## **Oracle® Communications**

Diameter Signaling Router DSR Cloud Disaster Recovery Guide

Release 7.0.1 / 7.1.1/7.2/7.3

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Oracle Communications Diameter Signaling Router DSR Cloud Disaster Recovery Guide

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# CAUTION: Use only the Upgrade procedure included in the Upgrade Kit.

## Before upgrading any system, please access My Oracle Support (MOS) (https://support.oracle.com) and review any Technical Service Bulletins (TSBs) that relate to this upgrade.

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 <u>http://www.oracle.com/us/support/contact/index.html</u>.

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See more information on MOS in the Appendix section.

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### **1.0 Introduction**

### **1.1 Purpose and Scope**

This document is a guide to describe procedures used to execute disaster recovery for DSR 7.0.1 / 7.1.1/7.2/7.3 (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 7.0.1 / 7.1.1/7.2/7.3. 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.

### **1.2 References**

[1] DSR 7.2/7.3 Cloud Installation Guide, E64814-04

### 1.3 Acronyms

#### Table 1: Acronyms

Acronym	Definition
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
OS	Operating System
OVA	Open Virtualization Appliance
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
TPD	Tekelec Platform Distribution
VM	Virtual Machine

### 1.4 Terminology

Table 2: Terminology

Base software	Base software includes deploying the VM image.
Failed server	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-install the software.
Software Centric	The business practice of delivering an Oracle software product, while relying upon the customer to procure the requisite hardware components. Oracle provides the hardware specifications, but does not provide the hardware or hardware firmware, and is not responsible for hardware installation, configuration, or maintenance.
Enablement	The business practice of providing support services (hardware, software, documentation, etc) that enable a 3rd party entity to install, configuration, and maintain Oracle products for Oracle customers.

### **1.5 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

#### Table 3: Optional Features

Feature	Document
Diameter Mediation	DSR Meta Administration Feature Activation Procedure,
	E58661
Full Address Based Resolution (FABR)	DSR FABR Feature Activation Procedure, E58664
Range Based Address Resolution	DSR RBAR Feature Activation Procedure, E58665
(RBAR)	
Map-Diameter Interworking (MAP-IWF) –	DSR MAP-Diameter IWF Feature Activation Procedure,
	E58666
Policy and Charging Application (PCA)	DSR 7.0 PCA Activation and Configuration Procedure,
	E58667

### 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:

Recovery of the entire network from a total outage	<ul> <li>All NOAM servers failed</li> <li>All SOAM servers failed</li> <li>1 or more MP servers failed</li> </ul>	
Recovery of one or more servers with at least one NOAM server intact	<ul> <li>1 or more NOAM servers intact</li> <li>1 or more SOAM or MP servers failed</li> </ul>	
Recovery of the NOAM pair with one or more SOAM servers intact	<ul> <li>All NOAM servers failed</li> <li>1 or more SOAM servers intact</li> </ul>	
Recovery of one or more server with at least one NOAM and one SOAM server intact.	<ul> <li>1 or more NOAM servers intact</li> <li>1 or more SOAM servers intact</li> <li>1 SOAM or 1 or more MP servers failed</li> </ul>	
Recovery of one or more server with corrupt databases that cannot be restored via replication from the active parent node.		

### 2.1 Complete Server Outage (All Servers)

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

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

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

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 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 (E64815-02) and hardcopies of all documents in the reference list
- 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.

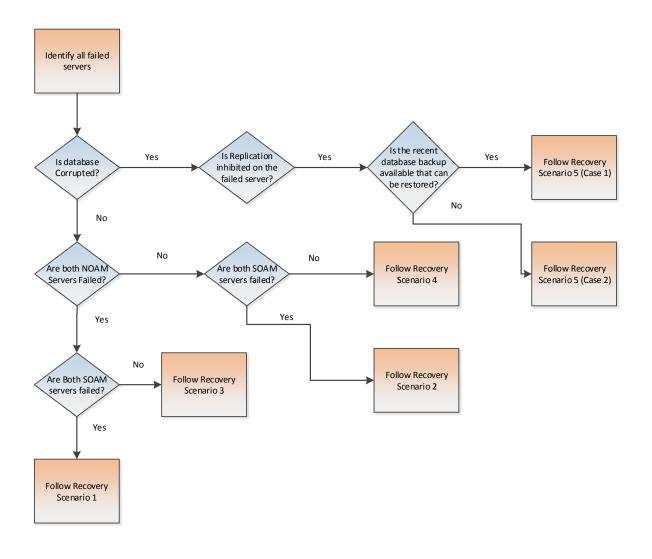
**Note:** For all Disaster Recovery scenarios, we assume that the NOAM Database backup and the SOAM database backup were performed around the same time, and that no synchronization issues exist among them.

### 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.

Table 4: Recovery Scenarios

Recovery Scenario	Failure Condition	Section
----------------------	-------------------	---------

	All NOAM servers failed.	
1	<ul> <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> <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> <li>All NOAM servers failed.</li> <li>At least 1 SOAM server out of Active, StandBy, 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> <li>At least 1 NOAM server is intact and available.</li> <li>At least 1 SOAM server out of Active, StandBy, 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> <li>Server is intact</li> <li>Database gets corrupted on the server</li> <li>Latest Database backup of the corrupt server is present</li> <li>Replication is inhibited (either manually or because of comcol upgrade barrier)</li> </ul>	Section 5.1.5 Recovery Scenario 5 (Database Recovery)
5: Case 1	<ul> <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 5.1.5.1 Recovery Scenario 5: Case 1

5: Case 2	<ul> <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>	Section 5.1.5.2 Recovery Scenario 5: Case 2
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### **5.0 Disaster Recovery Procedure**

Call the CAS main number at **1-800-223-1711** (toll-free in the United States), or call the Oracle Support hotline for your local country from the list at <u>http://www.oracle.com/us/support/contact/index.html</u> 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 TAC prime. Based on TAC'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 7 distinct procedures to choose from depending on the type of recovery needed. Only one of these should be followed (not all).

### 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 . 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.

S T E	This procedure performs recovery if both NOAM servers are failed and all SOAM servers are failed. This procedure also caters the C-Level Sever failure Check off ( $$ ) each step as it is completed. Boxes have been provided for this purpose under each step number.		
Р #			
	If this procedure fails, contact Appendix E. My Oracle Support (MOS), and ask for assistance.		
1.	Workarounds	Refer to <b>Appendix D</b> . Workarounds for Issues not fixed in this Release to understand any workarounds required during this procedure.	
2.	Gather Required Materials	Gather the documents and required materials listed in <b>Section 3.1</b> Required Materials	
3.	Recover the Failed Software	For VMWare based deployments:	
	Falled Software	1. For NOAM execute the following procedures from reference [1]:	
		a. Procedure 1 (VMWare). Import DSR OVA	
		<ul> <li>b. Procedure 2 (VMWare Only). Configure NOAM guests role based on resource profile</li> </ul>	
		2. For SOAM execute the following procedures from reference [1]:	
		c. Procedure 1 (VMWare). Import DSR OVA	
		<ul> <li>Procedure 3 (VMWare Only). Configure Remaining DSR guests based on resource profile</li> </ul>	
		3. For failed MPs execute the following procedures from reference [1]:	
		e. Procedure 1 (VMWare). Import DSR OVA	
		f. Procedure 3 (VMWare Only). Configure Remaining DSR guests based on resource profile	
		For KVM / Openstack based deployments:	
		1. For NOAM execute the following procedures from reference [1]:	
		a. Procedure 4 (KVM / Openstack). Import DSR OVA	
		<ul> <li>Procedure 5 (KVM / Openstack Only). Configure NOAM guests role based on resource profile</li> </ul>	
		2. For SOAM execute the following procedures from reference [1]:	
		c. Procedure 4 (KVM / Openstack). Import DSR OVA	
		<ul> <li>Procedure 6 (KVM / Openstack Only). Configure Remaining DSR guests based on resource profile</li> </ul>	
		3. For failed MPs execute the following procedures from reference [1]:	
		e. Procedure 4 (KVM / Openstack). Import DSR OVA	
		<ul> <li>f. Procedure 6 (KVM / Openstack Only). Configure Remaining DSR guests based on resource profile</li> </ul>	

4.	Obtain Latest Database Backup and	Obtain the most recent database backup file from external backup sources (ex. file servers) or tape backup sources.
	Network Configuration Data.	From required materials list in <b>Section 3.1</b> Required Materials; use site survey documents and Network Element report (if available), to determine
	Dala.	network configuration data.
5.	Execute DSR Installation	Verify the networking data for Network Elements
	Procedure for the First NOAM	<b>Note:</b> Use the backup copy of network configuration data and site surveys (Step 2)
		Execute installation procedures for the first NOAM server from reference [1]:
		Procedure 7 "Configure the First NOAM NE and Server" and
		Procedure 8 "Configure the NOAM Server Group".
6. □	NOAM GUI: Login	Login to the NOAM GUI as the <i>guiadmin</i> user:
		Oracle System Login Fri Mar 20 12:29:52 2015 EDT
		Log In Enter your username and password to log in
		Username: guiadmin Password: ••••••
		Change password
		Log In
		Welcome to the Oracle System Login.
		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.
		Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

7	NOAM GUI:	Browse to Main Menu->Status & Manage->Files
7.	Upload the	
	Backed up	📋 😋 Status & Manage
	Database File	🔤 🧱 Network Elements
		🔤 🎆 Server
		HA 📷 HA
		Database
		- KPIs
		Processes
		🖬 🧰 Tasks
		Select the Active NOAM server. The following screen will appear:
		Cpa1-INO         Cpa1-IPFE         Cpa1-Sbr1         Cpa1-IMp1         Cpa1-IMp2         Cpa1-Sbr2
		File Name Size Type Timestamp
		Backup dsr.Cpa1-NO.Configuration.NETWORK_OAMP.20120321_021501.AUTO.tar KB tar 2012-03-21.06:15:02.UTC
		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.
		Delete View Upload Download Pause U
		0 used (0%) of 0 available   System utilization: 0 (0%) of 0 available.
		1 Click on <b>Browce</b> and logate the backup file
		<ol> <li>Click on Browse and locate the backup file</li> <li>Check This is a backup file Box</li> </ol>
		3. Click on Open as shown below.
		8
		File:
		Browse_ No file selected.
		✓ This is a backup file
		Upload
		Cancel
		Choose file ? X
		Look in: C PV3 C P C P C P C P C P C P C P C P C P C
		My Recent PV3.NetHawk.bt
		Documents
		Desktop
		My Documents
		My Computer
		<b>*</b>
		My Network File name: Backup.PV3.1gz  Open
		Files of type: All Files (*.')
DSR	7.0.1 / 7.1.1/7.2/7.3	
		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.

0	NOAM GUI:	Click on Main Menu->Status & Manage->Database
8.	Disable	
	Provisioning	💼 🚍 Status & Manage
		🔤 💽 Network Elements
		🔤 🔤 Server
		Replication
		Collection
		HA
		Database
		- KPIs
		Processes
		🛄 📑 Files
		Disable Provisioning by clicking on <b>Disable Provisioning</b> button at the bottom
		of the screen as shown below.
		Disable Provisioning Report Inhibit/Allow Backup Compare Restore
		Disable i forisioning i keport innibioxilow Backup Compare i Kestore
		A confirmation window will appear proce <b>OK</b> to disable Dravisioning
		A confirmation window will appear, press <b>OK</b> to disable Provisioning.
		Disable provisioning.
		Are you sure?
		OK Cancel
		The message <i>"Warning Code 002"</i> will appear.

9.	NOAM GUI:	Select the Active NOAM server and click on the Compare.
	Verify the Archive	Enable Provisioning         Report         Inhibit Replication         Backup         Compare         Restore         Man Audit         Suspend Auto Audit
	Contents and Database Compatibility	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.
		Database Compare
		Select archive to compare on server: blade02 Backup.ngr.blade02 Configuration.NETWORK_OAMP.20100928_021502 AUTO.tar
		OBackup.ngr.blade02.configuration.NETWORK_OAMP 20100320_021501.AUT0.tar     OBackup.ngr.blade02.configuration.NETWORK_OAMP 20100302_021501.AUT0.tar     OBackup.ngr.blade02.configuration.NETWORK_OAMP 2010100_021501.AUT0.tar     OBackup.ngr.blade02.configuration.NETWORK_OAMP 20101003_021502.AUT0.tar     OBackup.ngr.blade02.configuration.NETWORK_OAMP 20101003_021502.AUT0.tar     OBackup.ngr.blade02.configuration.NETWORK_OAMP 20101003_021502.AUT0.tar     OBackup.ngr.blade02.configuration.NETWORK_OAMP 20101003_021502.AUT0.tar     OBackup.ngr.blade02.configuration.NETWORK_OAMP 20101003_021502.AUT0.tar     OBackup.ngr.blade02.configuration.NETWORK_OAMP 20101005_021501.AUT0.tar
		Ok Cancel
		Verify that the output window matches the screen below.
		<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 Appendix E. My Oracle Support (MOS).
		The selected database came from blade07 on 01192011 at 13.43.47 EDT and contains the following comment:
		extrain Contents     eventsion/sufficient of data     eventsions/sufficient of data     contentsion of data     Contentsion Contentsion
		The databases are compatible.     Ideal Table Compatible     the database for a compatible database of the database of th
		Topology Compatibility     The TOPOLOgy Is NOT COMPATIBLE. CONTACT TEXELEC CUSTOMER SERVICES BEFORE RESTORING THIS DATABASE.
		Discrepancies - BH Server Address All0 120 has different (ende TB) in current topology and the selected backup file Current node ID: All0 120. Selected backup file node UD: B203.007 - BH Server Address Cl37.241 has different (ende TB) in current topology and the selected backup file Current node ID: Cl157.241. Selected backup file node UD: B203.007 - BH Server Address D177.161. As different (ende TD) in current topology and the selected backup file Current node ID: B1707.161. Selected backup file node ID: B203.007
		Las: Compatibilit The user and suffertication data are compatible.
		Contact     Foreigning/edConfiguration     Trate Instance Counts     Trate Instance Counts
		Current AStrong curut 6 Selected 0     Current Astrong curut 6 Selected 2     Current Approx64S appenDrCAstraints court 2 Selected 2     Current Association curut 6 Selected 0     Current Association Curut 6 Selected 1     Current Association Curut 6 Selected 1     Current Authorizedip court 1 Selected 1
		Note: Archive Contents and Database Compatibilities must be the following:
		Archive Contents: Configuration data Database Compatibility: The databases are compatible.
		<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:
		<b>Topology Compatibility</b> THE TOPOLOGY SHOULD BE COMPATIBLE MINUS THE NODEID.
		<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.
		If the verification is successful, Click BACK button, Cancel button and continue to <b>next step</b> in this procedure.

0.	ACTIVE NOAM: Restore the	Click on Main Menu->Status & Manage->Database
	Database	Select the <b>Active NOAM</b> server, and click on <b>Restore</b> as shown below.
		The following screen will be displayed. Select the proper back up provisioning and configuration file.
		Select archive to Restore on server: blade02
		Archive Backup npgrblade02 configuration NETWORK_OAMP.20100928_021502 AUTO.tar Backup npgrblade02 configuration NETWORK_OAMP.20100928_021501 AUTO.tar Backup npgrblade02 configuration NETWORK_OAMP.20101003_021501 AUTO.tar Backup npgrblade02 configuration NETWORK_OAMP.20101001_021501 AUTO.tar Backup npgrblade02 configuration NETWORK_OAMP.20101003_021502 AUTO.tar
		Click <b>OK</b> Button. The following confirmation screen will be displayed.
		<ul> <li>Note: You will get a database mismatch regarding the NodelDs of the servers That is expected. If that is the only mismatch, proceed, otherwise stop and contact Appendix E. My Oracle Support (MOS).</li> <li>Select the Force checkbox as shown above and Click OK to proceed with the DB restore.</li> </ul>
		Database Restore Confirm
		Incompatible database selected          Discrepancies:       •         - IMI Server Address A3118.120 has different node IDs in current topology and the selected backup p file.         Current node ID: A3118.120, Selected backup file node ID: B2073.087         - IMI Server Address C1157.241 has different node IDs in current topology and the selected backup p file.         Current node ID: C157.241, Selected backup file node ID: B2073.087         - IMI Server Address B1787.161 has different node IDs in current topology and the selected backup p file.         Current node ID: B1787.161 Selected backup file node ID: B2073.087
		Confirm archive "3bladeNPQR.blade07.Configuration.NETWORK_OAMP.20110119_184253.MAN.tar" to Restore on server: blade07 Force Restore?  Force restore on blade07, despite compare errors.  City Cancel
	1	

1.1	NOAM VIP GUI:	
11.	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:
		http:// <primary_noam_vip_ip_address></primary_noam_vip_ip_address>
		Lonin on the second design and a
		Login as the <i>guiadmin</i> user:
		ORACLE
		Oracle System Login Fri Mar 20 12:29:52 2015 EDT
		Log In         Enter your username and password to log in         Username:       guiadmin         Password:
12.	NOAM VIP GUI: Monitor and	Wait for <b>5-10 minutes</b> for the System to stabilize with the new topology:
	Confirm database	Monitor the Info tab for " <b>Success</b> ". This will indicate that the backup is complete and the system is stabilized.
	restoral	Following alarms <b>must</b> be ignored for NOAM and MP Servers until all the Servers are configured:
		Alarms with Type Column as " <b>REPL</b> ", " <b>COLL</b> ", " <b>HA</b> " (with mate NOAM), " <b>DB</b> " (about Provisioning Manually Disabled)
		<b>Note:</b> Do not pay attention to alarms until all the servers in the system are completely restored.
		<b>Note:</b> The Configuration and Maintenance information will be in the same state it was backed up during initial backup.
13.	ACTIVE NOAM: Login	Login to the recovered Active NOAM via SSH terminal as <i>admusr</i> user.

14.	ACTIVE NOAM: Restore	IF DSR 7.1 or later, SKIP THIS STEP
	/etc/hosts/ File of the Active	Execute the following command:
	NOAM	<pre>\$ sudo AppWorks AppWorks_AppWorks updateServerAliases <noam host="" name=""></noam></pre>
15.	NOAM VIP GUI: Recover	NOTE: For Non-HA sites SKIP this step.
	Standby NOAM ( <b>OPTIONAL</b> ) for	Install the second NOAM server by executing procedures from reference [1]:
	Non-HA sites.	Procedure 9 "Configure the Second NOAM Server" steps 1, 3-7
		Procedure 10 "Complete Configuring the NOAM Server Group" Step 5
16.	Active NOAM: Correct the	Establish an SSH session to the active NOAM, login as <i>admusr</i> .
	RecognizedAuth ority table	Execute the following command:
		<pre>\$ sudo top.setPrimary</pre>
		- Using my cluster: A1789
		- New Primary Timestamp: 11/09/15 20:21:43.418
		- Updating A1789.022: <dsr_noam_b_hostname></dsr_noam_b_hostname>
		- Updating A1789.144: <dsr_noam_a_hostname></dsr_noam_a_hostname>
17	NOAM VIP GUI:	Navigate to Main Menu->Status & Manage->Server,
	Restart DSR application	Status & Manage Network Elements Server HA Database KPIs Processes Files Select the recovered standby NOAM server and click on <b>Restart</b> .
		Stop Restart Reboot NTP Sync Report

10	NOAM VIP GUI:	Navigate to Status & Manage -> HA
18.	Set HA on	
	Standby NOAM	Server Click on Edit at the bottom of the screen Select the standby NOAM server, set it to Active Press OK
19.	NOAM VIP GUI:	Navigate to Main Menu -> Administration -> Remote Servers -> Data Export
	Perform Keyexchange	📮 😋 Remote Servers
	with Export	
	Server	LDAP Authentication
		SNMP Trapping
		🔤 🔤 Data Export
		🛄 DNS Configuration
		Click on SSH Key Exchange at the bottom of the screen
		Enter the Password and press <b>OK</b>
		SSH Key Exchange
		Password:
		OK Cancel
	NOAM VIP GUI:	Inhibit Replication to the working C Level Servers which belong to the same
20.	Stop Replication	site as of the failed SOAM servers, as the recovery of Active SOAM will cause
	to the C-Level	the database wipeout in the C level servers because of the replication
	Servers of this	
	Site.	
		Execute <b>Appendix B</b> . Inhibit A and B Level
		Replication on C-Level Servers

21.	NOAM VIP GUI: Recover Active SOAM Server	Install the SOAM servers by executing procedure from reference [1]: <u>1.2_References</u> Procedure 12 "Configure the SOAM Servers", steps 1, 3- 7 <b>NOTE:</b> Wait for server to reboot before continuing.
22.	NOAM VIP GUI: Restart DSR application on Recovered Active SOAM Server	Navigate to Main Menu->Status & Manage   Status & Manage   Network Elements   Server   HA   Database   KPIs   Processes   Tasks   Files   Select the recovered server and click on Restart.   Stop   Restart   Reboot   NTP Sync   Report

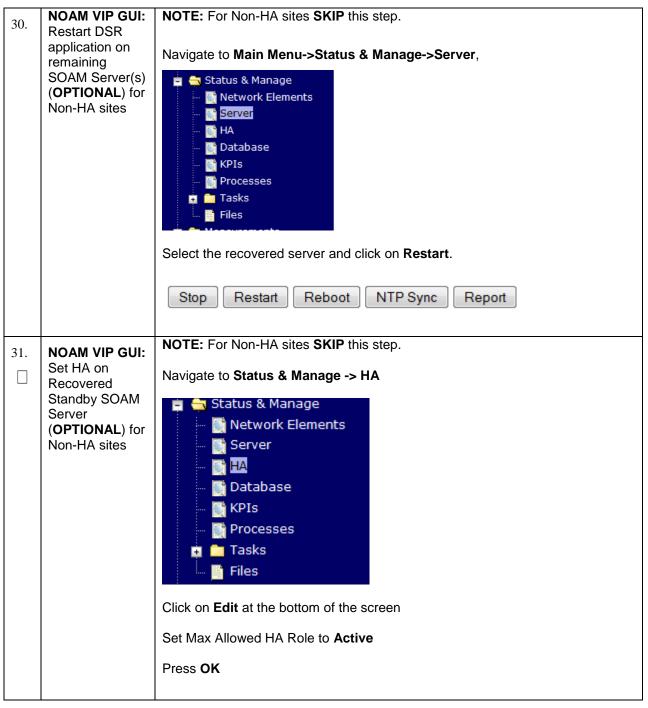
23.	NOAM VIP GUI:	Navigate to Main Menu->Status & Manage->Files
25.	Upload the	
	backed up SOAM	Select the <b>Active SOAM server</b> . The following screen will appear. Click on Upload as shown below and select the file "SO <i>Provisioning and Configuration:</i> "
	Database file	file backed up after initial installation and provisioning.
	Database me	000
		Delete View Upload Download Pause U
		0 used (0%) of 0 available   System utilization: 0 (0%) of 0 available.
		<ol> <li>Click on Browse and locate the backup file</li> <li>Check This is a backup file Box</li> <li>Click on Open as shown below.</li> </ol>
		8
		File:
		Browse_ No file selected.
		Upload
		Cancel
		Choose file
		Look in: C PV3 C S P E T
		My Recent Documents
		My Documenta
		My Conputer
		🤕
		My Network         File name:         Backup FV3.tgz         Open           Places         Files of type:         All Files (".")         Cancel
		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.

d I: Establish a GUI session on the recovered SOAM server. Open the web browser and enter a URL of: http:// <recovered_soam_ip_address></recovered_soam_ip_address>
Login as the <i>guiadmin</i> user:
ORACLE
Oracle System Login Fri Mar 20 12:29:52 2015 EDT
Log In         Enter your username and password to log in         Username: guiadmin         Password: ••••••         Change password         Log In         Welcome to the Oracle System Login.         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.         Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

25.	Recovered SOAM GUI:	Navigate to Main Menu->Status & Manage->Data	base
	Verify the	Select the Active SOAM server and click on the Co	ompare.
	Archive Contents and	Enable Provisioning Report Inhibit Replication Backup Compare R	estore Man Audit Suspend Auto Audit
	Database Compatibility	The following screen is displayed; click the button	
		that was uploaded as a part of <b>Step 13</b> of this proce	edure.
		Database Compare	
		Select archive to compare on server: blade02 Claskup noppt blade02 Configuration NETWORK_OAMP 20100928_021502 AUTO tar OBackup noppt blade02 Configuration NETWORK_OAMP 20100929_021501 AUTO tar	
		OBackup.npgr.blade02.Configuration.NETWORK_0AMP.20100930_021501.AUT0.tar	compare to the current database.
		Backup.npqr.blade02.Configuration.NETWORK_OAMP.20101005_021501.AUTO.tar*	
		Verify that the output window matches the screen b	below.
		<b>Note:</b> You will get a database mismatch regarding	the NodelDs of the VMs
		That is expected. If that is the only mismatch, proce	
		contact Appendix E. My Oracle Support (MOS)	
		The selected database came from blade07 on 01/192011 at 13.43.47 EDT and contains the following comment.	
		Anthea Contents     ProvisiongadConfiguration data     Contents     Database Conceptibility	
		The databases are compatible.     technological and the second seco	
		Tapodog: Campatbility     The TOPOLOGY'S NOT COMPATIBLE. CONTACT TEXELEC CUSTOMER SERVICES BEFORE RESTORING THIS DATABASE.	
		Discrepancies - IME Genera Address A0110 120 has different <u>Goods TBP</u> in current topplogy and the selected backup file. Current node ID: A0110 120. Selected backup <u>file mode</u> ID: B0073.007 - IMI Server Address C1157 241. Selected backup file node ID: B0073.007 - IMI Server Address B1787.161 has different <u>Goods TDP</u> in current topplogy and the selected backup file. Current node ID: Cu157 241. Selected backup file node ID: B0073.007 - IMI Server Address B1787.161 has different <u>Goods TDP</u> in current topplogy and the selected backup file. Current node ID: B1797.161. Selected backup file node ID: B073.007	
		- User Compatibility - User Compatibility - The user and submetication data are compatible.	
		Contents Provisioning/indConfiguration	
		Table Instance Counts     Courter Adjoundation of Selected 0     Courter Adjoundations count 2 Selected 0     Courter Adjoundations count 2 Selected 2	
		Current Association could: 0 Selected: 0     Current Association/CSS4 could : Selected: 1     Current AuthNeys count 2 Selected: 6     Current AuthNeys count 2 Selected: 1	
		Note: Archive Contents and Database Compatibiliti	es must be the following:
		Archive Contents: Configuration data Database Compatibility: The databases are comp	patible.
		<b>Note:</b> The following is expected Output for Topolog we are restoring from existing backed up data base SOAM:	
		<b>Topology Compatibility</b> THE TOPOLOGY SHOULD BE COMPATIBLE MIN	IUS THE NODEID.
		Note: We are trying to restore a backed up databas	
		database. This is an expected text in Topology Con If the verification is successful, Click <b>BACK</b> button a this procedure.	
L <sub>DSR</sub>	<del>7.0.1 / 7.1.1/7.2/7.</del>	30	September 2016

	Recovered	Click on Main Menu->Status & Manage->Database
26.	SOAM GUI:	
	Restore the Database	Select the Active SOAM server, and click on Restore as shown below.
		The following screen will be displayed. Select the proper back up provisioning and configuration file.
		Database Restore
		Select archive to Restore on server: blade02 Backup npqr: blade02.configuration.NETWORK_OAMP.20100928_021502.AUTO.tar Backup npqr: blade02.configuration.NETWORK_OAMP.20100930_021501.AUTO.tar Backup nqr: blade02.configuration.NETWORK_OAMP.20101001_021501.AUTO.tar Backup nqr: blade02.configuration.NETWORK_OAMP.20101002_021502.AUTO.tar Backup nqr: blade02.configuration.NETWORK_OAMP.20101003_021502.AUTO.tar Backup nqr: blade02.configuration.NETWORK_OAMP.20101005_021501.AUTO.tar Backup nqr: blade02.configuration.NETWORK_OAMP.20101005_021501.AUTO.tar Backup nqr: blade02.configuration.NETWORK_OAMP.20101005_021501.AUTO.tar Backup nqr: blade02.configuration.NETWORK_OAMP.20101005_021501.AUTO.tar Backup nqr: blade02.configuration.NETWORK_OAMP.20101005
		Click <b>OK</b> Button. The following confirmation screen will be displayed.
		If you get an error that the NodelDs do not match. That is expected. If no other errors beside the NodelDs are displayed, select the <b>Force</b> checkbox as shown below and Click <b>OK</b> to proceed with the DB restore.
		Database Restore Confirm
		Discrepancies: - IMI Server Address A3118.120 has different node IDs in current topology and the selected backu p file. Current node ID: A3118.120, Selected backup file node ID: B2073.087 - IMI Server Address C1157.241 has different node IDs in current topology and the selected backu p file. Current node ID: C1157.241, Selected backup file node ID: B2073.087 - IMI Server Address B1787.161 has different node IDs in current topology and the selected backu p file. Current node ID: B1787.161 Selected backup file node ID: B2073.087 - Current node ID: B1787.161 Selected backup file node ID: B2073.087
		Confirm archive "3bladeNPQR.blade07.Configuration.NETWORK_OAMP.20110119_184253.MAN.tar" to Restore on server: blade07 Force Restore?  Force Restore on blade07, despite compare errors.
		Ok Cancel
		<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.
27.	Recovered SOAM GUI:	Wait for <b>5-10 minutes</b> for the System to stabilize with the new topology:
	Monitor and Confirm database	Monitor the Info tab for " <b>Success</b> ". This will indicate that the backup is complete and the system is stabilized.
	restoral	<b>Note:</b> Do not pay attention to alarms until all the servers in the system are completely restored.
		<b>Note:</b> The Configuration and Maintenance information will be in the same state it was backed up during initial backup.

28.	NOAM VIP GUI:		
20.	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:	
		http:// <primary address="" ip="" noam="" vip=""></primary>	
		Login as the <i>guiadmin</i> user:	
		ORACLE	
		Oracle System Login Fri Mar 20 12:29:52 2015 EDT	
		Log In	
		Enter your username and password to log in	
		Username: guiadmin	
		Password: ••••••	
		Change password	
		Log In	
		Welcome to the Oracle System Login.	
		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.	
		Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.	
		Outer names may be trademarks of their respective owners.	
29.	NOAM VIP GUI: Recover remaining	NOTE: For Non-HA sites SKIP this step.	
	SOAM Server ( <b>OPTIONAL</b> ) for Non-HA sites	Install the SOAM servers by executing procedure from reference [1]	
		Procedure 12 "Configure the SOAM Servers", steps 1, 3-6	
		<b>NOTE:</b> Wait for server to reboot before continuing.	



32.	NOAM VIP GUI: Start Replication on Working C-	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.
	Level Servers	Execute Appendix C. Un-Inhibit A and B Level Replication on C-Level Servers
		Navigate to Main Menu->Status & Manage->Database
		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:
		<ul> <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 (<i>if MPs are configured as Active/Standby, start with the Active MP, otherwise the order of the MPs does not matter</i>)</li> <li>SBRS (<i>if SBR servers are configured, start with the active SBR, then standby, then spare</i>)</li> <li>Verify that the replication on all the working servers is allowed. This can be done by clicking on each server and checking that the button below shows "Inhibit Replication", and NOT "Allow Replication".</li> </ul>
	NOAM VIP GUI:	Establish a SSH session to the C Level server being recovered, login as
33.	Recover the C- Level Server	admusr.
	(DA-MP, SBRs, IPFE, SS7-MP)	Execute following command to set shared memory to unlimited:
		\$ sudo shl.set -m 0
		Execute following command ONLY when the recovered C-Level server is of type IPFE:
		\$ sudo ipfeNetUpdate.sh
		Execute the following procedures from [1] <b>FOR EACH</b> server that has been recovered:
		Procedure 15 "Configure the MP Virtual Machines", Steps 1, 4-11.

24	NOAM VIP GUI:	Navigate to Main Menu->Status & Manage->Server,	
34.	Restart DSR application for Recovered C- Level Server	Status & Manage Network Elements Server HA Database KPIs Processes Files Select the recovered server and click on <b>Restart</b> . Stop Restart Reboot NTP Sync Report	

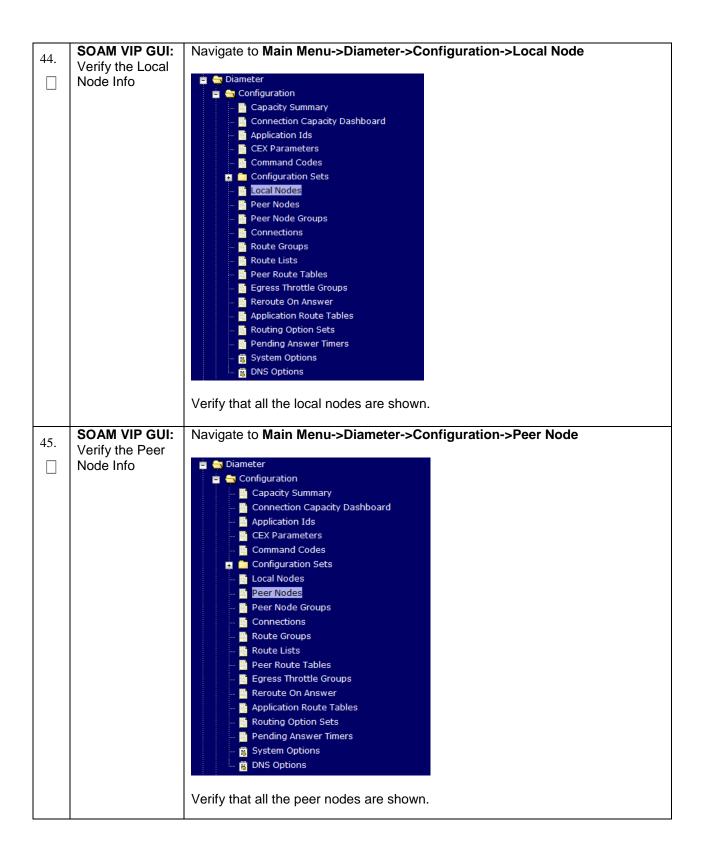
25	NOAM VIP GUI:	Un-Inhibit (Start) Replication to the ALL C-Level Servers	
35.	Start Replication		
	on all C-Level Servers	Navigate to Status & Manage -> Database	
		🛓 😋 Status & Manage	
		Network Elements	
		Server	
		HA	
		Database	
		KPIs	
		Processes	
		Tasks	
		If the "Repl Status" is set to "Inhibited", click on the Allow Replication button as	
		shown below using the following order:	
		<ul> <li>Active NOAM Server</li> <li>Standby NOAM Server</li> </ul>	
		Active SOAM Server	
		Standby SOAM Server	
		Spare SOAM Server ( <i>if applicable</i> )	
		• MP/IPFE Servers (if MPs are configured as Active/Standby, start with	
		the Active MP, otherwise the order of the MPs does not matter)	
		Verify that the replication on all servers is allowed. This can be done by clicking	
		on each server and checking that the button below shows "Inhibit Replication",	
		and <b>NOT</b> "Allow Replication".	
		Disable Provisioning Report (Allow Replication) Backup Compare Restore	

36.	NOAM VIP GUI: Set HA on all C-	Navigate to Status & Manage -> HA
	Level Servers	📋 😋 Status & Manage
		Network Elements
		Server
		🖉 Database
		🔤 🦉 KPIs
		🚽 🔤 Processes
		💼 🧰 Tasks
		🔚 🔤 Files
		Click on <b>Edit</b> at the bottom of the screen
		For each server whose Max Allowed HA Role is set to Standby, set it to Active
		Press OK
37.	ACTIVE NOAM: Perform key	Establish an SSH session to the Active NOAM, login as admusr.
	exchange	Execute the following command to perform a keyexchange from the active
	between the	NOAM to each recovered server:
	active-NOAM and recovered	<pre>\$ keyexchange admusr@<recovered hostname="" server=""></recovered></pre>
	servers.	
		Note: If an export server is configured, perform this step.
38.	ACTIVE NOAM: Activate	Establish an SSH session to the active NOAM, login as <i>admusr.</i>
	Optional	Refer to <b>section</b> 1.5 Optional Features to activate any features that were
	Features	previously activated.

39.	NOAM VIP GUI:	Navigate to Main Menu->Status & Manage->Database
□	Fetch and Store the database	
	Report for the	📋 😋 Status & Manage
	Newly Restored	Network Elements
	Data and Save it	Server Server
		Database Database
		🛱 🧰 Tasks
		Files
		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:
		Main Menu: Status & Manage -> Database [Report]
		Tue Oct 05 15:13:38 2010 UTC
		NPQR Database Status Report Report Generated: Tue Oct 05 15:13:38 2010 UTC From: Active Network OAM&P on host blade07
		Report Version: 3.0.13-3.0.0_10.13.0 User: guiadain
		Hostname : blade07 Appvorks Database Version : 3.0 Application Database Version :
		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
		Alarns
		None Maintenance in Progress
		Restore operation success
		Service Information 
		Row Size Num Memory Disk Table Name Schema Avg Max Rows Used / Alloc Used / Alloc
		CgPa         44         1         44         B         42         B         43         B         43         B         44
		CgPaOpc         36         0         B         0         B         0         B         CountryCode         24         306         7344         B         7344         B         7344         B         7344         B         GUIDE         <
		MccMnc         40         0         0         B         0         B         0         B           Msisdn         52         0         0         B         0         B         0         B           Msrn         68         0         0         B         0         B         0         B
		NpqrNeOptions 276 0 0 B 0 B 0 B 0 B 0 C C C C C C C C C C
		Print Save
		Click on <b>Save</b> and save the report to your local machine.

	Replication											
	Between Servers.	\$ sudo	irepstat	-m								
		Output lik	e below sha	all be genera	ated:							
		Policy	7 0 ActStb	[DbReplicat:	ion] -							
			Stby		0	0 50	0 170		07/	-		
				Active								
				Active	0	0.10 /	0.17	0.88%	cpu 33	2B/s	A=noi	ne
			2 Active									
				Active		0.50 ′		-				
			RDU06-MP1	Active	0	0.10	0.08%	cpu 2	0B/s	A=noi	ne	
				Active	0	0.50 1	l%R 0	03%cm	u 21B	/s		
			Active		0			10 00p		, 0		
			n RDU06-NO1		0	0.50 ′	0 049	CD11 2	4B/9			
			RDU06-M01			0.50 1		-		/ 9		
				Active		0.50 1						
		BC IO	RD006-MP2	ACLIVE	0	0.30	L%R U.	07%Cp	u ZIB	/5		
1	NOAM VIP GUI:		xit the scree ain Menu->	en. •Status and	Mana	ger->	Datab	ase				
1.	Verify the	Click on M	ain Menu->	Status and	Mana	ger->	Datab	ase				
1.		Click on M	ain Menu-> Status & Ma Network Server HA Databas KPIs Processe the "OAM N and "Applie	Status and anage Elements	" is eit IA Rol	- her "A	.ctive"	or "Sf				
1.	Verify the	Click on M	ain Menu-> Status & Ma Network Server HA Databas KPIs Processe the "OAM N and "Applie	Status and anage Elements e e s Max HA Role cation Max F shown below	" is eit HA Rol : 0400 Max	- her "A	.ctive" MPs i	or "Si s "Act	IVE", 6	and th	at the	Repl Aud
1.	Verify the	Click on M	ain Menu-> Status & Ma Network Server HA Databas KPIs Processe the "OAM M and "Applie Jormal" as s	Status and anage Elements e es Max HA Role cation Max H shown below	" is eit IA Rol : OAM Max HA Role	her "A e" for	ctive" MPs i	or "St s "Act	IVE", 2	SIG Repl Status	Repl Status	Repl Auc Status
	Verify the	Click on M	ain Menu-> Status & Ma Network Server HA Databas KPIs Processe the "OAM M and "Applie Jormal" as s	Status and anage Elements e e s Max HA Role cation Max F shown below	" is eit HA Rol : 0400 Max	her "A e" for	.ctive" MPs i	or "Si s "Act	IVE", 6	and th	Repl Status	Repl Au Status AutoInPr
l. ]	Verify the	Click on M Click on M Verify that and SOAN status is "N Network Element NO_10303 SO_10303 SO_10303	ain Menu-> Status & Ma Network Server HA Databas KPIs Processe the "OAM N I and "Applie Normal" as s	Status and anage Elements Elements Aax HA Role cation Max H shown below	" is eit HA Role CAM Max HA Role Active Active Active	her "A e" for Max HA Role OOS Active Active	Ctive" MPs i Status Normal Normal	or "Si s "Act DB Level 0 0	OAM Repl Status Normal Normal Normal	SIG Repl Status NotApplical Normal	Repl Status bl Allowed Allowed	Repi Au Status AutoinPri AutoinPri AutoinPri
	Verify the	Click on M	ain Menu-> Status & Ma Network Server HA Databas KPIs Processe the "OAM M I and "Applie Jormal" as s	Status and anage Elements Elements Aax HA Role cation Max H shown below	" is eit HA Rol CAM Max HA Role Active Active	her "A le" for Application Max HA Roos Active	ctive" MPs i Status Normal	or "Si s "Act DB Level 0	OAM Repl Status Normal Normal	SIG Repl Status NotApplical Normal	Repl Status bl Allowed Allowed bl Allowed bl Allowed	Repl Au Status AutoInPl AutoInPl
· ]	Verify the	Click on M Click on M Verify that and SOAN status is "N No_10303 So_10303 So_10303 So_10303	ain Menu->	Status and anage Elements e s Max HA Role cation Max H shown below	" is eit HA Rol : OAM Max HA Role Active Active Active Standby	her "A e" for Application Max HA Role OOS Active OOS	Ctive" MPs i Status Normal Normal Normal	or "Si s "Act DB Level 0 0	OAM Repl Status Normal Normal Normal Normal	SIG Repl Status NotApplicat Normal Normal	Repl Status bl Allowed Allowed bl Allowed bl Allowed	Repi Au Status AutoInPi AutoInPi AutoInPi

NOAM VIP GUI:	Click on Main Menu->Status and Manage->HA							
Status	💼 🚔 Statu	📩 🚔 Status & Manage						
	Select the row for all of the servers							
	Hostname	OAM Max	Application Max HA	Max Allowed HA	Mate Hostname List	Network Element	Server Role	Active VIPs
	NO2	Active	Role OOS	Role Active	NO1	NO_10303	Network OAM&P	10.240.70.132
	S01 S02	Standby Active	00S 00S	Active Active	SO2 SO1	SO_10303 SO_10303	System OAM System OAM	10.240.70.133
	MP2	Standby Active	Active	Active Active	MP2 MP1	SO_10303	MP	
	IPFE	Active	OOS	Active		SO_10303	MP	
NOAM GUI: Enable Provisioning	Status & Netw Serv Repli Colle HA Data Files Enable Provision the screen as se Enable Provisioning A confirmation	& Mana vork El er cation catio	age ement by clic belov	s cking o W.	on <b>Enable</b>	Provisioning Compare	Man Audit Su	spend Auto Audit
	Verify the HA Status NOAM GUI: Enable	Verify the HA Status       Statu         Status       Statu         Status       Statu         Select the row Verify that the '         NOAM GUI: Enable Provisioning       Click on Main I         Status       Status         Status       Status         NoAM GUI: Enable Provisioning       Click on Main I         Status       Status         Status	Verify the HA Status       Status & Network         Status       Network         Databa       KPIs         Process       Select the row for all Verify that the "OAM         Noam GUI: Enable Provisioning       Click on Main Menu         Provisioning       Click on Main Menu         Status & Mark MP2       Status & Mark MP2         Provisioning       Click on Main Menu         Provisioning       Click on Main Menu         Enable Provisioning       Processes         Files       Enable Provisioning         A confirmation window       Enable Provisioning         Replication       Report         A confirmation window       Enable provisioning         Replication       Report         A confirmation window       Enable provisioning         Report surf       A confirmation window	Verify the HA Status       Status & Manage Server         Network Eler       Server         Enable       Processes         NOAM GUI:       Click on Main Menu->Status & Manage         Provisioning       Click on Main Menu->Status & Manage         Provisioning       Network Eler         Provisioning       Click on Main Menu->Status & Manage         Provisioning       Status & Manage         Provisioning       Network Elerent         Server       Replication         Server       Replication         Processes       Server         Replication       Server	Verify the HA Status       Status & Manage Network Elements         Server       Server         Database       KPIs Processes         Processes       Select the row for all of the serve Verify that the "OAM HA Role" is Not Make Methods and the Active Methods and the Active and Active and Active Methods and the Active and A	Verify the HA         Status         Status         Status         Server         Server         Database         Setting         Processes         Select the row for all of the servers         Verify that the "OAM HA Role" is either "Active Market Market Market Note         NOAM GUI:         Enable         Provisioning         Click on Main Menu->Status & Manage         Network Elements         Server         Replication         Report         Replication         Replication         Replication         Replication         Replication         Replication         Report         Replication         Replication         Replication         Report <th>Verify the HA         Status         Status         Server         Database         Processes         Select the row for all of the servers         Verify that the "OAM HA Role" is either "Active" or "Stand         NoAM GUI:         Click on Main Menu-&gt;Status &amp; Manage         Provisioning         Click on Main Menu-&gt;Status &amp; Manage         Network Elements         Server         Network Elements         Server         Network Elements         Server         Network Elements         Server         Server         Replication         Collection         Replication         Collection         Replication         Processes         Files         Enable Provisioning by clicking on Enable Provisioning the screen as shown below.         Enable Provisioning       Replication         Collection         Server       Replication         Collection       Replication         Processes       Files         Enable Provisioning by clicking on Enable Provisioning the screen as shown below.         Enable Provisioning       Report IndetHow Replication</th> <th>Verify the HA         Status         Status         Server         Server         Database         KPIs         Processes         Select the row for all of the servers         Verify that the "OAM HA Role" is either "Active" or "Standby".         Image: Select the row for all of the servers         Verify that the "OAM HA Role" is either "Active" or "Standby".         Image: Select the row for all of the servers         Verify that the "OAM HA Role" is either "Active" or "Standby".         Image: Select the row for all of the servers         Verify that the "OAM HA Role" is either "Active" or "Standby".         Image: Select the row for all of the servers         Verify that the "OAM HA Role" is either "Active" or "Standby".         Image: Select the row for all of the servers         Verify that the "OAM HA Role" is either "Active" or "Standby".         Image: Select the row for all of the servers         Verify that the "OAM HA Role" is either "Active" or "Standby".         Image: Select the row for all of the servers         Verify the the server is select the select on the s</th>	Verify the HA         Status         Status         Server         Database         Processes         Select the row for all of the servers         Verify that the "OAM HA Role" is either "Active" or "Stand         NoAM GUI:         Click on Main Menu->Status & Manage         Provisioning         Click on Main Menu->Status & Manage         Network Elements         Server         Network Elements         Server         Network Elements         Server         Network Elements         Server         Server         Replication         Collection         Replication         Collection         Replication         Processes         Files         Enable Provisioning by clicking on Enable Provisioning the screen as shown below.         Enable Provisioning       Replication         Collection         Server       Replication         Collection       Replication         Processes       Files         Enable Provisioning by clicking on Enable Provisioning the screen as shown below.         Enable Provisioning       Report IndetHow Replication	Verify the HA         Status         Status         Server         Server         Database         KPIs         Processes         Select the row for all of the servers         Verify that the "OAM HA Role" is either "Active" or "Standby".         Image: Select the row for all of the servers         Verify that the "OAM HA Role" is either "Active" or "Standby".         Image: Select the row for all of the servers         Verify that the "OAM HA Role" is either "Active" or "Standby".         Image: Select the row for all of the servers         Verify that the "OAM HA Role" is either "Active" or "Standby".         Image: Select the row for all of the servers         Verify that the "OAM HA Role" is either "Active" or "Standby".         Image: Select the row for all of the servers         Verify that the "OAM HA Role" is either "Active" or "Standby".         Image: Select the row for all of the servers         Verify that the "OAM HA Role" is either "Active" or "Standby".         Image: Select the row for all of the servers         Verify the the server is select the select on the s



46.	SOAM VIP GUI:	Navigate to Main Menu->Diameter->Configuration->Connections
46.	SOAM VIP GUI: Verify the Connections Info	Navigate to Main Menu->Diameter->Configuration->Connections
47.	MP Servers:	Verify that all the connections are shown.
47.	Disable SCTP Auth Flag (DSR 7.1 Only)	Appendix from reference [1]. Execute this procedure on all Failed MP Servers.

48.	SOAM VIP GUI: Enable Connections if needed	Navigate to Main Menu->Diameter->Maintenance->Connections         Image: Maintenance         Image: Route Lists         Image: Route Groups         Image: Route Groups
		Verify that the Operational State is Available.
		<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
49.	SOAM VIP GUI: Enable Optional	Navigate to Main Menu -> Diameter -> Maintenance -> Applications
	Features	Maintenance   Route Lists   Route Groups   Peer Nodes   Connections   Egress Throttle Groups   Papplications   DA-MPs   Select the optional feature application configured before. Click the Enable button.   Enable   Disable   Pause updates

50.	<b>SOAM VIP GUI:</b> Re-enable Transports if Needed [Applicable when MAP-IWF application is activated]	Navigate to Main Menu->Transport Manager -> Maintenance -> Transport         Transport Manager         Configuration         Maintenance         Transport         Select each transport and click on the Enable button         Enable       Disable         Block         Verify that the Operational Status for each transport is Up.
51.	SOAM VIP GUI: Re-enable MAPIWF application if needed [Applicable when MAP-IWF application is activated]	Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users   Configuration   Maintenance   Cocal SCCP Users   Remote Signaling Points   Remote MTP3 Users   Linksets   Click on the Enable button corresponding to MAPIWF Application Name.   Enable   Disable   Verify that the SSN Status is Enabled.
52.	<b>SOAM VIP GUI:</b> Re-enable links if needed [Applicable when MAP-IWF application is activated]	DSR Only, if SDS (Oracle X5-2 Only), Skip This Step Navigate to Main Menu->SS7/Sigtran->Maintenance->Links

53.	SOAM VIP GUI: Examine All	Navigate to Main Menu->Alarms & Events->View Active
	Alarms	Alarms & Events View Active View History View Trap Log Examine all active alarms and refer to the on-line help on how to address them. If needed contact Appendix E. My Oracle Support (MOS).
54.	NOAM VIP GUI: Examine All Alarms	Login to the NOAM VIP if not already logged in. Navigate to Main Menu->Alarms & Events->View Active Alarms & Events View Active View History View Trap Log Examine all active alarms and refer to the on-line help on how to address them. If needed contact Appendix E. My Oracle Support (MOS).
55.	Restore GUI Usernames and Passwords	If applicable, Execute steps in <b>Section 6.0</b> to recover the user and group information restored.
56.	Backup and Archive All the Databases from the Recovered System	Execute <b>Appendix A</b> . DSR Database Backup to back up the Configuration databases:

# 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 2**. 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.

S T E		erforms recovery if at least 1 NOAM server is available but all SOAM servers in a his includes any SOAM server that is in another location.
С Р #	Check off ( <b>√)</b> each step number.	n step as it is completed. Boxes have been provided for this purpose under each
	If this procedure fa	ails, contact Appendix E. My Oracle Support (MOS), and ask for assistance.
1.	Workarounds	Refer to <b>Appendix D</b> . Workarounds for Issues not fixed in this Releaseto understand any workarounds required during this procedure.
2.	Gather Required Materials	Gather the documents and required materials listed in <b>Section 3.1</b> Required Materials
3.	NOAM VIP GUI: 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:
		http:// <primary_noam_vip_ip_address></primary_noam_vip_ip_address>
		Login as the <i>guiadmin</i> user:
		ORACLE
		Oracle System Login
		Log In Enter your username and password to log in
		Username: guiadmin Password: ••••••
		Change password
		Log In
		Welcome to the Oracle System Login.
		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.
		Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

4.	Active NOAM: Set Failed Servers to Standby	Navigate to Main Menu -> Status & Manage -> HA
		Ok Cancel
5.	Create VMs Recover the Failed Software	<ul> <li>For VMWare based deployments:</li> <li>1. For NOAM execute the following procedures from reference [1]: <ul> <li>a. Procedure 1 (VMWare). Import DSR OVA</li> <li>b. Procedure 2 (VMWare Only). Configure NOAM guests role based on resource profile</li> </ul> </li> <li>2. For SOAM execute the following procedures from reference [1]: <ul> <li>c. Procedure 1 (VMWare). Import DSR OVA</li> <li>d. Procedure 3 (VMWare Only). Configure Remaining DSR guests based on resource profile</li> </ul> </li> </ul>
		<ul> <li>For KVM/Openstack based deployments:</li> <li>1. For NOAM execute the following procedures from reference [1]:</li> <li>a. Procedure 4 (KVM/Openstack). "Import DSR OVA"</li> </ul>
		<ul> <li>b. Procedure 5 (KVM/Openstack). "Configure NOAM guests role based on resource profile"</li> </ul>
		<ol> <li>For SOAM execute the following procedures from reference [1]:</li> <li>Procedure 4 (KVM/Openstack). "Import DSR OVA"</li> <li>Procedure 6 (KVM/Openstack). "Configure Remaining DSR guests role based on resource profile"</li> </ol>
6. □	Repeat for Remaining Failed Servers	If necessary, repeat <b>step 5</b> for all remaining failed servers.

7	NOAM VIP GUI:	Establish a GUI session on the NOAM server by using the VIP IP address of the						
7.	Login	NOAM server. Open the web browser and enter a URL of:						
		http:// <primary_noam_vip_ip_address></primary_noam_vip_ip_address>						
		Login as the <i>guiadmin</i> user:						
		ORACLE						
		Oracle System Login Fri Mar 20 12:29:52 2015 EDT						
		Log In						
		Enter your username and password to log in						
		Username: guiadmin						
		Password: ••••••						
		Change password						
		Log In						
		Welcome to the Oracle System Login.						
		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.						
		Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates.						
		Other names may be trademarks of their respective owners.						
8.	NOAM VIP GUI: Recover	Install the second NOAM server by executing procedures from reference [1]:						
	Standby NOAM	Procedure 9 "Configure the Second NOAM Server" steps 1, 3-7						
		Procedure 10 "Complete Configuring the NOAM Server Group" Step 5						
		<b>Note:</b> If Topology or nodeld alarms are persistent after the database restore, refer to Appendix D. Workarounds for Issues not fixed in this Release or the next step below.						

0	NOAM VIP GUI:	Navigate to Main Menu->Status & Manage->Server,
9.	Restart DSR application	Status & Manage Network Elements Server HA Database KPIs Processes Tasks Files Select the recovered standby NOAM server and click on Restart. Stop Restart Reboot NTP Sync Report
	NOAM VIP GUI:	Navigate to Status & Manage -> HA
10.	Set HA on	
	Standby NOAM	📋 🚔 Status & Manage
		🔤 🤤 Network Elements
		🔤 🔤 🦉 Server
		HA 🗤 🎬 HA
		🔤 🔤 Database
		📑 KPIs
		🗖 🗖 Tasks
		Files
		Click on <b>Edit</b> at the bottom of the screen
		Select the standby NOAM server, set it to Active
		Press OK
11.	NOAM VIP GUI: Stop Replication to the C-Level Servers of this Site.	Inhibit Replication to the working C Level Servers which belong to the <b>same</b> <b>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
		Execute Appendix B. Inhibit A and B Level
		Replication on C-Level Servers

12.	NOAM VIP GUI: Recovered Active SOAM Server	Install the SOAM servers by executing procedure from reference [1]: Procedure 12 "Configure the SOAM Servers", steps 1, 3- 6 <b>NOTE:</b> Wait for server to reboot before continuing.
13.	NOAM VIP GUI: Set HA on Active SOAM	Navigate to Status & Manage Status & Manage Network Elements Server HA Database KPIs Processes Files Click on Edit at the bottom of the screen
		Select the Active SOAM server, set it to <b>Active</b>
		Press <b>OK</b>
14.	NOAM VIP GUI: Restart DSR application	Navigate to Main Menu->Status & Manage->Server,         Status & Manage         Network Elements         Server         HA         Database         KPIs         Processes         Tasks         Files         Select the recovered Active SOAM server and click on Restart.         Stop       Restart         Reboot       NTP Sync         Report

15.	NOAM VIP GUI:	Navigate to Main Menu->Status & Manage->Files
15.	Upload the	📮 🚔 Status & Manage
	backed up	Elements
	SOAM	HA
	Database file	- 💽 Database
		- 📑 KPIs - 📑 Processes
		😰 🧰 Tasks
		Files Files
		Select the Active SOAM server. The following screen will appear:
		Main Menu: Status & Manage -> Files
		Filter - Tasks -
		Shelby-NO-A Shelby-NO-B Shelby-SO-A Shelby-SO-B Shelby-SO-Sp Co
		File Name
		Backup.DSR.Shelby-SO-A.FullDBParts.SYSTEM_OAM.20160408_095724.UPG.tar.bz2
		Backup.DSR.Shelby-SO-A.FullRunEnv.SYSTEM_OAM.20160408_095724.UPG.tar.bz2
		backup/Backup.dsr.Shelby-SO-A.Configuration.SYSTEM_OAM.20160405_021501.AUTO.tar
		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.
		Delete View Upload Download Deploy ISO Validate ISO
		1 GB used (3.00%) of 34 GB available   System utilization: 1.8 GB (5.24%) of 34 GB available.
		1. Click on <b>Browse</b> and locate the backup file
		2. Check This is a backup file Box
		3. Click on Open as shown below.
		8
		File:
		Browse_ No file selected.
		✓ This is a backup file
		Upload
		Cancel
		Choose file
		Look in: C PV3 S PV III C DMPiov.1gz
		🔛 🔛 Backup, PV3.tgz
		My Documents
		My Computer
		My Network File name: Backup.PV3.tgz    Hace: Files of type: All Files (`.')  Cancel
חפם	701/711/7077	Click on the <b>Upload</b> button.
DSR	7.0.1 / 7.1.1/7.2/7.3	52 52 September 2016 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.

16.	Recovered SOAM GUI: Login	Establish a GUI session on the recovered SOAM server. Open the web browser and enter a URL of: http:// <recovered_soam_ip_address></recovered_soam_ip_address>
		Login as the <i>guiadmin</i> user:
		ORACLE
		Oracle System Login Fri Mar 20 12:29:52 2015 EDT
		Log In Enter your username and password to log in Username: guiadmin Password: •••••• Change password
		Log In
		Welcome to the Oracle System Login. 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.
		Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

17.	Recovered SOAM GUI:	Navigate to Main Menu->Status & Manage->Da	atabase
	Verify the	Select the Active SOAM server and click on the	Compare.
	Archive Contents and	Enable Provisioning Report Inhibit Replication Backup Compare	Restore Man Audit Suspend Auto Audit
	Database Compatibility	The following screen is displayed; click the butto that was uploaded as a part of <b>Step 15</b> of this pr	
		Database Compare	
		Select archive to compare on server: blade02	
		Backup npgr.blade02.configuration NETWORK_OAMP.20100928_021502.AUT0.tar     OBackup npgr.blade02.configuration.NETWORK_OAMP.20100929_021501.AUT0.tar     OBackup npgr.blade02.configuration.NETWORK_OAMP.20100930_021501.AUT0.tar	
		Rackup ppgr blade02 Configuration NETWORK, 0ANR 20101001, 021501 AUTO far	live to compare to the current database.
		Obackup.npt.biadeb2.com/gutation.NETWORK_OAMP.20101004_021502.AUT0.tar OBackup.nptr.biade02.com/gutation.NETWORK_OAMP.20101004_021502.AUT0.tar OBackup.nptr.biade02.com/gutation.NETWORK_OAMP.20101005_021501.AUT0.tar	
		Old Cancel	
		Verify that the output window matches the scree	n below.
		<b>Note:</b> You will get a database mismatch regardir That is expected. If that is the only mismatch, pro	
		contact Appendix E. My Oracle Support (MOS)	
		The selected database came from black/07 on 01/19/2011 at 13.43-47 EDT and contains the following comment.	
		Active Contents ProvisioningAndConfiguration data	
		Collaboras Consultitit     To distances are compatible.     Note: To a Consultibilit     Note: To a Consultibilit	
		The node types are compatible.     Transmitted.     Transmitted.     Transmitted.     Transmitted.     The topological shart compatibility.     The topological shart compatibility.	
		<ul> <li>In torocomparison communications in balance or provide a structure as non-instant and a structure of the structu</li></ul>	
		• User Compatibility	
		The user and authentication data are compatible.     Contentia     Contentia     Processions/select/configuration	
		Table Instance Counts     Current ASGreep count 6 Selected 0     Current AsGreep scout 6 Selected 0	
		Oument Approxins/Space/Constraints sound 2 Selected 2     Oument Approximation cound 1 Selected 1     Oument Australiant CFGSet cound 1 Selected 1     Oument Australiant 2 Selected 3     Oument Australiant 2 Selected 1	
		Note: Archive Contents and Database Compatib	ilities must be the following:
		Archive Contents: Configuration data Database Compatibility: The databases are co	mpatible.
		<b>Note:</b> The following is expected Output for Topo we are restoring from existing backed up data ba SOAM:	
		<b>Topology Compatibility</b> THE TOPOLOGY SHOULD BE COMPATIBLE N	INUS THE NODEID.
		<b>Note:</b> We are trying to restore a backed up datal database. This is an expected text in Topology C If the verification is successful, Click <b>BACK</b> butto this procedure.	Compatibility.
DSR	7.0.1 / 7.1.1/7.2/7.3	54	September 2016

r		
18.	Recovered SOAM GUI:	Click on Main Menu->Status & Manage->Database
	Restore the Database	Select the Active SOAM server, and click on Restore as shown below.
	Dalabase	The following screen will be displayed. Select the proper back up provisioning and configuration file.
		Select archive to Restore on server: blade02         Backup ngrt blade02. Configuration.NETWORK_OAMP.20100928_021502.AUTO tar         Backup ngrt blade02. Configuration.NETWORK_OAMP.20100928_021501.AUTO tar         Backup ngrt blade02. Configuration.NETWORK_OAMP.20100030_021501.AUTO tar         Backup ngrt blade02. Configuration.NETWORK_OAMP.2010002_021502.AUTO tar         Backup ngrt blade02. Configuration.NETWORK_OAMP.20101002_021502.AUTO tar         Backup ngrt blade02. Configuration.NETWORK_OAMP.20101002_021502.AUTO tar         Backup ngrt blade02. Configuration.NETWORK_OAMP.20101002_021502.AUTO tar         Backup ngrt blade02. Configuration.NETWORK_OAMP.20101005_021501.AUTO tar         Backup ngrt blade02. Configuration.NETWORK_OAMP.20101005_021502.AUTO tar         Backup ngrt blade02. Configuration.NETWORK_OAMP.20101005_021501.AUTO tar         Backup ngrt blade02. Configuration NETWORK_OAMP.20101005_021501.AUTO tar         Backup ngrt
		<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 Appendix E. My Oracle Support (MOS).
		Select the <b>Force</b> checkbox as shown above and Click <b>OK</b> to proceed with the DB restore.
		Database Restore Confirm Incompatible database selected
		Discrepancies: - IMI Server Address A3118.120 has different node IDs in current topology and the selected backu p file. Current node ID: A3118.120, Selected backup file node ID: E2073.087 - IMI Server Address C1157.241 has different node IDs in current topology and the selected backu p file. Current node ID: C1157.241, Selected backup file node ID: E2073.087 - IMI Server Address B1787.161 has different node IDs in current topology and the selected backu p file. Current node ID: E1787.161 Selected backup file node ID: E2073.087 - Current node ID: E1787.161 Selected backup file node ID: E2073.087
		Confirm archive "3bladeNPQR.blade07.Configuration.NETWORK_OAMP.20110119_184253.MAN.tar" to Restore on server: blade07 Force Restore? Force restore on blade07, despite compare errors.
		Note: After the restore has started, the user will be logged out of XMI SOAM GUI since the restored Topology is old data.
19.	Recovered SOAM GUI:	Wait for <b>5-10 minutes</b> for the System to stabilize with the new topology:
	Monitor and Confirm database	Monitor the Info tab for " <b>Success</b> ". This will indicate that the backup is complete and the system is stabilized.
	restoral	<b>Note:</b> Do not pay attention to alarms until all the servers in the system are completely restored.
		<b>Note:</b> The Configuration and Maintenance information will be in the same state it was backed up during initial backup.

20.	NOAM VIP GUI: Recover remaining SOAM Server (OPTIONAL) for Non-HA sites	NOTE: For Non-HA sites SKIP this step Install the SOAM servers by executing procedure from reference [1]: Procedure 12 "Configure the SOAM Servers", steps 1, 3- 6 NOTE: Wait for server to reboot before continuing.
21.	NOAM VIP GUI: Set HA on SOAM Servers (OPTIONAL) for Non-HA sites	NOTE: For Non-HA sites SKIP this step Navigate to Status & Manage -> HA Status & Manage Network Elements Server Database KPIs Processes Tasks Files Click on Edit at the bottom of the screen For each SOAM server whose Max Allowed HA Role is set to Standby, set it to Active Press OK

22.	Recovered Server: Sync	1) Perform the following to retrieve the remote NTP server:
	NTP	\$ sudo ntpq -np
		Example output:
		[admusr@NOAM-2 ~]\$ ntpq -np
		remote refid st t when poll reach delay offset
		jitter ===================================
		======================================
		2.434
		2) Stop ntpd service:
		<pre>\$ sudo service ntpd stop</pre>
		3) Sync the date to the ntp remote server:
		<pre>\$ sudo ntpdate <ntp remote="" server=""></ntp></pre>
		<b>Note:</b> The remote server below will be that of the one gathered in sub step 1.
		4) Start the ntp service:
		<pre>\$ sudo service ntpd start</pre>
23.	NOAM VIP GUI: Restart DSR application (OPTIONAL) for	NOTE: For Non-HA sites SKIP this step Navigate to Main Menu->Status & Manage->Server,
	Non-HA sites	<ul> <li>Status &amp; Manage</li> <li>Network Elements</li> <li>Server</li> </ul>
		💽 HA 💽 Database 💽 KPIs 💽 Processes
		Tasks
		Select the recovered server and click on <b>Restart</b> .
		Stop Restart Reboot NTP Sync Report
		5)

24.	NOAM VIP GUI: Start Replication	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.
	on working C- Level Servers	Execute Appendix C. Un-Inhibit A and B Level Replication on C-Level Servers
		Navigate to Main Menu->Status & Manage->Database
		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:
		<ul> <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 (<i>if MPs are configured as Active/Standby, start with the Active MP, otherwise the order of the MPs does not matter</i>)</li> <li>SBRS (<i>if SBR servers are configured, start with the active SBR, then standby, then spare</i>)</li> </ul>
		Verify that the replication on all the working servers is allowed. This can be done by clicking on each server and checking that the button below shows "Inhibit Replication", and <b>NOT</b> "Allow Replication".
		Disable Provisioning Report (Allow Replication) Backup Compare Restore
25.	NOAM VIP GUI:	
	Recover the C- Level Server	Establish a SSH session to the C Level server being recovered, login as <i>admusr.</i>
_		
_	Level Server (DA-MP, SBRs,	admusr.
_	Level Server (DA-MP, SBRs,	admusr.         Execute following command to set shared memory to unlimited:         \$ sudo shl.set -m 0         Execute following command ONLY when the recovered C-Level server is of type IPFE:
_	Level Server (DA-MP, SBRs,	<pre>admusr. Execute following command to set shared memory to unlimited: \$ sudo shl.set -m 0 Execute following command ONLY when the recovered C-Level server is of</pre>
_	Level Server (DA-MP, SBRs,	admusr.         Execute following command to set shared memory to unlimited:         \$ sudo shl.set -m 0         Execute following command ONLY when the recovered C-Level server is of type IPFE:

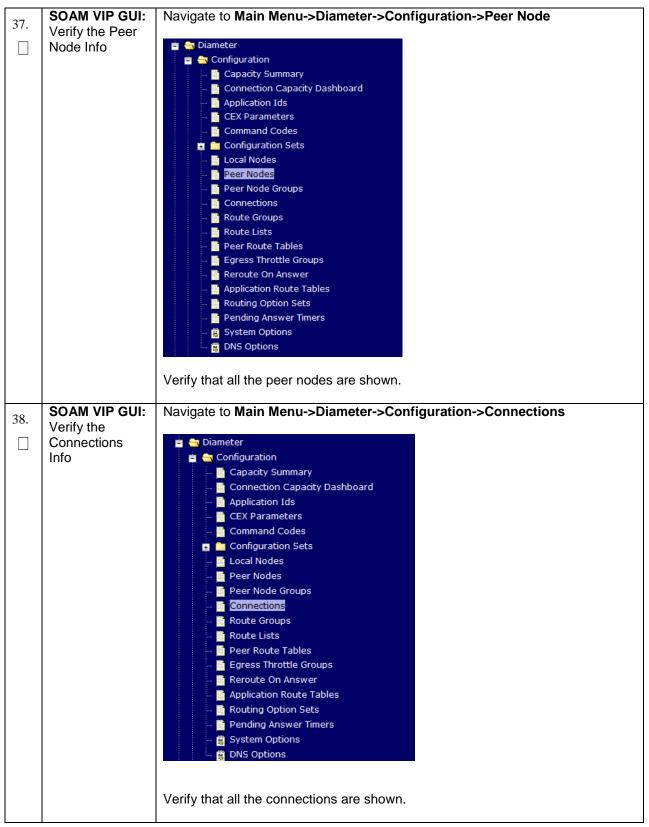
24	NOAM VIP GUI:	Un-Inhibit (Start) Replication to the ALL C-Level Servers
26.	Start replication	
	on ALL C-Level Servers	Navigate to Status & Manage -> Database
		📩 😋 Status & Manage
		🔤 🔤 Network Elements
		🔂 Database
		KPIs
		Processes
		🖬 🧰 Tasks
		🖳 📑 Files
		If the <i>"Repl Status"</i> is set to "Inhibited", click on the Allow Replication button as
		shown below using the following order:
		Active NOAM Server
		Standby NOAM Server
		Active SOAM Server
		Standby SOAM Server
		Spare SOAM Server ( <i>if applicable</i> )
		<ul> <li>MP/IPFE Servers (if MPs are configured as Active/Standby, start with</li> </ul>
		the Active MP, otherwise the order of the MPs does not matter)
		Verify that the replication on all servers is allowed. This can be done by clicking
		on each server and checking that the button below shows "Inhibit Replication",
		and <b>NOT</b> "Allow Replication".
		000
		Disable Provisioning Report (Allow Replication) Backup Compare Restore

27.	NOAM VIP GUI:	Navigate to Status & Manage -> HA
	Set HA on all C- Level Servers	<ul> <li>Status &amp; Manage</li> <li>Network Elements</li> <li>Server</li> <li>Database</li> <li>KPIs</li> <li>Processes</li> <li>Tasks</li> <li>Files</li> </ul>
		Click on Edit at the bottom of the screen
		For each server whose Max Allowed HA Role is set to Standby, set it to Active
		Press OK
28.	Active SOAM: Prepare recovered SOAM for optional feature activation	If DSR 7.1, skip this step Establish an SSH session to the Active SOAM, login as <b>admusr</b> . Execute the following command: \$ irem DsrApplication where "name in ('RBAR','FABR','PCA','MD-IWF','DM-IWF','CPA','GLA')"
29.	Active SOAM: Verify Preparation	If DSR 7.1, skip this step Execute the following command to verify preparation of optional feature activation:
		<pre>\$ iqt -z -h -p -fname DsrApplication where "name in ('RBAR', 'FABR', 'PCA', 'MD-IWF', 'DM-IWF', 'CPA', 'GLA')" Note: There should be no output of this command, if there is, verify the correct entry of the command in step 28.</pre>
30.	ACTIVE NOAM: 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: <b>\$ keyexchange admusr@<recovered hostname="" server=""></recovered></b> <b>Note:</b> If an export server is configured, perform this step.

31.	ACTIVE NOAM:	Establish an SSH session to the active NOAM, login as <i>admusr.</i>
	Activate Optional	Refer to <b>section</b> 1.5 Optional Features to activate any features that were
	Features	previously activated.
32.	NOAM VIP GUI: Fetch and Store	Navigate to Main Menu->Status & Manage->Database
	the database	📩 🥽 Status & Manage
	Report for the	Network Elements
	Newly Restored	Server
	Data and Save it	HA BA
		Database Database
		KPIs
		Processes
		🖬 🧰 Tasks
		🔚 📑 Files
		Select the active NOAM conver and click on the <b>Penert</b> button at the bettom of
		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:
		Main Menu: Status & Manage -> Database [Report]
		NPQR Database Status Report
		Report Generated: Tue Oct 05 15:13:38 2010 UTC           From: Active Network 0.4M&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 
		Service Information
		Part: A_NpqrFrovPart 
		Table Name         Schema Avg Max         Rows         Used / Alloc         Used / Alloc
		CgPaInfo 64 1 64 B 64 B 64 B CgPaOnco 36 0 0 0 0 0 0
		CountryCode         24         306         7344         B         7444         B         7444         B
		Msistin         52         0         0         B         0         B         B           Msrn         68         0         0         B         0         B         B         B           NpqrNeOptions         276         0         0         B         0         B         0         B         I </th
		ore Print Save
		Click on <b>Save</b> and save the report to your local machine.

33.	ACTIVE NOAM: Verify Replication	Login to the Execute the	e following co									
	Between Servers.	\$ sudo	irepstat -	-m								
		Output lik	e below shal	l be genera	ted:							
		Policy	0 ActStb []	DbReplicati	lon] -							
		 RDU06-MP1										
			RDU06-SO1 A	Active	0	0.50	^0.178	scpu 4	2B/s	A=nor	ne	
		CC From	RDU06-MP2 A									ne
			RDU06-SO1 #	Active	0	0.50	^0.10%	scpu 3	3B/s	A=nor	ne	
			RDU06-MP1 A					-				
			Active					1.				
			RDU06-SO1 A Active	Active	0	0.50	1%R 0.	.03%cp	ou 21B	/s		
			RDU06-NO1 A	Active	0	0.50	^0.04%	scpu 2	4B/s			
		BC To	RDU06-MP1 A	Active			1%R 0.	-		/s		
			RDU06-MP2 A		0	0.50	1%R 0.	.07%cp	11 21B	/ 9		
	NOAM VIP GUI:		kit the screen	1.	Mana					, .		
34.	<b>NOAM VIP GUI:</b> Verify the Database states	Click on Ma	ain Menu->S	). Status and	Mana							
34.		Click on Ma		). Status and nage Elements	Mana							
34.	Verify the	Click on Ma	ain Menu->S tatus & Mar Network E Server HA Database KPIs Processes the "OAM Ma and "Applica lormal" as sh	a. Status and hage Elements ax HA Role ation Max H hown below	" is eit IA Rol :	ger-> her "A e" for	Datab Active" MPs	oase	tandb tive", a	y" for and th	iat the	9
34.	Verify the	Click on Ma	ain Menu->S tatus & Mar Network E Server HA Database KPIs Processes the "OAM Ma and "Applica lormal" as sh	a. Status and hage Elements ax HA Role ation Max Harris own below	" is eit IA Rol : OAM Max HA Role	ger-> her "A e" for	Datat Active" MPs	oase or "S is "Act	tandb tive", a	y" for and th	Repl Status	Repl Audit Status
34.	Verify the	Click on Ma	ain Menu->S tatus & Mar Network E Server HA Database KPIs Processes the "OAM Ma and "Applica lormal" as sh	a. Status and hage Elements ax HA Role ation Max H hown below	" is eit 1A Rol : OAM Max HA Role Active	ger-> her "A e" for Application Max HA Role	Datab Active" MPs	oase oase ' or "S is "Act	tandb tive", a	y" for and th	Repl Status	Repl Audit Status AutoInProg
34.	Verify the	Click on Ma	ain Menu->S tatus & Mar Network E Server HA Database KPIs Processes the "OAM Ma and "Applica lormal" as sh	A. Status and Dage Elements Sax HA Role ation Max H nown below Role Network OAMBP	" is eit IA Rol : OAM Max HA Role	ger-> her "A e" for	Datat Active" MPs	oase or "S is "Act	tandb tive", a	y" for and th	Repl Status	Repl Audit Status AutoInProg AutoInProg
34.	Verify the	Click on Ma Click on Ma Support Verify that and SOAM status is "N No_10303 So_10303 So_10303 So_10303 So_10303	ain Menu->S tatus & Mar Network E Server HA Database KPIs Processes the "OAM Ma and "Applica lormal" as sh	A. Status and hage Elements ax HA Role ation Max Har hown below Role Network OAM&P MP System OAM	" is eit IA Rol : OAM Max HA Role Active Active Active Active Standby	ger-> her "A e" for Application Max HA Role OOS Active OOS	Datat Active" MPs MPs Normal Normal	oase oase is "Act o o o o	tandb tive", a OAM Repl Status Normal Normal Normal	y" for and th SiG Rep! Status NotApplicab Normal NotApplicab	Repl Status bl Allowed Allowed bl Allowed bl Allowed	Repl Audit Status AutoInProg AutoInProg AutoInProg
34.	Verify the	Click on Ma	ain Menu->S	A. Status and Aage Elements Aage Clements Aage	" is eit IA Rol : OAM Max HA Role Active Active Active	ger-> her "A e" for Application Max HA Role OOS Active Active	Datat Active" MPs Status Normal Normal	oase	tandb tive", a OAM Repl Status Normal Normal	y" for and th Sig Repi Status NotApplicab Normal Normal	Repl Status bl Allowed Allowed bl Allowed bl Allowed	Repl Audit Status AutoInProg AutoInProg

35.	NOAM VIP GUI:	Click on Main	Menu	->Stat	us ar	nd Manage	e->HA		
	Verify the HA								
	Status	📋 🚔 Statu							
		💽 N(	etwor	'k Elen	nents	5			
		💽 Se	erver						
		🚮 H/	4						
			- ataba	ico.					
				50					
			PIs						
		🔤 🔤 📑 Pr	oces	ses					
			f						
		Select the row Verify that the					stivo" or "Sta	ndhv"	
		verity that the	UAIV	ПАК		seither At		nuby .	
		Hostname	OAM Max HA Role	Application Max HA	Allowed H/	A Mate Hostname List	Network Element	Server Role	Active VIPs
		NO2	Active	Role OOS	Role Active	N01	NO_10303	Network OAM&P	10.240.70.132
		SO1 SO2	Standby Active	00S	Active Active	SO2 SO1	SO_10303	System OAM	10.240.70.133
		MP1	Standby	Active	Active	MP2	SO_10303 SO_10303	System OAM MP	10.240.70.133
		MP2 IPFE	Active Active	Active OOS	Active Active	MP1	SO_10303 SO_10303	MP	
			Acave	003	Active		30_10303	m	
36.	SOAM VIP GUI: Verify the Local Node Info	Navigate to Ma	ition ity Sumr ction Ca ation Ids aramete and Coo uration vodes lodes lodes lodes ctions Groups Lists oute Ta s Throttl ce On Ar ation Roi g Option	nary ipacity Da is rs les Sets bles e Groups iswer ute Table n Sets	s		figuration->	Local Node	
		📰 System 📆 DNS O							
		Verify that all th		al nod	es are	e shown.			



20	MP Servers:	For SCTP connections without DTLS enabled, refer to Enable/Disable DTLS
39.	Disable SCTP	Appendix from reference [1].
	Auth Flag (DSR	
	7.1 Only)	Execute this procedure on all Failed MP Servers.
40.	SOAM VIP GUI:	Navigate to Main Menu->Diameter->Maintenance->Connections
40.	Enable	
	Connections if	📋 😋 Maintenance
	needed	💽 Route Lists
		💽 Route Groups
		🔤 🔤 Peer Nodes
		🔤 💓 Connections
		🔤 🔄 Egress Throttle Groups
		💽 Applications
		🛄 🔯 DA-MPs
		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.
		Enable         Disable         EnableAll         Diagnose Start         Diagnose End         SCTP STATISTICS         Pause updates
		Verify that the Operational State is Available.
4.1	SOAM VIP GUI:	Navigate to Main Menu -> Diameter -> Maintenance -> Applications
41.	Enable Optional	
	Features	🚊 🚔 Maintenance
		💽 Route Lists
		Route Groups
		Peer Nodes
		Connections
		Egress Throttle Groups
		Martin Constructions
		L 🔯 DA-MPs
		Select the optional feature application configured in <b>step 31</b> .
		Click the <b>Enable</b> button.
		Enable Disable Pause updates

Attemports if Needed       Transport Manager Image for the configuration         Image for the second for	42.	SOAM VIP GUI:	Navigate to Main Menu->Transport Manager -> Maintenance -> Transport
Needed       in Configuration         Image: Configuration       Image: Configuration         Select each transport and click on the Enable button       Image: Configuration         Image: Configuration       Image: Configuration <td< th=""><th>12.</th><th>Re-enable</th><th></th></td<>	12.	Re-enable	
41.       SOAM VIP GUI: APPINF       Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users         43.       SOAM VIP GUI: APPINF       Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users         43.       SOAM VIP GUI: APPINF       Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users         43.       SOAM VIP GUI: APPINF       Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users         43.       SOAM VIP GUI: APPINF       Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users         44.       SOAM VIP GUI: APPINF       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         44.       SOAM VIP GUI: APPINF       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         Feenable links if needed       SOAM VIP GUI: APPINF       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         Feenable links if needed       Soam VIP GUI: APPINF       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         Feenable links if needed       Soam VIP GUI: APPINF       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         Feenable links if needed       Soam VIP GUI: APPINF       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         Feenable links if needed       Soam VIP GUI: APPINF       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         Feenable links if needed       Soam VIP GUI: APPINF       Navigate to Main Menu->SS7/Sigtran->Maintenance->Li			
41.       Solaw VIP GUI: Ne-enable MAPIWF application if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users         43.       Solaw VIP GUI: MAPIWF application if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users         43.       Solaw VIP GUI: MAPIWF application if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users         43.       Solaw VIP GUI: Navigate to Main Menu->SS7/Sigtran       Navigate to Main Menu->SS7/Sigtran         44.       Solaw VIP GUI: Navigate to Main Menu->SS7/Sigtran i needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         44.       Solaw VIP GUI: Navigate to Main Menu->SS7/Sigtran i needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         44.       Solaw VIP GUI: Navigate to Main Menu->SS7/Sigtran i needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         44.       Solaw VIP GUI: Navigate to Main Menu->SS7/Sigtran i needed       Navigate to Main Menu->SS7/Sigtran i Configuration i needed         44.       Solaw VIP GUI: Navigate to Main Menu->SS7/Sigtran i needed       Cick on Enable button for each link.		100000	
4.       SOAM VIP GUI: needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users         4.       Soam VIP GUI: needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users         4.       Soam VIP GUI: needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users         4.4.       Soam VIP GUI: needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         4.       Soam VIP GUI: needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         4.       Soam VIP GUI: needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         4.       Soam VIP GUI: needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         6.       Soam VIP GUI: needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         6.       Soam VIP GUI: needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         7.       Signaling Points needed       Signaling Points needed         6.       Soam VIP GUI: needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links			
4.       SOAM VIP GUI: needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users         4.       Soam VIP GUI: needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users         Image: Configuration needed       Image: Configuration image: Configuration image			
43.       SOAM VIP GUI: Re-enable MAPIWUF application if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users         43.       SOAM VIP GUI: AMPIWUF application if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users         Configuration       Configuration       Configuration         Image: Configuration       Configuration       Configuration         Image: Configuration       Remote Signaling Points       Remote MTP3 Users         Image: Configuration       Click on the Enable button corresponding to MAPIWF Application Name.         Image: Configuration       Enable       Disable         Verify that the SSN Status is Enabled.       Verify that the SSN Status is Enabled.         44.       SOAM VIP GUI: Re-enable links if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         Image: Configuration       Maintenance       Maintenance         Image: Configuration       Maintenance       Remote Signaling Points         Remote Signaling Points       Remote Signaling Points       Remote Signaling Points         Remote MIP3 Users       Click on Enable button for each link.       Click on Enable button for each link.			Select each transport and click on the Enable button
43.       SOAM VIP GUI: Re-enable MAPIWF application if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users         43.       SOAM VIP GUI: MAPIWF application if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users         Image: SS7/Sigtran needed       Maintenance image: SS7/Sigtran image: SS7/Sigtran im			
43.       SOAM VIP GUI: Re-enable MAPIWF application if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users         44.       SOAM VIP GUI: Re-enable links if needed       Navigate to Main Menu->SS7/Sigtran         44.       SOAM VIP GUI: Re-enable links if needed       Navigate to Main Menu->SS7/Sigtran         44.       SOAM VIP GUI: Re-enable links if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         44.       Click on the Enable button for each link. if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links			Enable Disable Block
<ul> <li>43. Re-enable MAPIWF application if needed</li> <li>44. Source Source</li></ul>			Verify that the Operational Status for each transport is Up.
application if needed       application if Needed       Configuration         application if needed       Maintenance       Configuration         Remote MTP3 Users       Linksets         Linksets       Click on the Enable button corresponding to MAPIWF Application Name.         Enable       Disable         Verify that the SSN Status is Enabled.         44.       SOAM VIP GUI: Re-enable links if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         application       Configuration       Configuration         Click on Enable       Local SCP Users         Remote MTP3 Users       Remote Signaling Points         Remote Signaling Points       Remote Signaling Points         Remote Signaling Points       Remote Signaling Points         Remote Signaling Points       Remote Signaling Points         Remote Disable       Click on Enable button for each link.	43.		
areeded       Maintenance         inceded       Cocal SCCP Users         inceded       Cocal SCCP Users         inksets       Linksets         inksets       Click on the Enable button corresponding to MAPIWF Application Name.         Enable       Disable         Verify that the SSN Status is Enabled.         44.       SOAM VIP GUI: Re-enable links if needed         Renote Signaling Points         Remote MTP3 Users         Linksets         Integer         Click on Enable button for each link.         Enable       Disable			
44.       SOAM VIP GUI: Re-enable links if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         Image: Society of the second sec			
44.       SOAM VIP GUI: Re-enable links if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         Image: Signaling Points       Remote Signaling Points         Remote MTP3 Users       Image: Signaling Points         Remote MTP3 Users       Image: Signaling Points         Remote MTP3 Users       Image: Signaling Points         Remote Signaling Points       Remote MTP3 Users         Image: Image		needed	
44.       SOAM VIP GUI: Re-enable links if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         Image: Start Sta			
44.       SOAM VIP GUI: Re-enable links if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         Image: Source Signaling Points       Remote Signaling Points         Remote Signaling Points       Remote Signaling Points         Remote Signaling Doints       Remote Signaling Points         Remote Signaling Doints       Click on Enable button for each link.         Enable       Disable			
44.       SOAM VIP GUI: Re-enable links if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         Image: Source of the second seco			
44.       SOAM VIP GUI: Re-enable links if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         44.       Re-enable links if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         Image: Configuration Image: Configuration Im			Click on the <b>Enable</b> button corresponding to MAPIWF Application Name.
44.       SOAM VIP GUI: Re-enable links if needed       Navigate to Main Menu->SS7/Sigtran->Maintenance->Links         Image: SS7/Sigtran image: SS			Enable Disable
44. Re-enable links if needed SS7/Sigtran Configuration Configuration Cocal SCCP Users Remote Signaling Points Remote MTP3 Users Linksets Click on Enable button for each link. Enable Disable			Verify that the SSN Status is Enabled.
Re-enable links         if needed	44.		Navigate to Main Menu->SS7/Sigtran->Maintenance->Links
Click on Enable button for each link.			💼 🚍 SS7/Sigtrap
Click on Enable button for each link.		li needed	
Click on Enable button for each link.			🝵 😋 Maintenance
Click on Enable button for each link.			
Click on Enable button for each link.			
Enable Disable			
Enable Disable			
			Click on <b>Enable</b> button for each link.
Verify that the Operational Status for each link is Up.			Enable Disable
			Verify that the Operational Status for each link is Up.

45. [	SOAM VIP GUI: Examine All Alarms	Navigate to Main Menu->Alarms & Events->View Active
		If needed contact Appendix E. My Oracle Support (MOS).
46.	NOAM VIP GUI: Examine All Alarms	Login to the NOAM VIP if not already logged in. Navigate to Main Menu->Alarms & Events->View Active
47.	Backup and Archive All the Databases from the Recovered System	Execute <b>Appendix A</b> . DSR Database Backup to back up the Configuration databases:

# 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 3**. 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.

S T E	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).				
Р #	Check off ( $$ ) each step as it is completed. Boxes have been provided for this purpose under each step number.				
	If this procedure fa	ails, contact Appendix E. My Oracle Support (MOS), and ask for assistance.			
1.	Workarounds	Refer to <b>Appendix D</b> . Workarounds for Issues not fixed in this Release to understand any workarounds required during this procedure.			
1.	Gather Required Materials	Gather the documents and required materials listed in <b>Section 3.1</b> Required Materials			
2.	Recover the Failed Software	For VMWare based deployments:			
	Talled Software	1. For NOAM execute the following procedures from reference [1]:			
		a. Procedure 1 (VMWare). Import DSR OVA			
		<ul> <li>b. Procedure 2 (VMWare Only). Configure NOAM guests role based on resource profile</li> </ul>			
		2. For SOAM execute the following procedures from reference [1]:			
		c. Procedure 1 (VMWare). Import DSR OVA			
		<ul> <li>Procedure 3 (VMWare Only). Configure Remaining DSR guests based on resource profile</li> </ul>			
		<ol> <li>For failed MPs execute the following procedures from reference [1]:</li> <li>e. Procedure 1 (VMWare). Import DSR OVA</li> </ol>			
		f. Procedure 3 (VMWare Only). Configure Remaining DSR guests based on resource profile			
		For KVM/Openstack based deployments:			
		1. For NOAM execute the following procedures from reference [1]:			
		a. Procedure 4 (KVM/Openstack). "Import DSR OVA"			
		<ul> <li>b. Procedure 5 (KVM/Openstack). "Configure NOAM guests role based on resource profile"</li> </ul>			
		2. For SOAM execute the following procedures from reference [1]:			
		c. Procedure 4 (KVM/Openstack). "Import DSR OVA"			
		<ul> <li>Procedure 6 (KVM/Openstack). "Configure Remaining DSR guests role based on resource profile"</li> </ul>			
		<ol> <li>For failed MPs execute the following procedures from reference [1]:</li> <li>e. Procedure 4 (KVM/Openstack). "Import DSR OVA"</li> </ol>			
		f. Procedure 6 (KVM/Openstack). "Configure Remaining DSR guests role based on resource profile"			

3.	Obtain Latest Database Backup and Network Configuration Data.	Obtain the most recent database backup file from external backup sources (ex. file servers) or tape backup sources. 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.		
4.	Execute DSR Installation Procedure for the First NOAM	Verify the networking data for Network Elements <b>Note:</b> Use the backup copy of network configuration data and site surveys (Step 2)		
		<b>Execute</b> installation procedures for the first NOAM server from reference [1]: Procedure 7 "Configure the First NOAM NE and Server" and Procedure 8 "Configure the NOAM Server Group".		
5.	NOAM GUI: Login	Login to the NOAM GUI as the <i>guiadmin</i> user: ORACLE® Oracle System Login Fri Mar 20 12:29:52 2015 EDT Log In Enter your username and password to log in Username: guiadmin Password:		
		Password:       •••••••         Change password       •         Log In       •         Welcome to the Oracle System Login.       •         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.         Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates.         Other names may be trademarks of their respective owners.		

6.	NOAM GUI:	Browse to Main Menu->Status & Manage->Files
	Upload the	
	Backed up Database File	📋 🚔 Status & Manage
	Dalabase i lie	Metwork Elements
		Database
		💽 KPIs
		🚽 🧱 Processes
		Select the Active NOAM server. The following screen will appear:
		Cpa1-NO Cpa1-IPFE Cpa1-Sbr1 Cpa1-Mp1 Cpa1-Mp2 Cpa1-Mp3 Cpa1-Sbr2
		File Name         Size         Type         Timestamp           Backup.dsr.Cpa1-NO.Configuration.NETWORK_OAMP.20120321_021501.AUT0.tar         720 vp         tar         2012-03-21 06:15:02 UTC
		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.
		Delete View Upload Download Pause U
		0 used (0%) of 0 available   System utilization: 0 (0%) of 0 available.
		1. Click on <b>Browse</b> and locate the backup file
		2. Check This is a backup file Box
		3. Click on Open as shown below.
		8
		File: Browse_ No file selected.
		This is a backup file
		Upload
		Cancel
		Choose file
		Look in: PV3 C PV3 C PV III -
		Control Decomposition         Decomposition           My Recent         PV3_NetHawk.txt
		Desktop
		My Documents
		My Computer
		<b>9</b>
		My Network File name: Backup PV3 tgz Upen Ploces Files of type: All Files (* *) Cancel
DSR	7.0.1 / 7.1.1/7.2/7.3	Click on the <b>Upload</b> button. September 2016
		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.

7	NOAM GUI:	Click on Main Menu->Status & Manage->Database
7.	Disable	
	Provisioning	🚊 😋 Status & Manage
		🔤 🎆 Network Elements
		Server 💽 Server
		Replication
		Collection
		HA
		Database
		Processes
		Files
		Disable Provisioning by clicking on <b>Disable Provisioning</b> button at the bottom
		of the screen as shown below.
		Disable Provisioning Report Inhibit/Allow Backup Compare Restore
		A confirmation window will appear, press <b>OK</b> to disable Provisioning.
		Disable provisioning.
		Are you sure?
		OK Cancel
		The message "Warning Code 002" will appear.

8.	NOAM GUI:	Select the Active NOAM server and click on the Compare.         Enable Provisioning       Report         Inhibit Replication       Backup         Compare       Man Audit         Suspend Auto Audit							
	Verify the Archive								
	Contents and Database Compatibility	The following screen is displayed; click the button for the restored database file that was uploaded as a part of <b>Step 6</b> of this procedure.							
	••••••••••••••••••••••••••••••••••••••	Database Compare							
		Select archive to compare on server: blade02 CBackup nopr blade02 Configuration NETWORK_OAMP 20100928_021502 AUTO tar Backup nopr blade02 Configuration NETWORK_OAMP 20100929_021501 AUTO tar Backup nopr blade02 Configuration NETWORK_OAMP 20101001_021501 AUTO tar CBackup nopr blade02 Configuration NETWORK_OAMP 20101002_021502 AUTO tar CBackup nopr blade02 Configuration NETWORK_OAMP 20101003_021502 AUTO tar Backup nopr blade02 Configuration NETWORK_OAMP 20101003_021502 AUTO tar CBackup nopr blade02 Configuration NETWORK_OAMP 20101005_021502 AUTO tar CBackup nopr blade02 Configuration NETWORK_OAMP 20101003_021502 AUTO tar CBackup nopr blade02 Configuratio							
		Verify that the output window matches the screen below.							
		<b>Note:</b> You will get a database mismatch regarding the NodelDs That is expected. If that is the only mismatch, proceed, otherwise contact <b>Appendix E. My Oracle</b> Support (MOS)							
		The selected database came from black07 on 01/19/2011 at 13.43.47 EDT and contains the following comment							
		Activity Contents ProvisioningAndConfiguration data Database Concentration							
		The distances are compatible.     Idea: Trace Compatible.     The root program are compatible.     The root program are compatible.							
		Tablob: Consultable     The TopoLogy is not comparise contact texelec customer services before restoring this database.      Buschmark: Inst							
		<ul> <li>Inf severy Address AllElize has different (eds.ID) in current topology and the selected backup file. Ourrent node ID: AllElize (Selected backup file node ID: 8070; 207         <ul> <li>Inf Severy Address Cliff 241 has different (mode ID) in current topology and the selected backup file. Ourrent node ID: Cliff; 241. Selected backup file and ID: 8070; 207         </li> <li>Inf Severy Address B1787 is1 has different (mode ID) in current topology and the selected backup file. Ourrent node ID: Cliff; 241. Selected backup file node ID: 8070; 207         </li> </ul> </li> </ul>							
		User Consultails: The user and automitication data are compatible.							
		Contentia     Provisionmp4ndConfiguration     -     Table Instance Counts     Count ASGroup count 0 Selected 0							
		Current AdjacentEvenes count 0 Selected 0     Current Association count 0 Selected 0     Current Association count 0 Selected 0     Current Association Cost of Current Selected 1     Current Association Cost Selected 0     Current Association Cost Selected 1     Current Association Cost Selected 1							
		Note: Archive Contents and Database Compatibilities must be the	ne following:						
		Archive Contents: Configuration data Database Compatibility: The databases are compatible.							
		<b>Note:</b> The following is expected Output for Topology Compatibili we are restoring from existing backed up data base to database NOAM:							
		<b>Topology Compatibility</b> THE TOPOLOGY SHOULD BE COMPATIBLE MINUS THE NO	DEID.						
		<b>Note:</b> We are trying to restore a backed up database onto an en database. This is an expected text in Topology Compatibility.	npty NOAM						
		If the verification is successful, Click <b>BACK</b> button and continue to <b>next step</b> in this procedure.							
DSR	7.0.1 / 7.1.1/7.2/7.3	3 73 5	September 2016						

9.	ACTIVE NOAM:	Click on Main Menu->Status & Manage->Database
9.	Restore the	
	Database	Select the <b>Active NOAM</b> server, and click on <b>Restore</b> as shown below.
		The following screen will be displayed. Select the proper back up provisioning and configuration file.
		Database Restore
		Select archive to Restore on server: blade02
		OBackup.npqr.blade02.Configuration.NETWORK_OAMP.20100928_021502.AUTO.tar     OBackup.nqqr.blade02.Configuration.NETWORK_OAMP.20100928_021501.AUTO.tar     OBackup.nqqr.blade02.Configuration.NETWORK_OAMP.20101001_021501.AUTO.tar     OBackup.nqqr.blade02.Configuration.NETWORK_OAMP.20101002_021502.AUTO.tar     OBackup.nqqr.blade02.Configuration.NETWORK_OAMP.20101002_021502.AUTO.tar     OBackup.nqqr.blade02.Configuration.NETWORK_OAMP.20101002_021502.AUTO.tar     OBackup.nqqr.blade02.Configuration.NETWORK_OAMP.20101002_021502.AUTO.tar     OBackup.nqqr.blade02.Configuration.NETWORK_OAMP.20101003_021501.AUTO.tar     OBackup.nqqr.blade02.Configuration.NETWORK_OAMP.20101003_021501.AUTO.tar     OBackup.nqqr.blade02.Configuration.NETWORK_OAMP.20101003_021501.AUTO.tar     OBackup.nqqr.blade02.Configuration.NETWORK_OAMP.20101003_021502.AUTO.tar     OBackup.nqqr.blade02.Configuration.NETWORK_OAMP.20101003_021502.AUTO.tar     OBackup.nqqr.blade02.Configuration.NETWORK_OAMP.20101003_021502.AUTO.tar     OBackup.nqqr.blade02.Configuration.NETWORK_OAMP.20101003_021502.AUTO.tar     OBackup.nqqr.blade02.Configuration.NETWORK_OAMP.20101003_021502.AUTO.tar     OBackup.nqqr.blade02.Configuration.NETWORK_OAMP.20101003_021502.AUTO.tar     OBackup.nqqr.blade02.Configuration.NETWORK_OAMP.20101003_021502.AUTO.tar
		Ok Cancel
		Click <b>OK</b> Button. The following confirmation screen will be displayed.
		That is expected. If that is the only mismatch, proceed, otherwise stop and contact Appendix E. My Oracle Support (MOS). Select the <b>Force</b> checkbox as shown above and Click <b>OK</b> to proceed with the DB restore.
		Database Restore Confirm
		Discrepancies: - IMI Server Address A3118.120 has different node IDs in current topology and the selected backu p file. Current node ID: A3118.120, Selected backup file node ID: B2073.087 - IMI Server Address C1157.241 has different node IDs in current topology and the selected backu p file. Current node ID: C1157.241, Selected backup file node ID: B2073.087 - IMI Server Address B1787.161 has different node IDs in current topology and the selected backu p file. Current node ID: B1787.161 Selected backup file node ID: B2073.087 - IMI Server Address B1787.161 Selected backup file node ID: B2073.087
		Confirm archive "3bladeNPQR.blade07.Configuration.NETWORK_OAMP.20110119_184253.MAN.tar" to Restore on server: blade07 Force Restore? Force Restore on blade07, despite compare errors.  OK Cancel
		<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.

10.	NOAM VIP GUI: 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:					
		http:// <primary_noam_vip_ip_address></primary_noam_vip_ip_address>					
		Login as the <i>guiadmin</i> user:					
		ORACLE					
		Oracle System Login Fri Mar 20 12:29:52 2015 EDT					
		Log In Enter your username and password to log in Username: quiadmin					
		Password:					
		Change password					
		Welcome to the Oracle System Login.					
		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.					
		Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.					
11.	NOAM VIP GUI:	Wait for <b>5-10 minutes</b> for the System to stabilize with the new topology:					
	Monitor and Confirm database restoral	Monitor the Info tab for " <b>Success</b> ". This will indicate that the backup is complete and the system is stabilized.					
	lesional	Following alarms <b>must</b> be ignored for NOAM and MP Servers until all the Servers are configured:					
		Alarms with Type Column as <b>"REPL"</b> , <b>"COLL", "HA"</b> (with mate NOAM), <b>"DB"</b> (about Provisioning Manually Disabled)					
		<b>Note:</b> Do not pay attention to alarms until all the servers in the system are completely restored.					
		<b>Note:</b> The Configuration and Maintenance information will be in the same state it was backed up during initial backup.					
12.	ACTIVE NOAM: Login	Login to the recovered Active NOAM via SSH terminal as <i>admusr</i> user.					

13.	ACTIVE NOAM:	IF DSR 7.1 or later, SKIP THIS STEP					
	Restore /etc/hosts/ File of the Active	Execute the following command:					
	NOAM	<pre>\$ sudo AppWorks AppWorks_AppWorks updateServerAliases <noam host="" name=""></noam></pre>					
14.	<b>NOAM VIP GUI:</b> Re-enable Provisioning	Navigate to Main Menu->Status & Manage->Database         Enable Provisioning       Report         Inhibit/Allow Replication       Backup					
		Click on the <b>Enable Provisioning</b> . A pop-up window will appear to confirm as shown below, press <b>OK</b> .					
		Enable provisioning. Are you sure?					
		OK Cancel					
15.	NOAM VIP GUI:	Install the second NOAM server by executing procedures from reference [1]:					
	Recover Standby NOAM	Procedure 9 "Configure the Second NOAM Server" steps 1, 3-7					
		Procedure 10 "Complete Configuring the NOAM Server Group" Step 5					
		<b>Note</b> : If Topology or nodeld alarms are persistent after the database restore, refer to Appendix D. Workarounds for Issues not fixed in this Releaseor the next step below.					
16.	NOAM VIP GUI: Recover	Recover the <b>remaining</b> SOAM servers ( <b>standby, spare</b> ) by repeating the <b>following steps</b> for each SOAM server:					
	remaining failed SOAM Servers	<ol> <li>Install the remaining SOAM servers by executing Procedure 12 "Configure the SOAM Servers", steps 1, 3- 7 from reference [1].</li> </ol>					
		<b>NOTE:</b> Wait for server to reboot before continuing.					

17.	NOAM VIP GUI:	Navigate to Main Menu->Status & Manage->Server,
_	Restart DSR application	📋 늨 Status & Manage
	application	Network Elements         Server         HA         Database         KPIs         Processes         Tasks         Files         Select the recovered server and click on Restart.         Stop       Restart         Reboot       NTP Sync         Report
18.	NOAM VIP GUI: Set HA on all C- Level Servers	Navigate to Status & Manage Status & Manage Network Elements Server Database KPIs Processes Files Click on Edit at the bottom of the screen For each server whose Max Allowed HA Role is set to Standby, set it to Active Press OK
19.	Recovered Server: Login	Establish an SSH to the recovered server's XMI address:

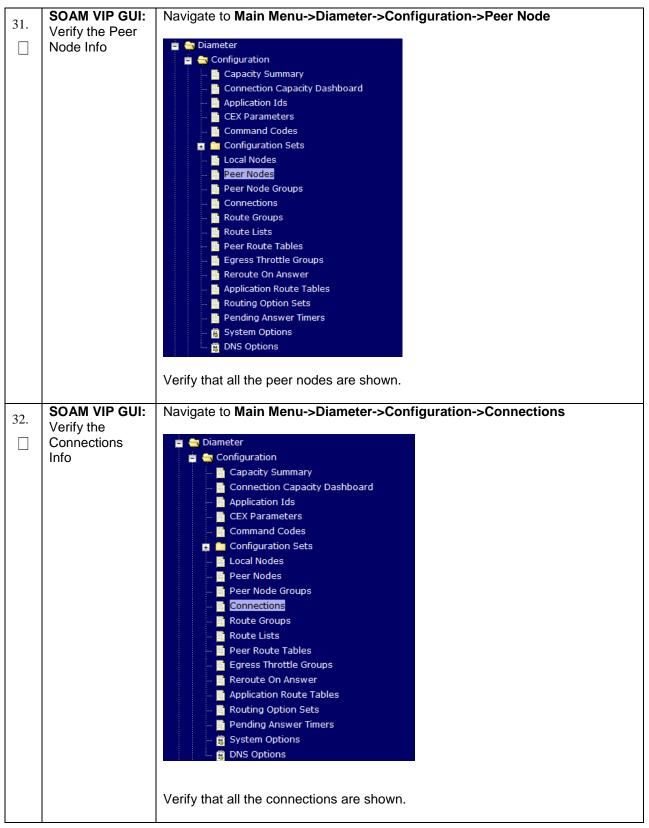
20.	Recovered Server: Sync	1) Perform the following to retrieve the remote NTP server:						
	NTP	\$ sudo ntpq -np						
		Example output:						
		[admusr@NOAM-2 ~]\$ ntpq -np						
		remote refid st t when poll reach delay offset jitter						
		======================================						
		2) Stop ntpd service:						
		<pre>\$ sudo service ntpd stop</pre>						
		3) Sync the date to the ntp remote server:						
		<pre>\$ sudo ntpdate <ntp remote="" server=""></ntp></pre>						
		Note: The remote server below will be that of the one gathered in sub step 1.						
		4) Start the ntp service:						
		<pre>\$ sudo service ntpd start</pre>						
21.	NOAM VIP GUI:	Navigate to Main Menu->Status & Manage->Server,						
21.	Restart DSR application	<ul> <li>Status &amp; Manage</li> <li>Network Elements</li> <li>Server</li> <li>HA</li> <li>Database</li> <li>KPIs</li> <li>Processes</li> <li>Tasks</li> <li>Files</li> </ul>						
		Select each recovered server and click on Restart.						
		Stop Restart Reboot NTP Sync Report						

22	Active SOAM:	If DSR 7.1, skip this step.
22.	Prepare	
	recovered SOAM for	Establish an SSH session to the Active SOAM, login as <i>admusr.</i>
	optional feature activation	Execute the following command:
		<pre>\$ irem DsrApplication where "name in ('RBAR','FABR','PCA','MD-IWF','DM-IWF','CPA','GLA')"</pre>
23.	Active SOAM: Verify	If DSR 7.1, skip this step
	Preparation	Execute the following command to verify preparation of optional feature activation:
		<pre>\$ iqt -z -h -p -fname DsrApplication where "name in ('RBAR','FABR','PCA','MD-IWF','DM-IWF','CPA','GLA')"</pre>
		<b>Note:</b> There should be no output of this command, if there is, verify the correct entry of the command in <b>step 24</b> .
24.	ACTIVE NOAM: Perform key	Establish an SSH session to the Active NOAM, login as <i>admusr.</i>
	exchange between the active-NOAM	Execute the following command to perform a keyexchange from the active NOAM to each recovered server:
	and recovered servers.	<pre>\$ keyexchange admusr@<recovered hostname="" server=""></recovered></pre>
		Note: If an export server is configured, perform this step.
25.	ACTIVE NOAM: Activate	Establish an SSH session to the active NOAM, login as <i>admusr.</i>
	Optional Features	Refer to <b>section</b> 1.5 Optional Features to activate any features that were previously activated.

	NOAM VIP GUI:	Navigate to Main Menu->Status & Manage->Database
26.	Fetch and Store	
	the database	🛓 😋 Status & Manage
	Report for the	Network Elements
	Newly Restored	
	Data and Save it	Server 💽 Server
		🙀 HA
		🔄 💽 Database
		KPIs
		Processes
		🖬 🧰 Tasks
		🖾 📑 Files
		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:
		Main Menu: Status & Manage -> Database [Report]
		Tue Oct 05 15:13:38 2010 UTC
		NPQR Database Status Report
		Report Generated: Tue Oct 05 15:13:38 2010 UTC From: Active Network OAM&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
		Row Size Num Memory Disk Table Name Schema Avg Max Rows Used / Alloc Used / Alloc
		CgPa         44         1         44         B         44
		Column Force         24         306 Jet B         Jet B
		Merra 68 0.0.B 0.B 0.B
		000
		Print Save
		Click on <b>Save</b> and save the report to your local machine.
		Cher on Gave and Save the report to your local machine.
	l	

7.	Verify Replication	<ul> <li>Login to the Active NOAM via SSH terminal as <i>admusr</i> user.</li> <li>Execute the following command:</li> <li>\$ sudo irepstat -m</li> </ul>										
	Between Servers.											
		Output like	e below shal	l be genera	ted:							
		Policy	0 ActStb [I	DbReplicati	on] -							
		RDU06-MP1	Stby									
		BC From	RDU06-SO1 A	Active	0	0.50	^0.17%	cpu 4	2B/s	A=nor	ne	
			RDU06-MP2 A Active	Active	0	0.10	^0.17	0.88%	сри 32	2B/s	A=noi	ne
		BC From	RDU06-SO1 A	Active	0	0.50	^0.10%	cpu 3	3B/s	A=nor	ne	
			RDU06-MP1 A Active	Active	0	0.10	0.08%	cpu 2	0B/s	A=nor	ne	
		AB To	RDU06-SO1 A	Active	0	0.50	1%R 0.	03%cp	u 21B,	/s		
			RDU06-NO1 A	Active	0	0.50	^0.04%	cpu 2	4B/s			
			RDU06-MP1 A				1%R 0.	-		/s		
			RDU06-MP2 A		0			-				
8	NOAM VIP GUI:		tit the screen	).					u 216,	/ 5		
8.	Verify the	Click on Ma	ain Menu->S	). Status and					u 216,	/ 5		
8.		Click on Ma	ain Menu->S tatus & Mar Network E Server HA Database KPIs Processes	). Status and nage Elements	Mana	ger->	Datab	ase				1
_	Verify the	Click on Ma	ain Menu->S tatus & Mar Network E Server HA Database KPIs Processes the "OAM Ma and "Applica ormal" as sh	n. Status and nage Elements ax HA Role ation Max H	Mana " is eit IA Rol :	ger-> her "A e" for	Datab Active" MPs i	ase or "St s "Act	tandby ive", a	y" for and th	at the	•
_	Verify the	Click on Ma	ain Menu->S tatus & Mar Network E Server HA Database KPIs Processes the "OAM Ma and "Applica ormal" as sh	n. Status and nage Elements ax HA Role ation Max Harrison Max Har	Mana " is eit IA Rol	ger-> her "A e" for	Datab Active" MPs i	ase or "St	tandb	y" for	NOA at the	M Repi Aud Status
_	Verify the	Click on Ma	ain Menu->S tatus & Mar Network E Server HA Database KPIs Processes the "OAM Ma and "Applica ormal" as sh	n. Status and nage Elements ax HA Role ation Max H nown below Role Network OAM&P	Mana "is eit A Rol Com Max Active	ger-> her "A e" for Applicatio Max HA Role	Datab Active" MPs i Normal	or "St s "Act DB Level	tandby ive", a	y" for and th	Repl Status	Repl Auc Status AutoInPr
_	Verify the	Click on Ma	ain Menu->S tatus & Mar Network E Server HA Database KPIs Processes the "OAM Ma and "Applica ormal" as sh	n. Status and nage Elements ax HA Role ation Max Harrison Max Har	Mana " is eit IA Rol : OAM Max	ger-> her "A e" for	Datab Active" MPs i	or "St s "Act	andby ive", a	y" for and th	at the Repl Status	Repl Aud Status AutoInPro
_	Verify the	Click on Ma	ain Menu->S	A. Status and Dage Elements S AX HA Role ation Max Har hown below Role Network OAM&P MP MP System OAM	Mana "is eit A Rol Comman Active Active Standby	ger->	Datab Datab	or "St s "Act DB Level 0 0	Andby ive", a OAM Repl Status Normal Normal Normal	y" for and th SiG Repi Status NotApplicab Normal NotApplicab	Repl Status Allowed Allowed Allowed	Repl Aud Status AutoInPrr AutoInPrr AutoInPrr
_	Verify the	Click on Ma	ain Menu->S tatus & Mar Network E Server HA Database KPIs Processes the "OAM Ma and "Applica ormal" as sh	A. Status and Aage Elements S Aax HA Role ation Max H hown below Role Network OAM&P MP MP	Mana "is eit A Rol CAM Max Active Active Active	ger-> her "A e" for	Datab Active" MPs i MPs i Normal Normal	or "St s "Act DB Level 0	tandby ive", a OAM Repi Status Normal Normal	y" for and th Sig Repi Status NotApplicab Normal	Repl Status Allowed Allowed Allowed	Repl Aud

29.	NOAM VIP GUI:	Click on Main Menu->Status and Manage->HA							
	Verify the HA Status								
	Status	💼 🚔 Status & Manage							
		💓 N(	etwor	rk Elen	nents	5			
		🏹 Se	erver						
		📑 H/	Д						
		🚮 Da	ataba	ise					
			PIs						
			oces						
			oces	585					
		Select the row	for all	l of the	serv	ers			
		Verify that the					ctive" or "Sta	ndby".	
			OAM Max	Application					
		Hostname	HA Role	Max HA Role	Role	A Mate Hostname List	Network Element	Server Role	Active VIPs
		NO2 SO1	Active Standby	00S 00S	Active Active	NO1 SO2	NO_10303 SO_10303	Network OAM&P System OAM	10.240.70.132
		SO2	Active	00S	Active	SO1	SO_10303	System OAM	10.240.70.133
		MP1 MP2	Standby Active	Active	Active Active	MP2 MP1	SO_10303 SO_10303	MP	
		IPFE	Active	008	Active		SO_10303	MP	
30.	SOAM VIP GUI:	Navigate to Ma	ain Me	enu->[	Diame	eter->Con	figuration->	Local Node	
	Verify the Local	🝵 😋 Diameter							
	Node Info	🛓 🔄 Configura	ation						
		Capad		nary					
		Conne 📔			ashboar	ď			
		📔 Applica 🎦 CEX Pa							
		- CEX P							
		👳 🗖 Config							
		- 📔 Local M							
		- Peer N							
		Peer N		oups					
		Route							
		🔤 📑 Route	Lists						
		Peer R							
		Egress							
					S				
		- Routin							
		- 📔 Pendir	ng Answ	er Timers					
		System		15					
		DNS O	puons						
		Verify that all th	he loc	al nod	es ar	e shown.			
			2.00						



22	SOAM VIP GUI:	Navigate to Main Menu->Diameter->Maintenance->Connections
33.	Enable	
	Connections if needed	Maintenance Route Lists Route Groups Peer Nodes Egress Throttle Groups Applications DA-MPs Select each connection and click on the Enable button. Alternatively you can enable all the connections by selecting the EnableAll button. Enable Disable EnableAll DisableAll Diagnose Start Diagnose End SCTP STATISTICS Pause updates
		Verify that the Operational State is Available.
34.	SOAM VIP GUI: Enable Optional Features	Navigate to Main Menu -> Diameter -> Maintenance -> Applications     Maintenance   Route Lists   Route Groups   Peer Nodes   Connections   Egress Throttle Groups   Pause updates     Disable     Pause updates
35.	SOAM VIP GUI: Re-enable Transports if Needed	Navigate to Main Menu->Transport Manager -> Maintenance -> Transport         Transport Manager         Configuration         Maintenance         Transport         Select each transport and click on the Enable button         Enable       Disable         Block         Verify that the Operational Status for each transport is Up.

36.	SOAM VIP GUI:	Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users
50.	Re-enable	
	MAPIWF	📋 🚔 SS7/Sigtran
	application if	📋 🧰 Configuration
	needed	📋 🚌 Maintenance
		🚽 🔤 Local SCCP Users
		🗕 📑 Remote Signaling Points
		– 📑 Remote MTP3 Users
		- 📑 Linksets
		👘 🛄 Links
		Click on the <b>Enable</b> button corresponding to MAPIWF Application Name.
		Enable Disable
		Verify that the SSN Status is Enabled.
37.	SOAM VIP GUI:	Navigate to Main Menu->SS7/Sigtran->Maintenance->Links
57.	Re-enable links	
	if needed	💼 🚍 SS7/Sigtran
		Configuration
		Maintenance Local SCCP Users
		Even sees     Even sees     Even sees     Even sees
		Enclose Systems
		Linksets
		Links
		Click on <b>Enable</b> button for each link.
		Enable Disable
		Verify that the Operational Status for each link is Up.
38.	SOAM VIP GUI:	Navigate to Main Menu->Alarms & Events->View Active
50.	Examine All	
	Alarms	📋 🚔 Alarms & Events
		🛛 🔄 🗾 View Active
		View History
		🔋 🦾 📑 View Trap Log
		Examine all active alarms and refer to the on-line help on how to address them.
		If needed contact Appendix E. My Oracle Support (MOS).

	1						
39.	NOAM VIP GUI: Examine All	Login to the NOAM VIP if not already logged in.					
	Alarms	Navigate to Main Menu->Alarms & Events->View Active					
		Alarms & Events View Active View History View Trap Log Examine all active alarms and refer to the on-line help on how to address them. If needed contact Appendix E. My Oracle Support (MOS).					
40.	Restore GUI Usernames and Passwords	If applicable, Execute steps in <b>Section 6.0</b> to recover the user and group information restored.					
41.	Backup and Archive All the Databases from the Recovered System	Execute <b>Appendix A</b> . DSR Database Backup to back up the Configuration databases:					

# 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 in 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.

S T									
E P #	Check off ( $$ ) each step as it is completed. Boxes have been provided for this purpose under each step number.								
	If this procedure fa	ails, contact Appendix E. My Oracle Support (MOS), and ask for assistance.							
1.	Workarounds	Refer to <b>Appendix D</b> . Workarounds for Issues not fixed in this Releaseto understand any workarounds required during this procedure.							
2.	Gather Required Materials	Gather the documents and required materials listed in <b>Section 3.1</b> Required Materials							
3.	NOAM VIP GUI:								
5.	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:							
		http:// <primary address="" ip="" noam="" vip=""></primary>							
		Login as the <i>guiadmin</i> user:							
		ORACLE							
		Over die Gwetene Lanie							
		Oracle System Login Fri Mar 20 12:29:52 2015 EDT							
		Log In							
		Enter your username and password to log in							
		Username: guiadmin							
		Password: ••••••							
		Change password							
		Log In							
		Welcome to the Oracle System Login.							
		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.							
		Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.							

4.	Active NOAM:	Navigate to Main Menu -> Status & Manage -> HA					
4.	Set Failed						
	Servers to Standby	<ul> <li>Status &amp; Manage</li> <li>Network Elements</li> <li>Server</li> <li>Database</li> <li>KPIS</li> <li>Precesses</li> </ul>					
		Select Edit Set the Max Allowed HA Role drop down box to Standby for the failed servers. Select Ok Ok Cancel					

5.	Recover the	For VMWare based deployments:
	Failed Software	1. For NOAM execute the following procedures from reference [1]:
		a. Procedure 1 (VMWare). Import DSR OVA
		b. Procedure 2 (VMWare Only). Configure NOAM guests role based
		on resource profile
		2. For SOAM execute the following procedures from reference [1]:
		c. Procedure 1 (VMWare). Import DSR OVA
		<ul> <li>Procedure 3 (VMWare Only). Configure Remaining DSR guests based on resource profile</li> </ul>
		<ol> <li>For failed MPs execute the following procedures from reference [1]:</li> <li>e. Procedure 1 (VMWare). Import DSR OVA</li> </ol>
		f. Procedure 3 (VMWare Only). Configure Remaining DSR guests based on resource profile
		For KVM/Openstack based deployments:
		1. For NOAM execute the following procedures from reference [1]:
		a. Procedure 4 (KVM/Openstack). "Import DSR OVA"
		<ul> <li>b. Procedure 5 (KVM/Openstack). "Configure NOAM guests role based on resource profile"</li> </ul>
		2. For SOAM execute the following procedures from reference [1]:
		c. Procedure 4 (KVM/Openstack). "Import DSR OVA"
		<ul> <li>Procedure 6 (KVM/Openstack). "Configure Remaining DSR guests role based on resource profile"</li> </ul>
		<ol> <li>For failed MPs execute the following procedures from reference [1]:</li> <li>e. Procedure 4 (KVM/Openstack). "Import DSR OVA"</li> </ol>
		<ul> <li>f. Procedure 6 (KVM/Openstack). "Configure Remaining DSR guests role based on resource profile"</li> </ul>
6.	Repeat for Remaining Failed Servers	If necessary, repeat <b>5</b> for all remaining failed servers.

7.	NOAM VIP GUI: 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: <pre>http://<primary_noam_vip_ip_address></primary_noam_vip_ip_address></pre> Login as the guiadmin user:							
		Oracle System Login Fri Mar 20 12:29:52 2015 EDT							
		Log In         Enter your username and password to log in         Username:       guiadmin         Password:       •••••••         Change password       •         Log In       Change password         Username:       Log In         Welcome to the Oracle System Login.         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.         Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.							
8.	NOAM VIP GUI:	Install the second NOAM server by executing procedures from reference [1]:							
o.	Recover Standby NOAM if needed	Procedure 9 "Configure the Second NOAM Server" steps 1, 3-7							
		Procedure 10 "Complete Configuring the NOAM Server Group" Step 5							
		<b>Note:</b> If Topology or nodeld alarms are persistent after the database restore, refer to Appendix D. Workarounds for Issues not fixed in this Release, or the next step below.							
9.	(OPTIONAL) NOAM VIP GUI:	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:							
	Recover the Failed SOAM Servers if needed	<ol> <li>Install the remaining SOAM servers by executing Procedure 12 "Configure the SOAM Servers", steps 1, 3- 7 from reference [1].</li> </ol>							
		<b>NOTE:</b> Wait for server to reboot before continuing.							

10.	(OPTIONAL)	Navigate to Status & Manage -> HA
	NOAM VIP GUI: Set HA on	📋 📥 Status & Manage
	Recovered	🚽 💽 Network Elements
	Servers	🚽 🔤 Server
		e 🖉 🔤 🙀 🗛 🔤 🗛 👘 🖓
		🔤 🔤 Database
		- KPIs
		💽 Processes
		💼 🧰 Tasks
		👘 🛄 Files
		Click on <b>Edit</b> at the bottom of the screen
		For each server whose Max Allowed HA Role is set to Standby, set it to <b>Active</b>
		Press OK
11.	Recovered	Establish an SSH to the recovered server's XMI address:
	Server: Login	
12.	Recovered	1) Perform the following to retrieve the remote NTP server:
	<b>Server:</b> Sync NTP	\$ sudo ntpg -np
		Example output:
		[admusr@NOAM-2 ~]\$ ntpq -np
		remote refid st t when poll reach delay offset jitter
		=======================================
		======================================
		2.434
		2) Stop ntpd service:
		\$ sudo service ntpd stop
		3) Sync the date to the ntp remote server:
		<pre>\$ sudo ntpdate <ntp remote="" server=""></ntp></pre>
		<b>Note:</b> The remote server below will be that of the one gathered in sub step 1.
		4) Start the ntp service:
		<pre>\$ sudo service ntpd start</pre>

13.	(OPTIONAL) Navigate to Main Menu->Status & Manage->Server, NOAM VIP GUI:							
	Restart DSR	💼 🚔 Status & Manage						
	application	Network Elements   Server   HA   Database   KPIs   Processes   Tasks   Files   Select the recovered server and click on Restart.   Stop   Restart   Reboot   NTP Sync   Report						
14.	NOAM VIP GUI: Recover the C- Level Server (DA-MP, SBRs, IPFE, SS7-MP)	Establish a SSH session to the C Level server being recovered, login as admusr. Execute following command to set shared memory to unlimited: \$ sudo shl.set -m 0 Execute following command ONLY when the recovered C-Level server is of type IPFE: \$ sudo ipfeNetUpdate.sh Execute the following procedures from [1] FOR EACH server that has been recovered:						
		Procedure 15 "Configure the MP Virtual Machines", Steps 1, 4-11.						

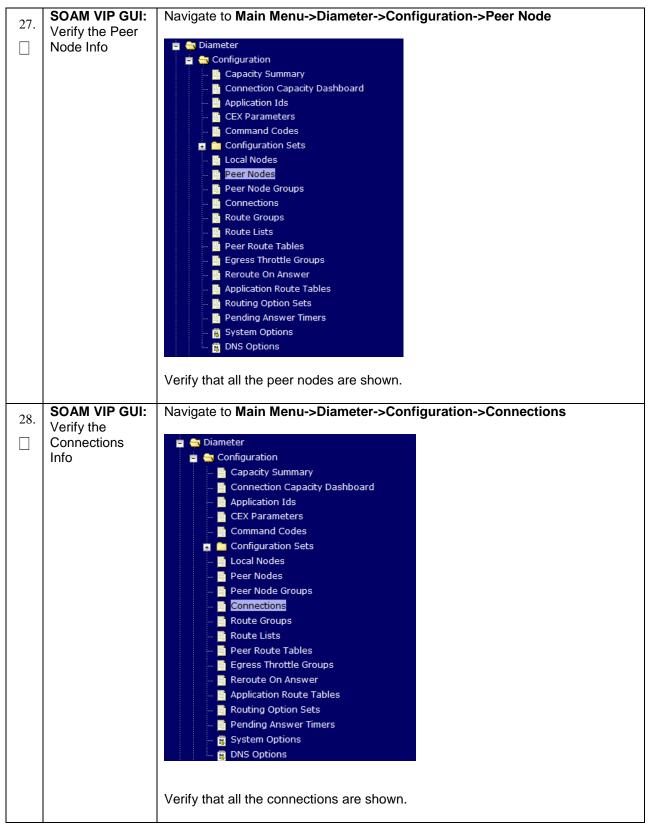
15.	NOAM VIP GUI:	Navigate to Main Menu->Status & Manage->Server							
15.	Restart DSR								
	Application on	🚊 🚔 Status & Manage							
	recovered C-	📑 Network Elements							
	Level Servers.	se se 💽 Server							
		HA 🔣 HA							
		🖉 🔤 📷 Database							
		- KPIs							
		Processes							
		🖬 🧰 Tasks							
		🖾 📑 Files							
		Select the recovered servers and click on <b>Restart</b> .							
		Stop Restart Reboot NTP Sync Report							
		No insta ta Otstas O Managara - UA							
16.	NOAM VIP GUI: Set HA on all C-	Navigate to Status & Manage -> HA							
	Level Servers	📄 📇 Status & Manage							
		Network Elements							
		💽 Server							
		🚽 🔤 Database							
		🔤 KPIs							
		Processes							
		💼 🧰 Tasks							
		👘 🛄 Files							
		Click on <b>Edit</b> at the bottom of the screen							
		For each server whose Max Allowed HA Role is set to Standby, set it to Active							
		Press OK							
17	ACTIVE NOAM:	Login to the recovered Active NOAM via SSH terminal as <b>admusr</b> user.							
17.	Login								
18.	Active SOAM:	If DSR 7.1, skip this step							
	Prepare								
	recovered SOAM for	Establish an SSH session to the Active SOAM, login as <i>admusr.</i>							
	optional feature	Execute the following command:							
	activation								
		<pre>\$ irem DsrApplication where "name in</pre>							
		('RBAR','FABR','PCA','MD-IWF','DM-IWF','CPA','GLA')"							

19.	Active SOAM:	If DSR 7.1, skip this step.
	Verify Preparation	Execute the following command to verify preparation of optional feature activation:
		<pre>\$ iqt -z -h -p -fname DsrApplication where "name in ('RBAR','FABR','PCA','MD-IWF','DM-IWF','CPA','GLA')"</pre>
		<b>Note:</b> There should be no output of this command, if there is, verify the correct entry of the command in <b>step 18</b> .
20.	ACTIVE NOAM: Perform key	Establish an SSH session to the Active NOAM, login as <i>admusr.</i>
	exchange between the active-NOAM	Execute the following command to perform a keyexchange from the active NOAM to each recovered server:
	and recovered servers.	<pre>\$ keyexchange admusr@<recovered hostname="" server=""></recovered></pre>
21.	ACTIVE NOAM: Activate	Establish an SSH session to the active NOAM, login as admusr.
	Optional Features	Refer to <b>section</b> 1.5 Optional Features to activate any features that were previously activated.

	NOAM VIP GUI:	Navigate to Main Menu->Status & Manage->Database
22.	Fetch and Store	
	the database	📩 늨 Status & Manage
	Report for the	
	Newly Restored	🔤 💽 Network Elements
	Data and Save it	🐘 💽 Server
		HA 📑 HA
		Database
		KPIS
		Processes
		🖬 🧰 Tasks
		🔚 🔛 📑 Files
		Select the active NOAM server and click on the Report button at the bottom of
		the page. The following screen is displayed:
		Main Menu: Status & Manage -> Database [Report] 🛛 🛷 He
		Tue Oct 05 15:13:38 2010 U
		NPQR Database Status Report
		Report Generated: Tue Oct 05 15:13:38 2010 UTC From: Active Network OAM&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 Frogress Restore operation success
		Service Information
		Part: A_NpqrProvPart
		Row Size Num Memory Disk Table Name Schema Avg Max Rows Used / Alloc Used / Alloc
		GPa         44         1         44 B         44 B         44 B           CgPaGta         52         0         0 B         0 B         0 B
		CoPeTrato 64 1 64 B 64 B 64 B
		CapEanD         Ca         CapEanD         Ca         CapEanD         Ca         CapEanD         CanD
		Misisdn 52 0 0 B 0 B 0 B Mismon 68 0 0 B 0 B 0 B
		Print) Save
		Click on <b>Save</b> and save the report to your local machine.
		oner on <b>Save</b> and save the report to your local machine.
	1	

23.	ACTIVE NOAM: Verify Replication		e Active NOA e following c		lienni	nai as	aam	usr us	501.			
	Between Servers.	\$ sudo irepstat -m										
		Output lik	e below shal	ll be genera	ted:							
		Policy	0 ActStb [	DbReplicati	lon] -							
		RDU06-MP1	Stby									
		BC From	RDU06-SO1 .	Active	0	0.50 ′	^0 <b>.</b> 178	cpu 4	2B/s	A=noi	ne	
			RDU06-MP2	Active	0	0.10 ′	^0.17	0.88%	cpu 3	2B/s	A=no	ne
			Active									
			RDU06-SO1 .		0			-				
			RDU06-MP1	Active	0	0.10	0.088	cpu 2	UB/s	A=noi	ne	
			Active RDU06-SO1	Active	0	0 50 -	1%R 0	03800	u 21B	/ 9		
			Active	11001146	0	0.00	L 011 U.	00%cb	u ZID	, 3		
			RDU06-NO1	Active	0	0.50 /	^0.048	cpu 2	4B/s			
			RDU06-MP1		0			-		/s		
			RDU06-MP2		0	0.50	1%R 0.	07%cp	u 21B	/s		
24	NOAM VIP GUI:		kit the screer		Mana	ger->	Datab	ase				
24.	<b>NOAM VIP GUI:</b> Verify the Database states	Click on Ma		Status and	Mana	ger->	Datab	ase				
24.	Verify the	Click on Ma	ain Menu->S tatus & Mar Network B Server HA Database KPIs Processes	Status and nage Elements		-			tandh	u" for		Μ
24.	Verify the	Click on Ma	ain Menu->S tatus & Mar Network B Server HA Database KPIs Processes the "OAM M and "Applic lormal" as sh	Status and nage Elements s ax HA Role ation Max H	" is eit łA Rol	her "A e" for	ctive" MPs i	or "S s "Act				
24.	Verify the	Click on Ma	ain Menu->S tatus & Mar Network B Server HA Database KPIs Processes the "OAM M and "Applic ormal" as sh	Status and nage Elements s ax HA Role ation Max H nown below	" is eit IA Rol : OAM Max HA Role	her "A e" for	ctive" MPs i	or "S s "Act	tive", a	SIG Repl Status	Repl Status	Repl Audi Status
24.	Verify the	Click on Ma	ain Menu->S tatus & Mar Network B Server HA Database KPIs Processes the "OAM M and "Applic lormal" as sh	Status and nage Elements s ax HA Role ation Max H	" is eit IA Rol :	her "A e" for	ctive" MPs i	or "S s "Act	tive", a	and th	Repl Status	Repl Aud Status AutoInPro
24.	Verify the	Click on Ma	ain Menu->S tatus & Mar Network B Server HA Database KPIs Processes the "OAM M and "Applic lormal" as sh server NO2 PSBR MP2	Status and nage Elements s ax HA Role ation Max H nown below	" is eit IA Rol : OAM Max HA Role Active Active Active	her "A e" for Max HA Role OOS Active Active	Active" MPs i Status Normal Normal	or "S s "Act DB Level 0 0	CAM Repl Status Normal Normal Normal	SIG Repl Status NotApplicat Normal	Repl Status of Allowed Allowed	Repl Aud Status AutoInPro AutoInPro
24.	Verify the	Click on Ma	ain Menu->S tatus & Mar Network B Server HA Database KPIs Processes the "OAM M and "Applic lormal" as sh	Status and nage Elements ation Max H nown below Role Network OAM&P MP	" is eit IA Rol : OAM Max HA Role Active Active	her "A e" for Application Max HA Roos Active	Active" MPs i Status Normal Normal	or "S s "Act DB Level 0	OAM Repl Status Normal Normal	SIG Repl Status NotApplicat	Repl Status Allowed Allowed Allowed Allowed	Repl Aud Status AutoInPro AutoInPro AutoInPro
24.	Verify the	Click on Ma Click on Ma Verify that and SOAM status is "N Network Element NO_10303 SO_10303 SO_10303 SO_10303	ain Menu->S tatus & Mar Network B Server HA Database KPIs Processes the "OAM M and "Applic ormal" as sh	Status and nage Elements s ax HA Role ation Max H nown below Role Network OAM&P MP System OAM	" is eit IA Rol : OAM Max HA Role Active Active Active Active Standby	her "A e" for Application Max HA Role OOS Active OOS	Active" MPs i Status Normal Normal Normal	Or "S s "Act DB Level 0 0 0	tive", a OAM Repl Status Normal Normal Normal Normal	SIG Repl Status NotApplicat Normal Normal	Repl Status of Allowed Allowed Allowed of Allowed of Allowed Allowed	Repl Aud

25.	NOAM VIP GUI:	Click on Main Menu->Status and Manage->HA									
_	Verify the HA										
	Status	💼 🚔 Status & Manage									
		🔤 🔤 Network Elements									
		🏹 S(									
		💽 H.	A								
		📑 D	ataba	ise							
			PIs								
			roces								
			loces	565							
		Select the row	for al	l of the	serv	ers					
		Verify that the	"OAM	I HA R	ole" is	s either "Ac	ctive" or "Sta	ndby".			
			OAM Max	Application	Max						
		Hostname	HA Role	Max HA Role	Role	A Mate Hostname List	Network Element	Server Role	Active VIPs		
		N02 S01	Active Standby	00S 00S	Active Active	NO1 SO2	NO_10303 SO_10303	Network OAM&P System OAM	10.240.70.132		
		S02	Active	OOS	Active	S01	SO_10303	System OAM	10.240.70.133		
		MP1 MP2	Standby Active	Active	Active Active	MP2 MP1	SO_10303 SO_10303	MP			
		IPFE	Active	008	Active		SO_10303	MP			
26.	SOAM VIP GUI:	Navigate to Ma	ain Me	enu->[	Diame	eter->Con	figuration->	Local Node			
_	Verify the Local	📋 😋 Diameter									
	Node Info	📋 🔄 Configura	ation								
		📄 📑 Capac		mary							
		Conne			ashboar	ď					
		Applica									
		CEX P									
		📑 🧰 Config									
		- 📄 Local I									
		🔛 Peer N 🔛 Peer N									
		Conne		Jups							
		- 📑 Route									
		Peer R									
		Egress									
		Applica			s						
		🔤 📑 Routin									
		Pendir									
		Syster		IS							
			perofilo								
		Verify that all t	he loc	al nod	es are	e shown.					
		-									



29.	MP Servers: Disable SCTP Auth Flag (DSR	For SCTP connections without DTLS enabled, refer to Enable/Disable DTLS Appendix from reference [1].
	7.1 Only)	Execute this procedure on all Failed MP Servers.
30.	SOAM VIP GUI: Enable Connections if needed	Navigate to Main Menu->Diameter->Maintenance->Connections         Maintenance         Route Lists         Route Groups         Peer Nodes         Connections         Egress Throttle Groups         Applications         DA-MPs         Select each connection and click on the Enable button.         Alternatively you can enable all the connections by selecting the EnableAll button.         Enable       DisableAll         Disable       EnableAll         Disable       DisableAll         Disable       DisableAll         Verify that the Operational State is Available.
31.	SOAM VIP GUI: Enable Optional Features	Navigate to Main Menu -> Diameter -> Maintenance -> Applications     Maintenance   Route Lists   Route Groups   Peer Nodes   Connections   Egress Throttle Groups   Poplications   DA-MPs   Select the optional feature application configured in step 21.      Click the Enable button.

32.	SOAM VIP GUI:	Navigate to Main Menu->Transport Manager -> Maintenance -> Transport
	Re-enable	
	Transports if Needed	💼 🚔 Transport Manager 💼 🧰 Configuration
	1100000	
		Transport
		Select each transport and click on the Enable button
		Enable Disable Block
		Verify that the Operational Status for each transport is Up.
33.	SOAM VIP GUI: Re-enable	Navigate to Main Menu->SS7/Sigtran->Maintenance->Local SCCP Users
	MAPIWF	📋 🦰 SS7/Sigtran
	application if	📋 💼 Configuration 📋 😋 Maintenance
	needed	
		Remote Signaling Points
		Remote MTP3 Users
		Linksets
		Click on the <b>Enable</b> button corresponding to MAPIWF Application Name.
		Enable Disable
		Verify that the SSN Status is Enabled.
34.	SOAM VIP GUI:	Navigate to Main Menu->SS7/Sigtran->Maintenance->Links
_	Re-enable links	
	if needed	💼 💼 SS7/Sigtran
		🚔 🚔 Maintenance
		Local SCCP Users
		Emote Signaling Points      Emote MTP3 Users
		Linksets
		Links
		Click on <b>Enable</b> button for each link.
		Enable Disable
		Verify that the Operational Status for each link is Up.
1	1	

35.	SOAM VIP GUI:	Navigate to Main Menu->Alarms & Events->View Active
	Examine All Alarms	📋 🚔 Alarms & Events
		View Active
		View History
		Examine all active alarms and refer to the on-line help on how to address them.
		If needed contact Appendix E. My Oracle Support (MOS).
36.	NOAM VIP GUI: Examine All	Login to the NOAM VIP if not already logged in.
	Alarms	Navigate to Main Menu->Alarms & Events->View Active
		🖕 🚔 Alarms & Events
		- 📑 View History
		Examine all active alarms and refer to the on-line help on how to address them.
		If needed contact Appendix E. My Oracle Support (MOS).
37.	Restart oampAgent if Needed	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.
	Necucu	Establish an SSH session to each server that has the alarm. Login as <b>admusr</b>
		Execute the following commands:
		<pre>\$ sudo pm.set off oampAgent</pre>
		<pre>\$ sudo pm.set off oampAgent \$ sudo pm.set on oampAgent</pre>
38.	Backup and	<pre>\$ sudo pm.set on oampAgent Execute Appendix A. DSR Database Backup to back up the Configuration</pre>
38.	Backup and Archive All the Databases	<pre>\$ sudo pm.set on oampAgent</pre>
_	Archive All the	<pre>\$ sudo pm.set on oampAgent Execute Appendix A. DSR Database Backup to back up the Configuration</pre>
_	Archive All the Databases	\$ sudo pm.set on oampAgent         Execute Appendix A. DSR Database Backup to back up the Configuration

# 5.1.5 Recovery Scenario 5 (Database Recovery)

## 5.1.5.1 Recovery Scenario 5: 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
  - o 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.

S T	This procedure pe	rforms recovery if database is corrupted in the system	
- E P #	Check off ( $$ ) each step as it is completed. Boxes have been provided for this purpose under each step number.		
"	If this procedure fa	ails, contact Appendix E. My Oracle Support (MOS), and ask for assistance.	
1.	Workarounds	Refer to <b>Appendix D</b> . Workarounds for Issues not fixed in this Releaseto understand any workarounds required during this procedure.	
2.	NOAM VIP GUI: Set Failed	Navigate to Main Menu -> Status & Manage -> HA	
	Servers to Standby	Select Edit	
		Set the Max Allowed HA Role drop down box to Standby for the failed servers.	
		Select Ok	
		Ok Cancel	

2	Server in	Establish an SSH session to the server in question. Login as <i>admusr</i> user.
3.	Question: Login	
	5	
	Server in	Execute the following command to bring the system to runlevel 3.
4.	Question:	
	Change runlevel	\$ sudo init 3
	to 3	
5	Server in	Execute the following command and follow the instructions appearing the
5.	Question:	console prompt
	Recover System	
		<pre>\$ sudo /usr/TKLC/appworks/sbin/backout restore</pre>
6.	Server in	Execute the following command to bring the system back to runlevel 4.
0.	Question:	
	Change runlevel	\$ sudo init 6
	to 4	
_	Server in	Execute the following command to verify if the processes are up and running
7.	Question:	
	Verify the server	\$ sudo pm.getprocs
	verify the server	y sudo pm.getprocs
		Example output:
		Example Sucput:
		A 5139 cmha Up 12/21 13:16:25 1 cmha
		A 5140 cmplatalarm Up 12/21 13:16:25 1 cmplatalarm
		A 5143 cmsnmpsa Up 12/21 13:16:25 1 cmsnmpsa -R 1.3.6.1.4
		23.5.3.28.1 A 5145 cmsoapa Up 12/21 13:16:25 1 cmsoapa
		A 9969 eclipseHelp Up 12/21 13:16:39 1 eclipseHelp
		A 5149 idbsvc Up 12/21 13:16:25 1 idbsvc -M10 -ME204 -D
		DE820 -W1 -S2
		A 6149 idbunlock Up 12/21 13:16:36 1 idbunlock -f A 5151 inetmerge Up 12/21 13:16:25 1 inetmerge
		A         5151 inetmerge         Up         12/21         13:16:25         1 inetmerge           A         5155 inetrep         Up         12/21         13:16:25         1 inetrep
		A 5160 campAgent Up 12/21 13:16:25 1 campAgent
		A 5164 pm.watchdog Up 12/21 13:16:25 1 pm.watchdog
		A 5167 raclerk Up 12/21 13:16:25 1 raclerk -r 6000
		A         5171 re.portmap         Up         12/21 13:16:25 1 re.portmap -c100           A         5174 statclerk         Up         12/21 13:16:25 1 statclerk -s -0
		A 5177 vipmgr Up 12/21 13:16:25 1 vipmgr
		A -1 AstateInit Done 12/21 13:16:36 1 AstateInit
		A -1 auditPTask Done 12/21 13:16:36 1 auditPeriodicTask
		A -1 auditTasks Done 12/21 13:16:36 1 auditDefuncTasks
		A-1 guiReqMapLoadDone12/2113:16:251 guiReqMapLoadA-1 mkdbhooksDone12/2113:16:251 mkdbhooks
		[root@MP-1 admusr]#

#### Procedure 5: Recovery Scenario 5 (Case 1)

8.	NOAM VIP GUI:	Navigate to Status & Manage -> HA
8.	Set Failed	
	Servers to	📋 🦳 Status & Manage
	Active	🔤 🔤 Network Elements
		🔤 📑 Server
		Database
		- Martin Processes
		💼 🧰 Tasks
		🔚 🔛 Files
		Click on <b>Edit</b> at the bottom of the screen
		For each failed server whose Max Allowed HA Role is set to Standby, set it to
		Active
		Press OK
	Backup and	Execute Appendix A. DSR Database Backup to back up the Configuration
9.	Archive All the	databases:
	Databases	
	from the	
	Recovered System	
	oystem	

#### 5.1.5.2 Recovery Scenario 5: 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

S T	This procedure performs recovery if database got corrupted in the system and system is in the state to get replicated		
E P #	Check off ( $$ ) each step as it is completed. Boxes have been provided for this purpose under each step number.		
	If this procedure fails, contact Appendix E. My Oracle Support (MOS), and ask for assistance.		
1.	Workarounds	Refer to <b>Appendix D</b> . Workarounds for Issues not fixed in this Releaseto understand any workarounds required during this procedure.	

2.	NOAM VIP GUI:	Navigate to Main Menu -> Status & Manage -> HA
2.	Set Failed	
	Servers to	💼 🚍 Status & Manage
	Standby	🔤 🎆 Network Elements
		🖉 📑 Server
		KPIs 😽
		Processes
		Select Edit
		Set the Max Allowed HA Role drop down box to <b>Standby</b> for the failed servers.
		Select Ok
		Ok Cancel
3.	Server in	Establish an SSH session to the server in question. Login as <i>admusr</i> user.
	Question: Login	
	0	
4.	Server in Question: Take	Execute the following command to take the server out of service.
	Server out of	\$ sudo bash -1
	Service	# prod.clobber
5.	Server in	Execute the following commands to take the server to Dbup and start the DSR
5.	Question:	application:
	Take Server to	
	DbUp State and Start the	
	Application	<pre># prod.start # exit</pre>
	Αγρικαιοπ	



7.	NOAM VIP GUI:	Navigate to Main Menu->Status & Manage->Server,
7.	Restart DSR application	Status & Manage Network Elements Server HA Database KPIs Processes Tasks Files Select each recovered server and click on <b>Restart</b> .
8.	NOAM VIP GUI: Set Failed	Navigate to Status & Manage -> HA
	Servers to Active	Status & Manage Network Elements Server Database KPIs Processes Files Click on Edit at the bottom of the screen For each failed server whose Max Allowed HA Role is set to Standby, set it to Active Press OK
9.	Backup and Archive All the Databases from the Recovered System	Execute <b>Appendix A</b> . DSR Database Backup 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

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

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 7: Keep Restored User

S T	Perform this proc	cedure to keep users that will be restored by system restoration.		
E P #	Check off ( $$ ) each step number.	ch step as it is completed. Boxes have been provided for this purpose under each		
	If this procedure	fails, contact Appendix E. My Oracle Support (MOS), and ask for assistance.		
1.	Before Restoration: 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.		
2.	After Restoration:	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:		
	Login to the NOAM VIP	http:// <primary_noam_vip_ip_address></primary_noam_vip_ip_address>		
		Login as the <i>guiadmin</i> user:		
		ORACLE		
		Oracle System Login Fri Mar 20 12:29:52 2015 EDT		
		Log In Enter your username and password to log in		
		Username: guiadmin Password: ••••••		
		Change password		
		Log In		
		Welcome to the Oracle System Login.		
		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.		
		Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.		

#### Procedure 7: Keep Restored User

3.	After	Navigate to Administration -> Access Control -> Users
5.	Restoration:	
	Reset User	🔳 🚨 Main Menu
	Passwords	📋 😋 Administration
		🔤 📑 General Options
		📋 🚔 Access Control
		👘 🚽 🖓 Users
		🚽 🎁 Groups
		Sessions
		🔤 📑 Certificate Management
		Authorized IPs
		SFTP Users
		Select the user
		Click the Change Password button
		Insert Edit Delete Report Change Password
		Enter a new password
		Enter the new password for guiadmin two times.
		New Password:
		Retype New Password:
		✓ Force password change on next login
		Continue
		Click the <b>Continue</b> button

### 6.3 Removing a Restored User

#### Procedure 8: Remove the Restored User

S T	Perform this proc	cedure to remove users that will be restored by system restoration		
- E P #	Check off ( $$ ) each step number.	Check off ( $$ ) each step as it is completed. Boxes have been provided for this purpose under each step number.		
"	If this procedure	fails, contact Appendix E. My Oracle Support (MOS), and ask for assistance.		
1.	After Restoration: Login to the NOAM VIP	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: <pre>http://<primary_noam_vip_ip_address></primary_noam_vip_ip_address></pre>		
		Login as the <i>guiadmin</i> user:		
		ORACLE		
		Oracle System Login Fri Mar 20 12:29:52 2015 EDT		
		Log In Enter your username and password to log in Username: guiadmin Password: •••••• Change password		
		Welcome to the Oracle System Login.		
		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.		
		Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.		

2.	After	Navigate to Administration -> Access Control -> Users	
	Restoration:	- 6 Main Manu	
	Reset User	📮 🚨 Main Menu	
	Passwords	🖕 🚔 Administration	
		<ul> <li>Access Control</li> </ul>	
		······································	
		📖 📑 Sessions	
		🔤 🔤 Certificate Management	
		📑 Authorized IPs	
		🔤 🎬 SFTP Users	
		Select the user	
		Click the <b>Delete</b> button	
		Insert Edit Delete Report Change Password	
		Delete selected users?	
		OK Cancel	
		Click the <b>OK</b> button to confirm.	

#### Procedure 8: Remove the Restored User

### 6.4 Restoring a Modified User

These users have had a password change prior to creation of the backup and archive file. The 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 Appendix E. 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. The 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 9: Restoring an Archive that does not Contain a Current User

S T	Perform this proce	edure to remove users that will be restored by system restoration		
· E P #	Check off ( <b>√)</b> eacl step number.	h step as it is completed. Boxes have been provided for this purpose under each		
	If this procedure f	ails, contact Appendix E. My Oracle Support (MOS), and ask for assistance.		
1.	Before Restoration: 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.		
2.	Before Restoration:	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:		
	Login to the NOAM VIP	http:// <primary_noam_vip_ip_address></primary_noam_vip_ip_address>		
		Login as the <i>guiadmin</i> user:		
		ORACLE		
		Oracle System Login Fri Mar 20 12:29:52 2015 EDT		
		Log In Enter your username and password to log in		
		Username: guiadmin Password: ••••••		
		Change password		
		Log In		
		Welcome to the Oracle System Login.		
		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.		
		Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.		

	Before	Navigate to Administration -> Access Control -> Users	
3.	Restoration:		
	Record user	🖃 🚊 Main Menu	
	settings	📋 🤤 Administration	
		🚽 🧾 General Options	
		🚊 🚔 Access Control	
		la de la companya de	
		Groups	
		Sessions	
		- E Certificate Management - E Authorized IPs	
		SFTP Users	
		Under each affected user, record the following:	
		Username,	
		Account status	
		Remote Auth	
		Local Auth	
		Concurrent Logins Allowed	
		Inactivity Limit	
		Comment	
		Groups	
	After	Establish a GUI session on the NOAM server by using the VIP IP address of the	
4.	Restoration:	NOAM server. Open the web browser and enter a URL of:	
	Login		
		http:// <primary_noam_vip_ip_address></primary_noam_vip_ip_address>	
		Login as the <i>guiadmin</i> user:	
		ORACLE	
		Oracle System Login	
		Fri Mar 20 12:29:52 2015 EDT	
		Log In	
		Enter your username and password to log in	
		Username: guiadmin	
		Password: ••••••	
		Change password	
		Log In	
		Welcome to the Oracle System Login.	
		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.	
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		Other names may be trademarks of their respective owners.	

Procedure 9: Restoring an Archive that does not Contain a Current User

	After	Navigate to Administr	ation -> Access Control -> Users	
5.	Restoration:			
	Recreate	🚽 🚽 Administration		
	affected user	General Options		
		🝵 😋 Access Control		
		🚽 🍦 Users		
		🔤 🎁 Groups		
		- Sessions		
		🔤 📑 Certificate Ma		
		🔤 📔 Authorized IP	s	
		SFTP Users		
		Click Insert		
		Click Insen		
		Insert Edit Delete Re	Change Password	
		December (1997)	a dha a la fa a a lla a fa 1/2. Ofara 0	
		Recreate the user usin	g the data collected in Step 3.	
		Username		
		Username	*	
			admin 🔺	
		Group		
		Authentication Options	Allow Remote Auth	
		Addrendeddon opdono	Allow Local Auth	
		Access Allowed	Account Enabled	
		Maximum Concurrent Logins	0	
		Session Inactivity Limit	120	
		Comment	*	
		Click <b>Ok</b>		
		Ok Apply Cancel		
		Ok Apply Cancel		
6	After	Repeat Step 5 to recre	eate additional users.	
6.	Restoration:			
	Repeat for			
	Additional Users			
7.	After	See Appendix E. My O	racle Support (MOS) for resetting passwords for a user.	
· · ·	Restoration:			
	Reset the			
	Passwords			

Procedure 9: Restoring an Archive that does not Contain a Current User

# 7.0 IDIH Disaster Recovery

#### Procedure 10: IDIH Disaster Recovery Preparation

S	This procedure performs disaster recovery preparation steps for the IDIH.			
T E P #	Check off (√) each step number.	Check off ( $$ ) each step as it is completed. Boxes have been provided for this purpose under each step number.		
	If this procedure fa	If this procedure fails, contact Appendix E. My Oracle Support (MOS), and ask for assistance.		
1.	Oracle Guest: Login	Establish an SSH session to the Oracle guest, login as <i>admusr</i> .		
2.	<b>Oracle Guest:</b> Perform Database Health	Execute the following command to perform a database health check: \$ sudo /usr/TKLC/xIH/plat/bin/analyze server.sh -i		
	check	Output:		
		<pre>admusr@thundetboltors [admusr@thundetboltors -12 sudo /usr/TKLC/XIH/plat/bin/analyze_server.sh -i 10:10:52: STARTING HEALTHCHECK PROCEDURE 10:10:52: TTP VERSION: 7.0.1.0.0-96.20.0 10:10:52: Checking disk space issues found 10:10:52: Checking disk space issues found 10:10:52: No disk space issues found 10:10:52: Checking Alarm Manager alarmStatus 10:10:55: No disk space issues found 10:11:00: Checking statefiles 10:10:55: Runlevel is ok (N 4) 10:11:00: Checking upgrade log 10:11:00: Trastall logs are free of errors 10:11:00: MrP deamon is running 10:11:00: Checking NFP status 10:11:00: Trostall logs are free of errors 10:11:00: Tvoe-host is integrated 10:11:00: Tvoe-host is integrated 10:11:00: Trip settungs is ok 10:11:00: Trip setture sent in /etc/hosts 10:11:00: Ping server entries in host file. 10:11:00: Ping server appeerver 10:11:00: Ping server appeerver 10:11:00: Ping server and resources online 10:11:00: Ping server appeerver 10:11:00: Ping server and resources online 10:11:01: Funds KALMHCHECK PROCEDURE WITH CODE 0 10:11:01: FUNDS KALMHCHECK PROCEDURE WITH CODE 0 12:11:01: Int set passed! 10:11:01: FUNDS KALMHCHECK PROCEDURE WITH CODE 0 12:11:01: FUNDS KALMHCHECK PROCEDURE WITH CODE 0 12:11:01: FUNDS KALMHCHECK PROCEDURE WITH CODE 0 13:11:01: FUNDS KALMHCHECK PROCEDURE WITH CO</pre>		

S T E	This procedure performs disaster recovery for the IDIH by re-installing the mediation and application servers.				
– P #	Check off ( $$ ) each step number.	Check off ( $$ ) each step as it is completed. Boxes have been provided for this purpose under each step number.			
	If this procedure fa	ails, contact Appendix E. My Oracle Support (MOS), and ask for assistance.			
1.	Create iDIH Application & Mediation VMs	Execute the following procedure from [1] to recover the Application and Mediation VMs:			
		For VMWare based deployments: Procedure 23 "(VMware only) Create iDIH Oracle, Mediation and Application VMs"			
		For KVM / Openstack based deployments: Procedure 24. (KVM/OpenStack only ) Create iDIH Oracle, Mediation and Application VMs (Optional)			
2.	Configure iDIH VM NetworksExecute the following procedure from [1] to configure the VM networks on the Application and Mediation VMs only:				
		Procedure 25 "Configure iDIH VM Networks"			
3.	Configure VMs Execute the following procedure from [1]:				
		Procedure 26"Run Post Installation scripts on iDIH VMs", steps 3 - 9			
4.	Integrate into If integration is needed execute the following procedure from [1]:				
	DSR (Optional) Procedure 29. Integrate iDIH into DSR				
5.	iDIH Application	Execute the following procedure from [1]:			
	Final configuration	Procedure 30. iDIH Application final configuration			

#### Procedure 11: IDIH Disaster Recovery (Re-Install Mediation and Application Servers)

# Appendix A. DSR Database Backup

Proce	ocedure 12: Restoring an Archive that does not Contain a Current User			
S T E	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			
С Р #	Check off ( $$ ) each step as it is completed. Boxes have been provided for this purpose under each step number.			
	If this procedure fa	ails, contact Appendix E. My Oracle Support (MOS), and ask for assistance.		
1.	NOAM/SOAM VIP: Login	Establish a GUI session on the NOAM or SOAM server by using the VIP IP address of the NOAM or SOAM server.		
		Open the web browser and enter a URL of:		
		http:// <primary_noam soam_vip_ip_address=""></primary_noam>		
		Login as the <i>guiadmin</i> user:		
		ORACLE		
		Oracle System Login Fri Mar 20 12:29:52 2015 EDT		
		Log In		
		Enter your username and password to log in		
		Username: guiadmin Password: ••••••		
		Change password		
		Log In		
		Welcome to the Oracle System Login.		
		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. Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates.		
		Other names may be trademarks of their respective owners.		

2	NOAM/SOAM	Navigate to Ma	in Menu -> Status & Manage -> Database
2.	VIP: Backup		
	Configuration	📩 📥 Status 🕯	& Manage
	Data for the		vork Elements
	System		
		🔤 🔤 Serv	er
		💽 HA	
		- 💽 Data	base
		🛛 📑 KPIs	
		: im proc	esses
		Select the Activ	ve NOAM Server and Click on Backup button
			· ·
		Disable Provisioning	Report         Inhibit Replication         Backup         Compare         Restore         Man Audit         Suspend Auto Audit
		Make sure that	the checkboxes next to "Configuration" is checked.
		Database Backu	•
		Field Server: Jetta-NO-1	Value
		Select data for backup	Provisioning
			☑/Configuration
			©gzip
		Compression	øbzip2
			Onone *
		Archive Name	Backup.dsr.Jetta-NO-1.Configuration.NETWORK_OAMP.20150428_09311.*
		Comment	
			Ok Cancel
		Enter a filenam	e for the backup and press <b>OK</b>

Procedure 12: Restoring an Archive that does not Contain a Current User

3.	NOAM/SOAM	Navigate to Main Menu -> Status & Manage -> Files
5.	VIP: Verify the	
	backup file	📩 📥 Status & Manage
	existence.	🔤 Network Elements
		🐘 💽 Server
		AA 💽 HA
		💽 Database
		📑 KPIs
		Processes 🔛
		💼 🧰 Tasks
		Files
		Main Menu: Status & Manage -> Files
		Filter - Tasks -
		Jetta-NO-1         Jetta-NO-2         Jetta-SO-1         Jetta-SO-2         Jetta-DAMP-1         Jetta-DAMP-2
		File Name
		Backup.DSR.Jetta-NO-1.FullDBParts.NETWORK_OAMP.20150421_143846.UPG.tar.bz2
		Backup.DSR.Jetta-NO-1.FullRunEnv.NETWORK_OAMP.20150421_143846.UPG.tar.bz2
		backup/Backup.dsr.Jetta-NO-1.Configuration.NETWORK_OAMP.20150414_021511.AUTO.tar
		backup/Backup.dsr.Jetta-NO-1.Configuration.NETWORK_OAMP.20150415_021510.AUTO.tar
		backup/Backup.dsr.Jetta-NO-1.Configuration.NETWORK_OAMP.20150416_021511.AUTO.tar
		backup/Backup.dsr.Jetta-NO-1.Configuration.NETWORK_OAMP.20150417_021510.AUTO.tar
		backup/Backup.dsr.Jetta-NO-1.Configuration.NETWORK_OAMP.20150418_021510.AUTO.tar backup/Backup.dsr.Jetta-NO-1.Configuration.NETWORK_OAMP.20150419_021510.AUTO.tar
		backup/Backup.dsr.Jetta-NO-1.Configuration.NETWORK_OAMP.20150420_021510.A010.tar
		backup/Backup.dsr.Jetta-NO-1.Configuration.NETWORK_OAMP.20150422_021510.A010.tar
		backup/Backup.dsr.Jetta-NO-1.Configuration.NETWORK_OAMP.20150422_021511.AUTO.tar
		backup/Backup.dsr.Jetta-NO-1.Configuration.NETWORK_OAMP.20150423_021510.AUTO.tar
		backup/Backup.dsr.Jetta-NO-1.Configuration.NETWORK_OAMP.20150424_021511.AUTO.tar
		backup/Backup.dsr.Jetta-NO-1.Configuration.NETWORK_OAMP.20150425_021510.AUTO.tar
		backup/Backup.dsr.Jetta-NO-1.Configuration.NETWORK_OAMP.20150426_021510.AUTO.tar
		backup/Backup.dsr.Jetta-NO-1.Configuration.NETWORK_OAMP.20150427_021511.AUTO.tar
		backup/Backup.dsr.Jetta-NO-1.Configuration.NETWORK_OAMP.20150428_021511.AUTO.tar
		Select the Active NOAM or SOAM tab.
		The files on this conversall he displayed Marife the existence of the basis of the
		The files on this server will be displayed. Verify the existence of the backup file.

Procedure 12: Restoring an Archive that does not Contain a Current User

4.	NOAM/SOAM VIP: Download	From the previous step, choose the backup file.					
	the file to a local machine.	Select the Download button         Delete       View       Upload       Deploy ISO       Validate ISO         1.1 GB used (5.93%) of 18.4 GB available   System utilization: 1.1 GB (5.99%) of 18.4 GB available.					
		Select <b>OK</b> to confirm the download.					
		Opening Backup.dsr.Jetta-NO-1.Configuration.NETWORK_OAMP.2015       Image: Configuration.NETWORK_OAMP.20150418_021510.AUTO.tar         You have chosen to open:       Image: Configuration.NETWORK_OAMP.20150418_021510.AUTO.tar         which is: tar Archive (13.5 MB)       from: https://100.65.209.143         What should Firefox do with this file?       Image: Configuration (Configuration)         Image: Configuration (Configuration)       Image: Configuration)         Image: Configuration (Configuration)       Image: Configurati					
5.	Upload the Image to Secure Location	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.					
6.	Backup Active SOAM	Repeat Steps 2 through 5 to back up the Active SOAM					

#### Procedure 12: Restoring an Archive that does not Contain a Current User

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

Proce	dure 13: Inhibit A and	B Level F	Replication	on	C-Leve	el Servers					
S T P #	<ul> <li>The intent of this procedure is to inhibit A and B level replication on all C Level servers of this site</li> <li>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.</li> <li>If this procedure fails, contact Appendix E. My Oracle Support (MOS), and ask for assistance.</li> </ul>										
1.	Active NOAM: Login	<b>DAM:</b> Login to the Active NOAM server via SSH as <i>admusr</i> user.									
2.	Active NOAM: Inhibit replication on all C level Servers	Execute the following command: \$ for i in \$(iqt -p -z -h -fhostName NodeInfo where "nodeId like 'C*' and siteId=' <ne name="" of="" site="" the="">'"); do iset -finhibitRepPlans='A B' NodeInfo where "nodeName='\$i'"; done Note: NE name of the site can be found out by logging into the Active NOAM GUI and going to Configuration-&gt;Server Groups screen. Please see the snapshot below for more details. E.g. if ServerSO1 belong to the site which is being recovered then siteId will be SO_HPC03.</ne>									
		Filter •		0.0000		il					
			Server Group Name	Level	Parent	Function	Servers	Euror	Di Dala Dari	100-	i
MPSG C SOSG DSR (multi- adive duster) SO_HPCID SeventP1 SO_HPCID SeventP2								183			
	NOISE         DSR         NE         Server         HA Role Pref         VIPs           NOINE         (addrestrands: NO_HPC03         ServerN01         10.240.10.166           SWIV         NO_HPC03         ServerN02         10.240.10.166										
	SOSG         B         NOSG         NE         Sarresr         HA Role Pref         WPs           SOSG         B         NOSG         (adhestando 2001)         ServerS01         10.240.10.165           Saliti         S0.3HC023         ServerS02         10.240.10.165										

#### Procedure 13: Inhibit A and B Level Replication on C-Level Servers

#### Procedure 13: Inhibit A and B Level Replication on C-Level Servers

3	Active NOAM: Verify Replication has been Inhibited.	After executing above steps to inhibit replication on MP(s), no alarms on GUI would be raised informing that replication on MP is disabled. 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': Perform the following command: \$ sudo iqt NodeInfo								
		Expected of nodeld excludeTables A1386.099 B1754.109 C2254.131 C2254.233	Jtput: nodeName NO1 SO1 MP2 MP1	hostNam NO1 SO1 MP2 MP1	ne nodeCapability Active Active Active Active Active	inhibitRepPlans A B A B	siteId NO_HPC03 SO_HPC03 SO_HPC03 SO_HPC03			

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

Proce	ocedure 14: Un-Inhibit A and B Level Replication on C-Level Servers									
S T E	The intent of this p site	procedure is to Un-inhibit A and B level replication on all C Level servers of this step as it is completed. Boxes have been provided for this purpose under each								
Р #	Check off ( <b>√)</b> each step number.									
	If this procedure fails, contact Appendix E. My Oracle Support (MOS), and ask for assistance.									
1.	Active NOAM: Login	Login to the Ad	Login to the Active NOAM server via SSH as <i>admusr</i> user.							
2.	Active NOAM:	Execute the fo	llowing	command	:					
	Un-Inhibit replication on all C level Servers		ke 'C inhib '\$i'" he of th to <b>Cor</b> e snaps eing rec	e site can <b>figuration</b> shot below	be found be found	<pre>'<ne by="" details.="" e.g.<="" groups="" loggir="" n="" name="" nodeinfo="" out="" pre="" r="" sc=""></ne></pre>	ng into the Act reen. if ServerSO1 I	<pre>:e&gt;'") ; ive NOAM belong to the</pre>		
		Server Group Name	Level Parent	E Function	Servers			1		
		MPSG	C 9096	DS2 incits		Server HA Role Pref IschiP1 IschiP2	VPs			
		NOSG	A NORE	DSR (adveistando pak)	Service Constant in the Article Section of the Article	Server HA Role Pref erN01 ierN02	VIPs 10,240 10,166 10,240,10,166			
		SOSC	B NOSC	D9R (adheistandb pair)	and a second second	Server HA Role Pref erS01 verS02	WPs 10.240 10.186 10.240 10.186			

#### Procedure 14: Un-Inhibit A and B Level Replication on C-Level Servers

3.	<ul> <li>Active NOAM:</li> <li>3. Verify</li> <li>C Replication has</li> <li>After executing above steps to un-inhibit replication on MP(s), no alarms on would be raised informing that replication on MP is disabled.</li> </ul>								
	been Inhibited.	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 'A B': Perform the following command:							
		\$ sudo iqt NodeInfo         Expected output:         nodeld       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       SO_HPC03         C2254.233       MP1       MP1       Active       SO_HPC03							

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

Issue	Associated PR	Workaround
Inetmerge alarm after force restore	Bug 19095635	Get the clusterID of the NO using the following command: \$ top.myrole myNodeId=A3603.215 myMasterCapable=true Then update the clusterId field in RecognizedAuthority table to have the same clusterid: \$ ivi RecognizedAuthority e.g. iload -ha -xU -frecNum - fclusterId -ftimestamp RecognizedAuthority \ <<'!!!!
Inetsync alarms after performing disaster recovery Active NO /etc/hosts file does not contain server aliases after force restore done. Active NO cannot communicate with other Servers	Bug 19095639 222829,234357	Restart the Inetsync service on all affected servers using the following commands:         \$ pm.set off inetsync         \$ pm.set on inetsync         \$ pm.set on inetsync         Release 7.0.1:         From the recovered NOAM server command line, execute:         \$ AppWorks         AppWorks_AppWorks         updateServerAliases <no< td="">         Host Name&gt;</no<>

SOAM VIP reports no servers at the Status & Manage Server screen.	Bug 20045979	Perform the following command to see the 'db' directory permission: \$ 1s -ltr drwx523 root root 20480 Nov 11 22:44 db < Not Correct Perform the following command to change the directory permissions: \$ sudo chmod 777 db Verify the directory permissions are correct: \$ 1s -ltr drwxrwxrwx 523 root root 20480
		\$ ls -ltr drwxrwxrwx 523 root root 20480 Nov 11 22:44 db < Correct

### Appendix E. My Oracle Support (MOS)

MOS (<u>https://support.oracle.com</u>) 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 <u>http://www.oracle.com/us/support/contact/index.html</u>.

When calling, there are multiple layers of menus selections. Make the selections in the sequence shown below on the Support telephone menu:

1. For the first set of menu options, select 2, "New Service Request". You will hear another set of menu options.

2. In this set of menu options, select 3, "Hardware, Networking and Solaris Operating System Support". A third set of menu options begins.

3. In the third set of options, select 2, "Non-technical issue". Then you will be connected to a live agent who can assist you with MOS registration and provide Support Identifiers. Simply mention you are a Tekelec Customer new to MOS.