

**Oracle® Communications**  
**Diameter Signaling Router**  
Cloud Disaster Recovery Guide

Release 8.5

F33378-01

October 2020

**ORACLE®**

Oracle Communications Diameter Signaling Router, DSR Cloud Disaster Recovery Guide

Copyright © 2020 Oracle and/or its affiliates. All rights reserved.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.



**CAUTION: Use only the DR procedures included in the Disaster Recovery Kit.**

**Before recovering any system, please access My Oracle Support (MOS) (<https://support.oracle.com>) and review any Technical Service Bulletins (TSBs) that relate to this DR procedure**

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

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

See more information on MOS in the Appendix section.

## Table of Contents

Table of Contents .....	3
List of Procedures .....	5
List of Tables .....	5
List of Figures.....	5
1.0 Introduction.....	6
1.1 Purpose and Scope .....	6
1.2 References .....	6
1.3 Acronyms.....	7
1.4 Terminology.....	8
1.5 Optional Features .....	8
2.0 General Description .....	9
2.1 Complete Server Outage (All Servers) - Recovery Scenario 5.1.1 .....	10
2.2 Partial server outage with one NOAM server intact and both SOAMs failed- Recovery Scenario 5.1.2.....	10
2.3 Partial server outage with both NOAM servers failed and one SOAM server intact- Recovery Scenario 5.1.3 .....	10
2.4 Partial server outage with NOAM and one SOAM server intact- Recovery Scenario 5.1.4.....	10
2.5 Partial server outage with both NOAM servers failed with DR-NOAM available- Recovery Scenario 5.1.5.....	11
2.6 Partial Service outage with corrupt database.....	11
3.0 Procedure Overview.....	12
3.1 Required Materials .....	12
3.2 Disaster Recovery Strategy.....	13
4.0 Procedure Preparation .....	15
5.0 Disaster Recovery Procedure .....	16
5.1 Recovering and Restoring System Configuration .....	17
5.1.1 Recovery Scenario 1 (Complete Server Outage) .....	17
5.1.2 Recovery Scenario 2 (Partial Server Outage with one NOAM server intact and both SOAMs failed) .....	49
5.1.3 Recovery Scenario 3 (Partial Server Outage with all NOAM servers failed and one SOAM server intact) .....	76
5.1.4 Recovery Scenario 4 (Partial Server Outage with one NOAM server and one SOAM server intact) .....	96
5.1.5 Recovery Scenario 5 (Partial Server Outage with all NOAM servers failed with DR-NOAM available).....	112
5.1.6 Recovery Scenario 6 (Database Recovery) .....	119

6.0 Resolving User Credential Issues after Database Restore ..... 125

    6.1 Restoring a Deleted User ..... 125

    6.2 Keeping a Restored user..... 126

    6.3 Removing a Restored User ..... 128

    6.4 Restoring a Modified User ..... 130

    6.5 Restoring an Archive that does not contain a Current User ..... 131

7.0 IDIH Disaster Recovery..... 135

Appendix A. DSR Database Backup ..... 138

Appendix B. Inhibit A and B Level Replication on C-Level Servers ..... 142

Appendix C. Un-Inhibit A and B Level Replication on C-Level Servers..... 144

Appendix D. Inhibit A and B Level Replication on C-Level Servers (When Active, Standby and Spare SOAMs are lost) ..... 146

Appendix E. Un-Inhibit A and B Level Replication on C-Level Servers (When Active, Standby and Spare SOAMs are lost) ..... 149

Appendix F. Workarounds for Issues not fixed in this Release ..... 152

Appendix G. My Oracle Support (MOS)..... 154

Appendix H. Emergency Response ..... 155

Appendix I. Locate Product Documentation on the Oracle Help Center ..... 156

## List of Procedures

Procedure 1.	Table 1: Acronyms .....	7
Procedure 2.	Table 2: Terminology .....	8
Procedure 3.	Table 3: Optional Features.....	8
Procedure 4.	Table 4: Recovery Scenarios .....	15
Procedure 5.	Recovery Scenario 1 .....	18
Procedure 6.	Recovery Scenario 2 .....	49
Procedure 7.	Recovery Scenario 3 .....	76
Procedure 8.	Recovery Scenario 4 .....	96
Procedure 9.	Recovery Scenario 5 .....	112
Procedure 10.	Recovery Scenario 6 (Case 1) .....	120
Procedure 11.	Recovery Scenario 6 (Case 2) .....	122
Procedure 12.	Keep Restored User.....	126
Procedure 13.	Remove the Restored User.....	128
Procedure 14.	Restoring an Archive that does not Contain a Current User.....	131
Procedure 15.	IDIH Disaster Recovery Preparation .....	135
Procedure 16.	IDIH Disaster Recovery (Re-Install Mediation and Application Servers) .....	137
Procedure 17.	Back up the provision and configuration data .....	138
Procedure 18.	Inhibit A and B Level Replication on C-Level Servers .....	142
Procedure 19.	Un-Inhibit A and B Level Replication on C-Level Servers.....	144
Procedure 20.	Inhibit A and B Level Replication on C-Level Servers .....	146
Procedure 21.	Un-Inhibit A and B Level Replication on C-Level Servers.....	149
Procedure 22.	Backup directory.....	152

## List of Tables

Procedure 1.	Table 1: Acronyms .....	7
Procedure 2.	Table 2: Terminology .....	8
Procedure 3.	Table 3: Optional Features.....	8
Procedure 4.	Table 4: Recovery Scenarios .....	15

## List of Figures

Figure 1.	Determining Recovery Scenario .....	14
-----------	-------------------------------------	----

## 1.0 Introduction

### 1.1 Purpose and Scope

This document is a guide to describe procedures used to execute disaster recovery for DSR (3-tier deployments). This includes recovery of partial or a complete loss of one or more DSR servers. The audience for this document includes GPS groups such as Software Engineering, Product Verification, Documentation, and Customer Service including Software Operations and First Office Application. This document can also be executed by Oracle customers, as long as Oracle Customer Service personnel are involved and/or consulted. This document provides step-by-step instructions to execute disaster recovery for DSR. Executing this procedure also involves referring to and executing procedures in existing support documents.

Note that components dependent on DSR might need to be recovered as well, for example SDS and IDIH.

**Note:** Please note that failures can happen from the host or Infrastructure level too. Different infrastructures have different approaches to recover VMs which is not covered in this document. For example, VMWare has a vMotion feature which can migrate VM from one host to another. Any such Infrastructure/Hypervisor related migrations/disaster recovery scenarios are out of scope of this document. This document covers the DR scenarios within the DSR application.

### 1.2 References

- [1] DSR Cloud Installation Guide
- [2] DSR / SDS NOAM Failover User's Guide
- [3] DSR PCA Activation Guide
- [4] DSR MAP-Diameter IWF Feature Activation Procedure

## 1.3 Acronyms

**Procedure 1. Table 1: Acronyms**

<b>Acronym</b>	<b>Definition</b>
BIOS	Basic Input Output System
CD	Compact Disk
DSR	Diameter Signaling Router
ESXi	Elastic Sky X Integrated
FABR	Full Address Based Resolution
iDIH	Integrated Diameter Intelligence Hub
IPFE	IP Front End
IWF	Inter Working Function
NAPD	Network Architecture Planning Diagram
NOAM	Network Operations, Administration & Maintenance
OS	Operating System
OVA	Open Virtualization Appliance
OVM-M	Oracle Virtual Machine Manager
OVM-S	Oracle Virtual Machine Server
PDRA	Policy Diameter Routing Agent
PCA	Policy and Charging Application
RBAR	Range Based Address Resolution
SAN	Storage Area Network
SFTP	Secure File Transfer Protocol
SNMP	Simple Network Management Protocol
SOAM	Systems Operations, Administration & Maintenance
TPD	Tekelec Platform Distribution
VM	Virtual Machine
vSTP	Virtual Signaling Transfer Point

## 1.4 Terminology

**Procedure 2. Table 2: Terminology**

<b>Base software</b>	Base software includes deploying the VM image.
<b>Failed server</b>	A failed server in disaster recovery context refers to a VM that has suffered partial or complete software failure to the extent that it cannot restart or be returned to normal operation and requires intrusive activities to re-install the software.
<b>Software Centric</b>	The business practice of delivering an Oracle software product, while relying upon the customer to procure the requisite hardware components. Oracle provides the hardware specifications, but does not provide the hardware or hardware firmware, and is not responsible for hardware installation, configuration, or maintenance.
<b>Enablement</b>	The business practice of providing support services (hardware, software, documentation, etc) that enable a 3rd party entity to install, configuration, and maintain Oracle products for Oracle customers.

## 1.5 Optional Features

Further configuration and/or installation steps will need to be taken for optional features that may be present in this deployment. Please refer to these documents for disaster recovery steps needed for their components

**Procedure 3. Table 3: Optional Features**

<b>Feature</b>	<b>Document</b>
Diameter Mediation	DSR Meta Administration Feature Activation Procedure
Full Address Based Resolution (FABR)	DSR FABR Feature Activation Procedure
Range Based Address Resolution (RBAR)	DSR RBAR Feature Activation Procedure
Map-Diameter Interworking (MAP-IWF) – Policy and Charging Application (PCA)	DSR MAP-Diameter IWF Feature Activation Procedure
Host Intrusion Detection System (HIDS)	DSR PCA Activation Procedure
	DSR Security Guide, Section 3.2



## 2.0 General Description

The DSR disaster recovery procedure falls into five basic categories. It is primarily dependent on the state of the NOAM servers and SOAM servers:

<p>Recovery of the entire network from a total outage</p> <p><i>[5.1.1 Recovery Scenario 1 (Complete Server Outage)]</i></p>	<ul style="list-style-type: none"> <li>• All NOAM servers failed</li> <li>• All SOAM servers failed</li> <li>• 1 or more MP servers failed</li> </ul>
<p>Recovery of one or more servers with at least one NOAM server intact</p> <p><i>[5.1.2 Recovery Scenario 2 (Partial Server Outage with one NOAM server intact and both SOAMs failed)]</i></p>	<ul style="list-style-type: none"> <li>• 1 or more NOAM servers intact</li> <li>• All SOAM servers or MP servers failed</li> </ul>
<p>Recovery of the NOAM pair with one or more SOAM servers intact</p> <p><i>[5.1.3 Recovery Scenario 3 (Partial Server Outage with all NOAM servers failed and one SOAM server intact)]</i></p>	<ul style="list-style-type: none"> <li>• All NOAM servers failed</li> <li>• 1 or more SOAM servers intact</li> </ul>
<p>Recovery of one or more server with at least one NOAM and one SOAM server intact.</p> <p><i>[5.1.4 Recovery Scenario 4 (Partial Server Outage with one NOAM server and one SOAM server intact)]</i></p>	<ul style="list-style-type: none"> <li>• 1 or more NOAM servers intact</li> <li>• 1 or more SOAM servers intact</li> <li>• 1 or more MP servers failed</li> </ul>
<p>Recovery of the NOAM pair with DR-NOAM available and one or more SOAM servers intact</p> <p><i>[5.1.5 Recovery Scenario 5 (Partial Server Outage with all NOAM servers failed with DR-NOAM available)]</i></p>	<ul style="list-style-type: none"> <li>• All NOAM servers failed</li> <li>• 1 or more SOAM servers intact</li> <li>• DR-NOAM available</li> </ul>
<p>Recovery of one or more server with corrupt databases that cannot be restored via replication from the active parent node.</p> <p><i>[5.1.6 Recovery Scenario 6 (Database Recovery)]</i></p>	<ul style="list-style-type: none"> <li>• Server having a corrupted database</li> </ul>

## 2.1 Complete Server Outage (All Servers) - Recovery Scenario 5.1.1

Scenario:

- All NOAM servers failed
- All SOAM servers failed
- 1 or more MP servers failed

This is the worst case scenario where all the servers in the network have suffered complete software failure. The servers are recovered using OVA images then restoring database backups to the active NOAM and SOAM servers.

Database backups will be taken from customer offsite backup storage locations (assuming these were performed and stored offsite prior to the outage). If no backup files are available, the only option is to rebuild the entire network from scratch. The network data must be reconstructed from whatever sources are available, including entering all data manually.

## 2.2 Partial server outage with one NOAM server intact and both SOAMs failed- Recovery Scenario 5.1.2

Scenario:

- 1 or more NOAM servers intact
- All SOAM servers failed
- 1 or more MP servers failed

This case assumes that at least one NOAM servers intact. All SOAM servers have failed and are recovered using OVA images. Database is restored on the SOAM server and replication will recover the database of the remaining servers.

## 2.3 Partial server outage with both NOAM servers failed and one SOAM server intact- Recovery Scenario 5.1.3

Scenario:

- All NOAM servers failed
- 1 or more SOAM servers intact

Database is restored on the NOAM and replication will recover the database of the remaining servers.

## 2.4 Partial server outage with NOAM and one SOAM server intact- Recovery Scenario 5.1.4

Scenario:

- 1 or more NOAM servers intact

- 1 or more SOAM servers intact
- 1 or more MP servers failed

The simplest case of disaster recovery is with at least one NOAM and at least one SOAM servers intact. All servers are recovered using base recovery of software. Database replication from the active NOAM and SOAM servers will recover the database to all servers.

## **2.5 Partial server outage with both NOAM servers failed with DR-NOAM available- Recovery Scenario 5.1.5**

Scenario:

- All NOAM servers failed
- 1 or more SOAM servers intact
- DR-NOAM available

This case assumes that a partial outage with both NOAM servers failed but a DR NOAM available. The DR NOAM is switched from secondary to primary then recovers the failed NOAM servers

## **2.6 Partial Service outage with corrupt database**

**Case 1:** Database is corrupted, replication channel is inhibited (either manually or because of comcol upgrade barrier) and database backup is available

**Case 2:** Database is corrupted but replication channel is active

## 3.0 Procedure Overview

This section lists the materials required to perform disaster recovery procedures and a general overview (disaster recovery strategy) of the procedure executed.

### 3.1 Required Materials

The following items are needed for disaster recovery:

1. A hardcopy of this document and hardcopies of all documents in the reference list
2. Hardcopy of all NAPD performed at the initial installation and network configuration of this customer's site. If the NAPD cannot be found, escalate this issue within My Oracle Support (MOS) until the NAPD documents can be located.
3. DSR recent backup files: electronic backup file (preferred) or hardcopy of all DSR configuration and provisioning data.
4. Latest Network Element report: Electronic file or hardcopy of Network Element report.
5. The network element XML file used for the VMs initial configuration.

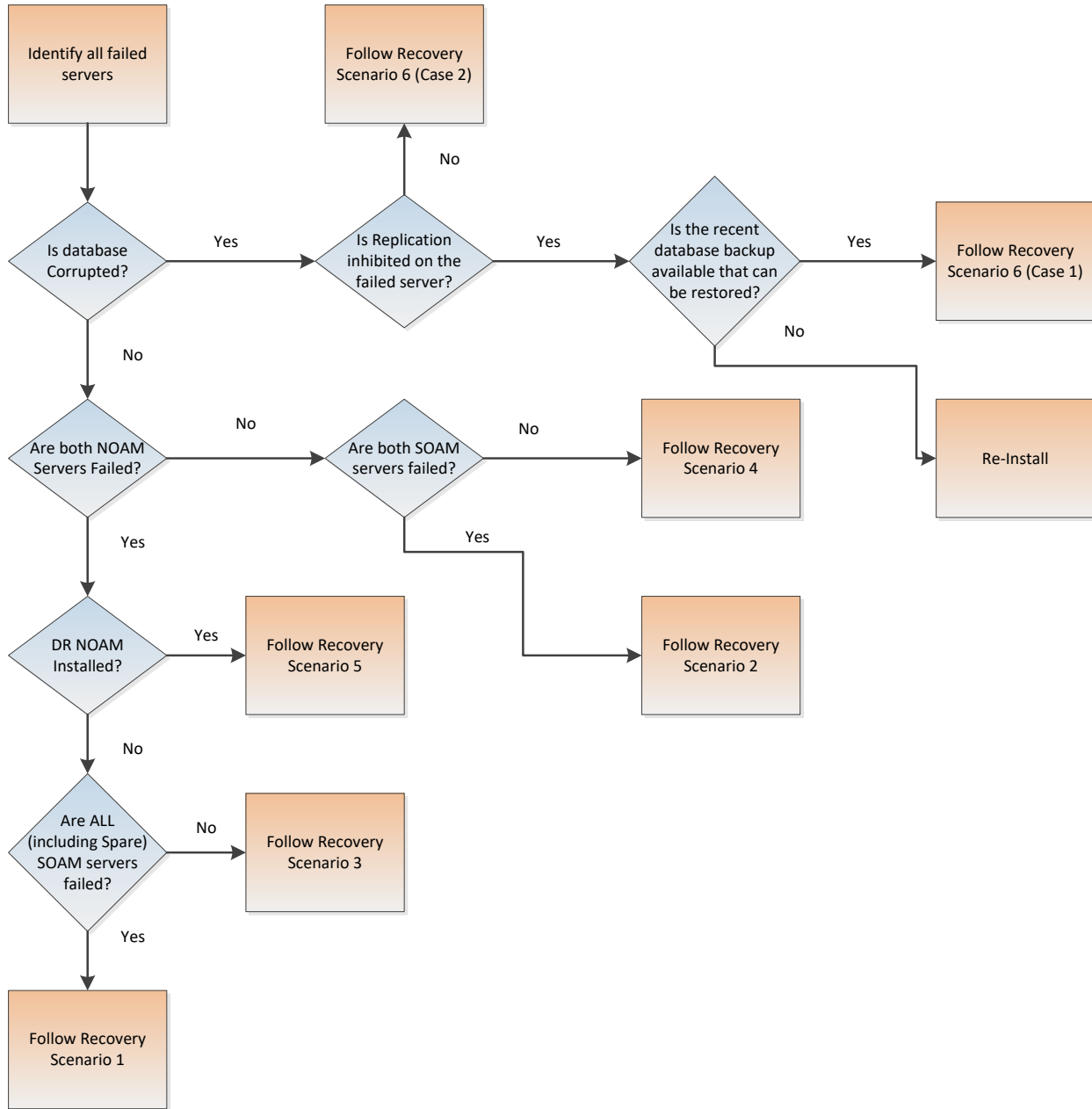
**Note:** For all Disaster Recovery scenarios, we assume that the NOAM Database backup and the SOAM database backup were performed around the same time, and that no synchronization issues exist among them.

## 3.2 Disaster Recovery Strategy

Disaster recovery procedure execution is performed as part of a disaster recovery strategy with the basic steps listed below:

1. Evaluate failure conditions in the network and determine that normal operations cannot continue without disaster recovery procedures. This means the failure conditions in the network match one of the failure scenarios described in **section 2.0**.
2. Read and review the content in this document.
3. Gather required materials in **section 3.1** Required Materials
4. From the failure conditions, determine the Recovery Scenario and procedure to follow (using Figure 1. Determining Recovery Scenario.)
5. Execute appropriate recovery procedures (listed in section 5.0).

Figure 1. Determining Recovery Scenario



## 4.0 Procedure Preparation

Disaster recovery procedure execution is dependent on the failure conditions in the network. The severity of the failure determines the recovery scenario for the network. Use Table 4: Recovery Scenarios below to evaluate the correct recovery scenario and follow the procedure(s) listed to restore operations.

**Note:** A failed server in disaster recovery context refers to a server that has suffered partial or complete software failure to the extent that it cannot restart or be returned to normal operation and requires intrusive activities to re-deploy base software.

**Procedure 4. Table 4: Recovery Scenarios**

Recovery Scenario	Failure Condition	Section
1	<ul style="list-style-type: none"> <li>All NOAM servers failed.</li> <li>All SOAM servers failed.</li> <li>MP servers may or may not be failed.</li> </ul>	Section 5.1.1 Recovery Scenario 1 (Complete Server Outage)
2	<ul style="list-style-type: none"> <li>At least 1 NOAM server is intact and available.</li> <li>All SOAM servers failed.</li> <li>MP servers may or may not be failed.</li> </ul>	Section 5.1.2 Recovery Scenario 2 (Partial Server Outage with one NOAM server intact and both SOAMs failed)
3	<ul style="list-style-type: none"> <li>All NOAM servers failed.</li> <li>At least 1 SOAM server out of Active, StandBy, and Spare is intact and available.</li> <li>MP servers may or may not be failed.</li> </ul>	Section 5.1.3 Recovery Scenario 3 (Partial Server Outage with all NOAM servers failed and one SOAM server intact)
4	<ul style="list-style-type: none"> <li>At least 1 NOAM server is intact and available.</li> <li>At least 1 SOAM server out of Active, StandBy, and Spare is intact and available.</li> <li>1 or more MP servers have failed.</li> </ul>	Section 5.1.4 Recovery Scenario 4 (Partial Server Outage with one NOAM server and one SOAM server intact)
5	<ul style="list-style-type: none"> <li>Both NOAM servers failed in Primary site</li> <li>At least 1 SOAM server out of Active, StandBy, and Spare is intact and available.</li> <li>DR-NOAM is available</li> </ul>	Section 5.1.5 Recovery Scenario 5 (Partial Server Outage with all NOAM servers failed with DR-NOAM available)
6: Case 1	<ul style="list-style-type: none"> <li>Server is intact</li> <li>Database gets corrupted on the server</li> <li>Replication is occurring to the server with corrupted database</li> </ul>	Section 5.1.6.1 Recovery Scenario 6: Case 1

<p>6: Case 2</p>	<ul style="list-style-type: none"> <li>• Server is intact</li> <li>• Database gets corrupted on the server</li> <li>• Latest Database backup of the corrupt server is NOT present</li> <li>• Replication is inhibited (either manually or because of comcol upgrade barrier)</li> </ul>	<p>Section 5.1.6.2 Recovery Scenario 6: Case 2</p>
------------------	---	--

## 5.0 Disaster Recovery Procedure

Call **My Oracle Support (MOS)** prior to executing this procedure to ensure that the proper recovery planning is performed.

Before disaster recovery, users must properly evaluate the outage scenario. This check ensures that the correct procedures are executed for the recovery.

**\*\*\*\* WARNING \*\*\*\*\***

**\*\*\*\* WARNING \*\*\*\*\***

**Note:** *Disaster recovery is an exercise that requires collaboration of multiple groups and is expected to be coordinated by the ORACLE SUPPORT prime. Based on ORACLE SUPPORT's assessment of Disaster, it may be necessary to deviate from the documented process.*



## 5.1 Recovering and Restoring System Configuration

Disaster recovery requires configuring the system as it was before the disaster and restoration of operational information. There are 8 distinct procedures to choose from depending on the type of recovery needed. Only one of these should be followed (not all).



**!!WARNING!!**

Whenever there is need to restore the database backup for NOAM and SOAM servers in any of below Recovery Scenarios, the backup directory may not be there in the system as system will be DRed.

In this case, please refer to Workarounds for Issues not fixed in this Release, this will provide steps to check and create the backup directory.

**File format for recovery will be when back was taken. Generally back file is in format below.**

**For example:-**

**Backup.DSR.HPC02-NO2.FullIDBParts.NETWORK\_OAMP.20140524\_223507.UPG.tar.bz2**

### 5.1.1 Recovery Scenario 1 (Complete Server Outage)

For a complete server outage, NOAM servers are recovered using recovery procedures for software and then executing a database restore to the active NOAM server. All other servers are recovered using recovery procedures for software.

Database replication from the active NOAM server will recover the database on these servers. The major activities are summarized in the list below. Use this list to understand the recovery procedure summary. Do not use this list to execute the procedure. The actual detailed steps are in Procedure 1. The major activities are summarized as follows:

Recover Base software for all VMs:

- Recover the Virtual Machines hosting the NOAMs and SOAMs
- Recover the **Active NOAM** server by recovering the NOAMs base software
- Recover the NOAM database
- Reconfigure the application

Recover the **Standby NOAM** server by recovering base software, for a Non-HA deployment this can be skipped.

- Reconfigure the DSR Application

Recover all SOAM and MP servers by recovering software, In a Non-HA deployment the Standby/Spare SOAM servers can be skipped.

- Recover the SOAM database
- Reconfigure the DSR Application
- Reconfigure the signaling interface and routes on the MPs, the DSR software will automatically reconfigure the signaling interface from the recovered database.

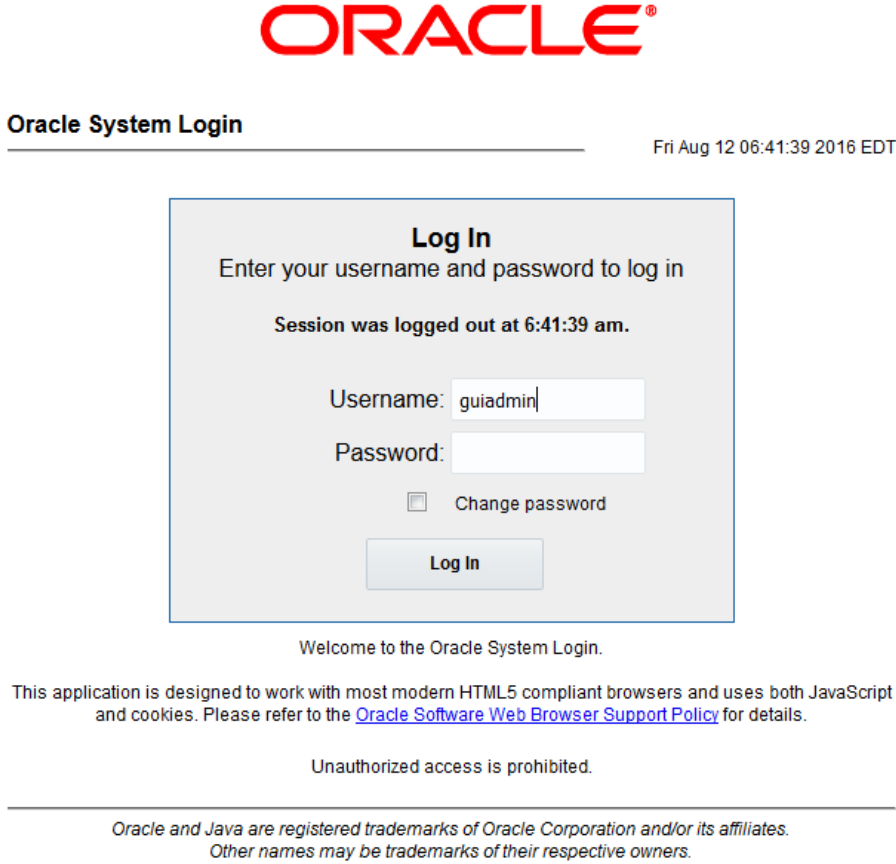
Restart process and re-enable provisioning replication

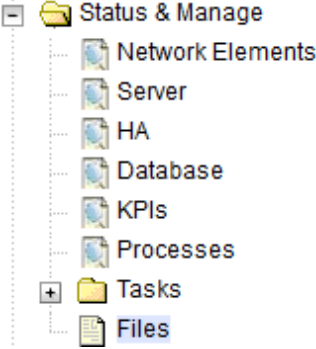
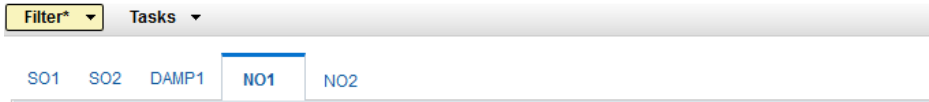
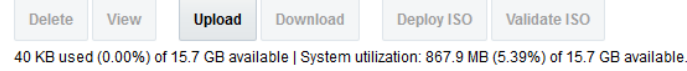
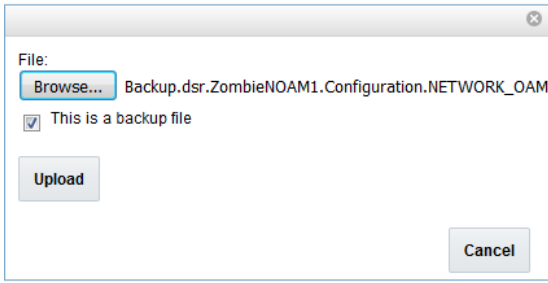
**Note:** Any other applications DR recovery actions (SDS and IDIH) may occur in parallel. These actions can/should be worked simultaneously; doing so would allow faster recovery of the complete solution (i.e. stale DB on DP servers will not receive updates until SDS-SOAM servers are recovered).

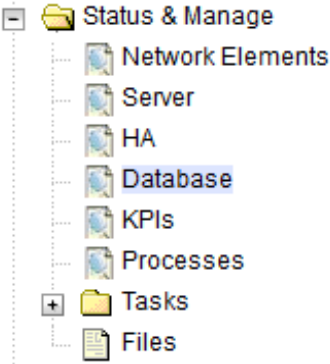
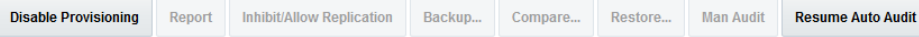
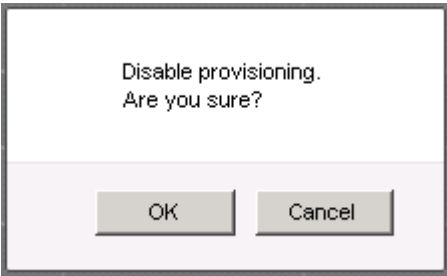
**Procedure 5. Recovery Scenario 1**

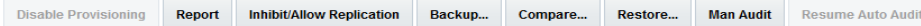
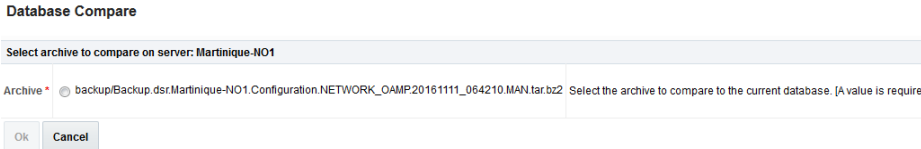
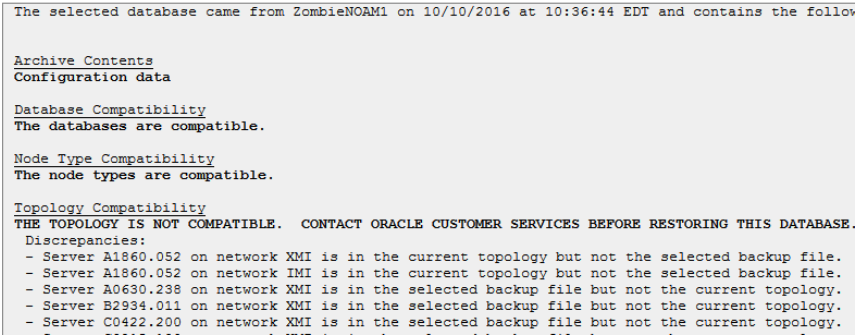
STEP #	Procedure	Description
<p>This procedure performs recovery if both NOAM servers are failed and all SOAM servers are failed. This procedure also covers the C-Level Sever failure</p> <p>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.</p> <p>If this procedure fails, contact My Oracle Support (MOS), and ask for assistance.</p>		
<p>1. <input type="checkbox"/></p>	<p><b>Workarounds</b></p>	<p>Refer to <b>Workarounds for</b> Issues not fixed in this Release to understand/apply any workarounds required during this procedure.</p>
<p>2. <input type="checkbox"/></p>	<p><b>Gather Required Materials</b></p>	<p>Gather the documents and required materials listed in <b>Section 3.1</b> Required Materials</p>
<p>3. <input type="checkbox"/></p>	<p><b>Recover the Failed Software</b></p>	<p>For VMWare based deployments:</p> <ol style="list-style-type: none"> <li>1. For NOAMs execute the following procedures from reference [1]:                             <ol style="list-style-type: none"> <li>a. Procedure 1 (VMWare). Import DSR OVA [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 2 (VMWare Only). Configure NOAM guests based on resource profile</li> </ol> </li> <li>2. For SOAMs execute the following procedures from reference [1]:                             <ol style="list-style-type: none"> <li>a. Procedure 1 (VMWare). Import DSR OVA [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 3 (VMWare Only). Configure Remaining DSR guests based on resource profile</li> </ol> </li> <li>3. For failed MPs execute the following procedures from reference [1]:                             <ol style="list-style-type: none"> <li>a. Procedure 1 (VMWare). Import DSR OVA [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 3 (VMWare Only). Configure Remaining DSR guests based on resource profile</li> </ol> </li> </ol> <p>For KVM / Openstack based deployments:</p> <ol style="list-style-type: none"> <li>1. For NOAMs execute the following procedures from reference [1]:                             <ol style="list-style-type: none"> <li>a. Procedure 4 (KVM / Openstack). Import DSR OVA [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 5 (KVM / Openstack Only). Configure NOAM guests based on resource profile</li> </ol> </li> </ol>

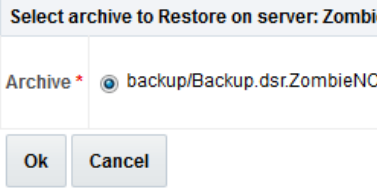
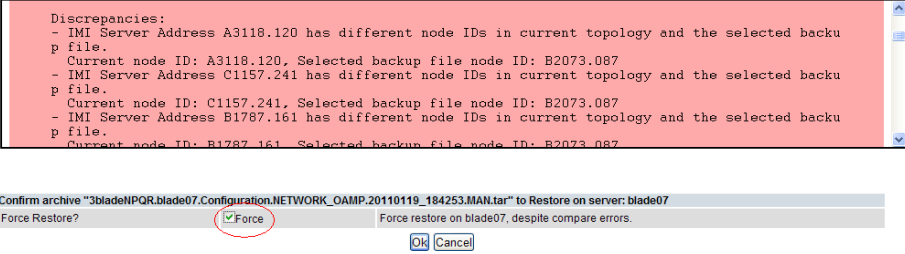
STEP #	Procedure	Description
		<p>2. For SOAMs execute the following procedures from reference [1]:</p> <ul style="list-style-type: none"> <li>a. Procedure 4 (KVM / Openstack). Import DSR OVA [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 6 (KVM / Openstack Only). Configure Remaining DSR guests based on resource profile</li> </ul> <p>3. For failed MPs execute the following procedures from reference [1]:</p> <ul style="list-style-type: none"> <li>a. Procedure 4 (KVM / Openstack). Import DSR OVA [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 6 (KVM / Openstack Only). Configure Remaining DSR guests based on resource profile</li> </ul> <p>For OVM-S / OVM-M based deployments: Execute the following procedures from reference [1]:</p> <ul style="list-style-type: none"> <li>a. Procedure 7 (OVM-S/OVM-M). Import DSR OVA and prepare for VM creation</li> <li>b. Procedure 8 (OVM-S/OVM-M). Configure each DSR VM</li> </ul> <p><b>Note:</b> While executing Procedure 8, configure the required failed VMs only (NOAMs/SOAMs/MPs)</p>
<p>4.</p> <p><input type="checkbox"/></p>	<p><b>Obtain Latest Database Backup and Network Configuration Data.</b></p>	<p>Obtain the most recent database backup file from external backup sources (ex. file servers) or tape backup sources.</p> <p>From required materials list in <b>Section 3.1</b> Required Materials; use site survey documents and Network Element report (if available), to determine network configuration data.</p>
<p>5.</p> <p><input type="checkbox"/></p>	<p><b>Execute DSR Installation Procedure for the First NOAM</b></p>	<p>Verify the networking data for Network Elements</p> <p><b>Note:</b> Use the backup copy of network configuration data and site surveys (Step 2)</p> <p><b>Execute</b> installation procedures for the first NOAM server from reference [1]:</p> <p>Procedure 9 “Configure the First NOAM NE and Server” and</p> <p>Procedure 10 “Configure the NOAM Server Group”.</p>

STEP #	Procedure	Description
<p>6. <input type="checkbox"/></p>	<p><b>NOAM GUI:</b> Login</p>	<p>Login to the NOAM GUI as the <i>guiadmin</i> user:</p>  <p>Welcome to the Oracle System Login.</p> <p>This application is designed to work with most modern HTML5 compliant browsers and uses both JavaScript and cookies. Please refer to the <a href="#">Oracle Software Web Browser Support Policy</a> for details.</p> <p>Unauthorized access is prohibited.</p> <hr/> <p><i>Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.</i></p>


STEP #	Procedure	Description
<p>7. □</p>	<p><b>NOAM GUI:</b> Upload the Backed up Database File</p>	<p>Browse to <b>Main Menu-&gt;Status &amp; Manage-&gt;Files</b></p>  <p>Select the Active NOAM server. The following screen will appear:</p> <p><b>Main Menu: Status &amp; Manage -&gt; Files</b></p>  <p>Click on <b>Upload</b> as shown below and select the file <i>“NO Provisioning and Configuration:”</i> file backed up after initial installation and provisioning.</p>  <ol style="list-style-type: none"> <li>1. Click on <b>Browse</b> and locate the backup file</li> <li>2. Check <b>This is a backup file</b> Box</li> <li>3. Click on Open as shown below.</li> </ol>  <p>Click on the <b>Upload</b> button. The file will take a few seconds to upload depending on the size of the backup data. The file will be visible on the list of entries after the upload is complete.</p>

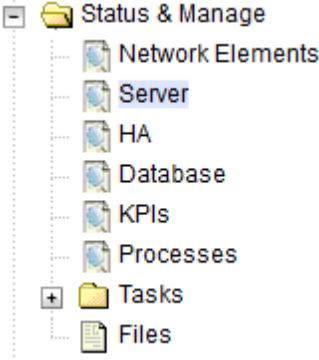
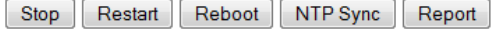
STEP #	Procedure	Description
<p>8. □</p>	<p><b>NOAM GUI:</b> Disable Provisioning</p>	<p>Click on <b>Main Menu-&gt;Status &amp; Manage-&gt;Database</b></p>  <p>Disable Provisioning by clicking on <b>Disable Provisioning</b> button at the bottom of the screen as shown below.</p>  <p>A confirmation window will appear, press <b>OK</b> to disable Provisioning.</p>  <p>The message <i>"Warning Code 002"</i> will appear.</p>

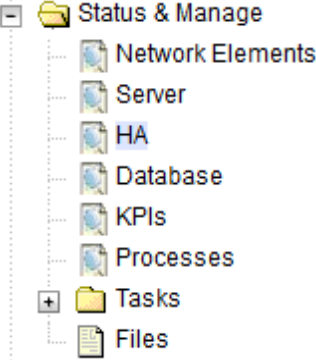
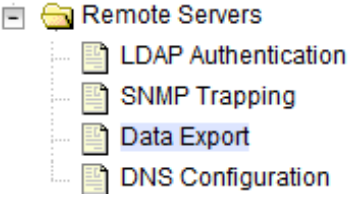
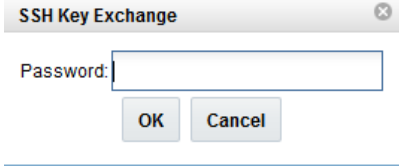
STEP #	Procedure	Description
<p>9. □</p>	<p><b>NOAM GUI:</b> Verify the Archive Contents and Database Compatibility</p>	<p>Select the <b>Active NOAM</b> server and click on the <b>Compare</b>.</p>  <p>The following screen is displayed; click the button for the restored database file that was uploaded as a part of <b>Step 13</b> of this procedure.</p>  <p><b>Verify</b> that the output window matches the screen below.</p> <p><b>Note:</b> You will get a database mismatch regarding the NodeIDs of the VMs. That is expected. If that is the only mismatch, proceed, otherwise stop and contact My Oracle Support (MOS).</p> <p><b>Database Archive Compare</b></p>  <p><b>Note:</b> Archive Contents and Database Compatibilities must be the following:</p> <p><b>Archive Contents:</b> Configuration data  <b>Database Compatibility:</b> The databases are compatible.</p> <p><b>Note:</b> The following is expected Output for Topology Compatibility Check since we are restoring from existing backed up data base to database with just one NOAM:</p> <p><b>Topology Compatibility</b>          THE TOPOLOGY SHOULD BE COMPATIBLE MINUS THE NODEID.</p> <p><b>Note:</b> We are trying to restore a backed up database onto an empty NOAM database. This is an expected text in Topology Compatibility.</p> <p>If the verification is successful, Click <b>BACK</b> button and continue to <b>next step</b> in this procedure.</p>



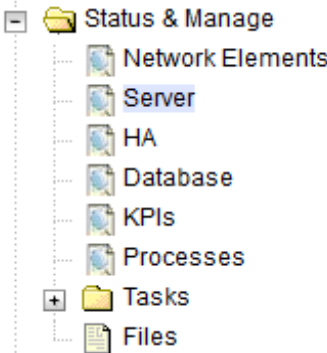
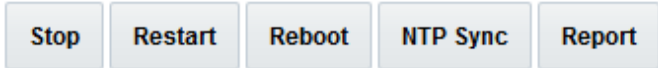
STEP #	Procedure	Description
<p>10.</p> <p><input type="checkbox"/></p>	<p><b>ACTIVE NOAM:</b> Restore the Database</p>	<p>Click on <b>Main Menu-&gt;Status &amp; Manage-&gt;Database</b></p> <p>Select the <b>Active NOAM</b> server, and click on <b>Restore</b> as shown below.</p> <p>The following screen will be displayed. Select the proper back up provisioning and configuration file.</p>  <p>Click <b>OK</b> Button. The following confirmation screen will be displayed.</p> <p><b>Note:</b> You will get a database mismatch regarding the NodeIDs of the servers. That is expected. If that is the only mismatch, proceed, otherwise stop and contact My Oracle Support (MOS).</p> <p>Select the <b>Force</b> checkbox as shown above and Click <b>OK</b> to proceed with the DB restore.</p> <p>Database Restore Confirm</p> <p>Incompatible database selected</p>  <p><b>Note:</b> After the restore has started, the user will be logged out of XMI NO GUI since the restored Topology is old data.</p>

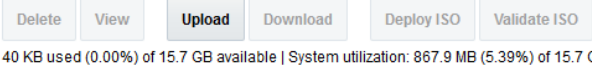
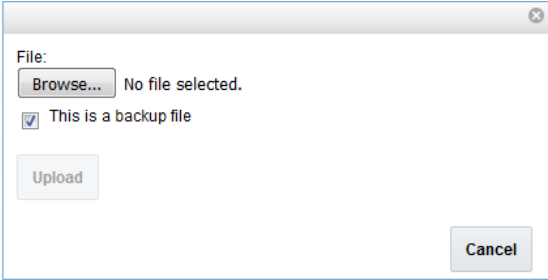


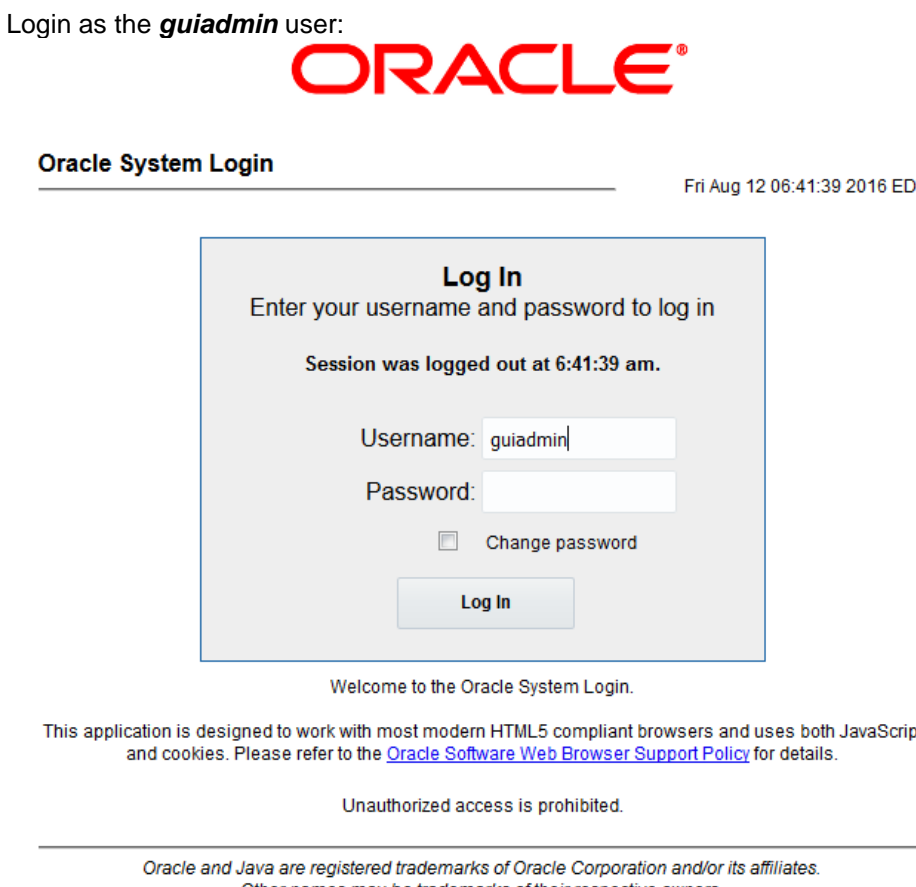
STEP #	Procedure	Description
<p>11.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Login</b></p>	<p>Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of:</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 10px 0;"> <p><code>http://&lt;Primary_NOAM_VIP_IP_Address&gt;</code></p> </div> <p>Login as the <i>guiadmin</i> user:</p>  <p>Welcome to the Oracle System Login.</p> <p>This application is designed to work with most modern HTML5 compliant browsers and uses both JavaScript and cookies. Please refer to the <a href="#">Oracle Software Web Browser Support Policy</a> for details.</p> <p>Unauthorized access is prohibited.</p> <p><small>Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.</small></p>
<p>12.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Monitor and Confirm database restoral</b></p>	<p>Wait for <b>5-10 minutes</b> for the System to stabilize with the new topology:</p> <p>Monitor the Info tab for “<b>Success</b>”. This will indicate that the backup is complete and the system is stabilized.</p> <p>Following alarms <b>must</b> be ignored for NOAM and MP Servers until all the Servers are configured:</p> <p>Alarms with Type Column as “<b>REPL</b>” , “<b>COLL</b>”, “<b>HA</b>” (with mate NOAM), “<b>DB</b>” (about Provisioning Manually Disabled)</p> <p><b>Note:</b> Do not pay attention to alarms until all the servers in the system are completely restored.</p> <p><b>Note:</b> The Configuration and Maintenance information will be in the same state it was backed up during initial backup.</p>

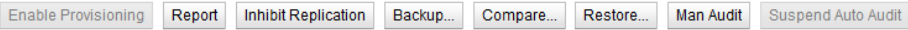
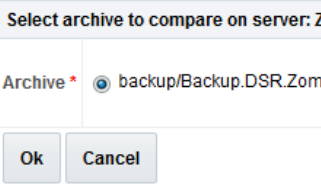
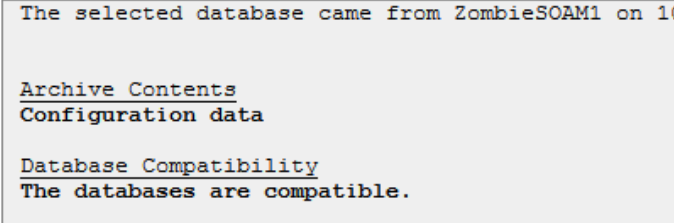
STEP #	Procedure	Description
13. <input type="checkbox"/>	<b>ACTIVE NOAM:</b> Login	Login to the recovered Active NOAM via SSH terminal as <b>admusr</b> user.
14. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Recover Standby NOAM	Install the second NOAM server by executing procedures from reference [1]  Procedure 15 “Configure the Second NOAM Server” steps 1, 3-7  Procedure 16 “Complete Configuring the NOAM Server Group” Step 4
15. <input type="checkbox"/>	<b>Active NOAM:</b> Correct the Recognized Authority table	Establish an SSH session to the active NOAM, login as <b>admusr</b> .  Execute the following command:  <pre>\$ sudo top.setPrimary - Using my cluster: A1789 - New Primary Timestamp: 11/09/15 20:21:43.418 - Updating A1789.022: &lt;DSR_NOAM_B_hostname&gt; - Updating A1789.144: &lt;DSR_NOAM_A_hostname&gt;</pre>
16. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Restart DSR application	Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Server,</b>   Select the recovered standby NOAM server and click on <b>Restart</b> .  

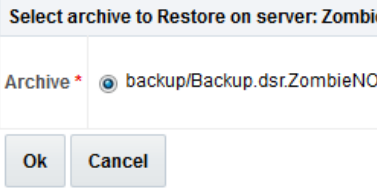
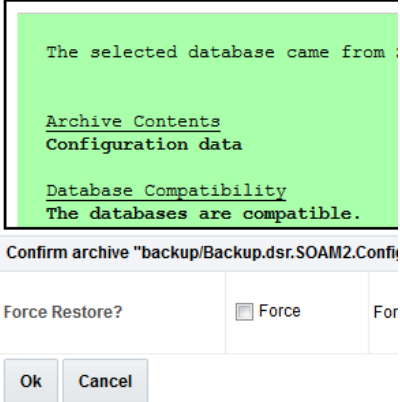
STEP #	Procedure	Description
<p>17.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Set HA on Standby NOAM</b></p>	<p>Navigate to <b>Status &amp; Manage -&gt; HA</b></p>  <p>Click on <b>Edit</b> at the bottom of the screen</p> <p>Select the standby NOAM server, set it to <b>Active</b></p> <p>Press <b>OK</b></p>
<p>18.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Perform Key exchange with Export Server</b></p>	<p>Navigate to <b>Main Menu -&gt; Administration -&gt; Remote Servers -&gt; Data Export</b></p>  <p>Click on <b>SSH Key Exchange</b> at the bottom of the screen</p> <p>Enter the Password and press <b>OK</b></p> 

STEP #	Procedure	Description
19. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Stop Replication to the C-Level Servers of this Site.	Inhibit Replication to the working C Level Servers which belong to the <b>same site</b> as of the failed SOAM servers, as the recovery of Active SOAM will cause the database wipeout in the C level servers because of the replication   <b>If the spare SOAM is also present in the site and lost:</b> Inhibit A and B Level Replication on C-Level Servers (When Active, Standby and Spare SOAMs are lost)  <b>If the spare SOAM is NOT deployed in the site:</b> Execute <b>Inhibit A</b> and B Level Replication on C-Level Servers  
20. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Recover Active SOAM Server	Install the SOAM servers by executing procedures from reference [1]  Procedure 22 “Configure the SOAM Servers”, steps 1, 3- 7  <b>NOTE:</b> Wait for server to reboot before continuing.
21. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Restart DSR application on Recovered Active SOAM Server	Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Server,</b>    Select the recovered server and click on <b>Restart.</b>  


STEP #	Procedure	Description
<p>22.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Upload the backed up SOAM Database file</p>	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Files</b></p> <p>Select the <b>Active SOAM server</b>. The following screen will appear. Click on Upload as shown below and select the file <i>“SO Provisioning and Configuration:”</i> file backed up after initial installation and provisioning.</p>  <ol style="list-style-type: none"> <li>1. Click on <b>Browse</b> and locate the backup file</li> <li>2. Check <b>This is a backup file</b> Box</li> <li>3. Click on Open as shown below.</li> </ol>  <p>Click on the <b>Upload</b> button. The file will take a few seconds to upload depending on the size of the backup data. The file will be visible on the list of entries after the upload is complete.</p>

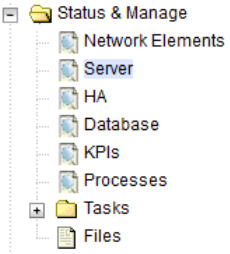
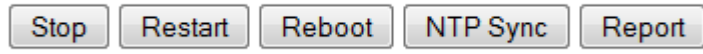
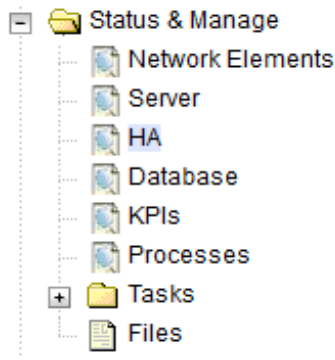
STEP #	Procedure	Description
<p>23.</p> <p><input type="checkbox"/></p>	<p><b>Recovered SOAM GUI: Login</b></p>	<p>Establish a GUI session on the recovered SOAM server. Open the web browser and enter a URL of:</p> <div style="border: 1px solid black; padding: 2px; margin: 5px 0;"> <p><code>http://&lt;Recovered_SOAM_IP_Address&gt;</code></p> </div> <p>Login as the <i>guiadmin</i> user:</p>  <p>Welcome to the Oracle System Login.</p> <p>This application is designed to work with most modern HTML5 compliant browsers and uses both JavaScript and cookies. Please refer to the <a href="#">Oracle Software Web Browser Support Policy</a> for details.</p> <p>Unauthorized access is prohibited.</p> <hr/> <p><i>Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.</i></p>

STEP #	Procedure	Description
<p>24.</p> <p><input type="checkbox"/></p>	<p><b>Recovered SOAM GUI:</b> Verify the Archive Contents and Database Compatibility</p>	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Database</b></p> <p>Select the <b>Active SOAM</b> server and click on the <b>Compare</b>.</p>  <p>The following screen is displayed; click the button for the restored database file that was uploaded as a part of <b>Step 13</b> of this procedure.</p> <p><b>Database Compare</b></p>  <p><b>Verify</b> that the output window matches the screen below.</p> <p>Note: You will get a database mismatch regarding the NodeIDs of the VMs. That is expected. If that is the only mismatch, proceed, otherwise stop and contact My Oracle Support (MOS)</p> <hr/> <p><b>Database Archive Compare</b></p>  <p><b>Note:</b> Archive Contents and Database Compatibilities must be the following:</p> <p><b>Archive Contents:</b> Configuration data  <b>Database Compatibility:</b> The databases are compatible.</p> <p><b>Note:</b> The following is expected Output for Topology Compatibility Check since we are restoring from existing backed up data base to database with just one SOAM:</p> <p><b>Topology Compatibility</b>          THE TOPOLOGY SHOULD BE COMPATIBLE MINUS THE NODEID.</p> <p><b>Note:</b> We are trying to restore a backed up database onto an empty SOAM database. This is an expected text in Topology Compatibility. If the verification is successful, Click <b>BACK</b> button and continue to <b>next step</b> in this procedure.</p>

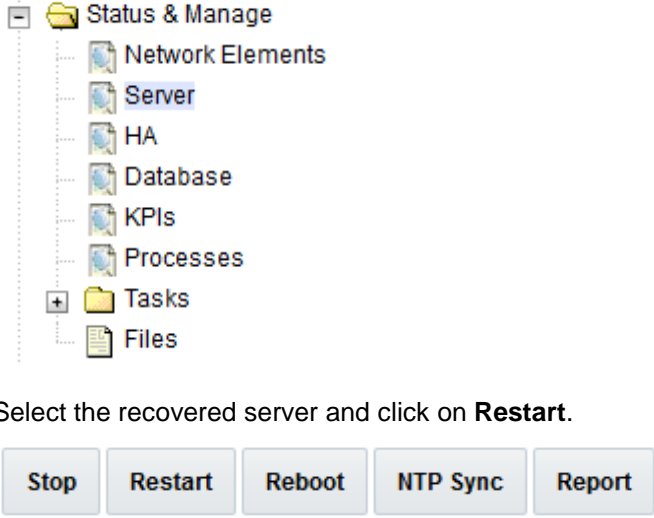
STEP #	Procedure	Description
<p>25.</p> <p><input type="checkbox"/></p>	<p><b>Recovered SOAM GUI:</b> Restore the Database</p>	<p>Click on <b>Main Menu-&gt;Status &amp; Manage-&gt;Database</b></p> <p>Select the <b>Active SOAM</b> server, and click on <b>Restore</b> as shown below.</p> <p>The following screen will be displayed. Select the proper back up provisioning and configuration file.</p>  <p>Click <b>OK</b> Button. The following confirmation screen will be displayed.</p> <p>If you get an error that the NodeIDs do not match. That is expected. If no other errors beside the NodeIDs are displayed, select the <b>Force</b> checkbox as shown below and Click <b>OK</b> to proceed with the DB restore.</p> <p><b>Database Restore Confirm</b></p> <p>Compatible archive.</p>  <p><b>Note:</b> After the restore has started, the user will be logged out of XMI SOAM GUI since the restored Topology is old data.</p>
<p>26.</p> <p><input type="checkbox"/></p>	<p><b>Recovered SOAM GUI:</b> Monitor and Confirm database restoral</p>	<p>Wait for <b>5-10 minutes</b> for the System to stabilize with the new topology:</p> <p>Monitor the Info tab for <b>“Success”</b>. This will indicate that the backup is complete and the system is stabilized.</p> <p><b>Note:</b> Do not pay attention to alarms until all the servers in the system are completely restored.</p> <p><b>Note:</b> The Configuration and Maintenance information will be in the same state it was backed up during initial backup.</p>

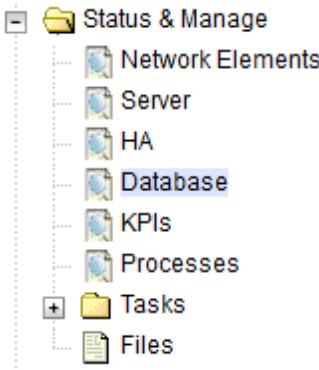


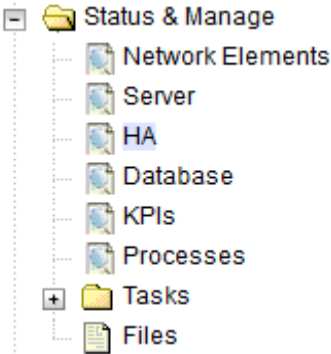
STEP #	Procedure	Description
<p>27.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Login</b></p>	<p>Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of:</p> <div style="border: 1px solid black; padding: 2px; margin: 5px 0;"> <p><code>http://&lt;Primary_NOAM_VIP_IP_Address&gt;</code></p> </div> <p>Login as the <i>guiadmin</i> user:</p> 
<p>28.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Recover remaining SOAM Server</b></p>	<p>Install the SOAM servers by executing procedure from reference [1]</p> <p>Procedure 22 “Configure the SOAM Servers”, steps 1, 3- 6</p> <p><b>NOTE:</b> Wait for server to reboot before continuing.</p>

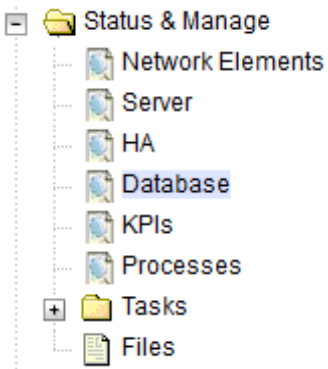
STEP #	Procedure	Description
<p>29.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Restart DSR application on remaining SOAM Server(s)</p>	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Server,</b></p>  <p>Select the recovered server and click on <b>Restart.</b></p> 
<p>30.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Set HA on Recovered Standby SOAM Server</p>	<p><b>NOTE:</b> For Non-HA sites <b>SKIP</b> this step.</p> <p>Navigate to <b>Status &amp; Manage -&gt; HA</b></p>  <p>Click on <b>Edit</b> at the bottom of the screen</p> <p>Set Max Allowed HA Role to <b>Active</b></p> <p>Press <b>OK</b></p>

STEP #	Procedure	Description																				
<p>31.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Start Replication on Working C-Level Servers</p>	<p>Un-Inhibit (<i>Start</i>) Replication to the <b>working</b> C-Level Servers which belong to the same site as of the failed SOAM servers.</p> <p><b><u>If the spare SOAM is also present in the site and lost:</u></b> Execute Un-Inhibit A and B Level Replication on C-Level Servers (When Active, Standby and Spare SOAMs are lost)</p> <p><b><u>If the spare SOAM is NOT deployed in the site:</u></b> Execute <b>Un-Inhibit A</b> and B Level Replication on C-Level Servers</p> <p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Database</b></p> <p>If the “<i>Repl Status</i>” is set to “Inhibited”, click on the <b>Allow Replication</b> button as shown below using the following order, otherwise if none of the servers are inhibited, skip this step and continue with the next step:</p> <ul style="list-style-type: none"> <li>• Active NOAM Server</li> <li>• Standby NOAM Server</li> <li>• Active SOAM Server</li> <li>• Standby SOAM Server</li> <li>• Spare SOAM Server (<i>if applicable</i>)</li> <li>• MP/IPFE Servers</li> <li>• SBRS (<i>if SBR servers are configured, start with the active SBR, then standby, then spare</i>)</li> </ul> <p>Verify that the replication on all the working servers is allowed. This can be done by examining the Repl Status table as seen below:</p> <table border="1" data-bbox="537 1073 1453 1377"> <thead> <tr> <th>OAM Repl Status</th> <th>SIG Repl Status</th> <th>Repl Status</th> <th>Repl Audit Status</th> </tr> </thead> <tbody> <tr> <td>NotApplicable</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr style="background-color: #e0f0ff;"> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> </tbody> </table>	OAM Repl Status	SIG Repl Status	Repl Status	Repl Audit Status	NotApplicable	NotApplicable	Allowed	NotApplicable	Normal	NotApplicable	Allowed	NotApplicable	Normal	NotApplicable	Allowed	NotApplicable	Normal	NotApplicable	Allowed	NotApplicable
OAM Repl Status	SIG Repl Status	Repl Status	Repl Audit Status																			
NotApplicable	NotApplicable	Allowed	NotApplicable																			
Normal	NotApplicable	Allowed	NotApplicable																			
Normal	NotApplicable	Allowed	NotApplicable																			
Normal	NotApplicable	Allowed	NotApplicable																			
<p>32.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Recover the C-Level Server (DA-MP, SBRs, IPFE,vSTP-MP)</p>	<p>Establish a SSH session to the C Level server being recovered, login as <b>admusr</b>.</p> <p>Execute following command to set shared memory to unlimited:</p> <pre style="border: 1px solid black; padding: 5px; width: fit-content;">\$ sudo sh1.set -m 0</pre> <p>Execute the following procedures from [1] <b>FOR EACH</b> server that has been recovered:</p> <p>Procedure 25 “Configure the MP Virtual Machines”, Steps 1, 11-14 (&amp; 15 if required).</p>																				

STEP #	Procedure	Description
<p>33.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP</b>  <b>GUI: Restart</b>                      DSR                      application for                      Recovered C-                      Level Server</p>	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Server,</b></p>  <p>Select the recovered server and click on <b>Restart.</b></p> <p> <input type="button" value="Stop"/> <input type="button" value="Restart"/> <input type="button" value="Reboot"/> <input type="button" value="NTP Sync"/> <input type="button" value="Report"/> </p>

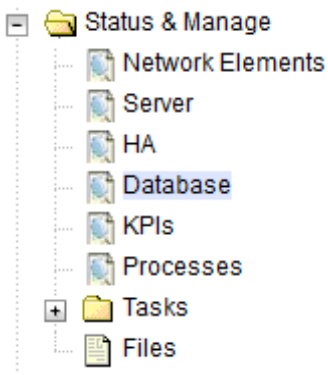
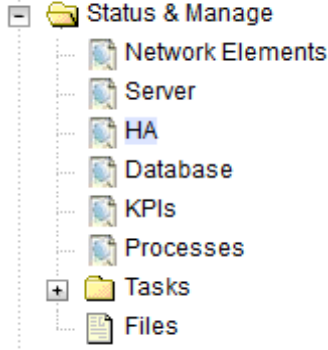
STEP #	Procedure	Description																				
<p>34.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP</b>  <b>GUI: Start</b>                      Replication on                      all C-Level                      Servers</p>	<p>Un-Inhibit (<i>Start</i>) Replication to the <b>ALL</b> C-Level Servers</p> <p>Navigate to <b>Status &amp; Manage -&gt; Database</b></p>  <p>If the "<i>Repl Status</i>" is set to "Inhibited", click on the Allow Replication button as shown below using the following order:</p> <ul style="list-style-type: none"> <li>• Active NOAM Server</li> <li>• Standby NOAM Server</li> <li>• Active SOAM Server</li> <li>• Standby SOAM Server</li> <li>• Spare SOAM Server (<i>if applicable</i>)</li> <li>• MP/IPFE Servers</li> </ul> <p>Verify that the replication on all the working servers is allowed. This can be done by examining the Repl Status table as seen below:</p> <table border="1" data-bbox="535 1155 1445 1459"> <thead> <tr> <th>OAM Repl Status</th> <th>SIG Repl Status</th> <th>Repl Status</th> <th>Repl Audit Status</th> </tr> </thead> <tbody> <tr> <td>NotApplicable</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr style="background-color: #e0f0ff;"> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> </tbody> </table>	OAM Repl Status	SIG Repl Status	Repl Status	Repl Audit Status	NotApplicable	NotApplicable	Allowed	NotApplicable	Normal	NotApplicable	Allowed	NotApplicable	Normal	NotApplicable	Allowed	NotApplicable	Normal	NotApplicable	Allowed	NotApplicable
OAM Repl Status	SIG Repl Status	Repl Status	Repl Audit Status																			
NotApplicable	NotApplicable	Allowed	NotApplicable																			
Normal	NotApplicable	Allowed	NotApplicable																			
Normal	NotApplicable	Allowed	NotApplicable																			
Normal	NotApplicable	Allowed	NotApplicable																			

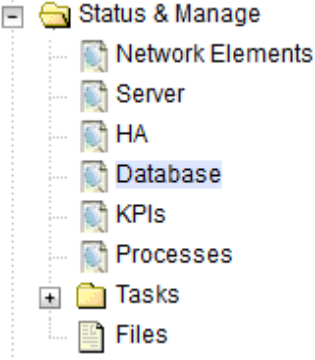

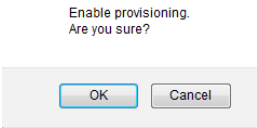
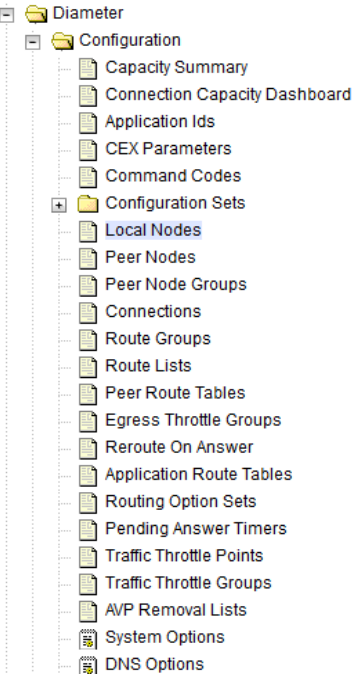
<p>35. <input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Set HA on all C-Level Servers</p>	<p>Navigate to <b>Status &amp; Manage -&gt; HA</b></p>  <p>Click on <b>Edit</b> at the bottom of the screen</p> <p>For each server whose Max Allowed HA Role is set to OOS, set it to <b>Active</b></p> <p>Press <b>OK</b></p>
<p>36. <input type="checkbox"/></p>	<p><b>ACTIVE NOAM:</b> Perform key exchange between the active-NOAM and recovered servers.</p>	<p>Establish an SSH session to the Active NOAM, login as <b>admusr</b>.</p> <p>Execute the following command to perform a key exchange from the active NOAM to each recovered server:</p> <pre style="border: 1px solid black; padding: 5px; width: fit-content;">\$ keyexchange admusr@&lt;Recovered Server Hostname&gt;</pre> <p><b>Note:</b> If an export server is configured, perform this step.</p>
<p>37. <input type="checkbox"/></p>	<p><b>ACTIVE NOAM:</b> Activate Optional Features</p>	<p>Establish an SSH session to the active NOAM, login as <b>admusr</b>.</p> <p><b>Note for PCA Feature Activation:</b> If you have PCA installed in the system being recovered, execute the procedure “PCA Activation on Stand By NOAM server” on recovered Standby NOAM Server and procedure “PCA Activation on Active SOAM server” on recovered Active SOAM Server from [3] to re-activate PCA</p> <p>Refer to <b>section 1.5 Optional Features</b> to activate any features that were previously activated.</p> <p><b>Note:</b> While running the activation script, the following error message (and corresponding messages) output may be seen, this can safely be ignored:</p> <pre style="font-family: monospace;">iload#31000{S/W Fault}</pre> <p><b>Note:</b> If any of the MPs are failed and recovered, then these MP servers should be restarted after Activation of the feature.</p> <p>Refer to <b>section 1.5 Optional Features</b> to activate any features that were previously activated.</p>

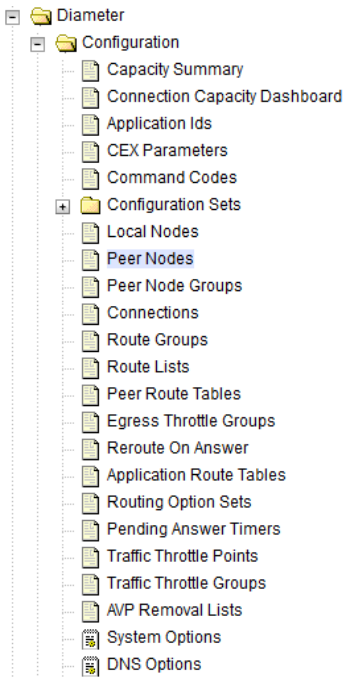
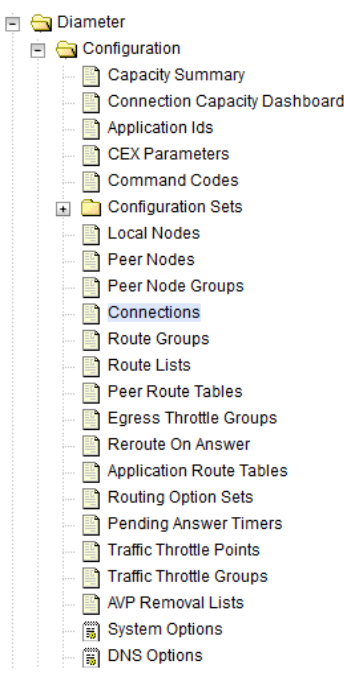
<p>38.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Fetch and Store the database Report for the Newly Restored Data and Save it</p>	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Database</b></p>  <p>Select the <b>active</b> NOAM server and click on the <b>Report</b> button at the bottom of the page. The following screen is displayed:</p> <p><b>Main Menu: Status &amp; Manage -&gt; Database [Report]</b></p> <pre>===== d s r   D a t a b a s e   S t a t u s   R e p o r t ===== Report Generated: Tue Oct 11 13:24:26 2016 EDT From: Active Network OAM&amp;P on host ZombieNOAM1 Report Version: 8.0.0.0.0-80.9.0 User: guiadmin  -----  General ----- Hostname                : ZombieNOAM1 Database Birthday      : 2016-07-11 11:21:50 EDT Appworks Database Version : 6.0 Application Database Version :  Capacities and Utilization ----- Disk Utilization      8.4%: 585M used of 7.0G total, 6.0G available Memory Utilization   0.0%:  used of  total, 0M available</pre> <p>Click on <b>Save</b> and save the report to your local machine.</p>
--	---	--

<p>39. <input type="checkbox"/></p>	<p><b>ACTIVE NOAM:</b> Verify Replication Between Servers.</p>	<p>Login to the Active NOAM via SSH terminal as <b>admusr</b> user. Execute the following command:</p> <pre style="background-color: #f0f0f0; padding: 10px;">\$ sudo irepstat -m</pre> <p>Output like below shall be generated:</p> <pre style="background-color: #f0f0f0; padding: 10px;">-- Policy 0 ActStb [DbReplication] ----- Oahu-DAMP-1 -- Active   BC From Oahu-SOAM-2 Active 0 0.50 ^0.15%cpu 25B/s A=me   CC To Oahu-DAMP-2 Active 0 0.10 0.14%cpu 25B/s A=me Oahu-DAMP-2 -- Stby   BC From Oahu-SOAM-2 Active 0 0.50 ^0.11%cpu 31B/s A=C3642.212   CC From Oahu-DAMP-1 Active 0 0.10 ^0.14 1.16%cpu 31B/s A=C3642.212 Oahu-IPFE-1 -- Active   BC From Oahu-SOAM-2 Active 0 0.50 ^0.03%cpu 24B/s A=C3642.212 Oahu-IPFE-2 -- Active   BC From Oahu-SOAM-2 Active 0 0.50 ^0.03%cpu 28B/s A=C3642.212 Oahu-NOAM-1 -- Stby   AA From Oahu-NOAM-2 Active 0 0.25 ^0.03%cpu 23B/s Oahu-NOAM-2 -- Active   AA To Oahu-NOAM-1 Active 0 0.25 1%R 0.04%cpu 61B/s   AB To Oahu-SOAM-2 Active 0 0.50 1%R 0.05%cpu 75B/s Oahu-SOAM-1 -- Stby   BB From Oahu-SOAM-2 Active 0 0.50 ^0.03%cpu 27B/s Oahu-SOAM-2 -- Active   AB From Oahu-NOAM-2 Active 0 0.50 ^0.03%cpu 24B/s   BB To Oahu-SOAM-1 Active 0 0.50 1%R 0.04%cpu 32B/s   BC To Oahu-IPFE-1 Active 0 0.50 1%R 0.04%cpu 21B/s  irepstat ( 40 lines) (h)elp (m)erged</pre>
---	--	--



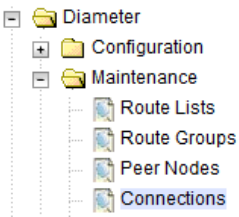
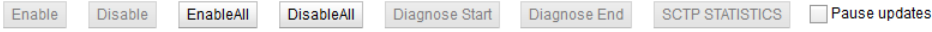
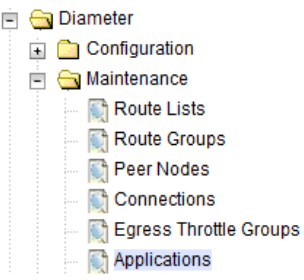
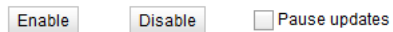
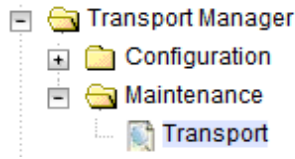

40. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Verify the Database states	<p>Click on <b>Main Menu-&gt;Status and Manager-&gt;Database</b></p>  <p>Verify that the “OAM Max HA Role” is either “Active” or “Standby” for NOAM and SOAM and “Application Max HA Role” for MPs is “Active”, and that the status is “Normal” as shown below:</p> <p><b>Main Menu: Status &amp; Manage -&gt; Database</b></p> <p>Filter* Info* Tasks</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th>Network Element</th> <th>Server</th> <th>Role</th> <th>OAM Max HA Role</th> <th>Application Max HA Role</th> <th>Status</th> <th>DB Level</th> <th>OAM Repl Status</th> <th>SIG Repl Status</th> <th>Repl Status</th> <th>Repl Audit Status</th> </tr> </thead> <tbody> <tr> <td>SOAM_NE</td> <td>SO1</td> <td>System OAM</td> <td>Standby</td> <td>N/A</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>SOAM_NE</td> <td>SO2</td> <td>System OAM</td> <td>Active</td> <td>N/A</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>NOAM_NE</td> <td>NO2</td> <td>Network OAM&amp;P</td> <td>Standby</td> <td>N/A</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>SOAM_NE</td> <td>DAMP1</td> <td>MP</td> <td>Active</td> <td>Active</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>Normal</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>NOAM_NE</td> <td>NO1</td> <td>Network OAM&amp;P</td> <td>Active</td> <td>N/A</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> </tbody> </table>	Network Element	Server	Role	OAM Max HA Role	Application Max HA Role	Status	DB Level	OAM Repl Status	SIG Repl Status	Repl Status	Repl Audit Status	SOAM_NE	SO1	System OAM	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable	SOAM_NE	SO2	System OAM	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable	NOAM_NE	NO2	Network OAM&P	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable	SOAM_NE	DAMP1	MP	Active	Active	Normal	0	Normal	Normal	Allowed	NotApplicable	NOAM_NE	NO1	Network OAM&P	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable
Network Element	Server	Role	OAM Max HA Role	Application Max HA Role	Status	DB Level	OAM Repl Status	SIG Repl Status	Repl Status	Repl Audit Status																																																										
SOAM_NE	SO1	System OAM	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable																																																										
SOAM_NE	SO2	System OAM	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable																																																										
NOAM_NE	NO2	Network OAM&P	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable																																																										
SOAM_NE	DAMP1	MP	Active	Active	Normal	0	Normal	Normal	Allowed	NotApplicable																																																										
NOAM_NE	NO1	Network OAM&P	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable																																																										
41. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Verify the HA Status	<p>Click on <b>Main Menu-&gt;Status and Manage-&gt;HA</b></p>  <p>Select the row for all of the servers                  Verify that the “HA Role” is either “Active” or “Standby”.</p> <p><b>Main Menu: Status &amp; Manage -&gt; HA</b></p> <p>Filter*</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th>Hostname</th> <th>OAM HA Role</th> <th>Application HA Role</th> <th>Max Allowed HA Role</th> <th>Mate Hostname List</th> <th>Network Element</th> <th>Server Role</th> </tr> </thead> <tbody> <tr> <td>SO1</td> <td>Standby</td> <td>N/A</td> <td>Active</td> <td>SO2</td> <td>SOAM_NE</td> <td>System OAM</td> </tr> <tr> <td>SO2</td> <td>Active</td> <td>N/A</td> <td>Active</td> <td>SO1</td> <td>SOAM_NE</td> <td>System OAM</td> </tr> <tr> <td>DAMP1</td> <td>Active</td> <td>Active</td> <td>Active</td> <td></td> <td>SOAM_NE</td> <td>MP</td> </tr> <tr> <td>NO1</td> <td>Active</td> <td>N/A</td> <td>Active</td> <td>NO2</td> <td>NOAM_NE</td> <td>Network OAM&amp;P</td> </tr> <tr> <td>NO2</td> <td>Standby</td> <td>N/A</td> <td>Active</td> <td>NO1</td> <td>NOAM_NE</td> <td>Network OAM&amp;P</td> </tr> </tbody> </table>	Hostname	OAM HA Role	Application HA Role	Max Allowed HA Role	Mate Hostname List	Network Element	Server Role	SO1	Standby	N/A	Active	SO2	SOAM_NE	System OAM	SO2	Active	N/A	Active	SO1	SOAM_NE	System OAM	DAMP1	Active	Active	Active		SOAM_NE	MP	NO1	Active	N/A	Active	NO2	NOAM_NE	Network OAM&P	NO2	Standby	N/A	Active	NO1	NOAM_NE	Network OAM&P																								
Hostname	OAM HA Role	Application HA Role	Max Allowed HA Role	Mate Hostname List	Network Element	Server Role																																																														
SO1	Standby	N/A	Active	SO2	SOAM_NE	System OAM																																																														
SO2	Active	N/A	Active	SO1	SOAM_NE	System OAM																																																														
DAMP1	Active	Active	Active		SOAM_NE	MP																																																														
NO1	Active	N/A	Active	NO2	NOAM_NE	Network OAM&P																																																														
NO2	Standby	N/A	Active	NO1	NOAM_NE	Network OAM&P																																																														

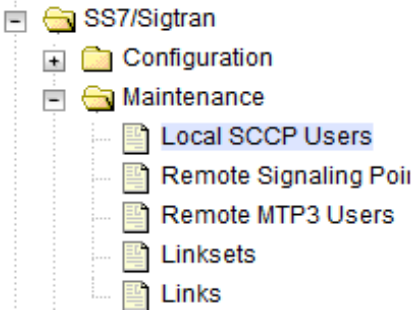
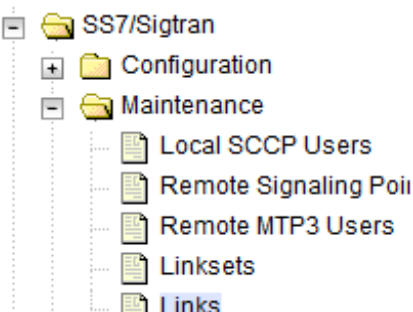
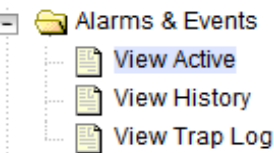
<p>42.</p> <p><input type="checkbox"/></p>	<p><b>NOAM GUI:</b> Enable Provisioning</p>	<p>Click on <b>Main Menu-&gt;Status &amp; Manage-&gt;Database</b></p>  <p>Enable Provisioning by clicking on <b>Enable Provisioning</b> button at the bottom of the screen as shown below.</p>  <p>A confirmation window will appear, press <b>OK</b> to enable Provisioning.</p> 
<p>43.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Verify the Local Node Info</p>	<p>Navigate to <b>Main Menu-&gt;Diameter-&gt;Configuration-&gt;Local Node</b></p>  <p>Verify that all the local nodes are shown.</p>

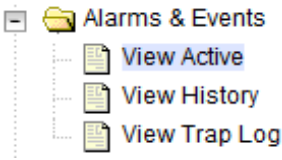
<p>44.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Verify the Peer Node Info</p>	<p>Navigate to <b>Main Menu-&gt;Diameter-&gt;Configuration-&gt;Peer Node</b></p>  <p>Verify that all the peer nodes are shown.</p>
<p>45.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Verify the Connections Info</p>	<p>Navigate to <b>Main Menu-&gt;Diameter-&gt;Configuration-&gt;Connections</b></p>  <p>Verify that all the connections are shown.</p>

<p>46.</p> <p><input type="checkbox"/></p>	<p><b>For vSTP Only-SOAM VIP Server Console (Optional):</b> Verify the local nodes info</p>	<p>To verify the vSTP MP <b>Local nodes</b> info:</p> <ol style="list-style-type: none"> <li>1. Login to the SOAM VIP Server console as <b>admusr</b></li> <li>2. Execute the following command [admusr@SOAM1 ~]\$ mmiclient.py /vstp/localhosts</li> <li>3. Verify the output similar to the below output</li> </ol> <pre data-bbox="602 468 1227 957"> {   "data": [     {       "configurationLevel": "10",       "localHostName": "AUTLocalHost1",       "localHostPort": 4444,       "localHostPriIPAddress": "145.168.100.2",       "localHostSecIPAddress": "145.168.111.1"     },     {       "configurationLevel": "11",       "localHostName": "AUTLocalHost2",       "localHostPort": 4445,       "localHostPriIPAddress": "145.168.100.2",       "localHostSecIPAddress": "145.168.111.1"     }   ],   "links": {},   "messages": [],   "status": true } </pre>
<p>47.</p> <p><input type="checkbox"/></p>	<p><b>For vSTP Only-SOAM VIP Server Console (Optional):</b> Verify the remote nodes info</p>	<p>To verify the vSTP MP <b>Remote nodes</b> info:</p> <ol style="list-style-type: none"> <li>1. Login to the SOAM VIP Server console as <b>admusr</b></li> <li>2. Execute the following command [admusr@SOAM1 ~]\$ mmiclient.py /vstp/remotehosts</li> <li>3. Verify the output similar to the below output</li> </ol> <pre data-bbox="602 1266 1295 1671"> {   "data": [     {       "configurationLevel": "12",       "remoteHostName": "AUTRemoteHost1",       "remoteHostPort": 4444,       "remoteHostPriIPAddress": "1.1.1.6",       "remoteHostSecIPAddress": "1.1.1.7"     }   ],   "links": {},   "messages": [],   "status": true } </pre>

<p>48.</p> <p><input type="checkbox"/></p>	<p><b>For vSTP Only-SOAM VIP Server Console (Optional):</b> Verify the Connections info</p>	<p>To verify the vSTP MP <b>Connections</b> info:</p> <ol style="list-style-type: none"> <li>1. Login to the SOAM VIP Server console as <b>admusr</b></li> <li>2. Execute the following command [admusr@SOAM1 ~]\$ mmiclient.py /vstp/connections</li> <li>3. Verify the output similar to the below output</li> </ol> <pre> {   "data": [     {       "configurationLevel": "13",       "connCfgSetName": "Default",       "connectionMode": "Server",       "connectionType": "M3ua",       "localHostName": "AUTLocalHost1",       "name": "AUTLinkTestConn1",       "remoteHostName": "AUTRemoteHost1"     },     {       "configurationLevel": "14",       "connCfgSetName": "Default",       "connectionMode": "Server",       "connectionType": "M2pa",       "localHostName": "AUTLocalHost2",       "name": "AUTLinkTestConn2",       "remoteHostName": "AUTRemoteHost1"     }   ],   "links": {},   "messages": [],   "status": true }                 </pre>
<p>49.</p> <p><input type="checkbox"/></p>	<p><b>MP Servers:</b> Disable SCTP Auth Flag</p>	<p>For SCTP connections without DTLS enabled, refer to Enable/Disable DTLS Appendix from reference [1].</p> <p>Execute this procedure on all Failed MP Servers.</p>

<p>50. <input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Enable Connections if needed</p>	<p>Navigate to <b>Main Menu-&gt;Diameter-&gt;Maintenance-&gt;Connections</b></p>  <p>Select each connection and click on the <b>Enable</b> button. Alternatively you can enable all the connections by selecting the <b>EnableAll</b> button.</p>  <p>Verify that the Operational State is Available.</p> <p><b>Note:</b> If a Disaster Recovery was performed on an IPFE server, it may be necessary to disable and re-enable the connections to ensure proper link distribution</p>
<p>51. <input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Enable Optional Features</p>	<p>Navigate to <b>Main Menu -&gt; Diameter -&gt; Maintenance -&gt; Applications</b></p>  <p>Select the optional feature application configured before.</p> <p>Click the <b>Enable</b> button.</p> 
<p>52. <input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Re-enable Transports if Needed</p>	<p>Navigate to <b>Main Menu-&gt;Transport Manager -&gt; Maintenance -&gt; Transport</b></p>  <p>Select each transport and click on the <b>Enable</b> button</p>  <p>Verify that the Operational Status for each transport is Up.</p>

<p>53.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Re-enable MAPIWF application if needed</p>	<p>Navigate to <b>Main Menu-&gt;Sigtran-&gt;Maintenance-&gt;Local SCCP Users</b></p>  <p>Click on the <b>Enable</b> button corresponding to MAPIWF Application Name.</p> <p><input type="button" value="Enable"/> <input type="button" value="Disable"/></p> <p>Verify that the SSN Status is Enabled.</p>
<p>54.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Re-enable links if needed.</p>	<p>Navigate to <b>Main Menu-&gt;Sigtran-&gt;Maintenance-&gt;Links</b></p>  <p>Click on <b>Enable</b> button for each link.</p> <p><input type="button" value="Enable"/> <input type="button" value="Disable"/></p> <p>Verify that the Operational Status for each link is Up.</p>
<p>55.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Examine All Alarms</p>	<p>Navigate to <b>Main Menu-&gt;Alarms &amp; Events-&gt;View Active</b></p>  <p>Examine all active alarms and refer to the on-line help on how to address them.</p> <p>If needed contact My Oracle Support (MOS).</p>

<p>56. <input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Examine All Alarms</p>	<p>Login to the NOAM VIP if not already logged in.</p> <p>Navigate to <b>Main Menu-&gt;Alarms &amp; Events-&gt;View Active</b></p>  <p>Examine all active alarms and refer to the on-line help on how to address them.</p> <p>If needed contact My Oracle Support (MOS)</p>
<p>57. <input type="checkbox"/></p>	<p><b>Restore GUI</b> <b>Username and</b> <b>Passwords</b></p>	<p>If applicable, Execute steps in <b>Section 6.0</b> to recover the user and group information restored.</p>
<p>58. <input type="checkbox"/></p>	<p><b>Backup and</b> <b>Archive All the</b> <b>Databases</b> <b>from the</b> <b>Recovered</b> <b>System</b></p>	<p>Execute <b>DSR Database</b> Backup to back up the Configuration databases:</p>



### 5.1.2 Recovery Scenario 2 (Partial Server Outage with one NOAM server intact and both SOAMs failed)

For a partial server outage with an NOAM server intact and available; SOAM servers are recovered using recovery procedures for software and then executing a database restore to the active SOAM server using a database backup file obtained from the SOAM servers. All other servers are recovered using recovery procedures for software. Database replication from the active NOAM server will recover the database on these servers. The major activities are summarized in the list below. Use this list to understand the recovery procedure summary. Do not use this list to execute the procedure. The actual procedures' detailed steps are in Procedure 6. The major activities are summarized as follows:

Recover **Standby NOAM** server (*if needed*) by recovering software and the database.

- Recover the software.

Recover **Active SOAM** server by recovering software.


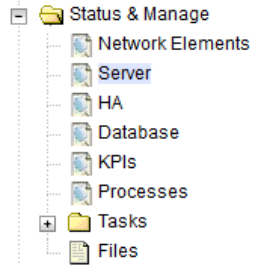
- Recover the software.
- Recover the Database.

Recover any failed **SOAM** and **MP** servers by recovering software.


- Recover the software.
- The database has already been restored at the active SOAM server and does not require restoration at the SO and MP servers.

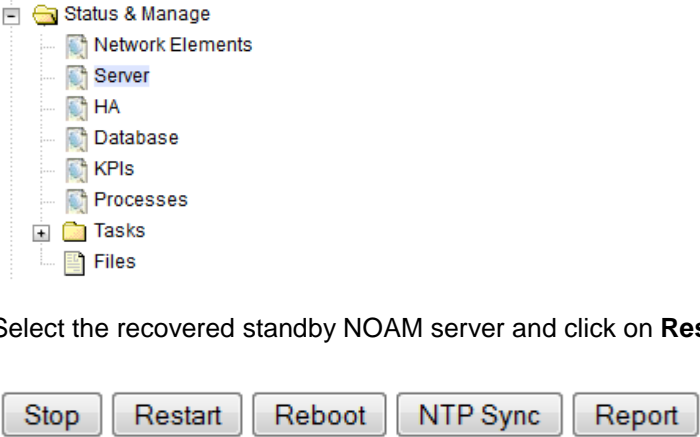
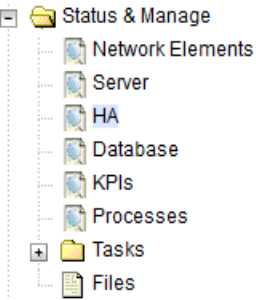
#### Procedure 6. Recovery Scenario 2



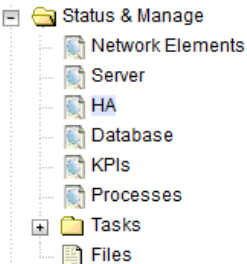
STEP #	Procedure	Description
<p>This procedure performs recovery if at least 1 NOAM server is available but all SOAM servers in a site have failed. This includes any SOAM server that is in another location.</p> <p>Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.</p> <p>If this procedure fails, contact My Oracle Support (MOS), and ask for assistance.</p>		
1. <input type="checkbox"/>	<b>Workarounds</b>	Refer to <b>Workarounds for</b> Issues not fixed in this Release to understand any workarounds required during this procedure.
2. <input type="checkbox"/>	<b>Gather Required Materials</b>	Gather the documents and required materials listed in <b>Section 3.1</b> Required Materials

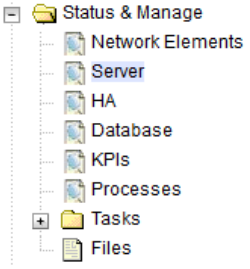
STEP #	Procedure	Description
<p>3.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Login</b></p>	<p>Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><code>http://&lt;Primary_NOAM_VIP_IP_Address&gt;</code></p> </div> <p>Login as the <i>guiadmin</i> user:</p>  <p>The screenshot shows the Oracle System Login interface. At the top, it says 'Oracle System Login' and 'Fri Aug 12 06:41:39 2016 EDT'. Below that is a 'Log In' box with the text 'Enter your username and password to log in' and 'Session was logged out at 6:41:39 am.' The 'Username' field contains 'guiadmin' and the 'Password' field is empty. There is a 'Change password' checkbox and a 'Log In' button. Below the login box, it says 'Welcome to the Oracle System Login.' and 'This application is designed to work with most modern HTML5 compliant browsers and uses both JavaScript and cookies. Please refer to the <a href="#">Oracle Software Web Browser Support Policy</a> for details.' At the bottom, it says 'Unauthorized access is prohibited.' and 'Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.'</p>
<p>4.</p> <p><input type="checkbox"/></p>	<p><b>Active NOAM: Set Failed Servers to OOS</b></p>	<p>Navigate to <b>Main Menu -&gt; Status &amp; Manage -&gt; HA</b></p>  <p>The screenshot shows a tree view under 'Status &amp; Manage'. The items are: Network Elements, Server, HA, Database, KPIs, Processes, Tasks, and Files. 'HA' is selected.</p> <p>Select <b>Edit</b></p> <p>Set the Max Allowed HA Role drop down box to <b>OOS</b> for the failed servers.</p> <p>Select <b>Ok</b></p> <div style="margin-top: 10px;"> <p><input type="button" value="Ok"/> <input type="button" value="Cancel"/></p> </div>

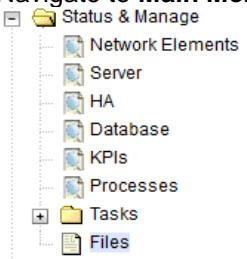
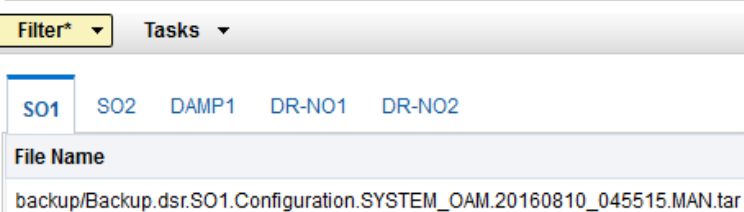
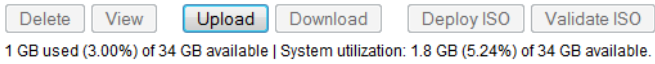
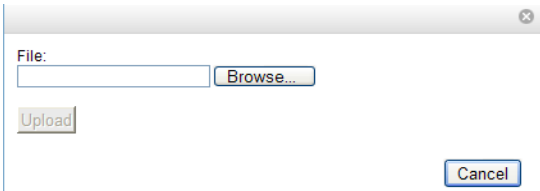
STEP #	Procedure	Description
<p>5. <input type="checkbox"/></p>	<p><b>Create VMs Recover the Failed Software</b></p>	<p>For VMWare based deployments:</p> <ol style="list-style-type: none"> <li>1. For NOAMs execute the following procedures from reference [1]:                             <ol style="list-style-type: none"> <li>a. Procedure 1 (VMWare). Import DSR OVA [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 2 (VMWare Only). Configure NOAM guests based on resource profile</li> </ol> </li> <li>2. For SOAMs execute the following procedures from reference [1]:                             <ol style="list-style-type: none"> <li>a. Procedure 1 (VMWare). Import DSR OVA [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 3 (VMWare Only). Configure Remaining DSR guests based on resource profile</li> </ol> </li> </ol> <p>For KVM/Openstack based deployments:</p> <ol style="list-style-type: none"> <li>1. For NOAMs execute the following procedures from reference [1]:                             <ol style="list-style-type: none"> <li>a. Procedure 4 (KVM/Openstack). "Import DSR OVA" [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 5 (KVM/Openstack). "Configure NOAM guests based on resource profile"</li> </ol> </li> <li>2. For SOAMs execute the following procedures from reference [1]:                             <ol style="list-style-type: none"> <li>a. Procedure 4 (KVM/Openstack). "Import DSR OVA" [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 6 (KVM/Openstack). "Configure Remaining DSR guests based on resource profile"</li> </ol> </li> </ol> <p>For OVM-S/OVM-M based deployments:</p> <p>Execute the following procedures from reference [1]:</p> <ol style="list-style-type: none"> <li>a. Procedure 7 (OVM-S/OVM-M). Import DSR OVA and prepare for VM creation</li> <li>b. Procedure 8 (OVM-S/OVM-M). Configure each DSR VM <b>Note:</b> While executing Procedure 8, configure the required failed VMs only (NOAMs/SOAMs/MPs)</li> </ol>
<p>6. <input type="checkbox"/></p>	<p><b>Repeat for Remaining Failed Servers</b></p>	<p>If necessary, repeat <b>step 5</b> for all remaining failed servers.</p>

STEP #	Procedure	Description
<p>7.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Login</b></p>	<p>Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><code>http://&lt;Primary_NOAM_VIP_IP_Address&gt;</code></p> </div> <p>Login as the <i>guiadmin</i> user:</p>  <p>Welcome to the Oracle System Login.</p> <p>This application is designed to work with most modern HTML5 compliant browsers and uses both JavaScript and cookies. Please refer to the <a href="#">Oracle Software Web Browser Support Policy</a> for details.</p> <p>Unauthorized access is prohibited.</p> <p><small>Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.</small></p>
<p>8.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Recover Standby NOAM</b></p>	<p>Install the second NOAM server by executing procedures from reference [1]:</p> <p>Procedure 15 “Configure the Second NOAM Server” steps 1, 3-7</p> <p>Procedure 16 “Complete Configuring the NOAM Server Group” Step 4</p> <p><b>Note:</b> If Topology or nodeld alarms are persistent after the database restore, refer to Workarounds for Issues not fixed in this Release or the next step below.</p>

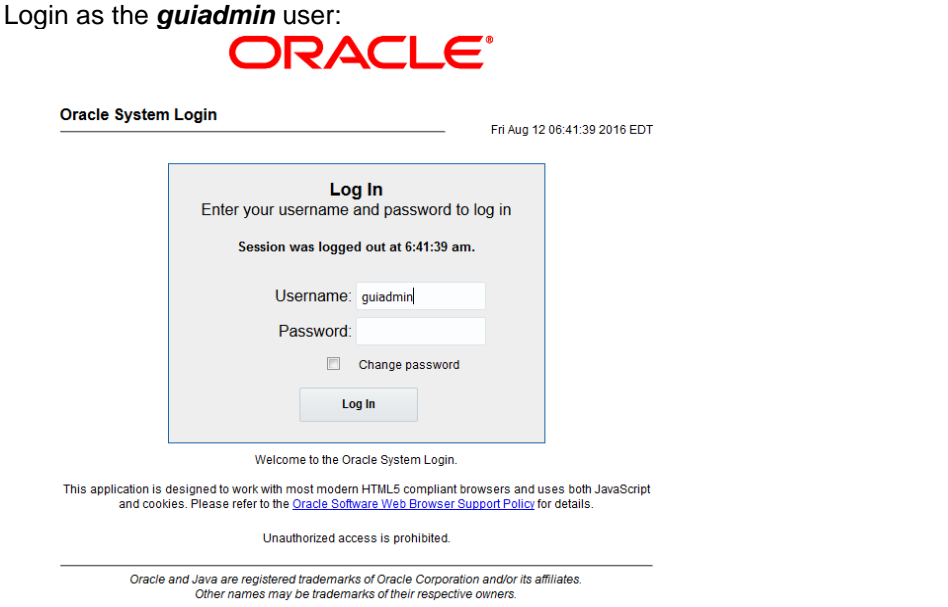
STEP #	Procedure	Description
<p>9.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Restart DSR application</p>	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Server,</b></p>  <p>Select the recovered standby NOAM server and click on <b>Restart.</b></p>
<p>10.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Set HA on Standby NOAM</p>	<p>Navigate to <b>Status &amp; Manage -&gt; HA</b></p>  <p>Click on <b>Edit</b> at the bottom of the screen</p> <p>Select the standby NOAM server, set it to <b>Active</b></p> <p>Press <b>OK</b></p>


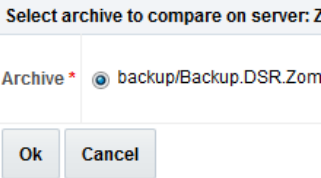
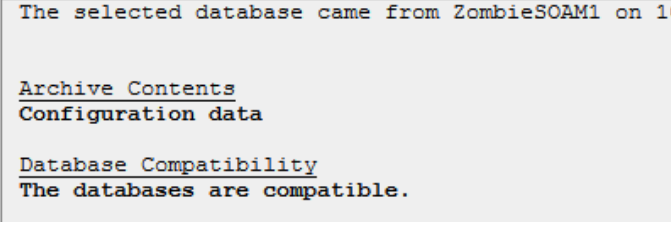
STEP #	Procedure	Description
11. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Stop Replication to the C-Level Servers of this Site.	Inhibit Replication to the working C Level Servers which belong to the <b>same site</b> as the failed SOAM servers, as the recovery of Active SOAM will cause the database wipeout in the C level servers because of the replication    <b>If the spare SOAM is also present in the site and lost:</b> Inhibit A and B Level Replication on C-Level Servers (When Active, Standby and Spare SOAMs are lost)  <b>If the spare SOAM is NOT deployed in the site:</b> Execute <b>Inhibit A</b> and B Level Replication on C-Level Servers  
12. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Recover Active SOAM Server	Install the SOAM servers by executing procedure from reference [1]:  Procedure 22 “Configure the SOAM Servers”, steps 1, 3- 7  <b>NOTE:</b> Wait for server to reboot before continuing.
13. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Set HA on Active SOAM	Navigate to <b>Status &amp; Manage -&gt; HA</b>    Click on <b>Edit</b> at the bottom of the screen  Select the Active SOAM server, set it to <b>Active</b>  Press <b>OK</b>

STEP #	Procedure	Description
<p>14.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Restart DSR application</p>	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Server,</b></p>  <p>Select the recovered Active SOAM server and click on <b>Restart.</b></p> <div style="display: flex; justify-content: center; gap: 10px;"> <span>Stop</span> <span>Restart</span> <span>Reboot</span> <span>NTP Sync</span> <span>Report</span> </div>

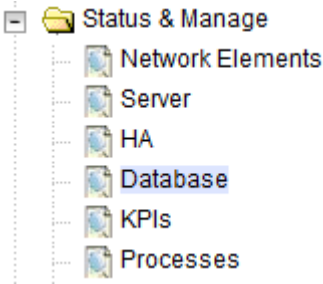
STEP #	Procedure	Description
<p>15. □</p>	<p><b>NOAM VIP GUI:</b> Upload the backed up SOAM Database file</p>	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Files</b></p>  <p>Select the Active SOAM server. The following screen will appear:</p> <p><b>Main Menu: Status &amp; Manage -&gt; Files</b></p>  <p>Click on <b>Upload</b> as shown below and select the file <i>“NO Provisioning and Configuration:”</i> file backed up after initial installation and provisioning.</p>  <ol style="list-style-type: none"> <li>1. Click on <b>Browse</b> and locate the backup file</li> <li>2. Check <b>This is a backup file</b> Box</li> <li>3. Click on Open as shown below.</li> </ol>  <p>Click on the <b>Upload</b> button.</p> <p>The file will take a few seconds to upload depending on the size of the backup data. The file will be visible on the list of entries after the upload is complete.</p>

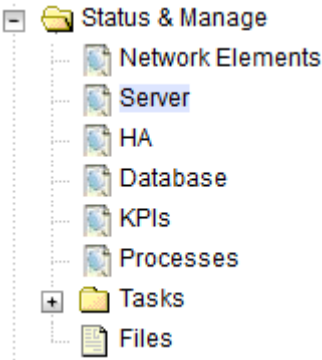
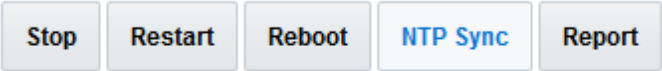
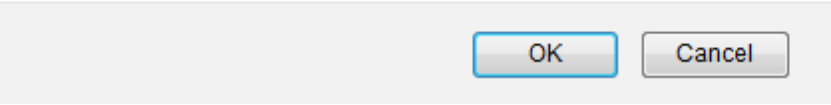
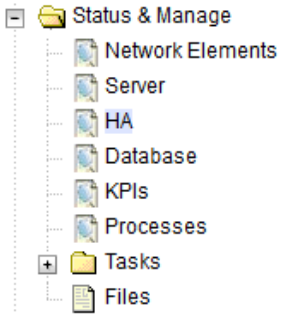


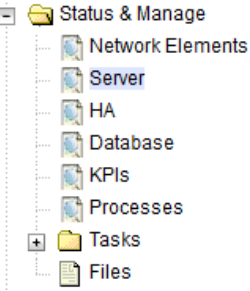
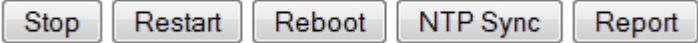
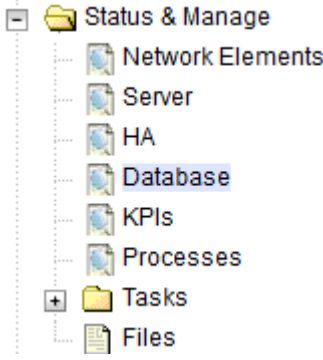
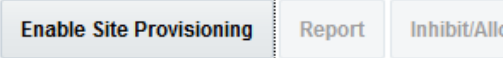
STEP #	Procedure	Description
<p>16.</p> <p><input type="checkbox"/></p>	<p><b>Recovered SOAM GUI: Login</b></p>	<p>Establish a GUI session on the recovered SOAM server. Open the web browser and enter a URL of:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><code>http://&lt;Recovered_SOAM_IP_Address&gt;</code></p> </div> <p>Login as the <i>guiadmin</i> user:</p> 

<p>17.</p> <p><input type="checkbox"/></p>	<p><b>Recovered SOAM</b>  <b>GUI:</b> Verify the Archive Contents and Database Compatibility</p>	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Database</b></p> <p>Select the <b>Active SOAM</b> server and click on the <b>Compare</b>.</p>  <p>The following screen is displayed; click the button for the restored database file that was uploaded as a part of <b>Step 15</b> of this procedure.</p> <p><b>Database Compare</b></p>  <p><b>Verify</b> that the output window matches the screen below.</p> <p><b>Note:</b> You will get a database mismatch regarding the NodeIDs of the VMs. That is expected. If that is the only mismatch, proceed, otherwise stop and contact My Oracle Support (MOS).</p> <hr/> <p><b>Database Archive Compare</b></p>  <p><b>Note:</b> Archive Contents and Database Compatibilities must be the following:</p> <p><b>Archive Contents:</b> Configuration data  <b>Database Compatibility:</b> The databases are compatible.</p> <p><b>Note:</b> The following is expected Output for Topology Compatibility Check since we are restoring from existing backed up data base to database with just one SOAM:</p> <p><b>Topology Compatibility</b>          THE TOPOLOGY SHOULD BE COMPATIBLE MINUS THE NODEID.</p> <p><b>Note:</b> We are trying to restore a backed up database onto an empty SOAM database. This is an expected text in Topology Compatibility. If the verification is successful, Click <b>BACK</b> button and continue to <b>next step</b> in this procedure.</p>
--	--	--

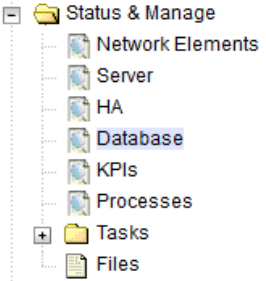
STEP #	Procedure	Description
<p>18.</p> <p><input type="checkbox"/></p>	<p><b>Recovered SOAM</b></p> <p><b>GUI:</b> Restore the Database</p>	<p>Click on <b>Main Menu-&gt;Status &amp; Manage-&gt;Database</b></p> <p>Select the <b>Active SOAM</b> server, and click on <b>Restore</b> as shown below.</p> <p>The following screen will be displayed. Select the proper back up provisioning and configuration file.</p> <div data-bbox="526 457 764 487" style="border: 1px solid black; padding: 5px;"> <p><b>Database Compare</b></p> </div> <div data-bbox="526 527 834 726" style="border: 1px solid gray; padding: 5px;"> <p>Select archive to compare on server</p> <p>Archive * <input checked="" type="radio"/> backup/Backup.dsr.Z</p> <p><input type="button" value="Ok"/> <input type="button" value="Cancel"/></p> </div> <p>Click <b>OK</b> Button. The following confirmation screen will be displayed.</p> <p>Note: You will get a database mismatch regarding the NodeIDs of the servers. That is expected. If that is the only mismatch, proceed, otherwise stop and contact My Oracle Support (MOS).</p> <p>Select the <b>Force</b> checkbox as shown above and Click <b>OK</b> to proceed with the DB restore.</p> <div data-bbox="513 1035 823 1058" style="border: 1px solid gray; padding: 5px;"> <p><b>Database Restore Confirm</b></p> <p>Compatible archive.</p> <div data-bbox="526 1157 1018 1413" style="border: 1px solid black; background-color: #e0ffe0; padding: 10px;"> <pre style="font-family: monospace; font-size: 0.9em;"> The selected database came from Zombi Archive Contents Configuration data  Database Compatibility The databases are compatible.                     </pre> </div> </div> <p><b>Note:</b> After the restore has started, the user will be logged out of XMI SOAM GUI since the restored Topology is old data. The provisioning will be disabled after this step.</p>
<p>19.</p> <p><input type="checkbox"/></p>	<p><b>Recovered SOAM</b></p> <p><b>GUI:</b> Monitor and Confirm database restoral</p>	<p>Wait for <b>5-10 minutes</b> for the System to stabilize with the new topology:</p> <p>Monitor the Info tab for “<b>Success</b>”. This will indicate that the backup is complete and the system is stabilized.</p> <p><b>Note:</b> Do not pay attention to alarms until all the servers in the system are completely restored.</p> <p><b>Note:</b> The Configuration and Maintenance information will be in the same state it was backed up during initial backup.</p>

STEP #	Procedure	Description
20. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Recover remaining SOAM Server	Install the SOAM servers by executing procedure from reference [1]:  Procedure 22 “Configure the SOAM Servers”, steps 1, 3- 6  <b>NOTE:</b> Wait for server to reboot before continuing.
21.	<b>NOAM VIP GUI:</b> Start replication on the recovered SOAMs	Un-Inhibit ( <i>Start</i> ) Replication to the recovered SOAM servers  Navigate to <b>Status &amp; Manage -&gt; Database</b>   <p>The screenshot shows a tree view under 'Status &amp; Manage'. The items listed are: Network Elements, Server, HA, Database (highlighted in blue), KPIs, and Processes.</p> Click on the Allow Replication button as shown below on the recovered SOAM servers.  Verify that the replication on all SOAMs servers is allowed. This can be done by checking 'Repl status' column of respective server

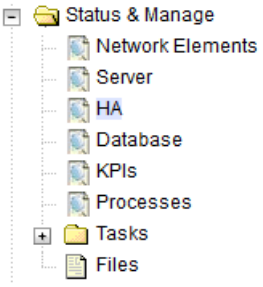
STEP #	Procedure	Description
<p>22.</p> <p><input type="checkbox"/></p>	<p><b>Recovered Server:</b> Sync NTP</p>	<p>Navigate to <b>Status &amp; Manage -&gt; Server</b></p>  <p>Select the Recovered server and click NTP Sync button</p>  <p style="text-align: right;"><input type="button" value="Start NTP Sync."/></p> <p>Click <b>Ok</b></p> <p>Are you sure you wish to force an NTP Sync on the following server(s) SOAM2</p> 
<p>23.</p>	<p><b>NOAM VIP GUI:</b> Set HA on SOAM Servers</p>	<p>Navigate to <b>Status &amp; Manage -&gt; HA</b></p>  <p>Click on <b>Edit</b> at the bottom of the screen</p> <p>For each SOAM server whose Max Allowed HA Role is set to Standby, set it to <b>Active</b></p> <p>Press <b>OK</b></p>

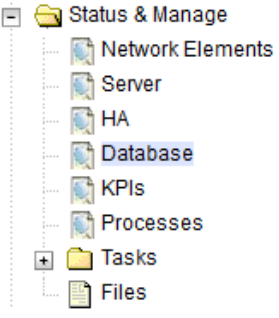
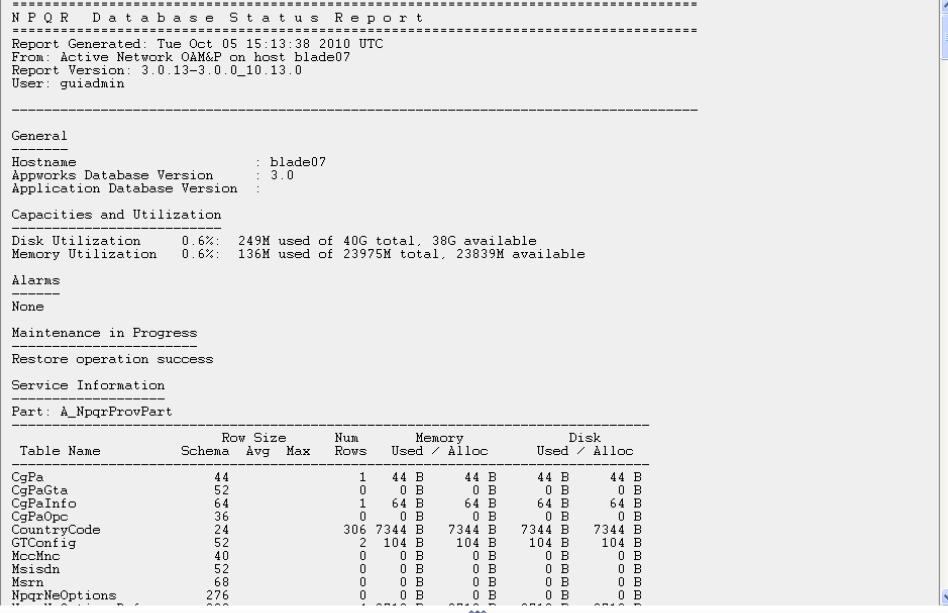
STEP #	Procedure	Description
<p>24.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Restart DSR application</p>	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Server,</b></p>  <p>Select the recovered server and click on <b>Restart.</b></p> 
<p>25.</p>	<p><b>SOAM GUI:</b> Enable Provisioning</p>	<p>Click on <b>Main Menu-&gt;Status &amp; Manage-&gt;Database</b></p>  <p>Enable Provisioning by clicking on <b>Enable Site Provisioning</b> button at the bottom of the screen as shown below.</p>  <p>A confirmation window will appear, press <b>OK</b> to enable Provisioning.</p>

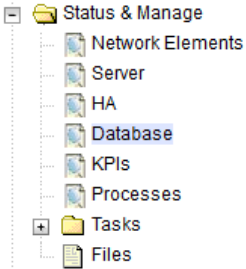
STEP #	Procedure	Description																				
<p>26.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Start Replication on working C-Level Servers</p>	<p>Un-Inhibit (<i>Start</i>) Replication to the <b>working</b> C-Level Servers which belong to the same site as of the failed SOAM servers.</p> <p><b>If the spare SOAM is also present in the site and lost:</b> Execute Un-Inhibit A and B Level Replication on C-Level Servers (When Active, Standby and Spare SOAMs are lost)</p> <p><b>If the spare SOAM is NOT deployed in the site:</b> Execute <b>Un-Inhibit A</b> and B Level Replication on C-Level Servers</p> <p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Database</b></p> <p>If the “<i>Repl Status</i>” is set to “Inhibited”, click on the <b>Allow Replication</b> button as shown below using the following order, otherwise if none of the servers are inhibited, skip this step and continue with the next step:</p> <ul style="list-style-type: none"> <li>• Active NOAM Server</li> <li>• Standby NOAM Server</li> <li>• Active SOAM Server</li> <li>• Standby SOAM Server</li> <li>• Spare SOAM Server (<i>if applicable</i>)</li> <li>• MP/IPFE Servers</li> <li>• SBRs (<i>if SBR servers are configured, start with the active SBR, then standby, then spare</i>)</li> </ul> <p>Verify that the replication on all the working servers is allowed. This can be done by examining the Repl Status table as seen below:</p> <table border="1" data-bbox="505 1079 1422 1381"> <thead> <tr> <th>OAM Repl Status</th> <th>SIG Repl Status</th> <th>Repl Status</th> <th>Repl Audit Status</th> </tr> </thead> <tbody> <tr> <td>NotApplicable</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> </tbody> </table>	OAM Repl Status	SIG Repl Status	Repl Status	Repl Audit Status	NotApplicable	NotApplicable	Allowed	NotApplicable	Normal	NotApplicable	Allowed	NotApplicable	Normal	NotApplicable	Allowed	NotApplicable	Normal	NotApplicable	Allowed	NotApplicable
OAM Repl Status	SIG Repl Status	Repl Status	Repl Audit Status																			
NotApplicable	NotApplicable	Allowed	NotApplicable																			
Normal	NotApplicable	Allowed	NotApplicable																			
Normal	NotApplicable	Allowed	NotApplicable																			
Normal	NotApplicable	Allowed	NotApplicable																			
<p>27.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Recover the C-Level Server (DA-MP, SBRs, IPFE, vSTP-MP)</p>	<p>Establish a SSH session to the C Level server being recovered, login as <b>admusr</b>.</p> <p>Execute following command to set shared memory to unlimited:</p> <pre style="border: 1px solid black; padding: 5px;">\$ sudo sh1.set -m 0</pre> <p>Execute the following procedures from [1] <b>FOR EACH</b> server that has been recovered:</p> <p>Procedure 25 “Configure the MP Virtual Machines”, Steps 1, 8-14 (&amp; 15 if required).</p>																				

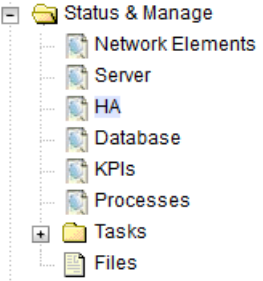
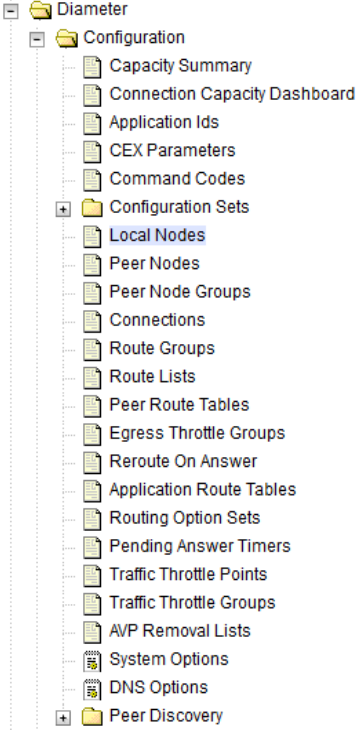
STEP #	Procedure	Description																				
28. <input type="checkbox"/>	<b>NOAM VIP GUI: Start replication on ALL C-Level Servers</b>	<p>Un-Inhibit (<i>Start</i>) Replication to the <b>ALL</b> C-Level Servers</p> <p>Navigate to <b>Status &amp; Manage -&gt; Database</b></p>  <p>If the “<i>Repl Status</i>” is set to “Inhibited”, click on the Allow Replication button as shown below using the following order:</p> <ul style="list-style-type: none"> <li>• Active NOAM Server</li> <li>• Standby NOAM Server</li> <li>• Active SOAM Server</li> <li>• Standby SOAM Server</li> <li>• Spare SOAM Server (<i>if applicable</i>)</li> <li>• MP/IPFE Servers</li> </ul> <p>Verify that the replication on all the working servers is allowed. This can be done by examining the Repl Status table as seen below:</p> <table border="1" data-bbox="505 1087 1422 1394"> <thead> <tr> <th>OAM Repl Status</th> <th>SIG Repl Status</th> <th>Repl Status</th> <th>Repl Audit Status</th> </tr> </thead> <tbody> <tr> <td>NotApplicable</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr style="border: 2px dashed blue;"> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> </tbody> </table>	OAM Repl Status	SIG Repl Status	Repl Status	Repl Audit Status	NotApplicable	NotApplicable	Allowed	NotApplicable	Normal	NotApplicable	Allowed	NotApplicable	Normal	NotApplicable	Allowed	NotApplicable	Normal	NotApplicable	Allowed	NotApplicable
OAM Repl Status	SIG Repl Status	Repl Status	Repl Audit Status																			
NotApplicable	NotApplicable	Allowed	NotApplicable																			
Normal	NotApplicable	Allowed	NotApplicable																			
Normal	NotApplicable	Allowed	NotApplicable																			
Normal	NotApplicable	Allowed	NotApplicable																			

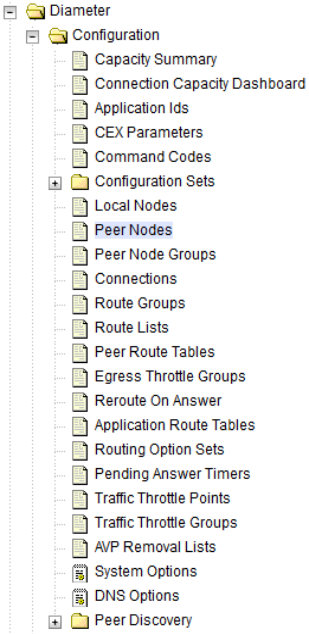
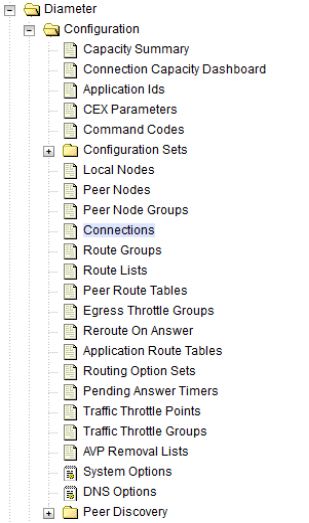


STEP #	Procedure	Description
<p>29.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Set HA on all C-Level Servers</b></p>	<p>Navigate to <b>Status &amp; Manage -&gt; HA</b></p>  <p>Click on <b>Edit</b> at the bottom of the screen</p> <p>For each server whose Max Allowed HA Role is set to Standby, set it to <b>Active</b></p> <p>Press <b>OK</b></p>
<p>30.</p> <p><input type="checkbox"/></p>	<p><b>ACTIVE NOAM:</b> Perform key exchange between the active-NOAM and recovered servers.</p>	<p>Establish an SSH session to the Active NOAM, login as <b>admusr</b>.</p> <p>Execute the following command to perform a keyexchange from the active NOAM to each recovered server:</p> <pre style="border: 1px solid black; padding: 5px; width: fit-content;">\$ keyexchange admusr@&lt;Recovered Server Hostname&gt;</pre> <p><b>Note:</b> If an export server is configured, perform this step.</p>
<p>31.</p> <p><input type="checkbox"/></p>	<p><b>ACTIVE NOAM:</b> Activate Optional Features</p>	<p>Establish an SSH session to the active NOAM, login as <b>admusr</b>.</p> <p><b>Note for PCA Feature Activation:</b> If you have PCA installed in the system being recovered, execute the procedure “PCA Activation on Standby NOAM server” on recovered NOAM Server and procedure “PCA Activation on Stand By SOAM server” on recovered Standby SOAM from [3] to re-activate PCA</p> <p><b>Note:</b> While running the activation script, the following error message (and corresponding messages) output may be seen, this can safely be ignored:</p> <pre style="font-family: monospace;">iload#31000{S/W Fault}</pre> <p><b>Note:</b> If any of the MPs are failed and recovered, then these MP servers should be restarted after Activation of the feature.</p> <p>Refer to <b>section 1.5</b> Optional Features to activate any features that were previously activated.</p>

STEP #	Procedure	Description
<p>32.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Fetch and Store the database Report for the Newly Restored Data and Save it</p>	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Database</b></p>  <p>Select the <b>active NOAM</b> server and click on the <b>Report</b> button at the bottom of the page. The following screen is displayed:</p> <p><b>Main Menu: Status &amp; Manage -&gt; Database [Report]</b></p>  <p>Click on <b>Save</b> and save the report to your local machine.</p>

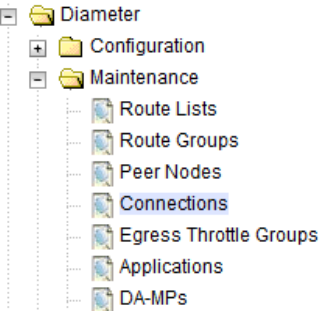
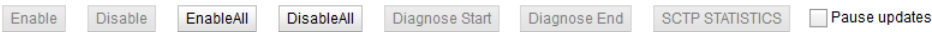
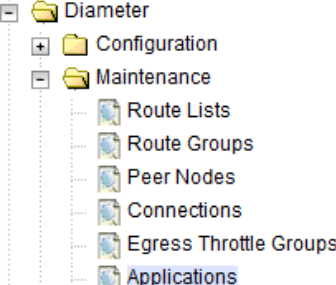
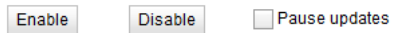
STEP #	Procedure	Description																																																																		
<p>33.</p> <p><input type="checkbox"/></p>	<p><b>ACTIVE NOAM:</b> Verify Replication Between Servers.</p>	<p>1. Login to the Active NOAM via SSH terminal as <i>admusr</i> user. 2. Execute the following command:</p> <pre>\$ sudo irepstat -m</pre> <p>Output like below shall be generated:</p> <pre>-- Policy 0 ActStb [DbReplication] -----</pre> <pre>Oahu-DAMP-1 -- Active   BC From Oahu-SOAM-2 Active 0 0.50 ^0.15%cpu 25B/s A=me   CC To Oahu-DAMP-2 Active 0 0.10 0.14%cpu 25B/s A=me Oahu-DAMP-2 -- Stby   BC From Oahu-SOAM-2 Active 0 0.50 ^0.11%cpu 31B/s A=C3642.212   CC From Oahu-DAMP-1 Active 0 0.10 ^0.14 1.16%cpu 31B/s A=C3642.212 Oahu-IPFE-1 -- Active   BC From Oahu-SOAM-2 Active 0 0.50 ^0.03%cpu 24B/s A=C3642.212 Oahu-IPFE-2 -- Active   BC From Oahu-SOAM-2 Active 0 0.50 ^0.03%cpu 28B/s A=C3642.212 Oahu-NOAM-1 -- Stby   AA From Oahu-NOAM-2 Active 0 0.25 ^0.03%cpu 23B/s Oahu-NOAM-2 -- Active   AA To Oahu-NOAM-1 Active 0 0.25 1%R 0.04%cpu 61B/s   AB To Oahu-SOAM-2 Active 0 0.50 1%R 0.05%cpu 75B/s Oahu-SOAM-1 -- Stby   BB From Oahu-SOAM-2 Active 0 0.50 ^0.03%cpu 27B/s Oahu-SOAM-2 -- Active   AB From Oahu-NOAM-2 Active 0 0.50 ^0.03%cpu 24B/s   BB To Oahu-SOAM-1 Active 0 0.50 1%R 0.04%cpu 32B/s   BC To Oahu-IPFE-1 Active 0 0.50 1%R 0.04%cpu 21B/s</pre> <pre>irepstat ( 40 lines) (h)elp (m)erged</pre>																																																																		
<p>34.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Verify the Database states</p>	<p>Click on <b>Main Menu-&gt;Status and Manager-&gt;Database</b></p>  <p>Verify that the “OAM Max HA Role” is either “Active” or “Standby” for NOAM and SOAM and “Application Max HA Role” for MPs is “Active”, and that the status is “Normal” as shown below:</p> <p>Main Menu: Status &amp; Manage -&gt; Database</p> <table border="1"> <thead> <tr> <th>Network Element</th> <th>Server</th> <th>Role</th> <th>OAM Max HA Role</th> <th>Application Max HA Role</th> <th>Status</th> <th>DB Level</th> <th>OAM Repl Status</th> <th>SIG Repl Status</th> <th>Repl Status</th> <th>Repl Audit Status</th> </tr> </thead> <tbody> <tr> <td>SOAM_NE</td> <td>SO1</td> <td>System OAM</td> <td>Standby</td> <td>N/A</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>SOAM_NE</td> <td>SO2</td> <td>System OAM</td> <td>Active</td> <td>N/A</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>NOAM_NE</td> <td>NO2</td> <td>Network OAM&amp;P</td> <td>Standby</td> <td>N/A</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>SOAM_NE</td> <td>DAMP1</td> <td>MP</td> <td>Active</td> <td>Active</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>Normal</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>NOAM_NE</td> <td>NO1</td> <td>Network OAM&amp;P</td> <td>Active</td> <td>N/A</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> </tbody> </table>	Network Element	Server	Role	OAM Max HA Role	Application Max HA Role	Status	DB Level	OAM Repl Status	SIG Repl Status	Repl Status	Repl Audit Status	SOAM_NE	SO1	System OAM	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable	SOAM_NE	SO2	System OAM	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable	NOAM_NE	NO2	Network OAM&P	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable	SOAM_NE	DAMP1	MP	Active	Active	Normal	0	Normal	Normal	Allowed	NotApplicable	NOAM_NE	NO1	Network OAM&P	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable
Network Element	Server	Role	OAM Max HA Role	Application Max HA Role	Status	DB Level	OAM Repl Status	SIG Repl Status	Repl Status	Repl Audit Status																																																										
SOAM_NE	SO1	System OAM	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable																																																										
SOAM_NE	SO2	System OAM	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable																																																										
NOAM_NE	NO2	Network OAM&P	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable																																																										
SOAM_NE	DAMP1	MP	Active	Active	Normal	0	Normal	Normal	Allowed	NotApplicable																																																										
NOAM_NE	NO1	Network OAM&P	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable																																																										

STEP #	Procedure	Description																																																
<p>35.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP</b>  <b>GUI: Verify the HA Status</b></p>	<p>Click on <b>Main Menu-&gt;Status and Manage-&gt;HA</b></p>  <p>Select the row for all of the servers  Verify that the “HA Role” is either “Active” or “Standby”.</p> <p>Main Menu: Status &amp; Manage -&gt; HA</p> <p>Filter*</p> <table border="1" data-bbox="511 772 1442 907"> <thead> <tr> <th>Hostname</th> <th>OAM HA Role</th> <th>Application HA Role</th> <th>Max Allowed HA Role</th> <th>Mate Hostname List</th> <th>Network Element</th> <th>Server Role</th> <th>Active VIPs</th> </tr> </thead> <tbody> <tr> <td>SO1</td> <td>Standby</td> <td>N/A</td> <td>Active</td> <td>SO2</td> <td>SOAM_NE</td> <td>System OAM</td> <td></td> </tr> <tr> <td>SO2</td> <td>Active</td> <td>N/A</td> <td>Active</td> <td>SO1</td> <td>SOAM_NE</td> <td>System OAM</td> <td></td> </tr> <tr> <td>DAMP1</td> <td>Active</td> <td>Active</td> <td>Active</td> <td></td> <td>SOAM_NE</td> <td>MP</td> <td></td> </tr> <tr> <td>DR-NO1</td> <td>Active</td> <td>N/A</td> <td>Active</td> <td>DR-NO2</td> <td>DR_NOAM_NE</td> <td>Network OAM&amp;P</td> <td></td> </tr> <tr> <td>DR-NO2</td> <td>Standby</td> <td>N/A</td> <td>Active</td> <td>DR-NO1</td> <td>DR_NOAM_NE</td> <td>Network OAM&amp;P</td> <td></td> </tr> </tbody> </table>	Hostname	OAM HA Role	Application HA Role	Max Allowed HA Role	Mate Hostname List	Network Element	Server Role	Active VIPs	SO1	Standby	N/A	Active	SO2	SOAM_NE	System OAM		SO2	Active	N/A	Active	SO1	SOAM_NE	System OAM		DAMP1	Active	Active	Active		SOAM_NE	MP		DR-NO1	Active	N/A	Active	DR-NO2	DR_NOAM_NE	Network OAM&P		DR-NO2	Standby	N/A	Active	DR-NO1	DR_NOAM_NE	Network OAM&P	
Hostname	OAM HA Role	Application HA Role	Max Allowed HA Role	Mate Hostname List	Network Element	Server Role	Active VIPs																																											
SO1	Standby	N/A	Active	SO2	SOAM_NE	System OAM																																												
SO2	Active	N/A	Active	SO1	SOAM_NE	System OAM																																												
DAMP1	Active	Active	Active		SOAM_NE	MP																																												
DR-NO1	Active	N/A	Active	DR-NO2	DR_NOAM_NE	Network OAM&P																																												
DR-NO2	Standby	N/A	Active	DR-NO1	DR_NOAM_NE	Network OAM&P																																												
<p>36.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP</b>  <b>GUI: Verify the Local Node Info</b></p>	<p>Navigate to <b>Main Menu-&gt;Diameter-&gt;Configuration-&gt;Local Node</b></p>  <p>Verify that all the local nodes are shown.</p>																																																

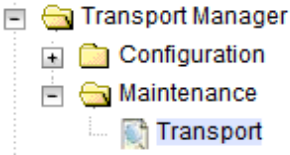

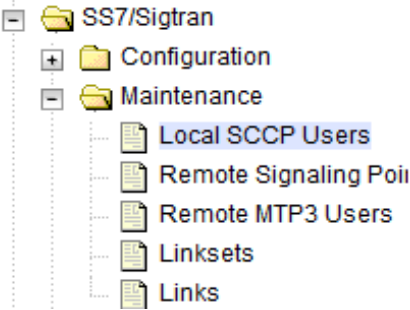

STEP #	Procedure	Description
<p>37.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI: Verify the Peer Node Info</b></p>	<p>Navigate to <b>Main Menu-&gt;Diameter-&gt;Configuration-&gt;Peer Node</b></p>  <p>Verify that all the peer nodes are shown.</p>
<p>38.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI: Verify the Connection s Info</b></p>	<p>Navigate to <b>Main Menu-&gt;Diameter-&gt;Configuration-&gt;Connections</b></p>  <p>Verify that all the connections are shown.</p>

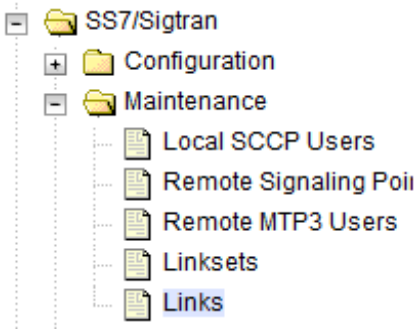

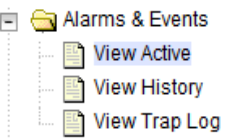
STEP #	Procedure	Description
39. <input type="checkbox"/>	<b>For vSTP Only-SOAM VIP Server Console (Optional):</b> Verify the local nodes info	To verify the vSTP MP <b>Local nodes</b> info: <ol style="list-style-type: none"> <li>1. Login to the SOAM VIP Server console as <b>admusr</b></li> <li>2. Execute the following command [admusr@SOAM1 ~]\$ mmiclient.py /vstp/localhosts</li> <li>3. Verify the output similar to the below output</li> </ol> <pre data-bbox="597 520 1227 1010"> {   "data": [     {       "configurationLevel": "10",       "localHostName": "AUTLocalHost1",       "localHostPort": 4444,       "localHostPriIPAddress": "145.168.100.2",       "localHostSecIPAddress": "145.168.111.1"     },     {       "configurationLevel": "11",       "localHostName": "AUTLocalHost2",       "localHostPort": 4445,       "localHostPriIPAddress": "145.168.100.2",       "localHostSecIPAddress": "145.168.111.1"     }   ],   "links": {},   "messages": [],   "status": true } </pre>
40. <input type="checkbox"/>	<b>For vSTP Only-SOAM VIP Server Console (Optional):</b> Verify the remote nodes info	To verify the vSTP MP <b>Remote nodes</b> info: <ol style="list-style-type: none"> <li>1. Login to the SOAM VIP Server console as <b>admusr</b></li> <li>2. Execute the following command [admusr@SOAM1 ~]\$ mmiclient.py /vstp/remotehosts</li> <li>3. Verify the output similar to the below output</li> </ol> <pre data-bbox="597 1318 1295 1724"> {   "data": [     {       "configurationLevel": "12",       "remoteHostName": "AUTRemoteHost1",       "remoteHostPort": 4444,       "remoteHostPriIPAddress": "1.1.1.6",       "remoteHostSecIPAddress": "1.1.1.7"     }   ],   "links": {},   "messages": [],   "status": true } </pre>

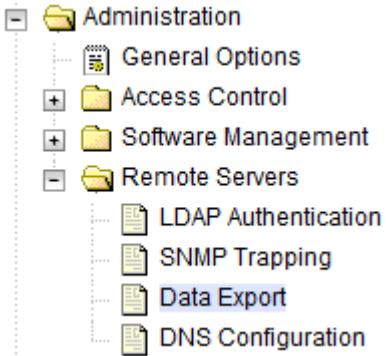
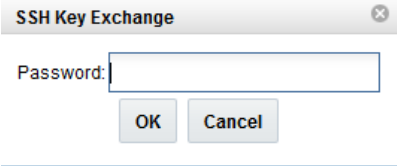
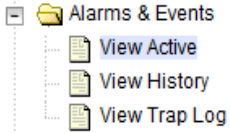
STEP #	Procedure	Description
41. <input type="checkbox"/>	<b>For vSTP Only-SOAM VIP Server Console (Optional):</b> Verify the Connections info	To verify the vSTP MP <b>Connections</b> info: <ol style="list-style-type: none"> <li>1. Login to the SOAM VIP Server console as <b>admusr</b></li> <li>2. Execute the following command [admusr@SOAM1 ~]\$ mmiclient.py /vstp/connections</li> <li>3. Verify the output similar to the below output</li> </ol> <pre data-bbox="599 520 1205 1163"> {   "data": [     {       "configurationLevel": "13",       "connCfgSetName": "Default",       "connectionMode": "Server",       "connectionType": "M3ua",       "localHostName": "AUTLocalHost1",       "name": "AUTLinkTestConn1",       "remoteHostName": "AUTRemoteHost1"     },     {       "configurationLevel": "14",       "connCfgSetName": "Default",       "connectionMode": "Server",       "connectionType": "M2pa",       "localHostName": "AUTLocalHost2",       "name": "AUTLinkTestConn2",       "remoteHostName": "AUTRemoteHost1"     }   ],   "links": {},   "messages": [],   "status": true }                     </pre>
42. <input type="checkbox"/>	<b>MP Servers:</b> Disable SCTP Auth Flag	For SCTP connections without DTLS enabled, refer to Enable/Disable DTLS procedure from reference [1].  Execute this procedure on all Failed MP Servers.

STEP #	Procedure	Description
<p>43.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Enable Connections if needed</p>	<p>Navigate to <b>Main Menu-&gt;Diameter-&gt;Maintenance-&gt;Connections</b></p>  <p>Select each connection and click on the <b>Enable</b> button. Alternatively you can enable all the connections by selecting the <b>EnableAll</b> button.</p>  <p>Verify that the Operational State is Available.</p>
<p>44.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Enable Optional Features</p>	<p>Navigate to <b>Main Menu -&gt; Diameter -&gt; Maintenance -&gt; Applications</b></p>  <p>Select the optional feature application configured in <b>step 29</b>.</p> <p>Click the <b>Enable</b> button.</p> 



STEP #	Procedure	Description
<p>45.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI: Re-enable Transports if Needed</b></p>	<p>Navigate to <b>Main Menu-&gt;Transport Manager -&gt; Maintenance -&gt; Transport</b></p>  <p>Select each transport and click on the <b>Enable</b> button</p>  <p>Verify that the Operational Status for each transport is Up.</p>
<p>46.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI: Re-enable MAPIWF application if needed</b></p>	<p>Navigate to <b>Main Menu-&gt;Sigtran-&gt;Maintenance-&gt;Local SCCP Users</b></p>  <p>Click on the <b>Enable</b> button corresponding to MAPIWF Application Name.</p>  <p>Verify that the SSN Status is Enabled.</p>

STEP #	Procedure	Description
<p>47.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Re-enable links if needed</p>	<p>Navigate to <b>Main Menu-&gt;Sigtran-&gt;Maintenance-&gt;Links</b></p>  <p>Click on <b>Enable</b> button for each link.</p>  <p>Verify that the Operational Status for each link is Up.</p>
<p>48.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Examine All Alarms</p>	<p>Navigate to <b>Main Menu-&gt;Alarms &amp; Events-&gt;View Active</b></p>  <p>Examine all active alarms and refer to the on-line help on how to address them.</p> <p>If needed contact My Oracle Support (MOS)</p>

STEP #	Procedure	Description
49.	<p><b>SOAM VIP GUI:</b> Perform Keyexchange with Export Server</p>	<p>Navigate to <b>Main Menu -&gt; Administration -&gt; Remote Servers -&gt; Data Export</b></p>  <p>Click on <b>Key Exchange</b> at the bottom of the screen</p> <p>Enter the Password and press <b>OK</b></p> 
50. <input type="checkbox"/>	<p><b>NOAM VIP GUI:</b> Examine All Alarms</p>	<p>Login to the NOAM VIP if not already logged in.</p> <p>Navigate to <b>Main Menu-&gt;Alarms &amp; Events-&gt;View Active</b></p>  <p>Examine all active alarms and refer to the on-line help on how to address them.</p> <p>If needed contact My Oracle Support (MOS).</p>
51. <input type="checkbox"/>	<p><b>Backup and Archive All the Databases from the Recovered System</b></p>	<p>Execute DSR Database Backup to back up the Configuration databases:</p>

### 5.1.3 Recovery Scenario 3 (Partial Server Outage with all NOAM servers failed and one SOAM server intact)

For a partial server outage with an SOAM server intact and available; NOAM servers are recovered using recovery procedures for software and then executing a database restore to the active NOAM server using a NOAM database backup file obtained from external backup sources such as customer servers. All other servers are recovered using recovery procedures for software. Database replication from the active NOAM/active SOAM server will recover the database on these servers. The major activities are summarized in the list below. Use this list to understand the recovery procedure summary. Do not use this list to execute the procedure. The actual procedures detailed steps are in Procedure 7. The major activities are summarized as follows:

Recover **Active NOAM** server by recovering software and the database.

- Recover the software.
- Recover the database

Recover **Standby NOAM servers** by recovering software.

- Recover the software.


Recover any failed **SOAM and MP servers** by recovering software.

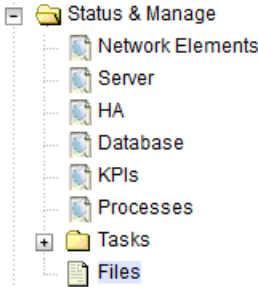
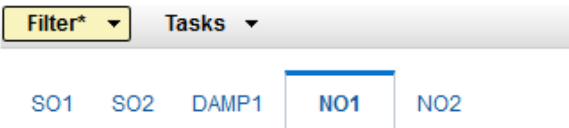
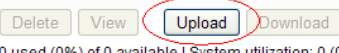
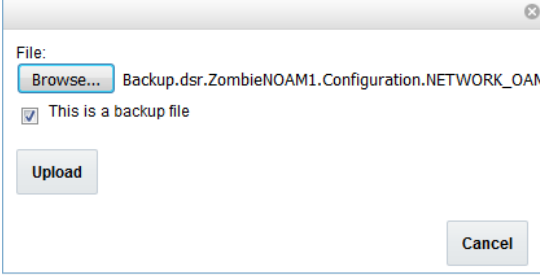
- Recover the software.
- Database is already intact at one SOAM server and does not require restoration at the other SOAM and MP servers.

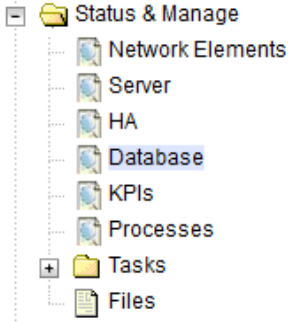
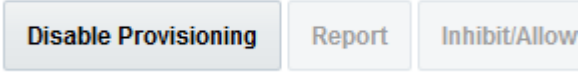

#### Procedure 7. Recovery Scenario 3

STEP #	Procedure	Description
<p>This procedure performs recovery if ALL NOAM servers are failed but 1 or more SOAM servers are intact. This includes any SOAM server that is in another location (spare SOAM server).</p> <p>Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.</p> <p>If this procedure fails, contact My Oracle Support (MOS), and ask for assistance.</p>		
<p>1. <input type="checkbox"/></p>	<p><b>Workarounds</b></p>	<p>Refer to <b>Workarounds for</b> Issues not fixed in this Release to understand any workarounds required during this procedure.</p>
<p>2. <input type="checkbox"/></p>	<p><b>Gather Required Materials</b></p>	<p>Gather the documents and required materials listed in <b>Section 3.1</b> Required Materials</p>

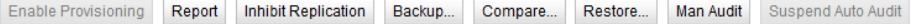
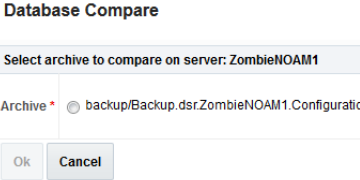
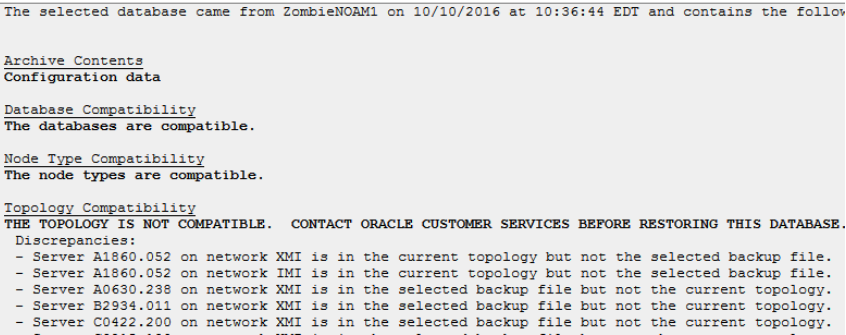
<p>3. □</p>	<p><b>Recover the Failed Software</b></p>	<p>For VMWare based deployments:</p> <ol style="list-style-type: none"> <li>1. For NOAMs execute the following procedures from reference [1]:             <ol style="list-style-type: none"> <li>a. Procedure 1 (VMWare). Import DSR OVA [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 2 (VMWare Only). Configure NOAM guests based on resource profile</li> </ol> </li> <li>2. For SOAMs execute the following procedures from reference [1]:             <ol style="list-style-type: none"> <li>a. Procedure 1 (VMWare). Import DSR OVA [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 3 (VMWare Only). Configure Remaining DSR guests based on resource profile</li> </ol> </li> <li>3. For failed MPs execute the following procedures from reference [1]:             <ol style="list-style-type: none"> <li>a. Procedure 1 (VMWare). Import DSR OVA [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 3 (VMWare Only). Configure Remaining DSR guests based on resource profile</li> </ol> </li> </ol> <p>For KVM/Openstack based deployments:</p> <ol style="list-style-type: none"> <li>1. For NOAMs execute the following procedures from reference [1]:             <ol style="list-style-type: none"> <li>a. Procedure 4 (KVM/Openstack). "Import DSR OVA" [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 5 (KVM/Openstack). "Configure NOAM guests based on resource profile"</li> </ol> </li> <li>2. For SOAMs execute the following procedures from reference [1]:             <ol style="list-style-type: none"> <li>a. Procedure 4 (KVM/Openstack). "Import DSR OVA" [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 6 (KVM/Openstack). "Configure Remaining DSR guests based on resource profile"</li> </ol> </li> <li>3. For failed MPs execute the following procedures from reference [1]:             <ol style="list-style-type: none"> <li>a. Procedure 4 (KVM/Openstack). "Import DSR OVA" [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 6 (KVM/Openstack). "Configure Remaining DSR guests based on resource profile"</li> </ol> </li> </ol> <p>For OVM-S / OVM-M based deployments:</p> <p>Execute the following procedures from reference [1]:</p> <ol style="list-style-type: none"> <li>a. Procedure 7 (OVM-S/OVM-M). Import DSR OVA and prepare for VM creation</li> <li>b. Procedure 8 (OVM-S/OVM-M). Configure each DSR VM  <b>Note:</b> While executing Procedure 8, configure the required failed VMs only (NOAMs/SOAMs/MPs)</li> </ol>
-----------------	---	---

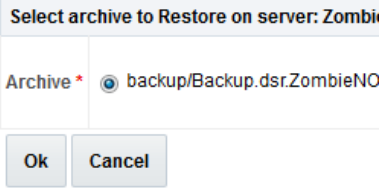
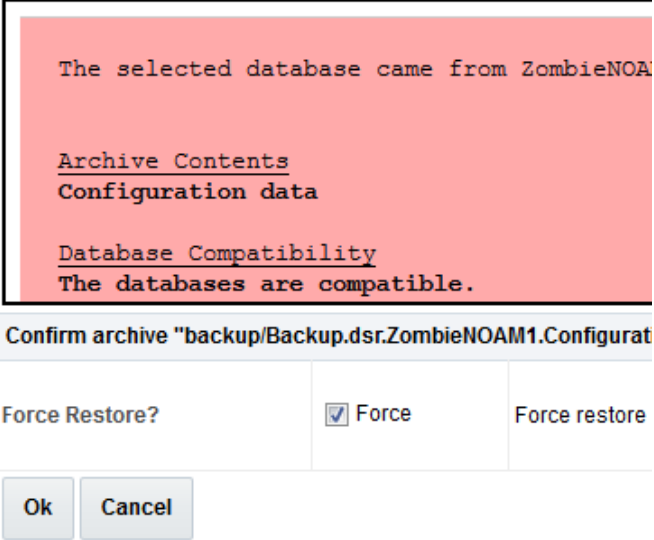
STEP #	Procedure	Description
<p>4. <input type="checkbox"/></p>	<p><b>Obtain Latest Database Backup and Network Configuration Data.</b></p>	<p>Obtain the most recent database backup file from external backup sources (ex. file servers) or tape backup sources.</p> <p>From required materials list in <b>Section 3.1 Required Materials</b>; use site survey documents and Network Element report (if available), to determine network configuration data.</p>
<p>5. <input type="checkbox"/></p>	<p><b>Execute DSR Installation Procedure for the First NOAM</b></p>	<p>Verify the networking data for Network Elements</p> <p><b>Note:</b> Use the backup copy of network configuration data and site surveys (Step 2)</p> <p><b>Execute</b> installation procedures for the first NOAM server from reference [1]:</p> <p>Procedure 13 “Configure the First NOAM NE and Server” and</p> <p>Procedure 14 “Configure the NOAM Server Group”.</p>
<p>6. <input type="checkbox"/></p>	<p><b>NOAM GUI: Login</b></p>	<p>Login to the NOAM GUI as the <i>guiadmin</i> user:</p>  <p>Welcome to the Oracle System Login.</p> <p>This application is designed to work with most modern HTML5 compliant browsers and uses both JavaScript and cookies. Please refer to the <a href="#">Oracle Software Web Browser Support Policy</a> for details.</p> <p>Unauthorized access is prohibited.</p> <p><small>Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.</small></p>

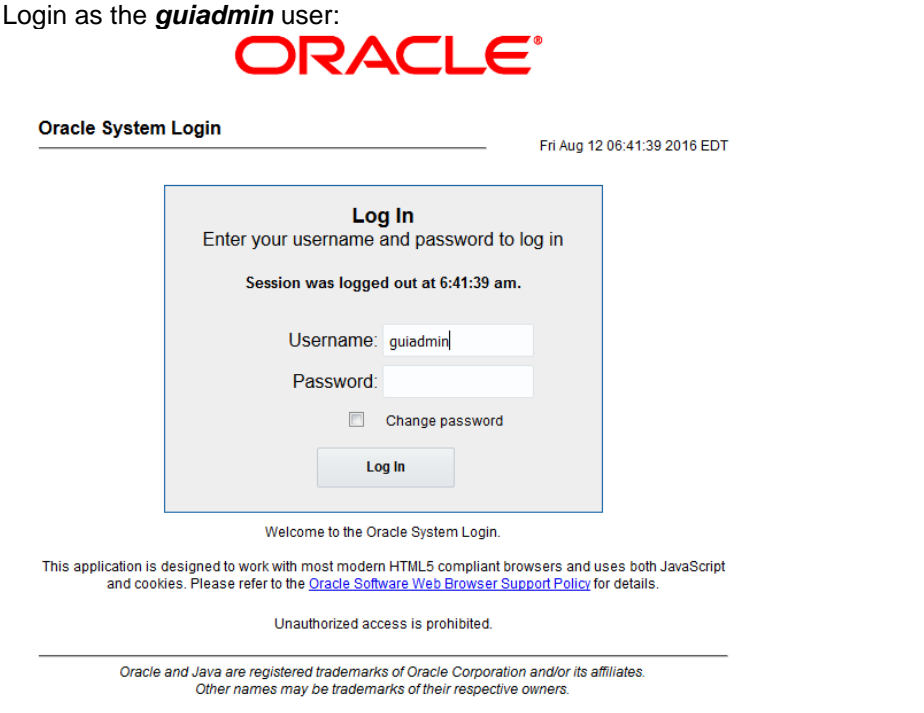
STEP #	Procedure	Description
<p>7. □</p>	<p><b>NOAM GUI:</b> Upload the Backed up Database File</p>	<p>Browse to <b>Main Menu-&gt;Status &amp; Manage-&gt;Files</b></p>  <p>Select the Active NOAM server. The following screen will appear:</p> <p><b>Main Menu: Status &amp; Manage -&gt; Files</b></p>  <p>Click on <b>Upload</b> as shown below and select the file <i>“NO Provisioning and Configuration:”</i> file backed up after initial installation and provisioning.</p>  <p>0 used (0%) of 0 available   System utilization: 0 (0%) of 0 available.</p> <ol style="list-style-type: none"> <li>1. Click on <b>Browse</b> and locate the backup file</li> <li>2. Check <b>This is a backup file</b> Box</li> <li>3. Click on Open as shown below.</li> </ol>  <p>Click on the <b>Upload</b> button.</p> <p>The file will take a few seconds to upload depending on the size of the backup data. The file will be visible on the list of entries after the upload is complete.</p>

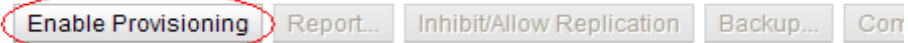

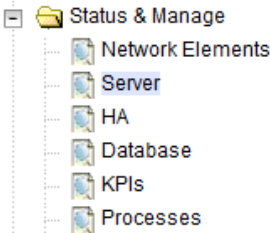
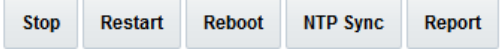
STEP #	Procedure	Description
<p>8.</p> <p><input type="checkbox"/></p>	<p><b>NOAM GUI:</b> Disable Provisioning</p>	<p>Click on <b>Main Menu-&gt;Status &amp; Manage-&gt;Database</b></p>  <p>Disable Provisioning by clicking on <b>Disable Provisioning</b> button at the bottom of the screen as shown below.</p>  <p>A confirmation window will appear, press <b>OK</b> to disable Provisioning.</p>  <p>The message <i>"Warning Code 002"</i> will appear.</p>

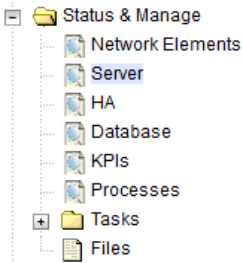
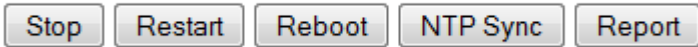
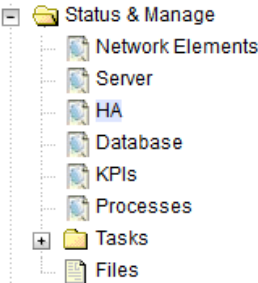
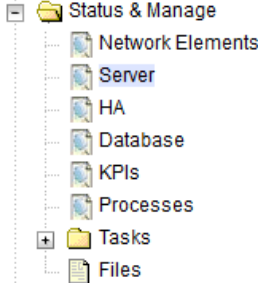
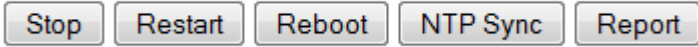


STEP #	Procedure	Description
<p>9.</p> <p><input type="checkbox"/></p>	<p><b>NOAM GUI:</b> Verify the Archive Contents and Database Compatibility</p>	<p>Select the <b>Active NOAM</b> server and click on the <b>Compare</b>.</p>  <p>The following screen is displayed; click the button for the restored database file that was uploaded as a part of <b>Step 7</b> of this procedure.</p>  <p><b>Verify</b> that the output window matches the screen below.</p> <p><b>Note:</b> You will get a database mismatch regarding the NodeIDs of the VMs. That is expected. If that is the only mismatch, proceed, otherwise stop and contact My Oracle Support (MOS)</p> <p><b>Database Archive Compare</b></p>  <p><b>Note:</b> Archive Contents and Database Compatibilities must be the following:</p> <p><b>Archive Contents:</b> Configuration data  <b>Database Compatibility:</b> The databases are compatible.</p> <p><b>Note:</b> The following is expected Output for Topology Compatibility Check since we are restoring from existing backed up data base to database with just one NOAM:</p> <p><b>Topology Compatibility</b>  THE TOPOLOGY SHOULD BE COMPATIBLE MINUS THE NODEID.</p> <p><b>Note:</b> We are trying to restore a backed up database onto an empty NOAM database. This is an expected text in Topology Compatibility.</p> <p>If the verification is successful, Click <b>BACK</b> button and continue to <b>next step</b> in this procedure.</p>

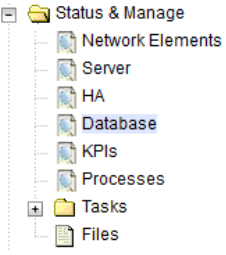
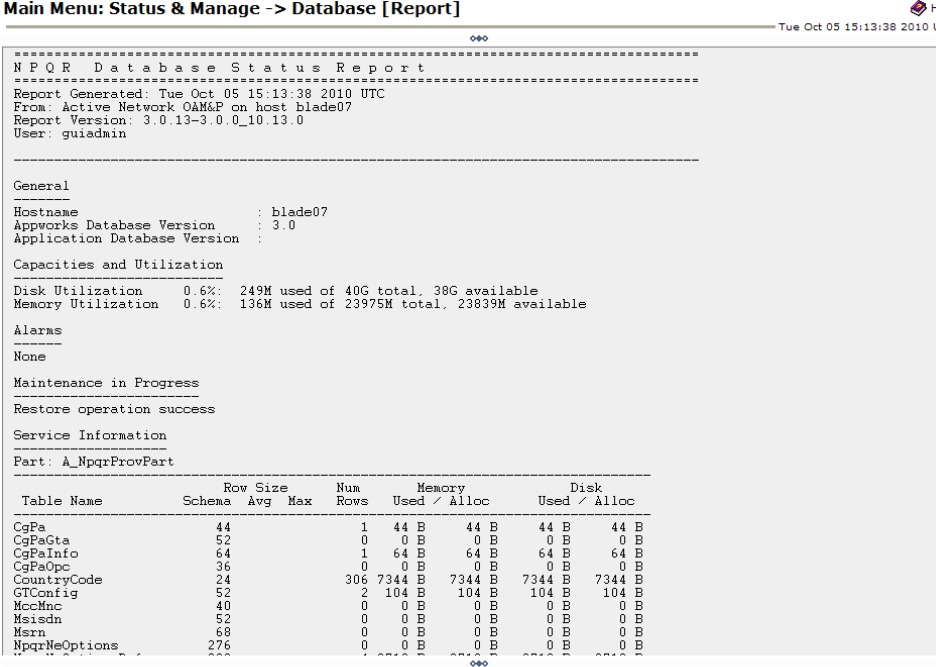
STEP #	Procedure	Description
<p>10.</p> <p><input type="checkbox"/></p>	<p><b>ACTIVE NOAM:</b> Restore the Database</p>	<p>Click on <b>Main Menu-&gt;Status &amp; Manage-&gt;Database</b></p> <p>Select the <b>Active NOAM</b> server, and click on <b>Restore</b> as shown below.</p> <p>The following screen will be displayed. Select the proper back up provisioning and configuration file.</p>  <p>Click <b>OK</b> Button. The following confirmation screen will be displayed.</p> <p><b>Note:</b> You will get a database mismatch regarding the NodeIDs of the servers. That is expected. If that is the only mismatch, proceed, otherwise stop and contact My Oracle Support (MOS)</p> <p>Select the <b>Force</b> checkbox as shown above and Click <b>OK</b> to proceed with the DB restore.</p> <p><b>Database Restore Confirm</b></p> <p>Incompatible archive selected</p>  <p><b>Note:</b> After the restore has started, the user will be logged out of XMI NO GUI since the restored Topology is old data.</p>

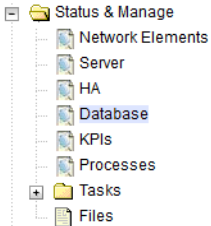
STEP #	Procedure	Description
<p>11.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Login</b></p>	<p>Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><code>http://&lt;Primary_NOAM_VIP_IP_Address&gt;</code></p> </div> <p>Login as the <i>guiadmin</i> user:</p>  <p>Welcome to the Oracle System Login.</p> <p>This application is designed to work with most modern HTML5 compliant browsers and uses both JavaScript and cookies. Please refer to the <a href="#">Oracle Software Web Browser Support Policy</a> for details.</p> <p>Unauthorized access is prohibited.</p> <p><small>Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.</small></p>
<p>12.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Monitor and Confirm database restoral</b></p>	<p>Wait for <b>5-10 minutes</b> for the System to stabilize with the new topology:</p> <p>Monitor the Info tab for <b>“Success”</b>. This will indicate that the backup is complete and the system is stabilized.</p> <p>Following alarms <b>must</b> be ignored for NOAM and MP Servers until all the Servers are configured:</p> <p>Alarms with Type Column as <b>“REPL”</b> , <b>“COLL”</b> , <b>“HA”</b> (with mate NOAM), <b>“DB”</b> (about Provisioning Manually Disabled)</p> <p><b>Note:</b> Do not pay attention to alarms until all the servers in the system are completely restored.</p> <p><b>Note:</b> The Configuration and Maintenance information will be in the same state it was backed up during initial backup.</p>
<p>13.</p> <p><input type="checkbox"/></p>	<p><b>ACTIVE NOAM: Login</b></p>	<p>Login to the recovered Active NOAM via SSH terminal as <i>admusr</i> user.</p>

STEP #	Procedure	Description
14. <input type="checkbox"/>	<b>NOAM VIP GUI: Re-enable Provisioning</b>	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Database</b></p>  <p>Click on the <b>Enable Provisioning</b>. A pop-up window will appear to confirm as shown below, press <b>OK</b>.</p> 
15. <input type="checkbox"/>	<b>NOAM VIP GUI: Recover Standby NOAM</b>	<p>Install the second NOAM server by executing procedures from reference [1]:</p> <p>Procedure 15 “Configure the Second NOAM Server” steps 1, 3-7</p>
16. <input type="checkbox"/>	<b>NOAM VIP GUI: Recover Standby NOAM</b>	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Server</b> and select the second NOAM server.</p>  <p>Click <b>Restart</b>.</p>  <p>Click <b>OK</b> on the confirmation screen.</p> <p><b>Note:</b> If Topology or nodeld alarms are persistent after the database restore, refer to Workarounds for Issues not fixed in this Release or the next step below.</p>
17. <input type="checkbox"/>	<b>NOAM VIP GUI: Recover remaining failed SOAM Servers</b>	<p>Recover the <b>remaining SOAM servers (standby, spare)</b> by repeating the <b>following steps</b> for each SOAM server:</p> <ol style="list-style-type: none"> <li>1. Install the remaining SOAM servers by executing Procedure 22 “Configure the SOAM Servers”, steps 1, 3- 7 from reference [1].</li> </ol> <p><b>NOTE:</b> Wait for server to reboot before continuing.</p>

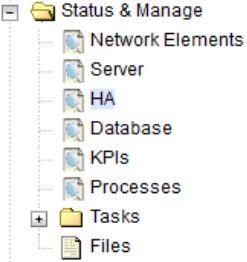
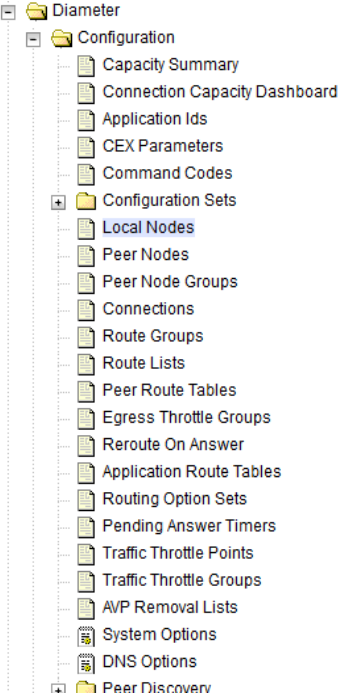
STEP #	Procedure	Description
<p>18.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Restart DSR application</b></p>	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Server,</b></p>  <p>Select the recovered server and click on <b>Restart.</b></p> 
<p>19.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Set HA on all C-Level Servers</b></p>	<p>Navigate to <b>Status &amp; Manage -&gt; HA</b></p>  <p>Click on <b>Edit</b> at the bottom of the screen</p> <p>For each server whose Max Allowed HA Role is not <b>Active</b>, set it to <b>Active</b></p> <p>Press <b>OK</b></p>
<p>20.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Restart DSR application</b></p>	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Server,</b></p>  <p>Select each recovered server and click on <b>Restart.</b></p> 

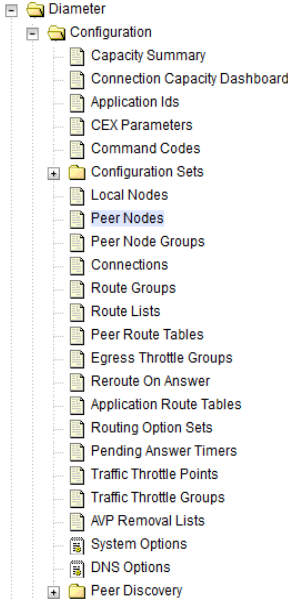
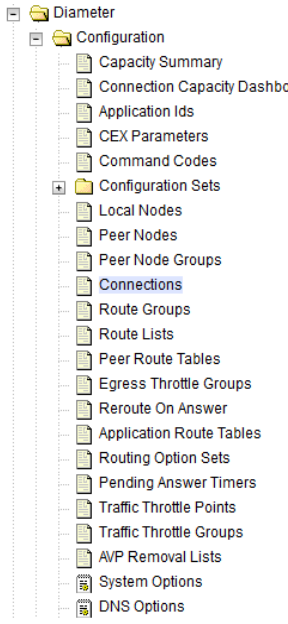
STEP #	Procedure	Description
21. <input type="checkbox"/>	<b>ACTIVE NOAM:</b> Perform key exchange between the active-NOAM and recovered servers.	Establish an SSH session to the Active NOAM, login as <b>admusr</b> .  Execute the following command to perform a keyexchange from the active NOAM to each recovered server:  <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;"> <code>\$ keyexchange admusr@&lt;Recovered Server Hostname&gt;</code> </div> <b>Note:</b> If an export server is configured, perform this step.
22. <input type="checkbox"/>	<b>ACTIVE NOAM:</b> Activate Optional Features	Establish an SSH session to the active NOAM, login as <b>admusr</b> .  <b>Note for PCA Feature Activation:</b> If you have PCA installed in the system being recovered, execute the procedure “ <i>PCA Activation on Active NOAM server</i> ” on recovered Active NOAM Server and procedure “ <i>PCA Activation on Stand By SOAM server</i> ” on recovered Standby SOAM from [3] to re-activate PCA  <b>Note:</b> While running the activation script, the following error message (and corresponding messages) output may be seen, this can safely be ignored:  <pre style="margin-left: 20px;">iload#31000{S/W Fault}</pre> <b>Note:</b> If any of the MPs are failed and recovered, then these MP servers should be restarted after Activation of the feature.  Refer to <b>section 1.5</b> Optional Features to activate any features that were previously activated.

STEP #	Procedure	Description
<p>23.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Fetch and Store the database Report for the Newly Restored Data and Save it</p>	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Database</b></p>  <p>Select the <b>active</b> NOAM server and click on the <b>Report</b> button at the bottom of the page. The following screen is displayed:</p>  <p><b>Main Menu: Status &amp; Manage -&gt; Database [Report]</b></p> <pre> ===== N P Q R Database Status Report ===== Report Generated: Tue Oct 05 15:13:38 2010 UTC From: Active Network OAM&amp;P on host blade07 Report Version: 3.0.13-3.0.0_10.13.0 User: guiadmin =====  General ----- Hostname           : blade07 Appworks Database Version : 3.0 Application Database Version : -----  Capacities and Utilization ----- Disk Utilization   0.6%: 249M used of 40G total, 38G available Memory Utilization 0.6%: 136M used of 23975M total, 23839M available -----  Alarms ----- None -----  Maintenance in Progress ----- Restore operation success -----  Service Information ----- Part: A_NpqrProvPart -----  Table Name          Row Size  Num  Memory  Disk                    Schema  Avg  Max  Rows  Used / Alloc  Used / Alloc ----- CgPa                 44          1    44 B    44 B    44 B    44 B CgPaGta              52          0     0 B     0 B     0 B     0 B CgPaInfo             64          1    64 B    64 B    64 B    64 B CgPaOpc              36          0     0 B     0 B     0 B     0 B CountryCode          24          306  7344 B  7344 B  7344 B  7344 B GTConfig             52          2   104 B   104 B   104 B   104 B MccMnc               40          0     0 B     0 B     0 B     0 B Msisdn               52          0     0 B     0 B     0 B     0 B Msrn                  68          0     0 B     0 B     0 B     0 B NpqrNeOptions        276         0     0 B     0 B     0 B     0 B ===== </pre> <p>Click on <b>Save</b> and save the report to your local machine.</p>

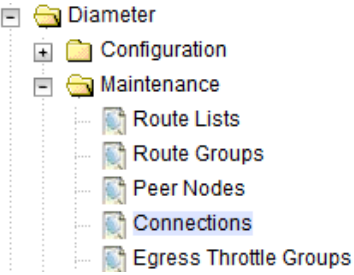
STEP #	Procedure	Description																																																																		
<p>24.</p> <p><input type="checkbox"/></p>	<p><b>ACTIVE NOAM:</b> Verify Replication Between Servers.</p>	<p>Login to the Active NOAM via SSH terminal as <i>admusr</i> user. Execute the following command:</p> <pre>\$ sudo irepstat -m</pre> <p>Output like below shall be generated:</p> <pre>-- Policy 0 ActStb [DbReplication] ----- ----- RDU06-MP1 -- Stby   BC From RDU06-S01 Active      0   0.50 ^0.17%cpu 42B/s  A=none   CC From RDU06-MP2 Active      0   0.10 ^0.17 0.88%cpu 32B/s  A=none RDU06-MP2 -- Active   BC From RDU06-S01 Active      0   0.50 ^0.10%cpu 33B/s  A=none   CC To  RDU06-MP1 Active      0   0.10  0.08%cpu 20B/s  A=none RDU06-N01 -- Active   AB To  RDU06-S01 Active      0   0.50 1%R 0.03%cpu 21B/s RDU06-S01 -- Active   AB From RDU06-N01 Active      0   0.50 ^0.04%cpu 24B/s   BC To  RDU06-MP1 Active      0   0.50 1%R 0.04%cpu 21B/s   BC To  RDU06-MP2 Active      0   0.50 1%R 0.07%cpu 21B/s</pre>																																																																		
<p>25.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Verify the Database states</p>	<p>Click on <b>Main Menu-&gt;Status and Manager-&gt;Database</b></p>  <p>Verify that the “OAM Max HA Role” is either “Active” or “Standby” for NOAM and SOAM and “Application Max HA Role” for MPs is “Active”, and that the status is “Normal” as shown below:</p> <p>Main Menu: Status &amp; Manage -&gt; Database</p> <table border="1"> <thead> <tr> <th>Network Element</th> <th>Server</th> <th>Role</th> <th>OAM Max HA Role</th> <th>Application Max HA Role</th> <th>Status</th> <th>DB Level</th> <th>OAM Repl Status</th> <th>SG Repl Status</th> <th>Repl Status</th> <th>Repl Audit Status</th> </tr> </thead> <tbody> <tr> <td>SOAM_NE</td> <td>S01</td> <td>System OAM</td> <td>Standby</td> <td>N/A</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>SOAM_NE</td> <td>S02</td> <td>System OAM</td> <td>Active</td> <td>N/A</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>NOAM_NE</td> <td>N02</td> <td>Network OAM&amp;P</td> <td>Standby</td> <td>N/A</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>SOAM_NE</td> <td>DAMP1</td> <td>MP</td> <td>Active</td> <td>Active</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>Normal</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>NOAM_NE</td> <td>N01</td> <td>Network OAM&amp;P</td> <td>Active</td> <td>N/A</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> </tbody> </table>	Network Element	Server	Role	OAM Max HA Role	Application Max HA Role	Status	DB Level	OAM Repl Status	SG Repl Status	Repl Status	Repl Audit Status	SOAM_NE	S01	System OAM	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable	SOAM_NE	S02	System OAM	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable	NOAM_NE	N02	Network OAM&P	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable	SOAM_NE	DAMP1	MP	Active	Active	Normal	0	Normal	Normal	Allowed	NotApplicable	NOAM_NE	N01	Network OAM&P	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable
Network Element	Server	Role	OAM Max HA Role	Application Max HA Role	Status	DB Level	OAM Repl Status	SG Repl Status	Repl Status	Repl Audit Status																																																										
SOAM_NE	S01	System OAM	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable																																																										
SOAM_NE	S02	System OAM	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable																																																										
NOAM_NE	N02	Network OAM&P	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable																																																										
SOAM_NE	DAMP1	MP	Active	Active	Normal	0	Normal	Normal	Allowed	NotApplicable																																																										
NOAM_NE	N01	Network OAM&P	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable																																																										

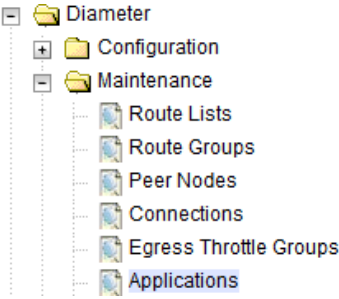

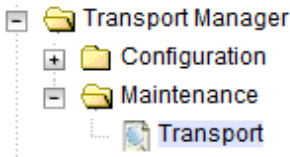



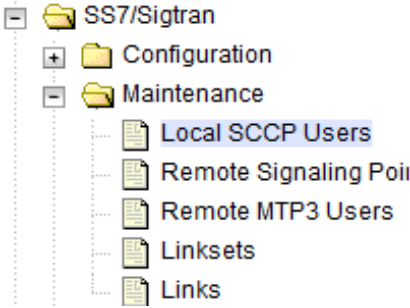

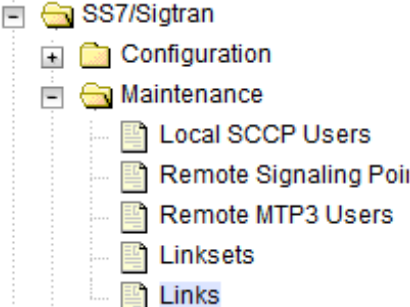

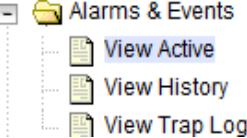
STEP #	Procedure	Description																																										
<p>26.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Verify the HA Status</b></p>	<p>Click on <b>Main Menu-&gt;Status and Manage-&gt;HA</b></p>  <p>Select the row for all of the servers Verify that the “HA Role” is either “Active” or “Standby”.</p> <p>Main Menu: Status &amp; Manage -&gt; HA</p> <p>Filter*</p> <table border="1" data-bbox="532 751 1406 905"> <thead> <tr> <th>Hostname</th> <th>OAM HA Role</th> <th>Application HA Role</th> <th>Max Allowed HA Role</th> <th>Mate Hostname List</th> <th>Network Element</th> <th>Server Role</th> </tr> </thead> <tbody> <tr> <td>SO1</td> <td>Standby</td> <td>N/A</td> <td>Active</td> <td>SO2</td> <td>SOAM_NE</td> <td>System OAM</td> </tr> <tr> <td>SO2</td> <td>Active</td> <td>N/A</td> <td>Active</td> <td>SO1</td> <td>SOAM_NE</td> <td>System OAM</td> </tr> <tr> <td>DAMP1</td> <td>Active</td> <td>Active</td> <td>Active</td> <td></td> <td>SOAM_NE</td> <td>MP</td> </tr> <tr> <td>NO1</td> <td>Active</td> <td>N/A</td> <td>Active</td> <td>NO2</td> <td>NOAM_NE</td> <td>Network OAM&amp;P</td> </tr> <tr> <td>NO2</td> <td>Standby</td> <td>N/A</td> <td>Active</td> <td>NO1</td> <td>NOAM_NE</td> <td>Network OAM&amp;P</td> </tr> </tbody> </table>	Hostname	OAM HA Role	Application HA Role	Max Allowed HA Role	Mate Hostname List	Network Element	Server Role	SO1	Standby	N/A	Active	SO2	SOAM_NE	System OAM	SO2	Active	N/A	Active	SO1	SOAM_NE	System OAM	DAMP1	Active	Active	Active		SOAM_NE	MP	NO1	Active	N/A	Active	NO2	NOAM_NE	Network OAM&P	NO2	Standby	N/A	Active	NO1	NOAM_NE	Network OAM&P
Hostname	OAM HA Role	Application HA Role	Max Allowed HA Role	Mate Hostname List	Network Element	Server Role																																						
SO1	Standby	N/A	Active	SO2	SOAM_NE	System OAM																																						
SO2	Active	N/A	Active	SO1	SOAM_NE	System OAM																																						
DAMP1	Active	Active	Active		SOAM_NE	MP																																						
NO1	Active	N/A	Active	NO2	NOAM_NE	Network OAM&P																																						
NO2	Standby	N/A	Active	NO1	NOAM_NE	Network OAM&P																																						
<p>27.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI: Verify the Local Node Info</b></p>	<p>Navigate to <b>Main Menu-&gt;Diameter-&gt;Configuration-&gt;Local Node</b></p>  <p>Verify that all the local nodes are shown.</p>																																										

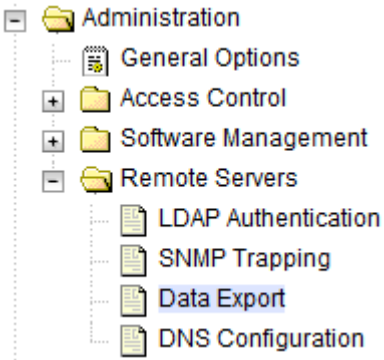
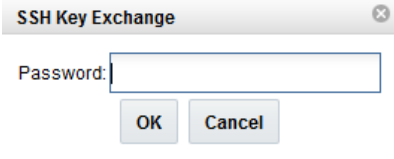
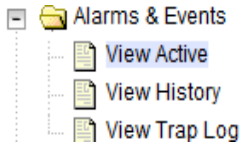
STEP #	Procedure	Description
<p>28.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI: Verify the Peer Node Info</b></p>	<p>Navigate to <b>Main Menu-&gt;Diameter-&gt;Configuration-&gt;Peer Node</b></p>  <p>Verify that all the peer nodes are shown.</p>
<p>29.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI: Verify the Connections Info</b></p>	<p>Navigate to <b>Main Menu-&gt;Diameter-&gt;Configuration-&gt;Connections</b></p>  <p>Verify that all the connections are shown.</p>

STEP #	Procedure	Description
<p>30.</p> <p><input type="checkbox"/></p>	<p><b>For vSTP Only-SOAM VIP Server Console (Optional):</b> Verify the local nodes info</p>	<p>To verify the vSTP MP <b>Local nodes</b> info:</p> <ol style="list-style-type: none"> <li>1. Login to the SOAM VIP Server console as <b>admusr</b></li> <li>2. Execute the following command [admusr@SOAM1 ~]\$ mmiclient.py /vstp/localhosts</li> <li>3. Verify the output similar to the below output</li> </ol> <pre data-bbox="623 520 1248 1010"> {   "data": [     {       "configurationLevel": "10",       "localHostName": "AUTLocalHost1",       "localHostPort": 4444,       "localHostPriIPAddress": "145.168.100.2",       "localHostSecIPAddress": "145.168.111.1"     },     {       "configurationLevel": "11",       "localHostName": "AUTLocalHost2",       "localHostPort": 4445,       "localHostPriIPAddress": "145.168.100.2",       "localHostSecIPAddress": "145.168.111.1"     }   ],   "links": {},   "messages": [],   "status": true } </pre>
<p>31.</p> <p><input type="checkbox"/></p>	<p><b>For vSTP Only-SOAM VIP Server Console (Optional):</b> Verify the remote nodes info</p>	<p>To verify the vSTP MP <b>Remote nodes</b> info:</p> <ol style="list-style-type: none"> <li>1. Login to the SOAM VIP Server console as <b>admusr</b></li> <li>2. Execute the following command [admusr@SOAM1 ~]\$ mmiclient.py /vstp/remotehosts</li> <li>3. Verify the output similar to the below output</li> </ol> <pre data-bbox="623 1318 1317 1724"> {   "data": [     {       "configurationLevel": "12",       "remoteHostName": "AUTRemoteHost1",       "remoteHostPort": 4444,       "remoteHostPriIPAddress": "1.1.1.6",       "remoteHostSecIPAddress": "1.1.1.7"     }   ],   "links": {},   "messages": [],   "status": true } </pre>

STEP #	Procedure	Description
<p>32.</p> <p><input type="checkbox"/></p>	<p><b>For vSTP Only-SOAM VIP Server Console (Optional):</b> Verify the Connections info</p>	<p>To verify the vSTP MP <b>Connections</b> info:</p> <ol style="list-style-type: none"> <li>1. Login to the SOAM VIP Server console as <b>admusr</b></li> <li>2. Execute the following command [admusr@SOAM1 ~]\$ mmclient.py /vstp/connections</li> <li>3. Verify the output similar to the below output</li> </ol> <pre data-bbox="623 520 1227 1163"> {   "data": [     {       "configurationLevel": "13",       "connCfgSetName": "Default",       "connectionMode": "Server",       "connectionType": "M3ua",       "localHostName": "AUTLocalHost1",       "name": "AUTLinkTestConn1",       "remoteHostName": "AUTRemoteHost1"     },     {       "configurationLevel": "14",       "connCfgSetName": "Default",       "connectionMode": "Server",       "connectionType": "M2pa",       "localHostName": "AUTLocalHost2",       "name": "AUTLinkTestConn2",       "remoteHostName": "AUTRemoteHost1"     }   ],   "links": {},   "messages": [],   "status": true }                 </pre>
<p>33.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Enable Connections if needed</p>	<p>Navigate to <b>Main Menu-&gt;Diameter-&gt;Maintenance-&gt;Connections</b></p>  <p>Select each connection and click on the <b>Enable</b> button. Alternatively you can enable all the connections by selecting the <b>EnableAll</b> button.</p> <p> <input type="button" value="Enable"/> <input type="button" value="Disable"/> <input type="button" value="EnableAll"/> <input type="button" value="DisableAll"/> <input type="button" value="Diagnose Start"/> <input type="button" value="Diagnose End"/> <input type="button" value="SCTP STATISTICS"/> <input type="checkbox"/> Pause updates         </p> <p>Verify that the Operational State is Available.</p>

STEP #	Procedure	Description
<p>34. <input type="checkbox"/></p>	<p><b>SOAM VIP GUI: Enable Optional Features</b></p>	<p>Navigate to <b>Main Menu -&gt; Diameter -&gt; Maintenance -&gt; Applications</b></p>  <p>Select the optional feature application configured in <b>step 31</b></p> <p>Click the <b>Enable</b> button.</p> 
<p>35. <input type="checkbox"/></p>	<p><b>SOAM VIP GUI: Re-enable Transports if Needed</b></p>	<p>Navigate to <b>Main Menu-&gt;Transport Manager -&gt; Maintenance -&gt; Transport</b></p>  <p>Select each transport and click on the Enable button</p>  <p>Verify that the Operational Status for each transport is Up.</p>

STEP #	Procedure	Description
<p>36.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Re-enable MAPIWF application if needed</p>	<p>Navigate to <b>Main Menu-&gt;Sigtran-&gt;Maintenance-&gt;Local SCCP Users</b></p>  <p>Click on the <b>Enable</b> button corresponding to MAPIWF Application Name.</p>  <p>Verify that the SSN Status is Enabled.</p>
<p>37.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Re-enable links if needed</p>	<p>Navigate to <b>Main Menu-&gt;Sigtran-&gt;Maintenance-&gt;Links</b></p>  <p>Click on <b>Enable</b> button for each link.</p>  <p>Verify that the Operational Status for each link is Up.</p>
<p>38.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Examine All Alarms</p>	<p>Navigate to <b>Main Menu-&gt;Alarms &amp; Events-&gt;View Active</b></p>  <p>Examine all active alarms and refer to the on-line help on how to address them.</p> <p>If needed contact My Oracle Support (MOS)</p>

STEP #	Procedure	Description
39.	<p><b>NOAM VIP</b>  <b>GUI:</b> Perform Keyexchange with Export Server</p>	<p>Navigate to <b>Main Menu -&gt; Administration -&gt; Remote Servers -&gt; Data Export</b></p>  <p>Click on <b>Key Exchange</b> at the bottom of the screen</p> <p>Enter the Password and press <b>OK</b></p> 
40. <input type="checkbox"/>	<p><b>NOAM VIP</b>  <b>GUI:</b> Examine All Alarms</p>	<p>Login to the NOAM VIP if not already logged in.</p> <p>Navigate to <b>Main Menu-&gt;Alarms &amp; Events-&gt;View Active</b></p>  <p>Examine all active alarms and refer to the on-line help on how to address them.</p> <p>If needed contact My Oracle Support (MOS).</p>
41. <input type="checkbox"/>	<p><b>Restore GUI</b>  <b>Usernames and Passwords</b></p>	<p>If applicable, Execute steps in <b>Section 6.0</b> to recover the user and group information restored.</p>
42. <input type="checkbox"/>	<p><b>Backup and Archive All the Databases from the Recovered System</b></p>	<p>Execute <b>DSR Database Backup</b> to back up the Configuration databases:</p>

### 5.1.4 Recovery Scenario 4 (Partial Server Outage with one NOAM server and one SOAM server intact)

For a partial outage with an NOAM server and an SOAM server intact and available, only base recovery of software is needed. The intact NO and SOAM servers are capable of restoring the database via replication to all servers. The major activities are summarized in the list below. Use this list to understand the recovery procedure summary. Do not use this list to execute the procedure. The actual procedures' detailed steps are in Procedure 4. The major activities are summarized as follows:

Recover Standby NOAM server by recovering software.

- Recover the software.

The database is intact at the active NOAM server and does not require restoration at the standby NOAM server.

- Recover any failed SO and MP servers by recovering software.
- Recover the software.

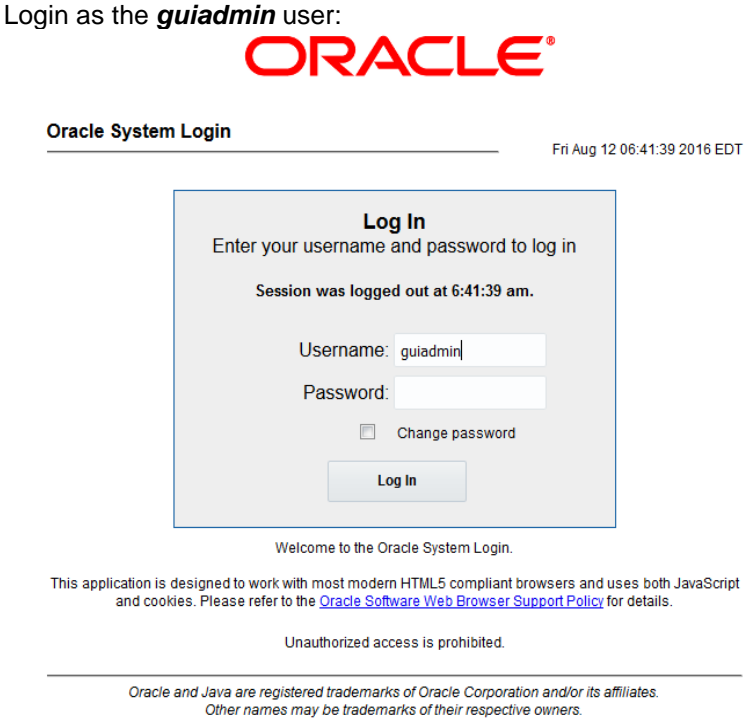
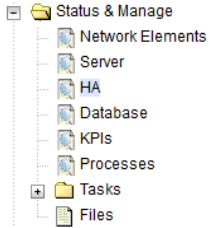
The database is intact at the active NOAM server and does not require restoration at the SO and MP servers.

- Re-apply signaling networks configuration if the failed VM is an MP.


#### Procedure 8. Recovery Scenario 4

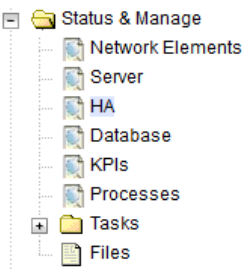
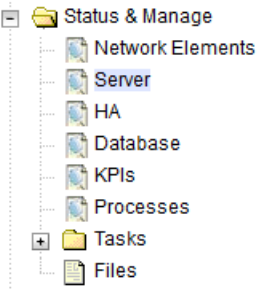
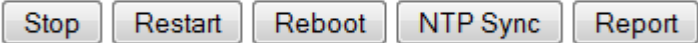
STEP #	Procedure	Description
<p>This procedure performs recovery if at least 1 NOAM server is intact and available and 1 SOAM server is intact and available.</p> <p>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.</p> <p>If this procedure fails, contact My Oracle Support (MOS), and ask for assistance.</p>		
1. <input type="checkbox"/>	<b>Workarounds</b>	Refer to <b>Release to</b> understand/apply any workarounds required during this procedure.
2. <input type="checkbox"/>	<b>Gather Required Materials</b>	Gather the documents and required materials listed in <b>Section 3.1</b> Required Materials

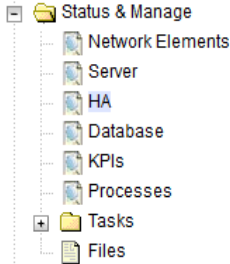
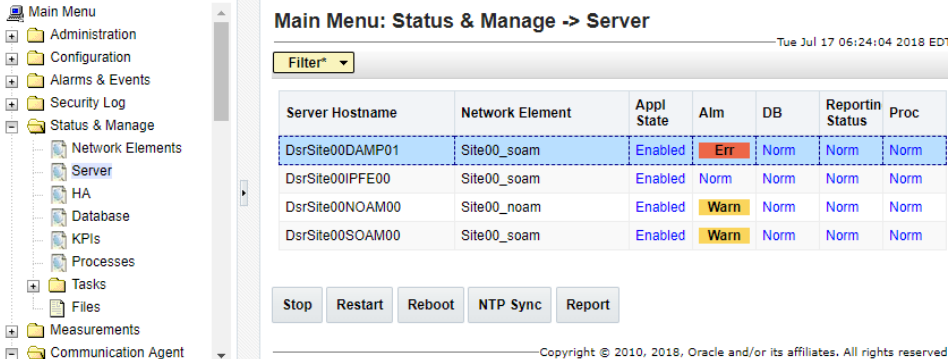


STEP #	Procedure	Description
<p>3.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Login</p>	<p>Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><code>http://&lt;Primary_NOAM_VIP_IP_Address&gt;</code></p> </div> <p>Login as the <i>guiadmin</i> user:</p> 
<p>4.</p> <p><input type="checkbox"/></p>	<p><b>Active NOAM:</b> Set Failed Servers to OOS</p>	<p>Navigate to <b>Main Menu -&gt; Status &amp; Manage -&gt; HA</b></p>  <p>Select <b>Edit</b></p> <p>Set the Max Allowed HA Role drop down box to <b>OOS</b> for the failed servers.</p> <p>Select <b>Ok</b></p> <div style="margin-top: 10px;"> <p><input type="button" value="Ok"/> <input type="button" value="Cancel"/></p> </div>

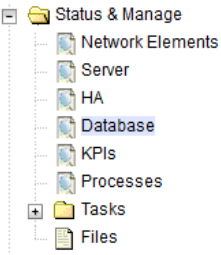
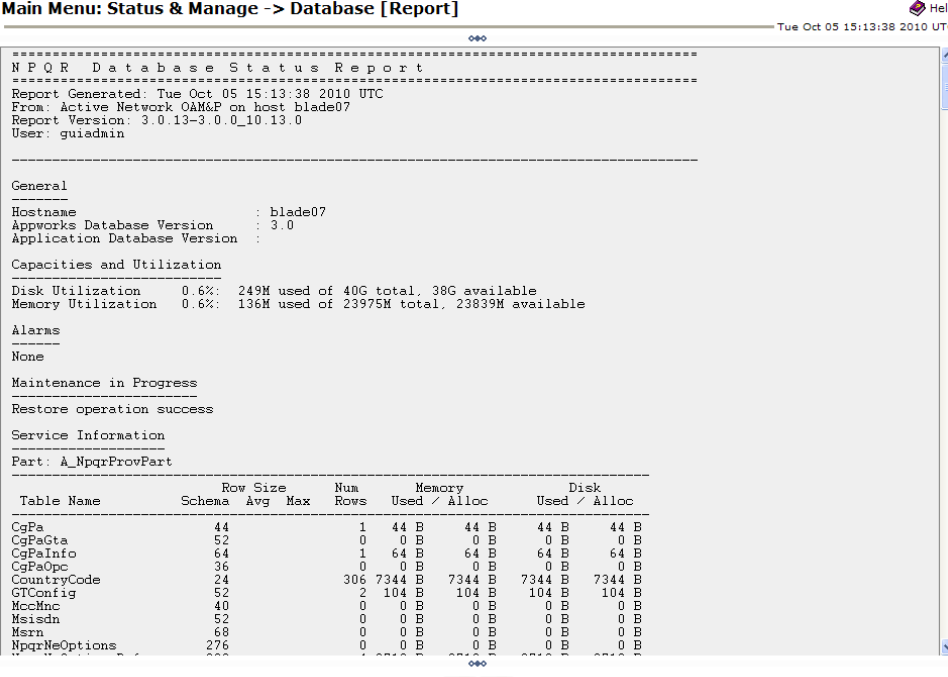
<p>5. □</p>	<p><b>Recover the Failed Software</b></p>	<p>For VMWare based deployments:</p> <ol style="list-style-type: none"> <li>1. For NOAMs execute the following procedures from reference [1]:             <ol style="list-style-type: none"> <li>a. Procedure 1 (VMWare). Import DSR OVA [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 2 (VMWare Only). Configure NOAM guests based on resource profile</li> </ol> </li> <li>2. For SOAMs execute the following procedures from reference [1]:             <ol style="list-style-type: none"> <li>a. Procedure 1 (VMWare). Import DSR OVA [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 3 (VMWare Only). Configure Remaining DSR guests based on resource profile</li> </ol> </li> <li>3. For failed MPs execute the following procedures from reference [1]:             <ol style="list-style-type: none"> <li>a. Procedure 1 (VMWare). Import DSR OVA [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 3 (VMWare Only). Configure Remaining DSR guests based on resource profile</li> </ol> </li> </ol> <p>For KVM/Openstack based deployments:</p> <ol style="list-style-type: none"> <li>1. For NOAMs execute the following procedures from reference [1]:             <ol style="list-style-type: none"> <li>a. Procedure 4 (KVM/Openstack). "Import DSR OVA" [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 5 (KVM/Openstack). "Configure NOAM guests based on resource profile"</li> </ol> </li> <li>2. For SOAMs execute the following procedures from reference [1]:             <ol style="list-style-type: none"> <li>a. Procedure 4 (KVM/Openstack). "Import DSR OVA" [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 6 (KVM/Openstack). "Configure Remaining DSR guests based on resource profile"</li> </ol> </li> <li>3. For failed MPs execute the following procedures from reference [1]:             <ol style="list-style-type: none"> <li>a. Procedure 4 (KVM/Openstack). "Import DSR OVA" [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 6 (KVM/Openstack). "Configure Remaining DSR guests based on resource profile"</li> </ol> </li> </ol> <p>For OVM-S/OVM-M based deployments:</p> <p>Execute the following procedures from reference [1]:</p> <ol style="list-style-type: none"> <li>a. Procedure 7 (OVM-S/OVM-M). Import DSR OVA and prepare for VM creation</li> <li>b. Procedure 8 (OVM-S/OVM-M). Configure each DSR VM</li> </ol>
-----------------	---	---

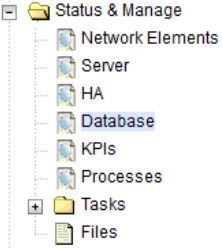
STEP #	Procedure	Description
		<p><b>Note:</b> While executing Procedure 8, configure the required failed VMs only (NOAMs/SOAMs/MPs)</p>
<p>6. <input type="checkbox"/></p>	<p><b>Repeat for Remaining Failed Servers</b></p>	<p>If necessary, repeat 5 for all remaining failed servers.</p>
<p>7. <input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Login</b></p>	<p>Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><code>http://&lt;Primary_NOAM_VIP_IP_Address&gt;</code></p> </div> <p>Login as the <i>guiadmin</i> user:</p> 
<p>8. <input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Recover Standby NOAM if needed</b></p>	<p>Install the second NOAM server by executing procedures from reference [1]:</p> <p>Procedure 15 “Configure the Second NOAM Server” steps 1, 3-7</p> <p>Procedure 16 “Complete Configuring the NOAM Server Group” Step 4</p> <p><b>Note:</b> If Topology or nodeld alarms are persistent after the database restore, refer to Workarounds for Issues not fixed in this Release, or the next step below.</p>

STEP #	Procedure	Description
9. <input type="checkbox"/>	<b>(OPTIONAL) NOAM VIP GUI:</b> Recover the Failed SOAM Servers if needed	If the failed server is an SOAM, recover the <b>remaining</b> SOAM servers ( <b>standby, spare</b> ) by repeating the <b>following steps</b> for each SOAM server: <ol style="list-style-type: none"> <li>1. Install the remaining SOAM servers by executing Procedure 22 “Configure the SOAM Servers”, steps 1, 3- 7 from reference [1].</li> </ol> <p><b>NOTE:</b> Wait for server to reboot before continuing.</p>
10. <input type="checkbox"/>	<b>(OPTIONAL) NOAM VIP GUI:</b> Set HA on Recovered Servers	Navigate to <b>Status &amp; Manage -&gt; HA</b>  <p>Click on <b>Edit</b> at the bottom of the screen</p> <p>For each server whose Max Allowed HA Role is set to Standby, set it to <b>Active</b></p> <p>Press <b>OK</b></p>
11. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Restart DSR application	Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Server,</b>  <p>Select the recovered server and click on <b>Restart.</b></p> 

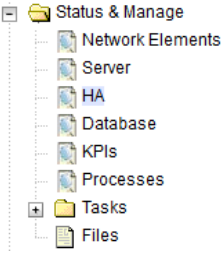
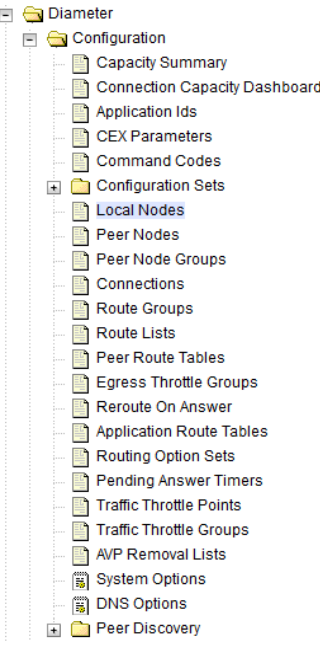
STEP #	Procedure	Description
12. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Recover the C-Level Server (DA-MP, SBRs, IPFE, vSTP-MP)	Establish a SSH session to the C Level server being recovered, login as <b>admusr</b> .  Execute the following procedures from [1] <b>FOR EACH</b> server that has been recovered:  Procedure 25 “Configure the MP Virtual Machines”, Steps 1, 8-14 (& 15 if required).
13. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Set HA on all C-Level Servers	<p>Navigate to <b>Status &amp; Manage -&gt; HA</b></p>  <p>Click on <b>Edit</b> at the bottom of the screen</p> <p>For each server whose Max Allowed HA Role is set to Standby, set it to <b>Active</b></p> <p>Press <b>OK</b></p>
14. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Restart DSR Application on recovered C-Level Servers.	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Server</b></p>  <p>Select the recovered servers and click on <b>Restart</b>.</p>
15. <input type="checkbox"/>	<b>ACTIVE NOAM:</b> Login	Login to the recovered Active NOAM via SSH terminal as <b>admusr</b> user.
16. <input type="checkbox"/>	<b>ACTIVE NOAM:</b> Perform key exchange between the active-NOAM and recovered servers.	<p>Establish an SSH session to the Active NOAM, login as <b>admusr</b>.</p> <p>Execute the following command to perform a keyexchange from the active NOAM to each recovered server:</p> <pre>\$ keyexchange admusr@&lt;Recovered Server Hostname&gt;</pre>

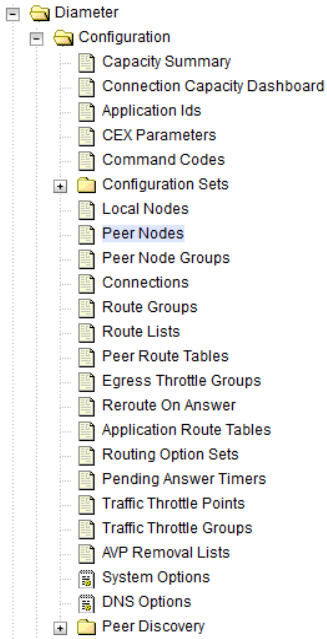
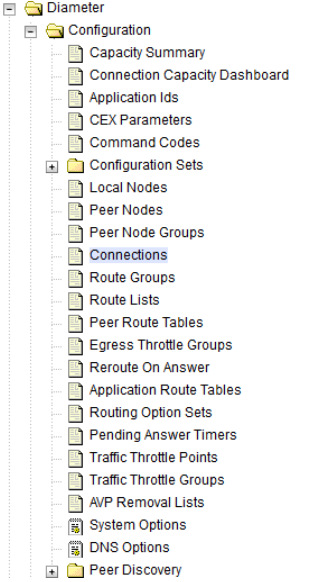
STEP #	Procedure	Description
17. <input type="checkbox"/>	<b>ACTIVE NOAM:</b> Activate Optional Features	Establish an SSH session to the active NOAM, login as <b><i>admusr</i></b> .  <b>Note For PCA Activation:</b> If you have PCA installed in the system being recovered, execute the procedure “ <i>PCA Activation on Stand By NOAM server</i> ” on recovered StandBy NOAM Server and procedure “ <i>PCA Activation on Stand By SOAM server</i> ” on recovered StandBy SOAM Server from [3] to re-activate PCA  Refer to <b>1.5 Optional Features</b> to activate any features that were previously activated.  <b>Note:</b> While running the activation script, the following error message (and corresponding messages) output may be seen, this can safely be ignored:  <pre>                     iload#31000{S/W Fault}                     </pre> <b>Note:</b> If any of the MPs are failed and recovered, then these MP servers should be restarted after Activation of the feature.

STEP #	Procedure	Description
18. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Fetch and Store the database Report for the Newly Restored Data and Save it	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Database</b></p>  <p>Select the <b>active NOAM</b> server and click on the <b>Report</b> button at the bottom of the page. The following screen is displayed:</p> <p><b>Main Menu: Status &amp; Manage -&gt; Database [Report]</b></p>  <p>Click on <b>Save</b> and save the report to your local machine.</p>

STEP #	Procedure	Description																																																																		
19. <input type="checkbox"/>	<b>ACTIVE NOAM:</b> Verify Replication Between Servers.	<p>Login to the Active NOAM via SSH terminal as <i>admusr</i> user.                      Execute the following command:</p> <pre style="border: 1px solid black; padding: 10px;">\$ sudo irepstat -m</pre> <p>Output like below shall be generated:</p> <pre style="border: 1px solid black; padding: 10px;">-- Policy 0 ActStb [DbReplication] ----- ----- RDU06-MP1 -- Stby   BC From RDU06-SO1 Active      0   0.50 ^0.17%cpu 42B/s  A=none   CC From RDU06-MP2 Active      0   0.10 ^0.17 0.88%cpu 32B/s  A=none RDU06-MP2 -- Active   BC From RDU06-SO1 Active      0   0.50 ^0.10%cpu 33B/s  A=none   CC To  RDU06-MP1 Active      0   0.10  0.08%cpu 20B/s  A=none RDU06-NO1 -- Active   AB To  RDU06-SO1 Active      0   0.50 1%R 0.03%cpu 21B/s RDU06-SO1 -- Active   AB From RDU06-NO1 Active      0   0.50 ^0.04%cpu 24B/s   BC To  RDU06-MP1 Active      0   0.50 1%R 0.04%cpu 21B/s   BC To  RDU06-MP2 Active      0   0.50 1%R 0.07%cpu 21B/s</pre>																																																																		
20. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Verify the Database states	<p>Click on <b>Main Menu-&gt;Status and Manager-&gt;Database</b></p>  <p>Verify that the “OAM Max HA Role” is either “Active” or “Standby” for NOAM and SOAM and “Application Max HA Role” for MPs is “Active”, and that the status is “Normal” as shown below:</p> <p>Main Menu: Status &amp; Manage -&gt; Database</p> <table border="1" data-bbox="503 1438 1250 1585"> <thead> <tr> <th>Network Element</th> <th>Server</th> <th>Role</th> <th>OAM Max HA Role</th> <th>Application Max HA Role</th> <th>Status</th> <th>DD Level</th> <th>OAM Repl Status</th> <th>SG Repl Status</th> <th>Repl Status</th> <th>Repl Audit Status</th> </tr> </thead> <tbody> <tr> <td>SOAM_NE</td> <td>SO1</td> <td>System OAM</td> <td>Standby</td> <td>N/A</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>SOAM_NE</td> <td>SO2</td> <td>System OAM</td> <td>Active</td> <td>N/A</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>NOAM_NE</td> <td>NO2</td> <td>Network OAM&amp;P</td> <td>Standby</td> <td>N/A</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>SOAM_NE</td> <td>DAMP1</td> <td>MP</td> <td>Active</td> <td>Active</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>Normal</td> <td>Allowed</td> <td>NotApplicable</td> </tr> <tr> <td>NOAM_NE</td> <td>NO1</td> <td>Network OAM&amp;P</td> <td>Active</td> <td>N/A</td> <td>Normal</td> <td>0</td> <td>Normal</td> <td>NotApplicable</td> <td>Allowed</td> <td>NotApplicable</td> </tr> </tbody> </table>	Network Element	Server	Role	OAM Max HA Role	Application Max HA Role	Status	DD Level	OAM Repl Status	SG Repl Status	Repl Status	Repl Audit Status	SOAM_NE	SO1	System OAM	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable	SOAM_NE	SO2	System OAM	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable	NOAM_NE	NO2	Network OAM&P	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable	SOAM_NE	DAMP1	MP	Active	Active	Normal	0	Normal	Normal	Allowed	NotApplicable	NOAM_NE	NO1	Network OAM&P	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable
Network Element	Server	Role	OAM Max HA Role	Application Max HA Role	Status	DD Level	OAM Repl Status	SG Repl Status	Repl Status	Repl Audit Status																																																										
SOAM_NE	SO1	System OAM	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable																																																										
SOAM_NE	SO2	System OAM	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable																																																										
NOAM_NE	NO2	Network OAM&P	Standby	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable																																																										
SOAM_NE	DAMP1	MP	Active	Active	Normal	0	Normal	Normal	Allowed	NotApplicable																																																										
NOAM_NE	NO1	Network OAM&P	Active	N/A	Normal	0	Normal	NotApplicable	Allowed	NotApplicable																																																										

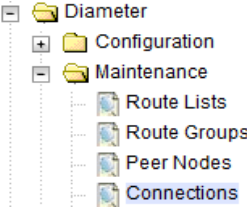
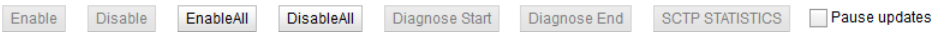
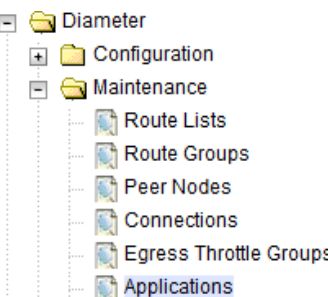
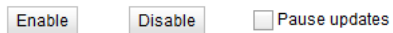
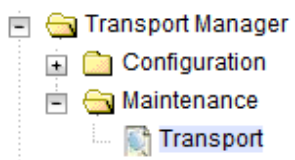
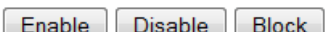


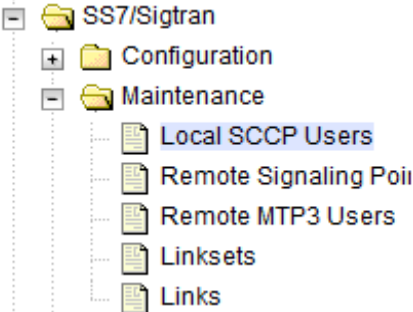

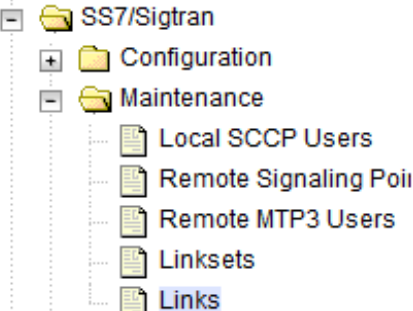

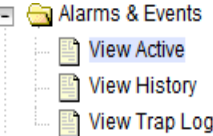
STEP #	Procedure	Description																																										
21. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Verify the HA Status	<p>Click on <b>Main Menu-&gt;Status and Manage-&gt;HA</b></p>  <p>Select the row for all of the servers                      Verify that the “HA Role” is either “Active” or “Standby”.</p> <p><b>Main Menu: Status &amp; Manage -&gt; HA</b></p> <p>Filter* ▾</p> <table border="1" data-bbox="511 745 1437 892"> <thead> <tr> <th>Hostname</th> <th>OAM HA Role</th> <th>Application HA Role</th> <th>Max Allowed HA Role</th> <th>Mate Hostname List</th> <th>Network Element</th> <th>Server Role</th> </tr> </thead> <tbody> <tr> <td>SO1</td> <td>Standby</td> <td>N/A</td> <td>Active</td> <td>SO2</td> <td>SOAM_NE</td> <td>System OAM</td> </tr> <tr> <td>SO2</td> <td>Active</td> <td>N/A</td> <td>Active</td> <td>SO1</td> <td>SOAM_NE</td> <td>System OAM</td> </tr> <tr> <td>DAMP1</td> <td>Active</td> <td>Active</td> <td>Active</td> <td></td> <td>SOAM_NE</td> <td>MP</td> </tr> <tr> <td>NO1</td> <td>Active</td> <td>N/A</td> <td>Active</td> <td>NO2</td> <td>NOAM_NE</td> <td>Network OAM&amp;P</td> </tr> <tr> <td>NO2</td> <td>Standby</td> <td>N/A</td> <td>Active</td> <td>NO1</td> <td>NOAM_NE</td> <td>Network OAM&amp;P</td> </tr> </tbody> </table>	Hostname	OAM HA Role	Application HA Role	Max Allowed HA Role	Mate Hostname List	Network Element	Server Role	SO1	Standby	N/A	Active	SO2	SOAM_NE	System OAM	SO2	Active	N/A	Active	SO1	SOAM_NE	System OAM	DAMP1	Active	Active	Active		SOAM_NE	MP	NO1	Active	N/A	Active	NO2	NOAM_NE	Network OAM&P	NO2	Standby	N/A	Active	NO1	NOAM_NE	Network OAM&P
Hostname	OAM HA Role	Application HA Role	Max Allowed HA Role	Mate Hostname List	Network Element	Server Role																																						
SO1	Standby	N/A	Active	SO2	SOAM_NE	System OAM																																						
SO2	Active	N/A	Active	SO1	SOAM_NE	System OAM																																						
DAMP1	Active	Active	Active		SOAM_NE	MP																																						
NO1	Active	N/A	Active	NO2	NOAM_NE	Network OAM&P																																						
NO2	Standby	N/A	Active	NO1	NOAM_NE	Network OAM&P																																						
22. <input type="checkbox"/>	<b>SOAM VIP GUI:</b> Verify the Local Node Info	<p>Navigate to <b>Main Menu-&gt;Diameter-&gt;Configuration-&gt;Local Node</b></p>  <p>Verify that all the local nodes are shown.</p>																																										

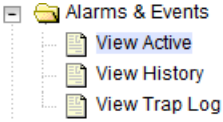
STEP #	Procedure	Description
23. <input type="checkbox"/>	<b>SOAM VIP GUI:</b> Verify the Peer Node Info	<p>Navigate to <b>Main Menu-&gt;Diameter-&gt;Configuration-&gt;Peer Node</b></p>  <p>Verify that all the peer nodes are shown.</p>
24. <input type="checkbox"/>	<b>SOAM VIP GUI:</b> Verify the Connections Info	<p>Navigate to <b>Main Menu-&gt;Diameter-&gt;Configuration-&gt;Connections</b></p>  <p>Verify that all the connections are shown.</p>

STEP #	Procedure	Description
<p>25.</p> <p><input type="checkbox"/></p>	<p><b>For vSTP Only-SOAM VIP Server Console (Optional):</b> Verify the local nodes info</p>	<p>To verify the vSTP MP <b>Local nodes</b> info:</p> <ol style="list-style-type: none"> <li>1. Login to the SOAM VIP Server console as <b>admusr</b></li> <li>2. Execute the following command [admusr@SOAM1 ~]\$ mmiclient.py /vstp/localhosts</li> <li>3. Verify the output similar to the below output</li> </ol> <pre data-bbox="599 520 1227 1010"> {   "data": [     {       "configurationLevel": "10",       "localHostName": "AUTLocalHost1",       "localHostPort": 4444,       "localHostPriIPAddress": "145.168.100.2",       "localHostSecIPAddress": "145.168.111.1"     },     {       "configurationLevel": "11",       "localHostName": "AUTLocalHost2",       "localHostPort": 4445,       "localHostPriIPAddress": "145.168.100.2",       "localHostSecIPAddress": "145.168.111.1"     }   ],   "links": {},   "messages": [],   "status": true } </pre>
<p>26.</p> <p><input type="checkbox"/></p>	<p><b>For vSTP Only-SOAM VIP Server Console (Optional):</b> Verify the remote nodes info</p>	<p>To verify the vSTP MP <b>Remote nodes</b> info:</p> <ol style="list-style-type: none"> <li>1. Login to the SOAM VIP Server console as <b>admusr</b></li> <li>2. Execute the following command [admusr@SOAM1 ~]\$ mmiclient.py /vstp/remotehosts</li> <li>3. Verify the output similar to the below output</li> </ol> <pre data-bbox="599 1318 1295 1724"> {   "data": [     {       "configurationLevel": "12",       "remoteHostName": "AUTRemoteHost1",       "remoteHostPort": 4444,       "remoteHostPriIPAddress": "1.1.1.6",       "remoteHostSecIPAddress": "1.1.1.7"     }   ],   "links": {},   "messages": [],   "status": true } </pre>

STEP #	Procedure	Description
27. <input type="checkbox"/>	<b>For vSTP Only-SOAM VIP Server Console (Optional):</b> Verify the Connections info	To verify the vSTP MP <b>Connections</b> info: <ol style="list-style-type: none"> <li>1. Login to the SOAM VIP Server console as <b>admusr</b></li> <li>2. Execute the following command [admusr@SOAM1 ~]\$ mmiclient.py /vstp/connections</li> <li>3. Verify the output similar to the below output</li> </ol> <pre data-bbox="599 520 1206 1163"> {   "data": [     {       "configurationLevel": "13",       "connCfgSetName": "Default",       "connectionMode": "Server",       "connectionType": "M3ua",       "localHostName": "AUTLocalHost1",       "name": "AUTLinkTestConn1",       "remoteHostName": "AUTRemoteHost1"     },     {       "configurationLevel": "14",       "connCfgSetName": "Default",       "connectionMode": "Server",       "connectionType": "M2pa",       "localHostName": "AUTLocalHost2",       "name": "AUTLinkTestConn2",       "remoteHostName": "AUTRemoteHost1"     }   ],   "links": {},   "messages": [],   "status": true }                     </pre>
28. <input type="checkbox"/>	<b>MP Servers:</b> Disable SCTP Auth Flag	For SCTP connections without DTLS enabled, refer to Enable/Disable DTLS Appendix from reference [1].  Execute this procedure on all Failed MP Servers.

STEP #	Procedure	Description
<p>29.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Enable Connections if needed</p>	<p>Navigate to <b>Main Menu-&gt;Diameter-&gt;Maintenance-&gt;Connections</b></p>  <p>Select each connection and click on the <b>Enable</b> button.</p> <p>Alternatively you can enable all the connections by selecting the <b>EnableAll</b> button.</p>  <p>Verify that the Operational State is Available.</p>
<p>30.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Enable Optional Features</p>	<p>Navigate to <b>Main Menu -&gt; Diameter -&gt; Maintenance -&gt; Applications</b></p>  <p>Select the optional feature application</p> <p>Click the <b>Enable</b> button.</p> 
<p>31.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Re-enable Transports if Needed</p>	<p>Navigate to <b>Main Menu-&gt;Transport Manager -&gt; Maintenance -&gt; Transport</b></p>  <p>Select each transport and click on the <b>Enable</b> button</p>  <p>Verify that the Operational Status for each transport is Up.</p>

STEP #	Procedure	Description
<p>32.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Re-enable MAPIWF application if needed</p>	<p>Navigate to <b>Main Menu-&gt;Sigtran-&gt;Maintenance-&gt;Local SCCP Users</b></p>  <p>Click on the <b>Enable</b> button corresponding to MAPIWF Application Name.</p>  <p>Verify that the SSN Status is Enabled.</p>
<p>33.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Re-enable links if needed</p>	<p>Navigate to <b>Main Menu-&gt;Sigtran-&gt;Maintenance-&gt;Links</b></p>  <p>Click on <b>Enable</b> button for each link.</p>  <p>Verify that the Operational Status for each link is Up.</p>
<p>34.</p> <p><input type="checkbox"/></p>	<p><b>SOAM VIP GUI:</b> Examine All Alarms</p>	<p>Navigate to <b>Main Menu-&gt;Alarms &amp; Events-&gt;View Active</b></p>  <p>Examine all active alarms and refer to the on-line help on how to address them.</p> <p>If needed contact My Oracle Support (MOS).</p>

STEP #	Procedure	Description
35. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Examine All Alarms	Login to the NOAM VIP if not already logged in.  Navigate to <b>Main Menu-&gt;Alarms &amp; Events-&gt;View Active</b>   Examine all active alarms and refer to the on-line help on how to address them.  If needed contact My Oracle Support (MOS).
36. <input type="checkbox"/>	<b>Restart oampAgent if Needed</b>	Note: If alarm “10012: The responder for a monitored table failed to respond to a table change” is raised, the oampAgent needs to be restarted.  Establish an SSH session to each server that has the alarm. Login as <b>admusr</b>  Execute the following commands:  <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <pre>\$ sudo pm.set off oampAgent \$ sudo pm.set on oampAgent</pre> </div>
37. <input type="checkbox"/>	<b>Backup and Archive All the Databases from the Recovered System</b>	Execute <b>DSR Database Backup</b> to back up the Configuration databases:

### 5.1.5 Recovery Scenario 5 (Partial Server Outage with all NOAM servers failed with DR-NOAM available)

For a partial outage with both NOAM servers failed but a DR NOAM available, the DR NOAM is switched from secondary to primary then recovers the failed NOAM servers. The major activities are summarized in the list below. Use this list to understand the recovery procedure summary. Do not use this list to execute the procedure. The actual procedures' detailed steps are in Procedure 5. The major activities are summarized as follows:

Switch DR NOAM from secondary to primary

Recover the failed NOAM servers by recovering base hardware and software.

- Recover the base hardware.
- Recover the software.
- The database is intact at the newly active NOAM server and does not require restoration.

If applicable, recover any failed SOAM and MP servers by recovering base hardware and software.

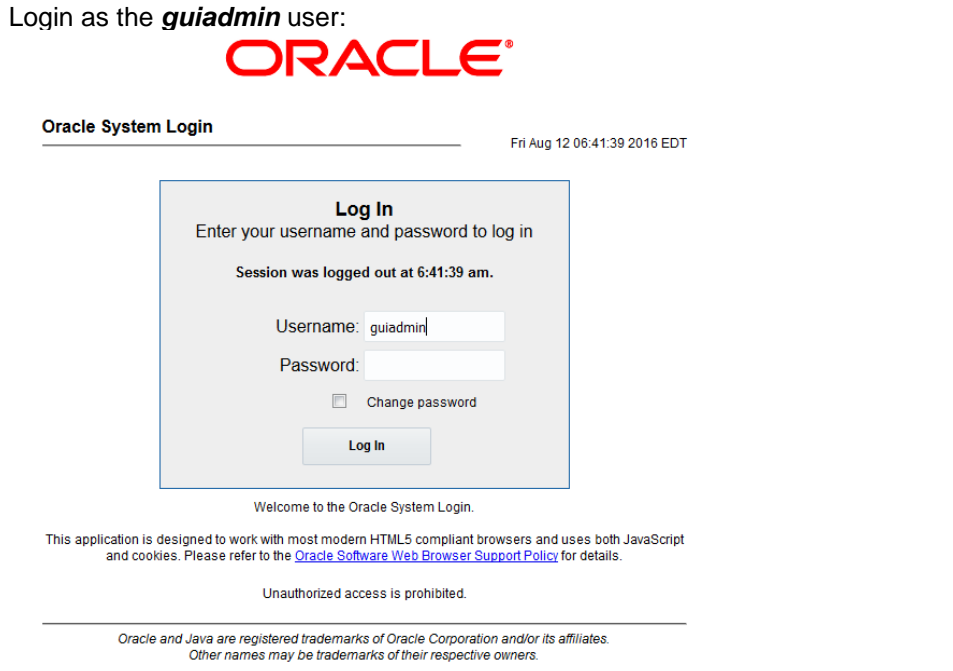
- Recover the base hardware.
- Recover the software.
- The database is intact at the active NOAM server and does not require restoration at the SOAM and MP servers.

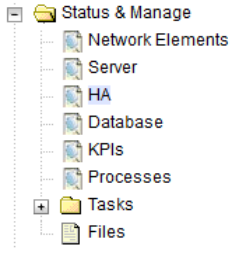
#### Procedure 9. Recovery Scenario 5

STEP #	Procedure	Description
This procedure performs recovery if both NOAM servers have failed but a DR NOAM is available  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 <input type="checkbox"/>	<b>Workarounds</b>	Refer to <b>Workarounds for</b> Issues not fixed in this Release to understand any workarounds required during this procedure.
2 <input type="checkbox"/>	<b>Gather Required Materials</b>	Gather the documents and required materials listed in <b>Section 3.1</b> Required Materials
3 <input type="checkbox"/>	<b>Switch DR NOAM to Primary</b>	Refer to DSR / SDS NOAM Failover User's Guide [2]

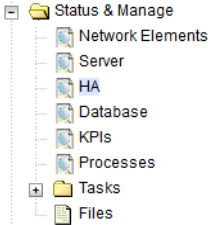
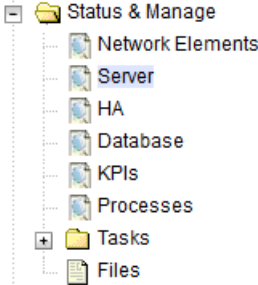
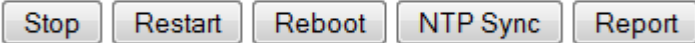


<p>4 □</p>	<p><b>Recover the Failed Software</b></p>	<p>For VMWare based deployments:</p> <ol style="list-style-type: none"> <li>1. For NOAMs execute the following procedures from reference [1]:             <ol style="list-style-type: none"> <li>a. Procedure 1 (VMWare). Import DSR OVA [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 2 (VMWare Only). Configure NOAM guests based on resource profile</li> </ol> </li> <li>2. For SOAMs execute the following procedures from reference [1]:             <ol style="list-style-type: none"> <li>a. Procedure 1 (VMWare). Import DSR OVA [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 3 (VMWare Only). Configure Remaining DSR guests based on resource profile</li> </ol> </li> <li>3. For failed MPs execute the following procedures from reference [1]:             <ol style="list-style-type: none"> <li>a. Procedure 1 (VMWare). Import DSR OVA [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 3 (VMWare Only). Configure Remaining DSR guests based on resource profile</li> </ol> </li> </ol> <p>For KVM/Openstack based deployments:</p> <ol style="list-style-type: none"> <li>1. For NOAMs execute the following procedures from reference [1]:             <ol style="list-style-type: none"> <li>a. Procedure 4 (KVM/Openstack). "Import DSR OVA" [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 5 (KVM/Openstack). "Configure NOAM guests based on resource profile"</li> </ol> </li> <li>2. For SOAMs execute the following procedures from reference [1]:             <ol style="list-style-type: none"> <li>a. Procedure 4 (KVM/Openstack). "Import DSR OVA" [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 6 (KVM/Openstack). "Configure Remaining DSR guests based on resource profile"</li> </ol> </li> <li>3. For failed MPs execute the following procedures from reference [1]:             <ol style="list-style-type: none"> <li>a. Procedure 4 (KVM/Openstack). "Import DSR OVA" [<b>Note:</b> If OVA is already imported and present in the Infrastructure Manager, skip this procedure of importing OVA]</li> <li>b. Procedure 6 (KVM/Openstack). "Configure Remaining DSR guests based on resource profile"</li> </ol> </li> </ol> <p>For OVM-S/OVM-M based deployments:</p> <p>Execute the following procedures from reference [1]:</p> <ol style="list-style-type: none"> <li>a. Procedure 7 (OVM-S/OVM-M). Import DSR OVA and prepare for VM creation</li> </ol>
----------------	---	--

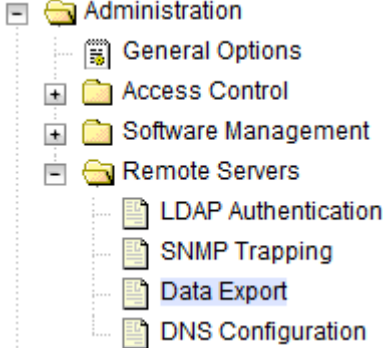
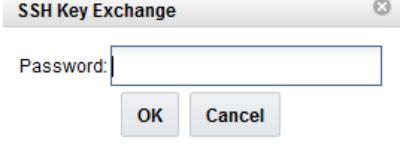
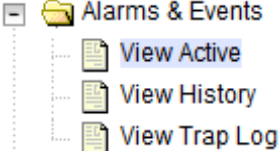
STEP #	Procedure	Description
		b. Procedure 8 (OVM-S/OVM-M). Configure each DSR VM <b>Note:</b> While executing Procedure 8, configure the required failed VMs only (NOAMs/SOAMs/MPs)
5 <input type="checkbox"/>	<b>Recover Failed SOAMs</b>	If <b>ALL</b> SOAM servers have failed, execute Procedure 2
6 <input type="checkbox"/>	<b>DR-NOAM VIP GUI: Login</b>	Establish a GUI session on the DR-NOAM server by using the VIP IP address of the DR-NOAM server. Open the web browser and enter a URL of: <div style="border: 1px solid black; padding: 5px; margin: 10px 0;">                         http://&lt;Primary_DR-NOAM_VIP_IP_Address&gt;                     </div> Login as the <i>guiadmin</i> user: 

STEP #	Procedure	Description
<p>7</p> <p><input type="checkbox"/></p>	<p><b>DR-NOAM VIP GUI:</b> Set Failed NOAM Servers to Standby</p>	<p>Navigate to <b>Main Menu -&gt; Status &amp; Manage -&gt; HA</b></p>  <p>Select <b>Edit</b></p> <p>Set the Max Allowed HA Role drop down box to <b>Standby</b> for the failed NOAM servers.</p> <p>Select <b>Ok</b></p> <p><input type="button" value="Ok"/> <input type="button" value="Cancel"/></p>
<p>8</p> <p><input type="checkbox"/></p>	<p><b>DR-NOAM VIP GUI:</b> Export the Initial Configuration</p>	<p>Navigate to <b>Main Menu -&gt; Configuration -&gt; Servers.</b></p> <p><b>From the GUI screen, select the Failed NOAM server and then select Export to generate the initial configuration data for that server.</b></p> <p><input type="button" value="Insert"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/> <input type="button" value="Export"/> <input type="button" value="Report"/></p>
<p>9</p> <p><input type="checkbox"/></p>	<p><b>DR-NOAM VIP GUI:</b> Copy Configuration File to Failed NOAM Server</p>	<p>Obtain a terminal session to the DR-NOAM VIP, login as the <b>admusr</b> user. Execute the following command to configure the failed NOAM server:</p> <pre data-bbox="519 1249 1453 1438">\$ sudo scp -r /var/TKLC/db/filemgmt/TKLCConfigData.&lt;Failed_NOAM_Hostname&gt;.sh admusr@&lt;Failed_NOAM_xmi_IP_address&gt;:/var/tmp/TKLCConfigData.sh</pre>

STEP #	Procedure	Description
<p>10</p> <p><input type="checkbox"/></p>	<p><b>Recovered NOAM Server:</b> Verify configuration was called and Reboot the Server</p>	<p>Establish an SSH session to the Recovered NOAM server (Recovered_NOAM_xmi_IP_address)</p> <p>Login as the <i>admusr</i> user.</p> <p>The automatic configuration daemon will look for the file named “<i>TKLCConfigData.sh</i>” in the /var/tmp directory, implement the configuration in the file, and then prompt the user to reboot the server.</p> <p>Verify awpushcfg was called by checking the following file</p> <pre data-bbox="521 579 1443 772" style="border: 1px solid black; padding: 5px;"> \$ sudo cat /var/TKLC/appw/logs/Process/install.log  Verify the following message is displayed:  [SUCCESS] script completed successfully!                     </pre> <p>Now Reboot the Server:</p> <pre data-bbox="521 863 1443 905" style="border: 1px solid black; padding: 5px;"> \$ sudo init 6                     </pre> <p>Wait for the server to reboot</p>
<p>11</p> <p><input type="checkbox"/></p>	<p><b>Recovered NOAM Server:</b> Verify Server Health</p>	<p>Execute the following command on the failed NOAM server and make sure that no errors are returned:</p> <pre data-bbox="521 1073 1443 1339" style="border: 1px solid black; padding: 5px;"> \$ sudo syscheck Running modules in class hardware...OK Running modules in class disk...OK Running modules in class net...OK Running modules in class system...OK Running modules in class proc...OK LOG LOCATION: /var/TKLC/log/syscheck/fail_log                     </pre>
<p>12</p> <p><input type="checkbox"/></p>	<p><b>Repeat for Additional 2<sup>nd</sup> Failed NOAM</b></p>	<p>Repeat steps 8-11 for the 2<sup>nd</sup> failed NOAM server.</p>

STEP #	Procedure	Description
<p>13</p> <p><input type="checkbox"/></p>	<p><b>Perform Key exchange between Active NOAM and Recovered NOAMs</b></p>	<p>Perform a keyexchange between the newly active NOAM and the recovered NOAM servers:</p> <p>From a terminal window connection on the active NOAM as the <b>admusr</b> user, exchange SSH keys for <b>admusr</b> between the active NOAM and the recovered NOAM servers using the keyexchange utility, using the host names of the recovered NOAMs.</p> <p>When prompted for the password, enter the password for the <b>admusr</b> user of the recovered NOAM servers.</p> <pre style="border: 1px solid black; padding: 5px;">\$ keyexchange admusr@&lt;Recovered_NOAM Hostname&gt;</pre>
<p>14</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Set HA on Recovered NOAMs</b></p>	<p>Navigate to <b>Status &amp; Manage -&gt; HA</b></p>  <p>Click on <b>Edit</b> at the bottom of the screen</p> <p>For each NOAM server whose Max Allowed HA Role is set to Standby, set it to <b>Active</b></p> <p>Press <b>OK</b></p>
<p>15</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI: Restart DSR application</b></p>	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Server,</b></p>  <p>Select each recovered NOAM server and click on <b>Restart</b>.</p> 

STEP #	Procedure	Description
<p>16</p> <p><input type="checkbox"/></p>	<p><b>Recovered NOAM servers:</b> Activate Optional Features</p>	<p align="center"><b>Map-Diameter Interworking (MAP-IWF) and/or Policy and Charging Application (PCA) Only</b></p> <p>Activate the features Map-Diameter Interworking (MAP-IWF) and Policy and Charging Application (PCA) as follows:</p> <p>For <b>PCA</b>:</p> <ol style="list-style-type: none"> <li>1. Establish SSH sessions to the all the recovered NOAM servers and login as admusr. Refer [3] and execute procedure “PCA Activation on Standby NOAM server” on all recovered NOAM Servers to re-activate PCA.</li> </ol> <p>Establish SSH session to the recovered active NOAM, login as <b>admusr</b>.</p> <p>For <b>MAP-IWF</b>:</p> <ol style="list-style-type: none"> <li>1. Establish SSH session to the recovered active NOAM, login as <b>admusr</b>. Refer [4] to activate Map-Diameter Interworking (MAP-IWF)</li> </ol> <p><b>Note:</b> While running the activation script, the following error message (and corresponding messages) output may be seen, this can safely be ignored:</p> <pre>iload#31000{S/W Fault}</pre> <p><b>Note:</b> If any of the MPs are failed and recovered, then these MP servers should be restarted after Activation of the feature.</p>
<p>17</p> <p><input type="checkbox"/></p>	<p><b>Switch DR NOAM Back to Secondary</b></p>	<p>Once the system have been recovered:</p> <p>Refer to DSR / SDS NOAM Failover User's Guide [2]</p>

STEP #	Procedure	Description
<p>18</p>	<p><b>NOAM VIP GUI:</b> Perform Keyexchange with Export Server</p>	<p>Navigate to <b>Main Menu -&gt; Administration -&gt; Remote Servers -&gt; Data Export</b></p>  <p>Click on <b>Key Exchange</b> at the bottom of the screen</p> <p>Enter the Password and press <b>OK</b></p> 
<p>19</p> <p><input type="checkbox"/></p>	<p><b>Recovered Servers:</b> Verify Alarms</p>	<p>Navigate to <b>Main Menu -&gt; Alarms &amp; Events -&gt; View Active</b></p>  <p>Verify the recovered servers are not contributing to any active alarms (Replication, Topology misconfiguration, database impairments, NTP, etc.)</p>
<p>20</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Recover Standby/Spare SOAM and C-Level Servers</p>	<p>If necessary, refer to Procedure 3 to recover any standby or Spare SOAMs as well as any C-Level servers.</p>

## 5.1.6 Recovery Scenario 6 (Database Recovery)

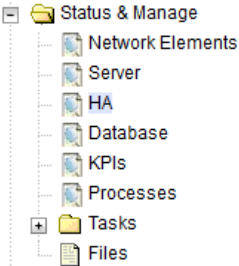
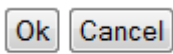
### 5.1.6.1 Recovery Scenario 6: Case 1

For a partial outage with

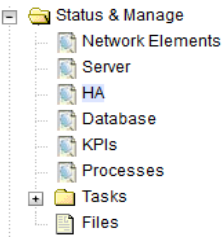
- Server having a corrupted database
- Replication channel from parent is inhibited because of upgrade activity or
- Server is in a different release then that of its Active parent because of upgrade activity.
- Verify that the Server Runtime backup files, performed at the start of the upgrade, are present in /var/TKLC/db/filemgmt area in the following format
  - Backup.DSR.HPC02-NO2.FullDBParts.NETWORK\_OAMP.20140524\_223507.UPG.tar.bz2
  - Backup.DSR.HPC02-NO2.FullRunEnv.NETWORK\_OAMP.20140524\_223507.UPG.tar.bz2

**Note:** During recovery, the corrupted Database will get replaced by the sever Runtime backup. Any configuration done after taking the backup will not be visible post recovery.

**Procedure 10. Recovery Scenario 6 (Case 1)**

STEP #	Procedure	Description
<p>This procedure performs recovery if database is corrupted in the system</p> <p>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.</p> <p>If this procedure fails, contact My Oracle Support (MOS), and ask for assistance.</p>		
1. <input type="checkbox"/>	<b>Workarounds</b>	Refer to <b>Workarounds</b> for Issues not fixed in this Release to understand/apply any workarounds required during this procedure.
2. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Set Failed Servers to OOS	<p>Navigate to <b>Main Menu -&gt; Status &amp; Manage -&gt; HA</b></p>  <p>Select <b>Edit</b></p> <p>Set the Max Allowed HA Role drop down box to <b>OOS</b> for the failed servers.</p> <p>Select <b>Ok</b></p> 
3. <input type="checkbox"/>	<b>Server in Question:</b> Login	Establish an SSH session to the server in question. Login as admusr user.
4. <input type="checkbox"/>	<b>Server in Question:</b> Change runlevel to 3	<p>Execute the following command to bring the system to runlevel 3:</p> <pre style="border: 1px solid black; padding: 2px;">\$ sudo init 3</pre>



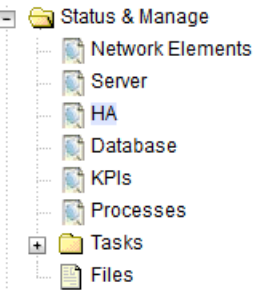
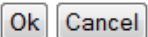
STEP #	Procedure	Description
5. <input type="checkbox"/>	<b>Server in Question:</b> Recover System	Execute the following command and follow the instructions appearing the console prompt:  <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">\$ sudo /usr/TKLC/appworks/sbin/backout_restore</div>
6. <input type="checkbox"/>	<b>Server in Question:</b> Change runlevel to 4	Execute the following command to bring the system back to runlevel 4:  <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">\$ sudo init 6</div>
7. <input type="checkbox"/>	<b>Server in Question:</b> Verify the server	Execute the following command to verify if the processes are up and running:  <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">\$ sudo pm.getprocs</div>
8. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Set Failed Servers to Active	<p>Navigate to <b>Status &amp; Manage -&gt; HA</b></p>  <p>Click on <b>Edit</b> at the bottom of the screen</p> <p>For each failed server whose Max Allowed HA Role is set to OOS, set it to <b>Active</b></p> <p>Press <b>OK</b></p>
9. <input type="checkbox"/>	<b>Backup and Archive All the Databases from the Recovered System</b>	Execute <b>DSR Database Backup</b> to back up the Configuration databases:

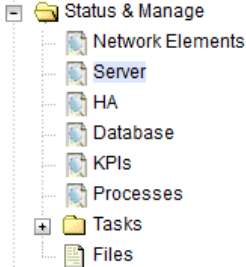
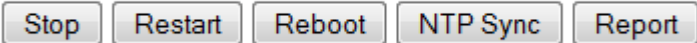
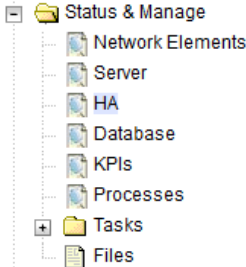
**5.1.6.2 Recovery Scenario 6: Case 2**

For a partial outage with

- Server having a corrupted database
- Replication channel is not inhibited or
- Server has the same release as that of its Active parent

**Procedure 11. Recovery Scenario 6 (Case 2)**

STEP #	Procedure	Description
<p>This procedure performs recovery if database got corrupted in the system and system is in the state to get replicated</p> <p>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.</p> <p>If this procedure fails, contact My Oracle Support (MOS), and ask for assistance.</p>		
1. <input type="checkbox"/>	<b>Workarounds</b>	Refer to <b>Release to</b> understand/apply any workarounds required during this procedure.
2. <input type="checkbox"/>	<b>NOAM VIP GUI:</b> Set Failed Servers to OOS	<p>Navigate to <b>Main Menu -&gt; Status &amp; Manage -&gt; HA</b></p>  <p>Select <b>Edit</b></p> <p>Set the Max Allowed HA Role drop down box to <b>OOS</b> for the failed servers.</p> <p>Select <b>Ok</b></p> 
3. <input type="checkbox"/>	<b>Server in Question:</b> Login	Establish an SSH session to the server in question. Login as admusr user.
4. <input type="checkbox"/>	<b>Server in Question:</b> Take Server out of Service	<p>Execute the following command to take the server out of service.</p> <pre data-bbox="505 1436 1279 1499">\$ sudo bash -l \$ sudo prod.clobber</pre>
5. <input type="checkbox"/>	<b>Server in Question:</b> Take Server to DbUp State and Start the Application	<p>Execute the following commands to take the server to Dbup and start the DSR application:</p> <pre data-bbox="505 1591 1279 1654">\$ sudo bash -l \$ sudo prod.start</pre>

STEP #	Procedure	Description
<p>6.</p> <p><input type="checkbox"/></p>	<p><b>Server in Question:</b> Verify the Server State</p>	<p>Execute the following commands to verify the processes are up and running:</p> <pre style="border: 1px solid black; padding: 2px;">\$ sudo pm.getprocs</pre> <p>Execute the following command to verify if replication channels are up and running:</p> <pre style="border: 1px solid black; padding: 2px;">\$ sudo irepstat</pre> <p>Execute the following command to verify if merging channels are up and running:</p> <pre style="border: 1px solid black; padding: 2px;">\$ sudo inetmstat</pre>
<p>7.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Restart DSR application</p>	<p>Navigate to <b>Main Menu-&gt;Status &amp; Manage-&gt;Server,</b></p>  <p>Select each recovered server and click on <b>Restart.</b></p> 
<p>8.</p> <p><input type="checkbox"/></p>	<p><b>NOAM VIP GUI:</b> Set Failed Servers to Active</p>	<p>Navigate to <b>Status &amp; Manage -&gt; HA</b></p>  <p>Click on <b>Edit</b> at the bottom of the screen</p> <p>For each failed server whose Max Allowed HA Role is set to OOS, set it to <b>Active</b></p> <p>Press <b>OK</b></p>

STEP #	Procedure	Description
9. <input type="checkbox"/>	<b>Backup and Archive All the Databases from the Recovered System</b>	Execute <b>DSR Database Backup</b> to back up the Configuration databases:

## 6.0 Resolving User Credential Issues after Database Restore

User incompatibilities may introduce security holes or prevent access to the network by administrators. User incompatibilities are not dangerous to the database, however. Review each user difference carefully to ensure that the restoration will not impact security or accessibility.


### 6.1 Restoring a Deleted User

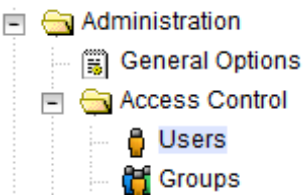
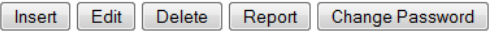
<p>- User 'testuser' exists in the selected backup file but not in the current database.</p>
--

These users were removed prior to creation of the backup and archive file. They will be reintroduced by system restoration of that file.

## 6.2 Keeping a Restored user


### Procedure 12. Keep Restored User

STEP #	Procedure	Description
<p>Perform this procedure to keep users that will be restored by system restoration.</p> <p>Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.</p> <p>If this procedure fails, contact My Oracle Support (MOS), and ask for assistance.</p>		
<p>1. <input type="checkbox"/></p>	<p><b>Before Restoration:</b> Notify Affected Users Before Restoration</p>	<p>Contact each user that is affected before the restoration and notify them that you will reset their password during this maintenance operation.</p>
<p>2. <input type="checkbox"/></p>	<p><b>After Restoration:</b> Login to the NOAM VIP</p>	<p>Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of:</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;"> <p><code>http://&lt;Primary_NOAM_VIP_IP_Address&gt;</code></p> </div> <p>Login as the <i>guiadmin</i> user:</p> 

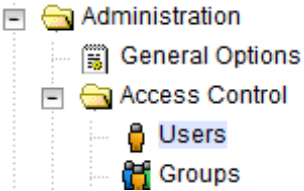
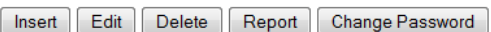
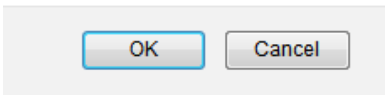
STEP #	Procedure	Description
<p>3.</p> <p><input type="checkbox"/></p>	<p><b>After Restoration:</b> Reset User Passwords</p>	<p>Navigate to <b>Administration -&gt; Access Control -&gt; Users</b></p>  <p>Select the user</p> <p>Click the <b>Change Password</b> button</p>  <p>Enter a new password</p> <div data-bbox="511 808 1015 1045" style="border: 1px solid gray; padding: 5px;"> <p>Enter the new password for <b>guiadmin</b> two times.</p> <p>New Password: <input type="text"/></p> <p>Retype New Password: <input type="text"/></p> <p><input checked="" type="checkbox"/> Force password change on next login</p> <p style="text-align: center;"><input type="button" value="Continue"/></p> </div> <p>Click the <b>Continue</b> button</p>

### 6.3 Removing a Restored User

**Procedure 13. Remove the Restored User**

STEP #	Procedure	Description
<p>Perform this procedure to remove users that will be restored by system restoration</p> <p>Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.</p> <p>If this procedure fails, contact My Oracle Support (MOS), and ask for assistance.</p>		
<p>1.</p> <p><input type="checkbox"/></p>	<p><b>After Restoration:</b> Login to the NOAM VIP</p>	<p>Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><code>http://&lt;Primary_NOAM_VIP_IP_Address&gt;</code></p> </div> <p>Login as the <i>guiadmin</i> user:</p> <div style="text-align: center;">  <p>The screenshot shows the Oracle System Login interface. At the top is the Oracle logo. Below it is the text 'Oracle System Login' and the date 'Fri Mar 20 12:29:52 2015 EDT'. A central box titled 'Log In' contains the prompt 'Enter your username and password to log in'. It has two input fields: 'Username: guiadmin' and 'Password: ●●●●●●'. There is a checkbox for 'Change password' and a 'Log In' button. Below the box, it says 'Welcome to the Oracle System Login.' and a disclaimer: 'Unauthorized access is prohibited. This Oracle system requires the use of Microsoft Internet Explorer 8.0, 9.0, or 10.0 with support for JavaScript and cookies.' At the bottom, it states 'Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.'</p> </div>



STEP #	Procedure	Description
<p>2.</p> <p><input type="checkbox"/></p>	<p><b>After Restoration: Delete user</b></p>	<p>Navigate to <b>Administration -&gt; Access Control -&gt; Users</b></p>  <p>Select the user</p> <p>Click the <b>Delete</b> button</p>  <p>Delete selected users?</p>  <p>Click the <b>OK</b> button to confirm.</p>

## 6.4 Restoring a Modified User

These users have had a password change prior to creation of the backup and archive file. They will be reverted by system restoration of that file.

- The password for user 'testuser' differs between the selected backup file and the current database.

### Before Restoration:

Verify that you have access to a user with administrator permissions that is not affected.

Contact each user that is affected and notify them that you will reset their password during this maintenance operation.

### After Restoration:

Log in and reset the passwords for all users in this category. See the steps in **My Oracle Support (MOS)** for resetting passwords for a user.

## 6.5 Restoring an Archive that does not contain a Current User


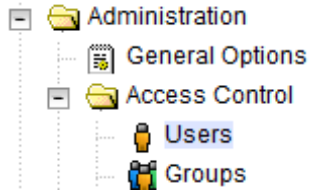
These users have been created after the creation of the backup and archive file. They will be deleted by system restoration of that file.


- User 'testuser' exists in current database but not in the selected backup file.

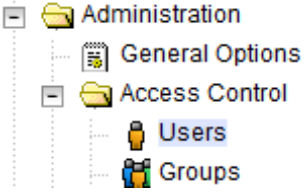
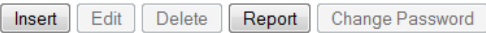
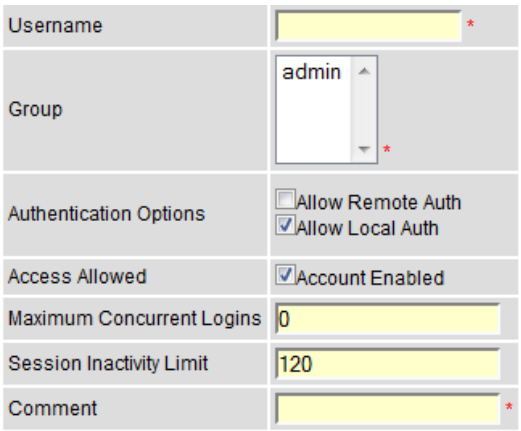

If the user is no longer desired, do not perform any additional steps. The user is permanently removed.

### Procedure 14. Restoring an Archive that does not Contain a Current User

STEP #	Procedure	Description
Perform this procedure to remove users that will be restored by system restoration  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.  <input type="checkbox"/>	<b>Before Restoration</b> : Notify Affected Users Before Restoration	Contact each user that is affected before the restoration and notify them that you will reset their password during this maintenance operation.

STEP #	Procedure	Description
<p>2.</p> <p><input type="checkbox"/></p>	<p><b>Before Restoration</b> : Login to the NOAM VIP</p>	<p>Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of:</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px 0;"> <p><code>http://&lt;Primary_NOAM_VIP_IP_Address&gt;</code></p> </div> <p>Login as the <i>guiadmin</i> user:</p> 
<p>3.</p> <p><input type="checkbox"/></p>	<p><b>Before Restoration</b> : Record user settings</p>	<p>Navigate to <b>Administration -&gt; Access Control -&gt; Users</b></p>  <p>Under each affected user, record the following:</p> <ul style="list-style-type: none"> <li>• Username,</li> <li>• Account status</li> <li>• Remote Auth</li> <li>• Local Auth</li> <li>• Concurrent Logins Allowed</li> <li>• Inactivity Limit</li> <li>• Comment</li> <li>• Groups</li> </ul>

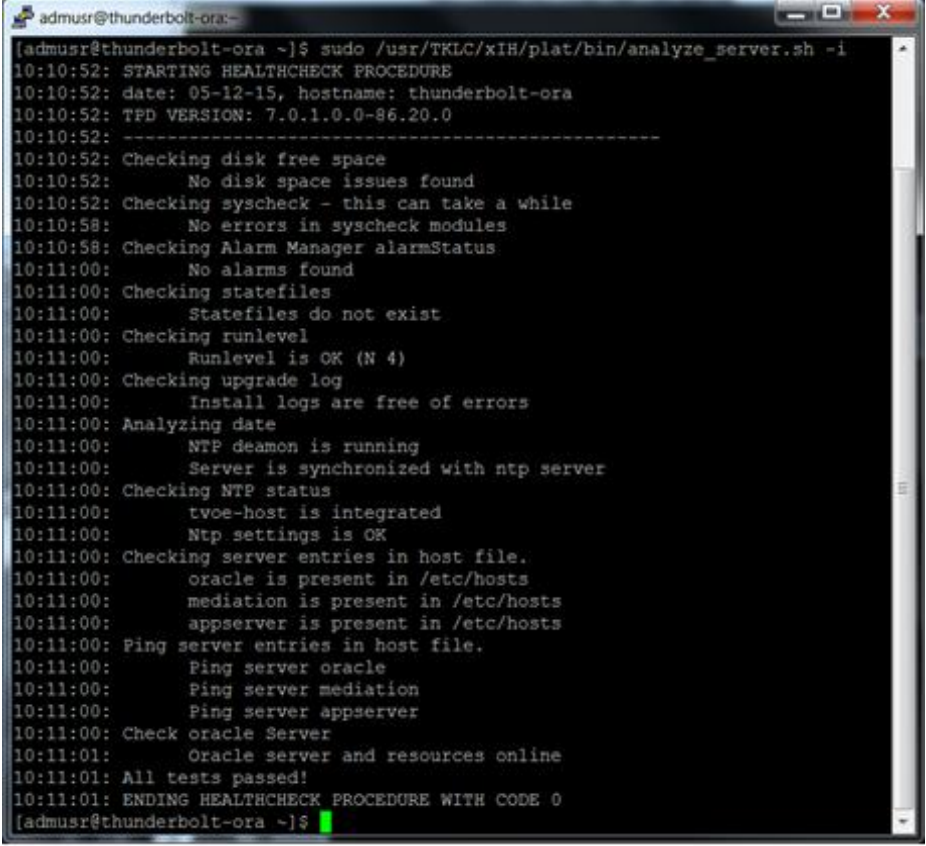
STEP #	Procedure	Description
4. <input type="checkbox"/>	<b>After Restoration</b> : Login	Establish a GUI session on the NOAM server by using the VIP IP address of the NOAM server. Open the web browser and enter a URL of: <div style="border: 1px solid black; padding: 5px; margin: 10px 0;">                         http://&lt;Primary_NOAM_VIP_IP_Address&gt;                     </div> Login as the <i>guiadmin</i> user: <div style="text-align: center; margin: 20px 0;">  <p>The screenshot shows the Oracle System Login interface. At the top is the Oracle logo. Below it is the title 'Oracle System Login' and the date 'Fri Mar 20 12:29:52 2015 EDT'. A central box titled 'Log In' contains the instruction 'Enter your username and password to log in'. It has two input fields: 'Username: guiadmin' and 'Password: [masked]'. There is a 'Change password' checkbox and a 'Log In' button. Below the box, it says 'Welcome to the Oracle System Login.' and a disclaimer: 'Unauthorized access is prohibited. This Oracle system requires the use of Microsoft Internet Explorer 8.0, 9.0, or 10.0 with support for JavaScript and cookies.' At the bottom, it states 'Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.'</p> </div>

STEP #	Procedure	Description
<p>5. <input type="checkbox"/></p>	<p><b>After Restoration</b> : Recreate affected user and required group</p>	<p>Navigate to <b>Administration -&gt; Access Control -&gt; Users</b></p>  <p>Click <b>Insert</b></p>  <p>Recreate the user using the data collected in <b>Step 4</b>.</p>  <p>Click <b>Ok</b></p> 
<p>6. <input type="checkbox"/></p>	<p><b>After Restoration</b> : Repeat for Additional Users</p>	<p>Repeat <b>Step 5</b> to recreate additional users and groups.</p>
<p>7. <input type="checkbox"/></p>	<p><b>After Restoration</b> : Reset the Passwords</p>	<p>See 6.2 Keeping a Restored user for resetting passwords for a user.</p>

## 7.0 IDIH Disaster Recovery

### Procedure 15. IDIH Disaster Recovery Preparation

STEP #	Procedure	Description
<p>This procedure performs disaster recovery preparation steps for the IDIH.</p> <p>Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.</p> <p>If this procedure fails, contact My Oracle Support (MOS), and ask for assistance.</p>		
<p>1.</p> <p><input type="checkbox"/></p>	<p><b>Oracle Guest:</b> Login</p>	<p>Establish an SSH session to the Oracle guest, login as <i>admusr</i>.</p>

STEP #	Procedure	Description
<p>2.</p> <p>☐</p>	<p><b>Oracle Guest:</b></p> <p>Perform Database Health check</p>	<p>Execute the following command to perform a database health check:</p> <pre data-bbox="509 296 1341 327">\$ sudo /usr/TKLC/xIH/plat/bin/analyze_server.sh -i</pre> <p>Output:</p>  <pre data-bbox="505 422 1425 1262"> [admusr@thunderbolt-ora ~]\$ sudo /usr/TKLC/xIH/plat/bin/analyze_server.sh -i 10:10:52: STARTING HEALTHCHECK PROCEDURE 10:10:52: date: 05-12-15, hostname: thunderbolt-ora 10:10:52: TPD VERSION: 7.0.1.0.0-86.20.0 10:10:52: ----- 10:10:52: Checking disk free space 10:10:52:      No disk space issues found 10:10:52: Checking syscheck - this can take a while 10:10:58:      No errors in syscheck modules 10:10:58: Checking Alarm Manager alarmStatus 10:11:00:      No alarms found 10:11:00: Checking statefiles 10:11:00:      Statefiles do not exist 10:11:00: Checking runlevel 10:11:00:      Runlevel is OK (N 4) 10:11:00: Checking upgrade log 10:11:00:      Install logs are free of errors 10:11:00: Analyzing date 10:11:00:      NTP deamon is running 10:11:00:      Server is synchronized with ntp server 10:11:00: Checking NTP status 10:11:00:      tvoe-host is integrated 10:11:00:      Ntp settings is OK 10:11:00: Checking server entries in host file. 10:11:00:      oracle is present in /etc/hosts 10:11:00:      mediation is present in /etc/hosts 10:11:00:      appserver is present in /etc/hosts 10:11:00: Ping server entries in host file. 10:11:00:      Ping server oracle 10:11:00:      Ping server mediation 10:11:00:      Ping server appserver 10:11:00: Check oracle Server 10:11:01:      Oracle server and resources online 10:11:01: All tests passed! 10:11:01: ENDING HEALTHCHECK PROCEDURE WITH CODE 0 [admusr@thunderbolt-ora ~]\$                     </pre> <p><b>NOTE:</b> If this step fails, a re-installation is necessary by following procedure from reference [1]:</p> <p>For VMware based deployments:</p> <p>Section 5.6 (Procedure 34) : Create iDIH Virtual Machines (VMWare)  Section 5.9 (Procedure 37 – 40) : Configure iDIH Virtual Machines</p> <p>For KVM/Openstack based deployments:</p> <p>Section 5.7 (Procedure 35) : Create iDIH Virtual Machines (KVM/Openstack)  Section 5.9 (Procedure 37 – 40) : Configure iDIH Virtual Machines</p> <p>For OVM-S/OVM-M based deployments:</p> <p>Section 5.8 (Procedure 36): (OVM-S/OVM-M). Import three IDIH OVA's and create and configure a VM for each  Section 5.9 (Procedure 37 – 40) : Configure iDIH Virtual Machines</p>




STEP #	Procedure	Description
--------	-----------	-------------

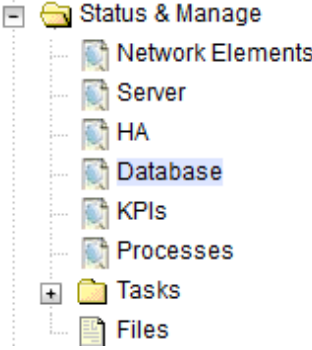
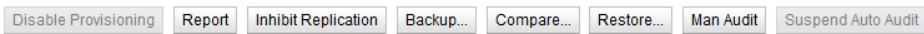
**Procedure 16. IDIH Disaster Recovery (Re-Install Mediation and Application Servers)**

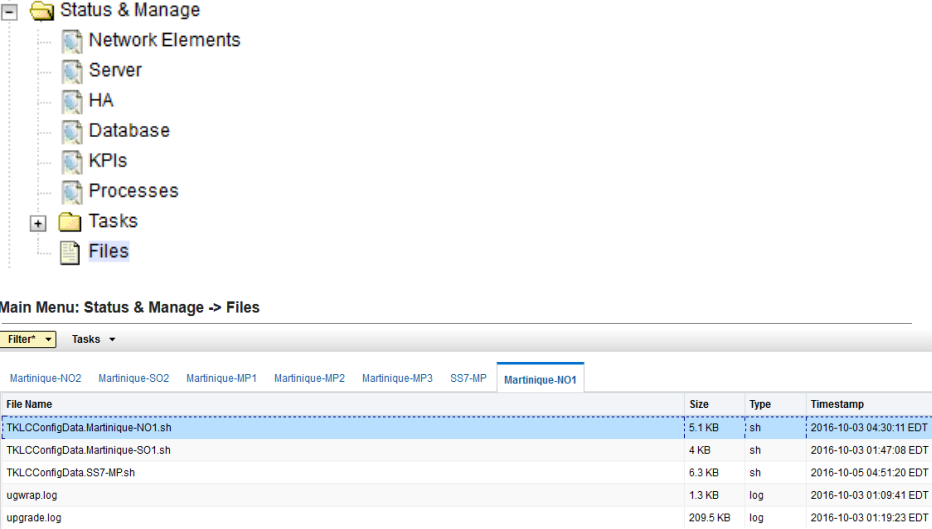
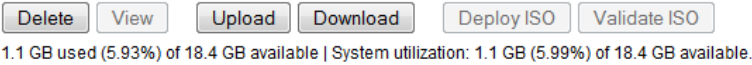
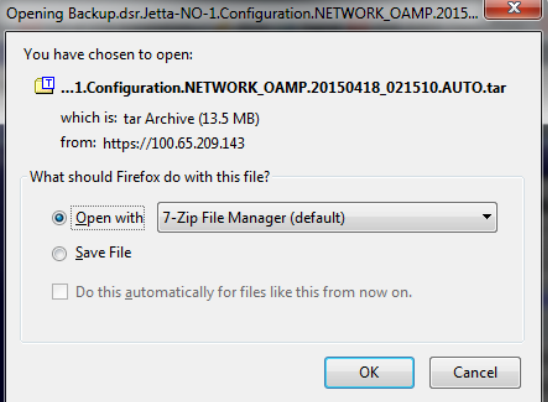
STEP #	Procedure	Description
<p>This procedure performs disaster recovery for the IDIH by re-installing the mediation and application servers.</p> <p>Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.</p> <p>If this procedure fails, contact My Oracle Support (MOS), and ask for assistance.</p>		
1. <input type="checkbox"/>	<b>Create iDIH Application &amp; Mediation VMs</b>	<p>Execute the following procedure from [1] to recover the Application and Mediation VMs:</p> <p>For VMWare based deployments: Procedure 34 "(VMware only) Create iDIH Oracle, Mediation and Application VMs"</p> <p>For KVM / Openstack based deployments: Procedure 35. (KVM/OpenStack only ) Create iDIH Oracle, Mediation and Application VMs (Optional)</p> <p>For OVM-S / OVM-M based deployments: Procedure 36. (OVM-S/OVM-M). Import three IDIH OVA's and create and configure a VM for each</p>
2. <input type="checkbox"/>	<b>Configure iDIH VM Networks</b>	<p>Execute the following procedure from [1] to configure the VM networks on the Application and Mediation VMs only:</p> <p>Procedure 37 "Configure iDIH VM Networks"</p>
3. <input type="checkbox"/>	<b>Configure VMs</b>	<p>Execute the following procedure from [1]:</p> <p>Procedure 38 "Run Post Installation scripts on iDIH VMs", steps 3 - 7</p>
4. <input type="checkbox"/>	<b>Integrate into DSR (Optional)</b>	<p>If integration is needed execute the following procedure from [1]:</p> <p>Procedure 41 Integrate iDIH into DSR</p>

## Appendix A. DSR Database Backup

### Procedure 17. Back up the provision and configuration data

STEP #	Procedure	Description
<p>The intent of this procedure is to back up the provision and configuration information from an NOAM or SOAM server after the disaster recovery is complete</p> <p>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.</p> <p>If this procedure fails, contact My Oracle Support (MOS), and ask for assistance.</p>		
<p>1.</p> <p><input type="checkbox"/></p>	<p><b>NOAM/SOAM VIP: Login</b></p>	<p>Establish a GUI session on the NOAM or SOAM server by using the VIP IP address of the NOAM or SOAM server.</p> <p>Open the web browser and enter a URL of:</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;"> <p><code>http://&lt;Primary_NOAM/SOAM_VIP_IP_Address&gt;</code></p> </div> <p>Login as the <i>guiadmin</i> user:</p> 

STEP #	Procedure	Description																		
<p>2.</p> <p><input type="checkbox"/></p>	<p><b>NOAM/SO AM VIP:</b> Backup Configuration on Data for the System</p>	<p>Navigate to <b>Main Menu -&gt; Status &amp; Manage -&gt; Database</b></p>  <p>Select the Active NOAM Server and Click on <b>Backup</b> button</p>  <p>Make sure that the checkboxes next to "Configuration" is checked.</p> <p><b>Database Backup</b></p> <table border="1" data-bbox="511 892 1437 1249"> <thead> <tr> <th>Field</th> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td colspan="3">Server: Martinique-NO1</td> </tr> <tr> <td>Select data for backup</td> <td><input type="checkbox"/> Provisioning <input checked="" type="checkbox"/> Configuration</td> <td>Select the type of Backup to perform.</td> </tr> <tr> <td>Compression *</td> <td><input type="radio"/> gzip <input checked="" type="radio"/> bzip2 <input type="radio"/> none</td> <td>Select the backup archive compression algorithm. The following file suffix will be applied for the selected option:  <ul style="list-style-type: none"> <li>tar.gz - gzip compression,</li> <li>tar.bz2 - bzip2 compression,</li> <li>tar - no compression.</li> </ul>                     [A value is required.]                 </td> </tr> <tr> <td>Archive Name *</td> <td>Backup.dsr.Martinique-NO1.Configuration.NETWORK_OAMP.20161006_0640</td> <td>Modify archive name if desired. Do not include the compression type suffix. [A value is required.]</td> </tr> <tr> <td>Comment</td> <td><input type="text"/></td> <td>May not contain the following characters: '* \$</td> </tr> </tbody> </table> <p>Ok Cancel</p> <p>Enter a filename for the backup and press <b>OK</b></p>	Field	Value	Description	Server: Martinique-NO1			Select data for backup	<input type="checkbox"/> Provisioning <input checked="" type="checkbox"/> Configuration	Select the type of Backup to perform.	Compression *	<input type="radio"/> gzip <input checked="" type="radio"/> bzip2 <input type="radio"/> none	Select the backup archive compression algorithm. The following file suffix will be applied for the selected option: <ul style="list-style-type: none"> <li>tar.gz - gzip compression,</li> <li>tar.bz2 - bzip2 compression,</li> <li>tar - no compression.</li> </ul> [A value is required.]	Archive Name *	Backup.dsr.Martinique-NO1.Configuration.NETWORK_OAMP.20161006_0640	Modify archive name if desired. Do not include the compression type suffix. [A value is required.]	Comment	<input type="text"/>	May not contain the following characters: '* \$
Field	Value	Description																		
Server: Martinique-NO1																				
Select data for backup	<input type="checkbox"/> Provisioning <input checked="" type="checkbox"/> Configuration	Select the type of Backup to perform.																		
Compression *	<input type="radio"/> gzip <input checked="" type="radio"/> bzip2 <input type="radio"/> none	Select the backup archive compression algorithm. The following file suffix will be applied for the selected option: <ul style="list-style-type: none"> <li>tar.gz - gzip compression,</li> <li>tar.bz2 - bzip2 compression,</li> <li>tar - no compression.</li> </ul> [A value is required.]																		
Archive Name *	Backup.dsr.Martinique-NO1.Configuration.NETWORK_OAMP.20161006_0640	Modify archive name if desired. Do not include the compression type suffix. [A value is required.]																		
Comment	<input type="text"/>	May not contain the following characters: '* \$																		

STEP #	Procedure	Description																								
<p>3.</p> <p><input type="checkbox"/></p>	<p><b>NOAM/SOAM VIP:</b> Verify the backup file existence.</p>	<p>Navigate to <b>Main Menu -&gt; Status &amp; Manage -&gt; Files</b></p>  <p>Main Menu: Status &amp; Manage -&gt; Files</p> <table border="1" data-bbox="511 693 1437 829"> <thead> <tr> <th>File Name</th> <th>Size</th> <th>Type</th> <th>Timestamp</th> </tr> </thead> <tbody> <tr> <td>TKLCConfigData.Martinique-NO1.sh</td> <td>5.1 KB</td> <td>sh</td> <td>2016-10-03 04:30:11 EDT</td> </tr> <tr> <td>TKLCConfigData.Martinique-SO1.sh</td> <td>4 KB</td> <td>sh</td> <td>2016-10-03 01:47:08 EDT</td> </tr> <tr> <td>TKLCConfigData.SS7-MP.sh</td> <td>6.3 KB</td> <td>sh</td> <td>2016-10-05 04:51:20 EDT</td> </tr> <tr> <td>ugwrap.log</td> <td>1.3 KB</td> <td>log</td> <td>2016-10-03 01:09:41 EDT</td> </tr> <tr> <td>upgrade.log</td> <td>209.5 KB</td> <td>log</td> <td>2016-10-03 01:19:23 EDT</td> </tr> </tbody> </table> <p>Select the Active NOAM or SOAM tab.</p> <p>The files on this server will be displayed. Verify the existence of the backup file.</p>	File Name	Size	Type	Timestamp	TKLCConfigData.Martinique-NO1.sh	5.1 KB	sh	2016-10-03 04:30:11 EDT	TKLCConfigData.Martinique-SO1.sh	4 KB	sh	2016-10-03 01:47:08 EDT	TKLCConfigData.SS7-MP.sh	6.3 KB	sh	2016-10-05 04:51:20 EDT	ugwrap.log	1.3 KB	log	2016-10-03 01:09:41 EDT	upgrade.log	209.5 KB	log	2016-10-03 01:19:23 EDT
File Name	Size	Type	Timestamp																							
TKLCConfigData.Martinique-NO1.sh	5.1 KB	sh	2016-10-03 04:30:11 EDT																							
TKLCConfigData.Martinique-SO1.sh	4 KB	sh	2016-10-03 01:47:08 EDT																							
TKLCConfigData.SS7-MP.sh	6.3 KB	sh	2016-10-05 04:51:20 EDT																							
ugwrap.log	1.3 KB	log	2016-10-03 01:09:41 EDT																							
upgrade.log	209.5 KB	log	2016-10-03 01:19:23 EDT																							
<p>4.</p> <p><input type="checkbox"/></p>	<p><b>NOAM/SOAM VIP:</b> Download the file to a local machine.</p>	<p>From the previous step, choose the backup file.</p> <p>Select the <b>Download</b> button</p>  <p>Select <b>OK</b> to confirm the download.</p> 																								
<p>5.</p> <p><input type="checkbox"/></p>	<p><b>Upload the Image to Secure Location</b></p>	<p>Transfer the backed up image saved in the previous step to a secure location where the Server Backup files are fetched in case of system disaster recovery.</p>																								
<p>6.</p> <p><input type="checkbox"/></p>	<p><b>Backup Active SOAM</b></p>	<p>Repeat <b>Steps 2 through 5</b> to back up the Active SOAM</p>																								



## Appendix B. Inhibit A and B Level Replication on C-Level Servers

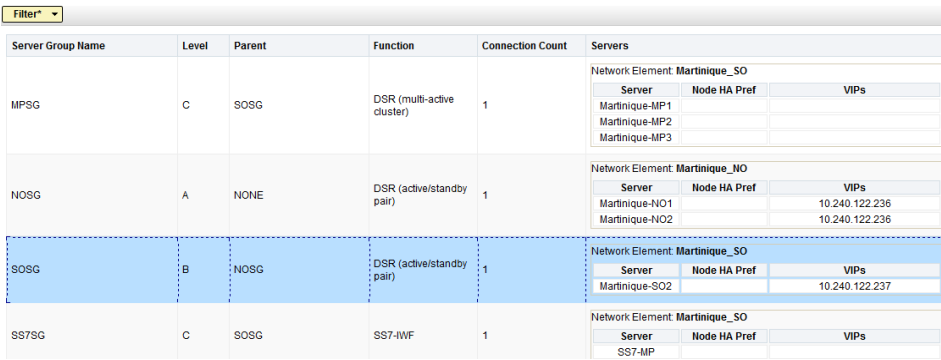
### Procedure 18. Inhibit A and B Level Replication on C-Level Servers

STEP #	Procedure	Description																																																															
<p>The intent of this procedure is to inhibit A and B level replication on all C Level servers of this site                      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.</p>																																																																	
1. <input type="checkbox"/>	<b>Active NOAM:</b> Login	Login to the Active NOAM server via SSH as <i>admusr</i> user.																																																															
2. <input type="checkbox"/>	<b>Active NOAM:</b> Inhibit replication on all C level Servers	<p>Execute the following command:</p> <pre style="border: 1px solid black; padding: 5px;">\$ for i in \$(iqt -p -z -h -fhostName NodeInfo where "nodeId like 'C*' and siteId='&lt;NE name of the site&gt;'); do iset -finhibitRepPlans='A B' NodeInfo where "nodeName='\$i'; done</pre> <p><b>Note:</b> NE name of the site can be found out by logging into the Active NOAM GUI and going to <b>Configuration-&gt;Server Groups</b> screen.</p> <p>Please see the snapshot below for more details.</p> <p>Main Menu: Configuration -&gt; Server Groups</p> <table border="1"> <thead> <tr> <th>Server Group Name</th> <th>Level</th> <th>Parent</th> <th>Function</th> <th>Connection Count</th> <th>Servers</th> </tr> </thead> <tbody> <tr> <td>MPSG</td> <td>C</td> <td>SOSG</td> <td>DSR (multi-active cluster)</td> <td>1</td> <td>                     Network Element: Martinique_SO  <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>Martinique-MP1</td> <td></td> <td></td> </tr> <tr> <td>Martinique-MP2</td> <td></td> <td></td> </tr> <tr> <td>Martinique-MP3</td> <td></td> <td></td> </tr> </tbody> </table> </td> </tr> <tr> <td>NOSG</td> <td>A</td> <td>NONE</td> <td>DSR (active/standby pair)</td> <td>1</td> <td>                     Network Element: Martinique_NO  <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>Martinique-NO1</td> <td></td> <td>10.240.122.236</td> </tr> <tr> <td>Martinique-NO2</td> <td></td> <td>10.240.122.236</td> </tr> </tbody> </table> </td> </tr> <tr style="background-color: #e0f0ff;"> <td>SOSG</td> <td>B</td> <td>NOSG</td> <td>DSR (active/standby pair)</td> <td>1</td> <td>                     Network Element: Martinique_SO  <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>Martinique-SO2</td> <td></td> <td>10.240.122.237</td> </tr> </tbody> </table> </td> </tr> <tr> <td>SS7SG</td> <td>C</td> <td>SOSG</td> <td>SS7-1WF</td> <td>1</td> <td>                     Network Element: Martinique_SO  <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>SS7-1IP</td> <td></td> <td></td> </tr> </tbody> </table> </td> </tr> </tbody> </table>	Server Group Name	Level	Parent	Function	Connection Count	Servers	MPSG	C	SOSG	DSR (multi-active cluster)	1	Network Element: Martinique_SO <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>Martinique-MP1</td> <td></td> <td></td> </tr> <tr> <td>Martinique-MP2</td> <td></td> <td></td> </tr> <tr> <td>Martinique-MP3</td> <td></td> <td></td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	Martinique-MP1			Martinique-MP2			Martinique-MP3			NOSG	A	NONE	DSR (active/standby pair)	1	Network Element: Martinique_NO <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>Martinique-NO1</td> <td></td> <td>10.240.122.236</td> </tr> <tr> <td>Martinique-NO2</td> <td></td> <td>10.240.122.236</td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	Martinique-NO1		10.240.122.236	Martinique-NO2		10.240.122.236	SOSG	B	NOSG	DSR (active/standby pair)	1	Network Element: Martinique_SO <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>Martinique-SO2</td> <td></td> <td>10.240.122.237</td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	Martinique-SO2		10.240.122.237	SS7SG	C	SOSG	SS7-1WF	1	Network Element: Martinique_SO <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>SS7-1IP</td> <td></td> <td></td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	SS7-1IP		
Server Group Name	Level	Parent	Function	Connection Count	Servers																																																												
MPSG	C	SOSG	DSR (multi-active cluster)	1	Network Element: Martinique_SO <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>Martinique-MP1</td> <td></td> <td></td> </tr> <tr> <td>Martinique-MP2</td> <td></td> <td></td> </tr> <tr> <td>Martinique-MP3</td> <td></td> <td></td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	Martinique-MP1			Martinique-MP2			Martinique-MP3																																																		
Server	Node HA Pref	VIPs																																																															
Martinique-MP1																																																																	
Martinique-MP2																																																																	
Martinique-MP3																																																																	
NOSG	A	NONE	DSR (active/standby pair)	1	Network Element: Martinique_NO <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>Martinique-NO1</td> <td></td> <td>10.240.122.236</td> </tr> <tr> <td>Martinique-NO2</td> <td></td> <td>10.240.122.236</td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	Martinique-NO1		10.240.122.236	Martinique-NO2		10.240.122.236																																																			
Server	Node HA Pref	VIPs																																																															
Martinique-NO1		10.240.122.236																																																															
Martinique-NO2		10.240.122.236																																																															
SOSG	B	NOSG	DSR (active/standby pair)	1	Network Element: Martinique_SO <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>Martinique-SO2</td> <td></td> <td>10.240.122.237</td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	Martinique-SO2		10.240.122.237																																																						
Server	Node HA Pref	VIPs																																																															
Martinique-SO2		10.240.122.237																																																															
SS7SG	C	SOSG	SS7-1WF	1	Network Element: Martinique_SO <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>SS7-1IP</td> <td></td> <td></td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	SS7-1IP																																																								
Server	Node HA Pref	VIPs																																																															
SS7-1IP																																																																	

STEP #	Procedure	Description																																				
<p>3</p> <p><input type="checkbox"/></p>	<p><b>Active NOAM:</b> Verify Replication has been Inhibited.</p>	<p>After executing above steps to inhibit replication on MP(s), no alarms on GUI would be raised informing that replication on MP is disabled.</p> <p>Verification of replication inhibition on MPs can be done by analyzing NodeInfo output. InhibitRepPlans field for all the MP servers for the selected site e.g. Site SO_HPC03 shall be set as 'A B':</p> <p>Perform the following command:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <pre>\$ sudo iqt NodeInfo</pre> </div> <p>Expected output:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>nodeId</th> <th>nodeName</th> <th>hostName</th> <th>nodeCapability</th> <th>inhibitRepPlans</th> <th>siteId</th> </tr> </thead> <tbody> <tr> <td>excludeTables</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>A1386.099</td> <td>NO1</td> <td>NO1</td> <td>Active</td> <td></td> <td>NO_HPC03</td> </tr> <tr> <td>B1754.109</td> <td>SO1</td> <td>SO1</td> <td>Active</td> <td></td> <td>SO_HPC03</td> </tr> <tr> <td>C2254.131</td> <td>MP2</td> <td>MP2</td> <td>Active</td> <td>A B</td> <td>SO_HPC03</td> </tr> <tr> <td>C2254.233</td> <td>MP1</td> <td>MP1</td> <td>Active</td> <td>A B</td> <td>SO_HPC03</td> </tr> </tbody> </table>	nodeId	nodeName	hostName	nodeCapability	inhibitRepPlans	siteId	excludeTables						A1386.099	NO1	NO1	Active		NO_HPC03	B1754.109	SO1	SO1	Active		SO_HPC03	C2254.131	MP2	MP2	Active	A B	SO_HPC03	C2254.233	MP1	MP1	Active	A B	SO_HPC03
nodeId	nodeName	hostName	nodeCapability	inhibitRepPlans	siteId																																	
excludeTables																																						
A1386.099	NO1	NO1	Active		NO_HPC03																																	
B1754.109	SO1	SO1	Active		SO_HPC03																																	
C2254.131	MP2	MP2	Active	A B	SO_HPC03																																	
C2254.233	MP1	MP1	Active	A B	SO_HPC03																																	

## Appendix C. Un-Inhibit A and B Level Replication on C-Level Servers

### Procedure 19. Un-Inhibit A and B Level Replication on C-Level Servers

STEP #	Procedure	Description																																																															
<p>The intent of this procedure is to Un-inhibit A and B level replication on all C Level servers of this site                      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.</p>																																																																	
1. <input type="checkbox"/>	<b>Active NOAM:</b> Login	Login to the Active NOAM server via SSH as <i>admusr</i> user.																																																															
2. <input type="checkbox"/>	<b>Active NOAM:</b> Un-Inhibit replication on all C level Servers	<p>Execute the following command:</p> <pre style="border: 1px solid black; padding: 5px;">\$ for i in \$(iqt -p -z -h -fhostName NodeInfo where "nodeId like 'C*' and siteId='&lt;NE name of the site&gt;'); do iset -finhibitRepPlans='' NodeInfo where "nodeName='\$i'; done</pre> <p><b>Note:</b> NE name of the site can be found out by logging into the Active NOAM GUI and going to <b>Configuration-&gt;Server Groups</b> screen.</p> <p>Please see the snapshot below for more details.</p> <p>Main Menu: Configuration -&gt; Server Groups</p>  <table border="1"> <thead> <tr> <th>Server Group Name</th> <th>Level</th> <th>Parent</th> <th>Function</th> <th>Connection Count</th> <th>Servers</th> </tr> </thead> <tbody> <tr> <td>MPSG</td> <td>C</td> <td>SOSG</td> <td>DSR (multi-active cluster)</td> <td>1</td> <td>                     Network Element: <b>Martinique_SO</b>  <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>Martinique-MP1</td> <td></td> <td></td> </tr> <tr> <td>Martinique-MP2</td> <td></td> <td></td> </tr> <tr> <td>Martinique-MP3</td> <td></td> <td></td> </tr> </tbody> </table> </td> </tr> <tr> <td>NOSG</td> <td>A</td> <td>NONE</td> <td>DSR (active/standby pair)</td> <td>1</td> <td>                     Network Element: <b>Martinique_NO</b>  <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>Martinique-NO1</td> <td></td> <td>10.240.122.236</td> </tr> <tr> <td>Martinique-NO2</td> <td></td> <td>10.240.122.236</td> </tr> </tbody> </table> </td> </tr> <tr style="background-color: #e6f2ff;"> <td>SOSG</td> <td>B</td> <td>NOSG</td> <td>DSR (active/standby pair)</td> <td>1</td> <td>                     Network Element: <b>Martinique_SO</b>  <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>Martinique-SO2</td> <td></td> <td>10.240.122.237</td> </tr> </tbody> </table> </td> </tr> <tr> <td>SS7SG</td> <td>C</td> <td>SOSG</td> <td>SS7-IPF</td> <td>1</td> <td>                     Network Element: <b>Martinique_SO</b>  <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>SS7-IPF</td> <td></td> <td></td> </tr> </tbody> </table> </td> </tr> </tbody> </table>	Server Group Name	Level	Parent	Function	Connection Count	Servers	MPSG	C	SOSG	DSR (multi-active cluster)	1	Network Element: <b>Martinique_SO</b> <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>Martinique-MP1</td> <td></td> <td></td> </tr> <tr> <td>Martinique-MP2</td> <td></td> <td></td> </tr> <tr> <td>Martinique-MP3</td> <td></td> <td></td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	Martinique-MP1			Martinique-MP2			Martinique-MP3			NOSG	A	NONE	DSR (active/standby pair)	1	Network Element: <b>Martinique_NO</b> <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>Martinique-NO1</td> <td></td> <td>10.240.122.236</td> </tr> <tr> <td>Martinique-NO2</td> <td></td> <td>10.240.122.236</td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	Martinique-NO1		10.240.122.236	Martinique-NO2		10.240.122.236	SOSG	B	NOSG	DSR (active/standby pair)	1	Network Element: <b>Martinique_SO</b> <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>Martinique-SO2</td> <td></td> <td>10.240.122.237</td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	Martinique-SO2		10.240.122.237	SS7SG	C	SOSG	SS7-IPF	1	Network Element: <b>Martinique_SO</b> <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>SS7-IPF</td> <td></td> <td></td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	SS7-IPF		
Server Group Name	Level	Parent	Function	Connection Count	Servers																																																												
MPSG	C	SOSG	DSR (multi-active cluster)	1	Network Element: <b>Martinique_SO</b> <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>Martinique-MP1</td> <td></td> <td></td> </tr> <tr> <td>Martinique-MP2</td> <td></td> <td></td> </tr> <tr> <td>Martinique-MP3</td> <td></td> <td></td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	Martinique-MP1			Martinique-MP2			Martinique-MP3																																																		
Server	Node HA Pref	VIPs																																																															
Martinique-MP1																																																																	
Martinique-MP2																																																																	
Martinique-MP3																																																																	
NOSG	A	NONE	DSR (active/standby pair)	1	Network Element: <b>Martinique_NO</b> <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>Martinique-NO1</td> <td></td> <td>10.240.122.236</td> </tr> <tr> <td>Martinique-NO2</td> <td></td> <td>10.240.122.236</td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	Martinique-NO1		10.240.122.236	Martinique-NO2		10.240.122.236																																																			
Server	Node HA Pref	VIPs																																																															
Martinique-NO1		10.240.122.236																																																															
Martinique-NO2		10.240.122.236																																																															
SOSG	B	NOSG	DSR (active/standby pair)	1	Network Element: <b>Martinique_SO</b> <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>Martinique-SO2</td> <td></td> <td>10.240.122.237</td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	Martinique-SO2		10.240.122.237																																																						
Server	Node HA Pref	VIPs																																																															
Martinique-SO2		10.240.122.237																																																															
SS7SG	C	SOSG	SS7-IPF	1	Network Element: <b>Martinique_SO</b> <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>SS7-IPF</td> <td></td> <td></td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	SS7-IPF																																																								
Server	Node HA Pref	VIPs																																																															
SS7-IPF																																																																	



<p>3. <input type="checkbox"/></p>	<p><b>Active NOAM:</b> Verify Replication has been un- Inhibited.</p>	<p>After executing above steps to un-inhibit replication on MP(s), no alarms on GUI would be raised informing that replication on MP is disabled.</p> <p>Verification of replication un-inhibition on MPs can be done by analyzing NodeInfo output. InhibitRepPlans field for all the MP servers for the selected site e.g. Site SO_HPC03 shall be set as empty</p> <p>Perform the following command:</p> <pre style="border: 1px solid black; padding: 5px;">\$ sudo iqt NodeInfo</pre> <p>Expected output:</p> <table border="1" data-bbox="505 577 1445 678"> <thead> <tr> <th>nodeId</th> <th>nodeName</th> <th>hostName</th> <th>nodeCapability</th> <th>inhibitRepPlans</th> <th>siteId</th> <th>excludeTables</th> </tr> </thead> <tbody> <tr> <td>A1386.099</td> <td>NO1</td> <td>NO1</td> <td>Active</td> <td></td> <td>NO_HPC03</td> <td></td> </tr> <tr> <td>B1754.109</td> <td>SO1</td> <td>SO1</td> <td>Active</td> <td></td> <td>SO_HPC03</td> <td></td> </tr> <tr> <td>C2254.131</td> <td>MP2</td> <td>MP2</td> <td>Active</td> <td></td> <td>SO_HPC03</td> <td></td> </tr> <tr> <td>C2254.233</td> <td>MP1</td> <td>MP1</td> <td>Active</td> <td></td> <td>SO_HPC03</td> <td></td> </tr> </tbody> </table>	nodeId	nodeName	hostName	nodeCapability	inhibitRepPlans	siteId	excludeTables	A1386.099	NO1	NO1	Active		NO_HPC03		B1754.109	SO1	SO1	Active		SO_HPC03		C2254.131	MP2	MP2	Active		SO_HPC03		C2254.233	MP1	MP1	Active		SO_HPC03	
nodeId	nodeName	hostName	nodeCapability	inhibitRepPlans	siteId	excludeTables																															
A1386.099	NO1	NO1	Active		NO_HPC03																																
B1754.109	SO1	SO1	Active		SO_HPC03																																
C2254.131	MP2	MP2	Active		SO_HPC03																																
C2254.233	MP1	MP1	Active		SO_HPC03																																

## Appendix D. Inhibit A and B Level Replication on C-Level Servers (When Active, Standby and Spare SOAMs are lost)

### Procedure 20. Inhibit A and B Level Replication on C-Level Servers

STEP #	Procedure	Description
<p>The intent of this procedure is to inhibit A and B level replication on all C Level servers of this site <b>when Active, Standby and Spare SOAMs are lost</b></p> <p>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.</p> <p>If this procedure fails, contact My Oracle Support (MOS)</p>		
<p>1.</p> <p><input type="checkbox"/></p>	<p><b>Active NOAM:</b> Login</p>	<p>Login to the Active NOAM server via SSH as <i>admusr</i> user.</p>

STEP #	Procedure	Description																																																			
2. <input type="checkbox"/>	<p><b>Active NOAM:</b> Inhibit replication on all C level Servers</p>	<p>Execute the script from /usr/TKLC/dsr/tools/InhibitReplicationToCLevel.sh, if available.</p> <pre data-bbox="505 352 1349 411">/usr/TKLC/dsr/tools/InhibitReplicationToCLevel.sh --replication=inhibit --SO_SG_Name=&lt;SOAM server group name&gt;</pre> <p>If script doesn't exist then please use below manual command.</p> <p>Alternate to above script (if above mentioned script is not present in the specific path):</p> <pre data-bbox="505 636 1414 1119">\$ for i in \$(sudo Imysql.client -B -N -e " SELECT DISTINCT CS.hostname FROM appworks.Server CS, appworks.Server PS, appworks.Server2SG C2SG, appworks.Server2SG P2SG, appworks.ServerGroup CSG, appworks.ServerGroup PSG, comcol.ClusterInfo CCI, comcol.ClusterInfo PCI, comcol.ClusterGroupInfo WHERE CS._h_Server_ID = C2SG._h_Server_ID AND C2SG._h_SG_ID = CSG._h_SG_ID AND CSG.clusterId = CCI.clusterId AND CCI.groups = comcol.ClusterGroupInfo.groupId AND comcol.ClusterGroupInfo.parentGroup = PCI.groups AND PCI.clusterId = PSG.clusterId AND PSG.ServerGroupName='&lt;SOAM SG NAME&gt;' "); do iset -finhibitRepPlans='A B' NodeInfo where "nodeName='\$i'"; done</pre> <p><b>Note:</b> SOAM_SG_NE name of the Server Group can be found out by logging into the Active NOAM GUI and going to <b>Configuration-&gt;Server Groups</b> screen.</p> <p>Please see the snapshot below for more details.</p> <table border="1" data-bbox="505 1409 1446 1654"> <thead> <tr> <th>DRNO_SG</th> <th></th> <th></th> <th>DSR (active/standby pair)</th> <th>1</th> <th>Network Element: DSR_DR_NO_NE</th> </tr> </thead> <tbody> <tr> <td>DRNO_SG</td> <td>A</td> <td>NONE</td> <td>DSR (active/standby pair)</td> <td>1</td> <td> <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>DRNOAM1</td> <td></td> <td></td> </tr> <tr> <td>DRNOAM2</td> <td></td> <td></td> </tr> </tbody> </table> </td> </tr> <tr> <td>NO_SG</td> <td>A</td> <td>NONE</td> <td>DSR (active/standby pair)</td> <td>1</td> <td> <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>NOAM1</td> <td></td> <td></td> </tr> <tr> <td>NOAM2</td> <td></td> <td></td> </tr> </tbody> </table> </td> </tr> <tr> <td><b>SO_SG</b></td> <td>B</td> <td>NO_SG</td> <td>DSR (active/standby pair)</td> <td>1</td> <td> <table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>SOAM1</td> <td></td> <td></td> </tr> <tr> <td>SOAM2</td> <td></td> <td></td> </tr> </tbody> </table> </td> </tr> </tbody> </table>	DRNO_SG			DSR (active/standby pair)	1	Network Element: DSR_DR_NO_NE	DRNO_SG	A	NONE	DSR (active/standby pair)	1	<table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>DRNOAM1</td> <td></td> <td></td> </tr> <tr> <td>DRNOAM2</td> <td></td> <td></td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	DRNOAM1			DRNOAM2			NO_SG	A	NONE	DSR (active/standby pair)	1	<table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>NOAM1</td> <td></td> <td></td> </tr> <tr> <td>NOAM2</td> <td></td> <td></td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	NOAM1			NOAM2			<b>SO_SG</b>	B	NO_SG	DSR (active/standby pair)	1	<table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>SOAM1</td> <td></td> <td></td> </tr> <tr> <td>SOAM2</td> <td></td> <td></td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	SOAM1			SOAM2		
DRNO_SG			DSR (active/standby pair)	1	Network Element: DSR_DR_NO_NE																																																
DRNO_SG	A	NONE	DSR (active/standby pair)	1	<table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>DRNOAM1</td> <td></td> <td></td> </tr> <tr> <td>DRNOAM2</td> <td></td> <td></td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	DRNOAM1			DRNOAM2																																									
Server	Node HA Pref	VIPs																																																			
DRNOAM1																																																					
DRNOAM2																																																					
NO_SG	A	NONE	DSR (active/standby pair)	1	<table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>NOAM1</td> <td></td> <td></td> </tr> <tr> <td>NOAM2</td> <td></td> <td></td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	NOAM1			NOAM2																																									
Server	Node HA Pref	VIPs																																																			
NOAM1																																																					
NOAM2																																																					
<b>SO_SG</b>	B	NO_SG	DSR (active/standby pair)	1	<table border="1"> <thead> <tr> <th>Server</th> <th>Node HA Pref</th> <th>VIPs</th> </tr> </thead> <tbody> <tr> <td>SOAM1</td> <td></td> <td></td> </tr> <tr> <td>SOAM2</td> <td></td> <td></td> </tr> </tbody> </table>	Server	Node HA Pref	VIPs	SOAM1			SOAM2																																									
Server	Node HA Pref	VIPs																																																			
SOAM1																																																					
SOAM2																																																					

STEP #	Procedure	Description
<p>3</p> <p><input type="checkbox"/></p>	<p><b>Active NOAM:</b> Verify Replication has been Inhibited.</p>	<p>After executing above steps to inhibit replication on MP(s), no alarms on GUI would be raised informing that replication on MP is disabled.</p> <p>Verification of replication inhibition on MPs can be done by analyzing NodeInfo output. InhibitRepPlans field for all the MP servers for the selected server group e.g. Server group SO_SG shall be set as 'A B':</p> <p>Perform the following command:</p> <pre data-bbox="506 508 1446 760"> \$ sudo iqt NodeInfo  Expected output: nodeId      nodeName    hostName    nodeCapability    inhibitRepPlans    siteld excludeTables A1386.099   NO1         NO1         Active             NO_HPC03 B1754.109   SO1         SO1         Active             SO_HPC03 C2254.131   MP2         MP2         Active             A B                SO_HPC03 C2254.233   MP1         MP1         Active             A B                SO_HPC03                     </pre>

## Appendix E. Un-Inhibit A and B Level Replication on C-Level Servers (When Active, Standby and Spare SOAMs are lost)

### Procedure 21. Un-Inhibit A and B Level Replication on C-Level Servers

STEP #	Procedure	Description
<p>The intent of this procedure is to Un-inhibit A and B level replication on all C Level servers of this site <b>when Active, Standby and Spare SOAMs are lost.</b></p> <p>Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.</p> <p>If this procedure fails, contact My Oracle Support (MOS), and ask for assistance.</p>		
<p>1. <input type="checkbox"/></p>	<p><b>Active NOAM:</b> Login</p>	<p>Login to the Active NOAM server via SSH as <i>admusr</i> user.</p>

STEP #	Procedure	Description																																			
2. <input type="checkbox"/>	<p><b>Active NOAM:</b> Un-Inhibit replication on all C level Servers</p>	<p>Execute the script from /usr/TKLC/dsr/tools/InhibitReplicationToCLevel.sh, if available.</p> <p>/usr/TKLC/dsr/tools/InhibitReplicationToCLevel.sh --replication=allow --SO_SG_Name=&lt;SOAM server group name&gt;</p> <p>If script doesn't exist then please use below manual command.</p> <p>Alternate to above script (if above mentioned script is not present in the specific path):</p> <pre> \$ for i in \$(sudo Imysql.client -B -N -e " SELECT DISTINCT CS.hostname FROM appworks.Server CS, appworks.Server PS, appworks.Server2SG C2SG, appworks.Server2SG P2SG, appworks.ServerGroup CSG, appworks.ServerGroup PSG, comcol.ClusterInfo CCI, comcol.ClusterInfo PCI, comcol.ClusterGroupInfo WHERE CS._h_Server_ID = C2SG._h_Server_ID AND C2SG._h_SG_ID = CSG._h_SG_ID AND CSG.clusterId = CCI.clusterId AND CCI.groups = comcol.ClusterGroupInfo.groupId AND comcol.ClusterGroupInfo.parentGroup = PCI.groups AND PCI.clusterId = PSG.clusterId AND PSG.ServerGroupName='&lt;SOAM_SG_NAME&gt;' "); do iset -finhibitRepPlans='' NodeInfo where "nodeName='\$i'"; done                     </pre> <p><b>Note:</b> SOAM_SG_NAME name of the site can be found out by logging into the Active NOAM GUI and going to <b>Configuration-&gt;Server Groups</b> screen.</p> <p>Please see the snapshot below for more details.</p> <table border="1"> <thead> <tr> <th>DRNO_SG</th> <th></th> <th></th> <th></th> <th>DSR (active/standby pair)</th> <th></th> <th>Network Element: DSR_DR_NO_NE</th> </tr> <tr> <th>Server</th> <th>Node HA Pref</th> <th colspan="2">VIPs</th> <th colspan="3"></th> </tr> </thead> <tbody> <tr> <td>DRNO_SG</td> <td>A</td> <td>NONE</td> <td></td> <td>1</td> <td></td> <td>DRNOAM1 DRNOAM2</td> </tr> <tr> <td>NO_SG</td> <td>A</td> <td>NONE</td> <td></td> <td>1</td> <td></td> <td>NOAM1 NOAM2</td> </tr> <tr> <td>SO_SG</td> <td>B</td> <td>NO_SG</td> <td></td> <td>1</td> <td></td> <td>SOAM1 SOAM2</td> </tr> </tbody> </table>	DRNO_SG				DSR (active/standby pair)		Network Element: DSR_DR_NO_NE	Server	Node HA Pref	VIPs					DRNO_SG	A	NONE		1		DRNOAM1 DRNOAM2	NO_SG	A	NONE		1		NOAM1 NOAM2	SO_SG	B	NO_SG		1		SOAM1 SOAM2
DRNO_SG				DSR (active/standby pair)		Network Element: DSR_DR_NO_NE																															
Server	Node HA Pref	VIPs																																			
DRNO_SG	A	NONE		1		DRNOAM1 DRNOAM2																															
NO_SG	A	NONE		1		NOAM1 NOAM2																															
SO_SG	B	NO_SG		1		SOAM1 SOAM2																															

STEP #	Procedure	Description																														
3. <input type="checkbox"/>	<b>Active NOAM:</b> Verify Replication has been un-Inhibited.	<p>After executing above steps to un-inhibit replication on MP(s), no alarms on GUI would be raised informing that replication on MP is disabled.</p> <p>Verification of replication un-inhibition on MPs can be done by analyzing NodeInfo output. InhibitRepPlans field for all the MP servers for the selected server group e.g. Server group SO_SG shall be set as '':</p> <p>Perform the following command:</p> <pre style="border: 1px solid black; padding: 5px;">\$ sudo iqt NodeInfo</pre> <p>Expected output:</p> <table border="1" data-bbox="505 632 1443 726"> <thead> <tr> <th>nodeId</th> <th>nodeName</th> <th>hostName</th> <th>nodeCapability</th> <th>inhibitRepPlans</th> <th>siteId excludeTables</th> </tr> </thead> <tbody> <tr> <td>A1386.099</td> <td>NO1</td> <td>NO1</td> <td>Active</td> <td></td> <td>NO_HPC03</td> </tr> <tr> <td>B1754.109</td> <td>SO1</td> <td>SO1</td> <td>Active</td> <td></td> <td>SO_HPC03</td> </tr> <tr> <td>C2254.131</td> <td>MP2</td> <td>MP2</td> <td>Active</td> <td></td> <td>SO_HPC03</td> </tr> <tr> <td>C2254.233</td> <td>MP1</td> <td>MP1</td> <td>Active</td> <td></td> <td>SO_HPC03</td> </tr> </tbody> </table>	nodeId	nodeName	hostName	nodeCapability	inhibitRepPlans	siteId excludeTables	A1386.099	NO1	NO1	Active		NO_HPC03	B1754.109	SO1	SO1	Active		SO_HPC03	C2254.131	MP2	MP2	Active		SO_HPC03	C2254.233	MP1	MP1	Active		SO_HPC03
nodeId	nodeName	hostName	nodeCapability	inhibitRepPlans	siteId excludeTables																											
A1386.099	NO1	NO1	Active		NO_HPC03																											
B1754.109	SO1	SO1	Active		SO_HPC03																											
C2254.131	MP2	MP2	Active		SO_HPC03																											
C2254.233	MP1	MP1	Active		SO_HPC03																											

## Appendix F. Workarounds for Issues not fixed in this Release

### Procedure 22. Backup directory

STEP #	Procedure	Description
<p>This procedure will provide the steps to check and create backup directory. 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.</p>		
<p>1. <input type="checkbox"/></p>	<p><b>NOAM/SOAM VIP console:</b> Determine if backup directory is created</p>	<p>Execute following command on console of Active NOAM/SOAM server (accessed via the VIP) and compare the output:</p> <pre>\$ cd /var/TKLC/db/filemgmt/ \$ ls -ltr</pre> <p>Look for backup directory in the output. Check if directory is already created with correct permission. Directory will look like:-</p> <pre>drwxrwx--- 2 awadmin awadm 4096 Dec 19 02:15 backup</pre> <p>In case, directory is already there with right permissions then skip steps 2 and 3. If directory is not with right permissions then execute step 3. Otherwise go to next step.</p>
<p>2. <input type="checkbox"/></p>	<p><b>NOAM/SOAM VIP console:</b> Create backup directory</p>	<p>Assuming present working directory is <code>/var/TKLC/db/filemgmt/</code> Otherwise, do</p> <pre>cd /var/TKLC/db/filemgmt/</pre> <pre>#Create backup directory \$mkdir backup</pre> <p><b>Verify directory is created:-</b></p> <pre>\$ ls -ltr /var/TKLC/db/filemgmt/backup</pre> <p>Error should not come "No such file or directory". Rather it will show the directory, as directory will be empty it will show total 0 as content.</p>



STEP #	Procedure	Description
<p>3.</p> <p><input type="checkbox"/></p>	<p><b>NOAM/SOAM VIP console:</b> Change permissions of backup directory</p>	<p>Assuming backup directory is created</p> <p><b>Verify directory is created:-</b>  <code>\$ ls -ltr /var/TKLC/db/filemgmt/backup</code></p> <p>Error should not come "No such file or directory". Rather it will show the directory, as directory will be empty it will show total 0 as content.</p> <p>If directory is not created go back to step 2. Else proceed.</p> <p>#Change permissions of backup directory  <code>\$ chmod 770 /var/TKLC/db/filemgmt/backup</code></p> <p>#Change ownership of backup directory  <code>\$ sudo chown -R awadmin:awadm /var/TKLC/db/filemgmt/backup</code>                      After changing the permissions and ownership of the backup directory.  <b>Directory will look like</b>  <code>drwxrwx--- 2 awadmin awadm 4096 Dec 22 02:15 backup</code></p>
<p>4.</p>	<p><b>NOAM/SOAM VIP console:</b> Copy the backup file which we need to restore in backup directory</p>	<p>Copy the backup file to backup directory  <code>\$ cp BACKUPFILE /var/TKLC/db/filemgmt/backup</code></p> <p>Provide permissions to backup file inside backup directory.                      # Make sure about present working directory.  <code>\$ cd /var/TKLC/db/filemgmt/backup</code></p> <p>#Change permissions of files inside backup directory  <code>\$ chmod 666 Backup.*</code></p> <p># Change ownership of files inside backup directory  <code>\$ sudo chown -R awadmin:awadm Backup.*</code></p>

## Appendix G. 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 <http://www.oracle.com/us/support/contact/index.html>. When calling, make the selections in the sequence shown below on the Support telephone menu:

1. Select 2 for New Service Request
2. Select 3 for Hardware, Networking and Solaris Operating System Support
3. Select one of the following options:
  - For Technical issues such as creating a new Service Request (SR), Select 1.
  - For Non-technical issues such as registration or assistance with MOS, Select 2.

You will be connected to a live agent who can assist you with MOS registration and opening a support ticket.

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

## Appendix H. Emergency Response

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

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

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

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

## Appendix I. Locate Product Documentation on the Oracle Help Center

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

1. Access the **Oracle Help Center** site at <http://docs.oracle.com>.
1. Click Industries.
2. Under the **Oracle Communications** subheading, click the **Oracle Communications documentation** link. The Communications Documentation page appears. Most products covered by these documentation sets display under the headings **Network Session Delivery and Control Infrastructure** or **Platforms**.
3. Click on your Product and then the Release Number. A list of the entire documentation set for the selected product and release displays. To download a file to your location, right-click the PDF link, select *Save target as* (or similar command based on your browser), and save to a local folder.