Oracle® Communications Diameter Signaling Router

IPv6 Migration Guide

Release 7.1/7.1.x/7.2/7.3

E57517-02

September 2016

ORACLE

Oracle® Communications DSR IPv6 Migration Guide

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1.0 INTRODUCTION

1.1 PURPOSE

This document contains guidelines and describes an example procedure for the DSR that completes the migration of a system of servers configured with only IPv4 network addresses to IPv6 network addresses.

The purpose is to provide a techincal reference to internal and external ententies for migrating DSR topologies from IPv4 only topologies to IPv6 toplogies.

1.2 REFERENCES

[1] IPv6 Migration Procedure and Guidelines, E54704

[2] Software Installation and Configuration Procedure Part 2/2, E58954

[3] Hardware and Software Installation Procedure Part 1/2. E57789

[4] 5.x/6.x/7.x Network Interconnect Topology 1: L3 Agg. TR007133

[5] Communication Agent, E63636

1.3 ACRONYMS

A list of acronyms used in the document:

Acronym	Definition
DP	Data Processor Blade
DSR	Diameter Signalling Router
HA	High Availability
IDIH	Integrated Diameter Intelligent Hub
IMI	Internal Management Interface
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
IWF	InterWorking Function
NOAM	Network OAM
SOAM	System OAM
NE	Network Entity
NTP	Network Time Protocol
SOAP	Simple Object Access Protocol
SDS	Subscriber Data Server
TPD	Tekelec Platform Distribution
XML	Extensible Markup Language

1.4 TERMINOLOGY

Multiple server types may be involved with the procedures in this manual. Therefore, most steps in the written procedures begin with the name or type of server to which the step applies. For example:

Each step has a checkbox for every command within the step that the technician should check to keep track of the progress of the procedure.

The title box describes the operations to be performed during that step.

Each command that the technician is to enter is in **`10 point bold Courier`** *font.*

5 ☐	**ServerX:** Connect to the console of the server	Establish a connection to the server using cu on the terminal server/console. **$ cu –l /dev/ttyS7[↵]**

2.0 SUMMARY OF PROCEDURE

2.1 IPV6 MIGRATION STRATEGY

To ensure a successful application IPv6 migration, carefully plan and assess all configuration materials and installation variables. After a customer NAPD has been conducted, an installer can use this section to plan the exact procedure list that should be executed at each site.
The following list summarizes this process.

1) An overall IPv6 migration requirement is established. Data that should be collected:
   - The total number of sites to be migrated
   - The number of servers at each site and their role(s)
   - Determine whether the application's networking interface terminates on a Layer 2 or Layer 3 boundary
   - Establish the number of enclosures at each site *(if any)*
   - Determine if the application uses rack-mount servers or server blades
2) A NAPD is conducted to determine exact networking and site details. Additionally, IP networking options must be well understood, and IP address allocations collected from the customer, in order to complete switch configurations
3) Although complete IPv6 migration is supported, IPv6 migration of the IMI (non-routable) network is not required.

2.2 HIGH LEVEL FUNCTIONAL DESCRIPTION

The scenario for migration covered in this example document is to duplicate the existing configuration of IPv4 networks in a 3-tier DSR/SDS/iDIH topology with a parallel configuration of IPv6 networks. Each DSR/SDS/iDIH server in the topology will have new IPv6 interfaces configured on the server, and the various services using the networks will be transitioned from the IPv4 networks to the IPv6 networks.

In order to initiate a controlled switch-over of all DSR/SDS services to IPv6 networks, a service effecting NTP Sync of the server(s) is required.

Note: For IPv6 migration on cloud deployments, skip to **section 3.2.1**

Note: The ***"recovery"***, or ***"harvesting"*** of existing IPv4 addresses on the application servers is not covered by this document at this time. That feature has been reconciled to a future DSR release and will be addressed in that release with modifications to this document or creation of a new migration procedure.

2.2.1 Assumptions and Limitations

1. All servers at all sites are running the same version of DSR/SDS/iDIH 7.1 or greater. The migration process is separate from a software upgrade and will not to be included as part of a software upgrade.
2. The entire topology is running with no alarms currently raised on any of the servers in the topology. Any problems raising an alarm must be addressed before undertaking a migration to IPv6 addressing.
3. This document addresses the migration of DSR/SDS/iDIH servers in a topology from IPv4 to IPv6 networks. Several components of this migration will reference documents to achieve the IPv6 migration of various components throughout this procedure.
4. HP G6 and HP G7 do not support IPv6 for OA/iLO interfaces. Those interfaces may continue to use Routable IPv4 addresses.
5. Cisco 3020 does not support IPv6 for its management interface. That interface may continue to use Routable IPv4 addresses.
6. HP 6125G and Cisco 4948E-F do not support NTP over IPv6. Therefore IPv4 may be used for NTP service on these two switches.
7. HP 6120XG does not support remote syslog over IPv6. Therefore, remote syslog may use IPv4 for HP 6120XG switch.
8. IPv6 support on some of the HP hardware components depends on the firmware version running on the components. It is expected that the HP hardware shall be upgraded to appropriate firmware level in order to utilize this feature.
9. For SBR replication network migration, it is important to note that the replication networks will continue to use IPv4 communication until both sides (each Network Element Site) have been migrated to IPv6.
10. IPv6 migration (and backout) is to be performed on a physical site at a time, this includes geo redundant topologies where DSR SOAM spares are present.

2.2.2 Time Estimates

The following shows an example timeline and procedure overview for a single c7000 enclosure and one RMS. Containing a 3-tier DSR topology with two network elements – 2 NOAM servers, 2 SOAM servers, 2 MP, and 2 DP servers.

Table 1: Installation Overview/Estimated Time Elapsed

Procedure	Phase	Elapsed Time (Minutes)	
		This Step	Cum.
Procedure 1	Gathering New and Existing Network and Server Data	45	45
Procedure 2	Configure All System Switches	30	75
Procedure 3	Configure Management Server TVOE and iLO/iLOM (DSR ONLY)	30	95
Procedure 4	Configure TVOE and iLO on Additional Rack Mount Servers	30	125
Procedure 5	Configure Enclosure OA/iLO	30	155
Procedure 6	Configure PMAC (DSR ONLY)	40	195
Procedure 7	Verify, Backup, and Complete platform Configurations (DSR ONLY)	20	215
Procedure 8	Add the New IPv6 Networks: NOAM	20	235
Procedure 9	Add the New XMI/IMI IPv6 Interfaces to the NOAM servers	10	245
Procedure 10	Add the New IPv6 Network Routes: NOAM	10	255
Procedure 11	Add the New IPv6 NTP Servers: NOAM	10	265
Procedure 12	Add the New IPv6 VIP for the NOAM Servers.	15	280
Procedure 13	Switch the NOAM Servers Over to IPv6 Network Usage.	25	310
Procedure 14	Modify SNMP Managers IP Addresses (Optional)	5	315
Procedure 15	Modify Customer DNS Configuration (Optional)	10	325
Procedure 16	Modify LDAP Configuration *(Optional)*	20	345
Procedure 17	Modify Export Server IP Addresses: NOAM *(Optional)*	20	365
Procedure 18	Perform IPv6 Migration on DR-NOAMs (Repeat Procedures 1-18)	365	730
Procedure 19	Configure the SOAM Blade TVOE Hosts for IPv6	20	750
Procedure 20	Add the New IPv6 Networks: SOAM NE Site	20	770
Procedure 21	Add the New XMI/IMI IPv6 Interfaces to the SOAM servers	5	775
Procedure 22	Add the New IPv6 Network Routes: SOAM	5	780
Procedure 23	Add the New IPv6 NTP Servers: SOAM	5	785
Procedure 24	Add the New IPv6 VIP for the SOAM Servers.	5	790
Procedure 25	Add the New XMI/IMI IPv6 Interfaces to the MP/DP servers	5	795
Procedure 26	Add the New IPv6 Network Routes: MP/DP Servers	10	805
Procedure 27	Add the New IPv6 NTP Servers: MP/DP Servers	5	810
Procedure 28	Switch the SOAM Over to IPv6 Network Usage.	5	820
Procedure 29	Switch the MP/DP Servers Over to IPv6 Network Usage.	25	845
Procedure 30	Inter-IPFE Synchronization Configuration for IPv6 (Optional)	20	865

Table 1: Installation Overview/Estimated Time Elapsed

Procedure	Phase	Elapsed Time (Minutes)	
		This Step	Cum.
Procedure 31	Modify Export Server IP Addresses: SOAM	20	885
Procedure 32	Configure IPv6 Remote Server Connections (DSR + SDS)	20	905
Procedure 33	Add the New IPv6 Networks: iDIH	35	940

Overall length of time to execute a migration is highly dependent on the number of DSR servers in the topology. A 3-tier topology containing two Network Elements - 2 NOAMP servers, 2 SOAM servers, and 2 MP servers, it is possible to complete the migration in 1 hour to 2 hours, not counting any pre-migration procedures like switch, OA/iLO, TVOE, and PMAC configuration.

3.0 PROCEDURES

3.1 PRE-MIGRATION PROCEDURES

This section describes the procedures that must be executed in preparation for the migration procedures.

Procedure 1: Gathering New and Existing Network and Server Data

S T E P #	This procedure describes gathering the necessary data to proceed with migration. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**Gather all existing network and server data**	Using the customer NAPD document as a guide, and working with site personnel, gather all the existing system network and server data for all servers, including existing IPv4 networks, netmasks, VLAN Ids, routes, and the IPv4 addresses for every interface on every server. Gather all requried user Ids and passwords requried for migration of DSR and external servers (export servers, SNMP servers, and LDAP servers)
2 ☐	**Determine all new network and server data**	Using the customer NAPD document as a guide, and working with site personnel, determine all the new system network and server data for all servers that will be needed, including new IPv6 networks, netmasks, routes, and the IPv6 addresses for every interface on every server. **Note:** It is important that all the new IPv6 networks entered into the DSR GUI have the same network names as the existing IPv4 networks (*i.e XMI,IMI*) **Note:** For VLAN-tagged interfaces, VLAN Ids should be the same for an IPv6 network that is replacing an IPv4 network (*i.e XMI, IMI*)

Procedure 2: Configure All System Switches

S T E P #	This procedure describes the configuration of all system switches for new IPv6 networks. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**Configure all system switches for IPv6 networks**	Execute ***Configure Network Devices*** from [1] to configure all enclosure and aggregation switches for the new IPv6 DSR OAM networks. For Topology 1, if all Layer 3 IPv6 interfaces on the aggregation switches **have not** already been configured, follow **Appendix G**: XMI configuration on aggregation switches (Topology 1 only)**,** Otherwise continue to the next step.

Procedure 3: Configure Management Server TVOE and iLO (DSR ONLY)

S T E P #	This procedure describes the configuration of the management server TVOE host as well as the management server RMS iLO/iLOM. This procedure also contains steps to configure the OAM networks where the NOAM server shares the same TVOE Host as the PMAC server. **Note:** This step is not applicable to SDS deployments Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**Management Server:** Configure the TVOE Host and iLO for IPv6 networks	Execute ***Configure Management Server (Steps 1-22)*** from [1] to configure the management server TVOE host and iLO for any new IPv6 networks.
2 ☐	**Management TVOE Server:** Configure IPv6 for SNMP and NTP	Execute **Appendix F**: TVOE Host SNMP and NTP IPv6 Configuration to configure IPv6 for SNMP and NTP on the TVOE server.

3 ☐	**Additional Rack Mount Servers:** Configure Additional Routes if needed	Add additional routes, if needed:
		Example:
		`$ sudo netAdm add route --route=net --device=<bridge name>`
		`--address=2001:1:: --netmask=96 --gateway=fe80::99`

3 ☐	**Backup TVOE Configuration**	Execute **Appendix E**: `Backup tvoe Configuration` to back up the TVOE configuration after IPv6 configuration.

Procedure 4: Configure TVOE and iLO on Additional Rack Mount Servers

S T E P #	This procedure describes the configuration of TVOE hosts and iLOs on additional servers. This procedure also contains steps to configure the OAM networks on the TVOE hosts for DSR deployments only. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**Additional Rack Mount Servers:** Configure the TVOE Host and iLO for IPv6 networks	Execute ***Configure Management Server*** from [1] to configure the rack mount server's TVOE host, management interface, default route, and iLO for any new IPv6 networks. **Note:** For SDS deployments where TVOE is **NOT** deployed, use this step to configure the iLO for the applicable rack mount servers.
2 ☐	**Additional Rack Mount Servers:** Configure IPv6 for SNMP and NTP	Execute **Appendix F**: TVOE Host SNMP and NTP IPv6 Configuration to configure IPv6 for SNMP and NTP on the TVOE/TPD server.

3 ☐	**Additional Rack Mount Servers:** Configure Additional Routes if needed	Add additional routes, if needed:
		Example:
		`$ sudo netAdm add route --route=net --device=<bridge name>`
		`--address=2001:1:: --netmask=96 --gateway=fe80::99`

4 ☐	**Backup TVOE Configuration**	Execute **Appendix E**: `Backup tvoe Configuration` to back up the TVOE configuration after IPv6 configuration.

Procedure 5: Configure Enclosure OA/iLO

S T E P #	This procedure describes the configuration of all enclosure OA/iLO for IPv6 dual stack. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**Configure all Enclosure OAs for IPv6 networks**	Execute ***Configure Enclosures*** from [1] to configure all enclosure OAs for any new IPv6 networks.

Procedure 6: Configure PMAC

S T E P #	This procedure describes the configuration of the PMAC server for IPv6 **Note:** This step is not applicable to SDS deployments Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**Configure PMAC server for IPv6 networks**	Execute ***Reconfigure PM&C*** from [1] to configure the PMAC server for any new IPv6 networks.

Procedure 7: Verify, Backup, and Complete platform Configurations

S T E P #	This procedure describes the verification, backup, and completion of platform configurations. **Note:** This step is not applicable to SDS deployments Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**Verify, Backup, and Complete Platform Migration**	Execute ***Finish Migration*** from [1] to verify, backup and complete the platform Ipv6 configurations.

The system should be ready for migration of all the application servers in the DSR/SDS topology.

3.2 MIGRATION PROCEDURES

This section describes the procedures that must be executed to migrate all DSR/SDS servers in a topology from IPv4 to IPv6 networks.

3.2.1 NOAM Migration

This section describes the procedures that must be executed on the NOAM to migrate the NOAM servers from IPv4 to IPv6 networks.

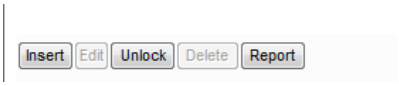
Procedure 8: Add the New IPv6 Networks: NOAM NE

S T E P #	This procedure will provide the instructions how to add the new IPv6 networks. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Insert an IPv6 network	Insert the new IPv6 networks for the NOAM and Query servers by following the steps in **Appendix A:** Add the New IPv6 Networks. **Note:** Enter the IPv6 networks for the NOAM NE only, SOAM networks will be added at a later time.

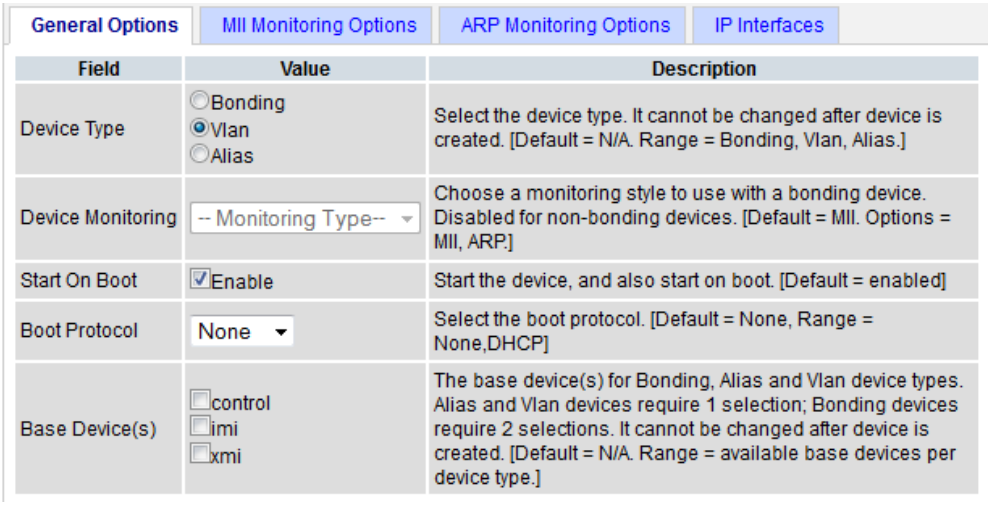
Procedure 9: Add the New XMI/IMI IPv6 addresses to the NOAM & Query Servers

S T E P #	This procedure will provide the instructions how to add the new IPv6 interfaces on NOAM and Query servers. **Note:** Although complete IPv6 migration is supported, IPv6 migration of the IMI (non-routable) network is not required Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.

Procedure 9: Add the New XMI/IMI IPv6 addresses to the NOAM & Query Servers

S T E P #	This procedure will provide the instructions how to add the new IPv6 interfaces on NOAM and Query servers. **Note:** Although complete IPv6 migration is supported, IPv6 migration of the IMI (non-routable) network is not required Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
2 ☐	**NOAM VIP:** Unlock the IPv4 Networks	Unlock the IPv4 networks so that new IPv6 interfaces with the same VLAN Id as existing IPv4 interface can be added. Navigate to the **Main Menu → Configuration → Network** Select the one or more IPv4 networks that are being duplicated by IPv6 networks. Select the **Unlock** button at the bottom of the page.  A Confirmation dialog box will pop up. Select ***"check to confirm"*** and then select **OK** to continue. Your browser session will remain on the **Main Menu → Configuration → Network** page and in the grid you will see the networks are now unlocked.

Procedure 9: Add the New XMI/IMI IPv6 addresses to the NOAM & Query Servers

S T E P #	This procedure will provide the instructions how to add the new IPv6 interfaces on NOAM and Query servers. **Note:** Although complete IPv6 migration is supported, IPv6 migration of the IMI (non-routable) network is not required Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
3 ☐	**NOAM VIP**: Insert IPv6 Interface	Execute this step to insert an IPv6 addressed device interface. Navigate to the **Main Menu → Configuration → Network → Devices** Select the XMI or IMI *(if required)* interface (i.e XMI bridge interface, bond0.237, bond1, etc.) Select the tab for the first NOAM server to have IPv6 interfaces added. Select the **Edit** button at the bottom of the page. The GUI will show the ***"Devices [Edit]"*** form.  General Options | MII Monitoring Options | ARP Monitoring Options | IP Interfaces Field / Value / Description Device Type: ○ Bonding ◉ Vlan ○ Alias — Select the device type. It cannot be changed after device is created. [Default = N/A. Range = Bonding, Vlan, Alias.] Device Monitoring: -- Monitoring Type-- — Choose a monitoring style to use with a bonding device. Disabled for non-bonding devices. [Default = MII. Options = MII, ARP.] Start On Boot: ☑ Enable — Start the device, and also start on boot. [Default = enabled] Boot Protocol: None — Select the boot protocol. [Default = None, Range = None,DHCP] Base Device(s): ☐ control ☐ imi ☐ xmi — The base device(s) for Bonding, Alias and Vlan device types. Alias and Vlan devices require 1 selection; Bonding devices require 2 selections. It cannot be changed after device is created. [Default = N/A. Range = available base devices per device type.] In the form, select the **IP Interfaces** tab. • Select the **Add Row** button, • Enter the IPv6 address and select the IPv6 Network Name. Select **Ok** button to commit the form.
4 ☐	**NOAM VIP:** Insert Remaining IPv6 Network Interfaces	Repeat **steps 3** above to insert IPv6 network interfaces on the 2nd NOAM and Query Server

Procedure 10: Add the New IPv6 XMI Network Route: NOAM and Query Servers

S T E P #	This procedure will provide the instructions how to add the new IPv6 XMI network route. **Note:** Not all installations will require additional routes. Execute this procedure if data gathered in Procedure 1 indicates that IPv6 routes are needed. For example, routes would be required between IPv6 networks in different Network Elements. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Insert XMI IPv6 Route	Execute steps listed in **Appendix B**: Configure New IPv6 Network Routes to add the XMI IPv6 route. **Note:** Server Group routes may be added as an alternative to individual server routes.

Procedure 11: Add the New IPv6 NTP Servers: NOAM& Query Servers

S T E P #	This procedure will provide the instructions how to add the new IPv6 NTP servers. **Note:** This procedure if data gathered in Procedure 1 indicates that IPv6-addressed NTP servers are needed. **WARNING:** Do ***NOT*** execute a ***"NTP Sync"*** from the **Main Menu → Status&Manage → Server** at this time. The NTP Sync action is service-effecting - doing so will temporarily stop DSR processes, as well as restart the NTP daemon. Since an NTP Sync will take place in Procedure 13 **,** NTP changes will take effect at that time. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Insert the IPv6 NTP Servers	Execute the steps in **Appendix C**: Add the New IPv6 NTP Servers to add NTP server(s) with IPv6 address.

Procedure 12: Add the New IPv6 VIP for the NOAM NE

S T E P #	This procedure will provide the instructions how to add the new IPv6 VIPs for NOAM and Query Servers Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Add an IPv6 VIP for the NOAM Server Group	Execute this step to add an IPv6 VIP, if needed. Navigate to **the Main Menu → Configuration → Server Groups**. Select the NOAM server group. Select the **Edit** button at the bottom of the page. The GUI will show the ***"Server Groups Edit"*** form.  Enter any new IPv6 VIPs using the data gathered in Procedure 1. Select the **Add** button to create a new blank VIP Address text box Enter the IPv6 VIP address. Select **Ok** button to commit the form.

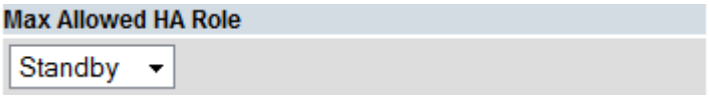
Procedure 13: Switch the NOAM & Query Servers Over to IPv6 Network Usage.

S T E P #	This procedure will provide the instructions how to switch all configured services to IPv6 networks by performing an NTP Sync the NOAM and Query servers. **WARNING:** In order for the new IPv6 network changes to take effect, an NTP Sync is required. This is a service-affecting action and should be performed in a maintenance window. **Note:** Do not execute the procedure in this section until all NOAM and Query Server IPv6 interfaces have been configured, and, if needed, all IPv6 routes have been configured and all new NTP servers and Server Group VIPs have been added. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish SSH Session	Establish an SSH session on the NOAM server, login as ***admusr*** user.

Procedure 13: Switch the NOAM & Query Servers Over to IPv6 Network Usage.

S T E P #	This procedure will provide the instructions how to switch all configured services to IPv6 networks by performing an NTP Sync the NOAM and Query servers. **WARNING:** In order for the new IPv6 network changes to take effect, an NTP Sync is required. This is a service-affecting action and should be performed in a maintenance window. **Note:** Do not execute the procedure in this section until all NOAM and Query Server IPv6 interfaces have been configured, and, if needed, all IPv6 routes have been configured and all new NTP servers and Server Group VIPs have been added. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
2 ☐	**NOAM VIP:** Verify IPv4 usage	Verify services are currently using IPv4: `$ sudo proctcpstat` Example output (Output shortened for display purposes): cmha (IPv4) ::1:17402 ==> ::1:45460 169.254.2.5:59861 ==> 169.254.2.4:17401 ::1:17402 ==> ::1:45461 ::ffff:10.240.108.5:17401 ==> ::ffff:10.240.108.4:50368 ::1:17402 ==> ::1:45471 10.240.108.5:56128 ==> 10.240.108.4:17401 ::1:17402 ==> ::1:45459 ::ffff:169.254.2.5:17401 ==> ::ffff:169.254.2.4:48811 cmsoapa ::1:45462 ==> ::1:17402 inetmerge (IPv4) 169.254.2.5:49256 ==> 169.254.2.4:16878 ::ffff:169.254.2.5:16878 ==> ::ffff:169.254.2.4:46701 ::1:45471 ==> ::1:17402 169.254.2.5:55785 ==> 169.254.2.7:16878 169.254.2.5:36744 ==> 169.254.2.8:16878 inetrep (IPv4) 169.254.2.5:53874 ==> 169.254.2.10:17402 ::1:45459 ==> ::1:17402 169.254.2.5:63825 ==> 169.254.2.8:17400 vipmgr ::1:45461 ==> ::1:17402 ::1:45460 ==> ::1:17402

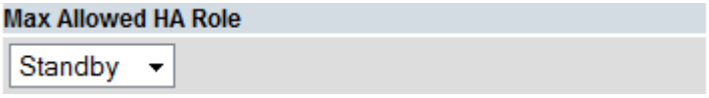
Procedure 13: Switch the NOAM & Query Servers Over to IPv6 Network Usage.

S T E P #		
	This procedure will provide the instructions how to switch all configured services to IPv6 networks by performing an NTP Sync the NOAM and Query servers. **WARNING:** In order for the new IPv6 network changes to take effect, an NTP Sync is required. This is a service-affecting action and should be performed in a maintenance window. **Note:** Do not execute the procedure in this section until all NOAM and Query Server IPv6 interfaces have been configured, and, if needed, all IPv6 routes have been configured and all new NTP servers and Server Group VIPs have been added. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
3 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
4 ☐	**NOAM VIP:** Lock Networks	After adding networks in, lock all networks(IPv4 & IPv6) now that all IPv6 interfaces have been added. Navigate to the **Main Menu → Configuration → Network** Select the network or networks to lock. Select the **Lock** button at the bottom of the page.  A ***"Confirm"*** dialog box will pop up. Select ***"check to confirm"*** and then select **OK** to continue. Your browser session will be taken back to the **Main Menu → Configuration → Network** page and in the grid you will see the network(s) maked as ***"Locked=Yes"***.
5 ☐	**NOAM VIP:** Set Active NOAM HA role to Forced Standby	Navigate to the **Main Menu → Status&Manage → HA** Click **Edit**  Set the "Max Allowed HA Role" of the Active NOAM to **Standby**  **Note:** A switch-over will occur, where the formerly standby NOAM server will become the active server. You will be logged out of the browser GUI. Login again to the NOAM VIP as ***guiadmin*** user.

Procedure 13: Switch the NOAM & Query Servers Over to IPv6 Network Usage.

S T E P #	This procedure will provide the instructions how to switch all configured services to IPv6 networks by performing an NTP Sync the NOAM and Query servers. **WARNING:** In order for the new IPv6 network changes to take effect, an NTP Sync is required. This is a service-affecting action and should be performed in a maintenance window. **Note:** Do not execute the procedure in this section until all NOAM and Query Server IPv6 interfaces have been configured, and, if needed, all IPv6 routes have been configured and all new NTP servers and Server Group VIPs have been added. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
6 ☐	**NOAM VIP:** Perform "NTP Sync" on the Standby NOAM	Navigate to the **Main Menu → Status&Manage → Server** Select the standby NOAM server. Select the **NTP Sync** button at the bottom of the page.  A Confirmation dialog box will pop up asking if you are sure you want to continue with the NTP Sync. Select **OK** to continue. **Note:** The stopping and starting of the application software during the NTP sync is the mechanism used to migrate from IPv4 to IPv6.
7 ☐	**NOAM VIP:** Set Standby NOAM and Query HA role to Active	Navigate to the **Main Menu → Status&Manage → HA** Click **Edit**  Set the "Max Allowed HA Role" of the standby NOAM to **Active**  Wait for Merging and replication related alarms to clear before proceeding. Repeat this step for the Query Server (if equiped)

Procedure 13: Switch the NOAM & Query Servers Over to IPv6 Network Usage.

S T E P #		
	This procedure will provide the instructions how to switch all configured services to IPv6 networks by performing an NTP Sync the NOAM and Query servers. **WARNING:** In order for the new IPv6 network changes to take effect, an NTP Sync is required. This is a service-affecting action and should be performed in a maintenance window. **Note:** Do not execute the procedure in this section until all NOAM and Query Server IPv6 interfaces have been configured, and, if needed, all IPv6 routes have been configured and all new NTP servers and Server Group VIPs have been added. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
8 ☐	**NOAM VIP:** Set the Active NOAM HA role to Forced Standby	Navigate to the **Main Menu → Status&Manage → HA** Click **Edit**  Set the "Max Allowed HA Role" of the now Active NOAM to **Standby**  **Note:** Again, a switch-over will occur, where the formally standby NOAMP server will become the active server. You will be logged out of the browser GUI. Login again to the NOAM VIP as ***guiadmin*** user.
9 ☐	**NOAM VIP:** Perform an "NTP Sync" on the now standby NOAM Server	For the now active *(formerly in-active)* NOAM server Navigate to the **Main Menu → Status&Manage → Server** Select the standby NOAM server. Select the **NTP Sync** button at the bottom of the page.  A Confirmation dialog box will pop up asking if you are sure you want to continue with the NTP Sync. Select **OK** to continue. **Note:** While performing an NTP sync of the server doesn't nessesarily switch services from IPv4 to IPv6, it does bounce the IP connections to switch to IPv6. Wait for Merging and replication related alarms to clear before proceeding.

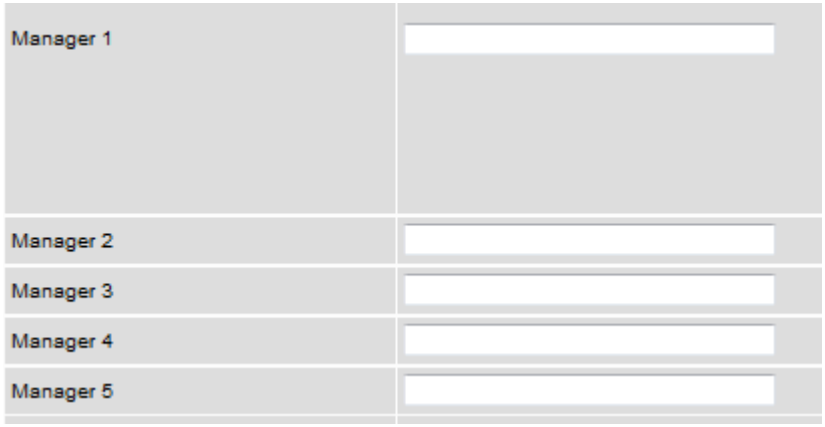
Procedure 13: Switch the NOAM & Query Servers Over to IPv6 Network Usage.

S T E P #		
	This procedure will provide the instructions how to switch all configured services to IPv6 networks by performing an NTP Sync the NOAM and Query servers. **WARNING:** In order for the new IPv6 network changes to take effect, an NTP Sync is required. This is a service-affecting action and should be performed in a maintenance window. **Note:** Do not execute the procedure in this section until all NOAM and Query Server IPv6 interfaces have been configured, and, if needed, all IPv6 routes have been configured and all new NTP servers and Server Group VIPs have been added. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
10 ☐	**NOAM VIP:** Set the standby NOAM HA role to Active	Navigate to the **Main Menu → Status&Manage → HA** Click **Edit**  Set the "Max Allowed HA Role" of the standby NOAM to **Active** 

Procedure 13: Switch the NOAM & Query Servers Over to IPv6 Network Usage.

S T E P #	This procedure will provide the instructions how to switch all configured services to IPv6 networks by performing an NTP Sync the NOAM and Query servers. **WARNING:** In order for the new IPv6 network changes to take effect, an NTP Sync is required. This is a service-affecting action and should be performed in a maintenance window. **Note:** Do not execute the procedure in this section until all NOAM and Query Server IPv6 interfaces have been configured, and, if needed, all IPv6 routes have been configured and all new NTP servers and Server Group VIPs have been added. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
11 ☐	**NOAM VIP:** Verify IPv6 usage	Verify services are currently using IPv6: `$ sudo proctcpstat` Example output (Output shortened for display purposes): cmha (IPv6) fd02::83:17402 ==> fd02::81:50469 ::1:17402 ==> ::1:36133 fd02::83:17402 ==> fd02::82:51303 ::1:17402 ==> ::1:36132 ::1:17402 ==> ::1:36135 cmsoapa ::1:36132 ==> ::1:17402 inetmerge (IPv6) ::1:36134 ==> ::1:17402 fd02::83:16878 ==> fd02::82:49023 fd02::83:16878 ==> fd02::81:34308 inetrep (IPv6) fd02::83:58046 ==> fd02::84:17402 fd02::83:17400 ==> fd02::81:39886 ::1:36133 ==> ::1:17402 vipmgr ::1:36135 ==> ::1:17402

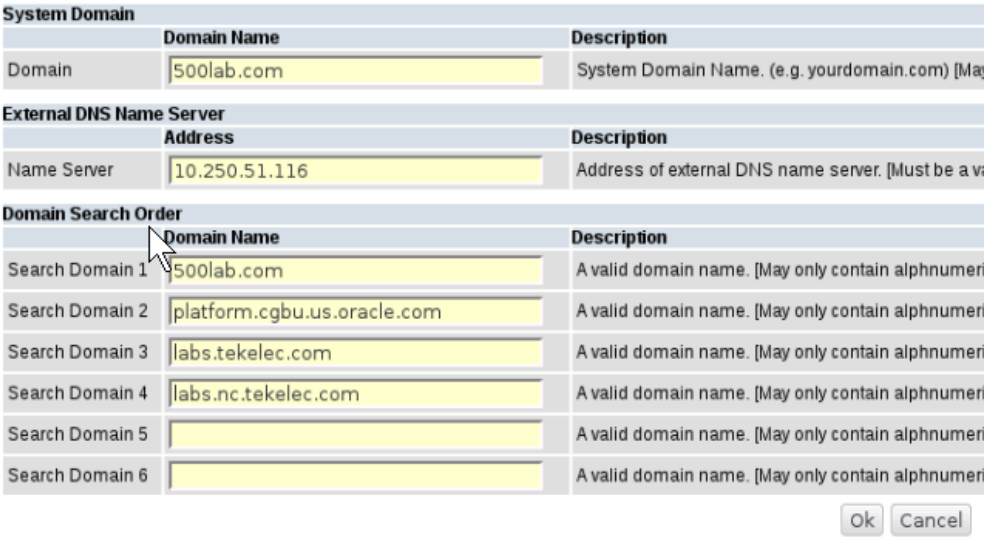
Procedure 14: Modify SNMP Managers IP Addresses (Optional)

S T E P #	This procedure details the steps to modify the SNMP Manager IP addresses. **Note:** If, during the data gathering in **Procedure** 1, it is determined that new IPv6 addresses for external SNMP manager(s) are to be used, then execute this procedure. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Modify the SNMP Manager(s)	Navigate to the **Main Menu → Administration → Remote Servers → SNMP Trapping**  Using the SNMP Manager data gathered in Procedure 1, enter the new IPv6 addresses for the SNMP Managers in the Manager text fields in the form. Scroll down and select **Ok** button to commit the form.

Procedure 15: Modify Customer DNS Configuration (Optional)

S T E P #	This procedure details the steps to modify the DNS server IP addresses. **Note:** If, during the data gathering in Procedure 1, it is determined that new IPv6 addresses for external customer DNS server(s) are to be used, then execute this procedure. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.

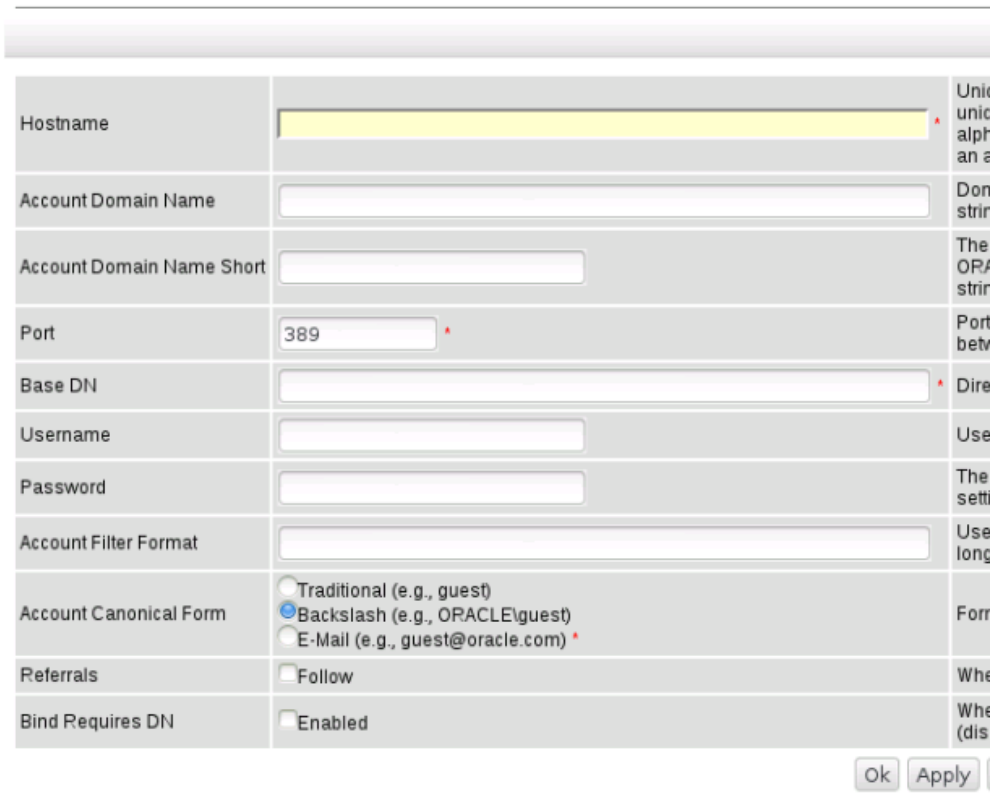
Procedure 15: Modify Customer DNS Configuration (Optional)

S T E P #		
	This procedure details the steps to modify the DNS server IP addresses. **Note:** If, during the data gathering in Procedure 1, it is determined that new IPv6 addresses for external customer DNS server(s) are to be used, then execute this procedure. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
2 ☐	**NOAM VIP:** Modify the customer DNS server(s)	Navigate to the **Main Menu → Administration → Remote Servers → DNS Configuration** Using the customer DNS server data gathered in Procedure 1, enter the new IPv6 addresses for the customer DNS servers in the address text fields in the form.  Scroll down and select **Ok** button to commit the form.

Procedure 16: Modify LDAP Configuration (Optional)

S T E P #		
	This procedure details the steps to modify the LDAP server IP addresses. **Note:** If, during the data gathering in Procedure 1, it is determined that new IPv6 addresses for external LDAP server(s) are to be used, then execute this procedure. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.

Procedure 16: Modify LDAP Configuration (Optional)

S T E P #		
	This procedure details the steps to modify the LDAP server IP addresses. **Note:** If, during the data gathering in Procedure 1, it is determined that new IPv6 addresses for external LDAP server(s) are to be used, then execute this procedure. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
2 ☐	**Modify the LDAP server(s)**	Navigate to the **Main Menu → Administration → Remote Servers → LDAP Authentication** Select the **Insert** button at the bottom of the page to access the Insert form.  Using the customer LDAP server data gathered in Procedure 1, enter the new IPv6 addresses or hostname for the LDAP server in the form. Scroll down and select **Ok** button to commit the form.

Procedure 17: Modify Export Server IP Addresses: NOAM (Optional)

S T E P #	This procedure details the steps to modify the export server IP addresses. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Modify the Export Server address	Modify the Export Server addresses by executing the steps in **Appendix E:**

3.2.2 DR-NOAM Migration

This section describes the procedures that must be executed on the NOAM to migrate the DR-NOAM servers from IPv4 to IPv6 networks.

Procedure 18: Perform IPv6 Migration on DR-NOAM and Query Servers

S T E P #	This procedure details the steps to migrate the DR-NOAM and Query Servers to IPv6 Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**DR-NOAM**	Repeat Procedures 1-19 to migrate the DR-NOAMs to IPv6. **Note:** For IPv6 migration on cloud deployments, skip to **section 3.2.3 procedure 20.**

3.2.3 SOAM NE Site Migration

This section describes the procedures that must be executed on the TVOE host and SOAM to migrate site SOAM and MP/DP servers *(within the same Network Element)* from IPv4 to IPv6 networks.

Procedure 19: Configure the SOAM Blade TVOE Hosts for IPv6

S T E P #	This procedure details the steps to configure TVOE servers for IPv6 networks Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**TVOE Server:** SSH to the TVOE Blade Server	Establish an SSH terminal session to the TVOE blade server. Login as ***admusr***. **Note:** For IPv6 migration on cloud deployments, skip to **procedure 20.**
2 ☐	**TVOE Server:** Add the XMI IPv6 address.	Using the data gathered in Procedure 1, enter the new IPv6 address for the XMI bridge inteface using the following command: `$ sudo netAdm set --type=Bridge --name=<XMI> --address=<ipv6_address> --netmask=<ipv6_prefix>`
3 ☐	**TVOE Server:** Verify Dual-Stack	Both the old IPv4 and new IPv6 address should be displayed after entering the following command: `$ sudo netAdm query --type=Bridge --name=<XMI>`
4 ☐	**TVOE Server:** Add the Netbackup IPv6 address.***(Optional)***	`$ sudo netAdm set --type=Bridge --name=<Netbackup> --address=<ipv6_address> --netmask=<ipv6_prefix>`
5 ☐	**TVOE Server:** Verify Dual-Stack.	Both the old IPv4 and new IPv6 address should be displayed after entering the following command: `$ sudo netAdm query --type=Bridge --name=<NetBackup>`

Procedure 19: Configure the SOAM Blade TVOE Hosts for IPv6

S T E P #	This procedure details the steps to configure TVOE servers for IPv6 networks Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	

6
☐
	TVOE Server:
	Configure the default route
		Set the default route:
		
		`$ sudo netAdm add route --route=default --device=<XMI>`
		`--gateway=<XMI_IPv6_gateway>`

7
☐
	TVOE Server:
	Configure additional routes ***(Optional)***
		Add additional routes, if needed:
		Example:
		
		`$ sudo netAdm add route --route=net --device=netbackup`
		`--address=<Netbackup_IPv6_address>`
		`--netmask=<Netbackup_IPv6_NetMask>`
		`--gateway=<Netbackup_IPv6_gateway>`

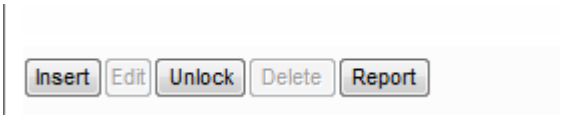
8
☐
	TVOE Server:
	Verify Routes
		To verify the routes, the ip command, or preferably ping6 may be used.
		
		`$ ip -6 route`
		
		`$ ping6 -c 3 <IPv6_gateway>`
		
		Note: If the gateway is a link local address, an interface must be provided
		
		`$ ping6 -I xmi <Link local_IPv6_Gateway>`

9 ☐	**TVOE Server:** Configure IPv6 for SNMP and NTP.	Execute **Appendix F**: `TVOE Host SNMP and NTP IPv6 Configuration` to configure IPv6 for SNMP and NTP on the TVOE blades.
10 ☐	**TVOE Server:** Repeat for 2nd SOAM Server	Repeat **Steps 1-14** for the 2nd SOAM TVOE Host.
11 ☐	**Backup TVOE Configuration**	Execute **Appendix E**: `Backup tvoe Configuration` to back up the TVOE configuration after IPv6 configuration.

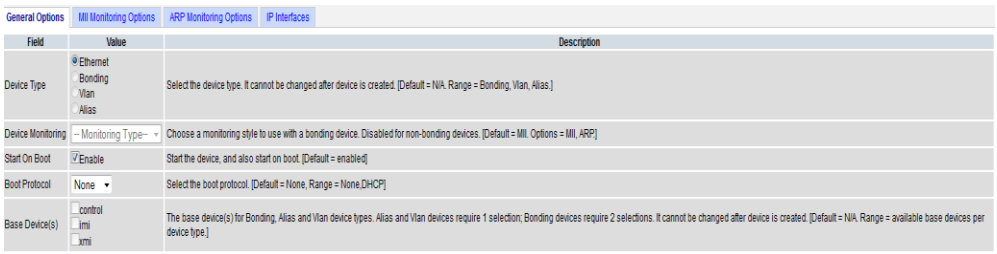
Procedure 20: Add the New IPv6 Networks: SOAM NE Site

S T E P #	This procedure will provide the instructions how to add the new IPv6 networks. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Insert an IPv6 network	Insert the new IPv6 networks for the SOAM server by following the steps in **Appendix A**: Add the New IPv6 Networks. **Note:** If this site contains an SBR replication network (PCA Only), add it at this time following the above referenced Appendix.

Procedure 21: Add the New IPv6 Networks: SOAM NE Site

S T E P #	This procedure will provide the instructions how to add the new IPv6 interfaces on both SOAM servers. **Note:** Although complete IPv6 migration is supported, IPv6 migration of the IMI (non-routable) network is not required Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Unlock the IPv4 Networks	Unlock the IPv4 networks so that new IPv6 interfaces with the same VLAN Id as existing IPv4 interface can be added. Navigate to the **Main Menu → Configuration → Network** Select the one or more IPv4 networks that are being duplicated by IPv6 networks. Select the **Unlock** button at the bottom of the page.  A Confirmation dialog box will pop up. Select ***"check to confirm"*** and then select **OK** to continue. Your browser session will remain on the **Main Menu → Configuration → Network** page and in the grid you will see the networks are now unlocked.

Procedure 21: Add the New IPv6 Networks: SOAM NE Site

S T E P #		
	This procedure will provide the instructions how to add the new IPv6 interfaces on both SOAM servers. **Note:** Although complete IPv6 migration is supported, IPv6 migration of the IMI (non-routable) network is not required Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
3 ☐	**NOAM VIP**: Add a IPv6 Interface	Execute this step to add a VLAN tagged IPv6 address to an existing device interface. Navigate to the **Main Menu → Configuration → Network → Devices**. Select the tab for the first SOAM server to have IPv6 interfaces added. Now select the Device Name that corresponds to the VLAN Id of the network you are adding. Select the **Edit** button at the bottom of the page. The GUI will show the ***"Devices Edit"*** form.  General Options | MII Monitoring Options | ARP Monitoring Options | IP Interfaces Field / Value / Description Device Type: Ethernet, Bonding, Vlan, Alias — Select the device type. It cannot be changed after device is created. [Default = N/A, Range = Bonding, Vlan, Alias.] Device Monitoring: -- Monitoring Type-- — Choose a monitoring style to use with a bonding device. Disabled for non-bonding devices. [Default = MII. Options = MII, ARP] Start On Boot: Enable — Start the device, and also start on boot. [Default = enabled] Boot Protocol: None — Select the boot protocol. [Default = None, Range = None,DHCP] Base Device(s): control, imi, xmi — The base device(s) for Bonding, Alias and Vlan device types. Alias and Vlan devices require 1 selection; Bonding devices require 2 selections. It cannot be changed after device is created. [Default = N/A, Range = available base devices per device type.] In the form, select the **IP Interfaces** tab. Select the **Add Row** button to get an empty row in which to enter the new IPv6 address. Enter the IPv6 network interface IP address data gathered in Procedure 1. • The IPv6 address corresponding to the network, • Select the network name for the IPv6 network Select **Ok** button to commit the form.
4 ☐	**NOAM VIP:** Insert Remaining IPv6 Network Interfaces	Repeat **step 3** to insert IPv6 network interfaces on the 2nd SOAM.

Procedure 22: Add the New IPv6 Network Routes: SOAM

S T E P #	This procedure will provide the instructions how to add the new IPv6 network routes for the SOAM Networks **Note:** Not all installations will require additional routes. Execute this procedure if data gathered in Procedure 1 indicates that IPv6 routes are needed. For example, routes would be required between IPv6 networks in different Network Elements. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Insert an IPv6 Route	Execute steps listed in **Appendix B**: Configure New IPv6 Network Routes to add an IPv6 route, if needed.

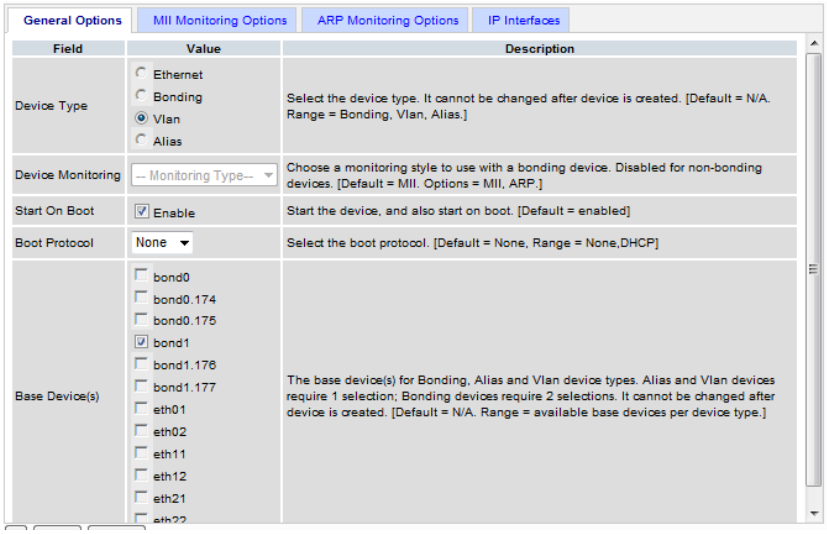
Procedure 23: Add the New IPv6 NTP Servers: SOAM

S T E P #	This procedure will provide the instructions how to add the new IPv6 NTP servers to the SOAM servers **Note:** Not all installations will require new NTP servers to be added to each Server. Execute this procedure if data gathered in Procedure 1 indicates that IPv6-addressed NTP servers are needed. **WARNING:** Do ***NOT*** execute a ***"NTP Sync"*** from the **Main Menu → Status&Manage → Server** at this time. The NTP Sync action is service-effecting - doing so will temporarily stop DSR processes, as well as restart the NTP daemon. NTP changes will take place in Procedure 28. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact Appendix H: My oracle support (MOS) and ask for assistance.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Insert the IPv6 NTP Servers	Execute the steps in **Appendix C**: Add the New IPv6 NTP Servers to add NTP server(s) with IPv6 address, if needed.

Procedure 24: Add the New IPv6 VIP for the SOAM Servers.

S T E P #	This procedure will provide the instructions how to add the new IPv6 VIPs for SOAM servers. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Add an IPv6 VIP for the SOAM Server Group	Execute this step to add an IPv6 VIP, if needed. Navigate to **the Main Menu → Configuration → Server Groups**. Select the SOAM server group. Select the **Edit** button at the bottom of the page. The GUI will show the ***"Server Groups Edit"*** form  . Enter any new IPv6 VIPs using the data gathered in Procedure 1 Select the **Add** button to create a new blank VIP Address text box, Enter the IPv6 VIP address. Select **Ok** button to commit the form.

Procedure 25: Add the New XMI/IMI IPv6 Interfaces to the MP/DP servers

S T E P #	This procedure will provide the instructions how to add the new IPv6 interfaces on all MP servers *(DA-MP, SS7-MP, IPFE, SDS DP)* **Note:** Although complete IPv6 migration is supported, IPv6 migration of the IMI (non-routable) network is not required Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP**: Add a VLAN Tagged IPv6 Interface	Execute this step to add a VLAN tagged IPv6 address to an existing device interface. Navigate to the **Main Menu → Configuration → Network → Devices**. Select the tab for the first MP server to have IPv6 interfaces added. Now select the Device Name that corresponds to the VLAN Id of the network you are adding. Select the **Edit** button at the bottom of the page. The GUI will show the ***"Devices Edit"*** form.  In the form, select the IP Interfaces tab. Select the **Add Row** button to get an empty row in which to enter the new IPv6 address. Enter the IPv6 network interface IP address data gathered in Procedure 1 • The IPv6 address corresponding to the VLAN tagged network, • Select the network name for the IPv6 network Select **Ok** button to commit the form.
3 ☐	**NOAM VIP**: Repeat For Additional MP/DP Servers.	Repeat **step 2** for additional MP/DP servers.

Procedure 26: Add the New IPv6 Network Routes: MP/DP Servers

S T E P #	This procedure will provide the instructions how to add the new IPv6 network routes for the MP servers **Note:** Not all installations will require additional routes. Execute this procedure if data gathered in Procedure 1 indicates that IPv6 routes are needed. For example, routes would be required between IPv6 networks in different Network Elements. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Insert an IPv6 Route	Execute steps listed in **Appendix B**: Configure New IPv6 Network Routes to add an IPv6 route, if needed.

Procedure 27: Add the New IPv6 NTP Servers: MP/DP Servers

S T E P #	This procedure will provide the instructions how to add the new IPv6 NTP servers to the MP/DP servers **Note:** Not all installations will require new NTP servers to be added to each Server. Execute this procedure if data gathered in Procedure 1 indicates that IPv6-addressed NTP servers are needed. **WARNING:** Do ***NOT*** execute a ***"NTP Sync"*** from the **Main Menu → Status&Manage → Server** at this time. The NTP Sync action is service-effecting - doing so will temporarily stop DSR processes, as well as restart the NTP daemon. NTP changes will take place in **Procedure 29.** Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Insert the IPv6 NTP Servers	Execute the steps in **Appendix C**: Add the New IPv6 NTP Servers to add NTP server(s) with IPv6 address, if needed.

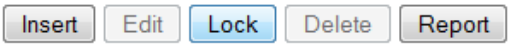
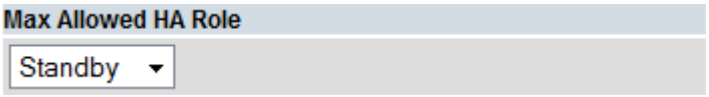
Procedure 28: Switch the SOAM Servers Over to IPv6 Network Usage.

S T E P #	This procedure will provide the instructions how to switch all configured services to IPv6 networks by performing an NTP Sync the SOAM servers. **WARNING:** In order for the new IPv6 network changes to take effect, a NTP Sync is required. This is a service-affecting action and should be performed in a maintenance window. **Note:** Do not execute the procedure in this section until all site specific SOAM IPv6 interfaces have been configured, and, if needed, all IPv6 routes have been configured and all new NTP servers and Server Group VIPs have been added. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**SOAM VIP:** Establish SSH Session	Establish an SSH session on the SOAM server VIP, login as ***admusr*** user.

Procedure 28: Switch the SOAM Servers Over to IPv6 Network Usage.

S T E P #		
	This procedure will provide the instructions how to switch all configured services to IPv6 networks by performing an NTP Sync the SOAM servers. **WARNING:** In order for the new IPv6 network changes to take effect, a NTP Sync is required. This is a service-affecting action and should be performed in a maintenance window. **Note:** Do not execute the procedure in this section until all site specific SOAM IPv6 interfaces have been configured, and, if needed, all IPv6 routes have been configured and all new NTP servers and Server Group VIPs have been added. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
2 ☐	**SOAM VIP:** Verify IPv4 usage	Verify services are currently using IPv4: `$ sudo proctcpstat` Example output (Output shortened for display purposes): cmha ::ffff:169.254.2.7:17401 ==> ::ffff:169.254.2.8:50084 ::1:17402 ==> ::1:51728 ::ffff:10.240.108.7:17401 ==> ::ffff:10.240.108.8:41491 10.240.108.7:36813 ==> 10.240.108.8:17401 169.254.2.7:40310 ==> 169.254.2.8:17401 cmsoapa ::1:56543 ==> ::1:17402 inetmerge ::ffff:169.254.2.7:16878 ==> ::ffff:169.254.2.5:55785 ::1:56551 ==> ::1:17402 169.254.2.7:49941 ==> 169.254.2.10:16878 ::ffff:169.254.2.7:16878 ==> ::ffff:169.254.2.4:51314 169.254.2.7:36316 ==> 169.254.2.13:16878 ::ffff:169.254.2.7:16878 ==> ::ffff:169.254.2.8:39398 inetrep 169.254.2.7:50929 ==> 169.254.2.10:17402 ::1:56542 ==> ::1:17402 169.254.2.7:45942 ==> 169.254.2.15:17402 ::ffff:169.254.2.7:17400 ==> ::ffff:169.254.2.8:3394 169.254.2.7:44988 ==> 169.254.2.12:17402 vipmgr ::1:56541 ==> ::1:17402 ::1:56540 ==> ::1:17402 ::1:45460 ==> ::1:17402

Procedure 28: Switch the SOAM Servers Over to IPv6 Network Usage.

S T E P #		
	This procedure will provide the instructions how to switch all configured services to IPv6 networks by performing an NTP Sync the SOAM servers. **WARNING:** In order for the new IPv6 network changes to take effect, a NTP Sync is required. This is a service-affecting action and should be performed in a maintenance window. **Note:** Do not execute the procedure in this section until all site specific SOAM IPv6 interfaces have been configured, and, if needed, all IPv6 routes have been configured and all new NTP servers and Server Group VIPs have been added. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
3 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
4 ☐	**NOAM VIP:** Lock Networks	After adding networks in, lock all networks now that all IPv6 interfaces have been added. Navigate to the **Main Menu → Configuration → Network** Select the network or networks to lock. Select the **Lock** button at the bottom of the page.  A ***"Confirm"*** dialog box will pop up. Select ***"check to confirm"*** and then select **OK** to continue. Your browser session will be taken back to the **Main Menu → Configuration → Network** page and in the grid you will see the network(s) maked as ***"Locked=Yes"***.
5 ☐	**NOAM VIP:** Set Active SOAM HA role to Forced Standby	Navigate to the **Main Menu → Status&Manage → HA** Click **Edit**  Set the "Max Allowed HA Role" of the Active SOAM to **Standby** 

Procedure 28: Switch the SOAM Servers Over to IPv6 Network Usage.

S T E P #		
	This procedure will provide the instructions how to switch all configured services to IPv6 networks by performing an NTP Sync the SOAM servers. **WARNING:** In order for the new IPv6 network changes to take effect, a NTP Sync is required. This is a service-affecting action and should be performed in a maintenance window. **Note:** Do not execute the procedure in this section until all site specific SOAM IPv6 interfaces have been configured, and, if needed, all IPv6 routes have been configured and all new NTP servers and Server Group VIPs have been added. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
6 ☐	**NOAM VIP:** Perform "NTP Sync" on the Standby SOAM	Navigate to the **Main Menu → Status&Manage → Server** Select the standby SOAM server. Select the **NTP Sync** button at the bottom of the page.  A Confirmation dialog box will pop up asking if you are sure you want to continue with the NTP Sync. Select **OK** to continue.
7 ☐	**NOAM VIP:** Set Active SOAM HA role to Active	Navigate to the **Main Menu → Status&Manage → HA** Click **Edit**  Set the "Max Allowed HA Role" of the Active SOAM to **Active**  Wait for Merging and replication related alarms to clear before proceeding.
8 ☐	**NOAM VIP:** Set the now Active SOAM HA role to Forced Standby	Navigate to the **Main Menu → Status&Manage → HA** Click **Edit**  Set the "Max Allowed HA Role" of the now Active (*Formerly-Inactive*) SOAM to **Standby** 

Procedure 28: Switch the SOAM Servers Over to IPv6 Network Usage.

S T E P #		
	This procedure will provide the instructions how to switch all configured services to IPv6 networks by performing an NTP Sync the SOAM servers. **WARNING:** In order for the new IPv6 network changes to take effect, a NTP Sync is required. This is a service-affecting action and should be performed in a maintenance window. **Note:** Do not execute the procedure in this section until all site specific SOAM IPv6 interfaces have been configured, and, if needed, all IPv6 routes have been configured and all new NTP servers and Server Group VIPs have been added. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
9 ☐	**NOAM VIP:** Perform an "NTP Sync" on the now Active SOAM Server	For the now active *(formerly in-active)* SOAM server Navigate to the **Main Menu → Status&Manage → Server** Select the active SOAM server. Select the **NTP Sync** button at the bottom of the page.  A Confirmation dialog box will pop up asking if you are sure you want to continue with the NTP Sync. Select **OK** to continue.
10 ☐	**NOAM VIP:** Set the now Active SOAM HA role to Active	Navigate to the **Main Menu → Status&Manage → HA** Click **Edit**  Set the "Max Allowed HA Role" of the now Active (*Formerly-Inactive*) SOAM to **Active**  Wait for Merging and replication related alarms to clear before proceeding.

Procedure 28: Switch the SOAM Servers Over to IPv6 Network Usage.

S T E P #	This procedure will provide the instructions how to switch all configured services to IPv6 networks by performing an NTP Sync the SOAM servers. **WARNING:** In order for the new IPv6 network changes to take effect, a NTP Sync is required. This is a service-affecting action and should be performed in a maintenance window. **Note:** Do not execute the procedure in this section until all site specific SOAM IPv6 interfaces have been configured, and, if needed, all IPv6 routes have been configured and all new NTP servers and Server Group VIPs have been added. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
11 ☐	**SOAM VIP:** Verify IPv6 usage	Verify services are now using IPv6: `$ sudo proctcpstat` Example output (Output shortened for display purposes): cmha ::1:17402 ==> ::1:53696 fd02::73:17401 ==> fd02::74:50328 2001:4888:0:903::73:17401 ==> 2001:4888:0:903::74:62216 fd02::73:62648 ==> fd02::74:17401 cmsoapa ::1:53689 ==> ::1:17402 inetmerge fd02::73:16878 ==> fd02::74:52576 2001:4888:0:903::73:16878 ==> 2001:4888:0:248::16:62485 fd02::73:55449 ==> fd02::77:16878 ::1:53694 ==> ::1:17402 2001:4888:0:903::73:16878 ==> 2001:4888:0:248::17:64949 2001:4888:0:903::73:16878 ==> 2001:4888:0:903::69:61609 fd02::73:50635 ==> fd02::75:16878 inetrep fd02::73:52475 ==> fd02::78:17400 ::1:53680 ==> ::1:17402 2001:4888:0:903::73:17400 ==> 2001:4888:0:903::70:53834 fd02::73:56124 ==> fd02::90:17402 vipmgr ::1:57026 ==> ::1:17402 ::1:53696 ==> ::1:17402

Procedure 29: Switch the MP/DP Servers Over to IPv6 Network Usage.

S T E P #	This procedure will provide the instructions how to switch all configured services to IPv6 networks by performing an NTP Sync the MP/DP servers. **WARNING:** In order for the new IPv6 network changes to take effect, a NTP Sync is required. This is a service-affecting action and should be performed in a maintenance window. **Note:** Do not execute the procedure in this section until all site specific MP/DP IPv6 interfaces have been configured, and, if needed, all IPv6 routes have been configured and all new NTP servers and Server Group VIPs have been added. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**SOAM VIP:** Establish SSH Session	Establish an SSH session on the MP/DP server, login as ***admusr*** user.
2 ☐	**MP/DP Server:** Verify IPv4 usage	Verify services are currently using IPv4: `$ sudo proctcpstat` Example output (Output shortened for display purposes): cmha ::ffff:169.254.2.10:17402 ==> ::ffff:169.254.2.8:55492 ::1:17402 ==> ::1:55998 169.254.2.10:50169 ==> 169.254.2.11:17401 ::1:17402 ==> ::1:55991 ::1:17402 ==> ::1:60987 cmsoapa ::1:55998 ==> ::1:17402 dsr 169.254.2.10:16529 ==> 169.254.2.13:65228 ::1:60988 ==> ::1:17402 inetmerge ::ffff:169.254.2.10:16878 ==> ::ffff:169.254.2.7:49941 ::1:55991 ==> ::1:17402 ::ffff:169.254.2.10:16878 ==> ::ffff:169.254.2.8:65366 inetrep 169.254.2.10:63069 ==> 169.254.2.10:17402 ::1:55992 ==> ::1:17402 ::ffff:169.254.2.10:17400 ==> ::ffff:169.254.2.8:63096 vipmgr ::1:55997 ==> ::1:17402 ::1:55996 ==> ::1:17402

Procedure 29: Switch the MP/DP Servers Over to IPv6 Network Usage.

S T E P #		
	This procedure will provide the instructions how to switch all configured services to IPv6 networks by performing an NTP Sync the MP/DP servers. **WARNING:** In order for the new IPv6 network changes to take effect, a NTP Sync is required. This is a service-affecting action and should be performed in a maintenance window. **Note:** Do not execute the procedure in this section until all site specific MP/DP IPv6 interfaces have been configured, and, if needed, all IPv6 routes have been configured and all new NTP servers and Server Group VIPs have been added. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
3 ☐	**NOAM VIP:** Set MP/DP Servers HA role to Forced Standby	Navigate to the **Main Menu → Status&Manage → HA** Click **Edit**  Set the "Max Allowed HA Role" of the MP/DP Servers to **Standby** **Warning:** Do not select more than 50% of MP/DP servers in a particular server group.  Make note of the MP/DP servers that were set to standby here.
4 ☐	**NOAM VIP:** Perform NTP Sync on the MP/DP Servers	Navigate to the **Main Menu → Status&Manage → Server** Select the MP/DP servers that were set to standby from **step 2**. **Note:** Hold Ctrl to select more than one server at a time. Select the **NTP Sync** button at the bottom of the page.  A Confirmation dialog box will pop up asking if you are sure you want to continue with the NTP Sync. Select **OK** to continue.

Procedure 29: Switch the MP/DP Servers Over to IPv6 Network Usage.

S T E P #		
	This procedure will provide the instructions how to switch all configured services to IPv6 networks by performing an NTP Sync the MP/DP servers. **WARNING:** In order for the new IPv6 network changes to take effect, a NTP Sync is required. This is a service-affecting action and should be performed in a maintenance window. **Note:** Do not execute the procedure in this section until all site specific MP/DP IPv6 interfaces have been configured, and, if needed, all IPv6 routes have been configured and all new NTP servers and Server Group VIPs have been added. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
5 ☐	**NOAM VIP:** Set the MP/DP Server HA role to Active	Navigate to the **Main Menu → Status&Manage → HA** Click **Edit**  Set the "Max Allowed HA Role" of the MP/DP server to **Active**  Wait for Merging and replication related alarms to clear before proceeding.

Procedure 29: Switch the MP/DP Servers Over to IPv6 Network Usage.

S T E P #	This procedure will provide the instructions how to switch all configured services to IPv6 networks by performing an NTP Sync the MP/DP servers. **WARNING:** In order for the new IPv6 network changes to take effect, a NTP Sync is required. This is a service-affecting action and should be performed in a maintenance window. **Note:** Do not execute the procedure in this section until all site specific MP/DP IPv6 interfaces have been configured, and, if needed, all IPv6 routes have been configured and all new NTP servers and Server Group VIPs have been added. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
6 ☐	**MP/DP Server:** Verify IPv6 usage	Verify services are now using IPv6: `$ sudo proctcpstat` Example output (Output shortened for display purposes): cmha 2001:4888:0:903::75:17401 ==> 2001:4888:0:903::90:64638 ::1:17402 ==> ::1:55844 fd02::75:17401 ==> fd02::76:61409 2001:4888:0:903::75:41728 ==> 2001:4888:0:903::90:17401 fd02::75:41299 ==> fd02::76:17401 ::1:17402 ==> ::1:5583 cmsoapa ::1:55844 ==> ::1:17402 dsr ::1:55489 ==> ::1:17402 fd02::75:64141 ==> fd02::84:16529 10.240.246.132:9675 ==> 10.240.246.139:62855 fd02::75:60417 ==> fd02::76:16529 ::1:55487 ==> ::1:17402 inetmerge fd02::75:16878 ==> fd02::74:59227 ::1:55839 ==> ::1:17402 fd02::75:16878 ==> fd02::73:50635 inetrep fd02::75:17400 ==> fd02::90:51778 ::1:55841 ==> ::1:17402 vipmgr ::1:55838 ==> ::1:17402 ::1:55141 ==> ::1:17402

Procedure 29: Switch the MP/DP Servers Over to IPv6 Network Usage.

S T E P #	This procedure will provide the instructions how to switch all configured services to IPv6 networks by performing an NTP Sync the MP/DP servers. **WARNING:** In order for the new IPv6 network changes to take effect, a NTP Sync is required. This is a service-affecting action and should be performed in a maintenance window. **Note:** Do not execute the procedure in this section until all site specific MP/DP IPv6 interfaces have been configured, and, if needed, all IPv6 routes have been configured and all new NTP servers and Server Group VIPs have been added. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
7 ☐	**NOAM VIP:** Perform NTP Sync on Remaining MP/DP Servers	Repeat **step 2** on any remaining MP/DP servers.

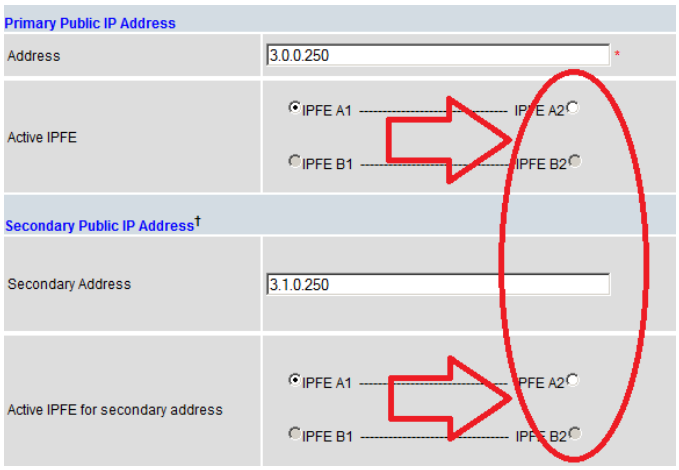
Procedure 30: Inter-IPFE Synchronization Configuration for IPv6 (If equiped)

S T E P #	This procedure details the steps to configure IPv6 for Inter-IPFE synchronization. **Note:** Only Execute this step if MP IMI was migrated to IPv6, otherwise skip this step Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**SOAM VIP:** Establish SSH Session	Establish an SSH session on the IPFE server, login as ***admusr*** user.

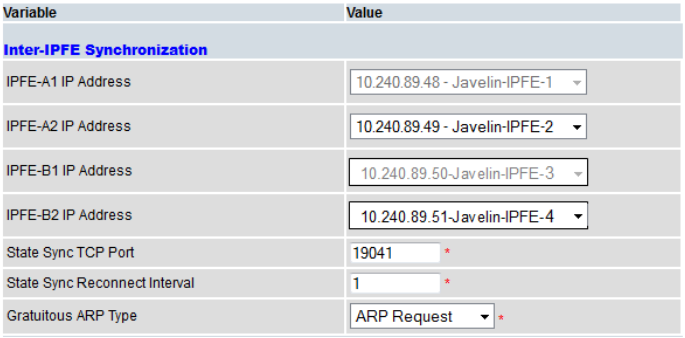
Procedure 30: Inter-IPFE Synchronization Configuration for IPv6 (If equiped)

S T E P #	This procedure details the steps to configure IPv6 for Inter-IPFE synchronization. **Note:** Only Execute this step if MP IMI was migrated to IPv6, otherwise skip this step Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
2 ☐	**IPFE Server:** Verify IPv4 usage	Verify services are currently using IPv4: `$ sudo proctcpstat` Example output (Output shortened for display purposes): cmha ::1:17402 ==> ::1:35910 ::ffff:169.254.2.15:17402 ==> ::ffff:169.254.2.8:37566 ::1:17402 ==> ::1:35907 ::ffff:169.254.2.15:17402 ==> ::ffff:169.254.2.7:45942 cmsoapa ::1:35909 ==> ::1:17402 inetmerge ::ffff:169.254.2.15:16878 ==> ::ffff:169.254.2.8:36396 ::1:35913 ==> ::1:17402 ::ffff:169.254.2.15:16878 ==> ::ffff:169.254.2.7:48178 inetrep ::ffff:169.254.2.15:17400 ==> ::ffff:169.254.2.8:48775 ::1:35904 ==> ::1:17402 169.254.2.15:49537 ==> 169.254.2.10:17402 ipfe 169.254.2.15:19041 ==> 169.254.2.14:55598 vipmgr ::1:35910 ==> ::1:17402 ::1:35911 ==> ::1:17402

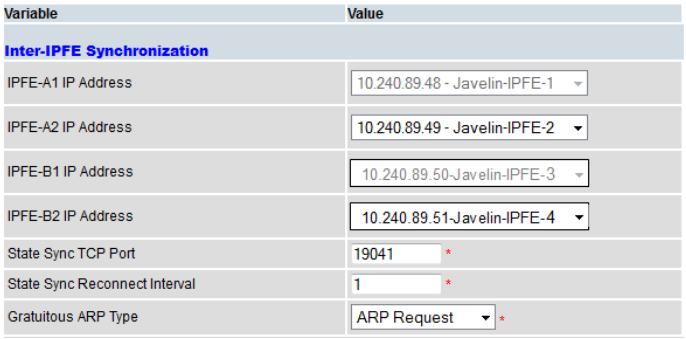
Procedure 30: Inter-IPFE Synchronization Configuration for IPv6 (If equiped)

S T E P #	This procedure details the steps to configure IPv6 for Inter-IPFE synchronization. **Note:** Only Execute this step if MP IMI was migrated to IPv6, otherwise skip this step Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
3 ☐	**SOAM VIP:** Record existing target set configurations.	Navigate to **IPFE -> Configuration -> Target Sets** Select each target set and select the **Edit** button. Record the active IPFE radio button settings for each Target Set in the following table: **TS Number** | | | **Active IPFE for Primary Address** | | | **Active IPFE for Secondary Address** | | | Select **Cancel** to back out from the edit menu.
4 ☐	**SOAM VIP:** Establish GUI Session	Establish a GUI session on the SOAM server, login as ***guiadmin*** user.
5 ☐	**SOAM VIP:** Change the Active IPFE on each Target Set	Navigate to **IPFE -> Configuration -> Target Sets** Select the first target set and select the **Edit** button. Change the Active IPFE on both the Primary and Secondary public IP addresses to the cooresponding right-hand radio button:  Primary Public IP Address Address 3.0.0.250 Active IPFE: IPFE A1 / IPFE A2 / IPFE B1 / IPFE B2 Secondary Public IP Address† Secondary Address 3.1.0.250 Active IPFE for secondary address: IPFE A1 / IPFE A2 / IPFE B1 / IPFE B2 **Example:** If you currently have IPFE-A1 selected as the active IPFE, select IPFE-A2. **Repeat** for additional Target Sets.

Procedure 30: Inter-IPFE Synchronization Configuration for IPv6 (If equiped)

S T E P #	This procedure details the steps to configure IPv6 for Inter-IPFE synchronization. **Note:** Only Execute this step if MP IMI was migrated to IPv6, otherwise skip this step Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
6 ☐	**SOAM VIP:** Change the previously Active IPFEs to IPv6 addresses.	Navigate to **IPFE -> Configuration -> Options** **Note:** IPFE-A1 Address and IPFE-B1 address will now be editable. Select the IPv6 interface for each IPFE that cooresponds with the existing IPv4 interface:  **Example:** Following **Step 3** example, you will now change IPFE-A1 and IPFE-B1 to the IPv6 address that corresponds with the existing IPv4 address interface for that server.

Procedure 30: Inter-IPFE Synchronization Configuration for IPv6 (If equiped)

S T E P #	This procedure details the steps to configure IPv6 for Inter-IPFE synchronization. **Note:** Only Execute this step if MP IMI was migrated to IPv6, otherwise skip this step Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
7 ☐	**SOAM VIP:** Change the Active IPFE on each Target Set	Navigate to **IPFE -> Configuration -> Target Sets** Select the first target set and select the **Edit** button. Change the Active IPFE on both the Primary and Secondary public IP addresses to the corresponding left-hand radio button:  **Example:** IPFE-A2 should be changed to IPFE-A1 **Repeat** for additional Target Sets.
8 ☐	**SOAM VIP:** Change the previously Active IPFEs to IPv6 addresses.	Navigate to **IPFE -> Configuration -> Options** IPFE-A2 IP address and IPFE-B2 IP address will now be editable. Select the IPv6 interface for each IPFE that cooresponds with the existing IPv4 interface:  **Example:** Following **Step 5** example, you will now change IPFE-A2 and IPFE-B2 to the IPv6 address that corresponds with the existing IPv4 address interface for that server.

Procedure 30: Inter-IPFE Synchronization Configuration for IPv6 (If equiped)

S T E P #	This procedure details the steps to configure IPv6 for Inter-IPFE synchronization. **Note:** Only Execute this step if MP IMI was migrated to IPv6, otherwise skip this step Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
9 ☐	**SOAM VIP:** Restore original Active IPFE configuration	Navigate to **IPFE -> Configuration -> Target Sets** Select each target set and select the **Edit** button. From the table of **Step 2**, return each target set to its original radio button settings for Active IPFE for primary and secondary address.

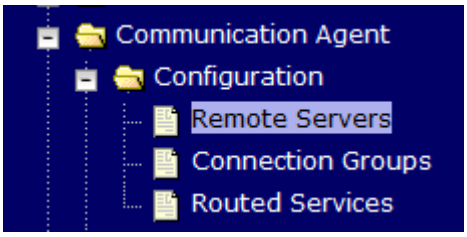
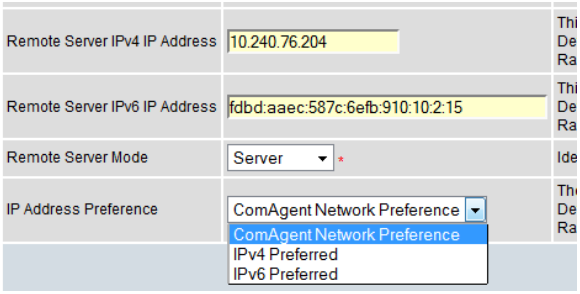
Procedure 30: Inter-IPFE Synchronization Configuration for IPv6 (If equiped)

S T E P #	This procedure details the steps to configure IPv6 for Inter-IPFE synchronization. **Note:** Only Execute this step if MP IMI was migrated to IPv6, otherwise skip this step Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
10 ☐	**IPFE Server:** Verify IPv6 usage	Verify services are now using IPv6: `$ sudo proctcpstat` Example output (Output shortened for display purposes): cmha ::1:17402 ==> ::1:58764 fdbd:aaec:587c:6efb:910:10:2:11:17402 ==> fdbd:aaec:587c:6efb:910:10:2:3:49880 ::1:17402 ==> ::1:58760 fdbd:aaec:587c:6efb:910:10:2:11:17402 ==> fdbd:aaec:587c:6efb:910:10:2:7:52066 ::1:17402 ==> ::1:58759 cmsoapa ::1:58764 ==> ::1:17402 inetmerge fdbd:aaec:587c:6efb:910:10:2:11:16878 ==> fdbd:aaec:587c:6efb:910:10:2:3:55238 ::1:58761 ==> ::1:17402 inetrep ::1:58760 ==> ::1:17402 fdbd:aaec:587c:6efb:910:10:2:11:17400 ==> fdbd:aaec:587c:6efb:910:10:2:3:64808 ::1:58757 ==> ::1:17402 ipfe 10.240.76.200:61241 ==> 10.240.76.201:19041 fd0d:deba:d97c:f19::4:49365 ==> fd0d:deba:d97c:f19::2:9675 10.240.63.69:63833 ==> 10.240.63.66:9675 fd0d:deba:d97c:f18::4:57395 ==> fd0d:deba:d97c:f18::1:9675 10.240.63.69:58418 ==> 10.240.63.67:9675 fd0d:deba:d97c:f27::4:52744 ==> fd0d:deba:d97c:f27::2:9675 fd0d:deba:d97c:f26::4:62863 ==> fd0d:deba:d97c:f26::2:9675 vipmgr ::1:58762 ==> ::1:17402 ::1:58763 ==> ::1:17402

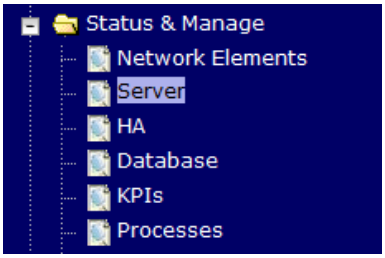
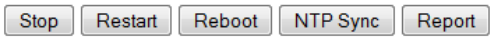
Procedure 31: Modify Export Server IP Addresses: SOAM

S T E P #	This procedure details the steps to modify the export server IP addresses. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**SOAM VIP:** Establish GUI Session	Establish a GUI session on the SOAM server, login as ***guiadmin*** user.
2 ☐	**SOAM VIP:** Modify the Export Server address	Modify the Export Server addresses by executing the steps in **Appendix E**:

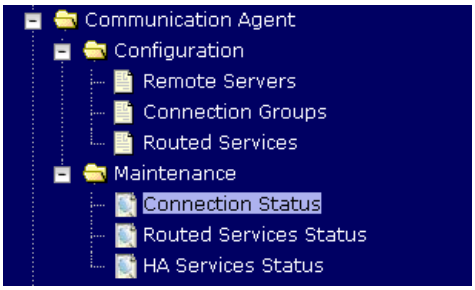
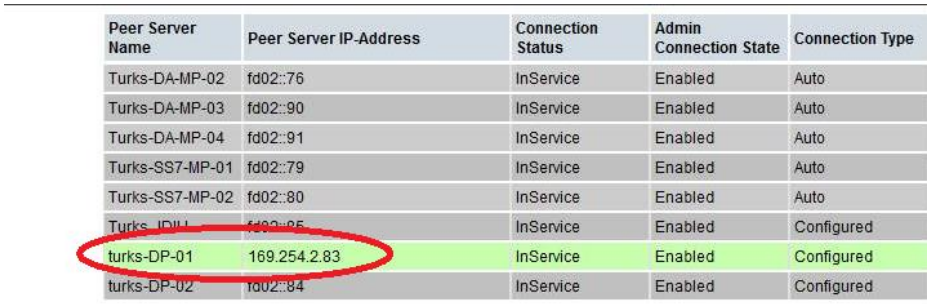
Procedure 32: Configure IPv6 ComAgent Remote Server Connections (DSR + SDS)

S T E P #	This procedure details the steps to add IPv6 addresses to the ComAgent remote server GUI screen. **Note:** This step requires the DSR and SDS to be fully migrated to IPv6 by following the previous steps for BOTH DSR and SDS. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**DSR/SDS NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**DSR/SDS NOAM VIP:** Configure IPv6 Remote Server IP Address	Navigate to **Main Menu -> Communication Agent -> Configuration -> Remote Servers**  Select the remote server Click **Edit** Enter Remote Server IPv6 Address Set the desired IP address preference to IPv6  **Make note of the DP and MP server groups configured in the Remote Server IP precedence configuration**
3 ☐	**DSR/SDS NOAM VIP:** Repeat for Remote/Server end of the ComAgent Connection	Repet step 3 to configure the other end of the ComAgent connection (Server or Client).

Procedure 32: Configure IPv6 ComAgent Remote Server Connections (DSR + SDS)

S T E P #	This procedure details the steps to add IPv6 addresses to the ComAgent remote server GUI screen. **Note:** This step requires the DSR and SDS to be fully migrated to IPv6 by following the previous steps for BOTH DSR and SDS. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
4 ☐	**DSR/SDS NOAM VIP:** Setting strict IPv6 ComAgent Connections. (Optional)	Current implementation of the IPv6 preferred setting may allow the ComAgent connection to revert to the IPv4 connection if the IPv6 connection is disrupted. The following command allows the setting of the retry count in the event the preferred connection is disrupted. This step is considered optional. 1) Establish an SSH session to the Active SDS NOAM, login as ***admusr.*** `$ sudo iset -fvalue=720 ComAgtConfigParams where "name='Max Reconnection Retry Count To Same IP'"` **Note:** The above example shows a retry count of 12 minutes of the preferred IP network from step 3-4. 2) Establish an SSH session to the Active DSR NOAM, login as ***admusr.*** `$ sudo iset -fvalue=720 ComAgtConfigParams where "name='Max Reconnection Retry Count To Same IP'"` **Note:** The above example shows a retry count of 12 minutes of the preferred IP network from step 3-4.
5 ☐	**DSR/SDS NOAM VIP:** Reboot Servers	Navigate to **Main Menu -> Status Manage -> Server**  Refer to the list of servers from **Step 3** Select the MP/DP servers. **Note:** Hold Ctrl to select more than one server at a time. **Warning:** Do not select more than 50% of MP/DP servers in a particular server group. Click **Reboot**  Repeat reboot on remaining MP/DP servers.

Procedure 32: Configure IPv6 ComAgent Remote Server Connections (DSR + SDS)

S T E P #		
	This procedure details the steps to add IPv6 addresses to the ComAgent remote server GUI screen. **Note:** This step requires the DSR and SDS to be fully migrated to IPv6 by following the previous steps for BOTH DSR and SDS. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
6 ☐	**DSR/SDS NOAM VIP:** Verify/Set ComAgent Remote Server IPv6 connection	Navigate to **Main Menu -> Communication Agent -> Maintenance -> Connection Status**  Under the 2nd Column, select the Peer Server Names that were previously configured in **steps 2 and 3**. Verify if the Peer Server IP Address is that of the IPv6 Address configured in **Steps 2 and 3.**  If the address is IPv4, select **Disable** for a peer server connection.  Now Select **Enable** for the above Peer Server Repeat for each Peer Server IP connection (one at a time)
8 ☐	**DSR/SDS NOAM VIP:** Repeat for Remote/Server end of the ComAgent Connection	Repeat step 5 to configure the other end of the ComAgent connection (Server or Client).

Peer Server Name	Peer Server IP-Address	Connection Status	Admin Connection State	Connection Type
Turks-DA-MP-02	fd02::76	InService	Enabled	Auto
Turks-DA-MP-03	fd02::90	InService	Enabled	Auto
Turks-DA-MP-04	fd02::91	InService	Enabled	Auto
Turks-SS7-MP-01	fd02::79	InService	Enabled	Auto
Turks-SS7-MP-02	fd02::80	InService	Enabled	Auto
Turks_IDIH	fd02::85	InService	Enabled	Configured
turks-DP-01	169.254.2.83	InService	Enabled	Configured
turks-DP-02	fd02::84	InService	Enabled	Configured

3.2.4 iDIH Migration

This section describes the procedures that must be executed on the iDIH to migrate the iDIH servers from IPv4 to IPv6 networks.

Procedure 33: Add the New IPv6 Networks: iDIH

S T E P #	This procedure will provide the instructions how to add the new IPv6 networks. **Note:** This step requires the DSR and TVOE to be fully migrated to IPv6 by following the previous steps for DSR and TVOE. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**iDIH TVOE ILO or Cloud GUI:** Establish GUI Session	Establish a GUI session on the iDIH TVOE ILO, login as ***admusr*** user. Note: For Cloud deployments use the cloud vendors Management GUI
2 ☐	**iDIH TVOE ILO or Cloud console:** Use the virsh console to connect to the mediation guest. Or the cloud vendors GUI console.	Use the virsh command to obtain a console on the mediation guest, login in as ***admusr*** user. **$ sudo virsh console <mediation, application or oracle>** Connected to domain mediation Escape character is ^] Oracle Linux Server release 6.6 Kernel 2.6.32-504.16.2.el6prerel7.0.2.0.0_86.26.0.x86_64 on an x86_64 d-ray-med login: **admusr** Password:
3 ☐	**iDIH Guest virsh console or Cloud console:** Use the netAdm command to query the management or xmi interface.	Use the netAdm command to query the existing management or xmi interface configuration and the current default route. **$ sudo netAdm query --device=<management or xmi interface>** Protocol: none IP Address: 10.250.51.185 Netmask: 255.255.255.0 On Boot: yes Type: Ethernet **$ sudo netAdm query --route=default --device=<management or xmi interface>** Routes for TABLE: main and DEVICE: management * NETWORK: default GATEWAY: 10.250.51.1

Procedure 33: Add the New IPv6 Networks: iDIH

S T E P #	This procedure will provide the instructions how to add the new IPv6 networks. **Note:** This step requires the DSR and TVOE to be fully migrated to IPv6 by following the previous steps for DSR and TVOE. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
4 ☐	**iDIH Guest virsh console or Cloud console:** Use the netAdm command to configure IPv6 address.	On the mediation guest virsh console, Use the netAdm command to set the IPv6 address on the management or xmi interface. **$ sudo netAdm set --device=<management or xmi interface> \ --address=<IPv6 address of the xmi or management interface> --netmask=<IPv6 netmask>** `Interface management updated` Note: The following command should only be run on the mediation guest, and only if you intend to update the medation imi interface with an IPv6 address. **$ sudo netAdm set --device=imi --address=<IPv6 address of the imi interface> --netmask=<IPv6 netmask>** `Interface management updated`
5 ☐	**iDIH Guest virsh console or Cloud console:** Use the netAdm to set the IPv6 default route.	On the mediation guest virsh console, Use the netAdm command to add the IPv6 default route. **$ sudo netAdm add --route=default --gateway=<IPv6 Default route address> --device=<management or xmi interface>**

Procedure 33: Add the New IPv6 Networks: iDIH

S T E P #	This procedure will provide the instructions how to add the new IPv6 networks. **Note:** This step requires the DSR and TVOE to be fully migrated to IPv6 by following the previous steps for DSR and TVOE. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
6 ☐	**iDIH Guest virsh console or Cloud Console:** Use the netAdm command to query the management or xmi interface and the default route.	Use the netAdm command to query the updated management or xmi interface configuration and the current default routes. **$ sudo netAdm query --device=<management or xmi interface>** Protocol: none IP Address: 10.250.51.185 Netmask: 255.255.255.0 IPv6 Address: 2606:b400:605:b80d:32:faff:fe15:3995/64 On Boot: yes Type: Ethernet **$ sudo netAdm query --route=default --device=<management or xmi interface>** Routes for TABLE: main and DEVICE: management * NETWORK: default GATEWAY: 10.250.51.1 * NETWORK: default GATEWAY: 2606:b400:605:b80d:226:98ff:fe1a:9ac1 Note: The following command should only be run on the mediation guest, and only if you intend to update the medation imi interface with an IPv6 address. **$ sudo netAdm query --device imi** Protocol: none IP Address: 192.168.32.11 Netmask: 255.255.255.224 IPv6 Address: fe80::62:f4ff:fee8:7b9/64 On Boot: yes Type: Ethernet
7 ☐	**iDIH Guest virsh console or Cloud Console:** Shutdown the guest.	Use the init command to shut down the Mediation guest. **$ sudo init 0**
8 ☐	**Procedure Overview**	Repeat Steps 2 through 7 for the following VMs. Be sure to perform the repeated steps in the order listed below, I.E. update the application guest then the oracle guest. iDIH Application iDIH Oracle
9 ☐	**PMAC GUI or Cloud Management GUI:** Use the PMAC GUI or Cloud Management GUI to start the iDIH guests..	Use the PMAC GUI to start each guest. Start the guests in the following order mediation, application then the oracle guests. **VM Management -> guest -> Current Power State: -> On -> Change** Note: It will take approximately 10 minutes for all the guests to boot.

Procedure 33: Add the New IPv6 Networks: iDIH

S T E P #	This procedure will provide the instructions how to add the new IPv6 networks. **Note:** This step requires the DSR and TVOE to be fully migrated to IPv6 by following the previous steps for DSR and TVOE. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	

10 ☐	**iDIH Application console (optional):** Use the application console to update the SNMP server with an IPv6 address.	Open a terminal window and log in as admusr on the iDIH Application server.
		Copy the files server.crt and server.key that are provided by the customer to /root.
		Enter the platcfg menu. As admusr, run:
		
		`$ sudo su – platcfg`
		
		Select Application Server Configuration ➢SNMP Agent Configuration.
		
		A window appears which allows you to enter the IPv6 address of the SNMP management platform and version of SNMP agent and traps.
		
		`Select Edit.`
		`Type the appropriate values and click OK.`
		
		The SNMP agent configuration is updated and the SNMP Management server is automatically restarted.
		
		`Exit the platcfg menu.`

11 ☐	**Configure DSR Reference Data Synchronization for IDIH (DSR 7.1-Optional):**
	
	Use the script to update the SOAM server with an IPv6 address.
		Open a terminal window and log in as admusr on the iDIH Application server.
		Issue the following commands to login as ***tekelec*** user.
		`$ sudo su – tekelec`
		
		Execute the following script:
		
		`<hostname>:/usr/TKLC/xIH apps/trda-config.sh`
		
		NOTE: While prompted “Please enter DSR SOAM server IP address”, enter the VIP of the DSR SOAM and press **Enter.**

12 ☐	**NOAM GUI:** Configure the iDIH comAgent connection on the NOAM.	Connect to the NOAM GUI navigate to the communication menu and update the IPv6 imi address of the iDIH mediation guest. `Communication Agent -> Configuration -> Remote Servers` Add the "imi iDIH mediation IPv6 guest address", select "Server" and "MPGroup".
13 ☐	**SOAM GUI:** Configure the “Troubleshooting with IDIH” option on the SOAM.	Connect the SOAM GUI navigate to the Diameter menu and update the IPv6 xmi/management address of the iDIH Application guest. `Diameter -> Troubleshooting with IDIH -> Configuration -> Options` Select iDIH (IPv6 Address) and enter the "iDIH application guest IPv6 xmi/management address".

3.3 MIGRATION BACKOUT PROCEDURES

If, after migrating some or all servers in the DSR topology to use IPv6 networks and addresses and for some reason a back out is indicated, execute the following procedures.

Note: Since this document does not have procedures to remove old, now unused IPv4 networks and addresses during migration to IPv6, the IPv4 networks and addresses should still be in-place for the back out procedure. If this is not the case, then do not use this procedure.

Note: For IPv6 backout on Cloud Deployments do not perform backout procedures 42, 50, 51 and 52.

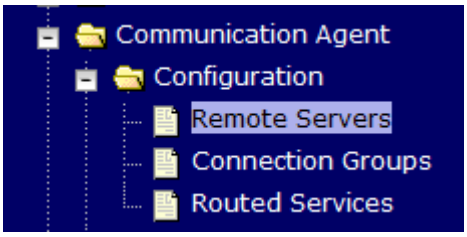
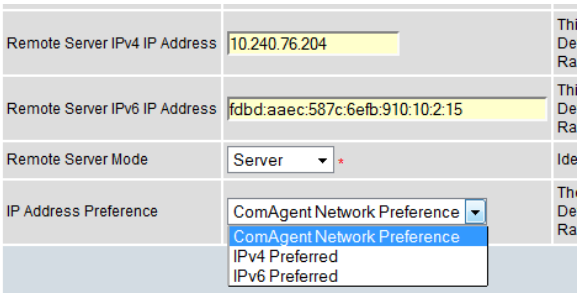
3.3.1 SOAM Site NE Backout

This section describes the procedures that must be executed on the NOAM to back out the SOAM, MP, and DP, servers from IPv6 to IPv4 networks.

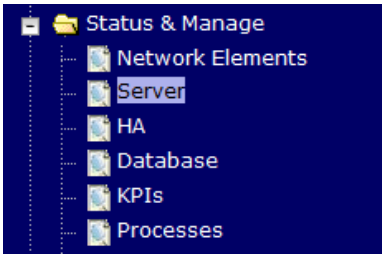
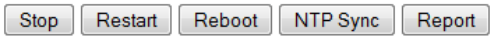
Procedure 34: Delete the New IPv6 SOAM Server Group VIP

S T E P #	This procedure will provide the instructions how to delete the new SOAM IPv6 VIPs. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Remove any IPv6 VIPs from SOAM Server Group	Execute this step to remove an IPv6 VIP, if needed: Navigate to the **Main Menu → Configuration → Server Groups** Select the SOAM server group that needs an IPv6 VIP removed. Select the **Edit** button at the bottom of the page. The GUI will show the Server Groups Edit form.  Select the **Remove** button to remove any IPv6 VIP Address text box. Select **Ok** button to commit the form.

Procedure 35: Delete IPv6 ComAgent Remote Server Configuration (DSR + SDS)

S T E P #	This procedure details the steps to delete IPv6 ComAgent remote server configuration. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**DSR/SDS NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user. **Note:** You will complete this procedure for both sides of the ComAgent connection, login to the DSR or SDS
2 ☐	**DSR/SDS NOAM VIP:** Set IP Address Preference	Navigate to **Main Menu -> Communication Agent -> Configuration**  Delete the remote server IPv6 address. Set the **IP Address Preference** as *ComAgent Network Preference.*  **Make note of the DP and MP server groups configured in the Remote Server IP precedence configuration**

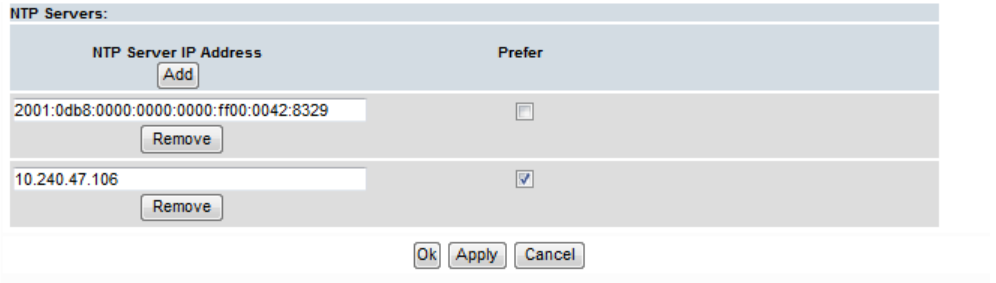
Procedure 35: Delete IPv6 ComAgent Remote Server Configuration (DSR + SDS)

S T E P #	This procedure details the steps to delete IPv6 ComAgent remote server configuration. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
3 ☐	**DSR/SDS NOAM VIP:** Reboot Servers	Navigate to **Main Menu -> Status Manage -> Server**  Refer to the list of servers from **Step 2** Select the MP/DP servers. **Note:** Hold Ctrl to select more than one server at a time. **Warning:** Do not select more than 50% of MP/DP servers in a particular server group. Click **Reboot** 
4 ☐	**DSR/SDS NOAM VIP:** Repeat	Repeat this procedure for the remaining MP/DP servers.
5 ☐	**SDS/DSR:** Repeat	Upon completion of **Step 4**, one side of the ComAgent connection should be backed out to Ipv4. Repeat this procedure for the other side of the ComAgent connection.

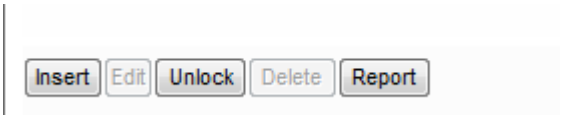
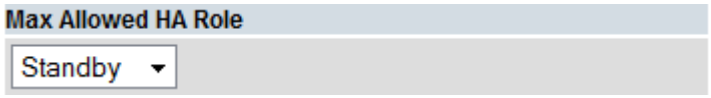
Procedure 36: Delete IPv6 Inter-IPFE Synchronization configuration (DSR Only)

S T E P #	This procedure details the steps to delete the IPv6 inter-IPFE synchronization configuration. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**SOAM VIP:** Establish GUI Session	Establish a GUI session on the SOAM server, login as ***guiadmin*** user.
2 ☐	**SOAM VIP:** Delete IPv6 Configuration of Inter-IPFE Synchronization	Follow the steps described in the IPv6 configuration inter-IPFE synchronization (Procedure 30), but replace with the original IPv4 addresses from the data gathered in Procedure 1

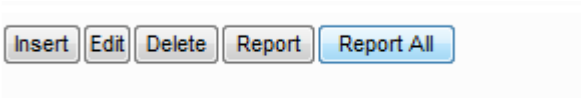
Procedure 37: Delete the New IPv6 NTP Servers: MP/DP Servers

S T E P #	This procedure will provide the instructions how to remove the new IPv6 NTP servers. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Remove the IPv6 NTP servers from the MP/DP Server	Execute this step to remove NTP server(s) with IPv6 address, if needed. Navigate to the **Main Menu → Configuration → Servers**. Select the MP/DP server to remove an IPv6 addressed NTP server from. Select the **Edit** button at the bottom of the page. The GUI will show the ***"Server Edit"*** form. **Note:** Notice that only the NTP servers and the System ID are available for edit.  Select the **Remove** button to remove the IPv6 NTP Server text box. Select the **Add** button to create the IPv4 NTP Server text box. Enter the old IPv4 NTP server address into the text box. **Repeat** the above steps if removing additional IPv6 addressed NTP Servers and replacing with old IPv4 addressed NTP Servers. Once all IPv4 NTP Servers have been entered in the Server Edit form, select **Ok** button to commit the form. **Note:** Do not execute any NTP Sync operation at this time.
3 ☐	**NOAM VIP:** Remove IPv6 NTP servers for the remaining servers	Repeat **step 2** above to remove the new IPv6 NTP servers on remaining MP/DP servers. Upon completion, you will have replaced IPv6 NTP servers with IPv4 NTP servers for each MP/DP server.

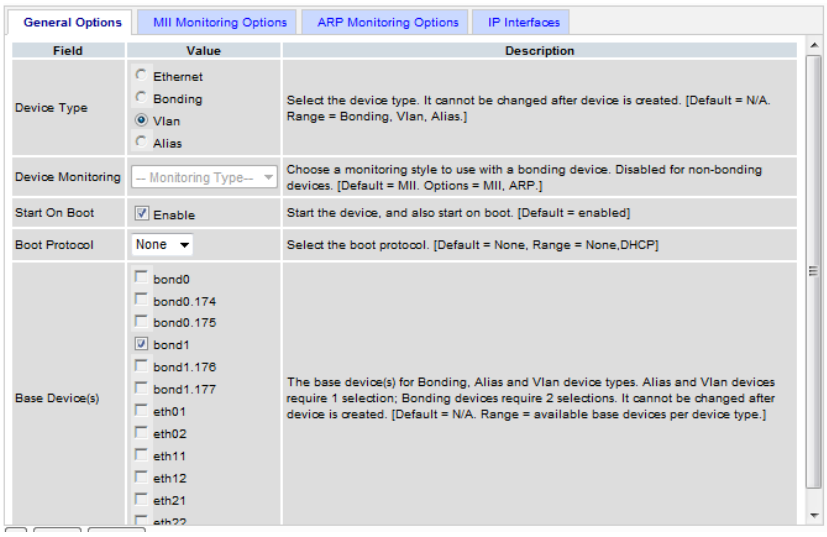
Procedure 38: Delete IPv6 Routes and Interfaces: MP/DP Servers

S T E P #		
	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on no more than 50% of the MP/DP servers, followed by the remaining MP/DP servers. **Note:** It is recommended that the XMI IPv6 network be backed out prior to backing out the IMI IPv6 network(If previously migrated). Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Unlock Networks	If needed, unlock the IPv6 and matching IPv4 networks so that IPv6 interfaces can be deleted. Navigate to the **Main Menu → Configuration → Network** Select the one or more networks that have configured interfaces that need to be deleted.  Select the **Unlock** button at the bottom of the page. A Confirmation dialog box will pop up. Select ***"check to confirm"*** and then select **OK** to continue. Your browser session will remain on the **Main Menu → Configuration → Network** page and in the grid you will see the networks are now unlocked.
3 ☐	**NOAM VIP:** Set HA role to Forced Standby	Navigate to the **Main Menu → Status&Manage → HA** Click **Edit**  Set the "Max Allowed HA Role" of the MP/DP to **Standby**  **Warning:** Do not select more than 50% of MP/DP servers in a particular server group. Login again to the NOAM VIP as ***guiadmin*** user.

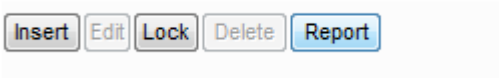
Procedure 38: Delete IPv6 Routes and Interfaces: MP/DP Servers

S T E P #	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on no more than 50% of the MP/DP servers, followed by the remaining MP/DP servers. **Note:** It is recommended that the XMI IPv6 network be backed out prior to backing out the IMI IPv6 network(If previously migrated). Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
4 ☐	**Remove an IPv6 route**	Execute this step to remove an IPv6 route, if needed. Navigate to the **Main Menu → Configuration → Network → Routes** Select the server or server group to delete an IPv6 route from.  Select the **Delete** button at the bottom of the page.
5 ☐	**Remove remaining IPv6 routes**	Repeat **step 4** above to remove the remaining IPv6 network routes added in **procedure 27**. Upon completion, you will have removed all IPv6 network routes for each application server.

Procedure 38: Delete IPv6 Routes and Interfaces: MP/DP Servers

S T E P #		
	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on no more than 50% of the MP/DP servers, followed by the remaining MP/DP servers. **Note:** It is recommended that the XMI IPv6 network be backed out prior to backing out the IMI IPv6 network(If previously migrated). Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
6 ☐	**NOAM VIP**: Delete a VLAN Tagged IPv6 Interface	Execute this step to delete a VLAN tagged IPv6 address to an existing device interface. Navigate to the **Main Menu → Configuration → Network → Devices**. Select the tab for the first MP server to have IPv6 interfaces deleted. Now select the Device Name that corresponds to the VLAN Id of the network you are deleting. Select the **Edit** button at the bottom of the page. The GUI will show the ***"Devices Edit"*** form.  In the form, select the IP Interfaces tab. Select the **Remove** button to remove the new IPv6 address. Select **Ok** button to commit the form.
7 ☐	**NOAM VIP**: Repeat for Additional MP/DP Servers	Repeat **step 6** for additional MP/DP Servers.

Procedure 38: Delete IPv6 Routes and Interfaces: MP/DP Servers

S T E P #	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on no more than 50% of the MP/DP servers, followed by the remaining MP/DP servers. **Note:** It is recommended that the XMI IPv6 network be backed out prior to backing out the IMI IPv6 network(If previously migrated). Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
8 ☐	**NOAM VIP:** Lock Networks	Lock all networks now that all MP/DP IPv6 interfaces have been deleted. Navigate to the **Main Menu → Configuration → Network** Select the network or networks to lock. Select the **Lock** button at the bottom of the page.  A ***"Confirm"*** dialog box will pop up. Select ***"check to confirm"*** and then select **OK** to continue. Your browser session will be taken back to the **Main Menu → Configuration → Network** page and in the grid you will see the network(s) maked as ***"Locked=Yes"***.
9 ☐	**Active SOAM :** Login	Establish an SSH session on the active SOAM, login as ***admusr***.

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	Active SOAM : Restore OAM replication and Merging	Execute the following commands to restart ComCol and restore OAM replication and merging:
		
		`$ sudo rndc retransfer platform.cgbu.us.oracle.com`
		
		`$ sudo nscd -i hosts`

11 ☐	**Standby SOAM:** Repeat	Repeat **Steps 9-10** on the standby SOAM
12 ☐	**MP/DP Servers :** Restart ComCol and Restore OAM replication and Merging	Establish an SSH session to the MP/DP Server, login as ***admusr.*** Execute the following command to restart ComCol and restore OAM replication and merging: `$ sudo /usr/TKLC/appworks/bin/awntpcfg -synconly -force`

Procedure 38: Delete IPv6 Routes and Interfaces: MP/DP Servers

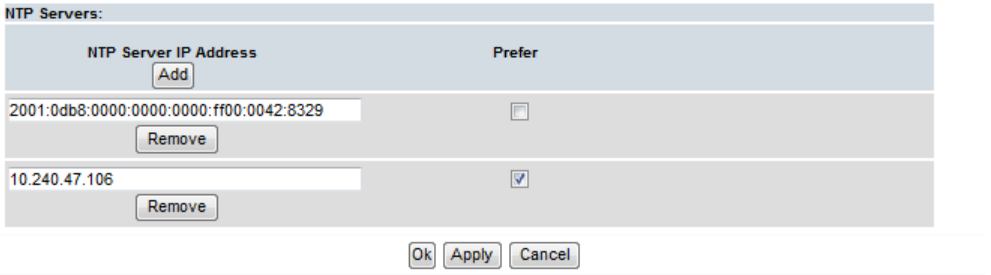
S T E P #	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on no more than 50% of the MP/DP servers, followed by the remaining MP/DP servers. **Note:** It is recommended that the XMI IPv6 network be backed out prior to backing out the IMI IPv6 network(If previously migrated). Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	

13 ☐	**MP/DP Servers :** Verify ComCol replication is using working and using IPv4	Perform the following command to verify ComCol IP connections are using IPv4:
		$ sudo proctcpstat
		Expected output:
		`----------`
		`cmha`
		`::1:17402 ==> ::1:45460`
		`169.254.2.5:59861 ==> 169.254.2.4:17401`
		`::1:17402 ==> ::1:45461`
		`::1:17402 ==> ::1:57659`
		`::ffff:10.240.108.5:17401 ==> ::ffff:10.240.108.4:50368`
		`::1:17402 ==> ::1:45471`
		`::1:17402 ==> ::1:45462`
		`10.240.108.5:56128 ==> 10.240.108.4:17401`
		`::1:17402 ==> ::1:57658`
		`::1:17402 ==> ::1:45459`
		`::ffff:169.254.2.5:17401 ==> ::ffff:169.254.2.4:48811`
		`cmsoapa`
		`::1:45462 ==> ::1:17402`
		`inetmerge`
		`169.254.2.5:49256 ==> 169.254.2.4:16878`
		`::ffff:169.254.2.5:16878 ==> ::ffff:169.254.2.4:46701`
		`::1:45471 ==> ::1:17402`
		`169.254.2.5:55785 ==> 169.254.2.7:16878`
		`169.254.2.5:36744 ==> 169.254.2.8:16878`
		`inetrep`
		`169.254.2.5:62450 ==> 169.254.2.4:17400`
		`::1:45459 ==> ::1:17402`
		`169.254.2.5:57584 ==> 169.254.2.11:17402`
		`vipmgr`
		`::1:45461 ==> ::1:17402`
		`::1:45460 ==> ::1:17402`
		`----------`
		Perform the following command to verify ComCol merging link states:
		$ sudo inetmstat
		`----------`
		`[admusr@DAMP-1 ~]$ sudo inetmstat`
		`nodeId InetMerge State dir dSeq dTime updTime info`
		`SOAM-1 Standby To 0 0.00 10:06:54`
		`SOAM-2 Active To 0 0.00 10:06:54`
		`----------`
		Perform the following commands to verify ComCol replication link states:
		$ sudo irepstat
		`----------`
		`-- Policy 0 ActStb [DbReplication] ----------`
		`BC From SOAM-2 Active 0 0.50 ^0.11%cpu 33B/s A=me`
		`CC From DAMP-2 Active 0 0.10 ^0.15 1.17%cpu 32B/s A=me`
		`-- Policy 1001 DSR_SLDB_Policy [] ----------`
		`0 CC To DAMP-2 Active 0 0.10 0.16%cpu 31B/s A=me`
		`1 CC From DAMP-2 Active 0 0.10 ^0.11 1.10%cpu 52B/s A=me`
		`----------`

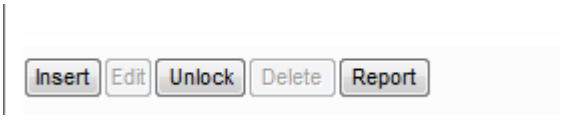
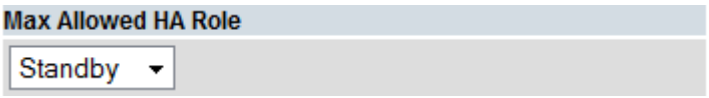
Procedure 38: Delete IPv6 Routes and Interfaces: MP/DP Servers

S T E P #	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on no more than 50% of the MP/DP servers, followed by the remaining MP/DP servers. **Note:** It is recommended that the XMI IPv6 network be backed out prior to backing out the IMI IPv6 network(If previously migrated). Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
14 ☐	**NOAM VIP:** Establish GUI Session	If not already done so, establish a GUI session on the NOAM server, login as ***guiadmin*** user.
15 ☐	**NOAM VIP:** Perform "NTP Sync"	Navigate to the **Main Menu → Status&Manage → Server** Select the MP/DP server. Select the **NTP Sync** button at the bottom of the page.  A Confirmation dialog box will pop up asking if you are sure you want to continue with the NTP Sync. Select **OK** to continue.
16 ☐	**NOAM VIP:** Set HA Role to Active	Navigate to the **Main Menu → Status&Manage → HA** Click **Edit**  Set the previously selected MP/DP servers (from step 3) "Max Allowed HA Role" to **Active**  Wait for Merging and replication related alarms to clear before proceeding.
17 ☐	**Remaining MP/DP Servers:** Repeat	Repeat **ALL** steps in this procedure on the remaining MP/DP Servers.

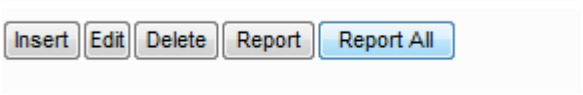
Procedure 39: Delete the New IPv6 NTP Servers: SOAM

S T E P #	This procedure will provide the instructions how to remove the new IPv6 NTP servers. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Remove the IPv6 NTP servers from Active SOAM	Execute this step to remove NTP server(s) with IPv6 address, if needed. Navigate to the **Main Menu → Configuration → Servers**. Select the Active NOAM server to remove an IPv6 addressed NTP server from. Select the **Edit** button at the bottom of the page. The GUI will show the ***"Server Edit"*** form. **Note:** Notice that only the NTP servers and the System ID are available for edit.  Select the **Remove** button to remove the IPv6 NTP Server text box. Select the **Add** button to create the IPv4 NTP Server text box. Enter the old IPv4 NTP server address into the text box. **Repeat** the above steps if removing additional IPv6 addressed NTP Servers and replacing with old IPv4 addressed NTP Servers. Once all IPv4 NTP Servers have been entered in the Server Edit form, select **Ok** button to commit the form. **Note:** Do not execute any NTP Sync operation at this time.
3 ☐	**NOAM VIP:** Remove IPv6 NTP servers for the remaining servers	Repeat **step 2** above to remove the new IPv6 NTP servers on the standby SOAM server. Upon completion, you will have replaced IPv6 NTP servers with IPv4 NTP servers for each SOAM server.

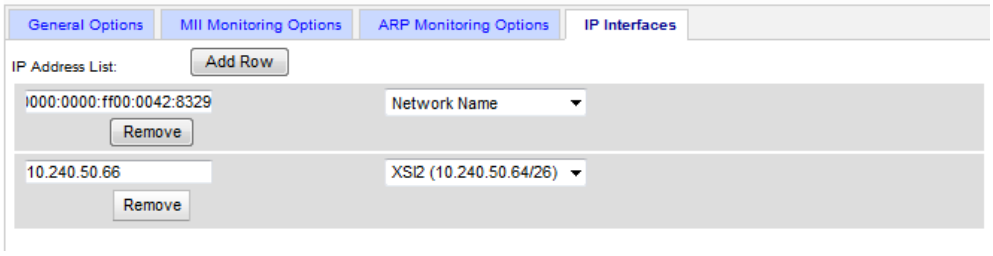
Procedure 40: Delete IPv6 Routes and Interfaces: SOAM

S T E P #		
	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Execute this procedure if IPv6 routes were added **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on the Active SOAM, followed by the Standby SOAM. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Unlock Networks	If needed, unlock the IPv6 and matching IPv4 networks so that IPv6 interfaces can be deleted. Navigate to the **Main Menu → Configuration → Network** Select the one or more networks that have configured interfaces that need to be deleted.  Select the **Unlock** button at the bottom of the page. A Confirmation dialog box will pop up. Select ***"check to confirm"*** and then select **OK** to continue. Your browser session will remain on the **Main Menu → Configuration → Network** page and in the grid you will see the networks are now unlocked.
3 ☐	**NOAM VIP:** Set Active SOAM HA role to Forced Standby	Navigate to the **Main Menu → Status&Manage → HA** Click **Edit**  Set the "Max Allowed HA Role" of the Active SOAM to **Standby**  **Note:** A switch-over will occur, where the formally standby SOAM server will become the active server.

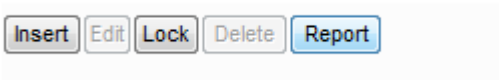
Procedure 40: Delete IPv6 Routes and Interfaces: SOAM

S T E P #	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Execute this procedure if IPv6 routes were added **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on the Active SOAM, followed by the Standby SOAM. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
4 ☐	**Remove an IPv6 route**	Execute this step to remove an IPv6 route, if needed. Navigate to the **Main Menu → Configuration → Network → Routes** Select the server or server group to delete an IPv6 route from.  Select the **Delete** button at the bottom of the page.
5 ☐	**Remove remaining IPv6 routes**	Repeat **step 4** above to remove the remaining IPv6 network routes added in **procedure 23**. Upon completion, you will have removed all IPv6 network routes for each application server.

Procedure 40: Delete IPv6 Routes and Interfaces: SOAM

S T E P #	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Execute this procedure if IPv6 routes were added **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on the Active SOAM, followed by the Standby SOAM. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
6 ☐	**NOAM VIP:** Delete the VLAN tagged IPv6 interfaces from the SOAM servers	Execute this step to delete a VLAN tagged IPv6 address from an existing device interface. Navigate to the **Main Menu → Configuration → Network → Devices** Select the tab for the standby SOAM server to have IPv6 interfaces deleted. Now select the Device Name that corresponds to the VLAN Id of the network you are deleting. Select the **Edit** button at the bottom of the page. The GUI will show the Devices Edit form.  In the form, select the IP Interfaces tab. Select the **Remove** button to remove the new IPv6 address. Select **Ok** button to commit the form. **Repeat** this step for all IPv6 interfaces on the standby SOAM server.

Procedure 40: Delete IPv6 Routes and Interfaces: SOAM

S T E P #		
	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Execute this procedure if IPv6 routes were added **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on the Active SOAM, followed by the Standby SOAM. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
7 ☐	**NOAM VIP:** Lock Networks	Lock all networks now that all standby SOAM IPv6 interfaces have been deleted. Navigate to the **Main Menu → Configuration → Network** Select the network or networks to lock. Select the **Lock** button at the bottom of the page.  A ***"Confirm"*** dialog box will pop up. Select ***"check to confirm"*** and then select **OK** to continue. Your browser session will be taken back to the **Main Menu → Configuration → Network** page and in the grid you will see the network(s) maked as ***"Locked=Yes"***.

Procedure 40: Delete IPv6 Routes and Interfaces: SOAM

S T E P #	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Execute this procedure if IPv6 routes were added **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on the Active SOAM, followed by the Standby SOAM. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	

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	SOAM:
	Verify/Modify the named.conf file
		Establish an SSH session to the SOAM Server, login as ***admusr***.
		
		Execute the following command to access/edit the named.conf file:
		
		`$ sudo vim /etc/named.conf`
		
		Under the 'zone' section, verify the 'masters' definitions include the IPv4 addresses of the parent NOAM/DR-NOAM Servers.
		
		If the 'masters' definitions include IPv6 addresses, replace them with the corresponding IPv4 addresses of the NOAM/DR-NOAM gathered in **Procedure 1**. *(Enter 'i' to edit the file)*
		
		Example:
		
		`----------`
		`zone "ip6.arpa" {`
		`type slave;`
		`masters { 169.254.2.4; 169.254.2.5; };`
		`file "rdb.platform.cgbu.us.oracle.com";`
		`};`
		
		`zone "in-addr.arpa" {`
		`type slave;`
		`masters { 169.254.2.4; 169.254.2.5; };`
		`file "rdb.platform.cgbu.us.oracle.com";`
		
		`zone "platform.cgbu.us.oracle.com" {`
		`type slave;`
		`masters { 169.254.2.4; 169.254.2.5; };`
		`file "db.platform.cgbu.us.oracle.com"; };`
		`----------`
		
		If the IPv4 addresses are already present, enter ":q" to exit, if the file was edited, enter ":wq" to write and exit.

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	SOAM : Restart ComCol and Restore OAM replication and Merging	Execute the following commands to restart ComCol and restore OAM replication and merging:
		
		`$ sudo rndc retransfer platform.cgbu.us.oracle.com`
		
		`$ sudo /usr/TKLC/appworks/bin/awntpcfg -synconly -force`

Procedure 40: Delete IPv6 Routes and Interfaces: SOAM

S T E P #		
	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Execute this procedure if IPv6 routes were added **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on the Active SOAM, followed by the Standby SOAM. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	

10 ☐	**SOAM :** Verify ComCol replication is using working and using IPv4	Perform the following command to verify ComCol IP connections are using IPv4:
		$ sudo proctcpstat
		Expected output:
		`----------`
		`cmha`
		`::1:17402 ==> ::1:45460`
		`169.254.2.5:59861 ==> 169.254.2.4:17401`
		`::1:17402 ==> ::1:45461`
		`::ffff:10.240.108.5:17401 ==> ::ffff:10.240.108.4:50368`
		`::1:17402 ==> ::1:45462`
		`10.240.108.5:56128 ==> 10.240.108.4:17401`
		`::1:17402 ==> ::1:57658`
		`::ffff:169.254.2.5:17401 ==> ::ffff:169.254.2.4:48811`
		`cmsoapa`
		`::1:45462 ==> ::1:17402`
		`inetmerge`
		`169.254.2.5:49256 ==> 169.254.2.4:16878`
		`::ffff:169.254.2.5:16878 ==> ::ffff:169.254.2.4:46701`
		`::1:45471 ==> ::1:17402`
		`169.254.2.5:55785 ==> 169.254.2.7:16878`
		`169.254.2.5:36744 ==> 169.254.2.8:16878`
		`inetrep`
		`169.254.2.5:62450 ==> 169.254.2.4:17400`
		`::1:45459 ==> ::1:17402`
		`169.254.2.5:44613 ==> 169.254.2.8:17402`
		`169.254.2.5:63825 ==> 169.254.2.8:17400`
		`169.254.2.5:57584 ==> 169.254.2.11:17402`
		`vipmgr`
		`::1:45461 ==> ::1:17402`
		`::1:45460 ==> ::1:17402`
		`----------`
		
		Perform the following command to verify ComCol merging link states:
		$ sudo inetmstat
		`----------`
		`nodeId InetMerge State dir dSeq dTime updTime info`
		`NOAM-2 Standby To 0 0.00 11:00:46`
		`NOAM-1 Standby To 0 0.00 11:00:46`
		`IPFE-1 Standby From 0 0.00 11:00:46`
		`SS7MP-2 Standby From 0 0.00 11:00:46`
		`SS7MP-1 Standby From 0 0.00 11:00:46`
		`DAMP-2 Standby From 0 0.00 11:00:46`
		`~----------`
		
		Perform the following commands to verify ComCol replication link states:
		$ sudo irepstat
		`----------`
		`-- Policy 0 ActStb [DbReplication] ----------`
		`BB From SOAM-2 Active 0 0.50 ^0.03%cpu 23B/s`
		`----------`

Procedure 40: Delete IPv6 Routes and Interfaces: SOAM

S T E P #	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Execute this procedure if IPv6 routes were added **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on the Active SOAM, followed by the Standby SOAM. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
11 ☐	**NOAM VIP:** Establish GUI Session	If not already done so, establish a GUI session on the NOAM server, login as ***guiadmin*** user.
12 ☐	**NOAM VIP:** Perform "NTP Sync"	Navigate to the **Main Menu → Status&Manage → Server** Select the standby SOAM server. Select the **NTP Sync** button at the bottom of the page.  A Confirmation dialog box will pop up asking if you are sure you want to continue with the NTP Sync. Select **OK** to continue.
13 ☐	**NOAM VIP:** Set HA Role to Active	Navigate to the **Main Menu → Status&Manage → HA** Click **Edit**  Set the "Max Allowed HA Role" to **Active**  Wait for Merging and replication related alarms to clear before proceeding.
14 ☐	**Standby SOAM:** Repeat	Repeat **ALL** steps in this procedure on the newly active *(Formerly Inactive)* SOAM.

Procedure 41: Delete/Modify Export Server IP Addresses: SOAM

S T E P #	This procedure details the steps to modify the export server IP addresses. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**SOAM VIP:** Establish GUI Session	Establish a GUI session on the SOAM server, login as ***guiadmin*** user.
2 ☐	**SOAM VIP:** Modify the Export Server address	Modify the Export Server addresses by executing the steps in **Appendix E**: **.** Replace the IPv6 addresses with the IPv4 addresses gathered in procedure 1.

Procedure 42: Delete SOAM TVOE Blade Server IPv6 Addresses and Routes

S T E P #	This procedure details the steps to backout TVOE server IPv6 networks Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**TVOE Server:** SSH to the TVOE Blade Server	Establish an SSH terminal session to the TVOE blade server. Login as ***admusr***. **Note:** For IPv6 backout on cloud deployments, skip to **procedure 43.** This procedure it not valid for Cloud deployments.
2 ☐	**TVOE Server:** Delete the XMI IPv6 address.	Using the export server data gathered in Procedure 1, enter the new IPv6 address for the XMI bridge inteface using the following command: **$ sudo netAdm set --type=Bridge --name=*<XMI>*** **--address=*<ipv6_address>/<IPv6_prefix>* *--deleteAddr***
3 ☐	**TVOE Server:** Verify	Only the old IPv4 IP address should be displayed after entering the following command: **$ sudo netAdm query --type=Bridge --name=<XMI>**
4 ☐	**TVOE Server:** Delete the Netbackup IPv6 address.***(Optional)***	**$ sudo netAdm set --type=Bridge --name=*<Netbackup>*** **--address=*<ipv6_address>/<ipv6_prefix>* *--deleteAddr***
5 ☐	**TVOE Server:** Verify	Only the old IPv4 IP address should be displayed after entering the following command: **$ sudo netAdm query --type=Bridge --name=<NetBackup>**
6 ☐	**TVOE Server:** Delete the default route	Delete the default route: **$ sudo netAdm delete route --route=default --device=<XMI>** **--gateway=<XMI_IPv6_gateway>**

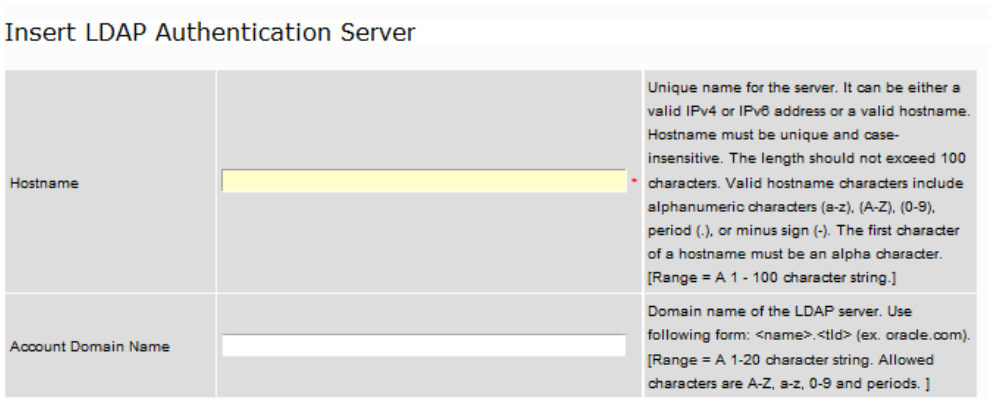
Procedure 42: Delete SOAM TVOE Blade Server IPv6 Addresses and Routes

S T E P #	This procedure details the steps to backout TVOE server IPv6 networks Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
7 ☐	**TVOE Server:** Delete additional routes if needed	Delete additional routes, if needed: Example: `$ sudo netAdm delete route --route=net --device=netbackup --address=<Netbackup_IPv6_address> --netmask=<Netbackup_IPv6_NetMask> --gateway=<Netbackup_IPv6_gateway>`
12 ☐	**TVOE Server:** Configure IPv6 for SNMP and NTP.	Execute **Appendix F:** `TVOE Host SNMP and NTP IPv6 Configuration` to Configure the old IPv4 IP addresses for SNMP and NTP on the TVOE blades.
13 ☐	**TVOE Server:** Repeat for 2nd SOAM Server	Repeat **Steps 1-14** for the 2nd SOAM TVOE Host.

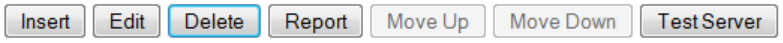
3.3.2 NOAM Backout

This section describes the procedures that must be executed on the NOAM to back out the NOAM servers from IPv6 to IPv4 networks.

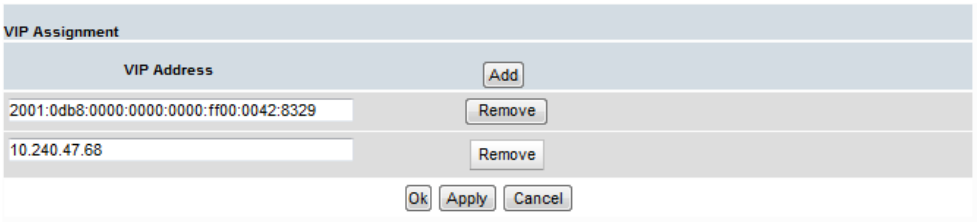
Procedure 43: Modify/Delete LDAP IPv6 Configuration (Optional)

S T E P #	This procedure details the steps to back out the LDAP server IPv6 addresses. **Note:** If, during the IPv6 back out , it is determined that new IPv6 addresses for external LDAP server(s) are to be deleted, then execute this procedure. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Verify IPv4 LDAP Configuration is present	Navigate to the **Main Menu → Administration → Remote Servers → LDAP Authentication** Verify the old IPv4 LDAP configuration is present. If not, use the IPv4 information from procedure 1 to insert the IPv4 LDAP configuration: Select the **Insert** button at the bottom of the page to access the Insert form.  Scroll down and select **Ok** button to commit the form.

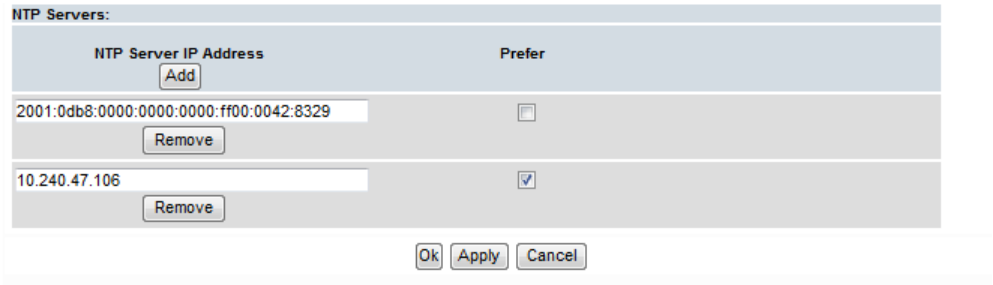
Procedure 43: Modify/Delete LDAP IPv6 Configuration (Optional)

S T E P #		
	This procedure details the steps to back out the LDAP server IPv6 addresses. **Note:** If, during the IPv6 back out , it is determined that new IPv6 addresses for external LDAP server(s) are to be deleted, then execute this procedure. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
3 ☐	**NOAM VIP:** Delete the IPv6 LDAP Configuration	Navigate to the **Main Menu → Administration → Remote Servers → LDAP Authentication** Select the IPv6 LDAP configuration. Click **Delete**.  Select **OK** to proceed with the deletion.

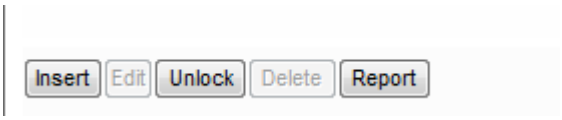
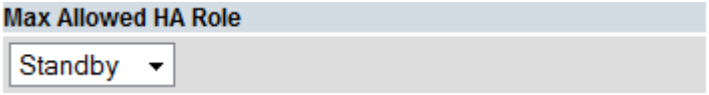
Procedure 44: Delete the New IPv6 NOAM Server Group VIP

S T E P #		
	This procedure will provide the instructions how to delete the new NOAM IPv6 VIPs. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Remove any IPv6 VIPs from NOAM Server Group	Execute this step to remove an IPv6 VIP, if needed: Navigate to the **Main Menu → Configuration → Server Groups** Select the NOAM server group that needs an IPv6 VIP removed. Select the **Edit** button at the bottom of the page. The GUI will show the Server Groups Edit form.  Select the **Remove** button to remove any IPv6 VIP Address text box. Select **Ok** button to commit the form.

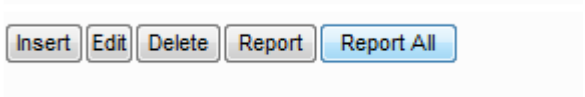
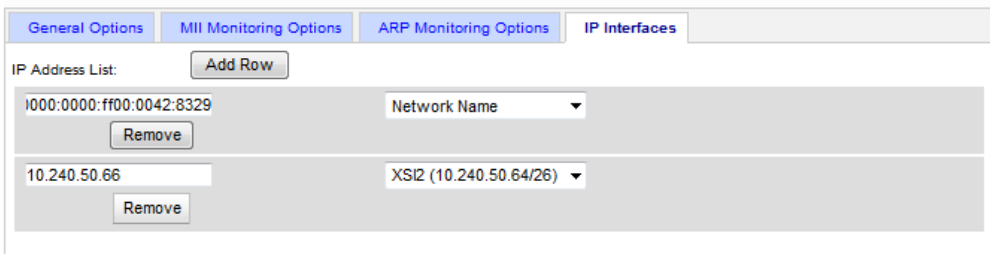
Procedure 45: Delete the New IPv6 NTP Servers: NOAM

S T E P #	This procedure will provide the instructions how to remove the new IPv6 NTP servers. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Remove the IPv6 NTP servers from Active NOAM	Execute this step to remove NTP server(s) with IPv6 address, if needed. Navigate to the **Main Menu → Configuration → Servers**. Select the Active NOAM server to remove an IPv6 addressed NTP server from. Select the **Edit** button at the bottom of the page. The GUI will show the ***"Server Edit"*** form. **Note:** Notice that only the NTP servers and the System ID are available for edit.  Select the **Remove** button to remove the IPv6 NTP Server text box. Select the **Add** button to create the IPv4 NTP Server text box. Enter the old IPv4 NTP server address into the text box. **Repeat** the above steps if removing additional IPv6 addressed NTP Servers and replacing with old IPv4 addressed NTP Servers. Once all IPv4 NTP Servers have been entered in the Server Edit form, select **Ok** button to commit the form. **Note:** Do not execute any NTP Sync operation at this time.
3 ☐	**NOAM VIP:** Remove IPv6 NTP servers for the remaining servers	Repeat **step 2** above to remove the new IPv6 NTP servers on the standby NOAM server. Upon completion, you will have replaced IPv6 NTP servers with IPv4 NTP servers for each NOAM server.

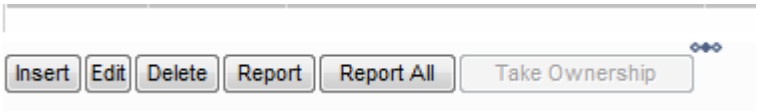
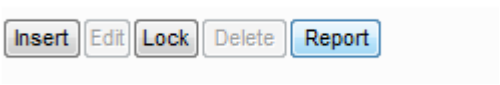
Procedure 46: Delete IPv6 Routes and Interfaces: NOAM

S T E P #	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on the Active NOAM, followed by the Standby NOAM. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Unlock Networks	If needed, unlock the networks so that IPv6 interfaces can be deleted. Navigate to the **Main Menu → Configuration → Network** Select the one or more networks that have configured interfaces that need to be deleted.  Select the **Unlock** button at the bottom of the page. A Confirmation dialog box will pop up. Select ***"check to confirm"*** and then select **OK** to continue. Your browser session will remain on the **Main Menu → Configuration → Network** page and in the grid you will see the networks are now unlocked.
3 ☐	**NOAM VIP:** Set Active NOAM HA role to Forced Standby	Navigate to the **Main Menu → Status&Manage → HA** Click **Edit**  Set the "Max Allowed HA Role" of the Active NOAM to **Standby**  **Note:** A switch-over will occur, where the formally standby NOAM server will become the active server. You will be logged out of the browser GUI. Login again to the NOAM VIP as ***guiadmin*** user.

Procedure 46: Delete IPv6 Routes and Interfaces: NOAM

S T E P #		
	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on the Active NOAM, followed by the Standby NOAM. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
4 ☐	**Remove an IPv6 route**	Execute this step to remove an IPv6 route, if needed. Navigate to the **Main Menu → Configuration → Network → Routes** Select the server or server group to delete an IPv6 route from.  Select the **Delete** button at the bottom of the page.
5 ☐	**Remove remaining IPv6 routes**	Repeat **step 4** above to remove the remaining IPv6 network routes added Upon completion, you will have removed all IPv6 network routes for each application server.
6 ☐	**NOAM VIP:** Delete the VLAN tagged IPv6 interfaces from the NOAM servers	Execute this step to delete a VLAN tagged IPv6 address from an existing device interface. If deleting an un-tagged VLAN interface, skip to **step 7**. Navigate to the **Main Menu → Configuration → Network → Devices** Select the tab for the standby NOAM server to have IPv6 interfaces deleted. Now select the Device Name that corresponds to the VLAN Id of the network you are deleting. Select the **Edit** button at the bottom of the page. The GUI will show the Devices Edit form.  In the form, select the IP Interfaces tab. Select the **Remove** button to remove the new IPv6 address. Select **Ok** button to commit the form. **Repeat** this step for all IPv6 interfaces on the standby NOAM server.

Procedure 46: Delete IPv6 Routes and Interfaces: NOAM

S T E P #		
	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on the Active NOAM, followed by the Standby NOAM. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
7 ☐	**NOAM VIP:** Delete a new un-tagged VLAN IPv6 interface from the NOAMP servers (SDS Only)	Execute this step to delete an un-tagged VLAN IPv6 addressed device interface. If deleting a new VLAN tagged interface from an existing interface, skip this step and return to **step 9**. Navigate to the **Main Menu → Configuration → Network → Devices** Select the tab for the standby NOAMP server to have IPv6 interfaces deleted.  Select the **Delete** button at the bottom of the page. Select **Ok** button to commit the form. **Repeat** this step for all IPv6 interfaces on the standby NOAMP server. Then, repeat this step for the active NOAMP servers with non-VLAN IPv6 interfaces.
8 ☐	**NOAM VIP:** Lock Networks	Lock all networks now that all standby NOAM IPv6 interfaces have been deleted. Navigate to the **Main Menu → Configuration → Network** Select the network or networks to lock. Select the **Lock** button at the bottom of the page.  A ***"Confirm"*** dialog box will pop up. Select ***"check to confirm"*** and then select **OK** to continue. Your browser session will be taken back to the **Main Menu → Configuration → Network** page and in the grid you will see the network(s) maked as ***"Locked=Yes"***.

Procedure 46: Delete IPv6 Routes and Interfaces: NOAM

S T E P #	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on the Active NOAM, followed by the Standby NOAM. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	

9 ☐	**NOAM :** Restart ComCol and Restore OAM replication and Merging	Establish an SSH session to the NOAM, login as ***admusr.***
		
		Execute the following command to restart ComCol and restore OAM replication and merging:
		`$ sudo rcstool co /var/named/db.platform.cgbu.us.oracle.com`
		
		`$ sudo sed -i /`hostname`.*AAAA/d /var/named/db.platform.cgbu.us.oracle.com`
		
		Verify the command above was successful by executing the following command:
		`$ sudo grep AAAA /var/named/db.platform.cgbu.us.oracle.com`
		
		Note: There should be no hostname AAAA records in the output. If there was no output regarding hostname AAAA, proceed with the following commands:
		
		`$ sudo rcstool ci /var/named/db.platform.cgbu.us.oracle.com`
		
		`$ sudo rndc reload`
		
		`$ sudo /usr/TKLC/appworks/bin/awntpcfg –synconly –force`

Procedure 46: Delete IPv6 Routes and Interfaces: NOAM

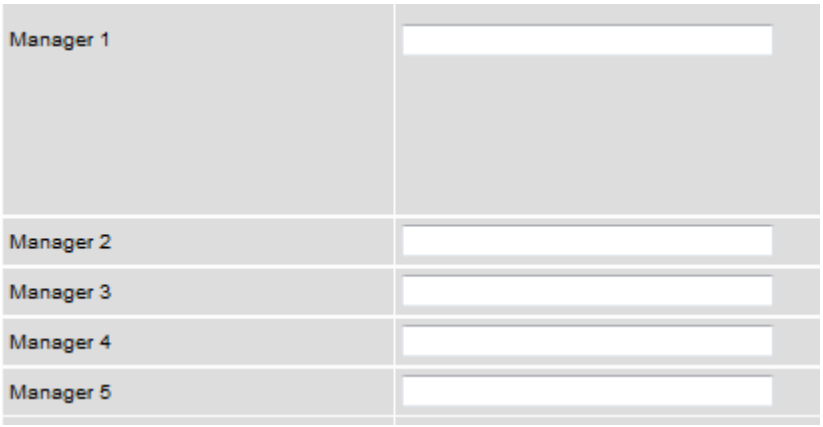
S T E P #		
	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on the Active NOAM, followed by the Standby NOAM. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	

10 ☐	**NOAM :** Verify ComCol replication is using working and using IPv4	Perform the following command to verify ComCol IP connections are using IPv4:
		$ sudo proctcpstat
		Expected output:
		`----------`
		`cmha`
		`::1:17402 ==> ::1:45460`
		`169.254.2.5:59861 ==> 169.254.2.4:17401`
		`::1:17402 ==> ::1:45461`
		`::1:17402 ==> ::1:57659`
		`::ffff:10.240.108.5:17401 ==> ::ffff:10.240.108.4:50368`
		`10.240.108.5:56128 ==> 10.240.108.4:17401`
		`::1:17402 ==> ::1:57658`
		`::1:17402 ==> ::1:45459`
		`::ffff:169.254.2.5:17401 ==> ::ffff:169.254.2.4:48811`
		`cmsoapa`
		`::1:45462 ==> ::1:17402`
		`inetmerge`
		`169.254.2.5:49256 ==> 169.254.2.4:16878`
		`::ffff:169.254.2.5:16878 ==> ::ffff:169.254.2.4:46701`
		`::1:45471 ==> ::1:17402`
		`169.254.2.5:55785 ==> 169.254.2.7:16878`
		`169.254.2.5:36744 ==> 169.254.2.8:16878`
		`inetrep`
		`169.254.2.5:62450 ==> 169.254.2.4:17400`
		`::1:45459 ==> ::1:17402`
		`169.254.2.5:44613 ==> 169.254.2.8:17402`
		`169.254.2.5:63825 ==> 169.254.2.8:17400`
		`169.254.2.5:57584 ==> 169.254.2.11:17402`
		`vipmgr`
		`::1:45461 ==> ::1:17402`
		`::1:45460 ==> ::1:17402`
		`----------`
		Perform the following command to verify ComCol merging link states:
		$ sudo inetmstat
		`----------`
		`[admusr@NOAM-2 ~]$ sudo inetmstat`
		`nodeId InetMerge State dir dSeq dTime updTime info`
		`NOAM-1 Standby To 0 0.00 15:47:44`
		`NOAM-1 Active From 0 0.00 15:47:44`
		`SOAM-1 Standby From 0 0.00 15:47:44`
		`SOAM-2 Active From 0 0.00 15:47:44`
		`----------`
		Perform the following commands to verify ComCol replication link states:
		$ sudo irepstat
		`----------`
		`-- Policy 0 ActStb [DbReplication] ----------`
		`AA To NOAM-1 Active 0 0.25 1%R 0.04%cpu 27B/s`
		`AB To SOAM-2 Active 0 0.50 1%R 0.05%cpu 37B/s`
		`----------`

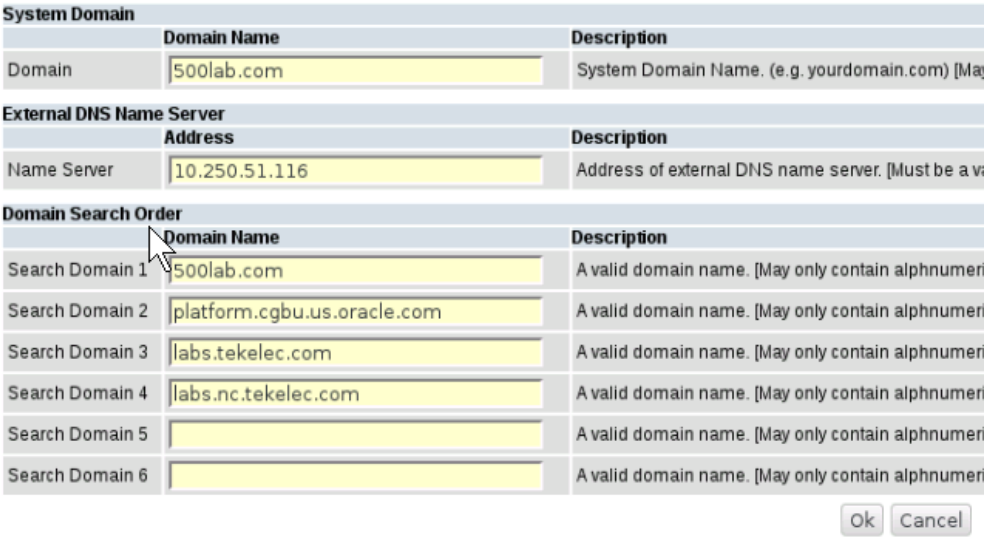
Procedure 46: Delete IPv6 Routes and Interfaces: NOAM

S T E P #	This procedure will provide the instructions how to delete the new IPv6 network routes. **Note:** Depending on network configuration and how much of the topology has been migrated, OAM replication and merging will stop during this procedure. Updates to the Network Device and Network Route screens in the GUI will stop until replication and merging are restored. Although the screen will not display up-to-date configuration status, the user may continue to modify devices and routes. **Note:** The following procedure will first be executed on the Active NOAM, followed by the Standby NOAM. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
11 ☐	**NOAM VIP:** Establish GUI Session	If not already done so, establish a GUI session on the NOAM server, login as ***guiadmin*** user.
12 ☐	**NOAM VIP:** Perform "NTP Sync"	Navigate to the **Main Menu → Status&Manage → Server** Select the standby NOAM server. Select the **NTP Sync** button at the bottom of the page.  A Confirmation dialog box will pop up asking if you are sure you want to continue with the NTP Sync. Select **OK** to continue.
13 ☐	**NOAM VIP:** Set HA Role to Active	Navigate to the **Main Menu → Status&Manage → HA** Click **Edit**  Set the "Max Allowed HA Role" to **Active**  Wait for Merging and replication related alarms to clear before proceeding.
14 ☐	**Standby NOAM:** Repeat	Repeat **ALL** steps in this procedure on the newly active *(Formerly Inactive)* NOAM.

Procedure 47: Modify SNMP Managers IP Addresses

S T E P #	This procedure details the steps to modify the SNMP Manager IP addresses. **Note:** If IPv6 SNMP Servers were configured, execute this procedure. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Modify the SNMP Manager(s)	Navigate to the **Main Menu → Administration → Remote Servers → SNMP Trapping**  Enter the IPv4 addresses for the SNMP Managers in the Manager text fields in the form. Scroll down and select **Ok** button to commit the form.

Procedure 48: Modify Customer DNS Configuration

S T E P #	This procedure details the steps to modify the DNS server IP addresses. **Note:** If IPv6 DNS Servers were configured, execute this procedure. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Modify the customer DNS server(s)	Navigate to the **Main Menu → Administration → Remote Servers → DNS Configuration** Enter the IPv4 addresses for the customer DNS servers in the address text fields in the form.  Scroll down and select **Ok** button to commit the form.

Procedure 49: Modify Export Server IP Addresses: NOAM

S T E P #	This procedure details the steps to modify the export server IP addresses. **Note:** If IPv6 Export Servers were configured, execute this procedure Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Modify the Export Server address	Modify the Export Server addresses by executing the steps in **Appendix E**:

3.3.3 TVOE, OAM, PMAC, System Switches Backout

Procedure 50: Delete IPv6 TVOE management interfaces and routes

S T E P #	This procedure describes the backout procedures related to deletion of IPv6 TVOE management and OAM interfaces Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**TVOE Server:** Establish SSH connection	Establish an SSH terminal connection with the TVOE server, login as **admusr**. **Note:** For IPv6 backout on cloud deployments, skip to **procedure 53.** This procedure is not valid for cloud deployments.

2
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	TVOE Server:
	Delete TVOE IPv6 management Interfaces
		If the management bridge was migrated to IPv6 (i.e PMAC server), complete this step:
		
		List the management bridge:
		
		`$ sudo netAdm query --type=Bridge --name=management`
		
		Delete the mangement bridges:
		
		`$ sudo netAdm set --type=Bridge --name=management`
		`--address=<IPv6_address>/<IPv6_prefix> --deleteAddr`

3
☐
	TVOE Servers:
	Delete TVOE IPv6 management default routes
		Where configured on TVOE servers (i.e PMAC server), delete any management default routes.
		
		Check for management IPv6 route configuration by executing the following command.
		`$ sudo netAdm query --route --device=management`
		
		Delete XMI routes by executing the following command:
		
		`$ sudo netAdm delete route --route=default --device=management`
		
		`--gateway=<ipv6_address>`

Procedure 50: Delete IPv6 TVOE management interfaces and routes

S T E P #	This procedure describes the backout procedures related to deletion of IPv6 TVOE management and OAM interfaces Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
4 ☐	**TVOE Server:** Delete TVOE IPv6 XMI Interfaces	List the XMI bridge: **$ sudo netAdm query --type=Bridge --name=xmi** Delete the XMI bridges: **$ sudo netAdm set --type=Bridge --name=xmi** **--address=<IPv6_address>/<IPv6_prefix> --deleteAddr**
5 ☐	**TVOE Servers:** Delete TVOE IPv6 XMI default routes	Where configured on blade servers, delete any XMI default routes from the TVOE blade servers. Check for XMI IPv6 route configuration by executing the following command. **$ sudo netAdm query --route --device=xmi** Delete XMI routes by executing the following command: **$ sudo netAdm delete route --route=default --device=xmi** **--gateway=<ipv6_address>**

Procedure 51: Delete IPv6 networks on system switches, OA/iLO, and PMAC

S T E P #	This procedure describes the backout procedures related to system switches, OAs, and the PMAC Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
1 ☐	**Backout of system switches, OA/iLO, and PMAC**	Execute all necessary procedures from [1] to backout all IPv6 system switches, OA/iLOs, and PMAC.

3.3.4 DR-NOAM Backout

This section describes the procedures that must be executed on the NOAM to back out the DR-NOAM servers from IPv6 to IPv4 networks.

Procedure 52: Perform IPv6 Backout on DR-NOAMs

S T E P #	This procedure details the steps to backout the DR-NOAMs from IPv6 to IPv4 Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**DR-NOAM**	Repeat **Procedures 45-51** to backout the DR-NOAMs from IPv6 to IPv4. **Note:** For IPv6 backout on cloud deployments, skip to **procedure 53.** This procedure is not valid for cloud deployments.

3.3.5 iDIH Backout

This section describes the procedures that must be executed on the iDIH to back out the iDIH servers from IPv6 to IPv4 networks.

Procedure 53: Perform IPv6 Backout on iDIH servers

S T E P #	This procedure details the steps to backout the iDIH servers from IPv6 to IPv4 Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT **MY ORACLE SUPPORT (MOS)** AND ASK FOR ASSISTANCE.	

1
☐
	iDIH Guest virsh console or Cloud Console: Use the netAdm command to delete the IPv6 default route.	On the mediation guest virsh console, Use the netAdm command to delete the IPv6 default route.
		
		`$ sudo netAdm delete --route=default \`
		`--gateway=<IPv6 Default route address> \`
		`--device=<management or xmi interface>`

Procedure 53: Perform IPv6 Backout on iDIH servers

S T E P #	This procedure details the steps to backout the iDIH servers from IPv6 to IPv4 Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT **MY ORACLE SUPPORT (MOS)** AND ASK FOR ASSISTANCE.	
2 ☐	**iDIH Guest virsh console Cloud Console: Use the netAdm command to delete IPv6 address.**	On the mediation guest console, Use the netAdm command to delete the IPv6 address on the management or xmi interface. **`$ sudo netAdm set --device=<management or xmi interface> \`** **`--address=<IPv6 address>/<IPv6_prefix> \`** **`--deleteAddr`** **`Interface management updated`** Note: The following command should only be run on the **mediation guest**, and only if you intend to delete the IPv6 medation imi address. **`$ sudo netAdm set --device=<imi interface> \`** **`--address=<IPv6 address>/<IPv6_prefix> \`** **`--deleteAddr`** **`Interface management updated`**
3 ☐	**Procedure Overview**	Repeat Steps 1 and 2 for the following VMs. Be sure to perform the repeated steps in the order listed below, I.E. update the **application guest** then the **oracle guest**. iDIH Application iDIH Oracle
4 ☐	**iDIH Application console (optional): Use the application console to replace the SNMP servers IPv6 address with an IPv4 address.**	Open a terminal window and log in as admusr on the iDIH Application server. Copy the files server.crt and server.key that are provided by the customer to /root. Enter the platcfg menu. As admusr, run: **`$ sudo su - platcfg`** Select Application **`Server Configuration`** ➢ **`SNMP Agent Configuration`**. A window appears which allows you to enter the IPv4 address of the SNMP management platform and version of SNMP agent and traps. Select **`Edit`**. Type the appropriate values and click **`OK`**. The SNMP agent configuration is updated and the SNMP Management server is automatically restarted. Exit the platcfg menu.

Procedure 53: Perform IPv6 Backout on iDIH servers

S T E P #	This procedure details the steps to backout the iDIH servers from IPv6 to IPv4 Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT **MY ORACLE SUPPORT (MOS)** AND ASK FOR ASSISTANCE.	

5 ☐	**Configure DSR Reference Data Synchronization for IDIH (DSR 7.1-Optional): Use the script to update the SOAM server with an IPv4 address.**	Open a terminal window and log in as admusr on the iDIH Application server.
		Issue the following commands to login as tekelec user.
		`$ sudo su - tekelec`
		
		Execute the following script:
		`<hostname>:/usr/TKLC/xIH apps/trda-config.sh`
		
		NOTE: While prompted "Please enter DSR SOAM server IP address", enter the VIP of the DSR SOAM and press Enter.

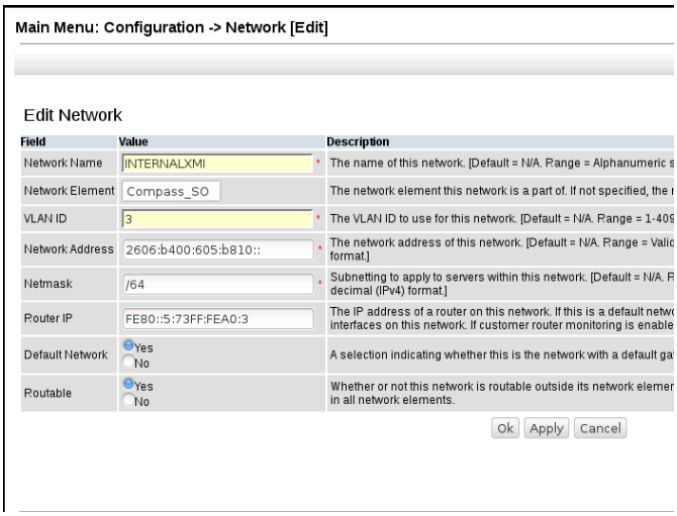
6 ☐	**NOAM GUI: Configure the iDIH comAgent connection on the NOAM.**	Connect to the NOAM GUI navigate to the communication menu and remove the IPv6 imi address of the iDIH mediation guest. `Communication Agent -> Configuration -> Remote Servers` Select the iDIH Mediation guest and edit Remove the "imi iDIH mediation IPv6 guest address". **Note:** Make sure perferred Ipv4 has been selected as the prefered comAgent network selection.
7 ☐	**SOAM GUI: Configure the "Troubleshooting with IDIH" option on the SOAM.**	Connect the SOAM GUI navigate to the Diameter menu and replace the IPv6 xmi/management address of the iDIH Application guest with its IPv4 address. `Diameter -> Troubleshooting with IDIH -> Configuration -> Options` Select iDIH and replace the IPv6 address with the "iDIH application guest IPv4 xmi/management address".

APPENDIX A: ADD THE NEW IPV6 NETWORKS.

Appendix A: Add New IPv6 Networks

S T E P #	This procedure will provide the instructions how to add the new IPv6 networks. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.

Appendix A: Add New IPv6 Networks

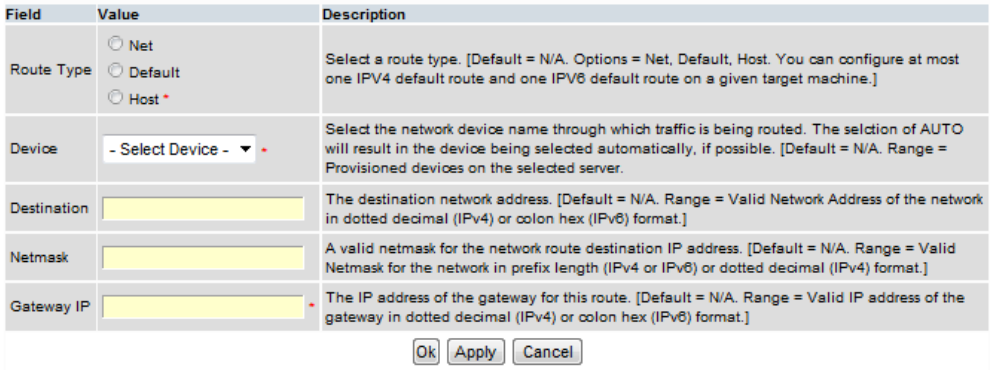
S T E P #	This procedure will provide the instructions how to add the new IPv6 networks. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
2 ☐	**NOAM VIP:** Insert an IPv6 network	Navigate to the **Main Menu → Configuration → Network** Select the **Insert** button at the bottom of the page. The GUI will show the Network Insert form.  In the form, enter the IPv6 network information gathered in procedure 1, including: • Network name *(XMI, IMI,)*-**Same names as existing IPv4 networks** • Network Element associated with the network (This must match the existing IPv4 network) • VLAN Id • Network IP address, • Netmask in a CIDR format *(example: /96)* • The router IP address on the network • Select whether or not it is a default network (For XMI, select Yes) • Select whether or not it is a routable network (This must match the existing IPv4 network) Select **Ok** button to commit the form. A ***"Confirm Edit"*** dialog box will pop up. Select ***"check to confirm"*** and then select **OK** to continue. Your browser session will be taken back to the **Main Menu → Configuration → Network** page and in the grid you will see the newly added network. **Note:** It is important that all the new IPv6 networks entered have the same network names as the existing IPv4 networks.

Appendix A: Add New IPv6 Networks

S T E P #	This procedure will provide the instructions how to add the new IPv6 networks. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
3 ☐	**NOAM VIP:** Verify Network Element	Navigate to **Configuration -> Network** Verify the IPv6 networks added in step 3 match the existing IPv4 networks **Main Menu: Configuration -> Network** Network Name / Locked / Routable / VLAN / Network XMI / Yes / Yes / 7 / 10.240.158.128/25 IMI / Yes / Yes / 23 / 192.168.2.0/25 xsi1 / No / Yes / 8 / fd0d:deba:d97c:ec0::/64 xsi2 / No / Yes / 9 / fd0d:deba:d97c:ec1::/64 XMI / Yes / Yes / 7 / 2606:b400:605:b804::/64 IMI / Yes / No / 23 / fdbd:aaec:587c:6efb::/64
4 ☐	**NOAM VIP:** Insert Remaining IPv6 Networks	Repeat **steps 2-3** above to insert the remaining IPv6 networks gathered in Procedure 1 Upon completion, you will have entered one or more IPv6 networks for the NOAM Network Element, and one or more IPv6 networks for each SOAM Network Element.

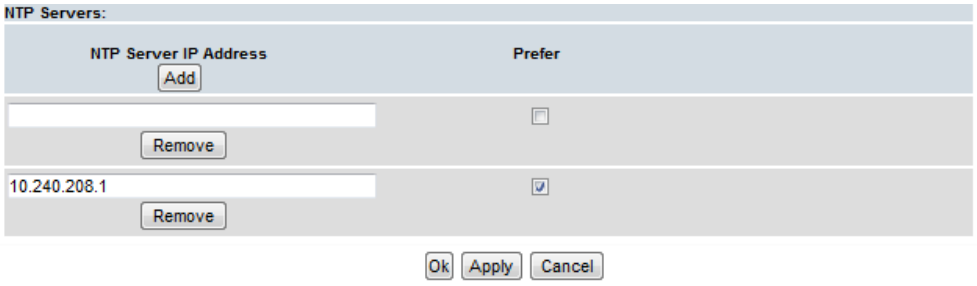
APPENDIX B: CONFIGURE NEW IPV6 NETWORK ROUTES

Appendix B: Configure New IPv6 Network Routes

S T E P #	This procedure will provide the instructions how to add the new IPv6 network routes. **Note:** Not all installations will require additional routes. Execute this procedure if data gathered in Procedure 1 indicates that IPv6 routes are needed. For example, routes would be required between IPv6 networks in different Network Elements. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Insert an IPv6 Route	Execute this step to add an IPv6 route, if needed. Navigate to the Main **Menu → Configuration → Network → Routes** Select the first server to add a IPv6 route. Select the **Insert** button at the bottom of the page. The GUI will show the ***"Route Insert"*** form.  Enter the IPv6 network route information using the data gathered in Procedure 1: • Route type selection – Network, Default, or Host • Select the device to be used for the route • The IPv6 destination network address • The Netmask for the network route destination IP address • The IPv6 gateway address. Select **Ok** button to commit the form.
3 ☐	**NOAM VIP:** Insert Remaining IPv6 Routes	Repeat **step 2** above to insert the remaining IPv6 network routes using data gathered in Procedure 1.

APPENDIX C: ADD THE NEW IPV6 NTP SERVERS

Appendix C: Add New IPv6 NTP Servers

S T E P #		
	This procedure will provide the instructions how to add the new IPv6 NTP servers. **Note:** Not all installations will require new NTP servers to be added to each Server. Execute this procedure if data gathered in Procedure 1 indicates that IPv6-addressed NTP servers are needed. **WARNING:** Do ***NOT*** execute a ***"NTP Sync"*** from the **Main Menu → Status&Manage → Server** at this time. The NTP Sync action is service-effecting - doing so will temporarily stop DSR processes, as well as restart the NTP daemon. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM server, login as ***guiadmin*** user.
2 ☐	**NOAM VIP:** Insert the IPv6 NTP Servers	Execute this step to add NTP server(s) with IPv6 address, if needed. Navigate to the **Main Menu → Configuration → Servers**. Select the first server to add a IPv6 addressed NTP server. Select the **Edit** button at the bottom of the page. The GUI will show the ***"Server Edit"*** form. Notice that only the NTP servers and the System ID are available for edit.  Enter the IPv6 NTP server information using the data gathered in Procedure 1: • Select the **Add** button to create a new blank NTP Server text box, • Enter the IPv6 NTP Server IP address • Optionally, if you want the new NTP entry to be marked as ***"Prefer"***, then select the checkbox. **Repeat** the above steps if adding additional IPv6 addressed NTP Servers. Once all new NTP Servers have been entered in the ***"Server Edit"*** form, select **Ok** button to commit the form. **Note:** Do not execute any NTP Sync operation at this time.

Appendix C: Add New IPv6 NTP Servers

S T E P #	This procedure will provide the instructions how to add the new IPv6 NTP servers. **Note:** Not all installations will require new NTP servers to be added to each Server. Execute this procedure if data gathered in Procedure 1 indicates that IPv6-addressed NTP servers are needed. **WARNING:** Do ***NOT*** execute a ***"NTP Sync"*** from the **Main Menu → Status&Manage → Server** at this time. The NTP Sync action is service-effecting - doing so will temporarily stop DSR processes, as well as restart the NTP daemon. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
3 ☐	**Insert IPv6 NTP servers for the remaining servers**	Repeat **steps 2 and 3** above to add the new IPv6 NTP servers to the remianing servers using data gathered in Procedure 1. Upon completion, you will have entered one or more IPv6 NTP servers for each application server.

APPENDIX D: MODIFY EXPORT SERVER IP ADDRESSES

Appendix D: Modify Export Server IP Addresses

S T E P #	This procedure details the steps to modify the export server IP addresses on the NOAM or SOAM Servers Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**NOAM/SOAM VIP:** Establish GUI Session	Establish a GUI session on the NOAM/SOAM server, login as ***guiadmin*** user.
2 ☐	**SOAM VIP:** Modify the Export Server address	Navigate to the **Main Menu → Administration → Remote Servers → Data Export** Configure an Export Server Attribute / Value / Description Hostname — Name of export server. [Must be a valid hostname, IPv4 address, or IPv6 address. Hostname should not exceed 24 characters. Valid hostname characters are alphanumeric, minus sign and period. Hostname must start with an alphanumeric and end with an alphanumeric. The top level domain (TLD) must be alphabetic. Specify an empty hostname and username to clear the current export server and remove the file transfer task.] Username — Username to use to access the export server [Range = A 32-character string. Valid username characters are alphanumeric. Specify an empty hostname and username to clear the current export server and remove the file transfer task.] Using the export server data gathered in Procedure 1, enter the new IPv6 addresses for the external export server in the Hostname text field in the form. Scroll down and select **Ok** button to commit the form.
3 ☐	**NOAM VIP:** Perform Key Exchange	From **Main Menu -> Administration -> Remote Servers -> Data Export** Click **SSH Key Exchange** SSH Key Exchange | Transfer Now | Test Transfer | Keys Report Enter the password of the remote server: SSH Key Exchange Password: OK Cancel

Appendix D: Modify Export Server IP Addresses

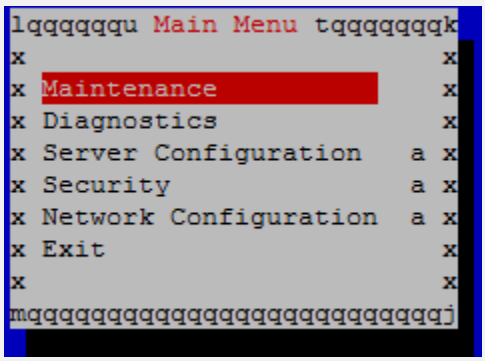
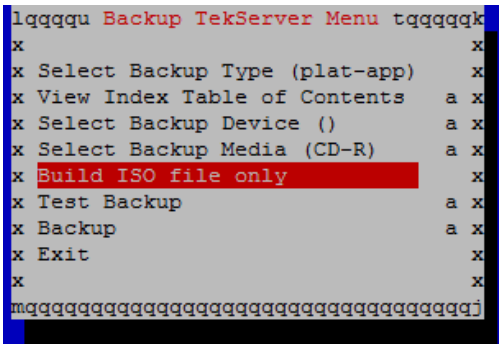
S T E P #	This procedure details the steps to modify the export server IP addresses on the NOAM or SOAM Servers Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
4 ☐	**NOAM VIP:** Verify Export Server	From **Main Menu -> Administration -> Remote Servers -> Data Export** Click **Test Transfer** SSH Key Exchange | Transfer Now | Test Transfer | Keys Report Verify from the Tasks drop down that the Remote Server Copy function succeeded: **Main Menu: Administration -> Remote Servers -> Data Export** Status ▾ Tasks ▾ **Tasks** | ID | Hostname | Name | Task State | Details | Progress | | --- | --- | --- | --- | --- | --- | | 1048 | Compass-NOB | APDE Remote Server Copy | completed | Success - 1 file(s) transferred. | 100% | | 1046 | Compass-NOB | APDE Remote Server Copy | completed | Success - 1 file(s) transferred. | 100% |

APPENDIX E: BACKUP TVOE CONFIGURATION

Appendix E: Backup TVOE Configuration

S T E P #	This procedure will provide instruction on how to back up each TVOE rack mount server or Blade server after a successful installation. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**Identify Backup Server**	Identify an external server to be used as a backup server for the following steps. The server should not be co-located with any of the following items: • TVOE • PMAC • DSR/SDS NOAM • DSR/SDS SOAM
2 ☐	**TVOE Server:** Login	Establish an SSH session to the TVOE host server, login as ***admusr***.

Appendix E: Backup TVOE Configuration

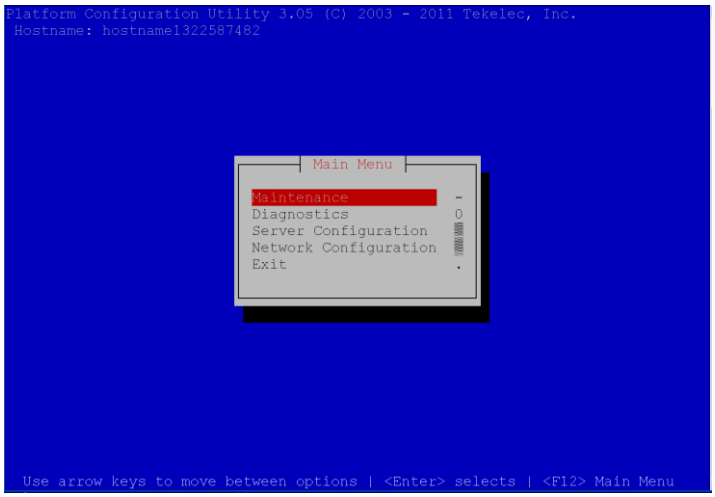
S T E P #	This procedure will provide instruction on how to back up each TVOE rack mount server or Blade server after a successful installation. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
3 ☐	**TVOE Server:** Build ISO backup file	Execute the following command from the TVOE server: `$ sudo su - platcfg`  Select the following menu options sequentially: **Maintenance -> Backup and Restore ->Backup Platform (CD/DVD)**. The ***"Backup TekServer Menu"*** page will now be shown. Build the backup ISO image by selecting: Build ISO file only  **Note:** Creating the ISO image may happen so quickly that this screen may only appear for an instant. After the ISO is created, platcfg will return to the Backup TekServer Menu. The ISO has now been created and is located in the /var/TKLC/bkp/ directory. An example filename of a backup file that was created is: "hostname1307466752-plat-app-201104171705.iso" Exit out of platcfg by selecting **Exit**.

Appendix E: Backup TVOE Configuration

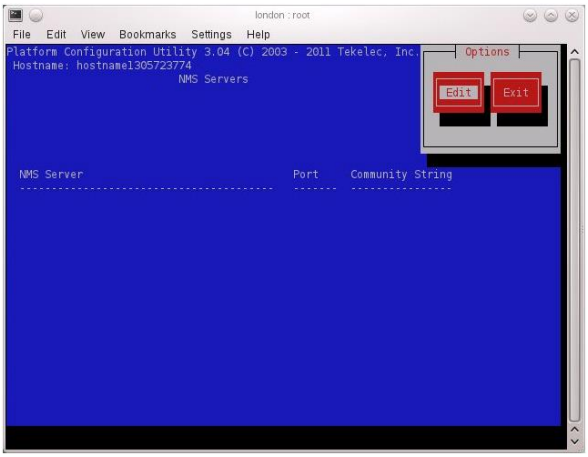
S T E P #	This procedure will provide instruction on how to back up each TVOE rack mount server or Blade server after a successful installation. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
4 ☐	**Backup Server:** Transfer TVOE Files to Backup Server	Login to the backup server identified in **step 1** and copy backup image to the customer server where it can be safely stored. If the customer system is a Linux system, please execute the following command to copy the backup image to the customer system. `$ sudo scp tvoexfer@<TVOE IP Address>:backup/* /path/to/destination/` When prompted, enter the tvoexfer user password and press **Enter.** The TVOE backup file has now been successfully placed on the backup server.
5 ☐	**Repeat for Additional TVOE Servers**	Repeat steps **3-4** for additional TVOE servers

APPENDIX F: TVOE HOST SNMP AND NTP IPV6 CONFIGURATION

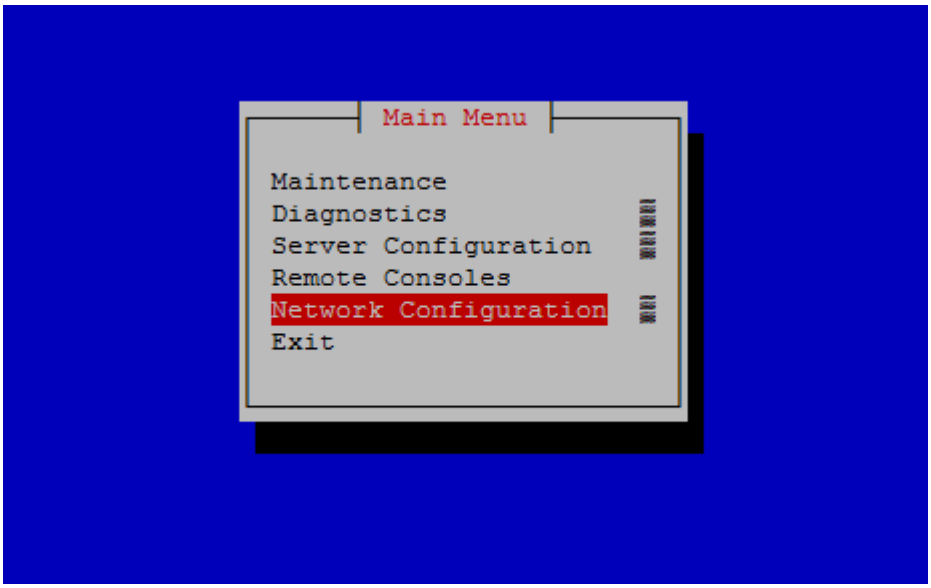
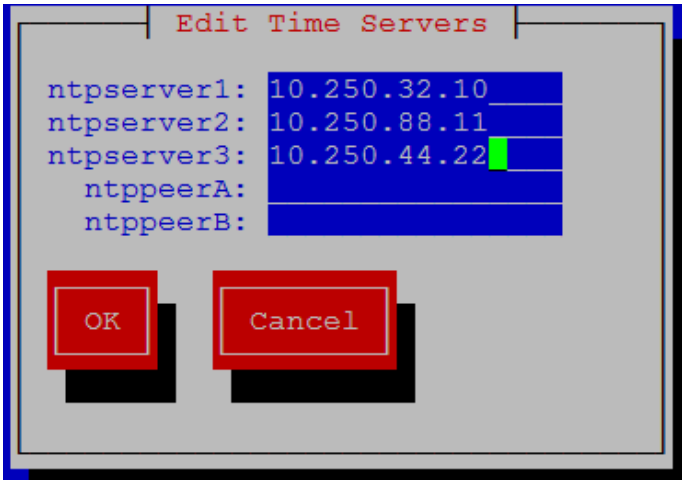
Appendix F: TVOE Host SNMP and NTP IPv6 Configuration

S T E P #	This procedure details the steps to configure SNMP and NTP on a TVOE Host. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**TVOE Server:** Platcfg	Execute the following to enter platcfg menu: # **sudo su - platcfg** 

Appendix F: TVOE Host SNMP and NTP IPv6 Configuration

S T E P #	This procedure details the steps to configure SNMP and NTP on a TVOE Host. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
2 ☐	**TVOE Server:** IPv6 NMS Configuration	Navigate to **Network Configuration -> SNMP Configuration -> NMS Configuration**  Press **Edit.** Choose **Add a New NMS Server** Enter the following NMS servers, pressing **OK** after each one and then selecting the **Add NMS** option again: 1. Enter the Hostname/IP of the Customer NMS Server, for port enter 162, and for Community String enter the community string provided in the customer NAPD Document. 2. Enter the IP of the SOAM VIP, for port enter 162, and for Community String enter the community string provided in the customer NAPD Document Press **Exit**. Select **Yes** when prompted to restart the Alarm Routing Service. Once Done, press **Exit** to quit to the platcfg main menu.

Appendix F: TVOE Host SNMP and NTP IPv6 Configuration

S T E P #	This procedure details the steps to configure SNMP and NTP on a TVOE Host. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
3 ☐	**TVOE Server:** IPv6 NTP Configuration	Navigate to **Network Configuration**  Navigate to **Configuration->NTP** Click **Edit**  • ntpserver1:Edit the customer provided NTP server #1 IPv6 address. • ntpserver2: Edit the customer provided NTP server #2 IPv6 address. • ntpserver3: Edit the customer provided NTP server #3 IPv6 address. Press **OK** Continue to press **Exit** until you are out of the platcfg menu.

APPENDIX G: XMI CONFIGURATION ON AGGREGATION SWITCHES (TOPOLOGY 1 ONLY)

S T E P #	This procedure details the steps to modify the aggregation switch ***(Topology 1 Only)*** for IPv6 for XMI. **Note**: This step should be executed after all steps in ***procedure 1*** of [1] have been completed. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
1 ☐	**PMAC:** Login	Establish an SSH terminal session on the PMAC server, login as ***admusr***
2 ☐	**PMAC:** Set the XMI gateway Interface of the Aggregation Switch to IPv6	Using the device names collected in ***procedure 1*** of [1], execute the following command with the XMI VLAN ID to set the XMI gateway to IPv6: **$ sudo netConfig --device=<*name*> setInterface interface=VLAN <XMI_VLAN_*id*> ip=<*device_IPv6_address*>/<*prefix*>**
3 ☐	**PMAC:** Set the Customer facing OAM Interface of the Aggregation Switch to IPv6	Execute the following command with the Customer OAM VLAN ID to set the customer facing OAM interface to IPv6: **$ sudo netConfig --device=<*name*> setInterface interface=VLAN <Cust_OAM_VLAN_*id*> ip=<*device_IPv6_address*>/<*prefix*>**
4 ☐	**PMAC:** Verify IPv6 Interface Configuration	Execute the following commands to verify IPv6 configuration for the XMI gateway and customer OAM interface: **$ sudo netConfig --device=<name> getInterface interface=VLAN <XMI_VLAN_*id*>** **$ sudo netConfig --device=<name> getInterface interface=VLAN <Cust_OAM_VLAN_*id*>** **Note:** If the incorrect IPv6 interface was entered, execute the following sequence of commands: **$ sudo netConfig --device=<*name*> deleteInterface interface=VLAN <XMI_VLAN_*id*> ip=<*device_IPv6_address*>/<*prefix*>** Now repeat steps 2 or 3 depending on the interface.

S T E P #	This procedure details the steps to modify the aggregation switch ***(Topology 1 Only)*** for IPv6 for XMI. **Note**: This step should be executed after all steps in ***procedure 1*** of [1] have been completed. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT Appendix H: My oracle support (MOS) AND ASK FOR ASSISTANCE.	
5 ☐	**PMAC:** Add the virtual route for XMI and customer OAM	Layer 3 aggregation switches typically use Virtual Routing when configured as Layer 3 devices. If an IPv4 virtual route exists, an IPv6 one must also be defined. Using the VR group and tracking IDs collected in ***procedure 1*** of [1], execute the same command on both mated aggregations switches for all required VLANs *(active or standby states do not need to be examined; execute in either order)*: XMI: **$ sudo netConfig --device=<name> addVR interface=VLAN<XMI_VLAN_*id*> id=<groupID> track=<trackID> addrType=autoconfig priority=100 preempt=yes** Customer OAM: **$ sudo netConfig --device=<name> addVR interface=VLAN <Cust_OAM_VLAN_*id*> id=<groupID> track=<trackID> addrType=autoconfig priority=100 preempt=yes**
6 ☐	**PMAC:** Verify VR IPv6 Configuration	On both aggregations switches, the following command will display the same virtual IPs: XMI: **$ sudo netConfig --device=<name> getVR interface=VLAN <XMI_VLAN_*id*>** Customer OAM: **$ sudo netConfig --device=<name> getVR interface=VLAN <Cust_OAM_VLAN_*id*>**
7 ☐	**PMAC:** Backup Switch Configuration	Perform a backup of aggregation switches using the service name found in ***procedure 1*** step 5 of [1]. The filename option should specify a unique name for each of the backups: **$ sudo netConfig --device=<name> backupConfiguration service=<service> filename=<device>-postmigrate**

APPENDIX H: MY ORACLE SUPPORT (MOS)

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

Call the CAS main number at **1-800-223-1711** (toll-free in the US), or call the Oracle Support hotline for your local country from the list at *https://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.