Oracle® Communications Subscriber Data Management

Software Upgrade Procedure

SPR 9.0 to 9.3 Upgrade Procedure

E63813-01

June 2014

Caution: Contact the Oracle Tekelec Customer Care Center and inform them of your upgrade plans prior to beginning this or any upgrade procedure.

ORACLE®

Oracle Communications Subscriber Data Management, SPR Upgrade 9.0-9.3, Release 9.3

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 http://www.oracle.com/us/support/contact/index.html.
See more information on MOS in the Appendix section.

TABLE OF CONTENTS

1. INTRODUCTION....6
1.1 Purpose and Scope....6
1.2 References....6
1.3 Software Release Numbering....6
1.4 Support Hardware Configurations....6
1.5 Acronyms....7
1.6 Terminology....7

2. UPGRADE OVERVIEW....9
2.1 Upgrade Path....9
2.2 General Overview....9
2.3 Rollback....9
2.4 TPD Upgrade....9
2.5 Upgrade Sequence Overview....9
2.6 Required Materials....12

3. UPGRADE PREPARATION....13
3.1 SW load, Login, Password and IP Addresses....13
3.2 Prerequisites....14
3.3 Cluster and Geo-Redundancy Configuration....14
3.4 Perform a System Health Check and Backup Customer Data....20

4. SOFTWARE UPGRADE PROCEDURE FROM 8.0/9.0 TO 9.3.A_X.Y.Z GEO_REDUNDANT CONFIGURATION....22
4.1 Software Upgrade Execution....22
4.1.1 Copy ISO Image File....22
4.1.2 Validate ISO image file....24
4.1.3 Switch Traffic to Site A and Disable Geo-Redundancy....26
4.1.4 Upgrade Replica – Front-End Nodes....29
4.1.5 Upgrade Replica – Standby Blade (SPR B-2)....31
4.1.6 Upgrade Replica – Active Blade (SPR B-1)....35
4.1.7 Perform Subscribers Migration....37
4.1.8 Switch Traffic to Site B....41
4.1.9 Upgrade Reference – Front-End Nodes....42
4.1.10 Upgrade Reference – Standby Blade (SPR A-2)....45
4.1.11 Upgrade Reference – Active Blade (SPR A-1)....48
4.1.12 Re-Activate Geo-Redundancy on Site A....51
4.1.13 Restore Traffic Distribution....53

5. SOFTWARE UPGRADE PROCEDURE FROM 9.0.X TO 9.3.0 NON-GEO-REDUNDANT CONFIGURATION....55
5.1 Software Upgrade Execution....55
5.1.1 Copy ISO Image File....55
5.1.2 Validate ISO image file....57
5.1.3 Upgrade the Standby blade server....58
5.1.4 Perform Subscribers Migration....61
5.1.5 Stop all remaining blades or servers (SPR A-1, SPR-FE)....63
5.1.6 Start the upgraded blade or server (SPR A-2)....63
5.1.7 Upgrade the remaining servers (SPR A-1, SPR-FE)....65
5.1.8 Start SPR A-1 and start all SPR-FE Blade or server....67

6. RECOVERY PROCEDURES....69

6.1 Rollback SPR B-2 server 69
6.1.1 Restore Geo-Redundancy 69
6.1.2 Rollback Front-End Blades 71
6.1.3 Rollback Replica Standby Blade (SPR B-2) 74
6.2 Rollback Site B server 77
6.2.1 Rollback SPR B-1 server 77
6.2.2 Rollback SPR B-2 server 80
6.2.3 Rollback Front-End Blades 83
6.2.4 Restore Backup 86
6.2.5 Enable Geo-Redundancy on site A and Start Site B Active Blade 87
6.2.6 Start standby blade, front-end-blades and re-distribute traffic 92
6.3 Rollback to 9.0.x in non-geo-redundant configuration 93
6.3.1 Stop all servers 93
6.3.2 Rollback all blades 94

APPENDIX A. ACCESSING ORACLE'S CUSTOMER SUPPORT SITE 98

List of Procedures

Procedure 1: Prerequisites 14
Procedure 2: Sites and servers identification, HA state check 15
Procedure 3: System Health Check and Backup Customer Data 20
Procedure 4: Copy ISO Image File to target systems 23
Procedure 5: Validate and Mount ISO image file 24
Procedure 6: Switch Traffic to Site A and Disable Geo-Redundancy. Force Site B to Reference 26
Procedure 7: Upgrade Replica – FrontEnd Nodes 29
Procedure 8: Upgrade Replica – Standby Blade (SPR B-2) 32
Procedure 9: Upgrade Replica – Active Blade (SPR B-1) 35
Procedure 10: Perform Subscribers Migration 38
Procedure 11: Perform Subscribers Migration 41
Procedure 12: Upgrade Reference – FrontEnd Nodes 43
Procedure 13: Upgrade Reference – Standby Blade (SPR A-2) 46
Procedure 14: Upgrade Reference – Active Blade (SPR A-1) 48
Procedure 15: Re-Activate Geo-Redundancy on Site A 51
Procedure 16: Start Site and Restore Traffic Distribution 53
Procedure 17: Copy ISO Image File to target systems 56
Procedure 18: Validate & Mount ISO image file 57
Procedure 19: Upgrade 9.1.1 Standby Server 59
Procedure 20: Perform Subscribers Migration 62
Procedure 21: Stop all servers on SPR-A 63
Procedure 22. Start the upgraded blade or server 64
Procedure 23: Upgrade remaining Server 66
Procedure 24: Start SPR A-1 and all SPR-FE blade 67
Procedure 25: Restore Geo-Redundancy 69
Procedure 26: Rollback Replica – Front-End Blades 71
Procedure 27: Rollback Replica – Standby Blade (SPR B-2) 74
Procedure 28: Rollback Replica –Active Blade (SPR B-1) 77
Procedure 29: Rollback Replica – Standby Blade (SPR B-2) 80

Procedure 30: Rollback Replica – Front-End Blades 83
Procedure 31: Restore backup 86
Procedure 32: Enable Geo-Redundancy and Start Active Blade 87
Procedure 33: Start standby blade, front-end-blades and re-distribute traffic 92
Procedure 34: Stop all servers 93
Procedure 35: Rollback all blades 94

1. INTRODUCTION

1.1 Purpose and Scope

This document describes methods utilized and procedures executed to perform a software upgrade on an in-service SDM SPR 8.0 and 9.0 servers or blades to Software Release 9.3.x. The audience for this document includes Oracle customers as well as the following Oracle groups: Software Development, Software System, Product Verification, Documentation, and Customer Service including Software Operations and New Product Introduction (NPX). This document provides step-by-step instructions to execute SPR to 9.3.0 upgrade from ISO Distribution.

The execution of this procedure assumes that SDM 9.3.x media (ISO file) has already been delivered to the customer's premises and delivered to the local workstation being used to perform this upgrade.

1.2 References

[1] 910-6417-001 **SDM 9.0 Release Notes**
[2] 919-1620-001 **Platform 5.x HP c-Class Configuration Procedure Reference**
[3] TR005491 **TPD Platform Configuration Toolset/Application Note**, Revision 1.2
[4] PG005024 **Software Developer's Guide to TPD Upgrade Programmer's Guide**, Revision 3.6
[5] TR007206 **Installing SPR 9.0 on HP C-Class G8,** Revision 1.1
[6] UP006221 **SPR 9.0 Upgrade Procedure**, Revision 2.0

1.3 Software Release Numbering

SDM SPR 9.3.x is comprised of 1 software component ISO. The SDM SPR distribution uses the following release number convention:

<Major Release NB>.<Minor Release NB>.<Maintenance Release.NB>-<Major Build Number>.<Minor Build Number>.<Patch Number>

This document describes the upgrade procedure to any release complying with the following scheme:

- **8.0.A_x.y.z to 9.3.C_x.y.z SPR**
- **9.0.B_x.y.z to 9.3.C_x.y.z SPR**

1.4 Support Hardware Configurations

This upgrade procedure supports the following hardware configuration for non-service impacting upgrade:

Configuration	Source Release	
	8.0	9.0
HP Class 2-Blades BL460 G6 with Geo-Redundancy and no storage array	X	X
HP Class 2-Blades BL460 G6 with Geo-Redundancy and storage arrays	X	X
HP Class 4-Blades BL460 G6 BE-FE with Geo-Redundancy and no storage array	X	X
HP Class 2-Blades BL460 G6 BE-FE with Geo-Redundancy and storage arrays	X	X
HP Class 2-Blades BL460 G8 with Geo-Redundancy and no storage array		X
HP Class 2-Blades BL460 G8 with Geo-Redundancy and storage arrays		X
HP Class 4-Blades BL460 G8 BE-FE with Geo-Redundancy and no storage array		X
HP Class 2-Blades BL460 G8 BE-FE with Geo-Redundancy and storage arrays		X
HP RMS 2-Blades DL360 G6 with Geo-Redundancy	X	X
HP RMS 2-Blades DL380 G8 with Geo-Redundancy		X
RMS 2-Blades PP5160 with Geo-Redundancy	X	X

Table 1: Supported Hardware Configuration

1.5 Acronyms

Acronym	Description
BIOS	Basic Input Output System
BNS	Broadband Network Solutions
CD-ROM	Compact Disc Read-only Media
IP	Internet Protocol
IPM	Initial Product Manufacture
ISO	ISO 9660 file system (when used in the context of this document)
MOP	Method of Procedure
MPE	Multimedia Policy Engine
RPM	Red Hat Package Manager
SDM	Subscriber Data Management
SPR	Subscriber Policy Repository

Table 2: Acronyms

1.6 Terminology

Term	Description
Backout (abort)	The process to take a system back to a Source Release prior to completion of upgrade to a Target release. This includes preservation of databases and system configuration.
Incremental upgrade	**EAGLE:** Upgrade to a maintenance release (external customers) or upgrade to a new build (Oracle Tekelec labs). **Open Systems:** An upgrade that takes a target system from any given release to another release but not necessarily from the shipping baseline to the target release.
Non-preserving upgrade	An "Upgrade" that does not adhere to the standard goals of software upgrade methodology. The outcome of the execution is that the system is running on the Target Release; however the Source Release database is **not** preserved.
Rollback	The process to take a system from a Target Release back to a Source Release including preservation of databases and system configuration.
Subscribers Migration	Procedure used to migrate subscribers profile data from non-upgraded geo-redundant system to the upgraded geo-redundant system.
Source release	Software release to upgrade from.
Target release	Software release to upgrade to.

Table 3: Terminology

The following figure is an example of the procedural steps used in this document. It contains the following:

- Each step has a checkbox that the user should check-off to keep track of the progress of the procedure.
- Sub-steps within a step are referred to as Step X.Y. The title box describes the operations to be performed during that step.
- GUI menu items, action links and buttons to be clicked on are in **bold Arial** font.
- GUI fields and values to take note of during a step are in **bold Arial** font.
- Each command that the user enters is formatted in **`10-point bold Courier`** font.
- Command output is formatted in `normal 8 to 10-point Courier` font.
- Variable user-entered command line input is surrounding by angled brackets and formatted in ***`<bold, italicized 10-point Courier>`*** font.
- Each SDM service name is formatted in *10-point italic Times New Roman* font.

Figure 1. Example of procedure steps used in this document

Step	Procedure	
1. ☐	Upload the SDM 9.3.0 ISO in/var/TKLC/Upgrade	**$ scp *<SDM 9.3.0 ISO file>* root@*<Active BLADE IP>*:/var/TKLC/Upgrade**
2. ☐	Mount the ISO on /mnt/upgrade Verify that it is correctly mounted.	**# loopMount –ro /var/TKLC/Upgrade/*<SDM 9.3.0 ISO file>* /mnt/upgrade/** **#mount** /dev/mapper/vgroot-plat_root on / type ext3 (rw) proc on /proc type proc (rw) sysfs on /sys type sysfs (rw) devpts on /dev/pts type devpts (rw,gid=5,mode=620) /dev/sda1 on /boot type ext3 (rw) tmpfs on /dev/shm type tmpfs (rw) /dev/mapper/vgroot-SDM on /var/TKLC/SDM type ext3 (rw) none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw) none on /proc/fs/vmblock/mountPoint type vmblock (rw) /var/TKLC/upgrade/872-2409-101-9.3.0_5.0.0-SDM-x86_64.iso on /mnt/upgrade type iso9660 (ro,loop=/dev/loop0)

2. UPGRADE OVERVIEW

2.1 Upgrade Path

The upgrade paths supported are:

- The upgrade is supported from SDM 8.0.0 for geo-redundant systems only.
- The upgrade is supported from SDM 9.0.0 for both geo-redundant and non-geo-redundant systems.

To get the current version, login on the blade as root and call the BlueVersion utility.

For the geo-redundant system upgrades: when upgrading a site, all MPE to SPR connections shall be re-directed to the geo-redundant site. The procedure to reconnect the MPEs connections to geo-redundant SPRs is out of the scope of this document. Server reboots are required during the upgrade but those reboots occur while the traffic is running on geo-redundant site.

2.2 General Overview

The policy subscriber profiles are not automatically upgraded by this mechanism. Once both blades of the first geo-redundant site have been upgraded, a migration script needs to be manually executed to migrate the subscriber profiles from the non-upgraded geo-redundant site to the newly upgraded site. If the upgrade succeeds, all MPE connections can be switch back to that site. The second side is upgrade the same way except there is no need to run the migration script. The second system will automatically connect to the first site and re-synchronized using SDM internal mechanism.

Note: The PMAC is not required to perform this upgrade.

2.3 Rollback

Rollback is the reverse of the upgrade. Subscriber data can be recovered from the geo-redundant site.

2.4 TPD Upgrade

TPD 5.1.1 is included in the SDM 9.3.0 ISO media. During the upgrade, TPD will be upgraded automatically from 5.0.1 (8.0) to version 5.1.1. No TPD upgrade is required for the upgrade from 9.0.0.

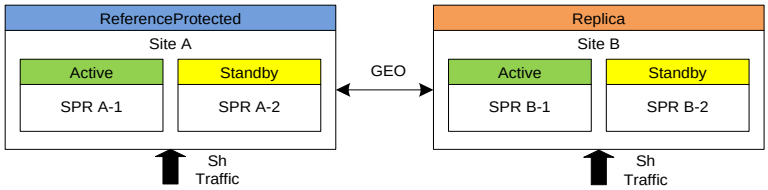
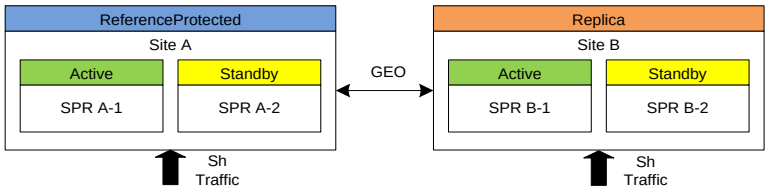
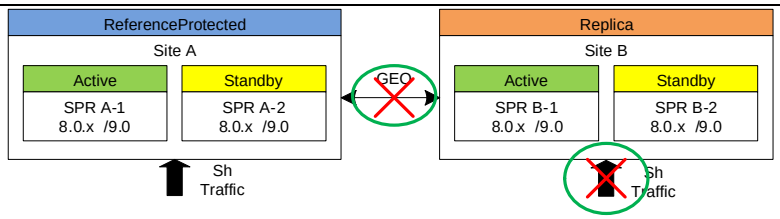
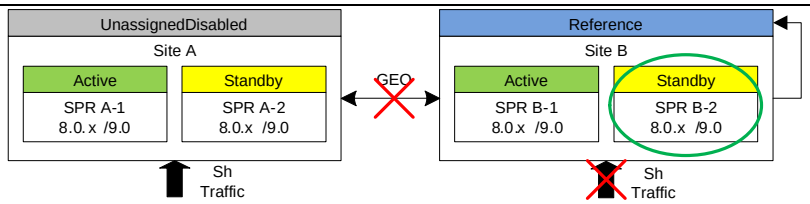
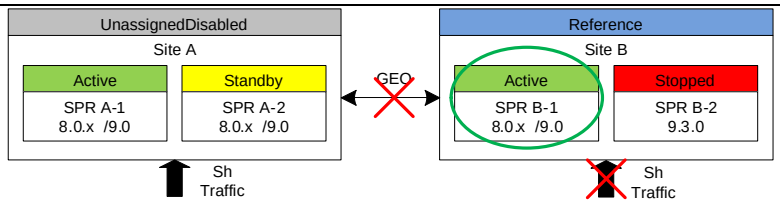
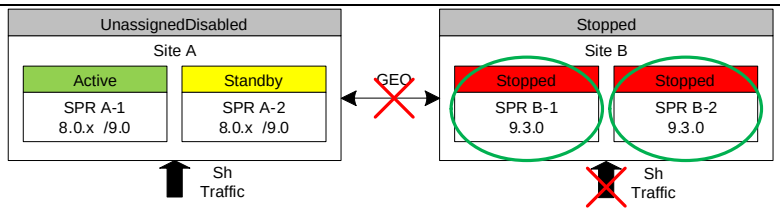
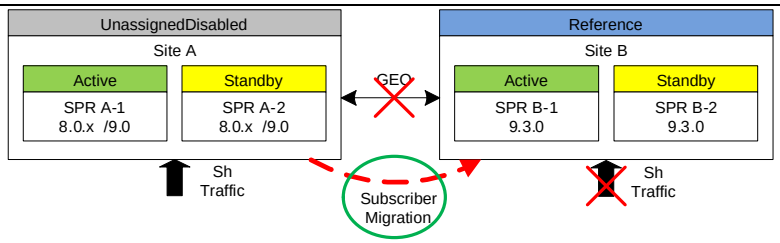
2.5 Upgrade Sequence Overview

2.5.1.1 Upgrade from 8.0 and 9.0 build (geo-redundant system)

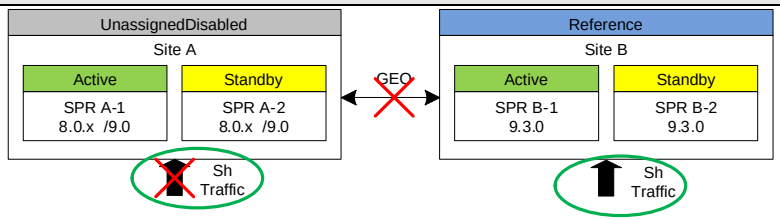
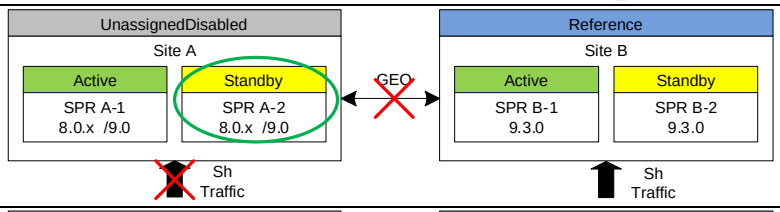
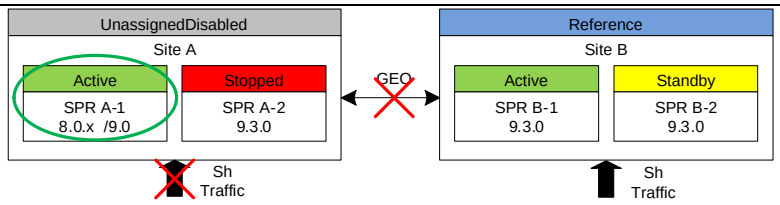
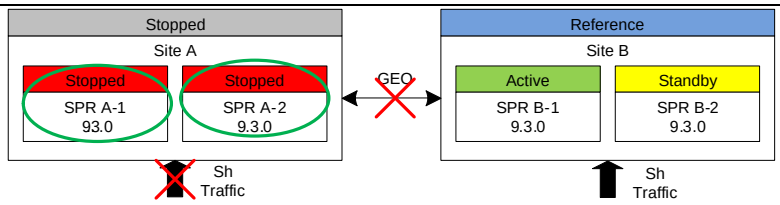
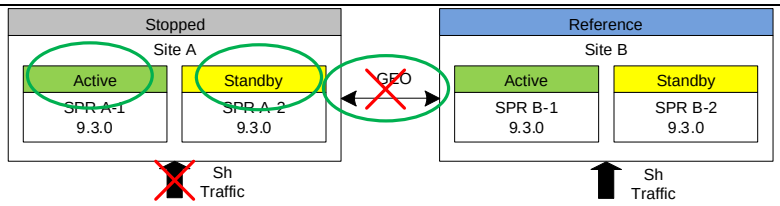
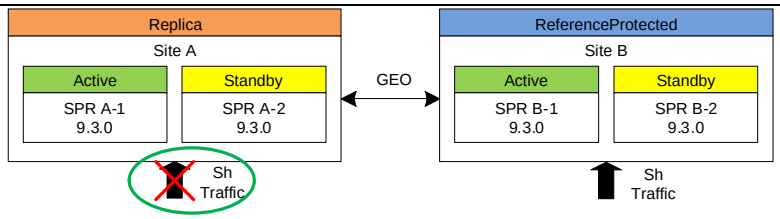
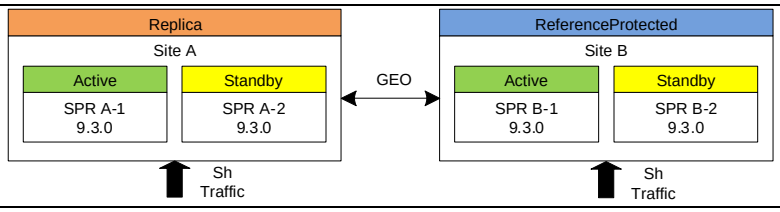
The following figure gives a general overview of the upgrade procedure from 8.0/9.0 for geo-redundant systems. The initial setup is:

- The System is running with geo-redundancy activated.
- One site is reference protected while the other site is replica (for geo-redundant)
- Each site is running with 2 system controllers blades
- On each site, one blade is running an active *Database* service while the other blade is running the standby *Database* service.
- Active *Database* and *CoreSystemController* service are running on the same blade.

Figure 2: Upgrade Overview

Step	Procedure	System State
1.	Take a full system backup (can be taken 1 day prior the upgrade[1]).	
2.	Perform Health Check Get System Information	
3.	Switch all SH traffic to site A. Disable geo-redundancy on site A and force Site B as Reference.	
4.	Upgrade Site B standby blade.	
5.	Upgrade site B active blade.	
6.	Start site B active blade (B-1). Start site B standby blade (B-2).	
7.	Perform subscriber migration between site A and Site B active blades.	

[1] Taking a backup one day prior the upgrade will lead to one day worth of data loss if this backup needs to be restored in case of disaster recovery.

Step	Procedure	System State
8.	Switch all SH traffic to site B.	
9.	Upgrade Site A standby blade.	
10.	Upgrade Site A active blade.	
11.	Start Site A active blade (A-1). Start Site A standby blade (A-2).	
12.	Enable Geo-Redundancy on site A and restart site A standby and active blade.	
13.	Re-distribute SH traffic between site A and site B.	
14.	Perform Post-Upgrade check.	

2.5.1.2 Upgrade from 9.0 build (non-geo-redundant system)

This gives a general overview of the upgrade procedure from 9.0 for non-geo-redundant systems. The initial setup is as follows:

- System is running without geo-redundancy activated.
- Each site is running with 2 system controllers blades

- On each site, one blade is running an active *Database* service while the other blade is running the standby *Database* service.
- Active *Database* and *CoreSystemController* service are running on the same blade.

Overview of steps required for an upgrade:

1. Take a full system backup on site A
2. Perform health check
3. Upgrade first site A front-end blades (A-FE) if applicable
4. Start first site A front-end blades if applicable.
5. Repeat 3 and 4 for each additional front-end blade if applicable.
6. Upgrade site A standby blade (A-2)
7. Start site A standby blade (A-2)
8. Upgrade site A active blade (A-1)
9. Start site A active blade (A-1)
10. Repeat step 3 to 9 on site B if applicable.
11. Perform post-upgrade check.

Contact the *Oracle Customer Care Center* at 1-888-FOR-TKLC (1-888-367-8552); or 1-919-460-2150 (international) for time estimates for each portion of the upgrade process.

2.6 Required Materials

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

- Target-release SDM 9.3.0 software media. Either as an ISO image file or in physical CD media format.
- The capability to log into the target server as root. Note: The login may be through ssh, local console, or iLo/RMM maintenance port.
- The capability to secure copy (scp) from the local workstation being used to perform this upgrade to the target server, or otherwise be able to transfer binary files to the target server.
- User logins, passwords, IP addresses and other administration information.

VPN access to the customer's network is required if that is the only method to log into the target servers. It must be also possible to access the SDM WebCI (TCP port 8080). The WebCI may be tunneled via VPN for Remote access.

3. UPGRADE PREPARATION

This section provides the information that needs to be retrieved before executing the upgrade. It also details the procedures required to prepare the system for upgrade execution.

3.1 SW load, Login, Password and IP Addresses

Prior to executing the upgrade, gather the information stored in table below.

Table 4: SW Load, Login, Password and IP Addresses

Item	Value
Site A – Server 1 & Server 2	Server 1 Public IP Address(ssh):
	Server 1 Slot ID[2]:
	Server 2 Public IP Address(ssh):
	Server 2 Slot ID:
	Public OAMP Virtual IP Address (webci):
	Geo-Redundancy VIP:
	root password (ssh):
	WebCI admin password:
Site B – Server 1 & Server 2	Server 1 Public IP Address(ssh):
	Server 1 Slot ID:
	Server 2 Public IP Address(ssh):
	Server 2 Slot ID:
	Public OAMP Virtual IP Address (WebCI):
	Geo-Redundancy VIP:

[2] Slot ID is obtained by login on the server through ssh (root account) and retrieving value of SLOTID attribute in file /etc/sysconfig/blue.

Item	Value
	root password (ssh):
	WebCI admin password:
Software Upgrade Pack Target Release	Target Release Number:
	SDM 9.3.0 software ISO Image (.iso) file name:

3.2 Prerequisites

This procedure verifies that all steps required to perform an upgrade have been completed.

Procedure 1: Prerequisites

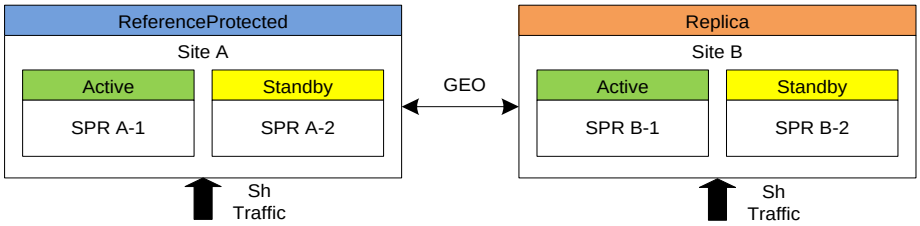
Step	Procedure	Description
1. ☐	Verify all required materials are present	Required materials are listed in Section 2.6, Required Materials. Verify the required materials are present.
2. ☐	Verify all administration data needed during upgrade	Check that all information in Section 3.1, SW load, Login, Password and IP Addresses is filled-in and accurate.
3. ☐	Verify any patches are backed up.	If the system has had patches applied to it, ensure that copies of the patch RPMs are stored in a directory unaffected by the upgrade/rollback procedures, for example /export, for each blade. Patches are located in /var/TKLC/SDM/patches.
4. ☐	Contact the OracleTekelec Customer Care Center	Contact the Oracle Tekelec Customer Care Center and inform them of your plans to upgrade this system.

3.3 Cluster and Geo-Redundancy Configuration

To avoid traffic impact, the procedures described in this document follows a strict order based on the initial servers HA states and geo-redundancy states. The 2 geo-redundant sites are referred as Site A and Site B where Site A is the site that has an initial geo-redundancy state of *ReferenceProtected* and Site B is the site that has an initial state of *Replica*.

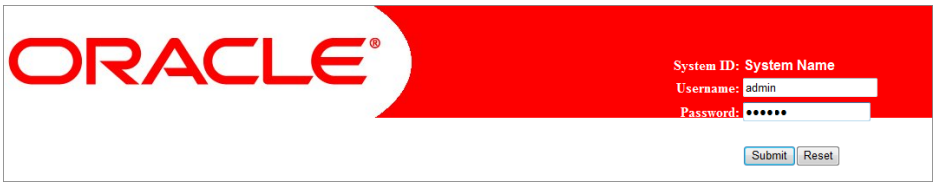
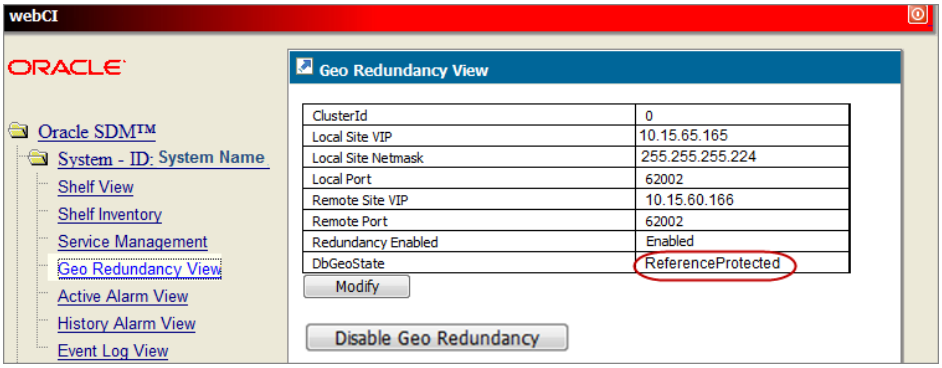
Servers on site A are referred as SPR A-1 and SPR A-2. Servers on site B are referred as SPR B-1 and SPR B-2. Blades running active Database services are identified as SPR A-1 or SPR B-1. Blades running standby Database services are identified as SPR A-2 and SPR B-2. On each server, the *CoreSystemController* and *Database* server HaRole aree the same.

This results in the following configuration:

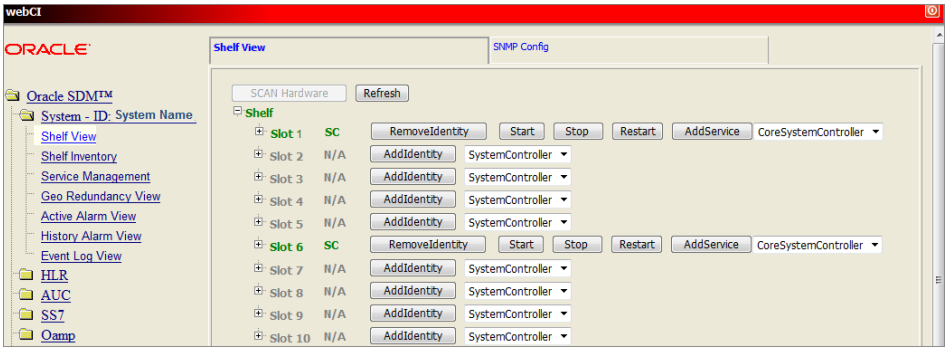
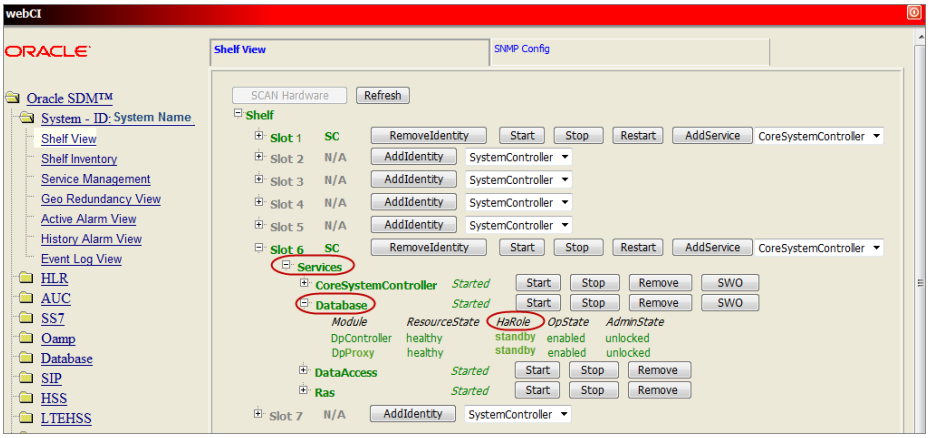


The following procedure shows how to identify each geo-redundant site and servers. It also details how to setup the server HaRole correctly prior to executing the upgrade.

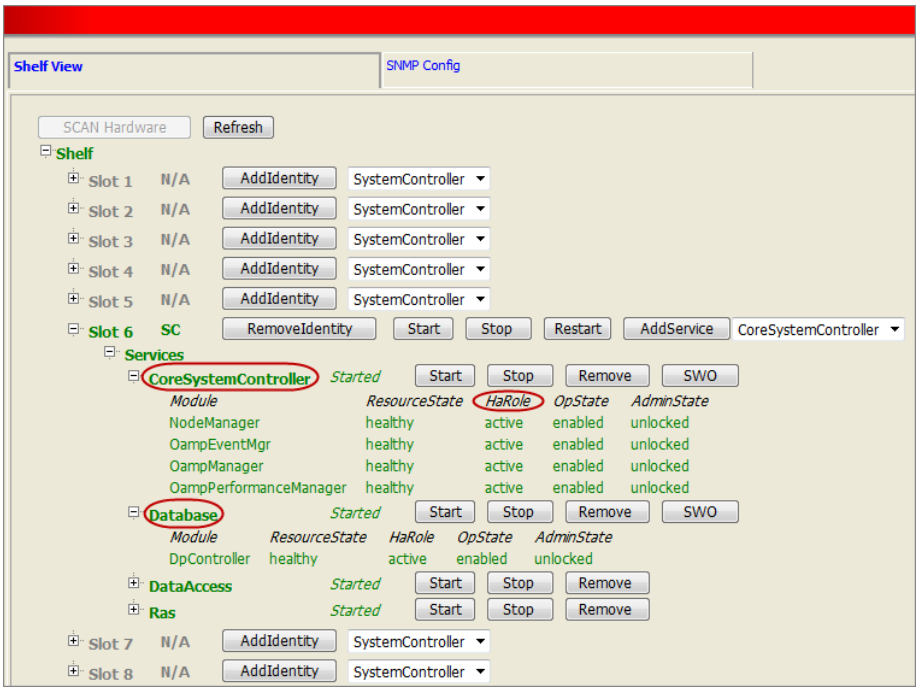
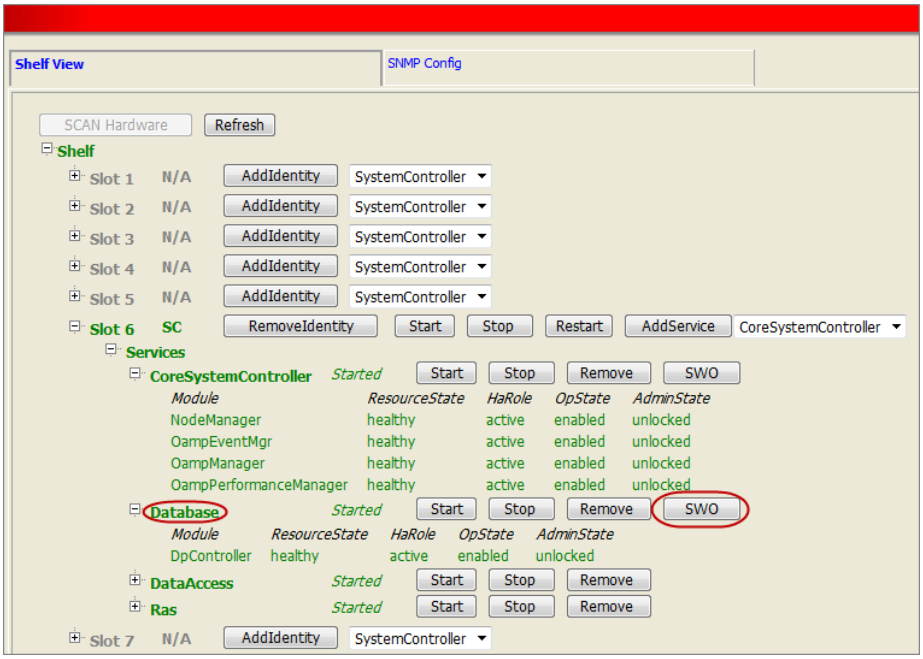
Procedure 2: Sites and servers identification, HA state check

S T E P #		
	This procedure is used to identify geo-redundant sites, servers in each site and provide the step required to configure correctly server HaRole prior to executing the upgrade. This procedure will help filling **Table 5:** Sites and Servers Identification below. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	Using Site A OAMP VIP recorded in section 3.1; connect to the WebCI using a Web Browser with admin user. The WebCI URL is: http://<OAMP ***VIP***>:8080/webci/	
2	From the WebCI left panel, navigate to: ☐ Oracle SDM > System > Geo Redundancy View ☐ Look at the value of **DbGeoState** attribute. ☐ If the value is **ReferenceProtected**, record OAMP VIP in Column #1 of **Table 5**. This site is now referred to as Site A. ☐ If the value is **Replica**, record OAMP VIP in Column 6 of **Table 5**. This site is now referred to as Site B. ☐ If the value is not **ReferenceProtected** or **Replica**, call the *Oracle Customer Care Center* and inform them that Geo-Redundancy is down at the customer site.	

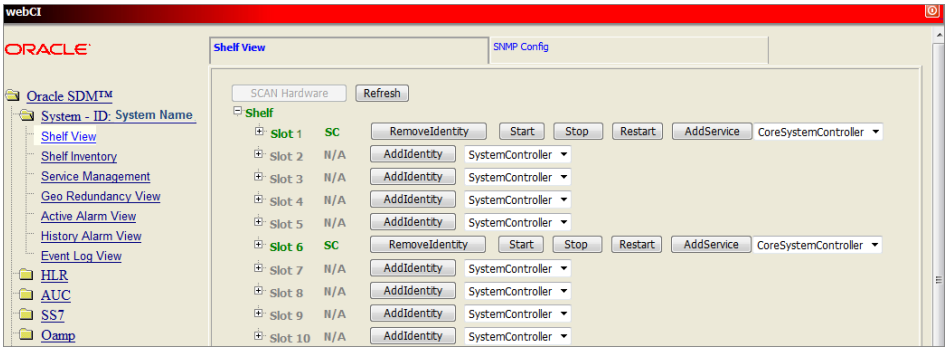
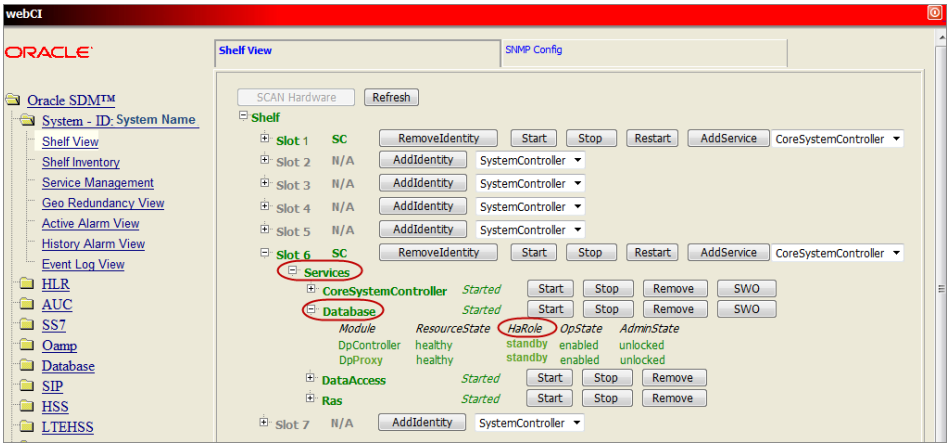
Procedure 2: Sites and servers identification, HA state check

3 ☐	Check the Geo-Redundancy state of the second site.	Using Site B Oamp VIP recorded in section 3.1; connect to the WebCI using a Web Browser with admin user. Perform the same check as step 2 to identify that site as Site A or Site B.
4 ☐ ☐	Validate System Configuration and State of **Site A**. Log in Site A WebCI as recorded in Table 5. Make sure that 2 and only 2 slots have identity SC (SystemController) assigned and that both slots are highlighted in green.	Go to Oracle SDM > System > Shelf View. 
5 ☐	Identify SPR A-1 and SPR A-2 blades. Still from the Shelf View, expand first Slot up to *Database* Service	 If HaRole is **Active** for all module, record slot IP Address and Slot ID from section 3.1 in columns #2 & #3(SPR A-1) of **Table 5**. If HaRole is **Standby** for all module, record slot IP Address and Slot ID from section 3.1 in columns #4 & #5 (SPR A-2) of Table 5 Repeat for the other slot.

Procedure 2: Sites and servers identification, HA state check

6	Verify that HaRole of *CoreSystemController* and *Database* service are the same on each slot of **Site B**. ☐ Still from the Shelf View, expand *CoreSystemController* and *Database* services from SPR A-1 slot (as recorded in **Table 5**). ☐ If both services' HaRole **IS NOT** the same click on the SWO button of *Database* service.	 

Procedure 2: Sites and servers identification, HA state check

7	Validate System Configuration and State of **Site B**. ☐ Log into Site B WebCI as recorded in **Table 5**. ☐ Make sure that 2 and only 2 slots have identity SC (SystemController) assigned and that both slot are highlighted in green.	Go to Oracle SDM > System > Shelf View. 
8	Identify SPR B-1 and SPR B-2 blades. ☐ Still from the Shelf View, expand first Slot up to *Database* Service	 If HaRole is **Active** for all module, record slot IP Address and Slot ID from section 3.1 in columns #7 & #8(SPR B-1) of **Table 5**. If HaRole is **Standby** for all module, record slot IP Address and Slot ID from section 3.1 in columns #9 and #10 (SPR B-2) of **Table 5**. Repeat for the other slot.

Procedure 2: Sites and servers identification, HA state check

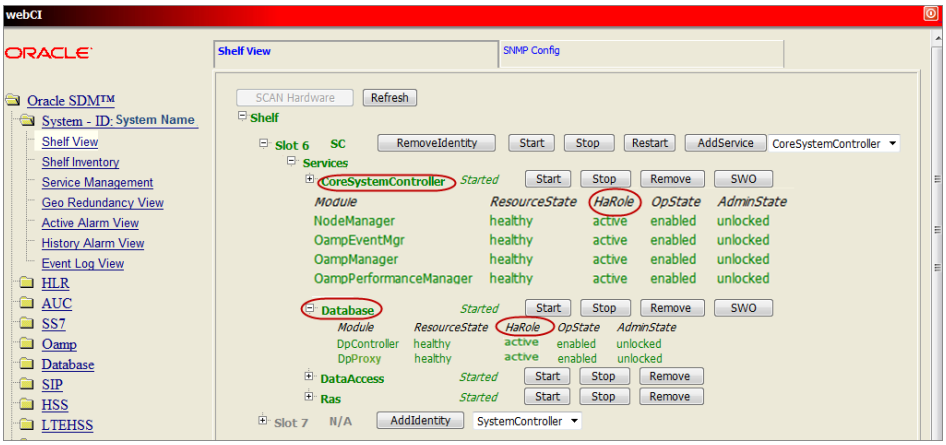
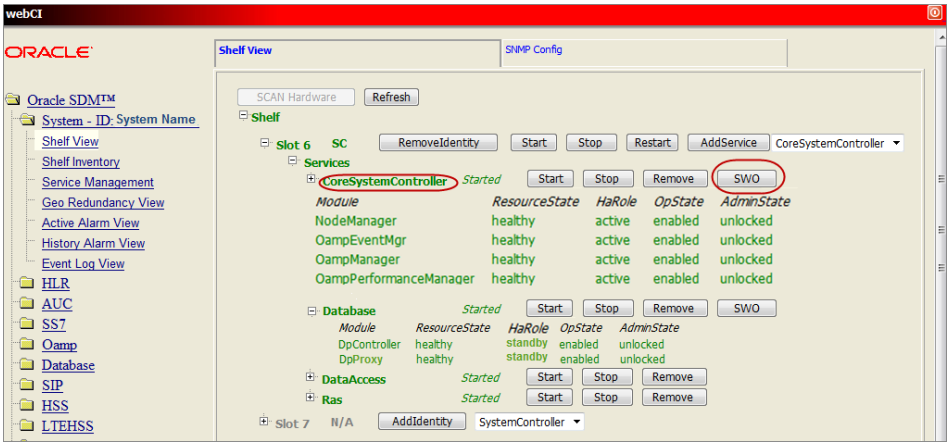
9	Verify that HaRole of *CoreSystemController* and *Database* service are the same on each slot of **Site B**. ☐ Still from the Shelf View, expand *CoreSystemController* and *Database* services from SPR A-1 slot (as recorded in **Table 5**). ☐ If the HaRole for both services **IS NOT** identical click on the SWO button of the *CoreSystemController* service.	 

Table 5: Sites and Servers Identification

#	Item	Value
1	Site A – OAMP VIP	
2	SPR A-1 IP Addresses	
3	SPR A-1 Slot ID	
4	SPR A-2 IP Addresses	
5	SPR A-2 Slot ID	
6	Site B – OAMP VIP	
7	SPR B-1 IP Addresses	
8	SPR B-1 Slot ID	
9	SPR B-2 IP Addresses	
10	SPR B-2 Slot ID	

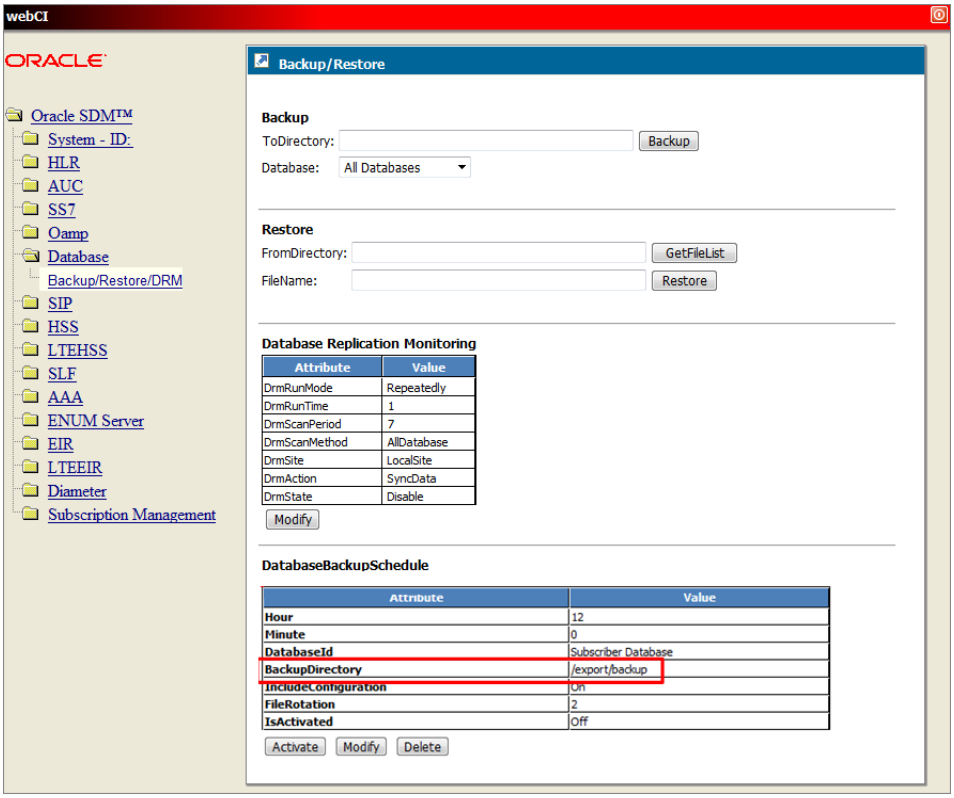
#	Item	Value
11	SPR A Front-End Nodes IP Addresses	
12	SPR B Front-End Nodes IP Addresses	

3.4 Perform a System Health Check and Backup Customer Data

Procedure 3: System Health Check and Backup Customer Data

S T E P #	This procedure is part of Software Upgrade Preparation and is used to determine the health and status of a server. In this procedure, we also take care of back upping any sensitive customer data. This must be executed at least once within the time frame of 24-36 hours prior to the start of a maintenance window. Must be executed on each server of each geo-redundant site. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	1) Log into the server through ssh as with the root account	**login as: root** **password: <enter password>**
2 ☐	Verify System Health is Normal by running the **syscheck** command 1. Examine the output of the syscheck command to determine if any errors or failures were reported. 2. If any failures are reported, that are not explicitly corrected with the firmware release being installed, then contact Oracle Customer Care Center for further instructions. 3. If syscheck reports all modules as "OK" (Normal state), then continue with the remaining steps.	**# syscheck** Running modules in class disk... OK Running modules in class hardware... OK Running modules in class system... OK Running modules in class proc... OK LOG LOCATION: /var/TKLC/log/syscheck/fail_log **#**

Procedure 3: System Health Check and Backup Customer Data

3 ☐	Verify SSH connectivity and host keys. Run the sdm-ssh-tool with –check option to verify that ssh keys are properly configured. Then if the config is not OK, run sdm-ssh-tool –fix to resolve the ssh keys issues.	While both system are running in geo-redundant configuration, call: SPR A (active blade): `# sdm-ssh-tool --check` SPR B (active blade): `# sdm-ssh-tool --check` If the check return errors, please follow instruction in section 8.0 of [5] in order to properly configure /etc/sysconfig/sdm-ssh.conf. Then fix the configuration: SPR A # sdm-ssh-tool --reset SPR B # sdm-ssh-tool --reset SPR A # sdm-ssh-tool --fix --wizard-override SPR B # sdm-ssh-tool --fix --wizard-override SPR A # sdm-ssh-tool --check SPR B # sdm-ssh-tool --check
4 ☐	Backup sensitive data. Check with the customer if any sensitive data such as daily backup are kept on each server. In such case, those file should be save to a remote location prior to executing the upgrade. To check if a daily backup schedule have been registered, open the WebCI of each site, and go into: **Oracle SDM > Database > Backup/Restore/SDM** Scroll down on the page and check if a *DatabaseBackupSchedule* has been configured. The location of daily backup can be found by reading *BackupDirectory* attribute. If such daily backup schedule exists, at least, the last backup file should be saved to a remote location.	

4. SOFTWARE UPGRADE PROCEDURE FROM 8.0/9.0 TO 9.3.A_X.Y.Z GEO_REDUNDANT CONFIGURATION

Call the Oracle Customer Care Center at 1-888-FOR-TKLC (1-888-367-8552); or 1-919-460-2150 (international) prior to executing this upgrade to ensure that the proper media are available for use.

Before upgrade, users must make sure that all services are running, that all service opstate on all site is Enabled, that there are no major or critical alarm raised and that all required materials is available. User should make sure to have a SDM full backup not older than 1 day in case of disaster recovery.

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

Take note that the SDM mysql root account password will be reset to default value after the upgrade. If the password has been previously changed at customer site, it should be change again after the upgrade to an appropriate value.

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

Do not start the upgrade process without the required spare equipment; without spare equipment, recovery procedures cannot be executed!

Please read the following notes on upgrade procedures:

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

Command steps that require user entry are indicated with **white-on-black step numbers**.

The shaded area within response steps must be verified in order to successfully complete that step.

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

- Banner information is displayed in a format form only.
- System-specific configuration information such as ***card location***, ***terminal port # assignments,*** and ***system features.***
- ANY information marked with "***XXXX***" or "*YYYY*." Where appropriate, instructions are provided to determine what output should be expected in place of "***XXXX* or *YYYY***"

After completing each step and at each point where data is recorded from the screen, the technician performing the upgrade must initial each step. A check box should be provided.

Captured data is required for future support reference if Oracle Technical Services is not present during the upgrade.

4.1 Software Upgrade Execution

These procedures are executed within a maintenance window.

During this procedure, external nodes connected to SPR (MPE) may need to be modified to re-direct all traffic to a specific SPR geo-redundant site.

4.1.1 Copy ISO Image File

This procedure transfers the SDM software upgrade ISO to each server /var/TKLC/upgrade directory.

Note: *ISO transfers to the target systems may require a significant amount of time depending on the number of systems and the bandwidth of the network. The ISO transfers to the target systems should be performed prior to and outside of the scheduled maintenance window. Schedule the required maintenance windows accordingly before proceeding.*

The iso images are put in the /var/TKLC/upgrade directory on the server. Because the iso images are large, the following procedure includes instructions to check space available before copying the iso to this directory.

Procedure 4: Copy ISO Image File to target systems

S T E P #	This procedure updalod the SDM upgrade ISO to each server. This procedure is repeated on each server (SPR A-1, SPR A-2, SPR B-1, SPR B-2) Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE.**	
1 ☐	Connect to the server through ssh using the root account.	1. For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2. Enter **root** password for server when prompted.
2 ☐	Verify enough space exists for ISO Verify that there is at least **1 GB** in the **Avail** column. If not, clean up files until there is space available. Make sure you know what files you can remove safely before cleaning up. It is recommended that you only clean up files in the **/var/TKLC/upgrade** directory as this is a platform owned directory that should only contain ISO images. This directory should not be expected to contain images for any length of time as they can get purged. Removing files other than those in directory **/var/TKLC/upgrade** is potentially dangerous.	**# df -h /var/TKLC/** Filesystem Size Used Avail Use% Mounted on /dev/mapper/vgroot-plat_var_tklc **3.9G 2.4G 1.4G 65% /var/TKLC**
3 ☐	Copy the SDM 9.3.0 software ISO image file from the local workstation to the target server upgrade directory.	From the local workstation: 1. Copy SDM 9.3.0 software ISO to target server **# scp *<ISO Name>* root@*<server SSH IP>*:/var/TKLC/upgrade** Example: # scp 872-2409-101-9.3.0_5.4.0-SDM-x86_64.iso root@xx.xx.xx.xx:/var/TKLC/upgrade 2. Enter **root** password for server when prompted.
4 ☐	Verify ISO image files were copied to the correct location. Examine output of the command and verify that both ISO files are present and that file sizes appear correct.	From the server: **# ls -l /var/TKLC/upgrade**

Procedure 4: Copy ISO Image File to target systems

5 ☐	Following the ISO transfer, verify that there is some free space still available in /var/TKLC/upgrade (as this filesystem is used by the upgrade procedure for temporary files etc). Verify that there is at least **100 MB** in the **Avail** column. If not, clean up files until there is space available. See step 2 for guidelines on how to perform this cleanup.	**# df -h /var/TKLC/** Filesystem Size Used Avail Use% Mounted on /dev/mapper/vgroot-plat_var_tklc 3.9G 2.4G 1.4G 65% /var/TKLC
6 ☐	Repeat steps 1 to 4 on all SC servers (SPR A-1, A-2, B-1, B-2) and FE servers	

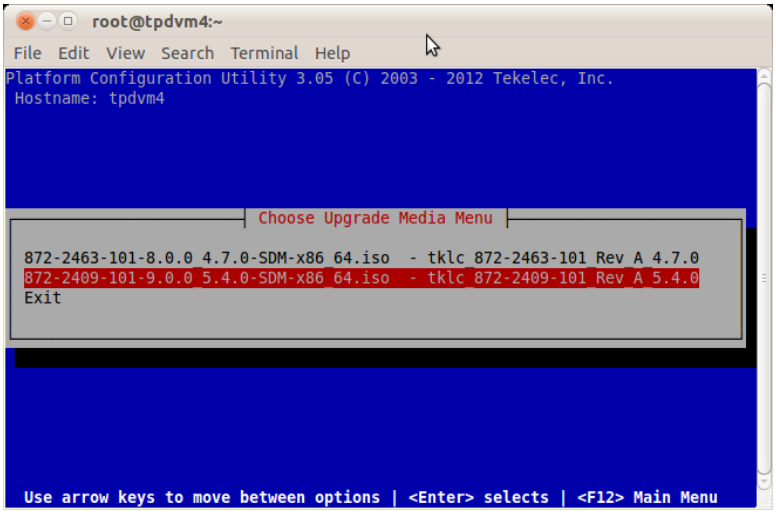
4.1.2 Validate ISO image file

Detailed steps are shown in the procedure below to validate the resulting ISO image file on the target system.

Procedure 5: Validate and Mount ISO image file

STEP #	Detailed steps are shown in the procedure below to validate the resulting ISO image file on the target system. Repeat this procedure on each server (SPR A-1, SPR A-2, SPR B-1, SPR B-2) Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE.**	
1 ☐	Connect to the server through ssh using root account.	2. For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2. Enter **root** password for server when prompted.

Procedure 5: Validate and Mount ISO image file

2 ☐	Using platcfg, validate the SDM 9.3.0 software ISO is found.	**# su – platcfg** **Maintenance → Upgrade → Validate Media** 
3 ☐	Validate SDM 9.3.0 sofware ISO.	**Validating cdrom...** **Validating cdrom...** **##** **##** **##** **##** **##** **##** **##** **##** **##** **##** **##** **##** **##** **#############** **UMVT Validate Utility v2.2.1, (c)Tekelec, June 2010** **Validating /var/TKLC/upgrade/872-2409-101-9.3.0_5.4.0-SDM-x86_64.iso** **Date&Time: 2012-12-07 13:28:04** **Volume ID: tklc_872-2409-101_Rev_A_5.4.0** **Part Number: 872-2409-101_Rev_A** **Version: 5.4.0** **Disc Label: SDM** **Disc description: SDM** **The media validation is complete, the result is: PASS** **CDROM is Valid** PRESS ANY KEY TO RETURN TO THE PLATCFG MENU. **Note: Do not continue if ISO image validation reports any errors or is invalid. Instead remove the ISO file and either re-copy it to the target system or regenerate it from physical media.**

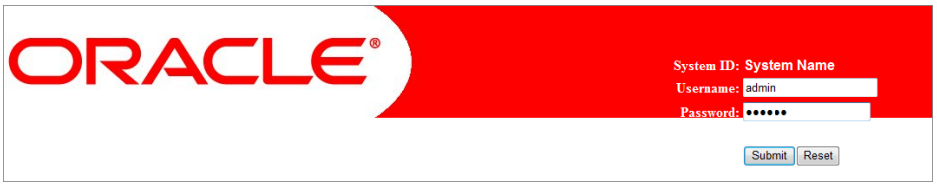
Procedure 5: Validate and Mount ISO image file

4 ☐	Repeat steps 1 to 3 on each SC server (SPR A-1, SPR A-2, SPR B-1, SPR B-2) and FE servers.	

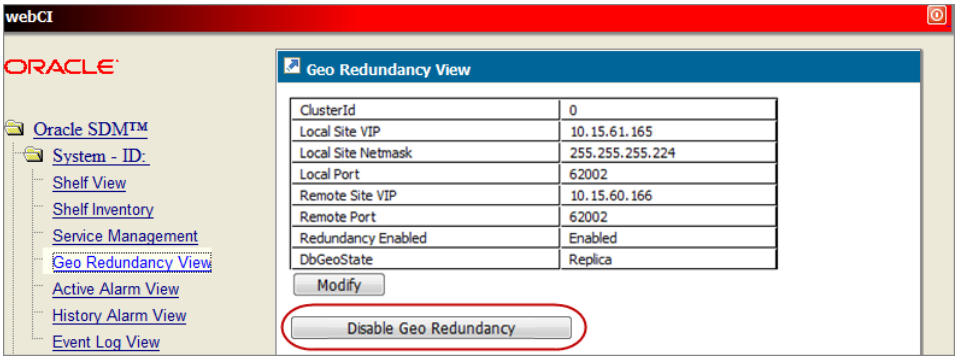
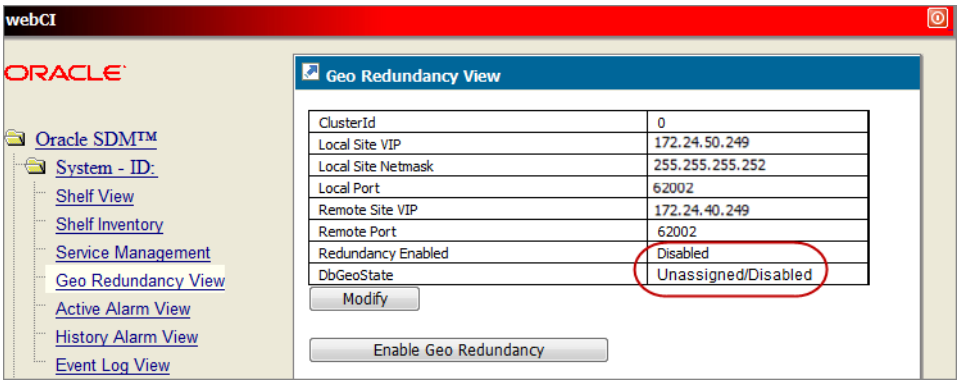
4.1.3 Switch Traffic to Site A and Disable Geo-Redundancy

This procedure provides the steps required prepare the system to upgrade site B. The traffic between MPE and SPR must be redirected to site A and geo-redundance will be disabled on site A. Additionally, site B will be forced to Geo Reference state.

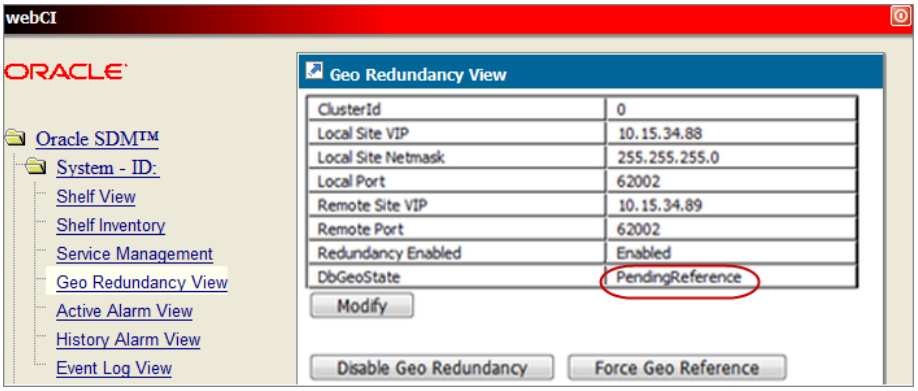
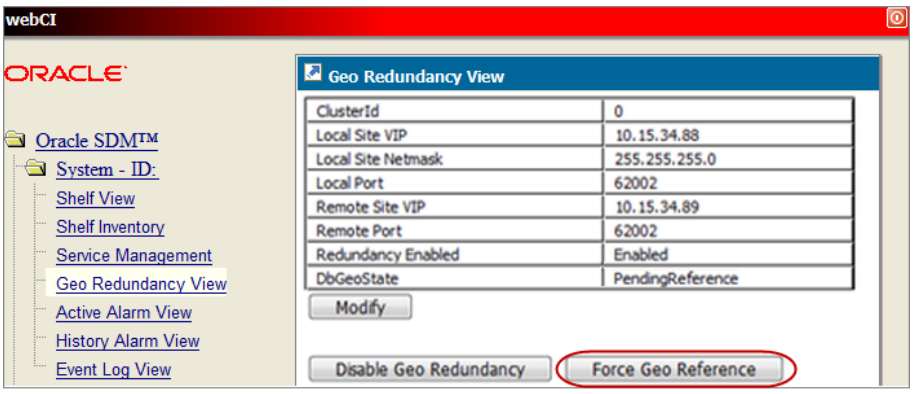
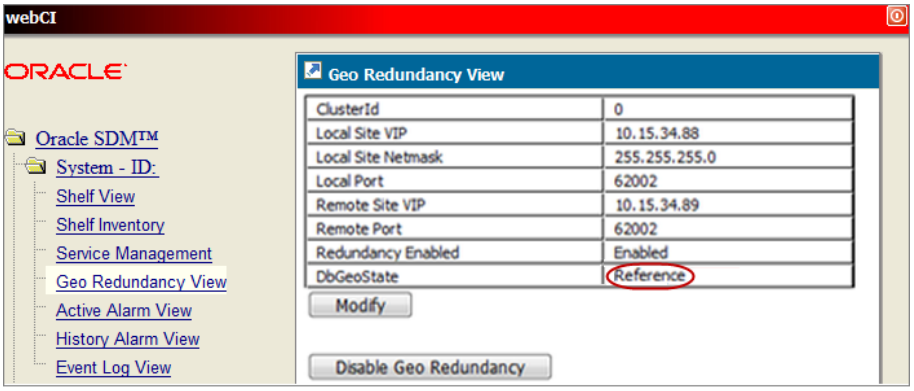
Procedure 6: Switch Traffic to Site A and Disable Geo-Redundancy. Force Site B to Reference

STEP #	Provides the step required to switch traffic to site A and disable geo-redundancy on site A, as well as forcing site B to Geo Reference. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	Redirect all SH and provisioning traffic to Site A SPRs.	All SH between the MPE traffic and provisioning traffic must be redirected to site A SPR since site B will be completely shutdown. The procedure to switch traffic and provisioning is outside the scope of this procedure. **NOTE:** However, take note that the next 2 procedures will shutdown completely site B, which should automatically cause the traffic to switch back to site A if the MPE are properly configured.
2 ☐	Connect to Site A WebCI	1-) Connect to site A WebCI with `admin` user using siteA Public OAMP IP address and WebCI admin password as defined in section 3.1. First, open a web browser and login to url: *http://<Public OAMP Ip Address>:8080/webci* 2-) On the login page, enter `admin` user, password and click *Submit*.  3-) Enter the **`root`** password for the server when prompted.

Procedure 6: Switch Traffic to Site A and Disable Geo-Redundancy. Force Site B to Reference

3 ☐	Disable Geo-Redundancy	1-) In the WebCI, go to System>Geo-Redundancy View 2-) Click on the *Disable Geo-Redundancy* button. 
4 ☐		3-) Make sure that DbGeoState is *UnassignedDisabled* and that Redundancy is *Disabled*: 

Procedure 6: Switch Traffic to Site A and Disable Geo-Redundancy. Force Site B to Reference

5 ☐	Configure Site B as Reference.	1-) Site B, verify that DbGeoState end changes to the *PendingReference* state.  2-) Click on *Force Geo Reference* to switch the DbGeoState to *Reference*.  3-) Verify that DbGeoState enters the *Reference* state. 
6 ☐	Go to the next procedure	

4.1.4 Upgrade Replica – Front-End Nodes

If the system is configured with Front-End Nodes, those server must be upgraded first on the replica site. A node is configured as *FrontEnd* when the identity assigned to its slot is FrontEndNode. If no slot is configured as *FrontEnd*, you can skip that section and directly go to next section 4.1.5.

This procedure provides the steps required to upgrade the front-end blade on the replica site to SDM 9.3.0. The upgrade is initiated by calling `Initiate Upgrade` from platcfg tool. This command will call in the background `ugwrap` tool on the upgrade media. `ugwrap` will call a set a scripts that will automatically backup the mysql configuration, remove SDM 8.0/9.0 rpms, and launch `upgrade_server`. `Upgrade_server` will automatically upgrade TPD to version 5.1.1 and install SDM 9.3.0 software package.

After that procedure, the will be upgraded to SDM 9.3.0 and configured the same way as it was prior to execute the upgrade.

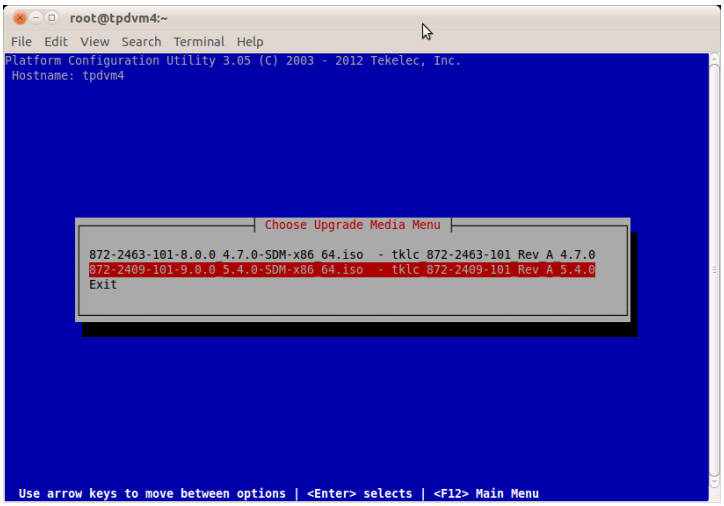
At the end of the procedure, no SDM applications (blue service) will be started on that node.

THIS PROCEDURE MUST BE EXECUTED ON ALL FRONT-END SERVER OF REPLICA SITE.

Procedure 7: Upgrade Replica – FrontEnd Nodes

S T E P #	Provides the step to upgrade SPR B Front-End nodes to SDM 9.3.0. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	Connect to the SPR B front-end blade through ssh with root accout using IP address recorded in item #12 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2-) Enter **root** password for server when prompted.
2 ☐	Verify that SDM software is at version 8.0/9.0.	**Example:** **# BlueVersion** *** Blueslice version: 8.0.0_4.10.0**
3 ☐	Validate TPD is at version 5.0.1-72.45.0 if source version is SDM 8.0. Validate TPD is at version 5.1.1-73.5.3 if source version is SDM 9.0.	**If Source Version is 8.0:** **# getPlatRev** 5.0.1-72.45.0 **If Source Version is 9.0:** **# getPlatRev** 5.1.1-73.5.3

Procedure 7: Upgrade Replica – FrontEnd Nodes

4 ☐	Log into platcfg and initiate the upgrade using Maintenance > Upgrade > Initiate Upgrade option.	**# su - platcfg** **Maintenance → Upgrade → Initiate Upgrade** Then, select the appropriate ISO upgrade media  **NOTE: This step may generate a lot of output can take a significant amount of time since it needs to backup the databases, upgrade the software, reboot the server and upgrade configuration databases. Activity can be monitored by looking at following log file:** ▪ **/var/TKLC/log/upgrade/upgrade.log** ▪ **/var/TKLC/log/upgrade/ugwrap.log** ▪ **/var/TKLC/log/upgrade/BlueUpgrade.pm.log** ▪ **/var/log/messages** **The server reboot will occurs after the display of following message:** **Starting syscheck: [OK]** **Enabling applications on the server...** **Applications Enabled.** **Running /usr/TKLC/plat/bin/service_conf reconfig** **UPGRADE IS COMPLETE** **Waiting for reboot** **Updating platform revision file...** **A reboot of the server is required.** **The server will be rebooted in 10 seconds** **[root@tpdvm15 ~]**

Procedure 7: Upgrade Replica – FrontEnd Nodes

5 ☐	Verify that the upgrade has completed successfully.	1-) Once the server has reboot, re-log through ssh **# ssh** root@xx.xx.xx.xx 2-) Monitor ugwrap.log and wait for upgrade completion **# tail –f /var/TKLC/log/upgrade/ugwrap.log** 3-) The following message indicates that the upgrade has completed successfully. 5/10/2012 15:51:32 LOG ENTRY STARTED 05/10/2012 15:51:32 IN> BlueUpgrade::new() 05/10/2012 15:51:32 OUT> BlueUpgrade::new() 05/10/2012 15:51:32 Initializing Upgrade Wrapper... 05/10/2012 15:51:32 No methods to run in run queue... 05/10/2012 15:51:32 Re-enabling application components... 05/10/2012 15:51:32 Not a major upgrade. 05/10/2012 15:51:32 Upgrading DB from release [9.0] 05/10/2012 15:51:32 Executing [/var/TKLC/SDM/upgrade/scripts/upgradeDb.sh 9.0 &> /var/TKLC/log/upgrade/BlueUpgrade.pm.log] **05/10/2012 16:02:22 SDM upgrade succeed** 05/10/2012 16:02:22 Determining if /mnt/upgrade should be unmounted... 05/10/2012 16:02:22 Checking mount point: / 05/10/2012 16:02:22 Checking mount point: /proc 05/10/2012 16:02:22 Checking mount point: /sys 05/10/2012 16:02:22 Checking mount point: /dev/pts 05/10/2012 16:02:22 Checking mount point: /boot 05/10/2012 16:02:22 Checking mount point: /dev/shm 05/10/2012 16:02:22 Checking mount point: /var/TKLC/SDM 05/10/2012 16:02:22 Checking mount point: /proc/sys/fs/binfmt_misc 05/10/2012 16:02:22 Checking mount point: /proc/fs/vmblock/mountPoint 05/10/2012 16:02:22 Checking mount point: /mnt/upgrade 05/10/2012 16:02:22 Will unmount in 5 seconds... 05/10/2012 16:02:27 COMMAND: /bin/umount -f /mnt/upgrade
6 ☐	If server upgrade failed, rollback	1-) If server upgrade failed, backout using recovery procedure described in section 6.1.
7 ☐	Proceed with the next procedure	

4.1.5 Upgrade Replica – Standby Blade (SPR B-2)

This procedure provides the steps required to upgrade the standby blade on the replica site to SDM 9.3.0. The upgrade is initiated by calling `Initiate Upgrade` from platcfg tool. This command will call in the background `ugwrap` tool on the upgrade media. `ugwrap` will call a set a scripts that will automatically backup the mysql configuration, remove SDM 8.0/9.0 rpms, clean-up 32-bit rpms that have been installed by SDM 8.0/9.0 rpm and launch `upgrade_server`. `Upgrade_server` will automatically upgrade TPD to version 5.1.1 and install SDM 9.3.0 software package. Once SDM 9.3.0 installation will complete, ugwrap will reload and upgrade the mysql configuration databases (blueoam, bluehss, bluedbg, poldbg, blueis).

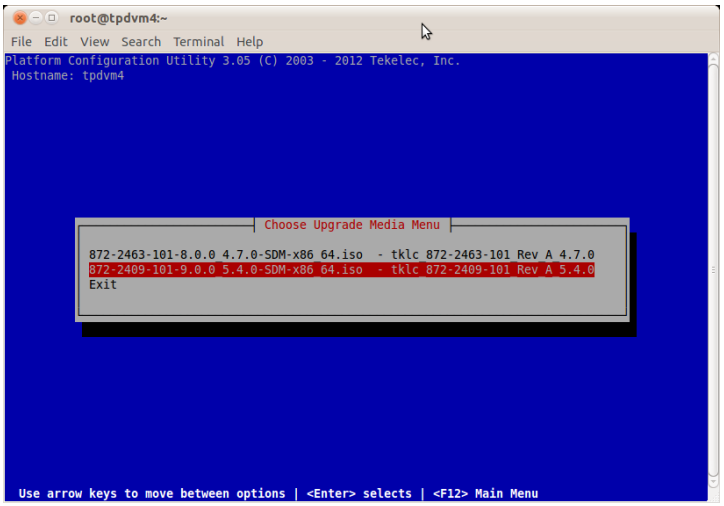
After that procedure, the server SPR B-2 will be upgraded to SDM 9.3.0 and configured the same way as it was prior to execute the upgrade. However, the subscribers' databases (poldb, bluedb, bluedbvol) will be empty. Subscribers data will be retrieved later from Site A using a subscribers migration procedure.

At the end of the procedure, no SDM applications (blue service) will be started on that node.

Procedure 8: Upgrade Replica – Standby Blade (SPR B-2)

S T E P #	Provides the step to upgrade SPR B-2 to SDM 9.3.0. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	Connect to the SPR B-2 blade through ssh with root accout using IP address recorded in item #9 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2-) Enter **root** password for server when prompted.
2 ☐	Verify that SDM software is at version 8.0/9.0.	**Example:** **# BlueVersion** *** Blueslice version: 8.0.0_4.10.0**
3 ☐	Validate TPD is at version 5.0.1-72.45.0 if source version is SDM 8.0. Validate TPD is at version 5.1.1-73.5.3 if source version is SDM 9.0.	**If Source Version is 8.0:** **# getPlatRev** 5.0.1-72.45.0 **If Source Version is 9.0:** **# getPlatRev** 5.1.1-73.5.3

Procedure 8: Upgrade Replica – Standby Blade (SPR B-2)

4 ☐	Log into platcfg and initiate the upgrade using Maintenance > Upgrade > Initiate Upgrade option.	**# su - platcfg** **Maintenance → Upgrade → Initiate Upgrade** Then, select the appropriate ISO upgrade media  **NOTE: This step may generate a lot of output can take a significant amount of time since it needs to backup the databases, upgrade the software, reboot the server and upgrade configuration databases. Activity can be monitored by looking at following log file:** ▪ **/var/TKLC/log/upgrade/upgrade.log** ▪ **/var/TKLC/log/upgrade/ugwrap.log** ▪ **/var/TKLC/log/upgrade/BlueUpgrade.pm.log** ▪ **/var/log/messages** **The server reboot will occurs after the display of following message:** **Starting syscheck: [OK]** **Enabling applications on the server...** **Applications Enabled.** **Running /usr/TKLC/plat/bin/service_conf reconfig** **UPGRADE IS COMPLETE** **Waiting for reboot** **Updating platform revision file...** **A reboot of the server is required.** **The server will be rebooted in 10 seconds** **[root@tpdvm15 ~]**

Procedure 8: Upgrade Replica – Standby Blade (SPR B-2)

5 ☐	Verify that upgrade has completed successfully.	1-) Once the server has reboot, re-log on SPR B-2 through ssh **# ssh** root@xx.xx.xx.xx 2-) Monitor ugwrap.log and wait for upgrade completion **# tail –f /var/TKLC/log/upgrade/ugwrap.log** 3-) The following message indicates that the upgrade has completed successfully. 5/10/2012 15:51:32 LOG ENTRY STARTED 05/10/2012 15:51:32 IN> BlueUpgrade::new() 05/10/2012 15:51:32 OUT> BlueUpgrade::new() 05/10/2012 15:51:32 Initializing Upgrade Wrapper... 05/10/2012 15:51:32 No methods to run in run queue... 05/10/2012 15:51:32 Re-enabling application components... 05/10/2012 15:51:32 Not a major upgrade. 05/10/2012 15:51:32 Upgrading DB from release [9.0] 05/10/2012 15:51:32 Executing [/var/TKLC/SDM/upgrade/scripts/upgradeDb.sh 9.0 &> /var/TKLC/log/upgrade/BlueUpgrade.pm.log] **05/10/2012 16:02:22 SDM upgrade succeed** 05/10/2012 16:02:22 Determining if /mnt/upgrade should be unmounted... 05/10/2012 16:02:22 Checking mount point: / 05/10/2012 16:02:22 Checking mount point: /proc 05/10/2012 16:02:22 Checking mount point: /sys 05/10/2012 16:02:22 Checking mount point: /dev/pts 05/10/2012 16:02:22 Checking mount point: /boot 05/10/2012 16:02:22 Checking mount point: /dev/shm 05/10/2012 16:02:22 Checking mount point: /var/TKLC/SDM 05/10/2012 16:02:22 Checking mount point: /proc/sys/fs/binfmt_misc 05/10/2012 16:02:22 Checking mount point: /proc/fs/vmblock/mountPoint 05/10/2012 16:02:22 Checking mount point: /mnt/upgrade 05/10/2012 16:02:22 Will unmount in 5 seconds... 05/10/2012 16:02:27 COMMAND: /bin/umount -f /mnt/upgrade
6 ☐	If server upgrade failed, rollback	1-) If server upgrade failed, backout using recovery procedure described in section 6.1, Rollback SPR B-2 server.
7 ☐	Proceed with the next procedure	

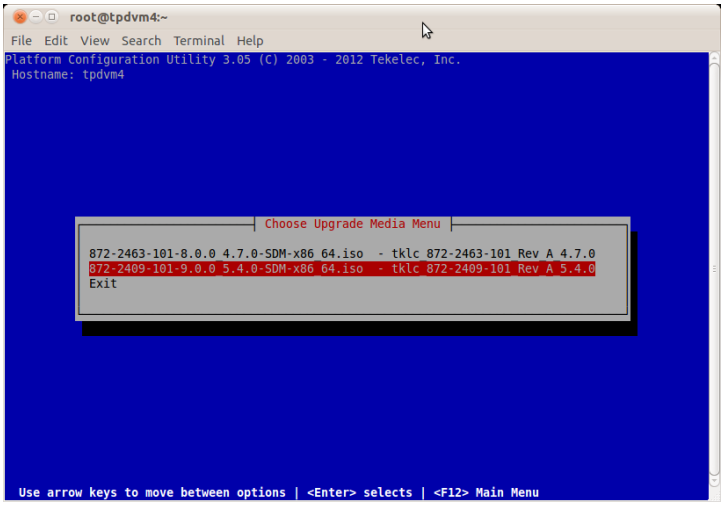
4.1.6 Upgrade Replica – Active Blade (SPR B-1)

This procedure upgrades the active blade of replica site (SPR B-1). At that point, traffic should already have been redirected to site A at previous procedure. No SDM application will be running on site B at the end of that procedure.

Procedure 9: Upgrade Replica – Active Blade (SPR B-1)

S T E P #	Provides the step to upgrade SPR B-1 to SDM 9.0.0. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	Connect to the SPR B-1 blade through ssh with root accout using IP address recorded in item #7 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2-) Enter **root** password for server when prompted.
2 ☐	Verify that SDM software is at version 8.0/9.0.	**Example:** **# BlueVersion** *** Blueslice version: 8.0.0_4.10.0**
3 ☐	Validate TPD is at version 5.0.1-72.45.0 if source version is SDM 8.0. Validate TPD is at version 5.1.1-73.5.3 if source version is SDM 9.0.	**If Source Version is 8.0:** **# getPlatRev** 5.0.1-72.45.0 **If Source Version is 9.0:** **# getPlatRev** 5.1.1-73.5.3

Procedure 9: Upgrade Replica – Active Blade (SPR B-1)

4 ☐	Log into platcfg and initiate the upgrade using Maintenance > Upgrade > Initiate Upgrade option.	**# su - platcfg** **Maintenance → Upgrade → Initiate Upgrade** Then, select the appropriate ISO upgrade media  **NOTE: This step may generate a lot of output can take a significant amount of time since it needs to backup the databases, upgrade the software, reboot the server and upgrade configuration databases. Activity can be monitored by looking at following log file:** ▪ **/var/TKLC/log/upgrade/upgrade.log** ▪ **/var/TKLC/log/upgrade/ugwrap.log** ▪ **/var/TKLC/log/upgrade/BlueUpgrade.pm.log** ▪ **/var/log/messages** **The server reboot will occrs after the display of following message:** **Starting syscheck: [OK]** **Enabling applications on the server...** **Applications Enabled.** **Running /usr/TKLC/plat/bin/service_conf reconfig** **UPGRADE IS COMPLETE** **Waiting for reboot** **Updating platform revision file...** **A reboot of the server is required.** **The server will be rebooted in 10 seconds** **[root@tpdvm15 ~]**

Procedure 9: Upgrade Replica – Active Blade (SPR B-1)

5 ☐	Verify that the upgrade has completed successfully.	1-) Once the server has reboot, re-log on SPR B-1 through ssh **# ssh** root@xx.xx.xx.xx 2-) Monitor ugwrap.log and wait for upgrade completion **# tail –f /var/TKLC/log/upgrade/ugwrap.log** 3-) The following message indicates that the upgrade has completed successfully. 5/10/2012 15:51:32 LOG ENTRY STARTED 05/10/2012 15:51:32 IN> BlueUpgrade::new() 05/10/2012 15:51:32 OUT> BlueUpgrade::new() 05/10/2012 15:51:32 Initializing Upgrade Wrapper... 05/10/2012 15:51:32 No methods to run in run queue... 05/10/2012 15:51:32 Re-enabling application components... 05/10/2012 15:51:32 Not a major upgrade. 05/10/2012 15:51:32 Upgrading DB from release [9.0] 05/10/2012 15:51:32 Executing [/var/TKLC/SDM/upgrade/scripts/upgradeDb.sh 9.0 &> /var/TKLC/log/upgrade/BlueUpgrade.pm.log] **05/10/2012 16:02:22 SDM upgrade succeed** 05/10/2012 16:02:22 Determining if /mnt/upgrade should be unmounted... 05/10/2012 16:02:22 Checking mount point: / 05/10/2012 16:02:22 Checking mount point: /proc 05/10/2012 16:02:22 Checking mount point: /sys 05/10/2012 16:02:22 Checking mount point: /dev/pts 05/10/2012 16:02:22 Checking mount point: /boot 05/10/2012 16:02:22 Checking mount point: /dev/shm 05/10/2012 16:02:22 Checking mount point: /var/TKLC/SDM 05/10/2012 16:02:22 Checking mount point: /proc/sys/fs/binfmt_misc 05/10/2012 16:02:22 Checking mount point: /proc/fs/vmblock/mountPoint 05/10/2012 16:02:22 Checking mount point: /mnt/upgrade 05/10/2012 16:02:22 Will unmount in 5 seconds... 05/10/2012 16:02:27 COMMAND: /bin/umount -f /mnt/upgrade
6 ☐	If server upgrade failed, rollback	Use the rollback procedure described in section 6.2 to rollback site B to 8.0/9.0.
7 ☐	Proceed with the next procedure	

4.1.7 Perform Subscribers Migration

At this point, the software and configurations of both blades of site B have been upgraded but the subscribers data is no longer there. Here, we will restart each blade and perform a subscriber migration from geo-redundant site (site A). The migration is done in 2 steps:

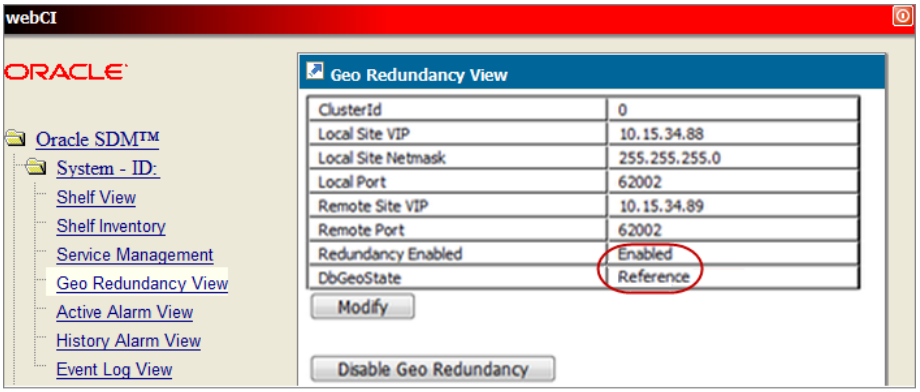
1. An initial bulk migration that migrates data up to the time at which the migration has been started.
2. A delta migration that start from bulk migration timestamp and that continuously migrates any data that is written to site A.

The delta migration scripts needs to run until the traffic is completely switched back to site B.

Procedure 10: Perform Subscribers Migration

S T E P #	Provides the steps to migration subscribers' data from site A to site B. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	Connect to the SPR B-1 blade through ssh with root accout using IP address recorded in item #7 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2-) Enter **root** password for server when prompted.
2 ☐	Start the blue service	1-) Start "blue" service **# service blue start force** 2-) Wait for initialization to complete by waiting for the shell prompt to come back.
3 ☐	Connect to the SPR B-2 blade through ssh with root accout using IP address recorded in item #9 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2-) Enter **root** password for server when prompted.
4 ☐	Start the blue service	1-) Start "blue" service **# service blue start** 2-) Wait for initialization to complete by waiting for the shell prompt to come back.
5 ☐	Connect to the SPR B front-end (if applicable) blade through ssh with root accout using IP address recorded in item #12 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2-) Enter **root** password for server when prompted.
6 ☐	Start the blue service	1-) Start "blue" service **# service blue start** 2-) Wait for initialization to complete by waiting for the shell prompt to come back.
7 ☐	Repeat steps 5 and 6 for all the front-end nodes.	

Procedure 10: Perform Subscribers Migration

8 ☐	Connect to Site B WebCI	1-) Connect to site B WebCI with `admin` user using site B Public OAMP IP address and WebCI admin password as defined in section 3.1. First, open a web browser and login to url: *http://<Public OAMP Ip Address>:8080/webci* 2-) On the loging page, enter `admin` user, password and click *Submit*.  2-) Enter **`root`** password for server when prompted.
9 ☐	Verify that Site B *DbGeoState* is Reference.	1-) In WebCI, go to System>Geo-Redundancy View 2-) Make sure Geo-Redundancy is *Enabled* and that DbGeoState is *Reference*. 

Procedure 10: Perform Subscribers Migration

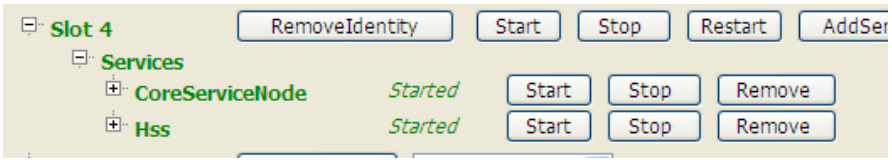
10 ☐	Edit the migration config file to set the IP address of site A on SPR B-1.	1) On SPR B-1 shell, move to migration tool directory.
		# cd /var/TKLC/SDM/upgrade/migration/<8.0|9.0>
		
		2) Edit migration config file
		# vi spr_80_to_93_migration.cfg (or **vi spr_90_to_93_migration.cfg)**
		
		3) Set the variable SOURCE_SPR_IP to geo-redundancy VIP of site A (stored in section 3.1).
		`##########################################################################`
		`##########`
		`##`
		`## Configuration of spr_80_to_93_migration.sh:`
		`## change/adapt according to your particular site survey`
		`##`
		`readonly SOURCE_SPR_IP=`**`xx.xx.xx.xx`**
		`readonly SOURCE_SPR_MYSQL_USER=root`
		`readonly SOURCE_SPR_MYSQL_PASS=root`
		
		`# SPR destination host should not be configurable:`
		`# IT'S ALWAYS LOCALHOST, BECAUSE THE SCRIPT _REQUIRES_ TO BE RUN`
		`# ON THE TARGET SPR MACHINE.`
		`readonly DESTINATION_SPR_MYSQL_USER=root`
		`readonly DESTINATION_SPR_MYSQL_PASS=root`
		`##`
		`## DO NOT MODIFY BELOW THOSE LINES`
		`##`
		`##########################################################################`
		`##########`
		`readonly CFG_VERSION='$Id: spr_80_to_93_migration.cfg 83590 2011-09-12 20:00:54Z bruno $'`
		
		4) Save and close the file

11 ☐	Perform a bulk migration.	1-) Perform bulk migration **# ./spr_80_to_93_migration.sh (**or **./spr_90_to_93_migration.sh)** The migration succeeds if the migration statistics are displayed at the end and the "Migration successful message" is printed. **[Wed May 23 21:56:02 EDT 2012] Bulk Migration: done** **[Wed May 23 21:56:02 EDT 2012] Subscription statistics:** **[Wed May 23 21:56:02 EDT 2012] Statistics for source SPR 10.15.34.85:** **[Wed May 23 21:56:02 EDT 2012] Table spdb.subscription row count is: 20** **[Wed May 23 21:56:02 EDT 2012] Table poldb.idmap row count is: 40** **[Wed May 23 21:56:02 EDT 2012] Table bluedbvol.hsssprrepositorydata row count is: 20** **[Wed May 23 21:56:02 EDT 2012] Statistics for destination (local) SPR:** **[Wed May 23 21:56:02 EDT 2012] Table spdb.subscription row count is: 20** **[Wed May 23 21:56:02 EDT 2012] Table poldb.idmap row count is: 40** **[Wed May 23 21:56:02 EDT 2012] Table bluedbvol.hsssprrepositorydata row count is: 20** **[Wed May 23 21:56:02 EDT 2012] Matching subscription count.** **[Wed May 23 21:56:02 EDT 2012] Matching idmap count.** **[Wed May 23 21:56:02 EDT 2012] Matching repositorydata count.** **[Wed May 23 21:56:02 EDT 2012] *** **[Wed May 23 21:56:02 EDT 2012] *** Migration successful.** **[Wed May 23 21:56:02 EDT 2012] *****
12 ☐	Start delta migration.	1-) Start delta migration **# ./spr_80_to_93_migration.sh –D (**or **./spr_90_to_93_migration.sh –D)** The delta migration will continuously replicate new update applied on on site A until we abort the script. The delta migration will be stopped only when all traffic will be switched to site B.
13 ☐	Proceed with the next procedure	

4.1.8 Switch Traffic to Site B

Now that Site B has been completely upgraded and that delta migration is keeping site B database synchronized, customer can switch all traffic to upgraded site.

Procedure 11: Perform Subscribers Migration

S T E P #	Provides the steps switch traffic to site B. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	Connect to the SPR B-1 blade through ssh with root accout using IP address recorded in item #7 of Table 5.	1-) For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2-) Enter **root** password for server when prompted.
2 ☐	Re-activate HSS TCP listen addresses.	1-) Restore HSS TCP listen addresses. The following scripts will stop all HSS instances, restore IP addresses as before the upgrade and restart all HSS instances. **# /var/TKLC/SDM/upgrade/scripts/sh restoreHssTcpListenAddresses.sh** STOPPING HSS in SLOT 3 Hss: Stopping... STOPPING HSS in SLOT 4 Hss: Stopping... restoreHssTcpListenAddresses.sh: Loading previous HSS TCP listen address RESTARTING HSS in SLOT 3 Hss: Starting... RESTARTING HSS in SLOT 4 Hss: Starting... Hss: Started TRAFFIC IS REDIRECTED TO THIS SPR
3 ☐	Verify that the Hss services are properly started on on site B	1-) Using site B WebCI, verify that Hss is started :  2-) Using WebCI, Verify that the ***HssConfigTCPListenAddress*** has been configured on Site B : **HssConfigTCPListenAddress** Netmask | SlotId | Address | Action 255.255.254.0 | 3 | 10.15.61.23 | Delete 255.255.254.0 | 4 | 10.15.61.24 | Delete 3-) Using SSH connection to each server of site B, verify that the HSS vips are mounted on XSI interface on each server **#ip -f inet addr** **6: eth12: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast qlen 1000** **inet 10.15.61.28/32 brd 10.15.61.28 scope global eth12**

Procedure 11: Perform Subscribers Migration

4 ☐	Redirect all SH and provisioning traffic to Site B SPRs.	1-) Restore traffic and provisioning on site B All SH between the MPE traffic and provisioning traffic must be redirected to site B SPR since site A will be completely shutdown. The procedure to switch traffic and provisioning is outside the scode of this procedure. **NOTE:** However, take note that the previous steps may be sufficient to restore traffic. However, provisioning may need to be switch back manually.
5 ☐	Validate SH traffic and provisioning is working.	At this point, validation shall be done to verify that provisioning and SH traffic is working properly. 1-) If provisioning or SH traffic validation failed on site B, abort the delta migration using <ctrl-c>, switch back traffic to site A and rollback site B to 8.0/9.0 using procedure described in section 6.2.
6 ☐	Stop delta migration.	1-) Return to the shell running the delta migration script (started at step 12 of 4.1.7). 2-) Abort the delta migration script by type <ctrl-c>
7 ☐	Proceed with the next procedure	

NOTE: At this point, if all previous validation succeeds, no rollback can be done on site B as the upgrade succeeds.

4.1.9 Upgrade Reference – Front-End Nodes

If the system is configured with Front-End Nodes, those server must be upgraded first on the reference site. A node is configured as *FrontEnd* when the identity assigned to its slot is FrontEndNode. If no slot is configured as *FrontEnd*, you can skip that section and directly go to next section 4.1.10.

This procedure provides the steps required to upgrade the front-end blade on the referece site to SDM 9.3.0. The upgrade is initiated by calling `Initiate Upgrade` from platcfg tool. This command will call in the background `ugwrap` tool on the upgrade media. `ugwrap` will call a set a scripts that will automatically backup the mysql configuration, remove SDM 8.0/9.0 rpms, and launch `upgrade_server`. `Upgrade_server` will automatically upgrade TPD to version 5.1.1 and install SDM 9.3.0 software package.

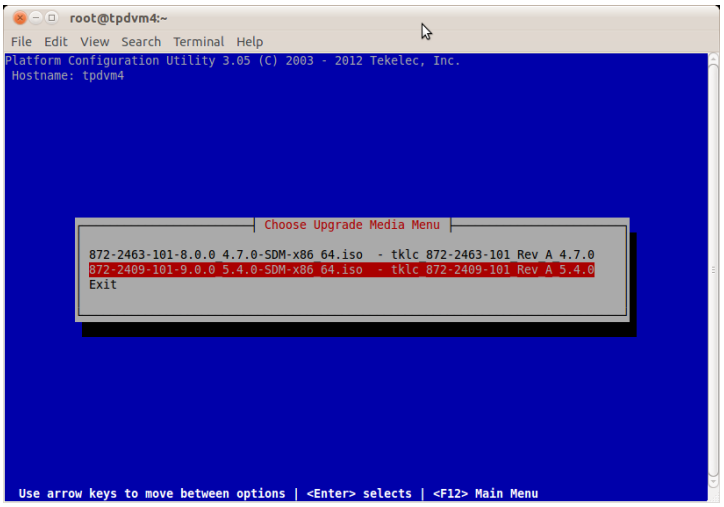
After that procedure, the will be upgraded to SDM 9.3.0 and configured the same way as it was prior to execute the upgrade.

At the end of the procedure, no SDM applications (blue service) will be started on that node.

THIS PROCEDURE MUST BE EXECUTED ON ALL FRONT-END SERVER OF REFERENCE SITE.

Procedure 12: Upgrade Reference – FrontEnd Nodes

S T E P #	Provides the step to upgrade SPR A Front-End nodes to SDM 9.3.0. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	Connect to the SPR A front-end blade through ssh with root accout using IP address recorded in item #11 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2-) Enter the **root** password for server when prompted.
2 ☐	Verify that SDM software is at version 8.0/9.0.	**Example:** **# BlueVersion** *** Blueslice version: 8.0.0_4.10.0**
3 ☐	Validate TPD is at version 5.0.1-72.45.0 if source version is SDM 8.0. Validate TPD is at version 5.1.1-73.5.3 if source version is SDM 9.0.	**If Source Version is 8.0:** **# getPlatRev** 5.0.1-72.45.0 **If Source Version is 9.0:** **# getPlatRev** 5.1.1-73.5.3

4 ☐	Log into platcfg and initiate the upgrade using Maintenance > Upgrade > Initiate Upgrade option.	**# su - platcfg** **Maintenance → Upgrade → Initiate Upgrade** Then, select the appropriate ISO upgrade media  **NOTE: This step may generate a lot of output can take a significant amount of time since it needs to backup the databases, upgrade the software, reboot the server and upgrade configuration databases. Activity can be monitored by looking at following log file:** ▪ **/var/TKLC/log/upgrade/upgrade.log** ▪ **/var/TKLC/log/upgrade/ugwrap.log** ▪ **/var/TKLC/log/upgrade/BlueUpgrade.pm.log** ▪ **/var/log/messages** **The server reboot will occurs after the display of following message:** **Starting syscheck: [OK]** **Enabling applications on the server...** **Applications Enabled.** **Running /usr/TKLC/plat/bin/service_conf reconfig** **UPGRADE IS COMPLETE** **Waiting for reboot** **Updating platform revision file...** **A reboot of the server is required.** **The server will be rebooted in 10 seconds** **[root@tpdvm15 ~]**

5 ☐	Verify that upgrade has completed successfully.	1-) Once the server has reboot, re-log through ssh **# ssh** root@xx.xx.xx.xx 2-) Monitor ugwrap.log and wait for upgrade completion **# tail –f /var/TKLC/log/upgrade/ugwrap.log** 3-) The following message indicates that the upgrade has completed successfully. 5/10/2012 15:51:32 LOG ENTRY STARTED 05/10/2012 15:51:32 IN> BlueUpgrade::new() 05/10/2012 15:51:32 OUT> BlueUpgrade::new() 05/10/2012 15:51:32 Initializing Upgrade Wrapper... 05/10/2012 15:51:32 No methods to run in run queue... 05/10/2012 15:51:32 Re-enabling application components... 05/10/2012 15:51:32 Not a major upgrade. 05/10/2012 15:51:32 Upgrading DB from release [9.0] 05/10/2012 15:51:32 Executing [/var/TKLC/SDM/upgrade/scripts/upgradeDb.sh 9.0 &> /var/TKLC/log/upgrade/BlueUpgrade.pm.log] **05/10/2012 16:02:22 SDM upgrade succeed** 05/10/2012 16:02:22 Determining if /mnt/upgrade should be unmounted... 05/10/2012 16:02:22 Checking mount point: / 05/10/2012 16:02:22 Checking mount point: /proc 05/10/2012 16:02:22 Checking mount point: /sys 05/10/2012 16:02:22 Checking mount point: /dev/pts 05/10/2012 16:02:22 Checking mount point: /boot 05/10/2012 16:02:22 Checking mount point: /dev/shm 05/10/2012 16:02:22 Checking mount point: /var/TKLC/SDM 05/10/2012 16:02:22 Checking mount point: /proc/sys/fs/binfmt_misc 05/10/2012 16:02:22 Checking mount point: /proc/fs/vmblock/mountPoint 05/10/2012 16:02:22 Checking mount point: /mnt/upgrade 05/10/2012 16:02:22 Will unmount in 5 seconds... 05/10/2012 16:02:27 COMMAND: /bin/umount -f /mnt/upgrade
6 ☐	If server upgrade failed, rollback	1-) If server upgrade failed, backout using recovery procedure described in section 6.1.
7 ☐	Proceed with the next procedure	

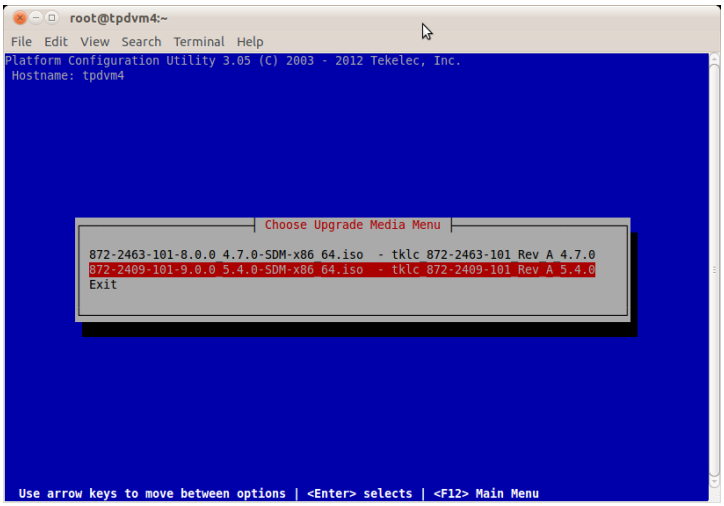
4.1.10 Upgrade Reference – Standby Blade (SPR A-2)

This procedure upgrades the standby blade of reference site (SPR A-2). At that point, traffic should already have been redirected to site B at previous procedure. No SDM application will be running on blade A-2 at the end of that procedure.

Procedure 13: Upgrade Reference – Standby Blade (SPR A-2)

S T E P #	Provides the step to upgrade SPR A-2 to SDM 9.3.0. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	Connect to the SPR A-2 blade through ssh with root accout using IP address recorded in item #4 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2-) Enter **root** password for server when prompted.
2 ☐	Verify that SDM software is at version 8.0/9.0.	**Example:** **# BlueVersion** *** Blueslice version: 8.0.0_4.10.0**
3 ☐	Validate TPD is at version 5.0.1-72.45.0 if source version is SDM 8.0. Validate TPD is at version 5.1.1-73.5.3 if source version is SDM 9.0.	**If Source Version is 8.0:** **# getPlatRev** 5.0.1-72.45.0 **If Source Version is 9.0:** **# getPlatRev** 5.1.1-73.5.3

Procedure 13: Upgrade Reference – Standby Blade (SPR A-2)

4 ☐	Log into platcfg and initiate the upgrade using Maintenance > Upgrade > Initiate Upgrade option.	**# su - platcfg** **Maintenance → Upgrade → Initiate Upgrade** Then, select the appropriate ISO upgrade media  **NOTE: This step may generate a lot of output can take a significant amount of time since it needs to backup the databases, upgrade the software, reboot the server and upgrade configuration databases. Activity can be monitored by looking at following log file:** ▪ **/var/TKLC/log/upgrade/upgrade.log** ▪ **/var/TKLC/log/upgrade/ugwrap.log** ▪ **/var/TKLC/log/upgrade/BlueUpgrade.pm.log** ▪ **/var/log/messages** **The server reboot will occrs after the display of following message:** **Starting syscheck: [OK]** **Enabling applications on the server...** **Applications Enabled.** **Running /usr/TKLC/plat/bin/service_conf reconfig** **UPGRADE IS COMPLETE** **Waiting for reboot** **Updating platform revision file...** **A reboot of the server is required.** **The server will be rebooted in 10 seconds** **[root@tpdvm15 ~]**

Procedure 13: Upgrade Reference – Standby Blade (SPR A-2)

5 ☐	Verify that upgrade has completed successfully.	1-) Once the server has reboot, re-log on SPR A-2 through ssh **# ssh** root@xx.xx.xx.xx 2-) Monitor ugwrap.log and wait for upgrade completion **# tail –f /var/TKLC/log/upgrade/ugwrap.log** 3-) The following message indicates that the upgrade has completed successfully. 5/10/2012 15:51:32 LOG ENTRY STARTED 05/10/2012 15:51:32 IN> BlueUpgrade::new() 05/10/2012 15:51:32 OUT> BlueUpgrade::new() 05/10/2012 15:51:32 Initializing Upgrade Wrapper... 05/10/2012 15:51:32 No methods to run in run queue... 05/10/2012 15:51:32 Re-enabling application components... 05/10/2012 15:51:32 Not a major upgrade. 05/10/2012 15:51:32 Upgrading DB from release [9.0] 05/10/2012 15:51:32 Executing [/var/TKLC/SDM/upgrade/scripts/upgradeDb.sh 9.0 &> /var/TKLC/log/upgrade/BlueUpgrade.pm.log] **05/10/2012 16:02:22 SDM upgrade succeed** 05/10/2012 16:02:22 Determining if /mnt/upgrade should be unmounted... 05/10/2012 16:02:22 Checking mount point: / 05/10/2012 16:02:22 Checking mount point: /proc 05/10/2012 16:02:22 Checking mount point: /sys 05/10/2012 16:02:22 Checking mount point: /dev/pts 05/10/2012 16:02:22 Checking mount point: /boot 05/10/2012 16:02:22 Checking mount point: /dev/shm 05/10/2012 16:02:22 Checking mount point: /var/TKLC/SDM 05/10/2012 16:02:22 Checking mount point: /proc/sys/fs/binfmt_misc 05/10/2012 16:02:22 Checking mount point: /proc/fs/vmblock/mountPoint 05/10/2012 16:02:22 Checking mount point: /mnt/upgrade 05/10/2012 16:02:22 Will unmount in 5 seconds... 05/10/2012 16:02:27 COMMAND: /bin/umount -f /mnt/upgrade
6 ☐	If server upgrade failed, call the Oracle Customer Care Center.	Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE.** Since the site B has been upgraded, it is not recommended but to proceed with a complete system rollback. It is still possible at that point to completely rollback the 2 sites but upgrade assistance should be request before attempting such operation.
7 ☐	Proceed with the next procedure	

4.1.11 Upgrade Reference – Active Blade (SPR A-1)

This procedure upgrades the active blade of reference site (SPR A-1). At that point, traffic should already have been redirected to site B at section. No SDM application will be running site A at the end of that procedure.

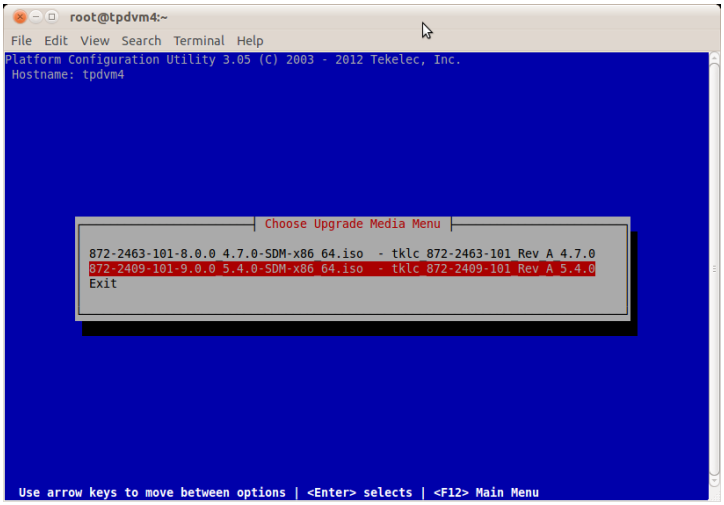
Procedure 14: Upgrade Reference – Active Blade (SPR A-1)

S T E P #	Provides the step to upgrade SPR A-1 o SDM 9.3.0. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE.**
1 ☐	Connect to the SPR A-1 blade through ssh with root accout using IP address recorded in item #2 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2-) Enter the **root** password for server when prompted.

Procedure 14: Upgrade Reference – Active Blade (SPR A-1)

2 ☐	Verify that SDM software is at version 8.0/9.0.	**Example:**
		`# BlueVersion`
		`* Blueslice version: 8.0.0_4.10.0`

3 ☐	Validate TPD is at version 5.0.1-72.45.0 if source version is SDM 8.0.
	
	Validate TPD is at version 5.1.1-73.5.3 if source version is SDM 9.0.
		If Source Version is 8.0:
		`# getPlatRev`
		`5.0.1-72.45.0`
		
		If Source Version is 9.0:
		`# getPlatRev`
		`5.1.1-73.5.3`

4 ☐	Log into platcfg and initiate the upgrade using Maintenance > Upgrade > Initiate Upgrade option.	`# su - platcfg`
		
		`Maintenance → Upgrade → Initiate Upgrade`
		
		Then, select the appropriate ISO upgrade media
		
		 
		
		NOTE: This step may generate a lot of output can take a significant amount of time since it needs to backup the databases, upgrade the software, reboot the server and upgrade configuration databases. Activity can be monitored by looking at following log file:
		▪ **/var/TKLC/log/upgrade/upgrade.log**
		▪ **/var/TKLC/log/upgrade/ugwrap.log**
		▪ **/var/TKLC/log/upgrade/BlueUpgrade.pm.log**
		▪ **/var/log/messages**
		
		The server reboot will occrs after the display of following message:
		
		`Starting syscheck: [ OK ]`
		`Enabling applications on the server...`
		`Applications Enabled.`
		`Running /usr/TKLC/plat/bin/service_conf reconfig`
		
		`UPGRADE IS COMPLETE`
		
		`Waiting for reboot`
		`Updating platform revision file...`
		
		`A reboot of the server is required.`
		`The server will be rebooted in 10 seconds`
		`[root@tpdvm15 ~]`

Procedure 14: Upgrade Reference – Active Blade (SPR A-1)

5 ☐	Verify that upgrade has completed successfully.	1-) Once the server has reboot, re-log on SPR A-1 through ssh **# ssh** root@xx.xx.xx.xx 2-) Monitor ugwrap.log and wait for upgrade completion **# tail –f /var/TKLC/log/upgrade/ugwrap.log** 3-) The following message indicates that the upgrade has completed successfully. 5/10/2012 15:51:32 LOG ENTRY STARTED 05/10/2012 15:51:32 IN> BlueUpgrade::new() 05/10/2012 15:51:32 OUT> BlueUpgrade::new() 05/10/2012 15:51:32 Initializing Upgrade Wrapper... 05/10/2012 15:51:32 No methods to run in run queue... 05/10/2012 15:51:32 Re-enabling application components... 05/10/2012 15:51:32 Not a major upgrade. 05/10/2012 15:51:32 Upgrading DB from release [9.0] 05/10/2012 15:51:32 Executing [/var/TKLC/SDM/upgrade/scripts/upgradeDb.sh 9.0 &> /var/TKLC/log/upgrade/BlueUpgrade.pm.log] **05/10/2012 16:02:22 SDM upgrade succeed** 05/10/2012 16:02:22 Determining if /mnt/upgrade should be unmounted... 05/10/2012 16:02:22 Checking mount point: / 05/10/2012 16:02:22 Checking mount point: /proc 05/10/2012 16:02:22 Checking mount point: /sys 05/10/2012 16:02:22 Checking mount point: /dev/pts 05/10/2012 16:02:22 Checking mount point: /boot 05/10/2012 16:02:22 Checking mount point: /dev/shm 05/10/2012 16:02:22 Checking mount point: /var/TKLC/SDM 05/10/2012 16:02:22 Checking mount point: /proc/sys/fs/binfmt_misc 05/10/2012 16:02:22 Checking mount point: /proc/fs/vmblock/mountPoint 05/10/2012 16:02:22 Checking mount point: /mnt/upgrade 05/10/2012 16:02:22 Will unmount in 5 seconds... 05/10/2012 16:02:27 COMMAND: /bin/umount -f /mnt/upgrade
6 ☐	Connect to the SPR A-1 blade through ssh with root accout using IP address recorded in item #2 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2-) Enter the **root** password for server when prompted.
7 ☐	Start the blue service	1-) Start “blue” service **# service blue start force** 2-) Wait for initialization to complete by waiting for the shell prompt to come back. The duration of this step vary from minutes to hours since it depends on the customer database size.
8 ☐	If server upgrade failed, call the Oracle Customer Care Center.	Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**. Since the site B has been upgraded, it is not recommended but to proceed with a complete system rollback. It is still possible at that point to completely rollback the 2 sites but upgrade assistance should be request before attempting such operation.
9 ☐	Go to the next procedure	

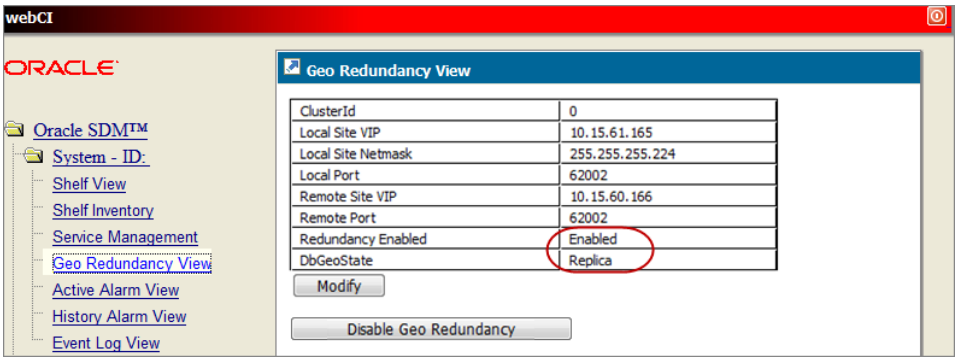
4.1.12 Re-Activate Geo-Redundancy on Site A

This procedure provides the steps required re-activate geo-redundancy on site A. This procedure will bring site A to *Replica* geo-redundancy state and site B should take *ReferenceProtected* state.

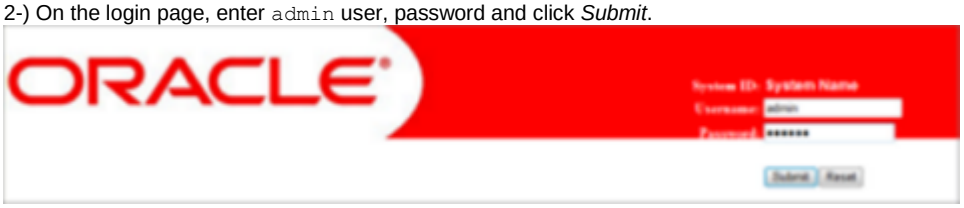
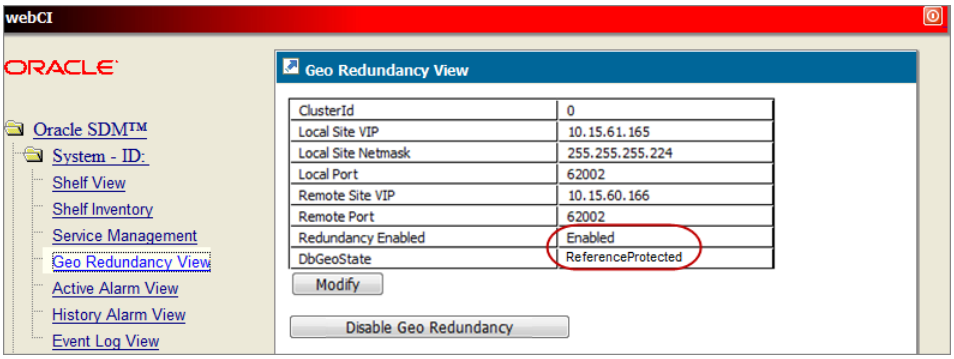
Procedure 15: Re-Activate Geo-Redundancy on Site A

S T E P #	Provides the steps to re-activate geo-redundancy on site A. This procedure required to restart both blades of site A. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	Connect to the SPR A-1, SPR A-2 and all SPR A front-end nodes (if applicable) blades through ssh with root accout using IP address recorded in item #2 and #4 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2-) Enter **root** password for server when prompted.
2 ☐	Open BlueCli with admin account from SPR A-1 shell.	**# BlueCli –u admin** **BlueCli (Copyright (C) 2010,** Oracle) **Version: 9.3.0** **Build: 9.3.0_5.4.0** **1 :>**
3 ☐	Enable Geo-Redundancy	1-) In BlueCli, navigate to System[]:Shelf[ShelfId=1]:GeoClusterConfig[GeoClusterId=0] **1 :> System[]:Shelf[ShelfId = 1]:GeoClusterConfig[GeoClusterId = 0]** **2 :System[]:Shelf[ShelfId = 1]:GeoClusterConfig[GeoClusterId = 0]>** 2-) Call EnableGoRedundancy() operation. **2 :System[]:Shelf[ShelfId = 1]:GeoClusterConfig[GeoClusterId = 0]>** **EnableGeoRedundancy()** **Done!** **3 :System[]:Shelf[ShelfId = 1]:GeoClusterConfig[GeoClusterId = 0]>** 3-) Make sure geo-redundancy is enabled **3 :System[]:Shelf[ShelfId = 1]:GeoClusterConfig[GeoClusterId = 0]> display** **GeoClusterId: 0** **GeoLocalPort: 62002** **GeoLocalSiteIp:** **GeoLocalSiteNetmask:** **GeoRemoteSiteIp:** **GeoRedundancyEnabled: 1** **GeoRemotePort: 62002** **4 :System[]:Shelf[ShelfId = 1]:GeoClusterConfig[GeoClusterId = 0]>** 4-) Make sure GeoDbState is Stopped **4 :System[]:Shelf[ShelfId = 1]:GeoClusterConfig[GeoClusterId = 0]>** **:Database[]** **5 :Database[]> display GeoDatabaseState[]** **SsId: 0** **DbGeoState: Stopped** **6 :Database[]>**
4 ☐	Stop Site A active Blade (SPR A-1).	1-) Stop “blue” service from SPR A-1 shell **# service blue stop**
5 ☐	Start Site A active blade blue service (SPR A-1)	1-) Start “blue” service from SPR A-1 shell: **# service blue start** 2-) Wait for initialization to complete by waiting for the shell prompt to come back. At this step, Site A will synchronize the subscribers’ data with Site B. Therefore, the step can take a significant amount of time depending on customer database size.

Procedure 15: Re-Activate Geo-Redundancy on Site A

6 ☐	Start Site A standby blade blue service (SPR A-2)	1-) Start "blue" service from SPR A-2 shell: **`# service blue start`** 2-) Wait for initialization to complete by waiting for the shell prompt to come back. This step can take a significant amount of time depending on customer database size since the standby blade will be synchronized with the active blade of site A.
7 ☐	Start Site A front-end node blades blue service. Repeat on all front-end node of site A, if applicable.	1-) Start "blue" service from SPR B front-end node shell: **`# service blue start`** 2-) Wait for initialization to complete by waiting for the shell prompt to come back.
8 ☐	Connect to Site A WebCI	1-) Connect to site A WebCI with `admin` user using site A Public OAMP IP address and WebCI admin password as defined in section 3.1. First, open a web browser and login to url: *http://<Public OAMP Ip Address>:8080/webci* 2-) On the loging page, enter `admin` user, password and click *Submit*.  2-) Enter **`root`** password for server when prompted.
9 ☐	Verify that Site A is Replica.	1-) In the WebCI, go to System>Geo-Redundancy View 2-) Make sure that DbGeoState goes to *Replica* and that Redundancy is *Enabled*: 

Procedure 15: Re-Activate Geo-Redundancy on Site A

10 ☐	Connect to Site B WebCI	1-) Connect to site B WebCI with `admin` user using site B Public OAMP IP address and WebCI admin password as defined in section 3.1. First, open a web browser and login to url: *http://<Public OAMP Ip Address>:8080/webci* 2-) On the login page, enter `admin` user, password and click *Submit*.  **2-) Enter** the **`root` password for server when prompted.**
11 ☐	Verify that Site B is ReferenceProtected.	1-) In the WebCI, go to System>Geo-Redundancy View 2-) Make sure that DbGeoState goes to *ReferenceProtected* and that Redundancy is *Enabled*: 
12 ☐	Go to the next Procedure	

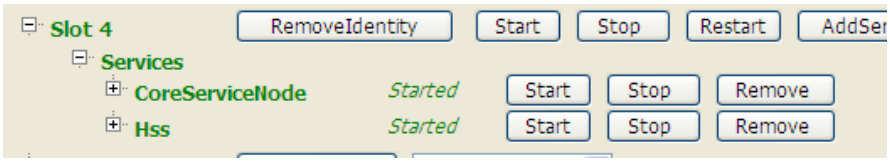
4.1.13 Restore Traffic Distribution

Here we will restore traffic distribution between site A and site B.

Procedure 16: Start Site and Restore Traffic Distribution

S T E P #	Provides the steps to migration re-activate site site A. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE.**	
1 ☐	Connect to the SPR A-1 blade through ssh with root accout using IP address recorded in item #2 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using **`root`** account: **`$ ssh root@xx.xx.xx.xx`** **`root@xx.xx.xx.xx's password:`** **`Last login: Mon May  7 15:47:25 2012 from 10.26.3.35`** 2-) Enter **`root`** password for server when prompted.

Procedure 16: Start Site and Restore Traffic Distribution

2 ☐	Re-activate HSS TCP listen addresses.	1-) Restore HSS TCP listen addresses. The following scripts will stop all HSS instances, restore IP addresses as before the upgrade and restart all HSS instances. Call this script from SPR A-1 blade. **# /var/TKLC/SDM/upgrade/scripts/sh restoreHssTcpListenAddresses.sh** STOPPING HSS in SLOT 3 Hss: Stopping... STOPPING HSS in SLOT 4 Hss: Stopping... restoreHssTcpListenAddresses.sh: Loading previous HSS TCP listen address RESTARTING HSS in SLOT 3 Hss: Starting... RESTARTING HSS in SLOT 4 Hss: Starting... Hss: Started TRAFFIC IS REDIRECTED TO THIS SPR
3 ☐	Verify that Hss services are properly started on on site AB	1-) Using site A WebCI, verify that Hss is started :  2-) Using WebCI, Verify that the ***HssConfigTCPListenAddress*** has been configured on Site A : **HssConfigTCPListenAddress** Netmask | SlotId | Address | Action 255.255.254.0 | 3 | 10.15.61.23 | Delete 255.255.254.0 | 4 | 10.15.61.24 | Delete 3-) Using SSH connection to each server of site B, verify that the HSS vips are mounted on XSI interface on each server **#ip -f inet addr** **6: eth12: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast qlen 1000** **inet 10.15.61.28/32 brd 10.15.61.28 scope global eth12**
4 ☐	Redistribute SH and provisioning traffic to Site A and B SPRs.	1-) Restore traffic and provisioning on site A and Site B. The procedure to switch traffic and provisioning is outside the scope of this procedure. **NOTE:** However, take note that the previous steps may be sufficient to restore traffic. However, provisioning may need to be switch back manually.
5 ☐	Validate SH traffic and provisioning is working.	At this point, validation shall be done to verify that provisioning and SH traffic is working properly. 1-) If provisioning or SH traffic validation failed on site A, switch back traffic to site B. Since the site B has been upgraded, it is not recommended but to proceed with a complete system rollback. It is still possible at that point to completely rollback the 2 sites but upgrade assistance should be request before attempting such operation.

5. SOFTWARE UPGRADE PROCEDURE FROM 9.0.X TO 9.3.0 NON-GEO-REDUNDANT CONFIGURATION

The procedure described in this section is used to upgrade a SDM running 9.0.x to 9.3.0 in non-geo-redundant configuration.

This procedure **CANNOT** be applied on geo-redundant system.

For SPR services, an outage of traffic of about 7 min is expected (may vary depending of HW used).

Since there is no geo-redundant site, a downtime is expected in rollback procedure.

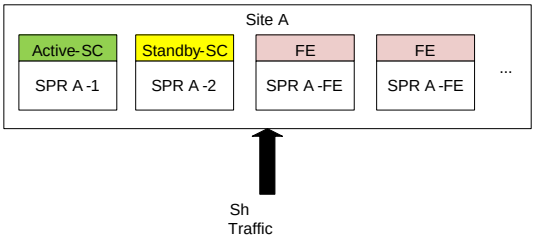
5.1 Software Upgrade Execution

This procedure should be executed inside a maintenance window.

During this procedure, external nodes connected to SDM may lose connection to a specific SDM blade since a server reboot is required when upgrading each blade. However, it is assumed that each external node is configured with redundant link and that they can connect during that time to the peer blade or the geo-redundant site if apply.

The procedure consist in first upgrading the active database server with a special command that will propagate database schema changes to all back-end blade in order to bring the schema to the 9.3.0. Then, a standard upgrade procedure is executed on remaining blades.

The initial setup of a non geo-redundant configuration is show in the image below.



The sequence to upgrade this configuration would be to apply the procedure describes in this section on each server using the following order:

- Upgrade SPR A-2
- Upgrade SPR A-1
- Upgrade SPR A-FE

5.1.1 Copy ISO Image File

This procedure transfers the SDM software upgrade ISO to each server /var/TKLC/upgrade directory.

Note: ISO transfers to the target systems may require a significant amount of time depending on the number of systems and the bandwidth of the network. The ISO transfers to the target systems should be performed prior to and outside of the scheduled maintenance window. Schedule the required maintenance windows accordingly before proceeding.

The iso images are put in the /var/TKLC/upgrade directory on the server. Because the iso images are large, the following procedure includes instructions to check space available before copying the iso to this directory.

Procedure 17: Copy ISO Image File to target systems

S T E P #	This procedure upload the SPR upgrade ISO to each server. This procedure is repeated on each server in this order (SPR A-2, SPR A-1, SPR A-FE) Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE.**	
1 ☐	Connect to the server through ssh using the root account.	1. For local workstation, login using ssh to server IP address using root account: $ ssh root@xx.xx.xx.xx root@xx.xx.xx.xx's password: Last login: Mon May 7 15:47:25 2012 from 10.26.3.35 2. Enter the root password for server when prompted.
2 ☐	Verify enough space exists for ISO Verify that there is at least 1Gb in the Avail column. If not, clean up files until there is space available. Make sure you know what files you can remove safely before cleaning up. It is recommended that you only clean up files in the /var/TKLC/upgrade directory as this is a platform owned directory that should only contain ISO images. This directory should not be expected to contain images for any length of time as they can get purged. Removing files other than those in directory /var/TKLC/upgrade is potentially dangerous.	# df -h /var/TKLC/ Filesystem Size Used Avail Use% Mounted on /dev/mapper/vgroot-plat_var_tklc 3.9G 2.4G 1.4G 65% /var/TKLC
3 ☐	Copy SDM 9.3.0 software ISO	From the local workstation:

	image file from the local workstation to the target server upgrade directory.	1. Copy SDM 9.3.0 software ISO to target server # scp <ISO Name> root@<server SSH IP>:/var/TKLC/upgrade Example: # scp 872-2564-101-9.3.0_1.12.0-SDM-x86_64.iso root@xx.xx.xx.xx:/var/TKLC/upgrade 2. Enter root password for server when prompted.
4. ☐	Verify the ISO image files were copied to the correct location. Examine output of the command and verify that both ISO files are present and that file sizes appear correct.	From the server: # ls –l /var/TKLC/upgrade
5. ☐	Repeat step 1 to 4 on all servers (SPR A-2, SPR A-FE, SPR A-1)	

5.1.2 Validate ISO image file

Detailed steps are shown in the procedure below to validate the resulting ISO image file on the target system.

Procedure 18: Validate & Mount ISO image file

S T E P #	Detailed steps are shown in the procedure below to validate the resulting ISO image file on the target system. This procedure is repeated on each server (SPR A-2, SPR A-1, SPR A-FE) and front-end servers Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	Connect to the server through ssh using the root account.	1. For local workstation, login using ssh to server IP address using root account: $ ssh root@xx.xx.xx.xx root@xx.xx.xx.xx's password: Last login: Mon May 7 15:47:25 2012 from 10.26.3.35 2. Enter the root password for server when prompted.
2 ☐	Using platcfg, validate the SDM 9.3.0 software ISO is found.	# su – platcfg Maintenance → Upgrade → Validate Media

Procedure 18: Validate & Mount ISO image file

3 ☐	Validate SDM 9.3.0 sofware ISO.	Validating cdrom... ## ## ## ## ## ## ## ## ## ## UMVT Validate Utility v2.2.1, (c) Oracle, June 2010 Validating /var/TKLC/upgrade/872-2564-101-9.3.0_1.12.0-SDM-x86_64.iso Date&Time: 2012-05-07 21:33:47 Volume ID: tklc_872-2564-101_Rev_A_2.5.0 Part Number: 872-2564-101_Rev_A Version: 2.5.0 Disc Label: SDM Disc description: SDM The media validation is complete, the result is: PASS CDROM is Valid PRESS ANY KEY TO RETURN TO THE PLATCFG MENU. *Note: Do not continue if the ISO image validation reports any errors or is invalid. Instead remove the ISO file and either re-copy it to the target system or regenerate it from physical media*
4 ☐	Repeat steps 1 to 3 on each server (SPR A-1, SPR A-2, SPR-FE (front-ends))	

5.1.3 Upgrade the Standby blade server

This procedure provides the steps required to upgrade the Standby server (SPR A-2) from 9.0.x to another 9.3.0.

Upgrade_server will automatically upgrade TPD to appropriate version if required and install new SDM 9.3 rpm.

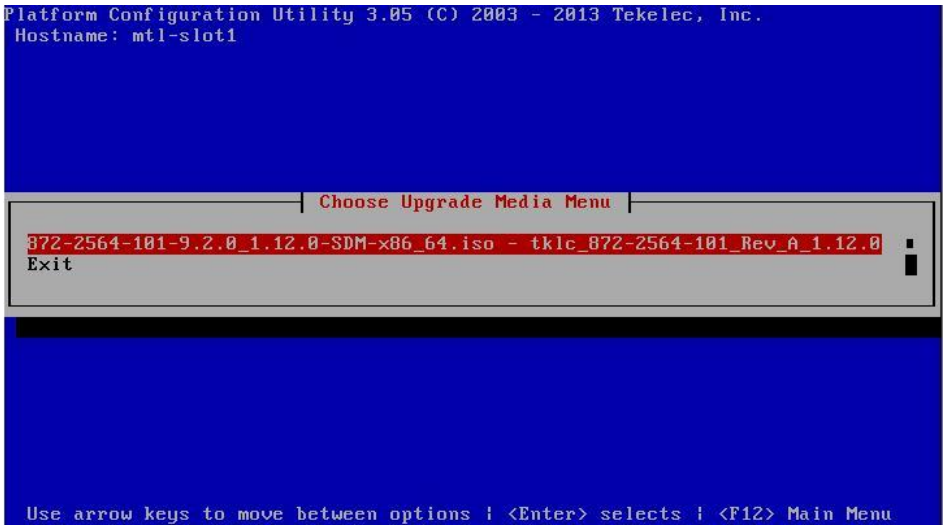
After this procedure, the server will be upgraded to SDM 9.3 and configured the same way as it was prior to executing the upgrade.

At the end of the procedure, no SPR applications (blue service) will be started on that node.

Procedure 19: Upgrade 9.1.1 Standby Server

S T E P #	Provides the step to upgrade SPR from SPR 9.0.x to SDM 9.3.0 build. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	Connect to the SDM A-2 blade through ssh with the root account using the IP address recorded in Table 5.	1-) For local workstation, login using ssh to server IP address using root account: $ ssh root@xx.xx.xx.xx root@xx.xx.xx.xx's password: Last login: Mon May 7 15:47:25 2012 from 10.26.3.35 2-) Enter the root password for server when prompted.
2 ☐	Verify that SDM software is at version 9.0.x.	# BlueVersion * Blueslice version: 9.0.x_x.x.x
3 ☐	Mount the SDM ISO on /mnt/upgrade	# loopMount –ro /var/TKLC/upgrade/<9.3 ISO file> /mnt/upgrade

Procedure 19: Upgrade 9.1.1 Standby Server

4 ☐	Log into platcfg and initiate the upgrade using Maintenance > Upgrade > Initiate Upgrade option.	**# su - platcfg** **Maintenance → Upgrade → Initiate Upgrade** Then, select the appropriate ISO upgrade media  **NOTE: This step may generate a lot of output can take a significant amount of time since it needs to backup the databases, upgrade the software, reboot the server and upgrade configuration databases. Activity can be monitored by looking at following log file:** ▪ **/var/TKLC/log/upgrade/upgrade.log** ▪ **/var/TKLC/log/upgrade/ugwrap.log** ▪ **/var/TKLC/log/upgrade/BlueUpgrade.pm.log** ▪ **/var/log/messages** **The server reboot will occurs after the display of following message:** **Starting syscheck: [OK]** **Enabling applications on the server...** **Applications Enabled.** **Running /usr/TKLC/plat/bin/service_conf reconfig** **UPGRADE IS COMPLETE** **Waiting for reboot** **Updating platform revision file...** **A reboot of the server is required.** **The server will be rebooted in 10 seconds** **[root@tpdvm15 ~]**

Procedure 19: Upgrade 9.1.1 Standby Server

5 ☐	Verify that the upgrade has completed successfully.	1-) Once the server has reboot, re-log on SDM through ssh # ssh root@xx.xx.xx.xx 2-) Monitor ugwrap.log and wait for upgrade completion # tail –f /var/TKLC/log/upgrade/ugwrap.log 3-) The following message indicates that the upgrade has completed successfully. The upgrade may take some time since backup will automatically be taken. Activity can be monitored by doing a "tail –f /var/TKLC/log/upgrade/BlueUpgrade.pm.log" **5/10/2012 15:51:32 LOG ENTRY STARTED** **05/10/2012 15:51:32 IN> BlueUpgrade::new()** **05/10/2012 15:51:32 OUT> BlueUpgrade::new()** **05/10/2012 15:51:32 Initializing Upgrade Wrapper...** **05/10/2012 15:51:32 No methods to run in run queue...** **05/10/2012 15:51:32 Re-enabling application components...** **05/10/2012 15:51:32 Not a major upgrade.** **05/10/2012 15:51:32 Upgrading DB from release [9.0]** **05/10/2012 15:51:32 Executing [/var/TKLC/SDM/upgrade/scripts/upgradeDb.sh 9.0 &> /var/TKLC/log/upgrade/BlueUpgrade.pm.log]** **05/10/2012 16:02:22 SDM upgrade succeed** **05/10/2012 16:02:22 Determining if /mnt/upgrade should be unmounted...** **05/10/2012 16:02:22 Checking mount point: /** **05/10/2012 16:02:22 Checking mount point: /proc** **05/10/2012 16:02:22 Checking mount point: /sys** **05/10/2012 16:02:22 Checking mount point: /dev/pts** **05/10/2012 16:02:22 Checking mount point: /boot** **05/10/2012 16:02:22 Checking mount point: /dev/shm** **05/10/2012 16:02:22 Checking mount point: /var/TKLC/SDM** **05/10/2012 16:02:22 Checking mount point: /proc/sys/fs/binfmt_misc** **05/10/2012 16:02:22 Checking mount point: /proc/fs/vmblock/mountPoint** **05/10/2012 16:02:22 Checking mount point: /mnt/upgrade** **05/10/2012 16:02:22 Will unmount in 5 seconds...** **05/10/2012 16:02:27 COMMAND: /bin/umount -f /mnt/upgrade**
6 ☐	If server upgrade failed, rollback	1-) If server upgrade failed, backout using recovery procedure described in section 6.3.
7 ☐	Go to the next procedure	

5.1.4 Perform Subscribers Migration

At this point, the software and configurations of the Standby blade (SPR A-2) have been upgraded but the subscriber data is no longer there. Now we will perform a subscriber migration from the Active Blade (SPR A-1). The migration is done in 1 step for NON-GEO:

- A bulk migration that migrates data up to the time at which the migration has been started.

Procedure 20: Perform Subscribers Migration

S T E P #	Provides the steps to migration subscribers' data from Active Blade to Standby Blade. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for UPGRADE ASSISTANCE.	

1 ☐	Connect to the SPR A-2 blade through ssh with root accout using IP address recorded in item #7 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using `root` account:
		`$ ssh root@xx.xx.xx.xx`
		`root@xx.xx.xx.xx's password:`
		`Last login: Mon May 7 15:47:25 2012 from 10.26.3.35`
		
		2-) Enter `root` password for server when prompted.

2 ☐	Start mysql service	1-) Start "mysql" service `# mysqlblued start` 2-) Wait for initialization to complete by waiting for the shell prompt to come back.

3 ☐	Edit the migration config file to set the IP address of the Active Blade: SPR A-1	1-) On SPR A-2 shell, move to migration tool directory.
		`# cd /var/TKLC/SDM/upgrade/migration/9.0`
		
		2-) Change the permission of the file to allow write permission
		`# chmod +w spr_90_to_93_migration.cfg`
		
		3-) Edit migration config file
		`# vi spr_90_to_93_migration.cfg`
		
		Set the variable SOURCE_SPR_IP to the public IP address of Active Blade SPR A-1 (stored in section 3.1).
		`##########################################################################`
		`##########`
		`##`
		`## Configuration of spr_90_to_93_migration.sh:`
		`## change/adapt according to your particular site survey`
		`##`
		`readonly SOURCE_SPR_IP=xx.xx.xx.xx`
		`readonly SOURCE_SPR_MYSQL_USER=root`
		`readonly SOURCE_SPR_MYSQL_PASS=root`
		
		`# SDM destination host should not be configurable:`
		`# IT'S ALWAYS LOCALHOST, BECAUSE THE SCRIPT _REQUIRES_ TO BE RUN`
		`# ON THE TARGET SPR MACHINE.`
		`readonly DESTINATION_SPR_MYSQL_USER=root`
		`readonly DESTINATION_SPR_MYSQL_PASS=root`
		`##`
		`## DO NOT MODIFY BELOW THOSE LINES`
		`##`
		`##########################################################################`
		`##########`
		`readonly CFG_VERSION='$Id: spr_90_to_93_migration.cfg 83590 2011-09-12 20:00:54Z bruno $'`
		
		4-) Save and close the file

4 ☐	Perform a bulk migration.	1-) Perform bulk migration
		`# ./spr_90_to_93_migration.sh`
		
		The migration succeeds if the migration statistics are displayed at the end and the "Migration successful message" is printed.
		
		`[Wed May 23 21:56:02 EDT 2012] ***`
		`[Wed May 23 21:56:02 EDT 2012] *** Migration successful.`
		`[Wed May 23 21:56:02 EDT 2012] ***`

Procedure 20: Perform Subscribers Migration

5 ☐	Verify migration	If migration is successful, proceed with the next procedure; if migration failed, backout using the rollback procedure described in Section 6.3.

5.1.5 Stop all remaining blades or servers (SPR A-1, SPR-FE)

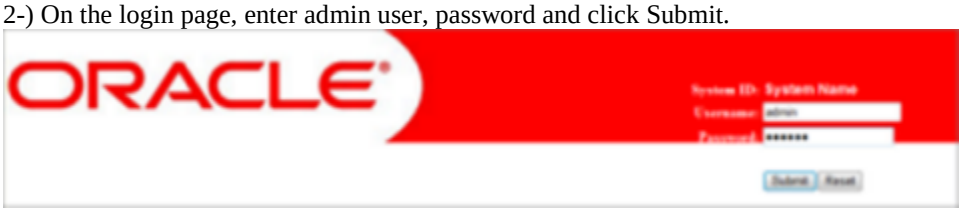
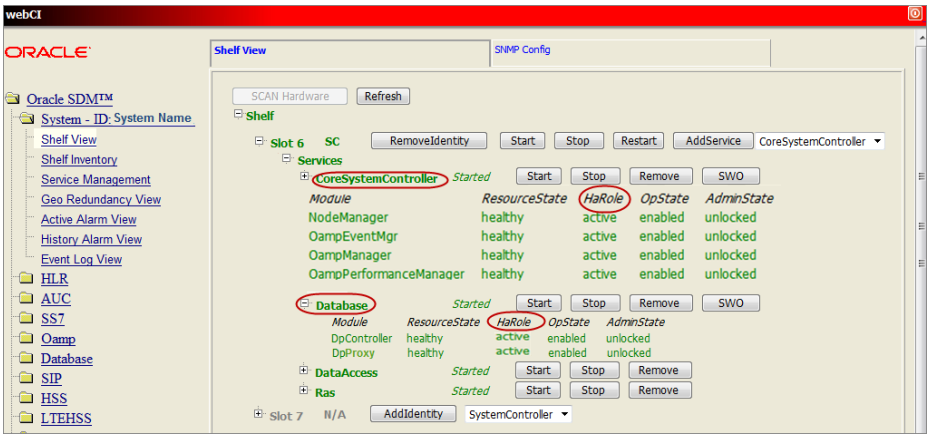
Procedure 21: Stop all servers on SPR-A

S T E P #	The first step is to stop all servers. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE.**	
1 ☐	Connect to the SPR A-FE blade through ssh with root accout using IP address recorded in item #7 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2-) Enter **root** password for server when prompted.
2 ☐	Stop the blue service	1-) Stop "blue" service **# service blue stop** 2-) Wait for initialization to complete by waiting for the shell prompt to come back. 3) Make sure **all** the SPR-FE are stopped
3 ☐	Repeat steps 1 and 2 for SPR A-1	Make sure all the blades are stopped (SPR A-1, SPR A-2, SPR-FE)
4 ☐	Go to the next procedure	

5.1.6 Start the upgraded blade or server (SPR A-2)

At this point, the software and database have been upgraded but the blade is not automatically restarted by the upgrade. Here, we will start the upgraded blade (9.3.0). We will start that blade using force command and it should come up as the new Active Blade.

Procedure 22. Start the upgraded blade or server

S T E P #	Provides the start the upgraded blade or server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE.**	
1 ☐	Connect to the SPR A-2 blade through ssh with root accout using IP address recorded in item #7 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using root account: $ ssh root@xx.xx.xx.xx root@xx.xx.xx.xx's password: Last login: Mon May 7 15:47:25 2012 from 10.26.3.35 2-) Enter root password for server when prompted.
2 ☐	Start the blue service	1-) Start "blue" service with force to make it the new Active Blade **# service blue start force** 2-) Wait for initialization to complete by waiting for the shell prompt to come back.
3 ☐	Connect to the WebCI	1-) Connect to the WebCI with admin user using site Public OAMP IP address and WebCI admin password as defined in section 3.1. First, open a web browser and login to url: http://<Public OAMP Ip Address>:8080/webci 2-) On the login page, enter admin user, password and click Submit.  2-) Enter the root password for server when prompted.
4 ☐	Validate that the HaRole of Database service on the upgraded slot is now active. Log in WebCI as recorded in **Table 5**. From Shelf View, expand the upgraded Slot up to Database Service	Go to Oracle SDM > System > Shelf View.  Make sure that the HaRole is Active for all modules in Database service.
5 ☐	Perform testing	The Operator should proceed with a critical test suite in order to verify that the upgrade has successfully completed.

Procedure 22. Start the upgraded blade or server

6 ☐	Proceed or rollback	If the testing is successful, go to the next procedure; if testing failed, backout using the rollback procedure described in Section **6.3**, Rollback to 9.0.x in non-geo-redundant configuration.

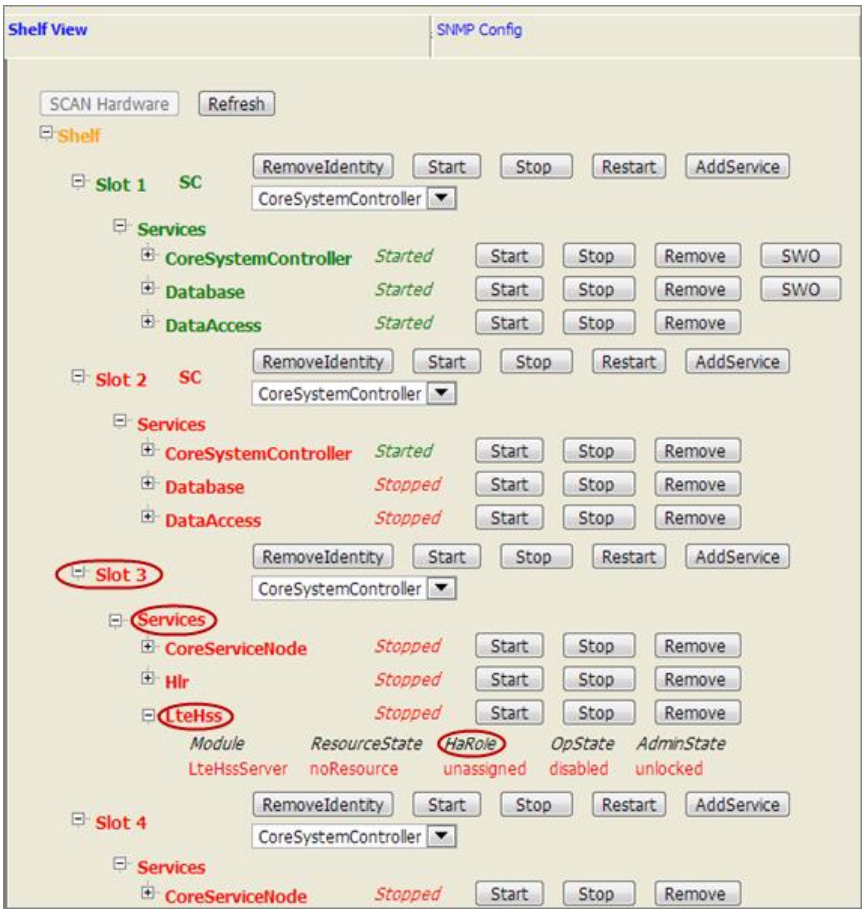
5.1.7 Upgrade the remaining servers (SPR A-1, SPR-FE)

This procedure provides the steps required to upgrade the remaining servers (SPR A-1, SPR-FE) from 9.0.x to the 9.3.0 build. The upgrade is initiated by calling Initiate Upgrade from platcfg tool. This command will call in the background ugwrap tool on the upgrade media. ugwrap will call a set a scripts that will automatically backup the configuration mysql database, remove SPR 9.0 blue rpm and launch upgrade_server.
Upgrade_server will automatically upgrade TPD to the appropriate version if required and install a new SPR 9.3.0 rpm. After that procedure, the server will be upgraded to SPR 9.3.0 and configured the same way as it was prior to execute the upgrade.
At the end of the procedure, no SPR applications (blue service) will be started on that node.

We recommended this procedure is applied on the remaining servers in the following order:

1. Active SystemController blade (SPR A-1)
2. Front-End nodes running Spr service with unassigned HaRole
3. Front-End nodes running Spr service with active HaRole

To view which service is running in which node, connect to the WebCI. Go to System>Shelf View and expand all non-gray slots. Then expand the Services value and the “Service” in order to view the HaRole.



Procedure 23: Upgrade remaining Server

S T E P #	Provides the step to upgrade SPR from SPR 9.0.x build to SDM 9.3.0 build. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	Connect to the SPR A-1 blade through ssh with root account using IP address recorded in **Table 5**.	1-) For local workstation, login using ssh to server IP address using root account: $ ssh root@xx.xx.xx.xx root@xx.xx.xx.xx's password: Last login: Mon May 7 15:47:25 2012 from 10.26.3.35 2-) Enter root password for server when prompted.
2 ☐	Verify that the SPR software is at version 9.0	# BlueVersion * Blueslice version: 9.0.x_x.x.x
3 ☐	Mount the SDM ISO on /mnt/upgrade	# loopMount –ro /var/TKLC/upgrade/<9.3 ISO file> /mnt/upgrade
4 ☐	Log into platcfg and initiate the upgrade using Maintenance > Upgrade > Initiate Upgrade option.	# su - platcfg Maintenance → Upgrade → Initiate Upgrade Then, select the appropriate ISO upgrade media NOTE: This step may generate a lot of output can take a significant amount of time since it needs to backup the databases, upgrade the software, reboot the server and upgrade configuration databases. Activity can be monitored by looking at following log file: /var/TKLC/log/upgrade/upgrade.log /var/TKLC/log/upgrade/ugwrap.log /var/TKLC/log/upgrade/BlueUpgrade.pm.log /var/log/messages The server reboot will occurs after the display of following message: Starting syscheck: [OK] Enabling applications on the server... Applications Enabled. Running /usr/TKLC/plat/bin/service_conf reconfig UPGRADE IS COMPLETE Waiting for reboot Updating platform revision file... A reboot of the server is required. The server will be rebooted in 10 seconds [root@tpdvm15 ~]

Procedure 23: Upgrade remaining Server

5 ☐	Verify that upgrade has completed successfully.	1-) Once the server has reboot, re-log on SPR through ssh
		# ssh root@xx.xx.xx.xx
		
		2-) Monitor ugwrap.log and wait for upgrade completion
		# tail –f /var/TKLC/log/upgrade/ugwrap.log
		
		3-) The following message indicates that the upgrade has completed successfully.
		`5/10/2012 15:51:32 LOG ENTRY STARTED`
		`05/10/2012 15:51:32 IN> BlueUpgrade::new()`
		`05/10/2012 15:51:32 OUT> BlueUpgrade::new()`
		`05/10/2012 15:51:32 Initializing Upgrade Wrapper...`
		`05/10/2012 15:51:32 No methods to run in run queue...`
		`05/10/2012 15:51:32 Re-enabling application components...`
		`05/10/2012 15:51:32 Not a major upgrade.`
		`05/10/2012 15:51:32 Upgrading DB from release [9.0]`
		`05/10/2012 15:51:32 Executing [/var/TKLC/SDM/upgrade/scripts/upgradeDb.sh 9.0 &> /var/TKLC/log/upgrade/BlueUpgrade.pm.log]`
		`05/10/2012 16:02:22 SDM upgrade succeed`
		`05/10/2012 16:02:22 Determining if /mnt/upgrade should be unmounted...`
		`05/10/2012 16:02:22 Checking mount point: /`
		`05/10/2012 16:02:22 Checking mount point: /proc`
		`05/10/2012 16:02:22 Checking mount point: /sys`
		`05/10/2012 16:02:22 Checking mount point: /dev/pts`
		`05/10/2012 16:02:22 Checking mount point: /boot`
		`05/10/2012 16:02:22 Checking mount point: /dev/shm`
		`05/10/2012 16:02:22 Checking mount point: /var/TKLC/SDM`
		`05/10/2012 16:02:22 Checking mount point: /proc/sys/fs/binfmt_misc`
		`05/10/2012 16:02:22 Checking mount point: /proc/fs/vmblock/mountPoint`
		`05/10/2012 16:02:22 Checking mount point: /mnt/upgrade`
		`05/10/2012 16:02:22 Will unmount in 5 seconds...`
		`05/10/2012 16:02:27 COMMAND: /bin/umount -f /mnt/upgrade`

6 ☐	If server upgrade failed, rollback	1-) If server upgrade failed, backout using recovery procedure described in section **6.3**.
7 ☐	Repeat steps 1 to 5 for all remaining Front-End blades stopped (SPR-FE)	

5.1.8 Start SPR A-1 and start all SPR-FE Blade or server

Procedure 24: Start SPR A-1 and all SPR-FE blade

S T E P #	In this procedure, we will start SPR A-1 and all SPR-FE (Front-End) Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	

1 ☐	Connect to the SPR A-1 blade through ssh with root account using IP address recorded as item #9 in **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account:
		`$ ssh root@xx.xx.xx.xx`
		`root@xx.xx.xx.xx's password:`
		`Last login: Mon May 7 15:47:25 2012 from 10.26.3.35`
		
		2-) Enter **root** password for server when prompted.

Procedure 24: Start SPR A-1 and all SPR-FE blade

2 ☐	Start SPR A-1 server blue service	1-) Start SPR A-1 blue service `# service blue start` 2-) Wait for initialization to complete by waiting for the shell prompt to come back. This step may take significant amount of time since the whole database need to synchronize with the new Active Blade SPR A-2
3 ☐	Repeat steps 1 and 2 for all front-end blades (SPR-FE) defined as item #12 in **Table 5**.	
4 ☐	Validate SH traffic and provisioning is working.	At this point, validation shall be done to verify that provisioning and SH traffic is working properly.

6. RECOVERY PROCEDURES

Upgrade procedure recovery issues should be directed to the Oracle Customer Care Center. Before executing any of these procedures, contact the Oracle Customer Care Center at 1-888-FOR-TKLC (1-888-367-8552); or 1-919-460-2150 (international). In the event that a full installation is needed, the original Site Installation Procedure also needs to be performed. Personnel performing the upgrade should be familiar with these documents.

6.1 Rollback SPR B-2 server

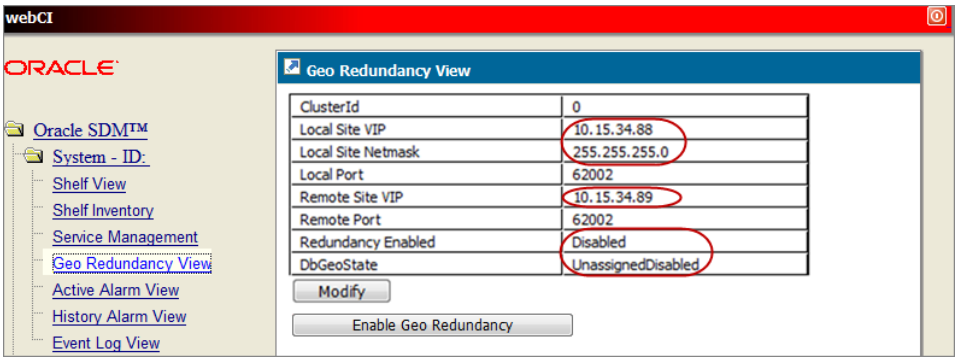
This procedure shall be used to rollback only if upgrade has failed after front-end node upgrade or SPR B-2 server (standby DB) upgrade.

Prior to execute this procedure, the following material described in section 2.6 is required:

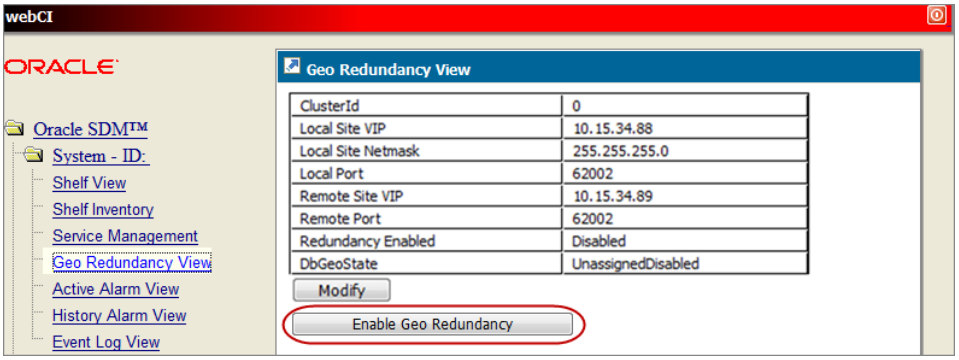
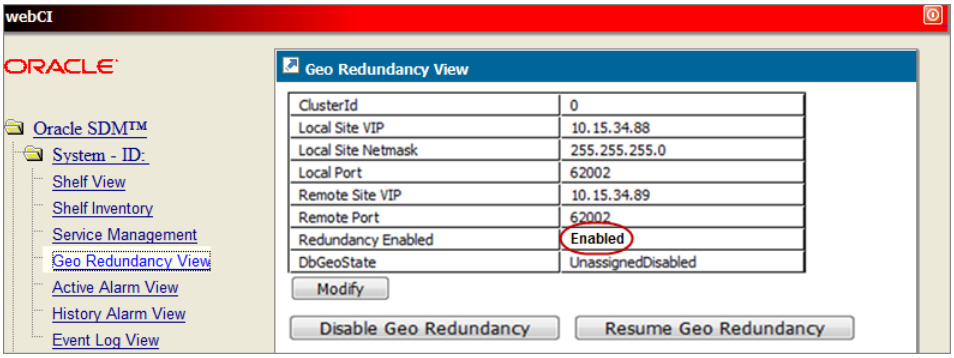
- SDM 9.3 ISO stored in /var/TKLC/upgrade/ directory.

6.1.1 Restore Geo-Redundancy

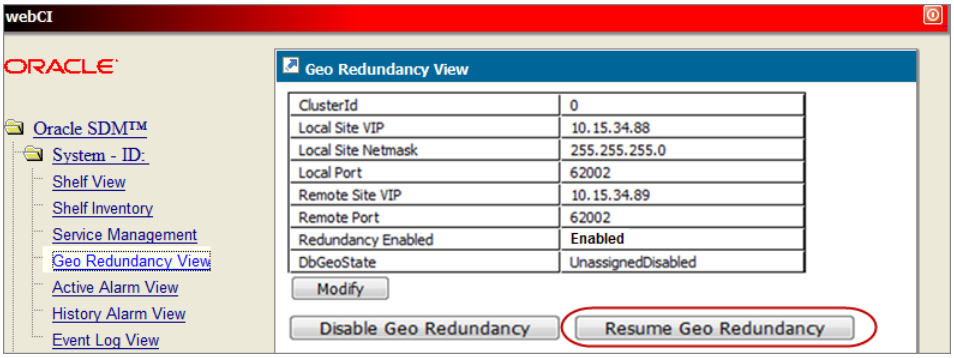
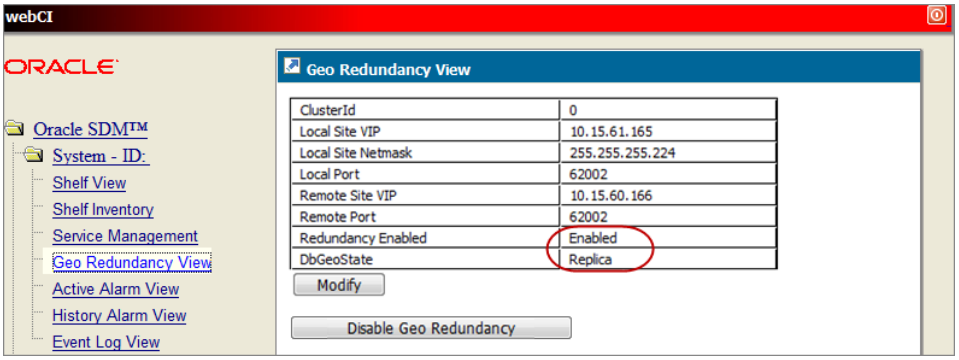
Procedure 25: Restore Geo-Redundancy

S T E P #	In this procedure, we restore geo-redundancy between Site A and Site B. Remember that prior to upgrade site B, geo-redundancy has been disabled on site A at section 4.1.3. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	Login to the WebCI.	1-) Login to the WebCI using site A OAMP VIP defined in item 1 of **Table 5**. First, open a web browser and login to url: *http://<Public OAMP Ip Address>:8080/webci* 2-) On the loging page, enter `admin` user, password and click *Submit*.  **3-) Enter** the **`root`** **password for server when prompted.**
2 ☐	Validate that Geo-Redundancy is Disabled.	1-) Go to *System > Geo-Redundancy View* and verify that geo-redundancy is *Disabled* and that DbGeoState is *UnassignedDisabled*. Verify that *Local Site VIP, Local Site Netmask* and *Remote Site VIP* are properly configured. 

Procedure 25: Restore Geo-Redundancy

3 ☐	Enable Geo-Redundancy	1-) Go to *System* > *Geo-Redundancy View* and click on the "Enable Geo-Redundancy" button.  2-) Verify that geo-redundancy is now *Enabled*. 

Procedure 25: Restore Geo-Redundancy

4 ☐	Resume Geo-Redundancy	1-) Click on the Resume Geo-Redundancy button.  2-) Wait for synchronization to complete, DbGeoState shall go back to Replica. 
5 ☐	If the server backout failed, call the Oracle Customer Care Center.	Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.

6.1.2 Rollback Front-End Blades

Procedure 26: Rollback Replica – Front-End Blades

S T E P #	Provides the step to rollback SPR front-end blade to SDM 8.0/9.0 if applicable. This procedure shall be executed only if the site is configured with front-end node. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	Connect to the SPR B front-end blade through ssh with the root account using the IP address recorded as item 11 in **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2-) Enter the **root** password for server when prompted.

Procedure 26: Rollback Replica – Front-End Blades

2 ☐	Mount the SDM 9.3.0 ISO on /mnt/upgrade/.	1) Call mount command to verify if SDM 9.3.0 ISO is already mounted **# mount** **/dev/mapper/vgroot-plat_root on / type ext3 (rw)** **proc on /proc type proc (rw)** **sysfs on /sys type sysfs (rw)** **devpts on /dev/pts type devpts (rw,gid=5,mode=620)** **/dev/sda1 on /boot type ext3 (rw)** **tmpfs on /dev/shm type tmpfs (rw)** **/dev/mapper/vgroot-SDM on /var/TKLC/SDM type ext3 (rw)** **none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)** **none on /proc/fs/vmblock/mountPoint type vmblock (rw)** **/var/TKLC/upgrade/ 872-2409-101-9.3.0_0.0.1-SDM-x86_64.iso on /mnt/upgrade type iso9660 (ro,loop=/dev/loop0)** 2) If ISO is already mounted on /mnt/upgrade, go to next step. 3) Mount the SDM 9.3.0 ISO on /mnt/upgrade **# loopMount -ro /var/TKLC/upgrade/<SDM 9.3.0 ISO file> /mnt/upgrade** 4) Verify that the ISO has been mounted successfully **# mount** **/dev/mapper/vgroot-plat_root on / type ext3 (rw)** **proc on /proc type proc (rw)** **sysfs on /sys type sysfs (rw)** **devpts on /dev/pts type devpts (rw,gid=5,mode=620)** **/dev/sda1 on /boot type ext3 (rw)** **tmpfs on /dev/shm type tmpfs (rw)** **/dev/mapper/vgroot-SDM on /var/TKLC/SDM type ext3 (rw)** **none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)** **none on /proc/fs/vmblock/mountPoint type vmblock (rw)** **/var/TKLC/upgrade/ 872-2409-101-9.3.0_0.0.1-SDM-x86_64.iso on /mnt/upgrade type iso9660 (ro,loop=/dev/loop0)**
3 ☐	Mount the SDM 9.3.0 ISO on /mnt/upgrade/.	1) Exit from platcfg. 2) Mount the SDM 9.3.0 ISO on /mnt/upgrade **# loopMount -ro /var/TKLC/upgrade/<SDM 9.3.0 ISO file> /mnt/upgrade** **#** 3) Verify that the ISO has been mounted successfully **# mount** **/dev/mapper/vgroot-plat_root on / type ext3 (rw)** **proc on /proc type proc (rw)** **sysfs on /sys type sysfs (rw)** **devpts on /dev/pts type devpts (rw,gid=5,mode=620)** **/dev/sda1 on /boot type ext3 (rw)** **tmpfs on /dev/shm type tmpfs (rw)** **/dev/mapper/vgroot-SDM on /var/TKLC/SDM type ext3 (rw)** **none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)** **none on /proc/fs/vmblock/mountPoint type vmblock (rw)** **/var/TKLC/upgrade/ 872-2409-101-9.3.0_0.0.1-SDM-x86_64.iso on /mnt/upgrade type iso9660 (ro,loop=/dev/loop0)**

Procedure 26: Rollback Replica – Front-End Blades

4 ☐	Rollback the server to source release.
	
	If the source release was 8.0.0, the backout will rollback to a configured TPD 5.0.1_72.45.0 + SDM 8.0.0 installed.
	
	If the source release was 9.0.0, the backout will rollback to SDM 9.0.0 installed.
		1) Using UGWRAP, initiate a backout. You have to specify the source release using one of the following choice: 8.0/9.0. The source release is the release at which you want to rollback.
		# /mnt/upgrade/upgrade/ugwrap –release=<source release> --backout
		
		2-) When the console ask "Continue backout?", type "y" and press enter key.
		
		`[root@tpdvm18 9.0]# /mnt/upgrade/upgrade/ugwrap --backout --release=9.0`
		`IN> BlueUpgrade::new()`
		
		`OUT> BlueUpgrade::new()`
		
		`Initializing Upgrade Wrapper...`
		`Executing any special platform directives`
		`Setting up application for install/upgrade`
		`Running backout_server script...`
		`Starting backout_server...`
		`Verifying that backout is possible.`
		
		`Current platform version: 5.1.1-73.5.3`
		`Backing out to platform version: 5.0.1-72.45.0`
		
		`compare_platform_versions (5.1.1-73.5.3, 5.0.1-72.45.0)`
		`compare with major upgrade boundary (3.0.0-60.0.0, 4.2.4-70.90.0)`
		`compare with no backout boundary (4.0.0-70.0.0, 4.2.4-70.90.0)`
		`Backout Date: 05/23/2012 18:22:39 UTC`
		`Continue backout? [y/N]: y`
		`Stopping cron service...`
		
		NOTE: This step may generate a lot of output can take a significant amount of time since it needs to rollback the OS to a previous TPD version. Activity can be monitored by looking at following log file:
		▪ **/var/TKLC/log/upgrade/upgrade.log**
		▪ **/var/TKLC/log/upgrade/ugwrap.log**
		▪ **/var/TKLC/log/upgrade/BlueUpgrade.pm.log**
		▪ **/var/log/messages**
		
		3-) Wait for the rollback to succeed.
		
		`Starting syscheck: [ OK ]`
		`Enabling applications on the server...`
		`Applications Enabled.`
		`Running /usr/TKLC/plat/bin/service_conf reconfig`
		`WARNING::Service RC script (/etc/rc.d/init.d/blueBoot) does not exist`
		`WARNING::or is not executable!`
		`Backout is complete. A reboot of the server is now required.`
		`IN> BlueUpgrade::new()`
		
		`OUT> BlueUpgrade::new()`
		
		`Initializing Upgrade Wrapper...`
		`No methods to run in run queue...`
		`Re-enabling application components...`
		`Rollbacking config`
		
		`Executing [/var/TKLC/SDM/upgrade/scripts/rollbackConfig.sh &>`
		`/var/TKLC/log/upgrade/BlueUpgrade.pm.log]`
		
		`Server rollback succeed`
		
		Note: Please ensure that all patches have been applied.

Procedure 26: Rollback Replica – Front-End Blades

5 ☐	Validate TPD is now at version 5.0.1_72.45.0 if source release was 8.0.0.
	
	Validate SDM is at version 8.0/9.0.
		If Source Version is 8.0:
		`# getPlatRev`
		`5.0.1-72.45.0`
		
		Example:
		`# BlueVersion`
		`* Blueslice version: 8.0.0_4.10.0`

6 ☐	If server backout failed, call Oracle Customer Care Center.	1-) Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.
10 ☐	Restart the SPR front-end server blue service	1-) Since SPR B-1 shall still be running at this point, the front-end configuration can be resynchronized from SPR B-1 master database just by restarting the server. From ssh shell, start blue service. `# service blue start` 2-) Wait for initialization to complete by waiting for the shell prompt to come back.
11 ☐	Redirect all SH and provisioning traffic to Site B SPRs.	1-) Restore traffic and provisioning on site A and site B The procedure to switch traffic and provisioning is outside the scope of this procedure.
12 ☐	Validate that SH traffic and provisioning is working.	At this point, validation shall be done to verify that provisioning and SH traffic is working properly on both sites. The procedure to validate traffic and provisioning is outside the scope of this procedure.
13 ☐	If server backout failed, call Oracle Customer Care Center.	Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.
14 ☐	Repeat steps 1 to 13 on all front-end servers of site B.	

6.1.3 Rollback Replica Standby Blade (SPR B-2)

Procedure 27: Rollback Replica – Standby Blade (SPR B-2)

S T E P #	Provides the step to rollback SPR B-2 to SDM 8.0/9.0 Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	

1 ☐	Connect to the SPR B-2 blade through ssh with the root account using the IP address recorded as item 9 in **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account:
		`$ ssh root@xx.xx.xx.xx`
		`root@xx.xx.xx.xx's password:`
		`Last login: Mon May 7 15:47:25 2012 from 10.26.3.35`
		
		2-) Enter **root** password for server when prompted.

Procedure 27: Rollback Replica – Standby Blade (SPR B-2)

2 ☐	Mount the SDM 9.3.0 ISO on /mnt/upgrade/.	1) Call mount command to verify if SDM 9.3.0 ISO is already mounted **# mount** **/dev/mapper/vgroot-plat_root on / type ext3 (rw)** **proc on /proc type proc (rw)** **sysfs on /sys type sysfs (rw)** **devpts on /dev/pts type devpts (rw,gid=5,mode=620)** **/dev/sda1 on /boot type ext3 (rw)** **tmpfs on /dev/shm type tmpfs (rw)** **/dev/mapper/vgroot-SDM on /var/TKLC/SDM type ext3 (rw)** **none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)** **none on /proc/fs/vmblock/mountPoint type vmblock (rw)** **/var/TKLC/upgrade/ 872-2409-101-9.3.0_0.0.1-SDM-x86_64.iso on /mnt/upgrade type iso9660 (ro,loop=/dev/loop0)** 2) If ISO is already mounted on /mnt/upgrade, go to next step. 3) Mount the SDM 9.3.0 ISO on /mnt/upgrade **# loopMount -ro /var/TKLC/upgrade/<SDM 9.3.0 ISO file> /mnt/upgrade** 4) Verify that the ISO has been mounted successfully **# mount** **/dev/mapper/vgroot-plat_root on / type ext3 (rw)** **proc on /proc type proc (rw)** **sysfs on /sys type sysfs (rw)** **devpts on /dev/pts type devpts (rw,gid=5,mode=620)** **/dev/sda1 on /boot type ext3 (rw)** **tmpfs on /dev/shm type tmpfs (rw)** **/dev/mapper/vgroot-SDM on /var/TKLC/SDM type ext3 (rw)** **none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)** **none on /proc/fs/vmblock/mountPoint type vmblock (rw)** **/var/TKLC/upgrade/ 872-2409-101-9.3.0_0.0.1-SDM-x86_64.iso on /mnt/upgrade type iso9660 (ro,loop=/dev/loop0)**
3 ☐	Mount the SDM 9.3.0 ISO on /mnt/upgrade/.	1) Exit from platcfg. 2) Mount the SDM 9.3.0 ISO on /mnt/upgrade **# loopMount -ro /var/TKLC/upgrade/<SDM 9.3.0 ISO file> /mnt/upgrade** **#** 3) Verify that the ISO has been mounted successfully **# mount** **/dev/mapper/vgroot-plat_root on / type ext3 (rw)** **proc on /proc type proc (rw)** **sysfs on /sys type sysfs (rw)** **devpts on /dev/pts type devpts (rw,gid=5,mode=620)** **/dev/sda1 on /boot type ext3 (rw)** **tmpfs on /dev/shm type tmpfs (rw)** **/dev/mapper/vgroot-SDM on /var/TKLC/SDM type ext3 (rw)** **none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)** **none on /proc/fs/vmblock/mountPoint type vmblock (rw)** **/var/TKLC/upgrade/ 872-2409-101-9.3.0_0.0.1-SDM-x86_64.iso on /mnt/upgrade type iso9660 (ro,loop=/dev/loop0)**

Procedure 27: Rollback Replica – Standby Blade (SPR B-2)

4 ☐	Rollback the server to source release.
	
	If the source release was 8.0, the backout will rollback to a configured TPD 5.0.1_72.45.0 + SDM 8.0 installed.
	
	If the source release was 9.0, the backout will rollback to SDM 9.0 installed.
		1) Using UGWRAP, initiate a backout. You have to specify the source release using one of the following choice: 8.0/9.0. The source release is the release at which you want to rollback.
		# /mnt/upgrade/upgrade/ugwrap –release=<source release> --backout
		
		2-) When the console ask “Continue backout?”, type “y” and press enter key.
		
		`[root@tpdvm18 8.0]# /mnt/upgrade/upgrade/ugwrap --backout --release=8.0`
		`IN> BlueUpgrade::new()`
		
		`OUT> BlueUpgrade::new()`
		
		`Initializing Upgrade Wrapper...`
		`Executing any special platform directives`
		`Setting up application for install/upgrade`
		`Running backout_server script...`
		`Starting backout_server...`
		`Verifying that backout is possible.`
		
		`Current platform version: 5.1.1-73.5.3`
		`Backing out to platform version: 5.0.1-72.45.0`
		
		`compare_platform_versions (5.1.1-73.5.3, 5.0.1-72.45.0)`
		`compare with major upgrade boundary (3.0.0-60.0.0, 4.2.4-70.90.0)`
		`compare with no backout boundary (4.0.0-70.0.0, 4.2.4-70.90.0)`
		`Backout Date: 05/23/2012 18:22:39 UTC`
		`Continue backout? [y/N]: y`
		`Stopping cron service...`
		
		NOTE: This step may generate a lot of output can take a significant amount of time since it needs to rollback the OS to a previous TPD version. Activity can be monitored by looking at following log file:
		▪ **/var/TKLC/log/upgrade/upgrade.log**
		▪ **/var/TKLC/log/upgrade/ugwrap.log**
		▪ **/var/TKLC/log/upgrade/BlueUpgrade.pm.log**
		▪ **/var/log/messages**
		
		3-) Wait for the rollback to succeed.
		
		`Starting syscheck: [ OK ]`
		`Enabling applications on the server...`
		`Applications Enabled.`
		`Running /usr/TKLC/plat/bin/service_conf reconfig`
		`WARNING::Service RC script (/etc/rc.d/init.d/blueBoot) does not exist`
		`WARNING::or is not executable!`
		`Backout is complete. A reboot of the server is now required.`
		`IN> BlueUpgrade::new()`
		
		`OUT> BlueUpgrade::new()`
		
		`Initializing Upgrade Wrapper...`
		`No methods to run in run queue...`
		`Re-enabling application components...`
		`Rollbacking config`
		
		`Executing [/var/TKLC/SDM/upgrade/scripts/rollbackConfig.sh &>`
		`/var/TKLC/log/upgrade/BlueUpgrade.pm.log]`
		
		`Server rollback succeed`
		
		Note: Please ensure that all patches have been applied.

Procedure 27: Rollback Replica – Standby Blade (SPR B-2)

5 ☐	Validate TPD is now at version 5.0.1_72.45.0 if source release was 8.0.0.
	
	Validate SDM is at version 8.0/9.0.
		If Source Version is 8.0:
		`# getPlatRev`
		`5.0.1-72.45.0`
		
		Example:
		`# BlueVersion`
		`* Blueslice version: 8.0.0_4.10.0`

6 ☐	If server backout failed, call the Oracle Customer Care Center.	1-) Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.
7 ☐	Restart SPR B-2 server blue service	1-) Since SPR B-1 shall still be running at this point, the SPR B-2 configuration can be resynchronized from SPR B-1 master database just by restarting the server. For SPR B-2 ssh shell, start blue service. `# service blue start` 2-) Wait for initialization to complete by waiting for the shell prompt to come back.
8 ☐	Redirect all SH and provisioning traffic to Site B SPRs.	1-) Restore traffic and provisioning on site A and site B The procedure to switch traffic and provisioning is outside the scope of this procedure.
9 ☐	Validate SH traffic and provisioning is working.	At this point, validation shall be done to verify that provisioning and SH traffic is working properly on both sites. The procedure to validate traffic and provisioning is outside the scope of this procedure.
10 ☐	If server backout failed, call the Oracle Customer Care Center.	Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.

6.2 Rollback Site B server

This procedure shall be used to rollback site B (SPR B-1 and SPR B-2 and front-ends) to 8.0/9.0 in the case of an upgrade failure. If this procedure is applied, it is assumes that server B-1 and B-2 have been upgraded.

6.2.1 Rollback SPR B-1 server

Procedure 28: Rollback Replica –Active Blade (SPR B-1)

S T E P #	Provides the step to rollback SPR B-2 to SDM 8.0/9.0 Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	

1 ☐	Connect to the SPR B-1 blade through ssh with the root account using the IP address recoreded as item 7 in **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account:
		`$ ssh root@xx.xx.xx.xx`
		`root@xx.xx.xx.xx's password:`
		`Last login: Mon May 7 15:47:25 2012 from 10.26.3.35`
		
		2-) Enter **root** password for server when prompted.

Procedure 28: Rollback Replica –Active Blade (SPR B-1)

2 ☐	Mount the SDM 9.3.0 ISO on /mnt/upgrade/.	1) Call mount command to verify if SDM 9.3.0 ISO is already mounted **# mount** **/dev/mapper/vgroot-plat_root on / type ext3 (rw)** **proc on /proc type proc (rw)** **sysfs on /sys type sysfs (rw)** **devpts on /dev/pts type devpts (rw,gid=5,mode=620)** **/dev/sda1 on /boot type ext3 (rw)** **tmpfs on /dev/shm type tmpfs (rw)** **/dev/mapper/vgroot-SDM on /var/TKLC/SDM type ext3 (rw)** **none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)** **none on /proc/fs/vmblock/mountPoint type vmblock (rw)** **/var/TKLC/upgrade/ 872-2409-101-9.3.0_0.0.1-SDM-x86_64.iso on /mnt/upgrade type iso9660 (ro,loop=/dev/loop0)** 2) If ISO is already mounted on /mnt/upgrade, go to next step. 3) Mount the SDM 9.3.0 ISO on /mnt/upgrade **# loopMount -ro /var/TKLC/upgrade/<SDM 9.3.0 ISO file> /mnt/upgrade** 4) Verify that the ISO has been mounted successfully **# mount** **/dev/mapper/vgroot-plat_root on / type ext3 (rw)** **proc on /proc type proc (rw)** **sysfs on /sys type sysfs (rw)** **devpts on /dev/pts type devpts (rw,gid=5,mode=620)** **/dev/sda1 on /boot type ext3 (rw)** **tmpfs on /dev/shm type tmpfs (rw)** **/dev/mapper/vgroot-SDM on /var/TKLC/SDM type ext3 (rw)** **none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)** **none on /proc/fs/vmblock/mountPoint type vmblock (rw)** **/var/TKLC/upgrade/ 872-2409-101-9.3.0_0.0.1-SDM-x86_64.iso on /mnt/upgrade type iso9660 (ro,loop=/dev/loop0)**
3 ☐	Mount the SDM 9.3.0 ISO on /mnt/upgrade/.	1) Exit from platcfg. 2) Mount the SDM 9.3.0 ISO on /mnt/upgrade **# loopMount -ro /var/TKLC/upgrade/<SDM 9.3.0 ISO file> /mnt/upgrade** **#** 3) Verify that the ISO has been mounted successfully **# mount** **/dev/mapper/vgroot-plat_root on / type ext3 (rw)** **proc on /proc type proc (rw)** **sysfs on /sys type sysfs (rw)** **devpts on /dev/pts type devpts (rw,gid=5,mode=620)** **/dev/sda1 on /boot type ext3 (rw)** **tmpfs on /dev/shm type tmpfs (rw)** **/dev/mapper/vgroot-SDM on /var/TKLC/SDM type ext3 (rw)** **none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)** **none on /proc/fs/vmblock/mountPoint type vmblock (rw)** **/var/TKLC/upgrade/ 872-2409-101-9.3.0_0.0.1-SDM-x86_64.iso on /mnt/upgrade type iso9660 (ro,loop=/dev/loop0)**

Procedure 28: Rollback Replica –Active Blade (SPR B-1)

4 ☐	Rollback the server to source release.
	
	If the source release was 8.0, the backout will rollback to a configured TPD 5.0.1_72.45.0 + SDM 8.0 installed.
	
	If the source release was 9.0, the backout will rollback to SDM 9.0 installed.
		1) Using UGWRAP, initiate a backout. You have to specify the source release using one of the following choice:8.0/9.0. The source release is the release at which you want to rollback.
		# /mnt/upgrade/upgrade/ugwrap –release=<source release> --backout
		
		2-) When the console asks “Continue backout?” type “y” and press enter key.
		
		`[root@tpdvm18 8.0]# /mnt/upgrade/upgrade/ugwrap --backout --release=8.0`
		`IN> BlueUpgrade::new()`
		
		`OUT> BlueUpgrade::new()`
		
		`Initializing Upgrade Wrapper...`
		`Executing any special platform directives`
		`Setting up application for install/upgrade`
		`Running backout_server script...`
		`Starting backout_server...`
		`Verifying that backout is possible.`
		
		`Current platform version: 5.1.1-73.5.3`
		`Backing out to platform version: 5.0.1-72.45.0`
		
		`compare_platform_versions (5.1.1-73.5.3, 5.0.1-72.45.0)`
		`compare with major upgrade boundary (3.0.0-60.0.0, 4.2.4-70.90.0)`
		`compare with no backout boundary (4.0.0-70.0.0, 4.2.4-70.90.0)`
		`Backout Date: 05/23/2012 18:22:39 UTC`
		`Continue backout? [y/N]: y`
		`Stopping cron service...`
		
		NOTE: This step may generate a lot of output can take a significant amount of time since it needs to rollback the OS to a previous TPD version. Activity can be monitored by looking at following log file:
		▪ **/var/TKLC/log/upgrade/upgrade.log**
		▪ **/var/TKLC/log/upgrade/ugwrap.log**
		▪ **/var/TKLC/log/upgrade/BlueUpgrade.pm.log**
		▪ **/var/log/messages**
		
		3) Wait for the rollback to succeed.
		
		`Starting syscheck: [ OK ]`
		`Enabling applications on the server...`
		`Applications Enabled.`
		`Running /usr/TKLC/plat/bin/service_conf reconfig`
		`WARNING::Service RC script (/etc/rc.d/init.d/blueBoot) does not exist`
		`WARNING::or is not executable!`
		`Backout is complete. A reboot of the server is now required.`
		`IN> BlueUpgrade::new()`
		
		`OUT> BlueUpgrade::new()`
		
		`Initializing Upgrade Wrapper...`
		`No methods to run in run queue...`
		`Re-enabling application components...`
		`Roll backing config`
		
		`Executing [/var/TKLC/SDM/upgrade/scripts/rollbackConfig.sh &>`
		`/var/TKLC/log/upgrade/BlueUpgrade.pm.log]`
		
		`Server rollback succeed`
		
		Note: Please ensure that all patches have been applied.

Procedure 28: Rollback Replica –Active Blade (SPR B-1)

5 ☐	Validate TPD is now at version 5.0.1_72.45.0 if source release was 8.0.0. Validate SDM is at version 8.0/9.0.	**If Source Version is 8.0:** **# getPlatRev** 5.0.1-72.45.0 **Example:** **# BlueVersion** *** Blueslice version: 8.0.0_4.10.0**
6 ☐	If server backout failed, call the Oracle Customer Care Center.	1-) Should this procedure fail, contacts the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE.** •
7 ☐	Configure blade as system controller.	**# configurecontroller.sh -blue**
8 ☐	Start SPR B-1 server	# service blue start
9 ☐	From SPR B-1 BlueCli, add policy schema.	Oamp[]:SecurityManager[]:Group[GroupName = admin]> add SecurityAccessPrivileges[ServiceName = Policy; Permission = 7] Schema[]> ProcessFile() Dir = /blue/etc; File = Policy.xml
10 ☐	Stop SPR B-1 server	# service blue stop
11 ☐	If server backout failed, call Oracle Customer Care Center.	Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE.**

6.2.2 Rollback SPR B-2 server

Procedure 29: Rollback Replica – Standby Blade (SPR B-2)

S T E P #	Provides the step to rollback SPR B-2 to SDM 8.0/9.0. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE.**	
1 ☐	Connect to the SPR B-2 blade through ssh with the root account using the IP address recoreded as item 9 in **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2-) Enter **root** password for server when prompted.

Procedure 29: Rollback Replica – Standby Blade (SPR B-2)

2 ☐	Mount the SDM 9.3.0 ISO on /mnt/upgrade/.	5) Call mount command to verify if SDM 9.3.0 ISO is already mounted **# mount** **/dev/mapper/vgroot-plat_root on / type ext3 (rw)** **proc on /proc type proc (rw)** **sysfs on /sys type sysfs (rw)** **devpts on /dev/pts type devpts (rw,gid=5,mode=620)** **/dev/sda1 on /boot type ext3 (rw)** **tmpfs on /dev/shm type tmpfs (rw)** **/dev/mapper/vgroot-SDM on /var/TKLC/SDM type ext3 (rw)** **none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)** **none on /proc/fs/vmblock/mountPoint type vmblock (rw)** **/var/TKLC/upgrade/ 872-2409-101-9.3.0_0.0.1-SDM-x86_64.iso on /mnt/upgrade type iso9660 (ro,loop=/dev/loop0)** 6) If ISO is already mounted on /mnt/upgrade, go to next step. 7) Mount the SDM 9.3.0 ISO on /mnt/upgrade **# loopMount -ro /var/TKLC/upgrade/<SDM 9.3.0 ISO file> /mnt/upgrade** 8) Verify that the ISO has been mounted successfully **# mount** **/dev/mapper/vgroot-plat_root on / type ext3 (rw)** **proc on /proc type proc (rw)** **sysfs on /sys type sysfs (rw)** **devpts on /dev/pts type devpts (rw,gid=5,mode=620)** **/dev/sda1 on /boot type ext3 (rw)** **tmpfs on /dev/shm type tmpfs (rw)** **/dev/mapper/vgroot-SDM on /var/TKLC/SDM type ext3 (rw)** **none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)** **none on /proc/fs/vmblock/mountPoint type vmblock (rw)** **/var/TKLC/upgrade/ 872-2409-101-9.3.0_0.0.1-SDM-x86_64.iso on /mnt/upgrade type iso9660 (ro,loop=/dev/loop0)**
3 ☐	Mount the SDM 9.3.0 ISO on /mnt/upgrade/.	1) Exit from platcfg. 2) Mount the SDM 9.3.0 ISO on /mnt/upgrade **# loopMount -ro /var/TKLC/upgrade/<SDM 9.3.0 ISO file> /mnt/upgrade** **#** 3) Verify that the ISO has been mounted successfully **# mount** **/dev/mapper/vgroot-plat_root on / type ext3 (rw)** **proc on /proc type proc (rw)** **sysfs on /sys type sysfs (rw)** **devpts on /dev/pts type devpts (rw,gid=5,mode=620)** **/dev/sda1 on /boot type ext3 (rw)** **tmpfs on /dev/shm type tmpfs (rw)** **/dev/mapper/vgroot-SDM on /var/TKLC/SDM type ext3 (rw)** **none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)** **none on /proc/fs/vmblock/mountPoint type vmblock (rw)** **/var/TKLC/upgrade/ 872-2409-101-9.3.0_0.0.1-SDM-x86_64.iso on /mnt/upgrade type iso9660 (ro,loop=/dev/loop0)**

Procedure 29: Rollback Replica – Standby Blade (SPR B-2)

<table>
<tr>
<td>4 ☐</td>
<td>Rollback the server to source release.

If the source release was 8.0, the backout will rollback to a configured TPD 5.0.1_72.45.0 + SDM 8.0 installed.

If the source release was 9.0, the backout will rollback to SDM 9.0 installed.</td>
<td>
1) Using UGWRAP, initiate a backout. You have to specify the source release using one of the following choice:8.0/9.0. The source release is the release at which you want to rollback.
/mnt/upgrade/upgrade/ugwrap –release=<source release> --backout

13-) When the console asks “Continue backout?” type “y” and press enter key.

<pre>
[root@tpdvm18 8.0]# /mnt/upgrade/upgrade/ugwrap --backout --release=8.0
IN> BlueUpgrade::new()

OUT> BlueUpgrade::new()

Initializing Upgrade Wrapper...
Executing any special platform directives
Setting up application for install/upgrade
Running backout_server script...
Starting backout_server...
Verifying that backout is possible.

Current platform version: 5.1.1-73.5.3
Backing out to platform version: 5.0.1-72.45.0

compare_platform_versions (5.1.1-73.5.3, 5.0.1-72.45.0)
compare with major upgrade boundary (3.0.0-60.0.0, 4.2.4-70.90.0)
compare with no backout boundary (4.0.0-70.0.0, 4.2.4-70.90.0)
Backout Date: 05/23/2012 18:22:39 UTC
Continue backout? [y/N]: y
Stopping cron service...
</pre>
NOTE: This step may generate a lot of output can take a significant amount of time since it needs to rollback the OS to a previous TPD version. Activity can be monitored by looking at following log file:

/var/TKLC/log/upgrade/upgrade.log
/var/TKLC/log/upgrade/ugwrap.log
/var/TKLC/log/upgrade/BlueUpgrade.pm.log
/var/log/messages

2-) Wait for the rollback to succeed.

<pre>
Starting syscheck: [OK]
Enabling applications on the server...
Applications Enabled.
Running /usr/TKLC/plat/bin/service_conf reconfig
WARNING::Service RC script (/etc/rc.d/init.d/blueBoot) does not exist
WARNING::or is not executable!
Backout is complete. A reboot of the server is now required.
IN> BlueUpgrade::new()

OUT> BlueUpgrade::new()

Initializing Upgrade Wrapper...
No methods to run in run queue...
Re-enabling application components...
Roll backing config

Executing [/var/TKLC/SDM/upgrade/scripts/rollbackConfig.sh &>
/var/TKLC/log/upgrade/BlueUpgrade.pm.log]
</pre>
Server rollback succeed

Note: Please ensure that all patches have been applied.
</td>
</tr>
<tr>
<td>5 ☐</td>
<td>Validate TPD is now at version 5.0.1_72.45.0 if source release was 8.0.

Validate SDM is at version 8.0/9.0.</td>
<td>
If Source Version is 8.0:
getPlatRev
5.0.1-72.45.0

Example:
BlueVersion
* Blueslice version: 8.0.0_4.10.0
</td>
</tr>
</table>

Procedure 29: Rollback Replica – Standby Blade (SPR B-2)

6 ☐	If server backout failed, call the Oracle Customer Care Center.	Should this procedure fail, contacts the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.
7 ☐	If server backout failed, call the Oracle Customer Care Center.	Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.

6.2.3 Rollback Front-End Blades

Procedure 30: Rollback Replica – Front-End Blades

S T E P #	Provides the step to rollback SPR front-end blade to SDM 8.0/9.0 if applicable. This procedure shall be executed only if the site is configured with front-end node. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	Connect to the SPR B front-end blade through ssh with root account using IP address recorded in item #11 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2-) Enter the **root** password for server when prompted.
2 ☐	Mount the SDM 9.3.0 ISO on /mnt/upgrade/.	1) Call mount command to verify if SDM 9.3.0 ISO is already mounted **# mount** **/dev/mapper/vgroot-plat_root on / type ext3 (rw)** **proc on /proc type proc (rw)** **sysfs on /sys type sysfs (rw)** **devpts on /dev/pts type devpts (rw,gid=5,mode=620)** **/dev/sda1 on /boot type ext3 (rw)** **tmpfs on /dev/shm type tmpfs (rw)** **/dev/mapper/vgroot-SDM on /var/TKLC/SDM type ext3 (rw)** **none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)** **none on /proc/fs/vmblock/mountPoint type vmblock (rw)** **/var/TKLC/upgrade/ 872-2409-101-9.3.0_0.0.1-SDM-x86_64.iso on /mnt/upgrade type iso9660 (ro,loop=/dev/loop0)** 2) If ISO is already mounted on /mnt/upgrade, go to next step. 3) Mount the SDM 9.3.0 ISO on /mnt/upgrade **# loopMount -ro /var/TKLC/upgrade/<SDM 9.3.0 ISO file> /mnt/upgrade** 4) Verify that the ISO has been mounted successfully **# mount** **/dev/mapper/vgroot-plat_root on / type ext3 (rw)** **proc on /proc type proc (rw)** **sysfs on /sys type sysfs (rw)** **devpts on /dev/pts type devpts (rw,gid=5,mode=620)** **/dev/sda1 on /boot type ext3 (rw)** **tmpfs on /dev/shm type tmpfs (rw)** **/dev/mapper/vgroot-SDM on /var/TKLC/SDM type ext3 (rw)** **none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)** **none on /proc/fs/vmblock/mountPoint type vmblock (rw)** **/var/TKLC/upgrade/ 872-2409-101-9.3.0_0.0.1-SDM-x86_64.iso on /mnt/upgrade type iso9660 (ro,loop=/dev/loop0)**

Procedure 30: Rollback Replica – Front-End Blades

3 ☐	Mount the SDM 9.3.0 ISO on /mnt/upgrade/.	1) Exit from platcfg.
		2) Mount the SDM 9.3.0 ISO on /mnt/upgrade
		`# loopMount -ro /var/TKLC/upgrade/<SDM 9.3.0 ISO file> /mnt/upgrade`
		`#`
		3) Verify that the ISO has been mounted successfully
		`# mount`
		`/dev/mapper/vgroot-plat_root on / type ext3 (rw)`
		`proc on /proc type proc (rw)`
		`sysfs on /sys type sysfs (rw)`
		`devpts on /dev/pts type devpts (rw,gid=5,mode=620)`
		`/dev/sda1 on /boot type ext3 (rw)`
		`tmpfs on /dev/shm type tmpfs (rw)`
		`/dev/mapper/vgroot-SDM on /var/TKLC/SDM type ext3 (rw)`
		`none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)`
		`none on /proc/fs/vmblock/mountPoint type vmblock (rw)`
		`/var/TKLC/upgrade/ 872-2409-101-9.3.0_0.0.1-SDM-x86_64.iso on /mnt/upgrade type iso9660 (ro,loop=/dev/loop0)`

Procedure 30: Rollback Replica – Front-End Blades

4 ☐	Rollback the server to source release.
	
	If the source release was 8.0, the backout will rollback to a configured TPD 5.0.1_72.45.0 + SDM 8.0 installed.
	
	If the source release was 9.0, the backout will rollback to SDM 9.0 installed.
		1) Using UGWRAP, initiate a backout. You have to specify the source release using one of the following choice:7.0.22/7.0.23/7.0.24/8.0/9.0. The source release is the release at which you want to rollback.
		# /mnt/upgrade/upgrade/ugwrap –release=<source release> --backout
		
		2) When the console asks “Continue backout?” type “y” and press enter key.
		
		`[root@tpdvm18 8.0]# /mnt/upgrade/upgrade/ugwrap --backout --release=8.0`
		`IN> BlueUpgrade::new()`
		
		`OUT> BlueUpgrade::new()`
		
		`Initializing Upgrade Wrapper...`
		`Executing any special platform directives`
		`Setting up application for install/upgrade`
		`Running backout_server script...`
		`Starting backout_server...`
		`Verifying that backout is possible.`
		
		`Current platform version: 5.1.1-73.5.3`
		`Backing out to platform version: 5.0.1-72.45.0`
		
		`compare_platform_versions (5.1.1-73.5.3, 5.0.1-72.45.0)`
		`compare with major upgrade boundary (3.0.0-60.0.0, 4.2.4-70.90.0)`
		`compare with no backout boundary (4.0.0-70.0.0, 4.2.4-70.90.0)`
		`Backout Date: 05/23/2012 18:22:39 UTC`
		`Continue backout? [y/N]: y`
		`Stopping cron service...`
		
		NOTE: This step may generate a lot of output can take a significant amount of time since it needs to rollback the OS to a previous TPD version. Activity can be monitored by looking at following log file:
		▪ **/var/TKLC/log/upgrade/upgrade.log**
		▪ **/var/TKLC/log/upgrade/ugwrap.log**
		▪ **/var/TKLC/log/upgrade/BlueUpgrade.pm.log**
		▪ **/var/log/messages**
		
		3-) Wait for the rollback to succeed.
		
		`Starting syscheck: [ OK ]`
		`Enabling applications on the server...`
		`Applications Enabled.`
		`Running /usr/TKLC/plat/bin/service_conf reconfig`
		`WARNING::Service RC script (/etc/rc.d/init.d/blueBoot) does not exist`
		`WARNING::or is not executable!`
		`Backout is complete. A reboot of the server is now required.`
		`IN> BlueUpgrade::new()`
		
		`OUT> BlueUpgrade::new()`
		
		`Initializing Upgrade Wrapper...`
		`No methods to run in run queue...`
		`Re-enabling application components...`
		`Roll backing config`
		
		`Executing [/var/TKLC/SDM/upgrade/scripts/rollbackConfig.sh &>`
		`/var/TKLC/log/upgrade/BlueUpgrade.pm.log]`
		
		`Server rollback succeed`
		
		Note: Please ensure that all patches have been applied.

Procedure 30: Rollback Replica – Front-End Blades

5 ☐	Validate TPD is now at version 5.0.1_72.45.0 if source release was 8.0.0.
	
	Validate SDM is at version 8.0/9.0.
		If Source Version is 8.0:
		`# getPlatRev`
		`5.0.1-72.45.0`
		
		Example:
		`# BlueVersion`
		`* Blueslice version: 8.0.0_4.10.0`

6 ☐	If server backout failed, call the Oracle Customer Care Center.	Should this procedure fail, contacts the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE.**
7 ☐	If server backout failed, call the Oracle Customer Care Center.	Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE.**
8 ☐	Repeat steps 1 to 13 on all front-end server of site B.	

6.2.4 Restore Backup

Procedure 31: Restore backup

STEP #	Provides the step to start blade SPR B-1 and reload the 8.0/9.0 backup Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE.**	

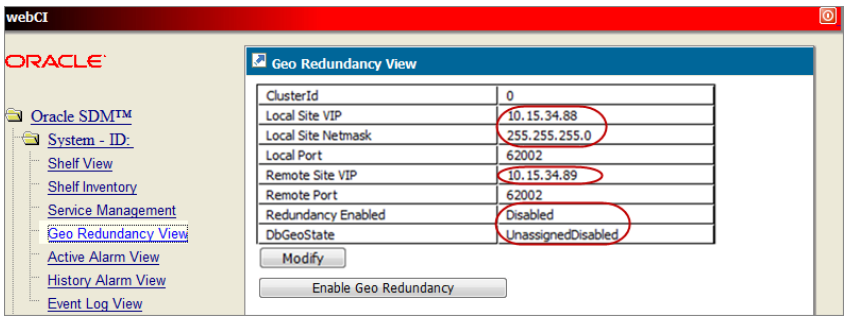
1 ☐	Connect to the SPR B-1 blade through ssh with root account using IP address recorded in item #7 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account:
		`$ ssh root@xx.xx.xx.xx`
		`root@xx.xx.xx.xx's password:`
		`Last login: Mon May 7 15:47:25 2012 from 10.26.3.35`
		
		2-) Enter **root** password for server when prompted.

2 ☐	Find the full backup file generated at the beginning of the upgrade.	1) Go to /var/TKLC/SDM/upgrade/db and search for the file that ends with ***all.tar***.
		`# cd /var/TKLC/SDM/upgrade/db/`
		`# ls`
		`blueis.sql`
		`dbbck_8.0_89938_20120524_150634_bluedbg.tar`
		`dbbck_8.0_89938_20120524_150546_all.tar`
		`dbbck_8.0_89938_20120524_150634_bluehss_2.tar`
		`dbbck_8.0_89938_20120524_150632_blueoam_2.tar`
		`dbbck_8.0_89938_20120524_150635_poldbg.tar`
		
		This file contains the full database backup taken prior to execute the upgrade.
		
		2) Start MySQL
		`# mysqlblued start`
		
		3) Using file name found at sub-step 1, restore the backup.
		`# mysqlrestore.pl –un root –pw root –dir /var/TKLC/SDM/upgrade/db –f <backup file name>`
		
		4) Stop MySQL
		`# mysqlblued stop`

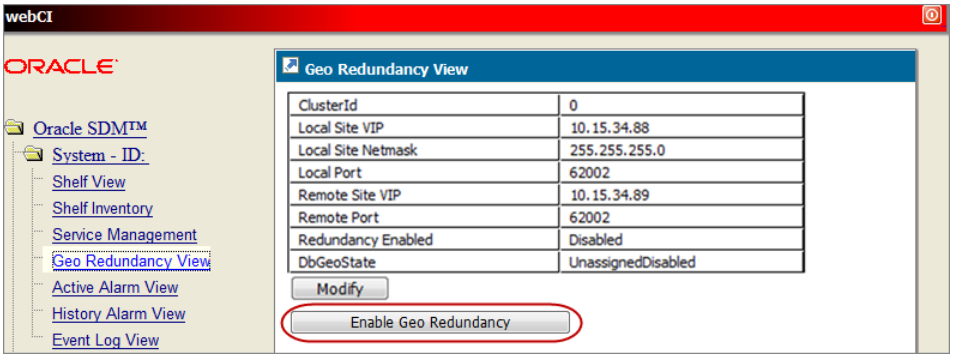
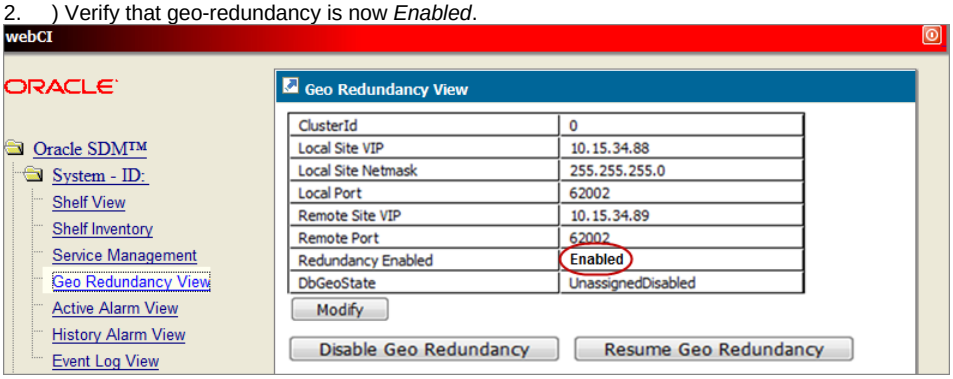
3 ☐	If backup restore failed, call the Oracle Customer Care Center.	Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE.**

6.2.5 Enable Geo-Redundancy on site A and Start Site B Active Blade

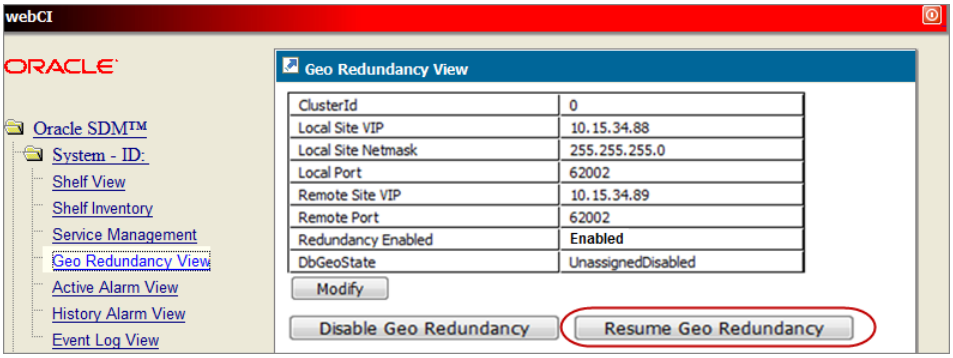
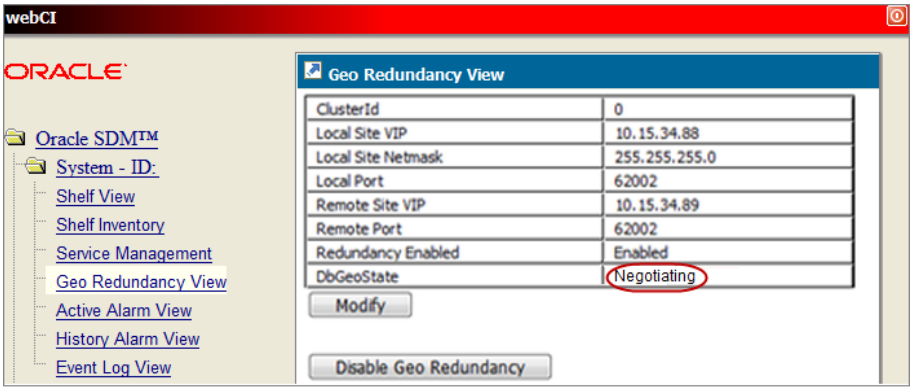
Procedure 32: Enable Geo-Redundancy and Start Active Blade

S T E P #		
	In this procedure, we will re-activate Geo-Redundancy on site B and start SPR B-1 active blade. Remember that prior to upgrade site B, geo-redundancy has been disabled on site A at section 4.1.3. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE.**	
1 ☐	Login to the WebCI.	1-) Login to the WebCI using site A OAMP VIP defined in item 1 of **Table 5**. First, open a web browser and login to url: *http://<Public OAMP Ip Address>:8080/webci* 2-) On the login page, enter `admin` user, password and click *Submit*.  **3-) Enter `root` password for server when prompted.**
2 ☐	Validate that Geo-Redundancy is Disabled.	1-) Go to *System > Geo-Redundancy View* and verify that geo-redundancy is *Disabled* and that DbGeoState is *UnassignedDisabled*. Verify that *Local Site VIP, Local Site Net mask* and *Remote Site VIP* are properly configured. 2- 

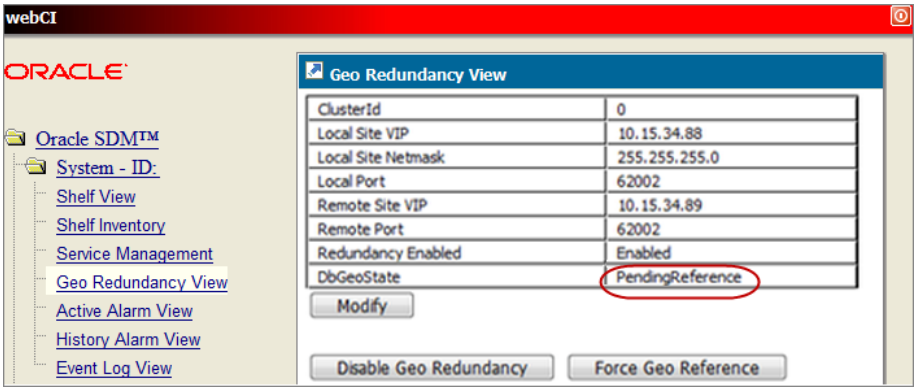
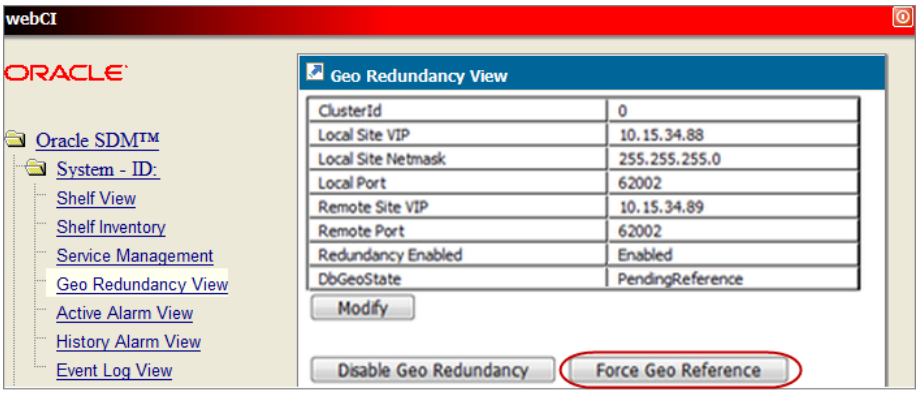
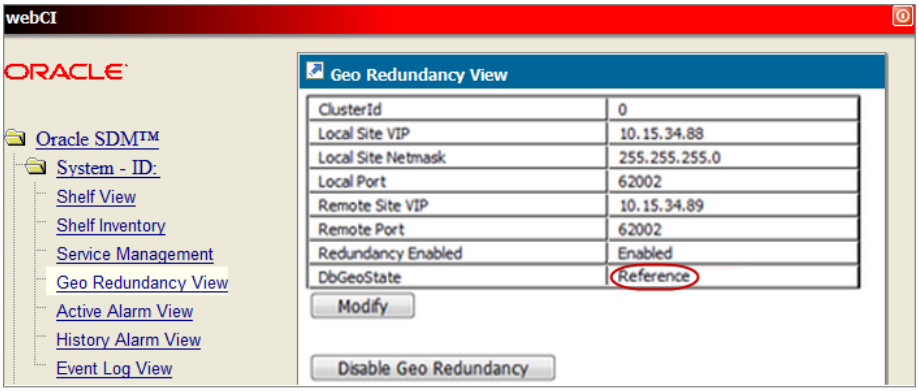
Procedure 32: Enable Geo-Redundancy and Start Active Blade

3 ☐	Enable Geo-Redundancy	1-) Go to *System* > *Geo-Redundancy View* and click on the "Enable Geo-Redundancy" button.  2.) Verify that geo-redundancy is now *Enabled*. 

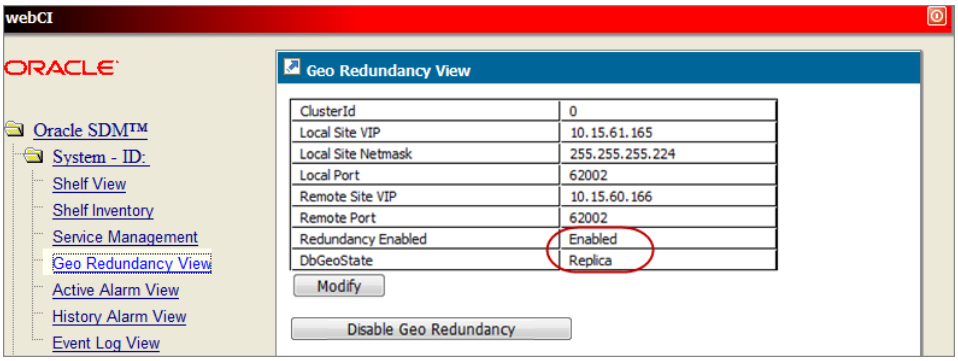
Procedure 32: Enable Geo-Redundancy and Start Active Blade

4 ☐	Resume Geo-Redundancy	1-) Click on the Resume Geo-Redundancy button.  2-) Wait for synchronization to complete. The DbGeoState will remain in Negotiating for 3 to 10 minutes. 

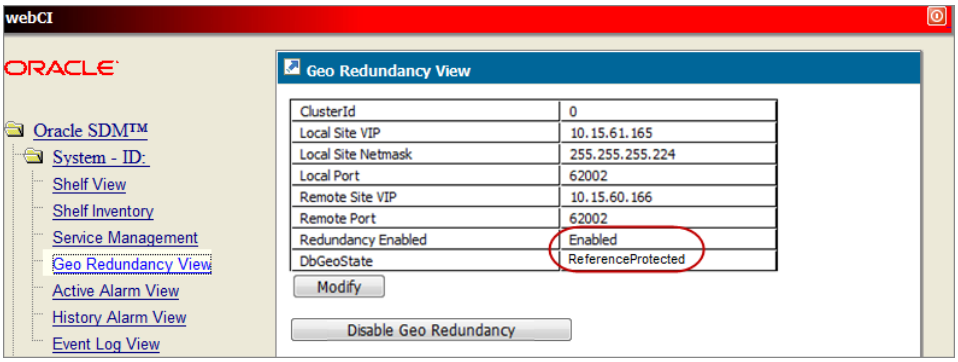
Procedure 32: Enable Geo-Redundancy and Start Active Blade

5 ☐	Configure Site A as Reference.	1-) Still Site A, verify that DbGeoState ends remaining in the *PendingReference* state.  2-) Click on the *Force Geo Reference* button to switch DbGeoState to *Reference*.  3-) Verify that DbGeoState changes to the *Reference* state. 
6 ☐	Connect to the SPR B-1 blade through ssh with the root account using the IP address recoreded as item 7 in **Table 5**.	1-) For local workstation, login using ssh to server IP address using **`root`** account: **`$ ssh root@xx.xx.xx.xx`** **`root@xx.xx.xx.xx's password:`** **`Last login: Mon May  7 15:47:25 2012 from 10.26.3.35`** 2-) Enter **`root`** password for server when prompted.

Procedure 32: Enable Geo-Redundancy and Start Active Blade

7 ☐	Start SPR B-1 server blue service	1-) Start SPR B-1 blue service **`# service blue start`** 2-) Wait for initialization to complete by waiting for the shell prompt to come back.
8 ☐	Login to the WebCI.	1-) Login to the WebCI using site B OAMP VIP defined in item 6 of **Table 5**. First, open a web browser and login to url: *http://<Public OAMP Ip Address>:8080/webci* 2-) On the login page, enter `admin` user, password and click *Submit*.  3-) Enter the **`root`** password for server when prompted.
9 ☐	Validate that Geo-Redundancy is Enabled and Replica.	1-) Go to *System > Geo-Redundancy View* and verify that geo-redundancy is *Enabled* and that DbGeoState is *Replica*. 
10 ☐	Re-log to Site A WebCI.	1-) Login to the WebCI using site B OAMP VIP defined in item 1 of **Table 5**. First, open a web browser and login to url: *http://<Public OAMP I Address>:8080/WebCI* 2-) On the login page, enter `admin` user, password and click *Submit*.  3-) Enter the **`root`** password for server when prompted.

Procedure 32: Enable Geo-Redundancy and Start Active Blade

11 ☐	Validate that Geo-Redundancy is now ReferenceProtected.	1-) Go to *System > Geo-Redundancy View* and make sure that DbGeoState is ***ReferenceProtected***. 
12 ☐	If server backout failed, call the Oracle Customer Care Center.	Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.

6.2.6 Start standby blade, front-end-blades and re-distribute traffic

Procedure 33: Start standby blade, front-end-blades and re-distribute traffic

S T E P #	In this procedure, we will start SPR B-2 standby blade and re-distribute SH and provisioning traffic between site A and site B. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	

1 ☐	Connect to the SPR B-2 blade through ssh with root account using IP address recorded in item #9 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account:
		`$ ssh root@xx.xx.xx.xx`
		`root@xx.xx.xx.xx's password:`
		`Last login: Mon May 7 15:47:25 2012 from 10.26.3.35`
		
		2-) Enter **root** password for server when prompted.

2 ☐	Start SPR B-2 server blue service	1-) Start SPR B-2 blue service `# service blue start` 2-) Wait for initialization to complete by waiting for the shell prompt to come back. This step may take significant amount of time since the whole database need to resynchronize with active blade SPR B-1.
3 ☐	Repeat steps 1 and 2 for all front-end blades defined in item #12 of **Table 5**.	
4 ☐	Redistribute SH and provisioning traffic to Site A and B SPRs	1-) Restore traffic and provisioning on site A and Site B. The procedure to switch traffic and provisioning is outside the scope of this procedure.
5 ☐	Validate SH traffic and provisioning is working.	At this point, validation shall be done to verify that provisioning and SH traffic is working properly.

6 ☐	If server backout failed, call Oracle Customer Care Center.	Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.

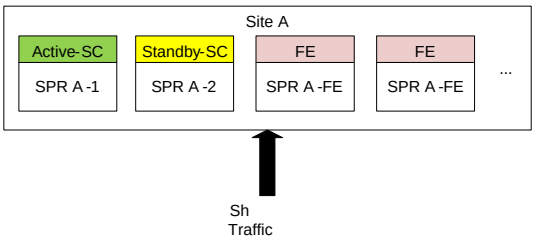
6.3 Rollback to 9.0.x in non-geo-redundant configuration

This procedure is used to rollback a non-geo-redundant site to 9.0.x from 9.3.0 build.

Prior to execute this procedure, the following material is required:

- SPR 9.3 ISO stored in /var/TKLC/upgrade/ directory.
- Ensure patches (if required) for 9.0 are stored in /var/TKLC/SDM/patches for all blades to be rolled back. These patches were copied to a non-SDM location (e.g. /export) in the setup procedure of Section 3.2.

The initial setup is:



Where at least one server has been upgraded to 9.3 FOA/GA build. This rollback procedure will restore the database backup taken prior to executing the upgrade procedure.

This rollback procedure will create an outage of signaling and provisioning.

6.3.1 Stop all servers

Procedure 34: Stop all servers

STEP #	The first step is to stop all servers. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	Connect to the SPR A-1 blade through ssh with root accout using IP address recorded in item #7 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2-) Enter **root** password for server when prompted.
2 ☐	Stop the blue service	1-) Stop "blue" service **# service blue stop** 2-) Wait for initialization to complete by waiting for the shell prompt to come back.
3 ☐	Repeat steps 1 and 2 for SPR A-2 and SPR A-FE.	
4 ☐	Proceed with the next procedure	

6.3.2 Rollback all blades

Procedure 35: Rollback all blades

S T E P #	Provides the step to rollback SPR blades to 9.0.x_x.x.x. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.	
1 ☐	Connect to the SPR A-1 blade through ssh with root accout using IP address recorded in item #11 of **Table 5**.	1-) For local workstation, login using ssh to server IP address using **root** account: **$ ssh root@xx.xx.xx.xx** **root@xx.xx.xx.xx's password:** **Last login: Mon May 7 15:47:25 2012 from 10.26.3.35** 2-) Enter **root** password for server when prompted.
2 ☐	Mount the SDM 9.3 ISO on /mnt/upgrade/.	1) Call mount command to verify if SDM 9.3 ISO is already mounted **# mount** **/dev/mapper/vgroot-plat_root on / type ext3 (rw)** **proc on /proc type proc (rw)** **sysfs on /sys type sysfs (rw)** **devpts on /dev/pts type devpts (rw,gid=5,mode=620)** **/dev/sda1 on /boot type ext3 (rw)** **tmpfs on /dev/shm type tmpfs (rw)** **/dev/mapper/vgroot-SDM on /var/TKLC/SDM type ext3 (rw)** **none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)** **none on /proc/fs/vmblock/mountPoint type vmblock (rw)** **/var/TKLC/upgrade/ 872-2564-101-9.3.0_1.12.0-SDM-x86_64.iso on /mnt/upgrade type iso9660 (ro,loop=/dev/loop0)** If ISO is already mounted on /mnt/upgrade, go to next step (Rollback the server to source release). 2) Mount the SDM 9.3 ISO on /mnt/upgrade **# loopMount -ro /var/TKLC/upgrade/<SDM 9.3 ISO file> /mnt/upgrade** 3) Verify that the ISO has been mounted successfully **# mount** **/dev/mapper/vgroot-plat_root on / type ext3 (rw)** **proc on /proc type proc (rw)** **sysfs on /sys type sysfs (rw)** **devpts on /dev/pts type devpts (rw,gid=5,mode=620)** **/dev/sda1 on /boot type ext3 (rw)** **tmpfs on /dev/shm type tmpfs (rw)** **/dev/mapper/vgroot-SDM on /var/TKLC/SDM type ext3 (rw)** **none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)** **none on /proc/fs/vmblock/mountPoint type vmblock (rw)** **/var/TKLC/upgrade/ 872-2409-101-9.3.0_1.12.0-SDM-x86_64.iso on /mnt/upgrade type iso9660 (ro,loop=/dev/loop0)**

Procedure 35: Rollback all blades

3 ☐	Rollback the server to source release.	1) Using UGWRAP, initiate a backout.
		# /mnt/upgrade/upgrade/ugwrap -release=9.0 --backout
		
		2-) When the console ask “Continue backout?”, type “y” and press enter key.
		
		`[root@tpdvm18 9.0]# /mnt/upgrade/upgrade/ugwrap --backout --release=9.0`
		`IN> BlueUpgrade::new()`
		
		`OUT> BlueUpgrade::new()`
		
		`Initializing Upgrade Wrapper...`
		`Executing any special platform directives`
		`Setting up application for install/upgrade`
		`Running backout_server script...`
		`Starting backout_server...`
		`Verifying that backout is possible.`
		
		`Current platform version: 5.1.1-73.5.3`
		`Backing out to platform version: 5.1.1-73.5.3`
		
		`compare_platform_versions (5.1.1-73.5.3, 5.1.1-73.5.3)`
		`compare with major upgrade boundary (3.0.0-60.0.0, 4.2.4-70.90.0)`
		`compare with no backout boundary (4.0.0-70.0.0, 4.2.4-70.90.0)`
		`Backout Date: 05/23/2012 18:22:39 UTC`
		`Continue backout? [y/N]: y`
		`Stopping cron service...`
		
		NOTE: This step may generate a lot of output can take a significant amount of time since it needs to rollback the OS to a previous TPD version. Activity can be monitored by looking at following log file:
		▪ **/var/TKLC/log/upgrade/upgrade.log**
		▪ **/var/TKLC/log/upgrade/ugwrap.log**
		▪ **/var/TKLC/log/upgrade/BlueUpgrade.pm.log**
		▪ **/var/log/messages**
		
		`Server rollback succeed`
		
		Note: Please ensure that all patches have been applied.

Procedure 35: Rollback all blades

4 ☐	Wait for the rollback to succeed.
	
	On active SC blade (SPR-A1) and front-end (SPR-FE), the rollback succeed when the message "Server rollback succeed" appears.
	
	On standby SC, the output will indicate that the rollback failed: "Failed to rollback server config"[3]. However, discard this message and monitor the output in /var/TKLC/log/upgrade.log.
		Wait for the rollback to succeed on SPR-A1 and SPR-FE
		
		`Starting syscheck: [ OK ]`
		`Enabling applications on the server...`
		`Applications Enabled.`
		`Running /usr/TKLC/plat/bin/service_conf reconfig`
		`WARNING::Service RC script (/etc/rc.d/init.d/blueBoot) does not exist`
		`WARNING::or is not executable!`
		`Backout is complete. A reboot of the server is now required.`
		`IN> BlueUpgrade::new()`
		
		`OUT> BlueUpgrade::new()`
		
		`Initializing Upgrade Wrapper...`
		`No methods to run in run queue...`
		`Re-enabling application components...`
		`Rollbacking config`
		
		`Executing [/var/TKLC/SDM/upgrade/scripts/rollbackConfig.sh &> /var/TKLC/log/upgrade/BlueUpgrade.pm.log]`
		
		`Server rollback succeed`
		
		Note: Please ensure that all patches have been applied.
		
		Wait for the rollback to succeed on SPR-A2 (standby SC) by monitoring /var/TKLC/log/upgrade.log and wait for the message "Backout is complete".
		
		1363621093:: Backout is complete. A reboot of the server is now required.

5 ☐	Validate TPD is still at version 5.1.1_73.5.3.	**`# getPlatRev`** `5.1.1-73.5.3`
6 ☐	If server backout failed, call the Oracle Customer Care Center.	1-) Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.
7 ☐	Reboot the server	**`#reboot`** 1-) After reboot, blue service shall automatically restart - if it's not starting, start manually with : **service blue start** 2-) Wait for blue service to come-up completely before starting remaining servers. 3-) The reboot is complete when you can start the BlueCli on that blade: `# BlueCli –u admin`
8 ☐	Repeat steps 1 to 7 on server SPR A-2 and SPR A-FE.	

[3] When upgrading the standby blade in non-georedundant mode, no backup is taken locally since the blade is re-synchronized from the active server. Therefore, the upgrade code, which is the same used on all blade; try to reload the backup initially taken. Since this backup does not exist, the message "Failed to rollback server config" is print as end result. However, the important point here is that RPMs have been correctly rollbacked insce the DB will be resynchronized from the active blade.

Procedure 35: Rollback all blades

9 ☐	If the server backout failed, call the Oracle Customer Care Center.	Should this procedure fail, contact the Oracle Customer Care Center and ask for **UPGRADE ASSISTANCE**.

APPENDIX A. ACCESSING ORACLE'S CUSTOMER SUPPORT SITE

Access to the Oracle's Customer Support site is restricted to current Oracle customers. This section describes how to log into the Oracle Customer Support site and how to locate upgrade procedures. Viewing these files requires Adobe Acrobat Reader.

1. Go to the Oracle Tekelec Customer Support login page at https://support.tekelec.com/index.asp
2. Enter your assigned username and chosen password and click **Login.**

   Or, if you do not have access to the Customer Support site, click **Need an Account?**
   Follow instructions on the screen.

   Note: After 20 minutes of inactivity, you will be logged off, and you must repeat this step to regain access.
3. After successful login, select a product from the Product Support drop-down menu.
4. Select a release number from the Product Support Release drop-down menu.
5. Locate the Upgrade Procedures section.
6. To open the procedure in the same window, click the procedure name. To open the procedure in a new window, right-click the procedure name and select **open in New Window**.
7. To download the procedure, right-click the procedure name and select **Save Target As**.