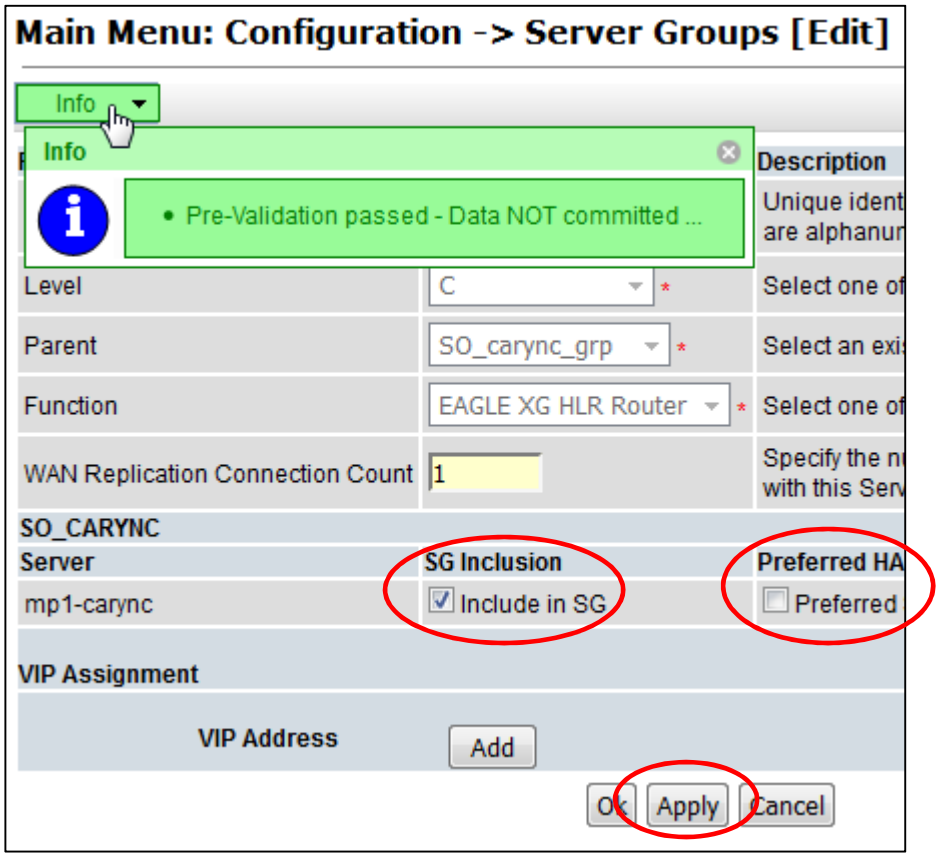
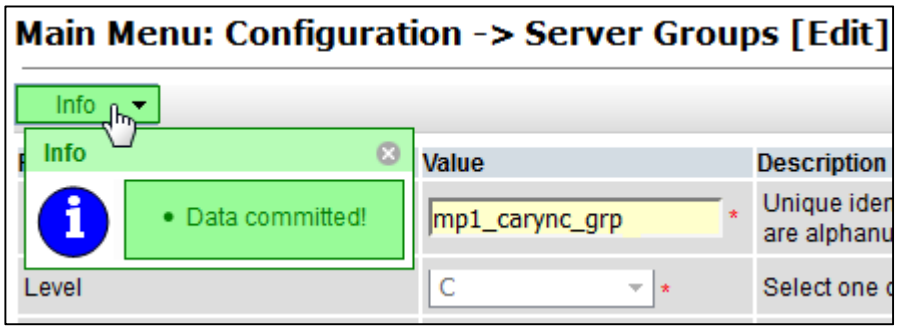
Procedure 9.3: Configuring the MP Server Group

Step	Procedure	Result
38. ☐	**Primary NOAM GUI (VIP):** **1)** The user should be presented with a banner information message stating **"Pre-Validation passed"**. **2)** Select the **"Apply"** dialogue button.	
39. ☐	**Primary NOAM GUI (VIP):** The user should be presented with a banner information message stating **"Data committed"**.	
PROCEDURE 9.3 HAS BEEN COMPLETED		

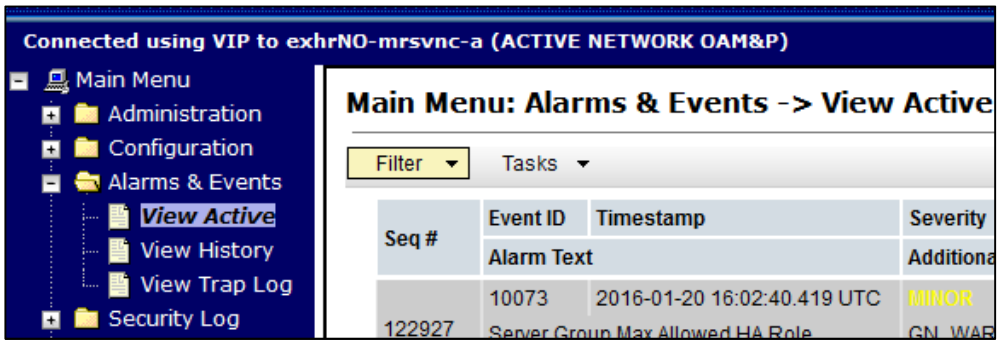
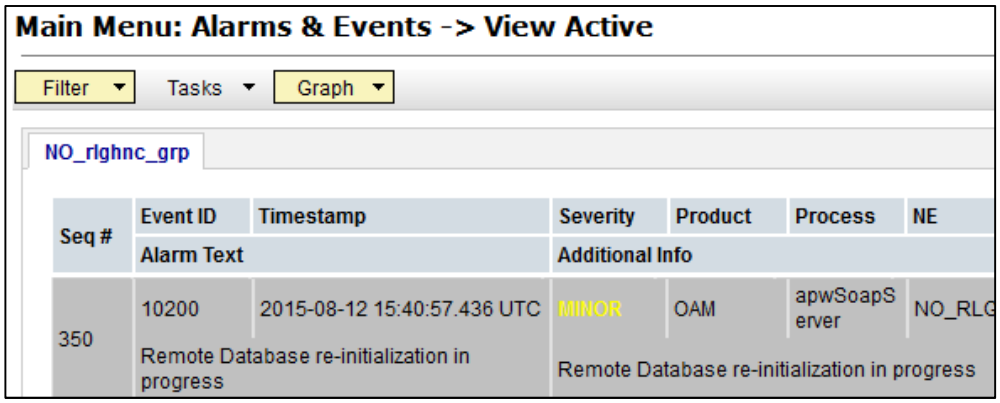
Procedure 9.4: Adding the MP to the MP Server Group

Step	Procedure	Result
40. ☐	**Primary NOAM GUI (VIP):** Select… **Main Menu** **→ Configuration** **→ Server Groups** …as shown on the right.	
41. ☐	**Primary NOAM GUI (VIP):** **1)** Select the **MP Server Group** created in **Steps 35 - 39** of this procedure. *The selected row will be highlighted in **GREEN**.* **2)** Select the **"Edit"** dialogue button from the bottom left corner of the screen.	

Procedure 9.4: Adding the MP to the MP Server Group		
Step	***Procedure***	***Result***
42. ☐	**Primary NOAM GUI (VIP):** The user will be presented with the **"Configuration → Server Groups [Edit]"** screen as shown on the right	

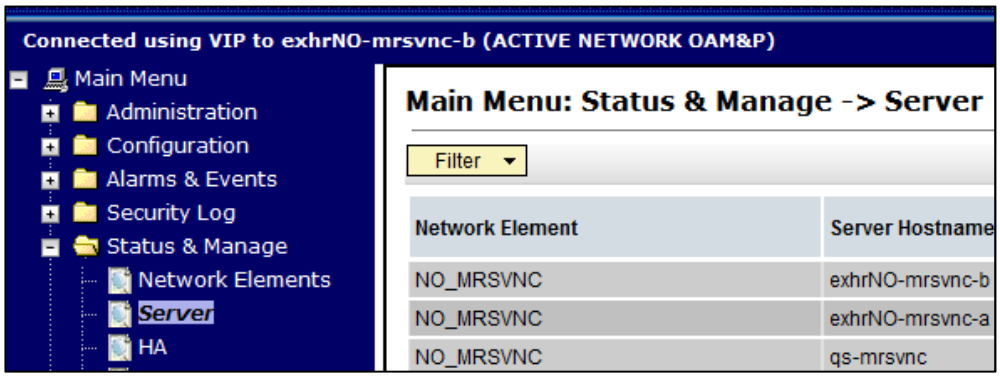
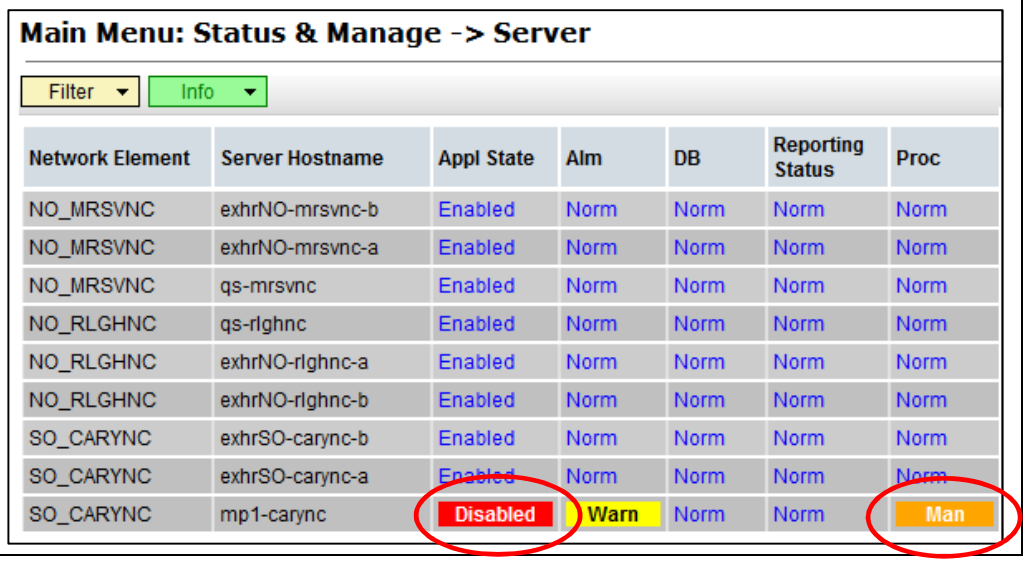
Procedure 9.4: Adding the MP to the MP Server Group		
Step	***Procedure***	***Result***
43. ☐	**Primary NOAM GUI (VIP):** **1)** To place the **MP** server into the **MP Server Group** , add a checkmark to the **"SG Inclusion"** checkbox to the right of the MP. **2) DO NOT** check the checkbox for "**Preferred HA Role"**. **3)** The user should be presented with a banner information message stating **"Pre-Validation passed"**. **4)** Select the **"Apply"** dialogue button	
44. ☐	**Primary NOAM GUI (VIP):** The user should be presented with a banner information message stating **"Data committed"**.	
PROCEDURE 9.4 HAS BEEN COMPLETED		

Procedure 9.5: Restarting the Application SW on the MP

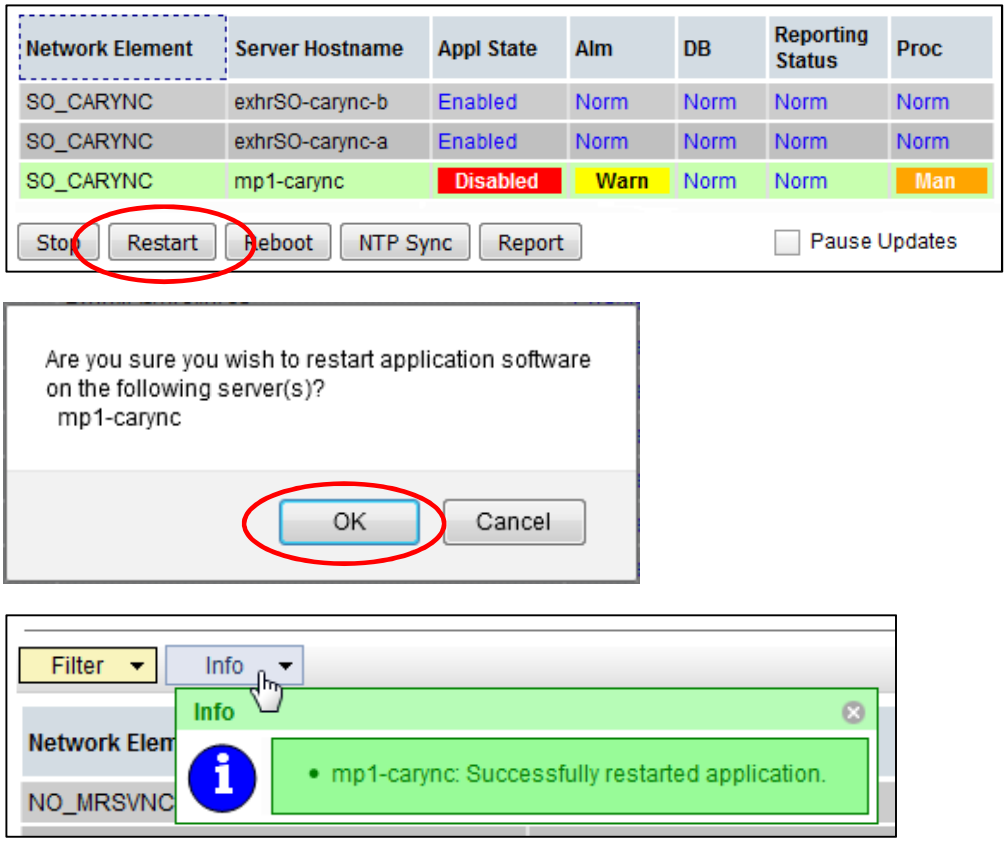
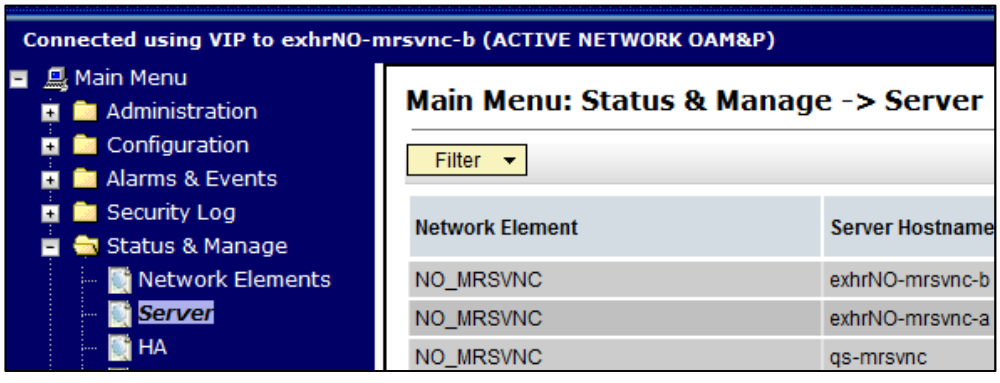
Step	Procedure	Result
45. ☐	**Primary NOAM GUI (VIP):** Select… **Main Menu** **→ Alarms & Events** **→ *View Active*** …as shown on the right.	
46. ☐	**Primary NOAM GUI (VIP):** Verify that an **Event ID 10200** (*Remote Database re-initialization in progress)* alarm is present with the **MP** server **hostname** in the **"Instance"** field. **NOTE: *Event ID(s)* *such as 10009, 10073 & 31000 may also Fire/Clear during this time.*** ***Event ID 10075 is expected and will remain after Event ID 10200 clears.***	

- **MONITOR THE EVENT ID 10200 (*Remote Database re-initialization in progress)* ALARM.**
- **DO NOT PROCEED TO THE NEXT STEP UNTIL THE ALARM CLEAR IS RECEIVED FOR THE EVENT ID 10200 ASSOCIATED WITH THE MP SERVER.**

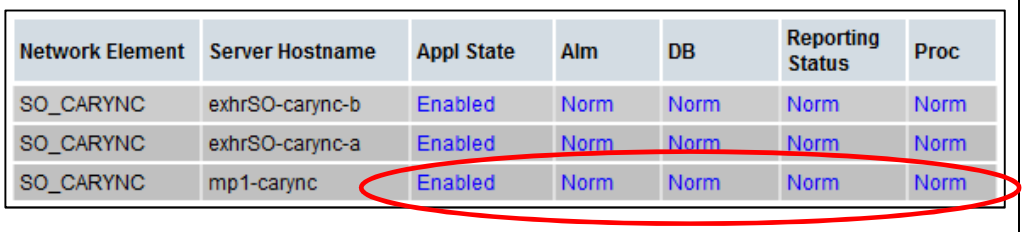
Procedure 9.5: Restarting the Application SW on the MP

Step	Procedure	Result
47. ☐	**Primary NOAM GUI (VIP):** Select… **Main Menu** → **Status & Manage** → ***Server*** …as shown on the right.	
48. ☐	**Primary NOAM GUI (VIP):** Verify that the **"DB & Reporting Status"** columns all show **"Norm"** for the MP at this point. The **"Appl State"** column should show **"Disabled".** The **"Proc"** column should show **"Man".**	

Procedure 9.5: Restarting the Application SW on the MP

Step	Procedure	Result
49. ☐	**Primary NOAM GUI (VIP):** **1)** Using the cursor, select the row containing the **MP** hostname. *The line entry should now be highlighted in **GREEN**.* **2)** Select the **"Restart"** dialogue button **3)** Click the **"OK"** button on the confirmation dialogue box. **4)** The user should be presented with a confirmation message (in the banner area) for the **"MP"** stating: **"Successfully restarted application"**. **NOTE:** *The user may need to use the vertical scroll-bar in order to make the **"Restart"** dialogue button visible.*	
50. ☐	**Primary NOAM GUI (VIP):** Refresh the GUI by re-selecting… **Main Menu** **→ Status & Manage** **→ *Server*** …as shown on the right.	

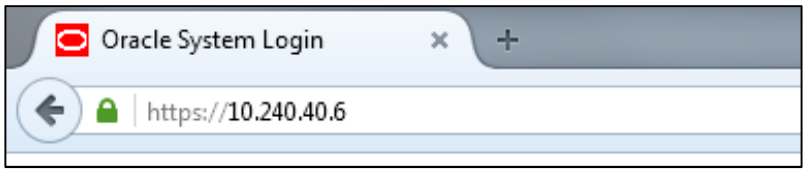
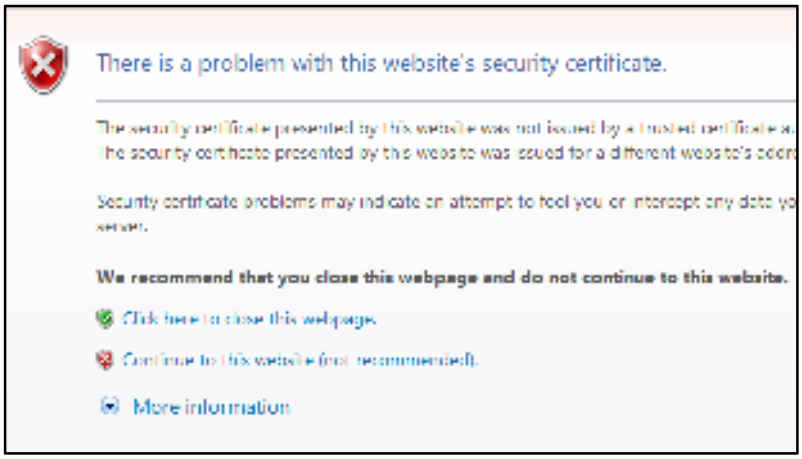
Procedure 9.5: Restarting the Application SW on the MP

Step	Procedure	Result
51. ☐	**Active NOAMP VIP:** Verify that the **"Appl State"** now shows **"Enabled".** Verify that the **"Alm, DB, Reporting Status** & **Proc"** status columns all show **"Norm"** for the **MP** server.	
52. ☐	Place each additional **MP** server(s) installed at the **SOAM** site in its own **MP Server Group**.	• Repeat **Steps 34 - 51** of this procedure for each additional **MP** Server to be configured at the **SOAM** site. ☐ **MP-2** ☐ **MP-3** ☐ **MP-4** ☐ **MP-5** ☐ **MP-6**
THIS PROCEDURE HAS BEEN COMPLETED		

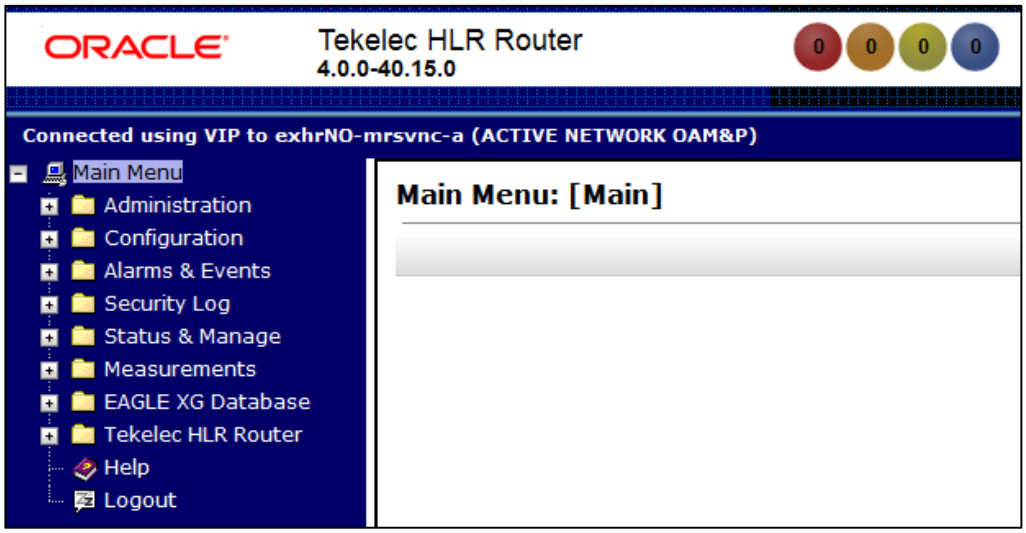
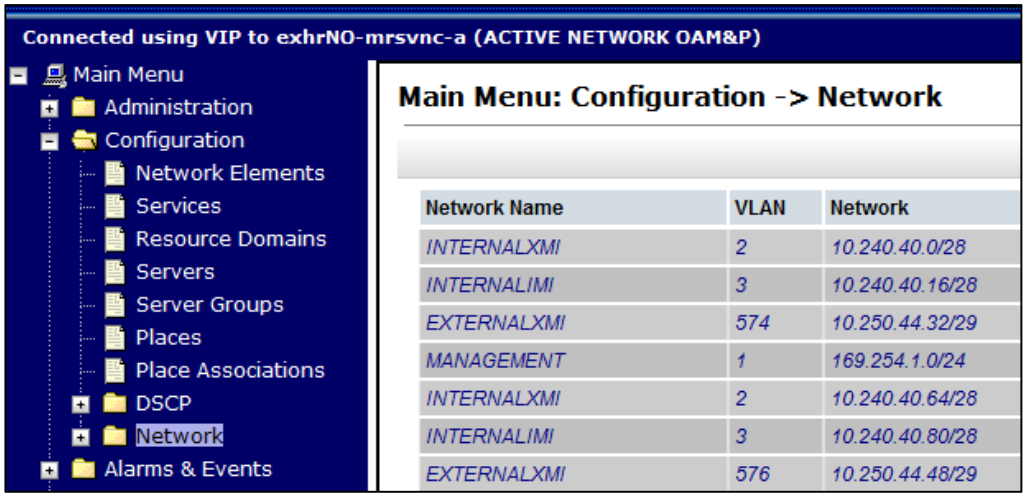
5.9 Configure XSI Signaling Networks *(All SOAM Sites)*

This procedure allows for the future configuration of **MP** Signaling interfaces by adding **XSI1** and **XSI2** Signaling Networks to the SOAM Network Element.

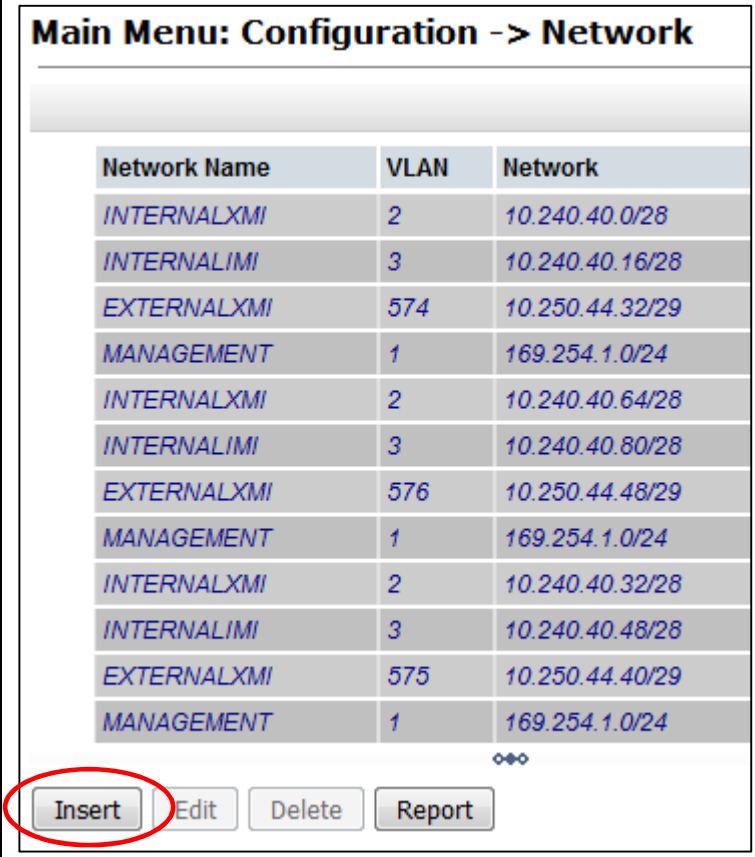
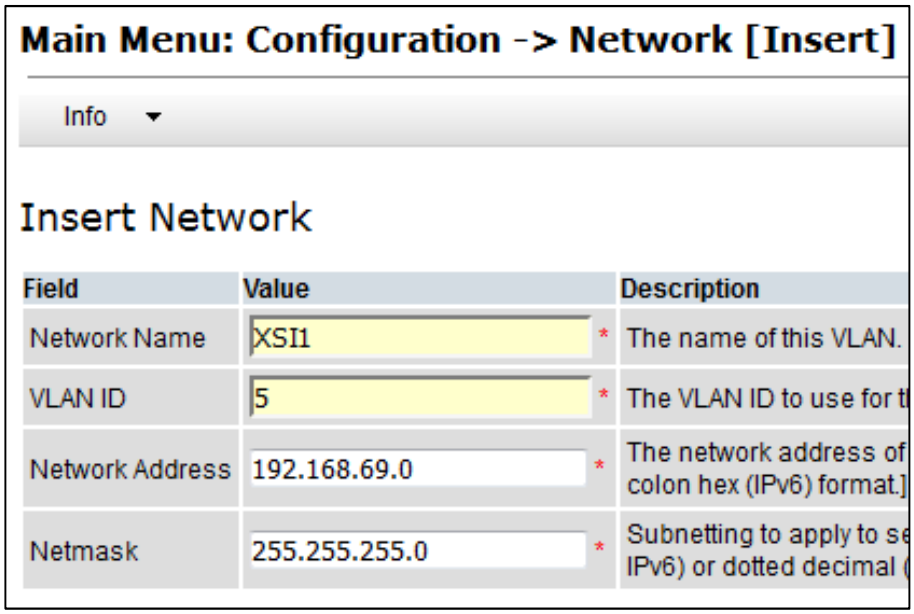
Procedure 10: Configure XSI Signaling Networks *(All SOAM Sites)*

Step	Procedure	Result
1. ☐	**Primary NOAM GUI (VIP):** Connect to the **Primary NOAM VIP GUI** (XMI VIP) via web browser.	
2. ☐	**Primary NOAM GUI (VIP):** If a security certificate error is received, click on the following link: **"Continue to this website (not recommended)."**	
3. ☐	**Primary NOAM GUI (VIP):** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	

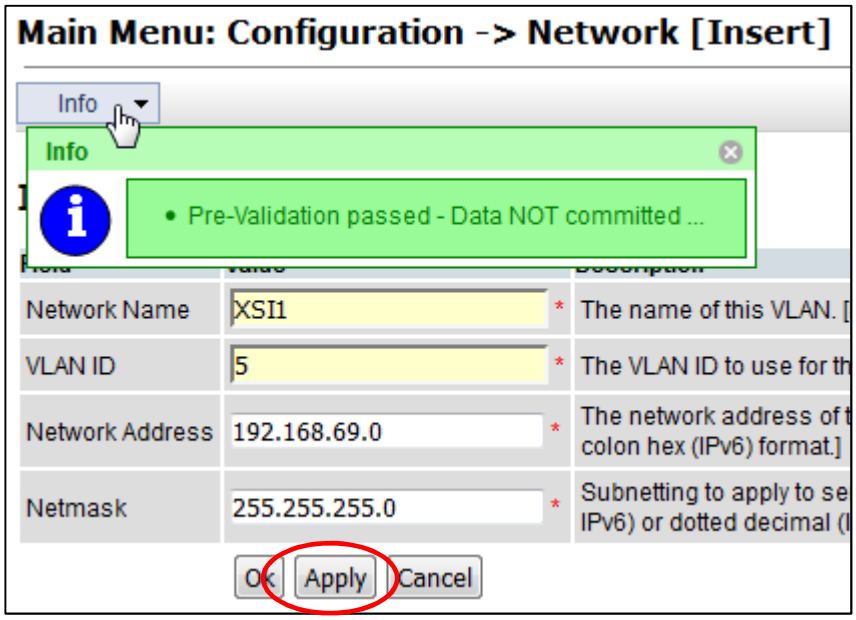
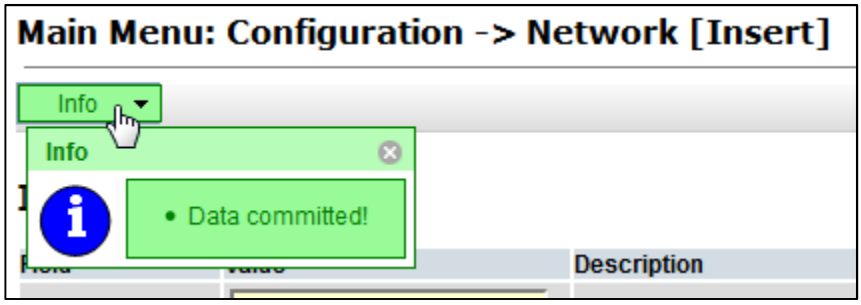
Procedure 10: Configure XSI Signaling Networks *(All SOAM Sites)*

Step	Procedure	Result
4. ☐	**Primary NOAM GUI (VIP):** The user should be presented the Main Menu as shown on the right.	
5. ☐	**Primary NOAM GUI (VIP):** Select… **Main Menu** **→ Configuration** **→ *Network*** …as shown on the right.	

Procedure 10: Configure XSI Signaling Networks *(All SOAM Sites)*

Step	Procedure	Result
6. ☐	**Primary NOAM GUI (VIP):** The **Configuration "Network [Insert]"** screen will appear. Click on "**Insert**" dialogue button.	
7. ☐	**Primary NOAM GUI (VIP):** Using **XSI1** for the **Network Name**, enter all the network values for the **XSI1** Signaling network ***(VLAN ID, Network Address, & Netmask)*** and press the **"Apply"** button.	

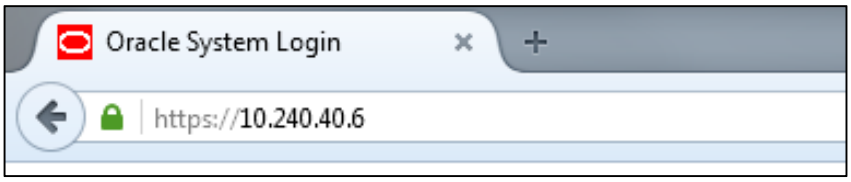
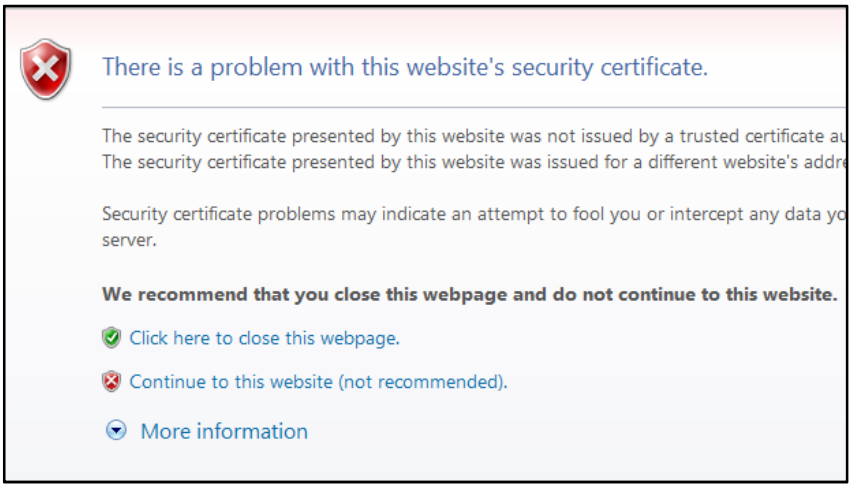
Procedure 10: Configure XSI Signaling Networks *(All SOAM Sites)*

Step	Procedure	Result
8. ☐	**Primary NOAM GUI (VIP):** **1)** If the values provided by the user matches the network ranges assigned to the NOAMP NE, the user will receive a banner information message stating **"Pre-Validation passed"**. **2)** Click the **"Apply"** dialogue button.	
9. ☐	**Primary NOAM GUI (VIP):** The user will receive a banner information message showing that the data has been committed to the DB.	
10. ☐	**Primary NOAM GUI (VIP):** Enter all values for the **XSI2** Signaling Network.	• Repeat **Steps** 6 - 9**:** Using **XSI2** for the **Network Name**, enter all values for the **XSI2** Signaling Network.
THIS PROCEDURE HAS BEEN COMPLETED		

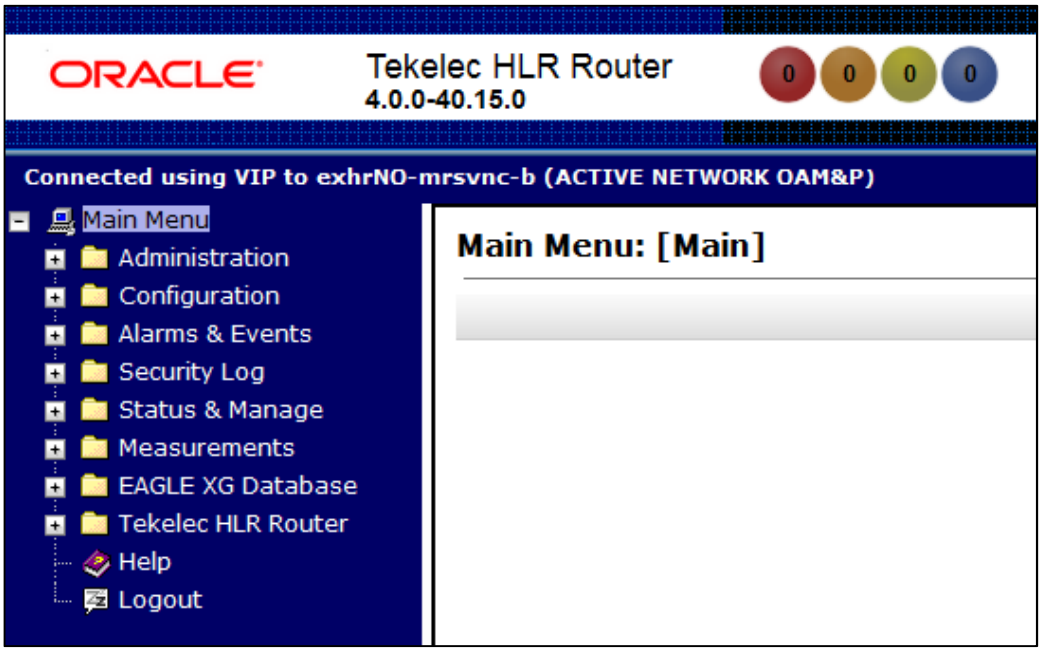
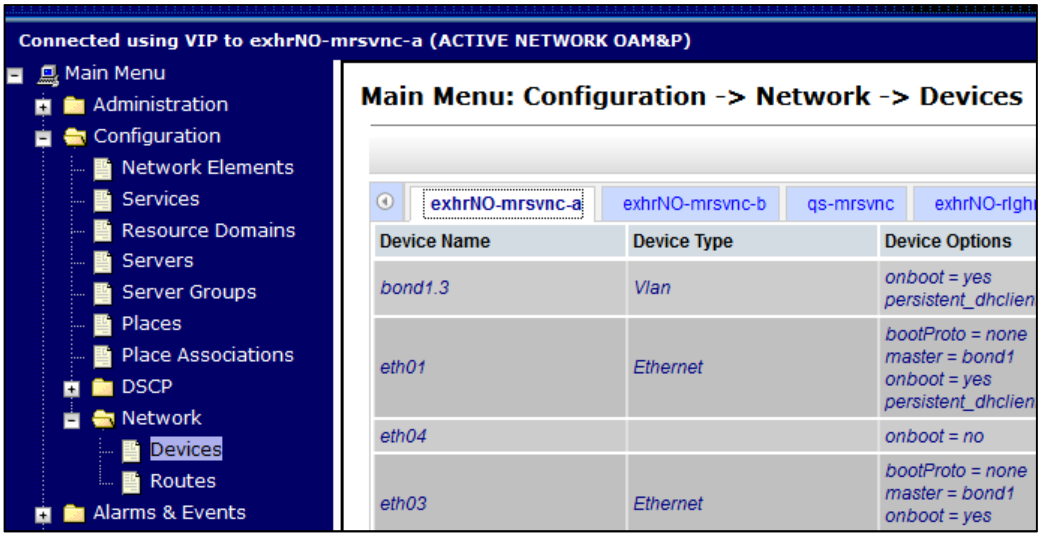
5.10 Configuring the MP Signaling Interfaces *(All SOAM Sites)*

This procedure configures **XSI1** and **XSI2** Signaling interfaces and adds associated XSI Signaling network **Routes** for all **MP** Servers within the SOAM Network Element.

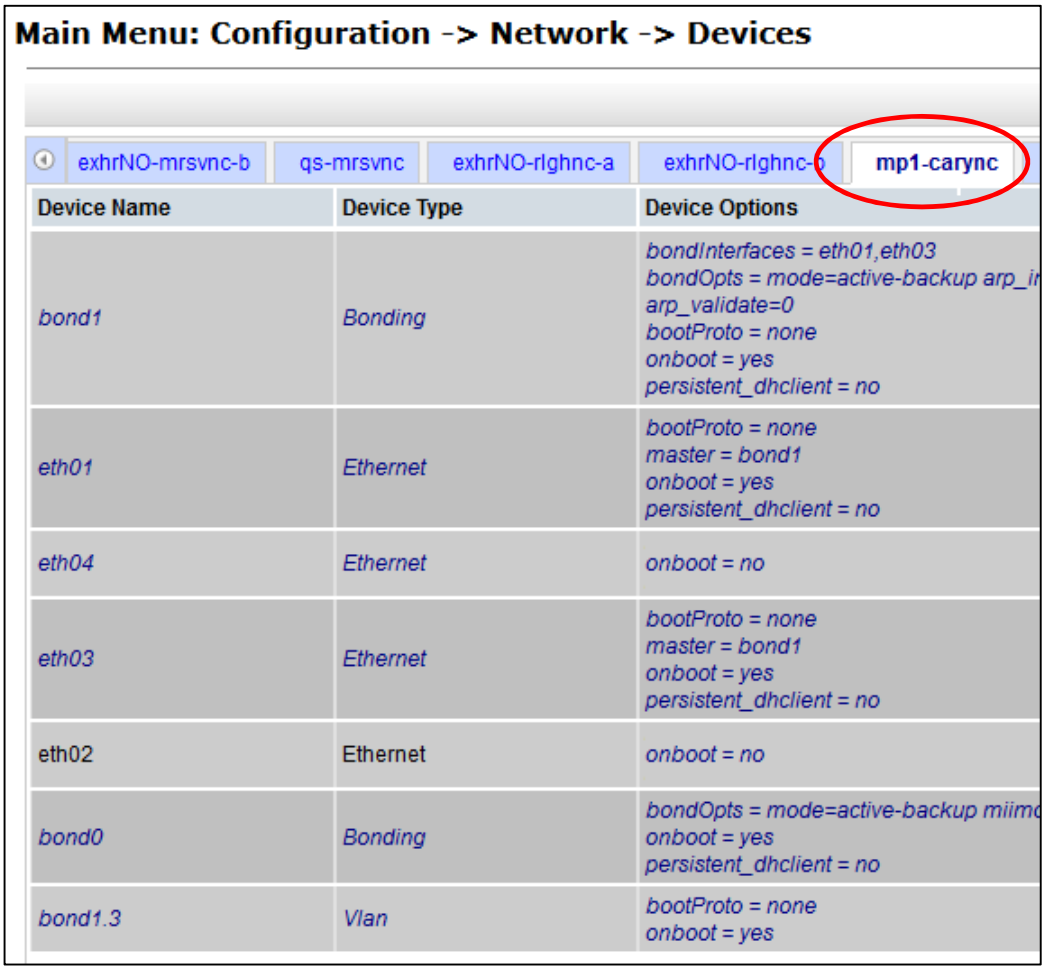
Procedure 11: Configure MP Signaling Interfaces *(All SOAM Sites)*

Step	Procedure	Result
1. ☐	**Primary NOAM GUI (VIP):** Connect to the **Primary NOAM VIP GUI** (XMI VIP) via web browser.	
2. ☐	**Primary NOAM GUI (VIP):** If a security certificate error is received, click on the following link: **"Continue to this website (not recommended)."**	
3. ☐	**Primary NOAM GUI (VIP):** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	

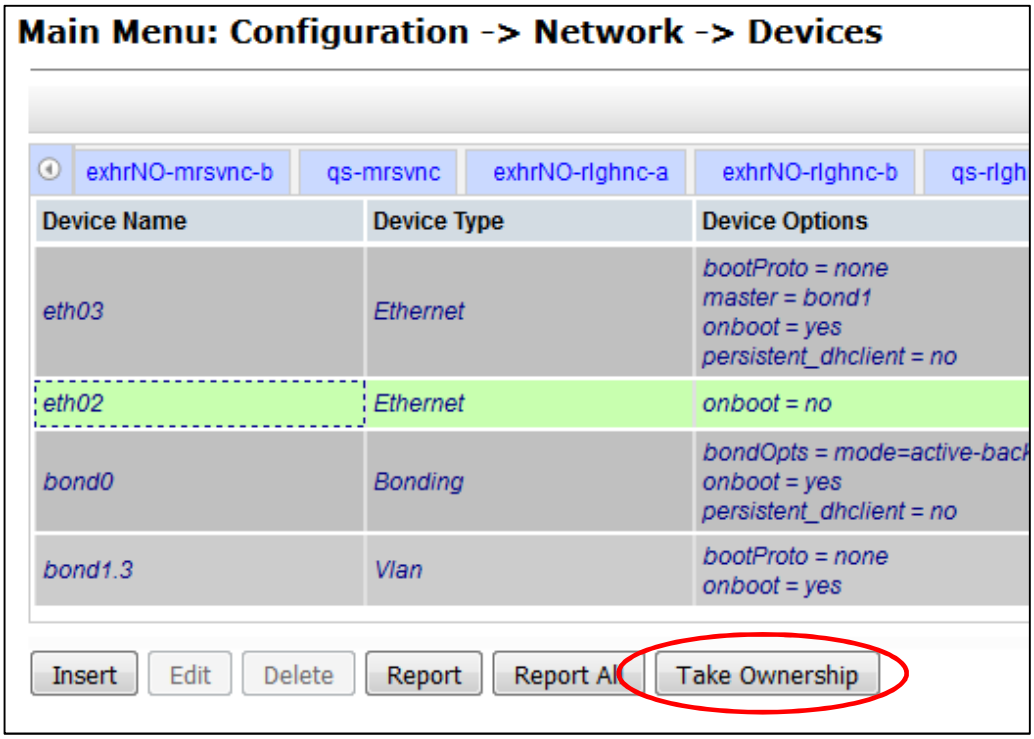
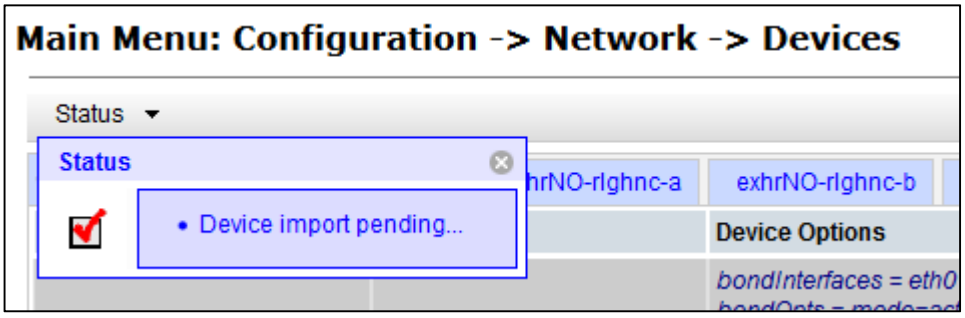
Procedure 11: Configure MP Signaling Interfaces *(All SOAM Sites)*

Step	Procedure	Result
4. ☐	**Primary NOAM GUI (VIP):** The user should be presented with the HLRR Main Menu as shown on the right.	
5. ☐	**Primary NOAM GUI (VIP):** Select… **<u>Main Menu</u>** **→ Configuration** ***→ Network*** ***→ Devices*** …as shown on the right.	

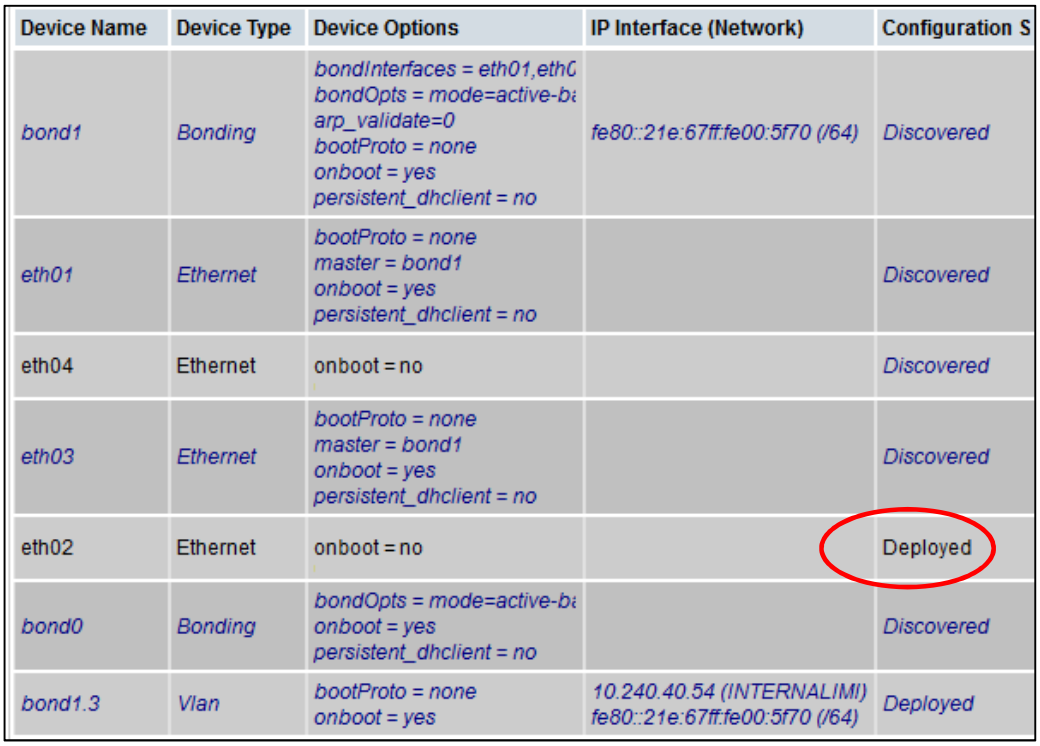
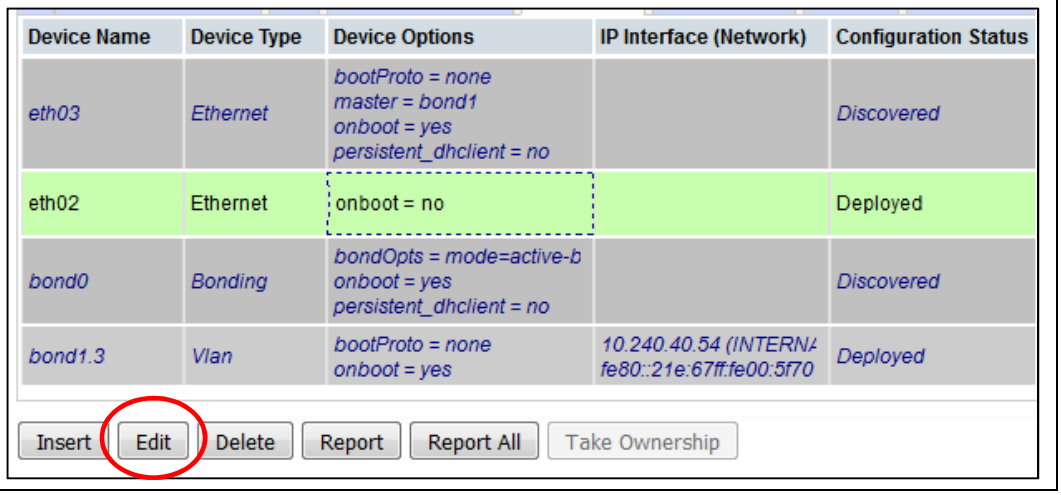
Procedure 11: Configure MP Signaling Interfaces *(All SOAM Sites)*

Step	Procedure	Result
6. ☐	**Primary NOAM GUI (VIP):** Click on the desired **MP** server tab. The user should be presented with the list of network **Devices** (interfaces) associated with the selected **MP** as shown on the right.	

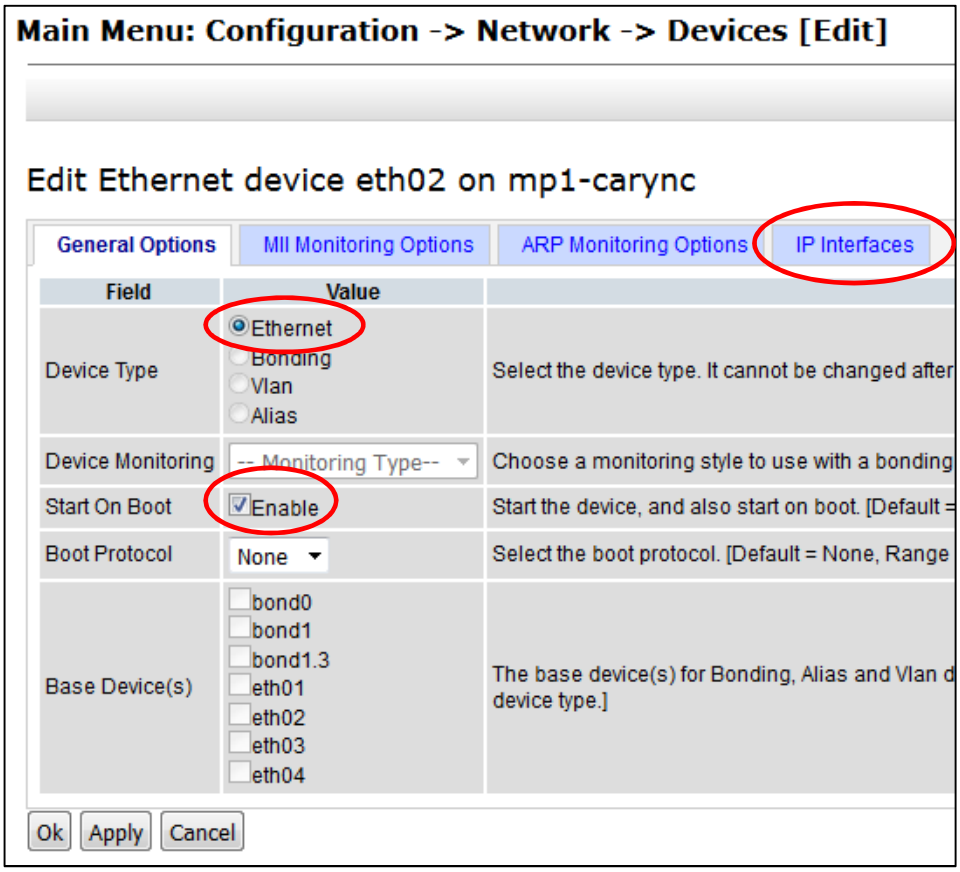
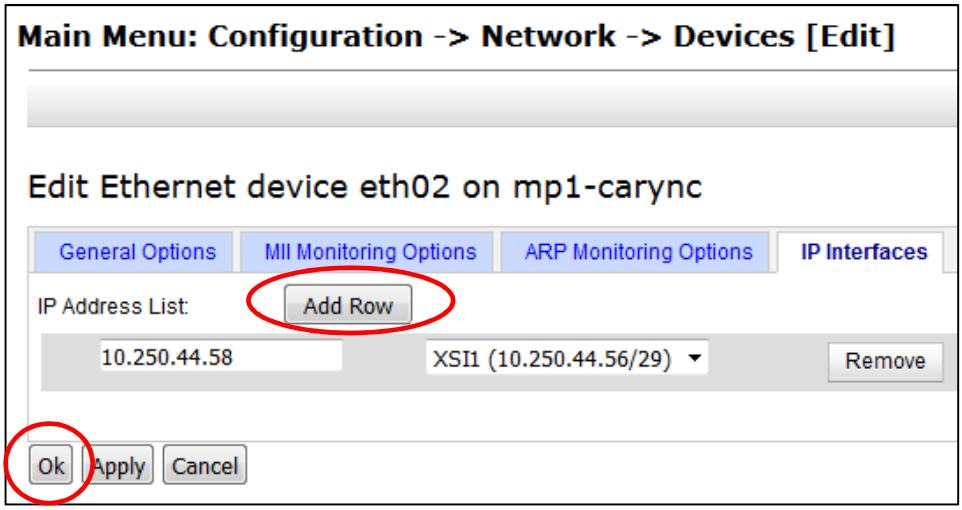
Procedure 11: Configure MP Signaling Interfaces *(All SOAM Sites)*

Step	Procedure	Result
7. ☐	**Primary NOAM GUI (VIP):** **Take Ownership** of the **eth02** device for the desired **MP**. **1)** Select the **eth02** device **2)** Click on the **Take Ownership** button. **3)** The user should be presented with status message stating **"Device import pending"**	 

Procedure 11: Configure MP Signaling Interfaces *(All SOAM Sites)*

Step	Procedure	Result
8. ☐	**Primary NOAM GUI (VIP):** The ***Configuration → Network → Devices]"*** screen will **auto-refresh** as the **"Device import"** progresses *(this process may take several seconds to complete)*. Monitor the **"Configuration Status"** of the **eth02** device and verify that it changes from "***Discovered***" to "***Deployed***". **NOTE:** *The device* ***Configuration Status*** *will actually transition through* ***3 states:*** ***"Discovered"*** → ***"Configured"*** → "***Deployed***".	
9. ☐	**Primary NOAM GUI (VIP):** Edit the **eth02** device for the desired MP. **1)** Select the **eth02** device **2)** Click on the **"Edit"** button.	

Procedure 11: Configure MP Signaling Interfaces *(All SOAM Sites)*

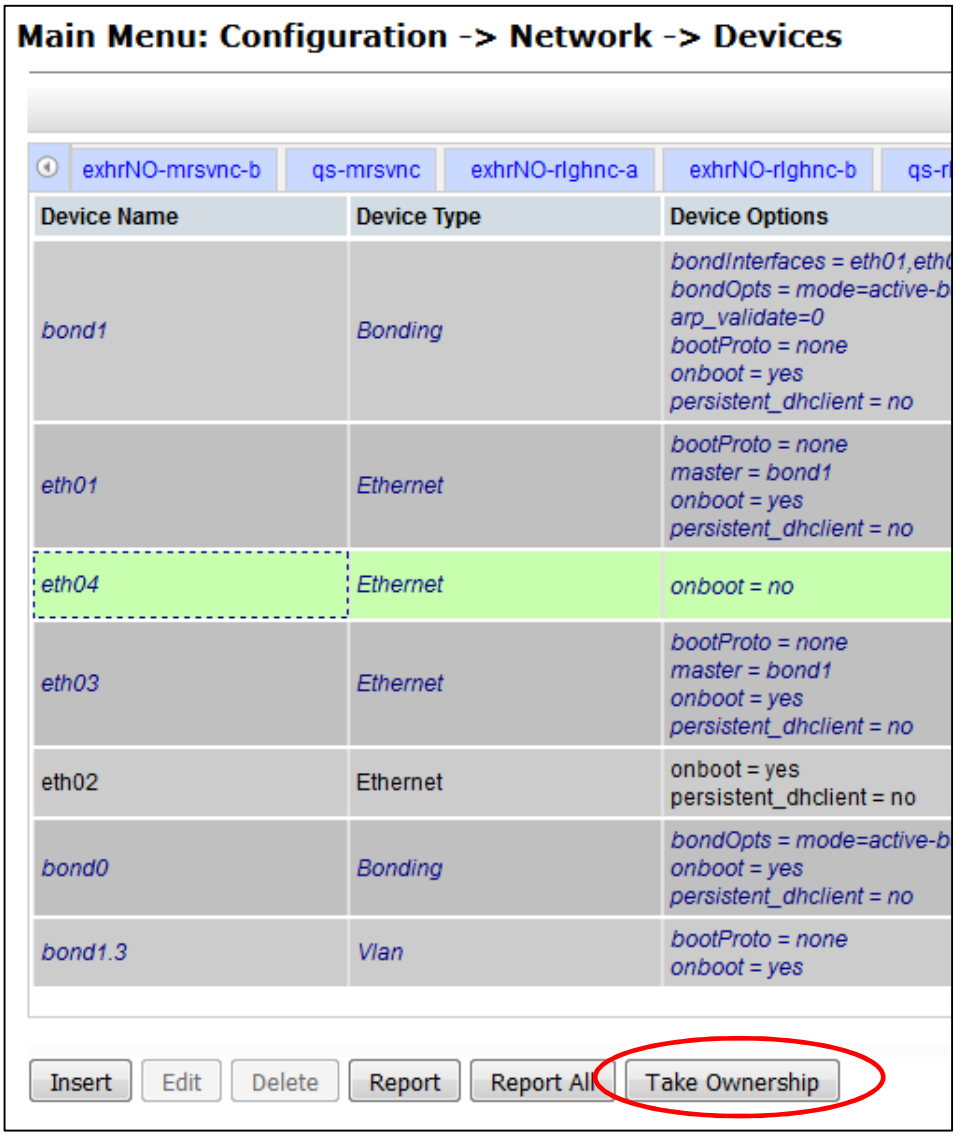
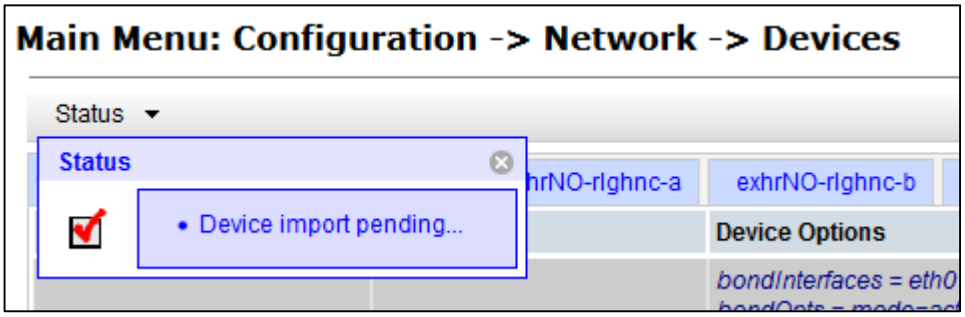
Step	Procedure	Result
10. ☐	**Primary NOAM GUI (VIP):** The ***Configuration → Network → Devices [Edit]"*** screen will appear **1)** On the **General Options** tab, select **"Ethernet"** for the **Device Type** field. **2)** Add a **Checkmark** to the **"Enable"** checkbox. **3)** Click on **"IP Interfaces"** tab.	
11. ☐	**Primary NOAM GUI (VIP):** Add the **XSI1 IP address** for the selected **MP** to the eth02 device. **1)** Click the **"Add Row"** dialogue button **2)** Seleck the **XSI1** network for the **Network Name**. **3)** Enter the **XSI1 IP address** for the selected **MP.** **4)** Click on the **Ok** button.	

Procedure 11: Configure MP Signaling Interfaces *(All SOAM Sites)*

Step	Procedure	Result
12. ☐	**Primary NOAM GUI (VIP):** **1)** Select… **Main Menu** → **Configuration** → ***Network*** → ***Devices*** **2)** Click on the desired **MP** server tab. **3)** Verify that **eth02** now shows **"onboot = yes"** under **Device Options** and is configured with the **XSI1 IP address** added in the previous step.	See table below

Device Name	Device Type	Device Options	IP Interface (Network)	Configuration S
bond1	*Bonding*	*bondInterfaces = eth01,eth0* *bondOpts = mode=active-b* *arp_validate=0* *bootProto = none* *onboot = yes* *persistent_dhclient = no*	*fe80::21e:67ff:fe00:5f70 (/64)*	*Discovered*
eth01	*Ethernet*	*bootProto = none* *master = bond1* *onboot = yes* *persistent_dhclient = no*		*Discovered*
eth04	Ethernet	onboot = no		*Discovered*
eth03	*Ethernet*	*bootProto = none* *master = bond1* *onboot = yes* *persistent_dhclient = no*		*Discovered*
eth02	Ethernet	onboot = yes persistent_dhclient = no	10.250.44.58 (XSI1) fe80::21e:67ff:fe00:5f71 (/64)	Deployed
bond0	*Bonding*	*bondOpts = mode=active-b* *onboot = yes* *persistent_dhclient = no*		*Discovered*
bond1.3	*Vlan*	*bootProto = none* *onboot = yes*	*10.240.40.54 (INTERNALIMI)* *fe80::21e:67ff:fe00:5f70 (/64)*	*Deployed*

Procedure 11: Configure MP Signaling Interfaces *(All SOAM Sites)*

Step	Procedure	Result
13. ☐	**Primary NOAM GUI (VIP):** **Take Ownership** of the **eth04** device for the desired **MP**. **1)** Select the **eth04** device **2)** Click on the **Take Ownership** button. **3)** The user should be presented with status message stating **"Device import pending"**	 

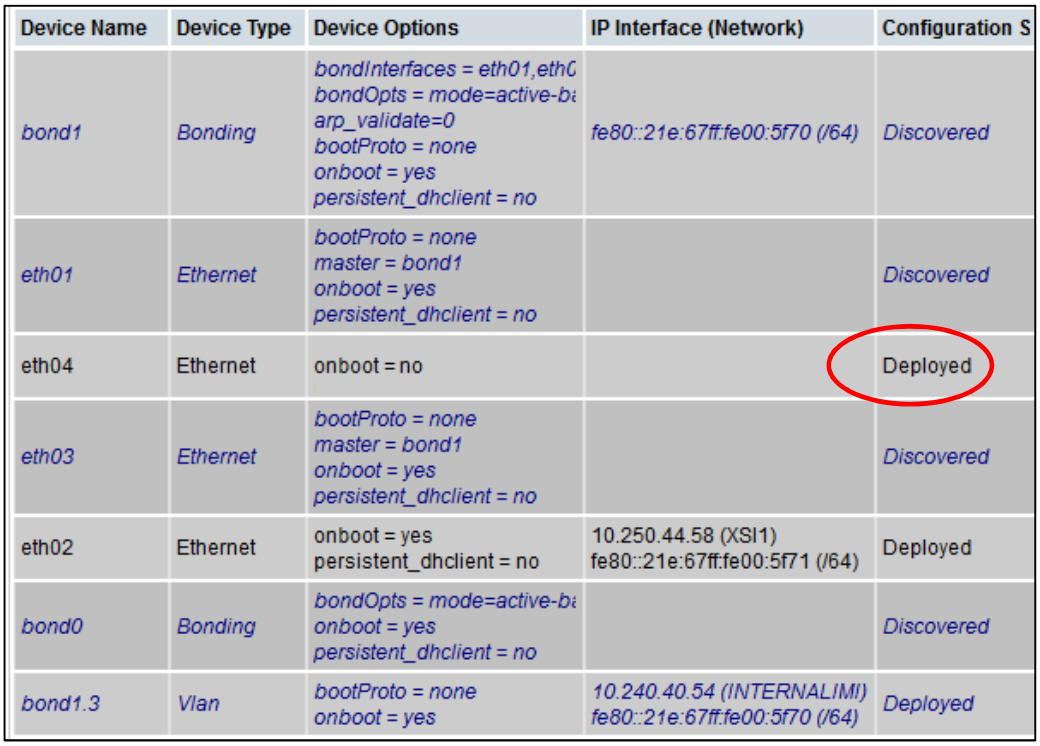
Procedure 11: Configure MP Signaling Interfaces *(All SOAM Sites)*

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>14.
☐</td><td>Primary NOAM GUI (VIP):

The Configuration → Network → Devices]" screen will auto-refresh as the "Device import" progresses (this process may take several seconds to complete).

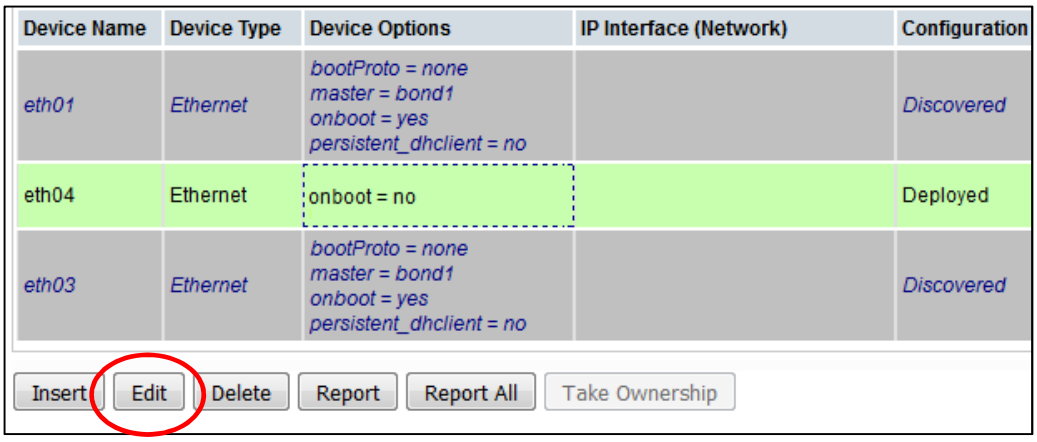
Monitor the "Configuration Status" of the eth04 device and verify that it changes from "Discovered" to "Deployed".

NOTE: The device Configuration Status will actually transition through 3 states:

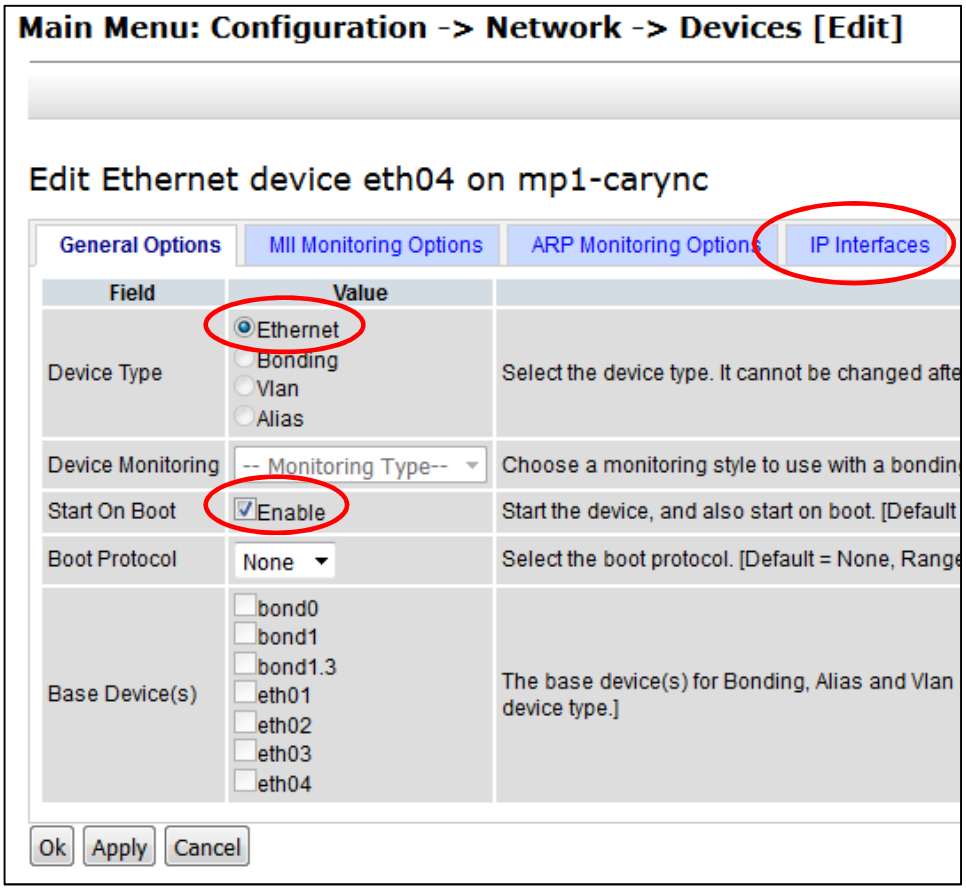
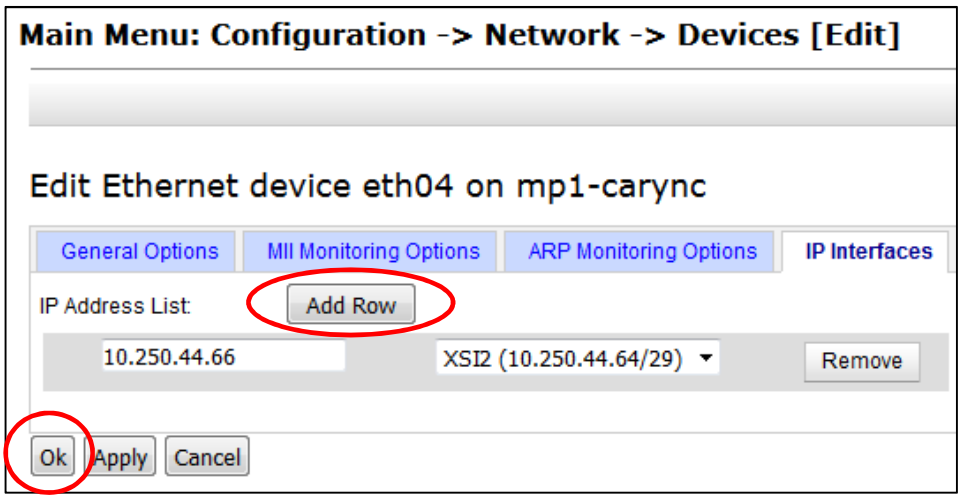
"Discovered" → "Configured" → "Deployed".</td><td> 
</td></tr>
<tr><td>15.
☐</td><td>Primary NOAM GUI (VIP):

Edit the eth04 device for the desired MP.

1) Select the eth04 device

2) Click on the "Edit" button.</td><td> 
</td></tr>
</table>

Procedure 11: Configure MP Signaling Interfaces *(All SOAM Sites)*

Step	Procedure	Result
16. ☐	**Primary NOAM GUI (VIP):** The ***Configuration → Network → Devices [Edit]"*** screen will appear **1)** On the **General Options** tab, select **"Ethernet"** for the **Device Type** field. **2)** Add a **Checkmark** to the "**Enable**" checkbox. **3)** Click on **"IP Interfaces"** tab.	
17. ☐	**Primary NOAM GUI (VIP):** Add the **XSI2 IP address** for the selected **MP** to the eth04 device. **1)** Click the **"Add Row"** dialogue button **2)** Seleck the **XSI2** network for the **Network Name**. **3)** Enter the **XSI2 IP address** for the selected **MP.** **4)** Click on the **Ok** button.	

Procedure 11: Configure MP Signaling Interfaces *(All SOAM Sites)*

<table>
<tr><th>Step</th><th>Procedure</th><th>Result</th></tr>
<tr><td>18.
☐</td><td>Primary NOAM GUI (VIP):

1) Select…

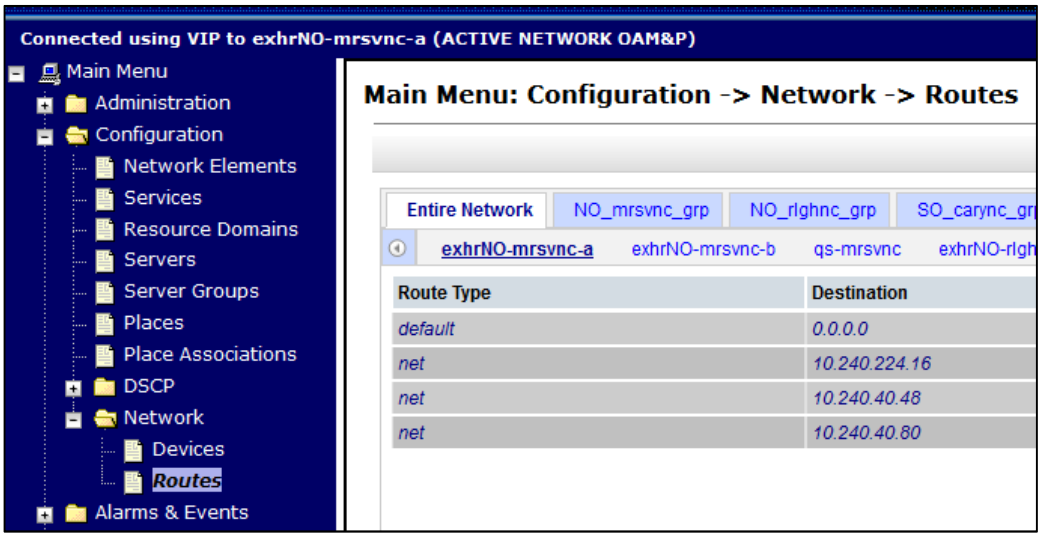
<u>Main Menu</u>
→ Configuration
→ Network
→ Devices

2) Click on the desired MP server tab.

3) Verify that eth04 now shows “onboot = yes” under Device Options and is configured with the XSI2 IP address added in the previous step.</td><td>
<table>
<tr><th>Device Name</th><th>Device Type</th><th>Device Options</th><th>IP Interface (Network)</th><th>Configuration S</th></tr>
<tr><td>bond1</td><td>Bonding</td><td>bondInterfaces = eth01,eth0
bondOpts = mode=active-b
arp_validate=0
bootProto = none
onboot = yes
persistent_dhclient = no</td><td>fe80::21e:67ff:fe00:5f70 (/64)</td><td>Discovered</td></tr>
<tr><td>eth01</td><td>Ethernet</td><td>bootProto = none
master = bond1
onboot = yes
persistent_dhclient = no</td><td></td><td>Discovered</td></tr>
<tr><td>eth04</td><td>Ethernet</td><td>onboot = yes
persistent_dhclient = no</td><td>10.250.44.66 (XSI2)
fe80::21e:67ff:fe00:5f75 (/64)</td><td>Deployed</td></tr>
<tr><td>eth03</td><td>Ethernet</td><td>bootProto = none
master = bond1
onboot = yes
persistent_dhclient = no</td><td></td><td>Discovered</td></tr>
<tr><td>eth02</td><td>Ethernet</td><td>onboot = yes
persistent_dhclient = no</td><td>10.250.44.58 (XSI1)
fe80::21e:67ff:fe00:5f71 (/64)</td><td>Deployed</td></tr>
<tr><td>bond0</td><td>Bonding</td><td>bondOpts = mode=active-b
onboot = yes
persistent_dhclient = no</td><td></td><td>Discovered</td></tr>
<tr><td>bond1.3</td><td>Vlan</td><td>bootProto = none
onboot = yes</td><td>10.240.40.54 (INTERNALIMI)
fe80::21e:67ff:fe00:5f70 (/64)</td><td>Deployed</td></tr>
</table>
</td></tr>
<tr><td>19.
☐</td><td>Primary NOAM GUI (VIP):

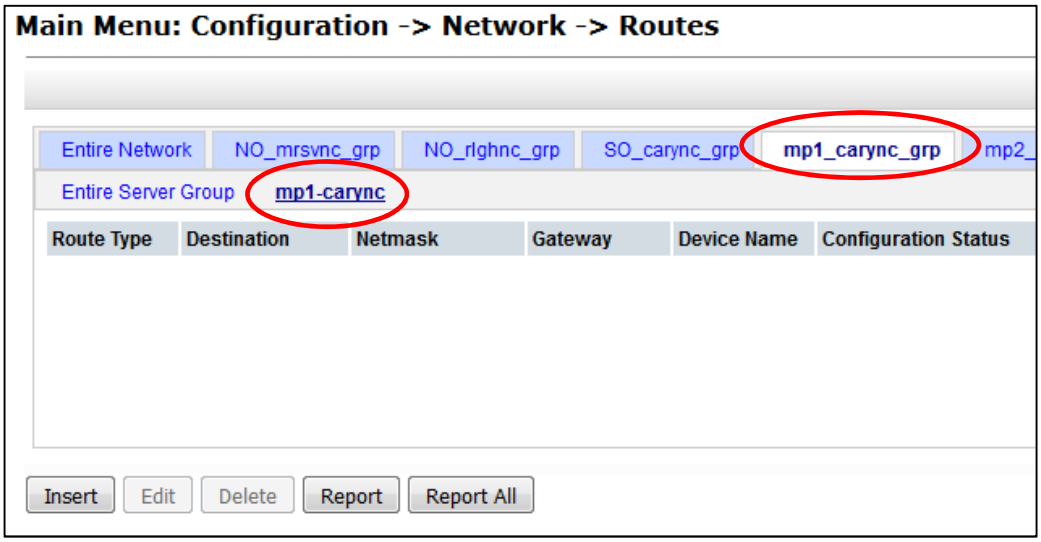
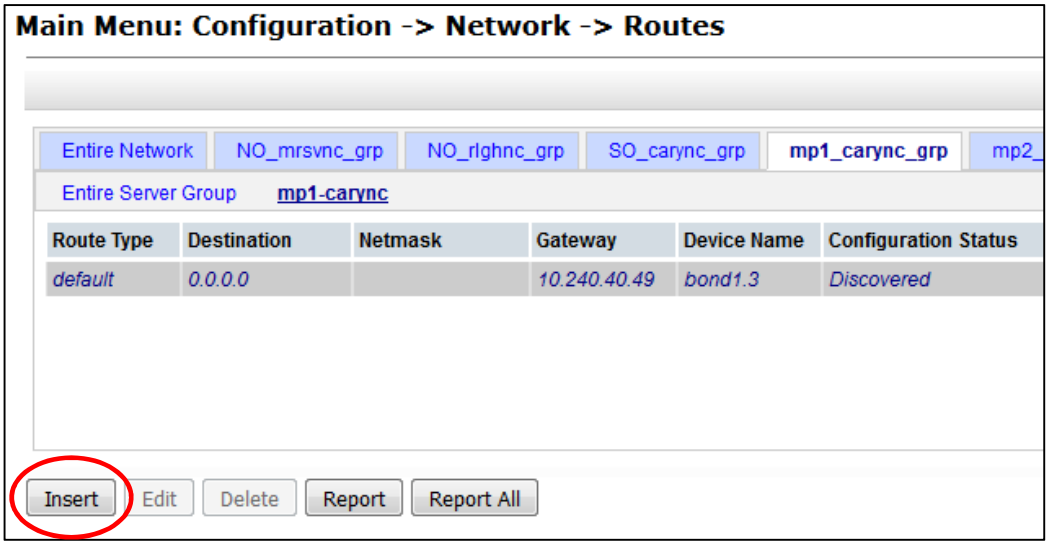
Select…

<u>Main Menu</u>
→ Configuration
→ Network
→ Routes

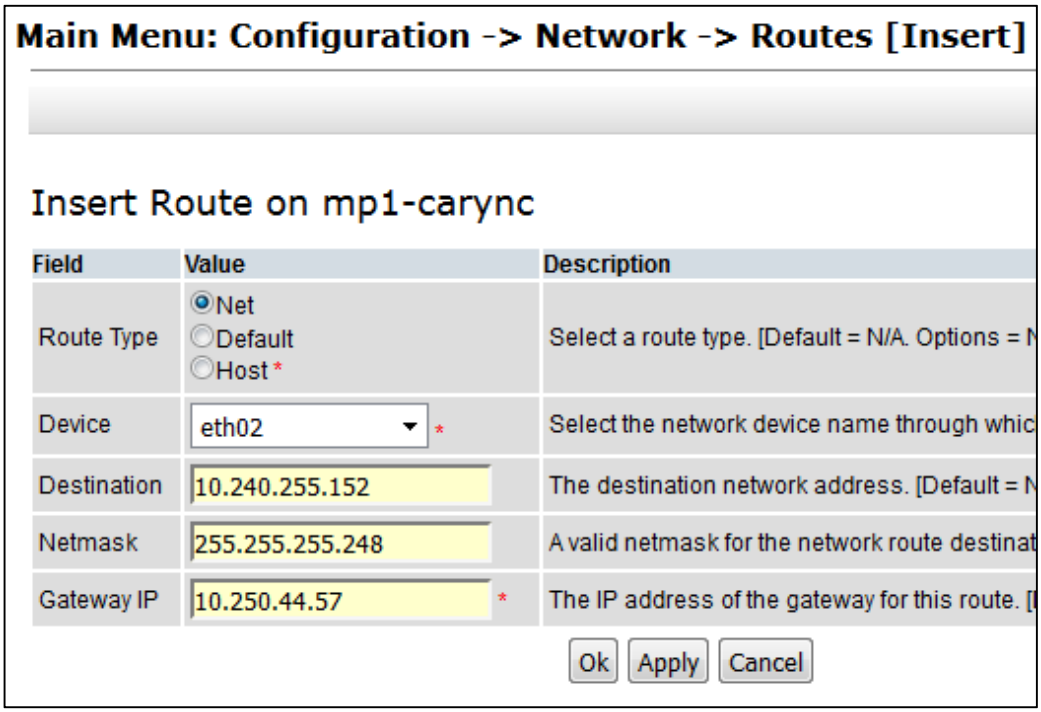
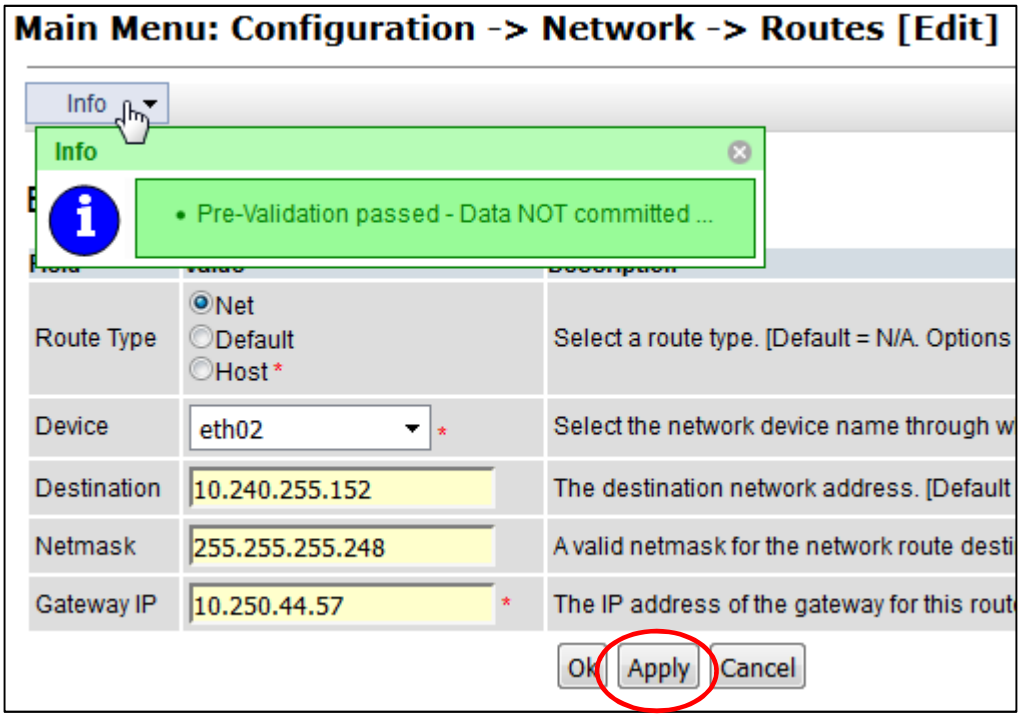
…as shown on the right.</td><td>


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

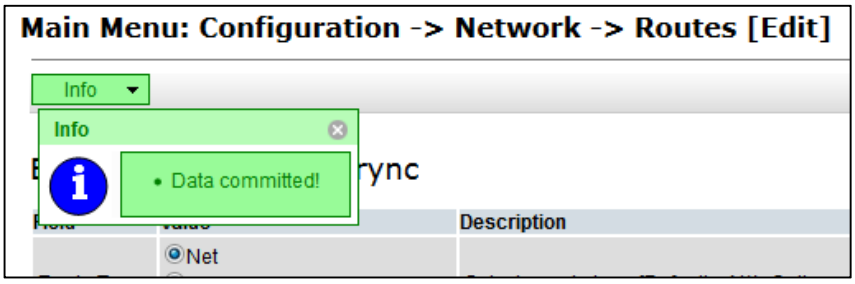
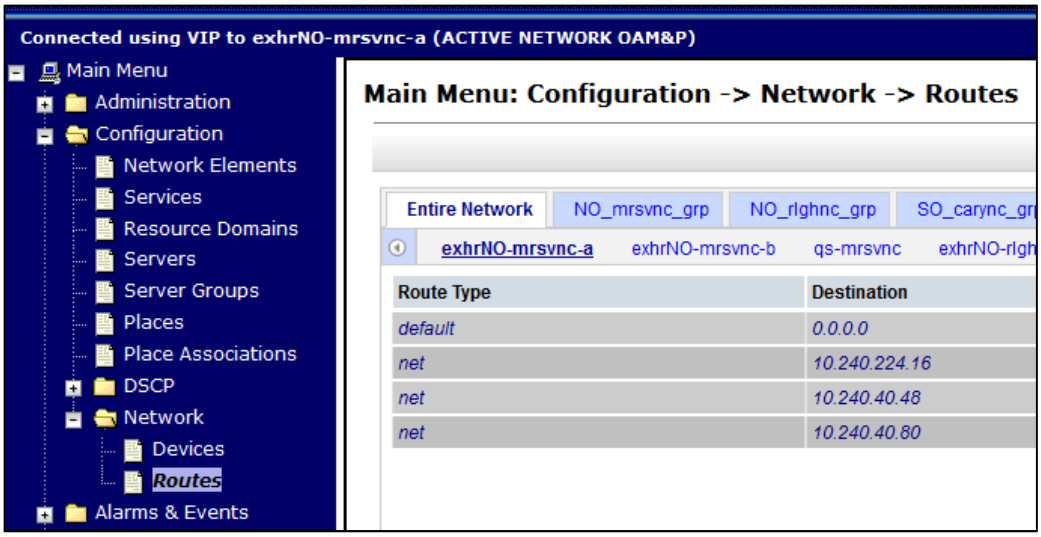
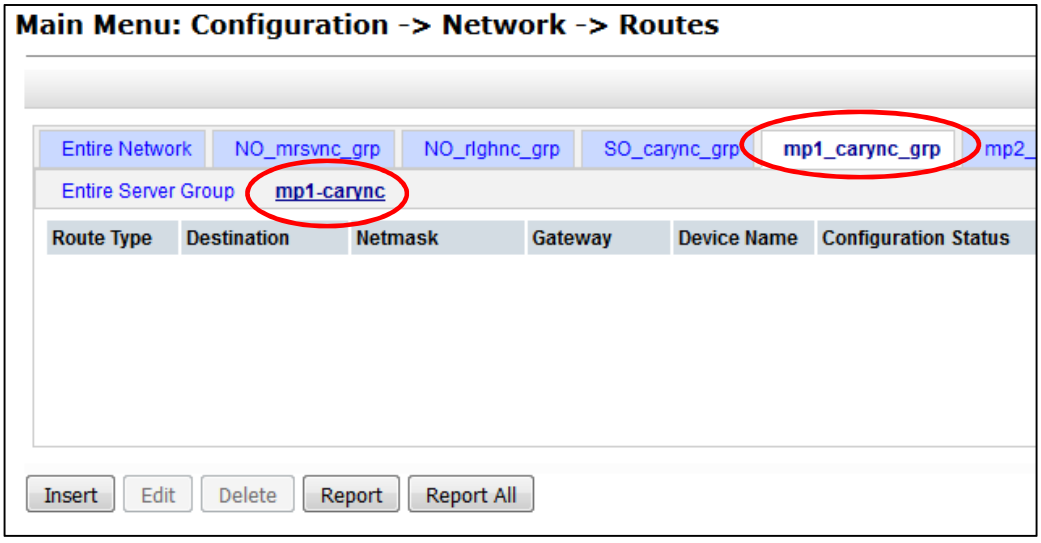
Procedure 11: Configure MP Signaling Interfaces *(All SOAM Sites)*

Step	Procedure	Result
20. ☐	**Primary NOAM GUI (VIP):** Insert a new route for the MP. **1)** Click on the **MP Server Group** tab. **2)** Click the **MP hostname** shown in the banner.	
21. ☐	**Primary NOAM GUI (VIP):** The ***"default"*** **route** for the MP should now be displayed on the screen. Click on the **"Insert"** dialogue button.	

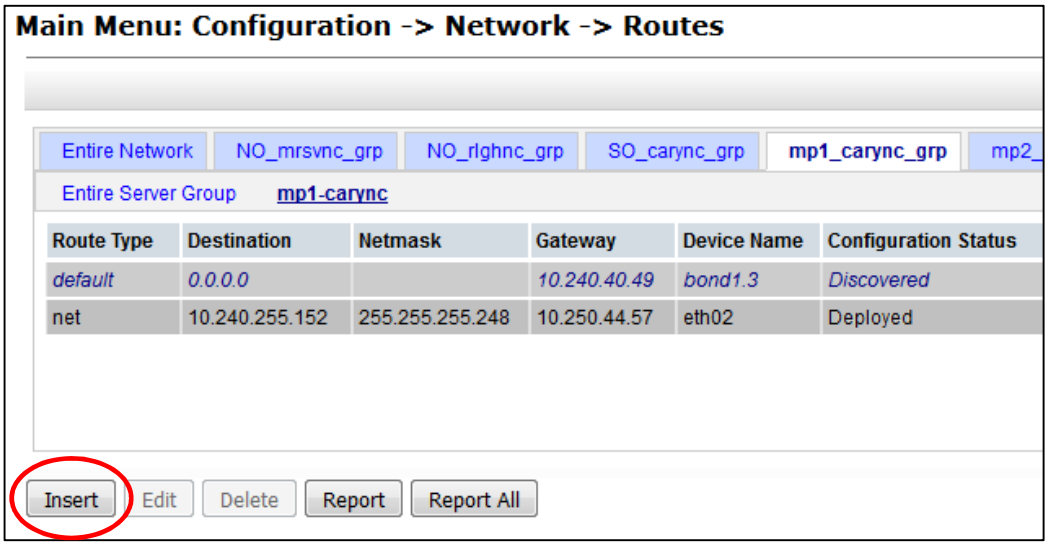
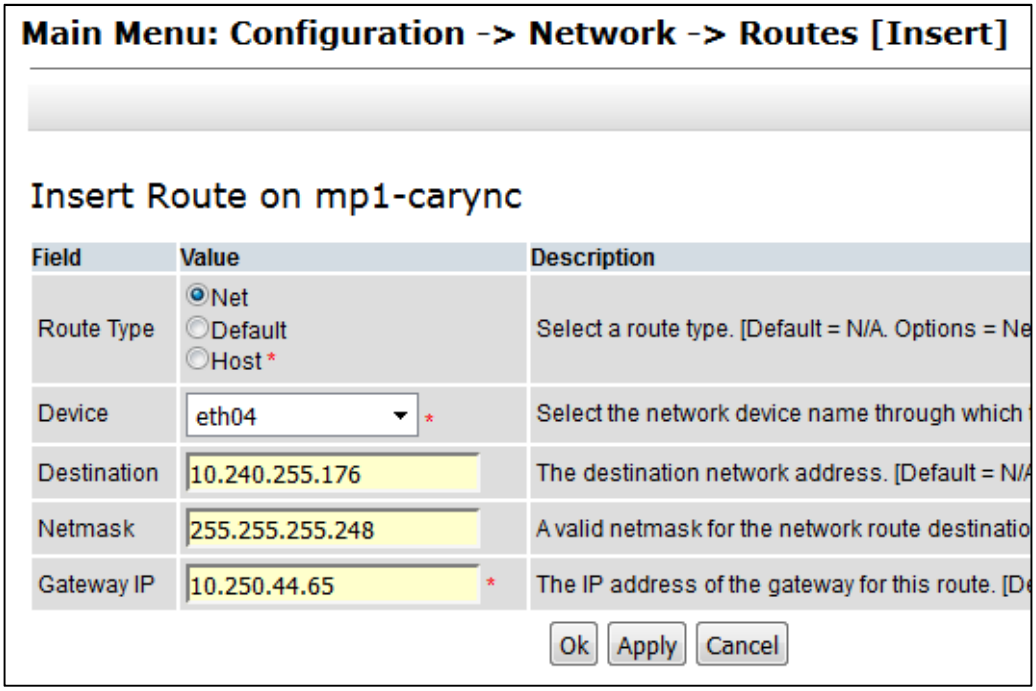
Procedure 11: Configure MP Signaling Interfaces *(All SOAM Sites)*

Step	Procedure	Result
22. ☐	**Primary NOAM GUI (VIP):** Insert **XSI1** Signaling network **Route** for **eth02**. **1)** Set **Route Type** to **"Net".** **2)** Set **Device** to **"eth02".** **3)** Enter the **Destination** Network value. **4)** Enter the **Netmask** for the **Destination** Network. **5)** Enter the **Gateway IP** required to access the **Destination** Network.	
23. ☐	**Primary NOAM GUI (VIP):** **1)** If the values provided by the user pass basic subnet rules, the user will receive a banner information message stating **"Pre-Validation passed"**. **2)** Click the **"Apply"** dialogue button.	

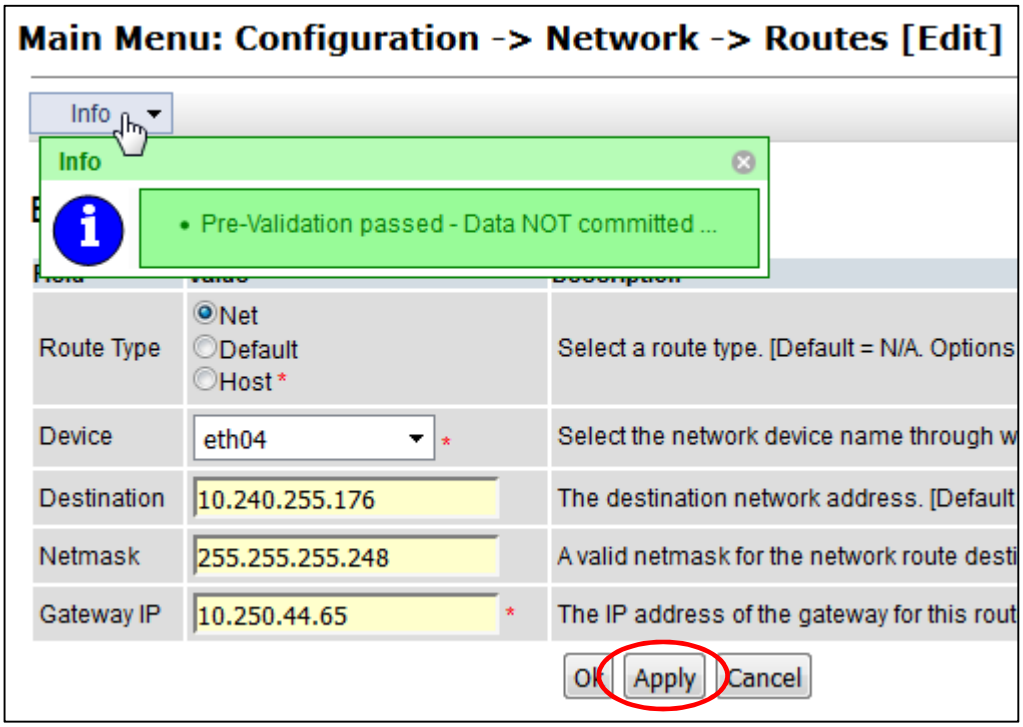
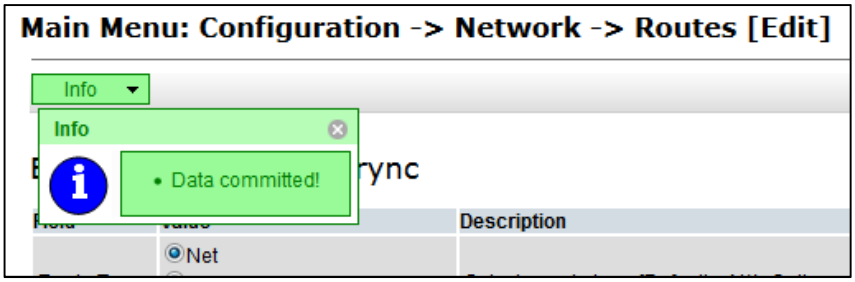
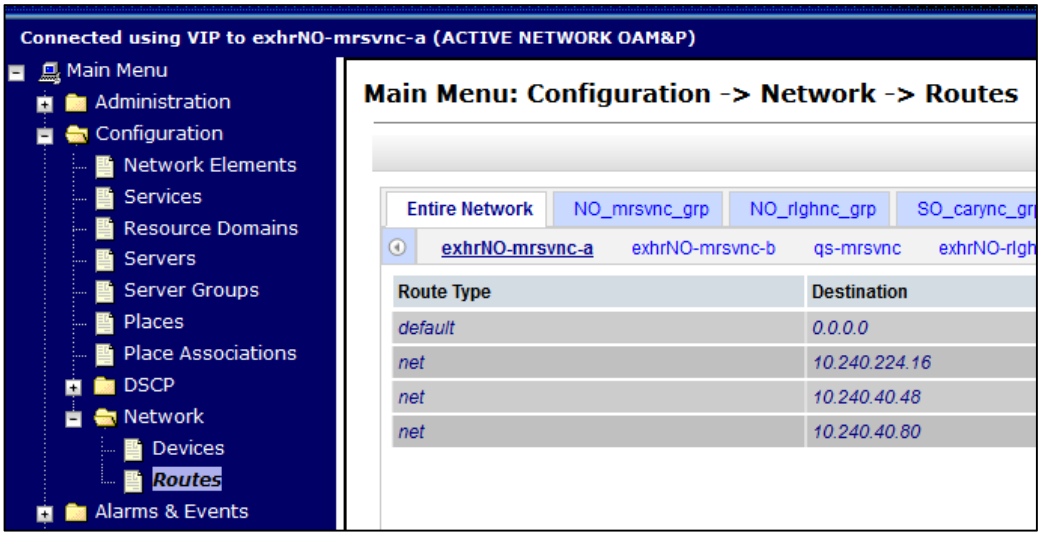
Procedure 11: Configure MP Signaling Interfaces *(All SOAM Sites)*

Step	Procedure	Result
24. ☐	**Primary NOAM GUI (VIP):** The user will receive a banner information message showing that the data has been committed to the DB.	
25. ☐	**Primary NOAM GUI (VIP):** Select… **Main Menu** → **Configuration** → ***Network*** → ***Routes*** …as shown on the right.	
26. ☐	**Primary NOAM GUI (VIP):** Insert a new route for the MP. **1)** Click on the **MP Server Group** tab. **2)** Click the **MP hostname** shown in the banner.	

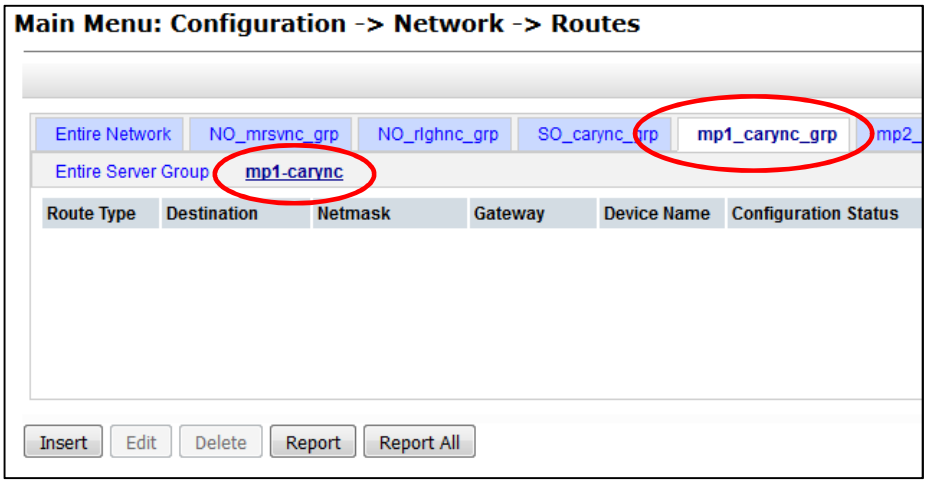
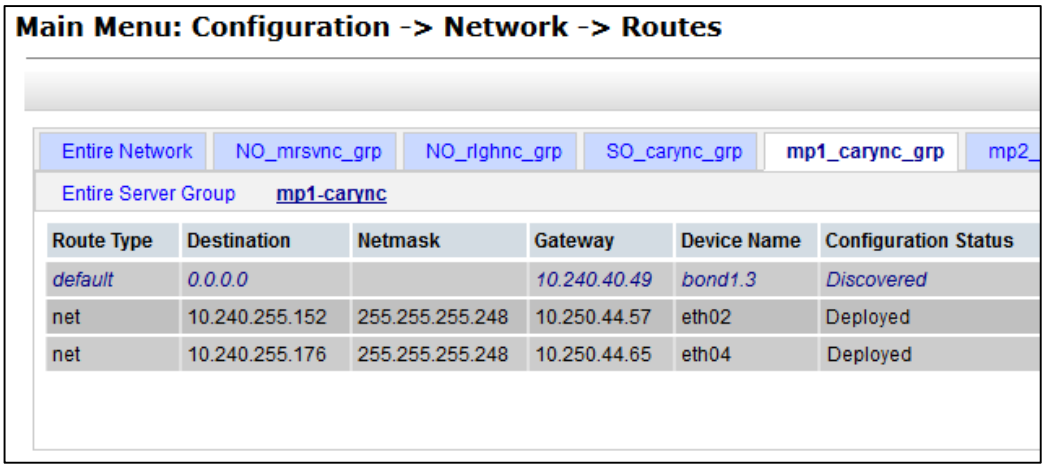
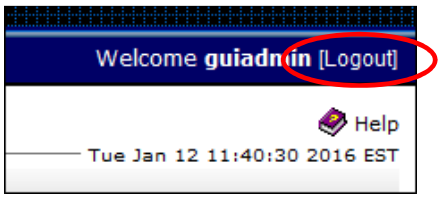
Procedure 11: Configure MP Signaling Interfaces *(All SOAM Sites)*

Step	Procedure	Result
27. ☐	**Primary NOAM GUI (VIP):** The **"*default*" route** *(Discovered)* and the **"net" route** for the **eth02** interface *(Deployed)* should now be displayed on the screen. Click on the **"Insert"** dialogue button. **NOTE:** *The device* ***Configuration Status*** *will actually transition from* ***"Configured"*** → **"*Deployed*".**	
28. ☐	**Primary NOAM GUI (VIP):** Insert **XSI2** Signaling network **Route** for **eth04**. **1)** Set **Route Type** to **"Net".** **2)** Set **Device** to **"eth04".** **3)** Enter the **Destination** Network value. **4)** Enter the **Netmask** for the **Destination** Network. **5)** Enter the **Gateway IP** required to access the **Destination** Network.	

Procedure 11: Configure MP Signaling Interfaces *(All SOAM Sites)*

Step	Procedure	Result
29. ☐	**Primary NOAM GUI (VIP):** **1)** If the values provided by the user pass basic subnet rules, the user will receive a banner information message stating **"Pre-Validation passed"**. **2)** Click the **"Apply"** dialogue button.	
30. ☐	**Primary NOAM GUI (VIP):** The user will receive a banner information message showing that the data has been committed to the DB.	
31. ☐	**Primary NOAM GUI (VIP):** Select… **<u>Main Menu</u>** **→ Configuration** ***→ Network*** ***→ Routes*** …as shown on the right.	

Procedure 11: Configure MP Signaling Interfaces *(All SOAM Sites)*

Step	Procedure	Result
32. ☐	**Primary NOAM GUI (VIP):** Insert a new route for the MP. **1)** Click on the **MP Server Group** tab. **2)** Click the **MP hostname** shown in the banner.	
33. ☐	**Primary NOAM GUI (VIP):** The **"*default*" route** *(Discovered)* and the **"net" routes** for both the **eth02** and **eth04** interfaces *(Deployed)* should now be displayed on the screen. **NOTE:** *The device* ***Configuration Status*** *will actually transition from* ***"Configured"*** *→* ***"Deployed"***.	
34. ☐	Configure **XSI** Signaling interfaces and associated network **Routes** for each additional **MP** server(s) installed at the **SOAM** site.	• Repeat **Steps 5 - 33** of this procedure for each additional **MP** Server configured at the **SOAM** site. ☐ **MP-2** ☐ **MP-3** ☐ **MP-4** ☐ **MP-5** ☐ **MP-6**
35. ☐	**Primary NOAM GUI (VIP):** Click the **"Logout"** link on the HLRR server GUI.	
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix A. CREATING NETWORK ELEMENT XML FILES FOR HLRR SITE INSTALLATION

NOTE: *Network subnet information from the completed HLR Router Network Implementation Guide (WI006024) [4], is required as a prerequisite for the creation of an HLRR Network Element XML file.*

1. **NOAM Network Element XML file template:** *Only values highlighted in **RED** require site specific updates. All other values are considered to be static.*

```
<?xml version="1.0"?>
<networkelement>
    <name>NO_MRSVNC</name>
    <networks>
        <network>
            <name>INTERNALXMI</name>
            <vlanId>2</vlanId>
            <ip>10.240.40.0</ip>
            <mask>255.255.255.240</mask>
            <gateway>10.240.40.1</gateway>
            <isDefault>true</isDefault>
        </network>
        <network>
            <name>INTERNALIMI</name>
            <vlanId>3</vlanId>
            <ip>10.240.40.16</ip>
            <mask>255.255.255.240</mask>
            <gateway>10.240.40.17</gateway>
            <isDefault>false</isDefault>
        </network>
        <network>
            <name>MANAGEMENT</name>
            <vlanId>1</vlanId>
            <ip>169.254.1.0</ip>
            <mask>255.255.255.0</mask>
            <gateway></gateway>
            <isDefault>false</isDefault>
            <nonRoutable>true</nonRoutable>
        </network>
    </networks>
</networkelement>
```

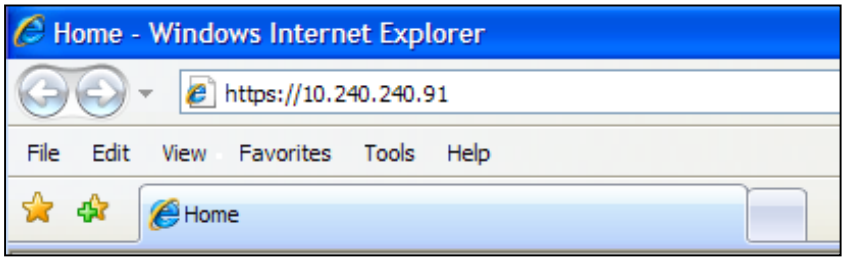
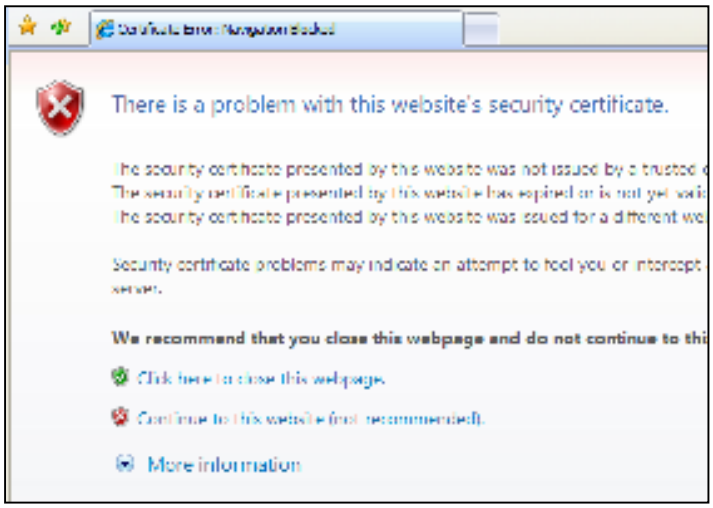
2. **SOAM Network Element XML file template:** *Only values highlighted in **RED** require site specific updates. All other values are considered to be static.*

NOTE: *The following assumes that the IMI network is routable, If the IMI network is not routable, then set IMI default gateway to "false" and XMI default gateway to "true".*

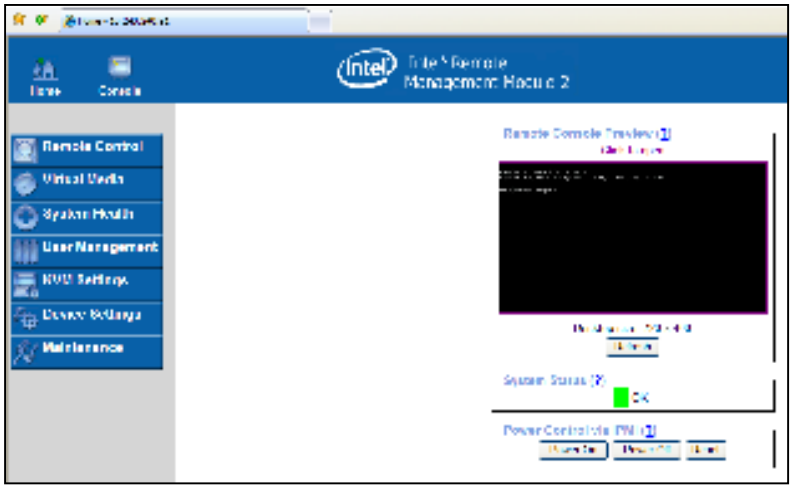
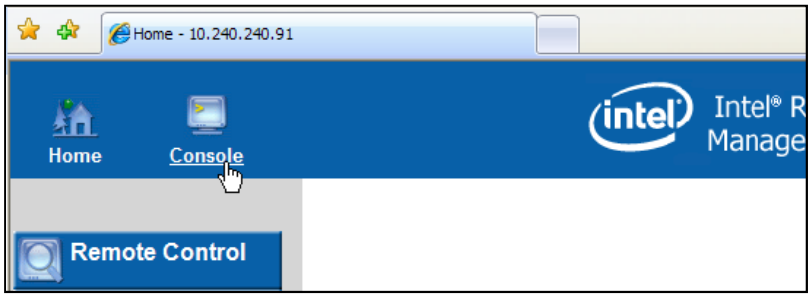
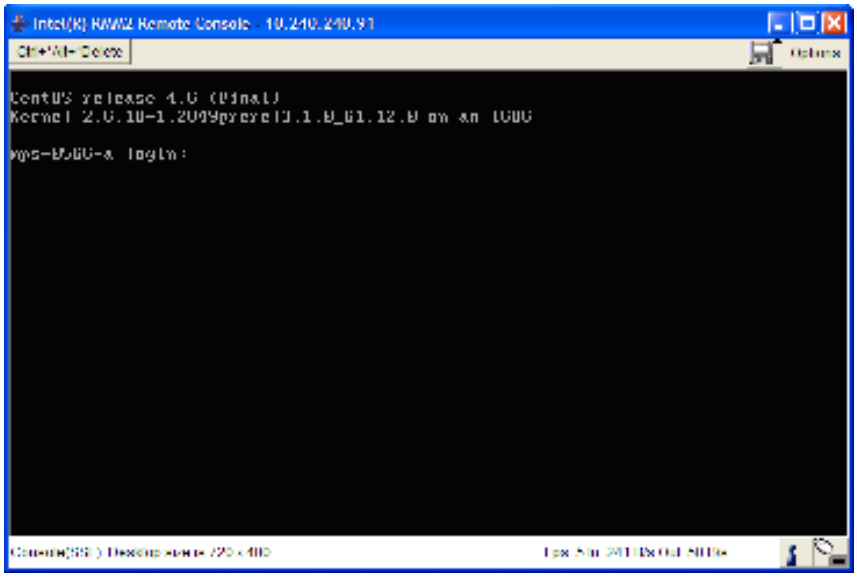
```
<?xml version="1.0"?>
<networkelement>
    <name>SO_CARYNC</name>
    <networks>
        <network>
            <name>INTERNALXMI</name>
            <vlanId>2</vlanId>
            <ip>10.240.40.32</ip>
            <mask>255.255.255.240</mask>
            <gateway>10.240.40.33</gateway>
            <isDefault>false</isDefault>
        </network>
        <network>
            <name>INTERNALIMI</name>
            <vlanId>3</vlanId>
            <ip>10.240.40.48</ip>
            <mask>255.255.255.240</mask>
            <gateway>10.240.40.49</gateway>
            <isDefault>true</isDefault>
        </network>
        <network>
            <name>MANAGEMENT</name>
            <vlanId>1</vlanId>
            <ip>169.254.1.0</ip>
            <mask>255.255.255.0</mask>
            <gateway></gateway>
            <isDefault>false</isDefault>
            <nonRoutable>true</nonRoutable>
        </network>
    </networks>
</networkelement>
```

Appendix B. ACCESSING THE RMM VGA REDIRECTION WINDOW

Appendix B: Accessing the RMM VGA Redirection Window

Step	Procedure	Result
1. ☐	Launch Internet Explorer and connect to the RMM interface **NOTE 1:** *Always use **https** for GUI access.* **NOTE 2:** *If needed, see Appendix C or Appendix D to determine MFG default IP assignments.* **NOTE 3:** *If needed, see Appendix E to determine preconfigured IP settings.*	
2. ☐	Internet Explorer will display a warning message regarding the Security Certificate. Click on the link "Continue to the website (not recommended)"	
3. ☐	Login to the RMM console as "admin" user	

Appendix B: Accessing the RMM VGA Redirection Window

4. ☐	The admin GUI is displayed.	
5. ☐	Select the "Console" button in the upper left corner of the GUI	
6. ☐	The RMM Console window is displayed. **NOTE:** *The console window resembles an MS-DOS window but DOES NOT have a scroll-back buffer.*	
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix C. RMM DEFAULT IP ADDRESSES (CABINET / RACKED)

Static IP Addresses on the T1200 RMM by Frame Position (as set by Tekelec MFG)

This section establishes the convention for static IP address on the Remote Management Module of the T1200 Server. The table below summarizes the RMM IP address assignments by Frame position. The Frame position (U number) is the last two digits of the T1200 designation on the label located immediately to the right of each server on the frame rail.

1. RMM IP Common Values

RMM Subnet Mask	255.255.255.0
RMM Default Gateway	Not set (0.0.0.0)

2. RMM IP Address Assignments by Frame Position

T1200 Frame Position (U number)	RMM IP Address Assignment
U18	192.168.100.**18**
U19	192.168.100.**19**
U20	192.168.100.**20**
U21	192.168.100.**21**
U22	192.168.100.**22**
U23	192.168.100.**23**
U24	192.168.100.**24**
U25	192.168.100.**25**
U26	192.168.100.**26**
U27	192.168.100.**27**
U28	192.168.100.**28**
U29	192.168.100.**29**
U30	192.168.100.**30**
U31	192.168.100.**31**
U32	192.168.100.**32**
U33	192.168.100.**33**
U34	192.168.100.**34**
U35	192.168.100.**35**

Table 5 - RMM IP Addresses by Frame Position

Appendix D. RMM DEFAULT IP ADDRESSES (SHIP LOOSE / RMA)

Static IP Addresses on the T1200 RMM by System Serial Number (as set by Oracle's Tekelec MFG)

For "ship loose" T1200 servers (custom build / RMA) the last two digits of the T1200 serial number will be used to assign the RMM IP address based on a 192.168.100.xx subnet.

1. **RMM IP Common Values:**

RMM Subnet Mask	255.255.255.0
RMM Default Gateway	Not set (0.0.0.0)

2. **RMM IP Address Assignments by System Serial Number**

Locate system serial number of the server.

From the rear of the server, it can be found on a sticker attached to the bottom of the PCI Card Slot opening.

Example:

For S/N: NNG05085100566, the last octet would be "66".

Therefore, the IP address as set by Oracle's Tekelec MFG would be "192.168.100.66".

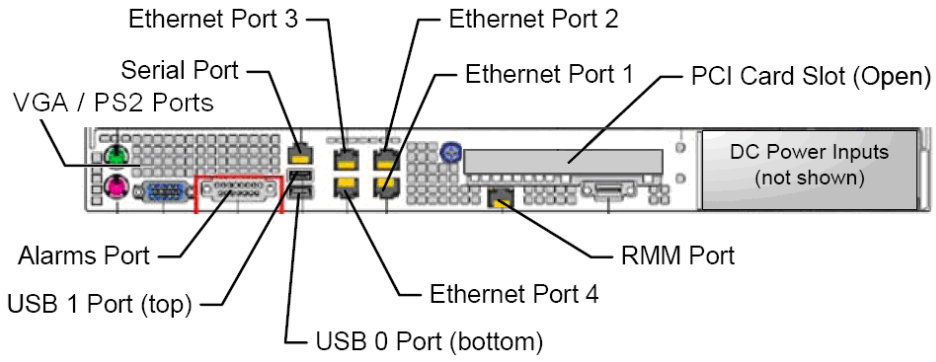
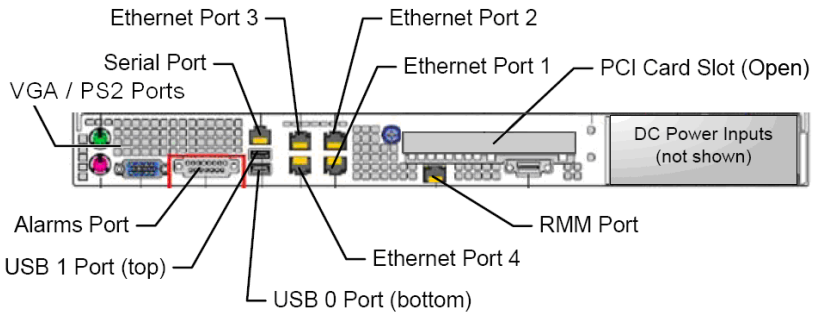


Figure 11 - RMM IP Addresses by System Serial Number

Appendix E. BASIC "KIRATOOL" COMMANDS FOR RMM SETUP

The third party utility, "**kiratool"**, is included with TPD. The "**kiratool**" utility provides a command line interface to the T1200 RMM hardware. Examples of basic "kiratool" commands are provided in the table below.

Appendix E: Basic Kiratool Commands for RMM Setup

Step	Procedure	Result
1.	Connect to the T1200 server using "ssh" (configured server) or the **VGA access method** chosen in **Section 0**. **NOTE:** *The illustration of the T1200 rear panel (shown right) displays the location of the VGA / PS2 Ports and the RMM Port (Ethernet).*	
2.	**Viewing the RMM IP Address:** Perform this step to view RMM's IP address.	`# kiratool -u admin -p password ip` `IP address: 10.0.0.65`
3.	**Setting the RMM IP Address:** Perform this step to set RMM's IP address.	`# kiratool -u admin -p password ip set 192.168.100.18` `Successfully set IP address to 192.168.100.18`
4.	**Viewing the RMM IP Source:** Perform this step to verify RMM's IP source.	`# kiratool -u admin -p password ipsrc` `IP source: Static Address`
5.	**Setting the RMM IP Source:** Perform this step to set RMM's IP source to static.	`# kiratool -u admin -p password ipsrc set static` `Successfully set IP source to Static address`
6.	**Viewing the RMM Netmask:** Perform this step to verify RMM's subnet mask.	`# kiratool -u admin -p password netmask` `Subnet mask: 255.255.255.0`
7.	**Setting the RMM Netmask:** Perform this step to set RMM's subnet mask.	`# kiratool -u admin -p password netmask set 255.255.255.0` `Successfully set Subnet mask to 255.255.255.0`
8.	**Viewing the RMM GW:** Verify RMM's default gateway.	`# kiratool -u admin -p password gw` `Default gateway: 0.0.0.0`
9.	**Setting the RMM GW:** Perform this step to set RMM's default gateway.	`# kiratool -u admin -p password gw set 192.168.100.1` `Successfully set Default gateway to 192.168.100.1`

Appendix E: Basic Kiratool Commands for RMM Setup

Step	Procedure	Result
10.	**Performing a "ping" from the RMM NIC:** Perform this step to execute a "ping" command from the RMM's network interface.	`# kiratool -u admin -p password test nic ping 10.240.240.1` `nic ping: ok`
11.	**Verifying the RMM firmware revision:** Perform this step to verify the current firmware revision of the RMM.	`# kiratool -u admin -p password fw` `Firmware version: 4.2.2` `Build number: 6912` `Hardware ID: 0x21` `Firmware tag: Standard Edition` `OEM: intel`
12.	**Sending a Soft-Reset to the RMM:** Perform this step to send a soft-reset to the RMM. Note: The error message shown to the right is expected.	`# kiratool -u admin -p password reset` `Resetting device. The device might not respond for about one minute.` `Error resetting the device: No response from the device`
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix F. T1200 BIOS SETTINGS

T1200 BIOS Settings

BIOS Screen	BIOS Parameter	Default Value	Correct Value
Advanced/Proc Conf	Intel ® Virtualization Technology	Disabled	Enabled
Advanced/ATA	Onboard PATA Controller	Enabled	
Advanced/Mass Stor	SAS Controller	Enabled	
Advanced/Mass Stor	Configure SAS as SW RAID	Disabled	
Advanced/Perf Conf	Throttling Mode	Open Loop	Closed Loop
Advanced/Ser Port Config	Serial A Enable		Enabled Address: 2F8 IRQ: 3
Advanced/Ser Port Config	Serial B Enable		Enabled Address: 3F8 IRQ: 4
Server Mngmt	Resume AC Power Loss	Stay Off	Last State
Server Mgmt	FRB-2 Enable	Enabled	
Server Mgmt/Console Redirection	Console Redirection	Disabled	Serial Port B
Server Mgmt/Console Redirection	Flow Control	None	
Server Mgmt/Console Redirection	Baud Rate	115.2K	115.2K
Server Mgmt/Console Redirection	Terminal Type	VT100	VT100
Server Mgmt/Console Redirection	Legacy OS Redirection	Disabled	Enabled
Boot Opts	Boot Option #1	IDE	
Boot Opts	Boot Option #2	GE Slot	LUN0
Boot Opts	Boot Option #3	LUN0	GE Slot
Boot Opts	Boot Option #4	EFI Shell	
Boot Opts	USB Boot Priority	Enabled	Disabled
Boot Opts/CDROM Order	CDROM# 1		Optiarc
Boot Opts/CDROM Order	CDROM# 2		RMM Vdrive 1
Boot Opts/CDROM Order	CDROM# 3		RMM Vdrive 2
Boot Opts/CDROM Order	CDROM# 4		RMM Vdrive 3
Boot Opts/CDROM Order	CDROM# 5		RMM Vdrive 4

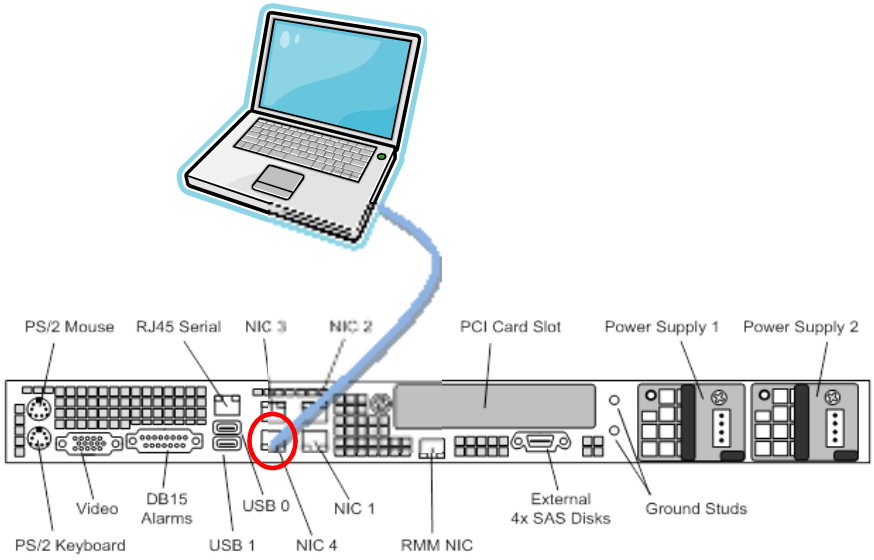
Table 6 - T1200 BIOS Settings

NOTE: *These settings are current as of Tekelec Document 820-6330-01, Revision J. (Manufacturing Acceptance Test Plan, DC T1200 Application). Please refer to the latest revision for current values.*

Appendix G. ESTABLISHIING A LOCAL ETHERNET CONNECTION TO ACCESS THE HLRR GUI

This procedure contains steps to connect a laptop to the NOAM-A server via a directly cabled Ethernet connection and setting the IP address of the laptop. This procedure enables the user to use the laptop for accessing the SDS GUI prior to configuring the first SDS server.

Appendix G: Establishing a Local Connection for Accessing HLRR GUI

Step	In this procedure you will configure a temporary external IP Address for NOAM-A server at the 1st HLRR site (Primary NOAM). The user will use this IP Address in a web browser to access the GUI to configure all NOAM/Query Servers at the Primary NOAM site.	
1. ☐	Access the NOAM-A server's console.	Connect to the NOAM-A server's console using one of the access methods described in **Section 0.**
2. ☐	**1)** Access the command prompt. **2)** Log into the NOAM-A server as the "**root**" user.	`CentOS release 5.6 (Final)` `Kernel 2.6.18-238.19.1.el5prerel5.0.0_72.22.0 on an x86_64` `hostname1260476221 login: root` `Password: <root_password>`
3. ☐	Configure static IP 192.168.100.11 on the eth04 port of the NOAM-A server.	`# netAdm set --device=eth04 --address=192.168.100.11 --netmask=255.255.255.0 --onboot=yes`
4. ☐	**Execute this step for T1200 (TekServer 3):** **1)** Plug in one end of the Ethernet cable (straight-thru) into the back of NOAM-A server ETH04 (bottom left ethernet port). **2)** Plug the other end of the Ethernet cable into the laptop's Ethernet jack.	

Appendix G: Establishing a Local Connection for Accessing HLRR GUI

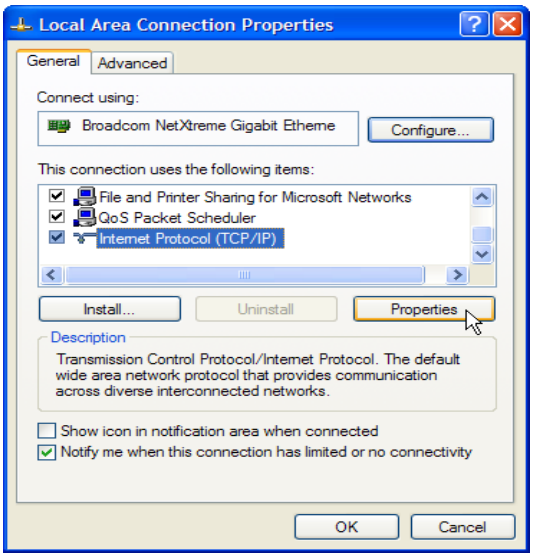
5. ☐

Access the laptop Network Interface Card's TCP/IP "Properties" screen.

NOTE: *For this step you may need modify the instruction specific to the laptop's OS (XP, Win 7, MAC, etc.).*

Windows 7

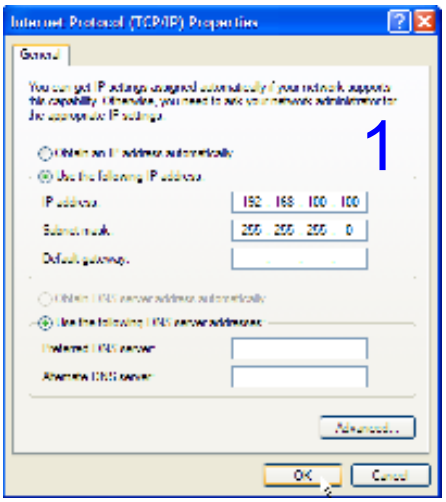
1) Go to **"Control Panel"**.
2) Click on **"Network and Sharing Center"**.
3) Click on **"Change adapter settings"** (left menu)
4) **Right-click** the hardwire Ethernet Interface icon (this will be *"Local Area Connection"* in most cases) and select **"Properties".**
5) Select **"Internet Protocol Version 4 (TCP/IPv4)"**.

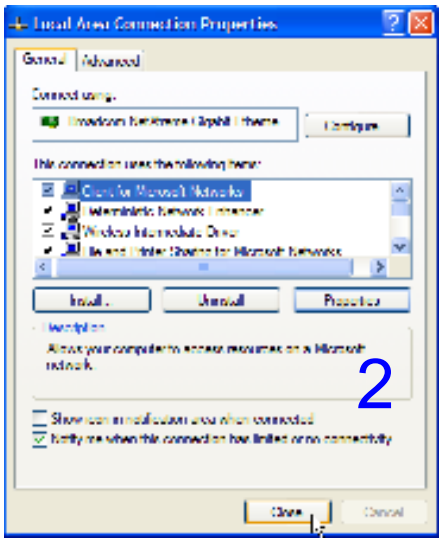


6. ☐

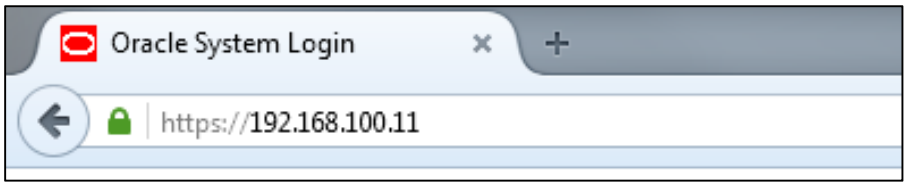
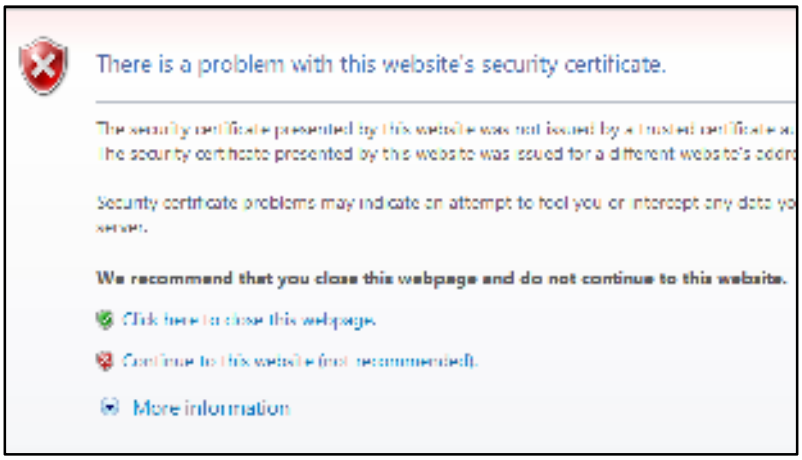
1) Set the static IP address and netmask of the laptop's network interface card to an IP address within the same network subnet as the statically assigned IP address used in **Step 3** of this procedure (***192.168.100.100*** *is suggested*) and click **"OK"**.

2) Click **"Close"** from the network interface card's main "Properties" screen.

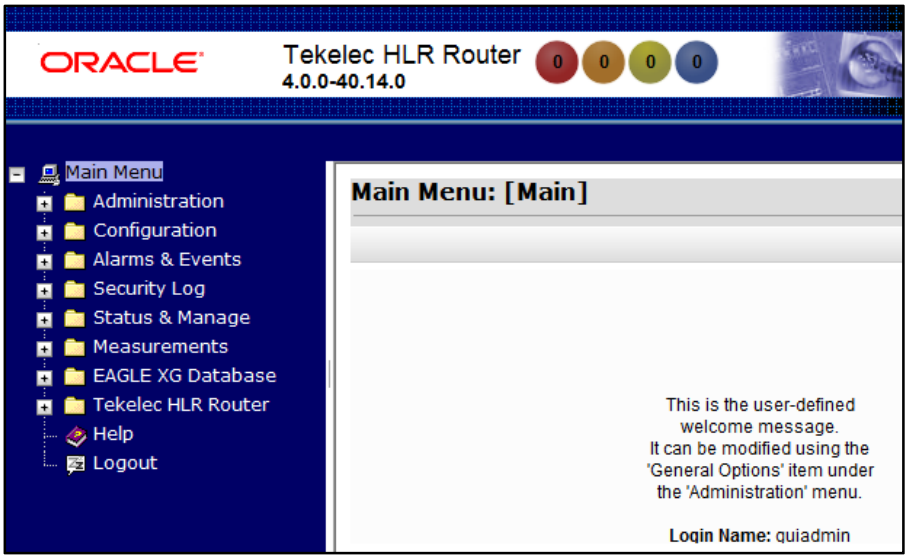




Appendix G: Establishing a Local Connection for Accessing HLRR GUI

7. ☐	Launch an approved web browswer on the laptop and connect to the statically assigned IP address used in **Step 3** of this procedure.	
8. ☐	If a security certificate error is received, click on the following link: **"Continue to this website (not recommended)."**	
9. ☐	**Primary NOAM-A GUI (XMI):** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	

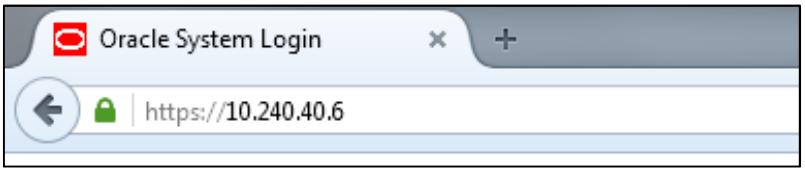
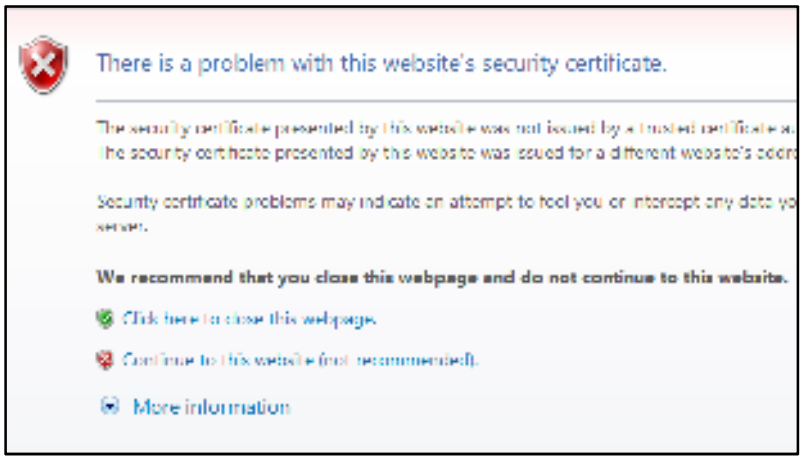
Appendix G: Establishing a Local Connection for Accessing HLRR GUI

10. ☐	**Primary NOAM-A GUI (XMI):** The user should be presented with the HLRR Main Menu as shown on the right.	
THIS PROCEDURE HAS BEEN COMPLETED		

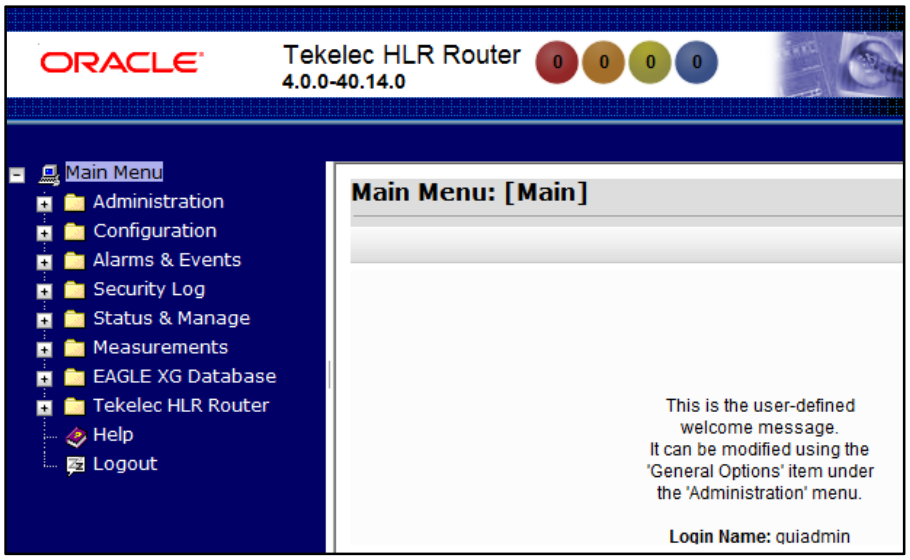
Appendix H. CONFIGURING THE NETWORK ELEMENT FROM XML FILE

The following procedure is used to configure an HLRR Network Element (NE) by uploading a pre-configured XML configuration file. This same procedure may be used for NOAM, DR NOAM and SOAM Nes.

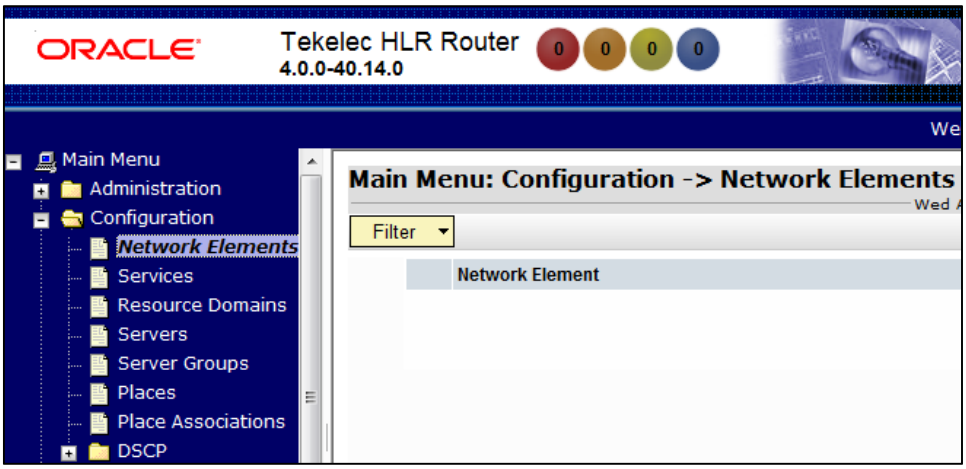
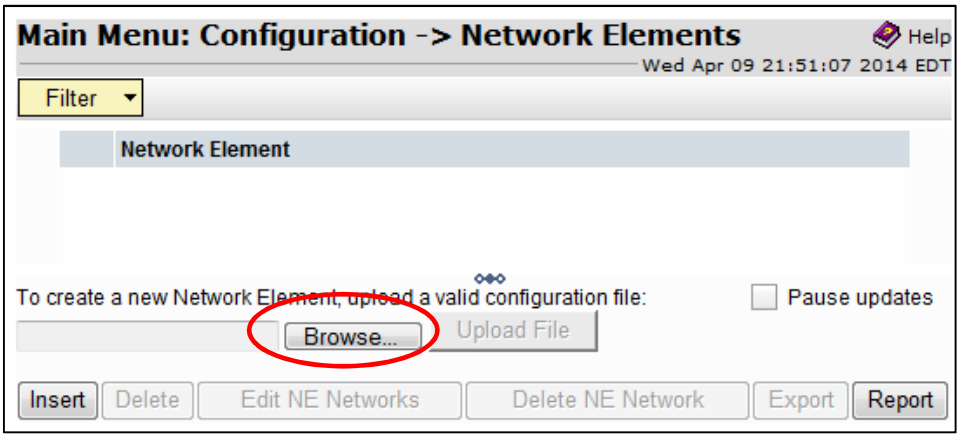
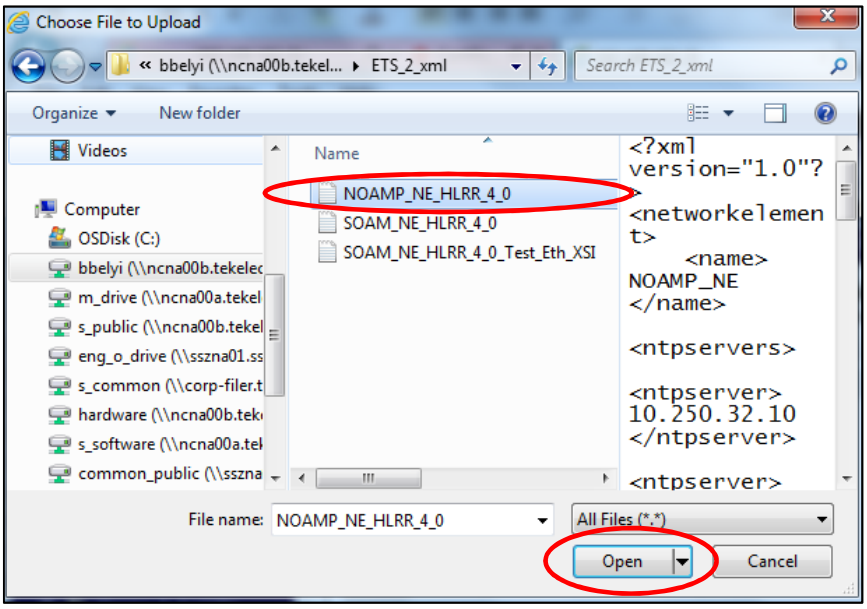
Appendix H: Configuring the Network Element from XML file

Step	Procedure	Result
1. ☐	**Primary NOAM GUI (VIP):** Connect to the **Primary NOAM VIP GUI** (XMI VIP) via web browser *(if available)*. **- or -** If local, connect to the statically assigned IP address configured during the execution of **Appendix G** *(Establishiing a local Ethernet connection to access the HLRR GUI)*.	
2. ☐	If a security certificate error is received, click on the following link: **"Continue to this website (not recommended)."**	

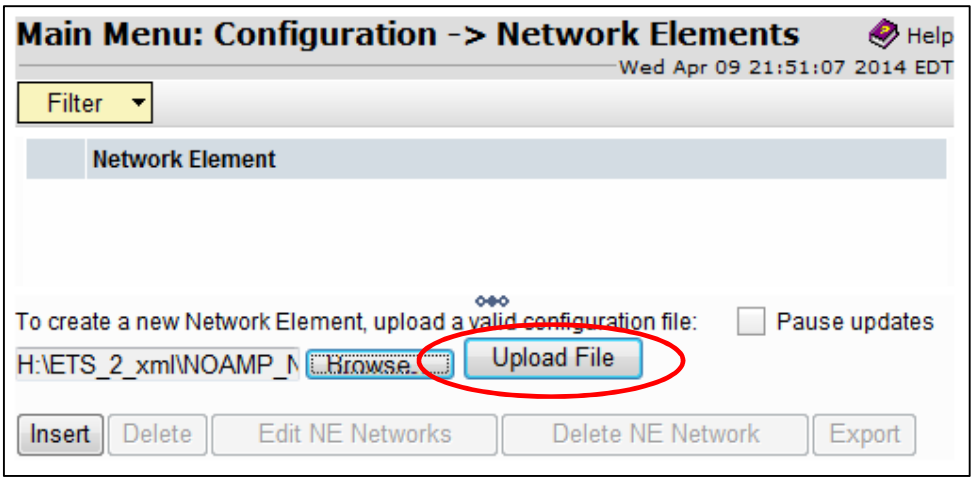
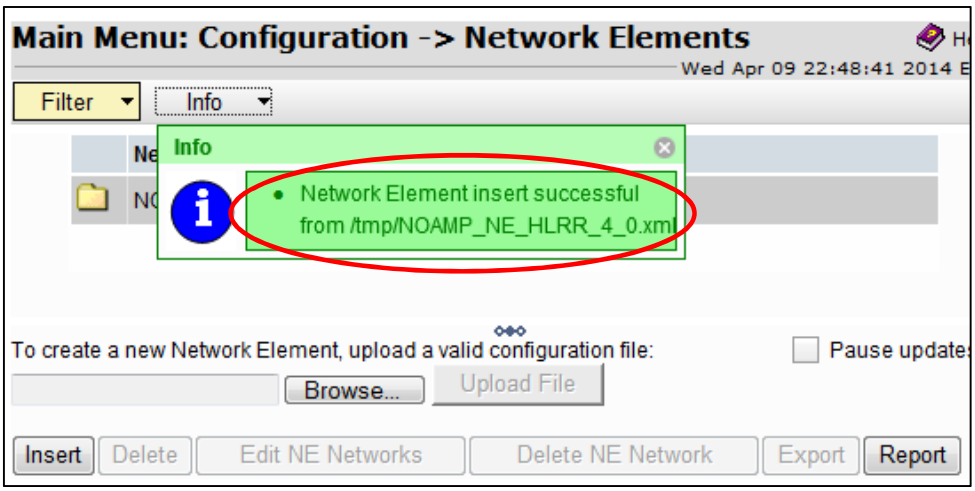
Appendix H: Configuring the Network Element from XML file

Step	Procedure	Result
3. ☐	**Primary NOAM-A GUI (XMI):** The user should be presented the login screen shown on the right. Login to the GUI using the default user and password.	
4. ☐	**Primary NOAM GUI (VIP):** The user should be presented with the HLRR Main Menu as shown on the right.	

Appendix H: Configuring the Network Element from XML file

Step	Procedure	Result
5. ☐	**Primary NOAM GUI (VIP):** ***Configuring Network Element*** **1)** Select… **Main Menu** → **Configuration** → ***Network Elements*** **2)** The configuration screen "**Network Elements**" will appear.	
6. ☐	**Primary NOAM GUI (VIP):** ***Configuring Network Element*** **1)** Scroll to bottom of screen **2)** Select the **"Browse"** dialogue button	
7. ☐	**Primary NOAM GUI (VIP):** ***Configuring Network Element*** **1)** Select the location containing **XML configuration file** for the **Network Element** being configured *(NOAM, DR NOAM or SOAM)*. **2)** Select this XML file and click the **"Open"** dialogue button.	

Appendix H: Configuring the Network Element from XML file

Step	Procedure	Result
8. ☐	**Primary NOAM GUI (VIP):** ***Configuring Network Element*** Select the **"Upload File"** dialogue button (bottom left corner of screen).	
9. ☐	**Primary NOAM GUI (VIP):** ***Configuring Network Element*** If the values in XML file for Network Element pass the validation, then a banner message will appear informing that NE insert was successful.	
THIS PROCEDURE HAS BEEN COMPLETED		

Appendix I. CREATING A VLAN.CONF FILE FOR TELCO SWITCH CONFIGURATION

Configuration of the Telco Switch requires a configured **vlan.conf** file for use by the Platform **switchconfig** utility. The user should refer to the completed site network configuration document [4] when configuring the **vlan.conf.**

An example template file is also located on the HLR Router server in the following location:

/usr/TKLC/exhr/install/switch/telco_switch_template_vlan.conf.

NOTE: *In the example documented below, passwords have been redacted and the values which should be customized for each individual Network Element site have been highlighted to facilitate ease of understanding.*

CAUTION: *If an existing **vlan.conf** file was backed up from the "**/usr/TKLC/plat/etc/**" directory for a previous installation of a given site, then it may be reused for that site only. The user should be aware that the **vlan.conf** file must be customized with **"site specific"** network subnet information for each **Network Element** site.*

```
# cat /usr/TKLC/exhr/install/switch/telco_switch_template_vlan.conf

Version 1.1

# Switches
switch \
  --sysloghosts=169.254.1.254 \
  --name=switch1A \
  --accessmethod=serial \
  --accessport=/dev/ttyUSB1 \
  --accesshost=localhost \
  --iosimage=/var/TKLC/switchconfig/BiNOS-T5CL3_24G-G_v8.6.R6.2.bin \
  --enablepassword=REDACTED \
  --consolepassword=REDACTED \
  --accessportopts=baudrate=9600,databits=8,stopbits=1,parity=none \
  --comment="Upper Switch in Frame" \
  --rawoptions="protocol","rapid-spanning-tree disable" \
  --switchtype=T5CL3-24GT \
  --version=1.1

switch \
  --sysloghosts=169.254.1.254 \
  --name=switch1B \
  --accessmethod=serial \
  --accessport=/dev/ttyUSB1 \
  --accesshost=localhost \
  --iosimage=/var/TKLC/switchconfig/BiNOS-T5CL3_24G-G_v8.6.R6.2.bin \
  --enablepassword=REDACTED \
  --consolepassword=REDACTED \
  --accessportopts=baudrate=9600,databits=8,stopbits=1,parity=none \
  --comment="Lower Switch in Frame" \
  --rawoptions="protocol","rapid-spanning-tree disable" \
  --switchtype=T5CL3-24GT \
  --version=1.1
```

```
snmp \
  --switchname=switch1A \
  --trapsink=169.254.1.11 \
  --
   traps=unauthorizedAccessViaCLI,taskSuspended,ramFreeSpaceExceeded,powerSupplyStatusChange,por
   tsRuntsExceeded,portsOverSizeExceeded,portsCRCErrExceeded,linkUp,linkDown,imageCrcCheckFailed
   ,fanStatusChange,cpuUtilizationExceeded,configurationLoadFailed,cliConfigurationChange,coldSt
   art,warmStart,authenticationFailure \
  --auth=tklcUser

snmp \
  --switchname=switch1B \
  --trapsink=169.254.1.12 \
  --
   traps=unauthorizedAccessViaCLI,taskSuspended,ramFreeSpaceExceeded,powerSupplyStatusChange,por
   tsRuntsExceeded,portsOverSizeExceeded,portsCRCErrExceeded,linkUp,linkDown,imageCrcCheckFailed
   ,fanStatusChange,cpuUtilizationExceeded,configurationLoadFailed,cliConfigurationChange,coldSt
   art,warmStart,authenticationFailure \
  --auth=tklcUser

ntp \
  --switchname=switch1A \
  --ntphost=169.254.1.11 \
  --ntptz=+0

ntp \
  --switchname=switch1B \
  --ntphost=169.254.1.12 \
  --ntptz=+0

vrrp \
  --switchname=switch1A \
  --permiticmp

vrrp \
  --switchname=switch1B \
  --permiticmp

# Vlans
vlan \
  --name=default \
  --id=1 \
  --ip=169.254.1.0 \
  --netmask=255.255.255.0 \
  --device=bond1.1 \
  --switchname=switch1A \
  --host=switch1A \
  --manager \
  --private \
  --comment="Internal VLAN for Network Management"
```

```
vlan \
  --name=xmi-int \
  --id=2 \
  --ip=10.240.40.0 \
  --netmask=255.255.255.240 \
  --device=bond1.2 \
  --switchname=switch1A \
  --manager \
  --private \
  --comment="XMI internal VLAN for uplink access to XMI-Cust"

vlan \
  --name=imi-int \
  --id=3 \
  --ip=10.240.40.16 \
  --netmask=255.255.255.240 \
  --device=bond1.3 \
  --switchname=switch1A \
  --private \
  --comment="IMI internal VLAN for uplink access to IMI-Cust"

vlan \
  --name=xmi-cust \
  --id=574 \
  --ip=10.250.44.32 \
  --netmask=255.255.255.248 \
  --device=bond1.2 \
  --switchname=switch1A \
  --private \
  --comment="XMI Customer facing VLAN for uplink access to Customer XMI LAN"

vlan \
  --name=default \
  --id=1 \
  --ip=169.254.1.0 \
  --netmask=255.255.255.0 \
  --device=bond1.1 \
  --switchname=switch1B \
  --host=switch1B \
  --manager \
  --private \
  --comment="Internal VLAN for Network Management"
```

```
vlan \
  --name=xmi-int \
  --id=2 \
  --ip=10.240.40.0 \
  --netmask=255.255.255.240 \
  --device=bond1.2 \
  --switchname=switch1B \
  --private \
  --comment="XMI internal VLAN for uplink access to XMI-Cust"

vlan \
  --name=imi-int \
  --id=3 \
  --ip=10.240.40.16 \
  --netmask=255.255.255.240 \
  --device=bond1.3 \
  --switchname=switch1B \
  --private \
  --comment="IMI internal VLAN for uplink access to IMI-Cust"

vlan \
  --name=xmi-cust \
  --id=574 \
  --ip=10.250.44.32 \
  --netmask=255.255.255.248 \
  --device=bond1.2 \
  --switchname=switch1B \
  --private \
  --comment="XMI Customer facing VLAN for uplink access to Customer XMI LAN"

portrange \
  --range=1 \
  --porttype=gigabitEthernet \
  --switchname=switch1A \
  --rawoptions="name ISL-1" \
  --channelgroup=1

portrange \
  --range=2 \
  --porttype=gigabitEthernet \
  --switchname=switch1A \
  --rawoptions="name ISL-2" \
  --channelgroup=1

portrange \
  --range=3 \
  --porttype=gigabitEthernet \
  --switchname=switch1A \
  --rawoptions="name srvA.eth01"
```

```
portrange \
  --range=4 \
  --porttype=gigabitEthernet \
  --switchname=switch1A \
  --rawoptions="name srvB.eth01"

portrange \
  --range=5 \
  --porttype=gigabitEthernet \
  --switchname=switch1A \
  --rawoptions="name srvC.eth01"

portrange \
  --range=7 \
  --porttype=gigabitEthernet \
  --switchname=switch1A \
  --rawoptions="name srvD.eth01"

portrange \
  --range=8 \
  --porttype=gigabitEthernet \
  --switchname=switch1A \
  --rawoptions="name srvG.eth01"

portrange \
  --range=10 \
  --porttype=gigabitEthernet \
  --switchname=switch1A \
  --rawoptions="name srvH.eth01"

portrange \
  --range=11 \
  --porttype=gigabitEthernet \
  --switchname=switch1A \
  --rawoptions="name srvK.eth01"

portrange \
  --range=13 \
  --porttype=gigabitEthernet \
  --switchname=switch1A \
  --rawoptions="name srvL.eth01"

portrange \
  --range=14 \
  --porttype=gigabitEthernet \
  --switchname=switch1A \
  --rawoptions="name srvO.eth01"
```

```
portrange \
  --range=16 \
  --porttype=gigabitEthernet \
  --switchname=switch1A \
  --rawoptions="name srvP.eth01"

portrange \
  --range=23 \
  --porttype=gigabitEthernet \
  --vlanname=xmi-cust \
  --switchname=switch1A \
  --rawoptions="name CustXMI"

portrange \
  --range=6,9,12,15,17,18,19,20,21,22,24 \
  --porttype=gigabitEthernet \
  --vlanname=default \
  --switchname=switch1A \
  --rawoptions="shutdown,name Unused"

portrange \
  --range=1 \
  --porttype=gigabitEthernet \
  --switchname=switch1B \
  --rawoptions="name ISL-1" \
  --channelgroup=1

portrange \
  --range=2 \
  --porttype=gigabitEthernet \
  --switchname=switch1B \
  --rawoptions="name ISL-2" \
  --channelgroup=1

portrange \
  --range=3 \
  --porttype=gigabitEthernet \
  --switchname=switch1B \
  --rawoptions="name srvA.eth03"

portrange \
  --range=4 \
  --porttype=gigabitEthernet \
  --switchname=switch1B \
  --rawoptions="name srvB.eth03"
```

```
portrange \
  --range=5 \
  --porttype=gigabitEthernet \
  --switchname=switch1B \
  --rawoptions="name srvC.eth03"

portrange \
  --range=6 \
  --porttype=gigabitEthernet \
  --switchname=switch1B \
  --rawoptions="name srvD.eth03"

portrange \
  --range=8 \
  --porttype=gigabitEthernet \
  --switchname=switch1B \
  --rawoptions="name srvG.eth03"

portrange \
  --range=9 \
  --porttype=gigabitEthernet \
  --switchname=switch1B \
  --rawoptions="name srvH.eth03"

portrange \
  --range=11 \
  --porttype=gigabitEthernet \
  --switchname=switch1B \
  --rawoptions="name srvK.eth03"

portrange \
  --range=12 \
  --porttype=gigabitEthernet \
  --switchname=switch1B \
  --rawoptions="name srvL.eth03"

portrange \
  --range=14 \
  --porttype=gigabitEthernet \
  --switchname=switch1B \
  --rawoptions="name srvO.eth03"

portrange \
  --range=15 \
  --porttype=gigabitEthernet \
  --switchname=switch1B \
  --rawoptions="name srvP.eth03"
```

```
portrange \
  --range=23 \
  --porttype=gigabitEthernet \
  --vlanname=xmi-cust \
  --switchname=switch1B \
  --rawoptions="name CustXMI"

portrange \
  --range=7,10,13,16,17,18,19,20,21,22,24 \
  --porttype=gigabitEthernet \
  --vlanname=default \
  --switchname=switch1B \
  --rawoptions="shutdown,name Unused"

# Routing Interfaces
interface --ifname=sw10 \
     --vlanname=xmi-cust \
     --switchname=switch1A \
     --ip=10.250.44.35 \
     --netmask=255.255.255.248 \
     --vrrpgroup=10 \
     --vip=10.250.44.34 \
     --priority=100 \
     --dfltrouter=10.250.44.33

interface --ifname=sw2 \
     --vlanname=xmi-int \
     --switchname=switch1A \
     --ip=10.240.40.2 \
     --netmask=255.255.255.240 \
     --vrrpgroup=2 \
     --vip=10.240.40.1 \
     --uplink=sw10 \
     --priority=100 \

interface --ifname=sw3 \
     --vlanname=imi-int \
     --switchname=switch1A \
     --ip=10.240.40.18 \
     --netmask=255.255.255.240 \
     --vrrpgroup=3 \
     --vip=10.240.40.17 \
     --uplink=sw10 \
     --priority=100 \
```

```
interface --ifname=sw10 \
     --vlanname=xmi-cust \
     --switchname=switch1B \
     --ip=10.250.44.36 \
     --netmask=255.255.255.248 \
     --vrrpgroup=10 \
     --vip=10.250.44.34 \
     --priority=95 \
     --dfltrouter=10.250.44.33

interface --ifname=sw2 \
     --vlanname=xmi-int \
     --switchname=switch1B \
     --ip=10.240.40.3 \
     --netmask=255.255.255.240 \
     --vrrpgroup=2 \
     --vip=10.240.40.1 \
     --uplink=sw10 \
     --priority=95 \

interface --ifname=sw3 \
     --vlanname=imi-int \
     --switchname=switch1B \
     --ip=10.240.40.19 \
     --netmask=255.255.255.240 \
     --vrrpgroup=3 \
     --vip=10.240.40.17 \
     --uplink=sw10 \
     --priority=95 \

#
```

Appendix J. QUAD-SERIAL CARD CONFIGURATION FOR NOAM / SOAM SERVERS

J.1 remoteConsole Mappings for use with "minicom"

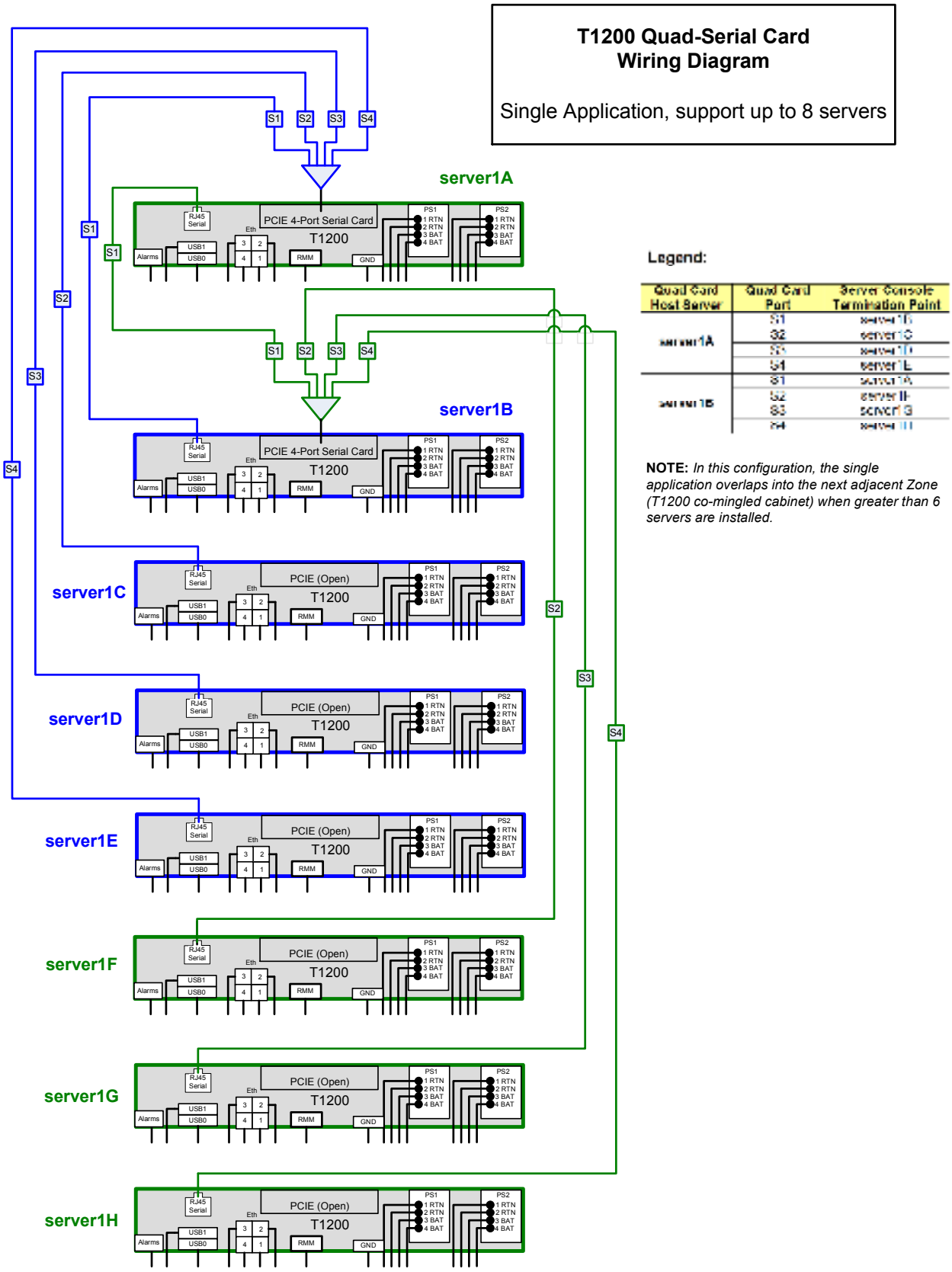
NE Type	Port #	Quad-dongle Port #	Logical Port Device Name	*Entries to be added to **NOAM-A** (server1A)*	*Entries to be added to **NOAM-B** (server1B)*
NOAM	**1**	S1	/dev/**ttyS4**	noam-b	noam-a
	2	S2	/dev/**ttyS5**	qserver	
NE Type	**Port #**	**Quad-dongle Port #**	**Logical Port**	*Entries to be added to **SOAM-A** (server1A)*	*Entries to be added to **SOAM-B** (server1B)*
SOAM	**1**	S1	/dev/**ttyS4**	soam-b	soam-a
	2	S2	/dev/**ttyS5**	mp1	mp4
	3	S3	/dev/**ttyS6**	mp2	mp5
	4	S4	/dev/**ttyS7**	mp3	mp6

Table 7 - remoteConsole Mappings for use with "Mincom"

Configuring remoteConsole settings on NOAM / SOAM Servers

Step	Procedure	Result
1. ☐	Add the **remoteConsole** entry for **Port 1** (S1/ttyS4) of the Quad-Serial Card.	Referencing **Table 7** above, use the following commands to establish the remoteConsole entry associated with **Port 1** (S1) of the Quad-Serial Card. `remoteConsole --add --name=<remoteConsole_name> --port=ttyS4 --bps=115200` ***Example:*** `# remoteConsole --add --name=noam-b --port=ttyS4 --bps=115200`
2. ☐	Verify the **remoteConsole** entry for **Port 1** (S1/ttyS4) of the Quad-Serial Card.	Using the **"name"** entered in the previous step, verify the remoteConsole entry associated with **Port 1** (S1) of the Quad-Serial Card with the following command:. `remoteConsole --query --name=<remoteConsole_name> |head -2` ***Example:*** `[root@hostname1254529380 ~]# remoteConsole --query --name=noam-b |head -2` `pr port /dev/ttyS4` `pu baudrate 115200`
3. ☐	Repeat **Steps 1 - 2** of this procedure for Quad card **Port 2** (S2/ttyS5).	• Referencing **Table 7** above, add and verify the **remoteConsole** entry for Quad card **Port 2**
4. ☐	Repeat **Steps 1 - 2** of this procedure for Quad card **Port 3** (S3/ttyS6).	• Referencing **Table 7** above, add and verify the **remoteConsole** entry for Quad card **Port 3** *(if required).*
5. ☐	Repeat **Steps 1 - 2** of this procedure for Quad card **Port 4** (S4/ttyS7).	• Referencing **Table 7** above, add and verify the **remoteConsole** entry for Quad card **Port 4** *(if required).*
THIS PROCEDURE HAS BEEN COMPLETED		

J.2 Quad-Serial Interconnect



NOTE: *In this configuration, the single application overlaps into the next adjacent Zone (T1200 co-mingled cabinet) when greater than 6 servers are installed.*

Appendix K. ACCESSING MY ORACLE SUPPORT (MOS)

My Oracle Support

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

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

1. For the first set of menu options, select 2, "New Service Request". You will hear another set of menu options.
2. In this set of menu options, select 3, "Hardware, Networking and Solaris Operating System Support". A third set of menu options begins.
3. In the third set of options, select 2, "Non-technical issue". Then you will be connected to a live agent who can assist you with MOS registration and provide Support Identifiers. Simply mention you are a Tekelec Customer new to MOS.

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

Emergency Response

In the event of a critical service situation, emergency response is offered by the CAS main number at **1-800-223-1711** (toll-free in the US), or by calling the Oracle Support hotline for your local country from the list at *http://www.oracle.com/us/support/contact/index.html*. The emergency response provides immediate coverage, automatic escalation, and other features to ensure that the critical situation is resolved as rapidly as possible.

A critical situation is defined as a problem with the installed equipment that severely affects service, traffic, or maintenance capabilities, and requires immediate corrective action. Critical situations affect service and/or system operation resulting in one or several of these situations:

- A total system failure that results in loss of all transaction processing capability
- Significant reduction in system capacity or traffic handling capability
- Loss of the system's ability to perform automatic system reconfiguration
- Inability to restart a processor or the system
- Corruption of system databases that requires service affecting corrective actions
- Loss of access for maintenance or recovery operations
- Loss of the system ability to provide any required critical or major trouble notification

Any other problem severely affecting service, capacity/traffic, billing, and maintenance capabilities may be defined as critical by prior discussion and agreement with Oracle.

Locate Product Documentation on the Oracle Help Center Site

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

1. Access the OHC site at http://docs.oracle.com.
2. Click **Industries**.
3. Under the Oracle Communications subheading, click the **Oracle Communications documentation** link.

   The Communications Documentation page appears. Most products covered by these documentation sets will appear under the headings "Network Session Delivery and Control Infrastructure" or "Platforms."
4. Click the Product and then the Release Number. A list of the entire documentation set for the selected product and release appears.
5. To download a file to your location, right-click the PDF link, select **Save target as** (or similar command based on your browser), and save to a local folder.