Oracle® Communications Local Service Management System

Full Upgrade Guide



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ORACLE

Oracle Communications Local Service Management System Full Upgrade Guide, Release 14.1

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D SWOPS SIGN OFF.

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E MY ORACLE SUPPORT

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What's New in This Guide

This section introduces the documentation updates for Release 14.1 in Oracle Communications LSMS Full Upgrade Guide:

Release 14.1 – G63331-01, October 2026

- Made the following updates in the General Description section:
  - Updated the supported release versions.
  - Added the DIU table listing the source and target versions for Dual Image Upgrade.
  - Added the Dual Image Upgrade Path figure.
- Made the following updates in the FULL UPGRADE PROCEDURES section:
  - Updated the licensing guidance note in the Upgrade Timeline for LSMS Procedure Execution Order section.
  - Added a table in the DIU Upgrade Steps section, describing the procedure sequence for preparation, database backup, server upgrades, and post-upgrade health checks.
  - Updated the TPD version references in Procedure 8, IPM MPS Server with 64 Bit TPD.
  - Removed the root password entry step from Procedure 12, LSMS Initial Configuration.
- Added the DIU Upgrade Procedure section along with the following procedures:
  - Procedure 25, DIU Upgrade Server B
  - Procedure 26, DIU Upgrade Server A

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1 INTRODUCTION

1.1 Purpose and Scope

This document is designed to detail the steps necessary to upgrade the functionality of the LSMS 13.5.X. on E5APPB-02 to the LSMS 14.1.0.Y on the E5APPB-02 cards.

This work is intended to be non-intrusive to the signaling network traffic and is to be performed within the limits of a normally scheduled maintenance window unless otherwise stated.

It will be necessary to halt the provisioning activity during the execution of the procedures outlined herein while a full database backup is being taken. Normal provisioning can resume once the full upgrade has completed. For any issues incurred in executing any part of this document, follow the contact/escalation list.

The individual executing this procedure must be experienced and well proficient with the following platforms and technologies.

- Unix/Linux Admin
- VI Editor
- IP Networking
- Oracle LSMS Platform E5-APP-B (TPD through Initial Implementation)

If you do not have these skills or if you are not completely comfortable working in Unix or Linux system environment,



STOP - DO NOT PROCEED

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1.2 References

1. *Formal Peer Review, PD001866, latest version*
2. *Work Instruction Template, TM005023, latest version*
3. *Oracle Quality Manual, latest version*
4. *TPD Initial Product Manufacture User's Guide, 909-2130-001, Latest revision, Oracle*
5. *ELAP 11.0 Full Upgrade/Installation Procedure, Current Version, Oracle*
6. *Query Server Installation and Upgrade Instructions, Latest Version, Oracle*

1.3 Acronyms

Table 1-1 Acronyms

BIOS	Basic Input Output System
DB	Database
E5-APP-B/E5APPB	Eagle5 Application Card class B cpu/board
E5APPB-02	E5 Based Application card installed with **480**G SSD Hard Drive
ELAP	Eagle LNP Application Processor
IPM	Initial Product Manufacture
LSMS	Local Service Management System
NAS	Network Attached Storage
NPAC	Number Portability Administration Centre
QS	Query Server
SERVDI	Support ELAP Reload Via Database Image
TPD	Tekelec Platform Distribution
MPS	Multi Purpose System

1.4 Definitions

Table 1-2 Definitions

Active LSMS	LSMS on which the sentry is running and it takes updates from the NPAC.
Standby LSMS	LSMS on which data is replicated from the Active LSMS.
System health check	Procedure used to determine the health and status of the LSMS server, typically performed using the TPD syscheck utility.

1.5 Terminology

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

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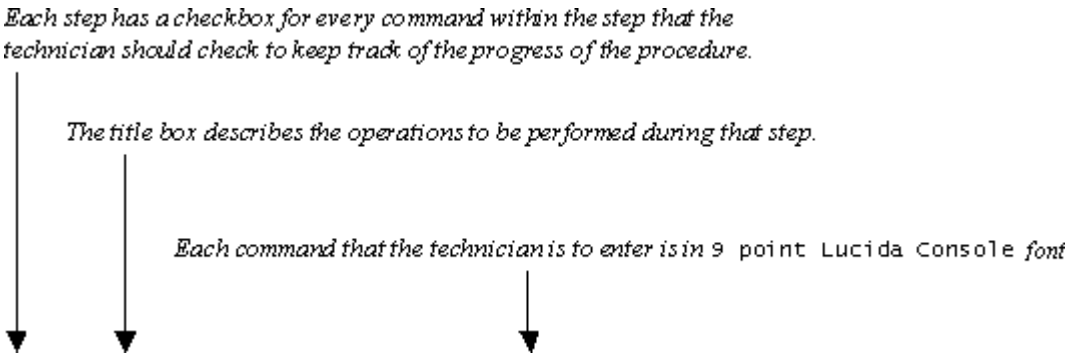


Table 1-3 Example of a step that indicates the Server on which it needs to be executed

1 □	MPS A: Verify all materials required are present	Materials are listed in Material List (Section 1.6)

Table 1-4 Example of a step that needs to be executed on both MPS A and MPS B servers

1.	□1 A	□1 B	**MPS X:** Insert USB.	Insert media in USB drive

1.6 Required Materials

- LSMS 14.1 works on OL8.x and needs license key files for Marben OSI and TMN Toolkit from Artifex for successful communication between LSMS and NPAC. Make sure to get the two license key files from Artifex before the scheduled upgrade date. Refer to LSMS 14.1 Release Notes, section 3.3: Marben OSI and TMN Toolkit license key files, for details. Make sure to start the process at least 7 days before the scheduled upgrade date.
- Two (2) target-release TPD USBs
- Two (2) target-release LSMS USBs or a target release LSMS ISO file.
- A terminal and null modem cable to establish a serial connection.
- 100mbps link is required for database transfer to remote server.
- Remote Server or NAS server to store DB Backup before migration.
- TMN and Marben OSI license for OL8 server
- Type of Network configuration single/segmented
- System configuration information like NTP Server IP, App IP, ELAP IP etc. Write down the system configuration information.

```
App IP: _____________________
App Gateway: _____________________

NTP Server IPs: _____________________

ELAP Server IPs: _____________________
NPAC Server IPs: _____________________
NPAC Customer ID: _____________________
NMS IPs: _____________________
```


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```
Other IPs required: _____________________

Remote Server IP to copy DB Backup: _____________________
```

- Passwords for users on the local system:

Table 1-5 User Password Table

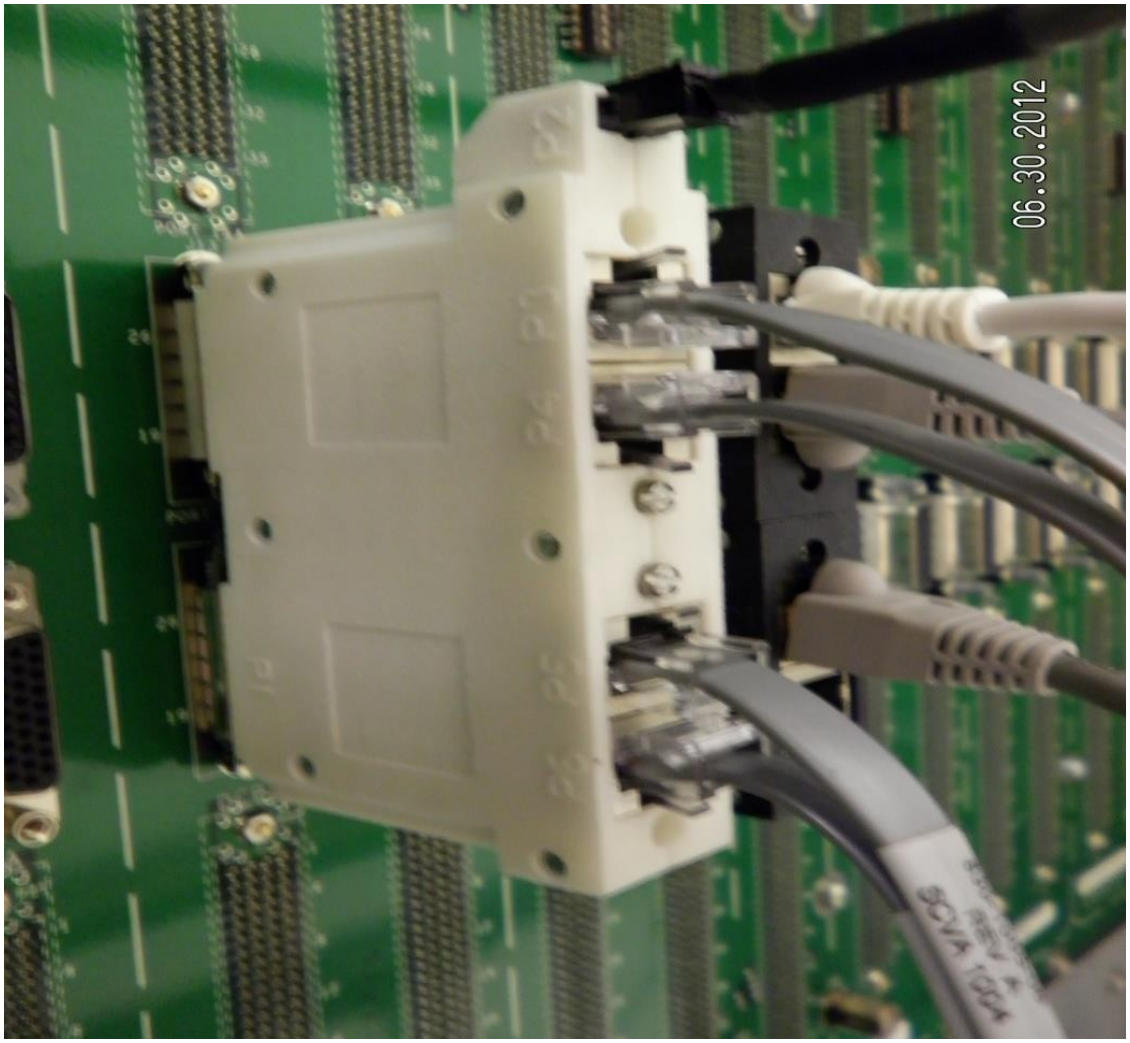
LSMS USERS		
login	**MPS A password**	**MPS B password**
lsmsmgr		
lsmsadm		
lsmsall		
lsmsuext		
lsmsuser		
lsmsview		
root		
mysql dbroot user		
admusr		
Command-line		

> **Note**
>
> After the MPS servers are IPM'ed with TPD 7.5.x, then "root" user access is disabled. "admusr" can be used if required to access the MPS servers. After the installation of LSMS application the "root" user access is again enabled.

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1.7 E5APPB Server (Rear)

Figure 1-1 E5-APP-B Server (Rear)



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2 GENERAL DESCRIPTION

This document defines the step-by-step actions performed to execute a software full upgrade to E5APPB-02. The LSMS application can be installed or upgraded based on the table below.

Table 2-1 Install-Full Upgrade paths for E5APPB-02

TPD Release for IPM	LSMS Initial Installation Release
8.10.1.5.0_150.14.0 or later	14.1.Y
Full upgrade Source Release	**Full upgrade Destination Release**
13.5.X	14.1.0.Y
14.0.0.4	14.1.0.Y

Table 2-2 DIU Source and Target Version

DIU Source version	DIU Target version
14.0.0.4	14.1.0.0.Y

> **Note**
>
> LSMS 14.1.Y is supported on E5APPB-02 cards only.

The LSMS upgrade paths are shown in the figures below. The general timeline for all processes to perform a software upgrade, from pre-upgrade backups to a final system health check, is also included below.

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Figure 2-1 Full upgrade Path - LSMS 13.5.X to 14.1.Y

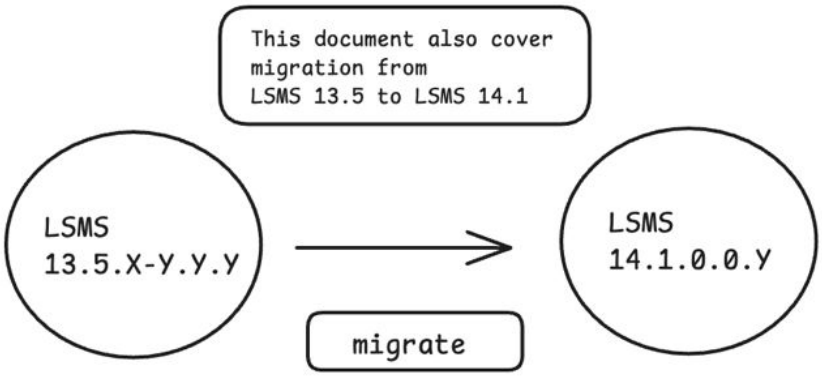
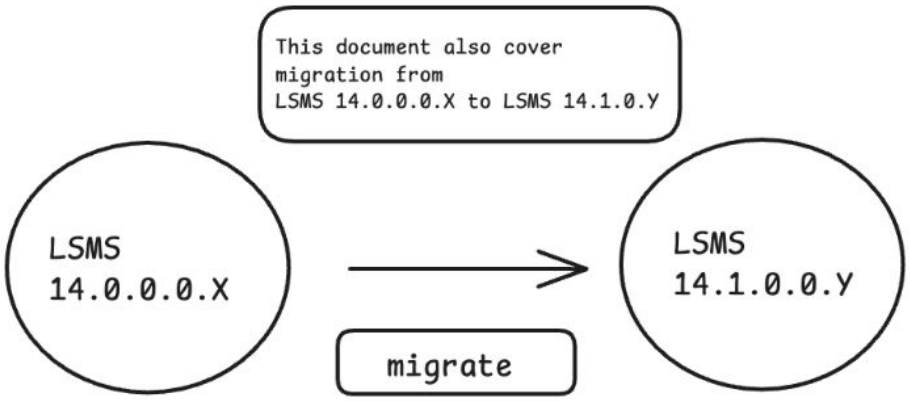
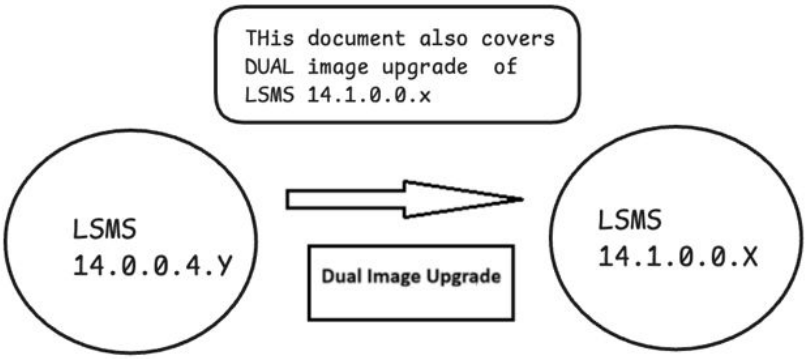


Figure 2-2 Full upgrade Path - LSMS 14.0.0.X to 14.0.0.Y



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Figure 2-3 Dual Image Upgrade Path – LSMS 14.1.0.0.X



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3
FULL UPGRADE PROCEDURES

3.1 Upgrade Timeline for LSMS Procedure Execution Order

> **Note**
>
> Before starting the procedure, make sure you have all the required information listed in Section 1.6. Do not proceed further until you have all required information. Missing any information will be fatal after upgrading.

3.1.1 Preparation phase

A full upgrade from LSMS 13.5 to LSMS 14.1 will require a new license. However, for an upgrade from LSMS 14.0 to LSMS 14.1, a new license is not required. **Contact My Oracle Support (Appendix E) to procure the licenses.**

> **Note**
>
> Backup the existing license before starting the upgrade.

Table 3-1 Timeline table for full upgrade preparation

LSMS 1A				LSMS 1B		
Procedure	**Task**	**1A**	**Task Start time (min)**	**1B**	**Task**	**Procedure**
Procedure 1	Setup upgrade environment	5	0			
			5	5	Setup upgrade environment	Procedure 1
Procedure 2	Pre Full upgrade Health Check	5	10	5	Pre Full upgrade Health Check	Procedure 2
Procedure 3	Verify LSMS QS	10	20			
			30			

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3.1.2 Maintenance Window Tasks

Table 3-2 Timeline table for Maintenance Window Task

LSMS 1A					LSMS 1B			
Procedure	**Access Method**	**Task**	**1A**	**Task Start time (min)**	**1B**	**Task**	**Access Method**	**Procedure**
Procedure 5 Procedure 4	Direct SSH	Disconnect NPAC from LSMS Disconnect ELAP from LSMS	10	0				
Procedure 6 Procedure 7	Direct SSH	Backup LSMS DB Transfer Database to Remote Server	120	10	100	IPM MPS B server and NAS server	**Minicom mate** for MPS B and **Minicom nas** for NAS server	Procedure 8
						Pre-Install Configuration Install the Application Configure Network interfaces using platcfg utility Configure Time Zone and Clock. TMN Toolkit and Marben OSI License Installation	Minicom mate Minicom mate Minicom mate Minicom mate Minicom mate	Procedure 9 Procedure 11 Procedure 10 Procedure 13 Procedure 16
Procedure 8 Procedure 9	Minicom mate	IPM MPS A server Pre-Install Configuration	60	130				
Procedure 11	Minicom mate	Install the Application	25	190				
Procedure 12	Minicom mate	LSMS Initial Configuration	15	215				
Procedure 13	Minicom mate	Configure Time Zone and Clock.	5	230				

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Table 3-2 (Cont.) Timeline table for Maintenance Window Task

LSMS 1A					LSMS 1B			
Procedure	Access Method	Task	1A	Task Start time (min)	1B	Task	Access Method	Procedure
Procedure 14 OR Procedure 15.	Minicom mate	Network Configuration for LSMS Cards. ***Note**: For Single Subnet Configuration execute **Procedure 14** and for Segmented Subnet Configuration execute **Procedure 15.**	10	235				
Procedure 16	Minicom mate	TMN Toolkit and Marben OSI License Installation	5	245				
Procedure 17	Minicom mate	Start LSMS services	10	250				
Procedure 18	Minicom mate	Post Configuration Health Check	5	260				
Procedure 19	Minicom mate	Restore Database	60	265				
Procedure 20	Minicom mate	Connect LSMS 14.1.X to NPAC	15	325				
Procedure 22	Direct SSH	SSH Key Exchange Between ELAP and LSMS	15	340				
Procedure 23	Minicom mate	Connect LSMS 14.1.X to ELAP	10	350	5	Accept the upgrade	Direct SSH	Procedure 24
Procedure 24	Minicom mate	Accept the upgrade	5	355				
		Upgrade Completed		355				

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3.1.3 Post Upgrade Phase

Table 3-3 Post Upgrade Phase

LSMS 1A				LSMS 1B		
Procedure	**Task**	**1A**	**Task Start time (min)**	**1B**	**Task**	**Procedure**
Procedure 21	Export the Database from LSMS 14.1.X to the Query Server	60	0			
			60			

3.2 Install Procedures

This procedure will be executed for customers who are installing LSMS application on new server or are not using LSMS application before this release. All other customers migrating from 13.5 release will have to follow Full Upgrade Procedure.

3.2.1 Maintenance Window Tasks

Table 3-4 Timeline table for Maintenance Window Task

LSMS 1A					LSMS 1B			
Procedure	**Access Method**	**Task**	**1A**	**Task Start time (min)**	**1B**	**Task**	**Access Method**	**Procedure**
Procedure 8 Procedure 9	Direct Serial/Minicom Connection	IPM MPS A server Pre-Install Configuration	120	0	0	IPM MPS B server and NAS server Pre-Install Configuration	Direct Serial/ Minicom Connection	Procedure 8 Procedure 9
Procedure 11 Procedure 13		Install the Application Configure Time Zone and Clock.				Install the Application Configure Time Zone and Clock.		Procedure 11 Procedure 13
Procedure 12	Direct Serial/Minicom Connection	LSMS Initial Configuration	15	120				
Procedure 13	Direct Serial/Minicom Connection	Configure Time Zone and Clock.	5	135				

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Table 3-4 (Cont.) Timeline table for Maintenance Window Task

LSMS 1A					LSMS 1B			
Procedure	**Access Method**	**Task**	**1A**	**Task Start time (min)**	**1B**	**Task**	**Access Method**	**Procedure**
Procedure 14 OR Procedure 15	Direct Serial/Minicom Connection	Network Configuration for LSMS Cards. ***Note**: For Single Subnet Configuration execute **Procedure 14** and for Segmented Subnet Configuration execute **Procedure 15.**	10	140				
Contact Oracle Support	Procure TMN License	Procure TMN License **Note:** Timing to acquire TMN license may wary depending on Artifex team availability.	-		-	Procure TMN License **Note:** Timing to acquire TMN license may wary depending on Artifex team availability.	Procure TMN License	Contact Oracle Support
Procedure 16	Direct SSH	TMN Toolkit and Marben OSI License Installation	5	150				
				155	5	TMN Toolkit and Marben OSI License Installation	Direct SSH	Procedure 16
Procedure 17	Direct SSH	Start LSMS services	10	160				
				170	10	Start LSMS services	Direct SSH	Procedure 17
Procedure 18	Direct SSH	Post Configuration Health Check	5	180				
				185	5	Post Configuration Health Check	Direct SSH	Procedure 18
Procedure 20	Direct SSH	Connect LSMS 14.1.X to NPAC	15	190				

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Table 3-4 (Cont.) Timeline table for Maintenance Window Task

LSMS 1A					LSMS 1B			
Procedure	**Access Method**	**Task**	**1A**	**Task Start time (min)**	**1B**	**Task**	**Access Method**	**Procedure**
Procedure 23	Direct SSH	Connect LSMS 14.1.X to ELAP	10	205	5	Accept the upgrade	Direct SSH	Procedure 24
Procedure 24	Direct SSH	Accept the upgrade	5	215				
		Upgrade Completed		220				

3.3 DIU upgrade Steps

This is to be performed when upgrading from LSMS 14.0.0.4.Y to LSMS 14.1.0.X.0

Table 3-5 DIU Upgrade

Procedure	Access Method	Task	1A	Task Start time (min)
Procedure 1	Direct SSH	Setup DIU environment (Both 1A and 1B)	10	0
Procedure 2	Direct SSH	Pre DIU Health Check (Both 1A and 1B)	10	10
Procedure 3	Direct SSH	Verify LSMS QS	10	20
Procedure 6 Procedure 7	Direct SSH	Backup LSMS DB Transfer Database to Remote Server	120	20
Procedure 25	Console login at B	DIU on 1B server	60	140
Procedure 18	Direct serial/ console login	Post DIU Health Check on 1B	5	200
Procedure 26	Console login at A	DIU on 1A server	60	205
Procedure 18	Direct serial/ console login	Post DIU Health Check on 1A	5	265

3.4 Pre Full upgrade Steps

Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number. Should this procedure fail, Contact My Oracle Support following the instructions on the Appendix E.

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3.4.1 Procedure 1 SETTING UP FULL UPGRADE ENVIRONMENT

Table 3-6 Procedure 1 - Setting Up Full upgrade Environment

STEP #	A	B	This procedure sets up the full upgrade environment. Estimated time: 5 minutes	

1.	□	□	**MPS X:** Login as root to MPS	SSH to MPS IP:
				`login: root`
				`Password: <root_password>`

2.	□	□	**MPS X:** Start capture file.	Start a capture file using Iso Console, or by starting a local screen session and capturing its output.
3.	□	□	**MPS X:** Access mate MPS via serial console	`# minicom mate`
4.	□	□	**mate MPS:** Login as root.	`console login: root` `Password: <root_password>`
This procedure is complete!				

3.4.2 Procedure 2 PRE-FULL UPGRADE SYSTEM HEALTH CHECK

> **Note**
>
> This procedure may be executed outside of the maintenance window.

Table 3-7 Procedure 2 PRE-FULL UPGRADE SYSTEM HEALTH CHECK

STEP #	This procedure determines the health of the MPS before and after full upgrade. Estimated time: 5 minutes	
□ 1.	**MPS A and B:** Log in to the server as the user “root”.	`Login: root` `Password: <root_password>`

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Table 3-7 (Cont.) Procedure 2 PRE-FULL UPGRADE SYSTEM HEALTH CHECK

STEP #	This procedure determines the health of the MPS before and after full upgrade. Estimated time: 5 minutes	

☐ 2.	**MPS A and B:** Validate date, time and time zone to ensure accuracy.	`# date`
		
		`Thu May 12 05:55:27 EDT 2016`

☐ 3.	**MPS A and B:** Run the "hastatus" command to verify the HA state of this server.	Run the following command on both LSMS A and B to verify the HA state of mated LSMS pair. `# hastatus` Verify that the hastatus of one of the servers is Active and the other is Standby. **WARNING**: If the output from the above command is anything else other than "ACTIVE" and "STANDBY", do not proceed with this procedure and contact My Oracle Support following the instructions on the Appendix E.

☐ 4.	**LSMS Standby server:** Verify that the STANDBY server's MySQL replication is functioning properly.	Run the following command to verify that MySQL replication is working correctly on the STANDBY LSMS server:
		
		`# tail /var/TKLC/lsms/logs/dbreplMon.log`
		
		If MySQL replication is functioning correctly then the following output will be observed, make sure that at least the last line of your output matches the lines below.
		
		`Thu Dec 07 05:58:12 2017 All tests passed on STANDBY`
		`Thu Dec 07 05:59:19 2017 All tests passed on STANDBY`
		`Thu Dec 07 06:00:25 2017 All tests passed on STANDBY`
		`Thu Dec 07 06:01:32 2017 All tests passed on STANDBY`
		
		WARNING: If at least the last line of your output does not match the lines above then do not proceed with this upgrade and contact My Oracle Support following the instructions on the Appendix E.

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Table 3-7 (Cont.) Procedure 2 PRE-FULL UPGRADE SYSTEM HEALTH CHECK

STEP #	This procedure determines the health of the MPS before and after full upgrade. Estimated time: 5 minutes	

5.	**LSMS Active server:**
	Verify that the ACTIVE server's MySQL replication is functioning properly.
		Run the following command to verify that MySQL replication is working correctly on the ACTIVE LSMS server:
		
		`# tail /var/TKLC/lsms/logs/dbreplMon.log`
		
		If MySQL replication is functioning correctly then the following output will be observed, make sure that at least the last line of your output matches the lines below.
		
		`Thu Dec 07 05:58:12 2017 All tests passed on ACTIVE`
		`Thu Dec 07 05:59:19 2017 All tests passed on ACTIVE`
		`Thu Dec 07 06:00:25 2017 All tests passed on ACTIVE`
		`Thu Dec 07 06:01:32 2017 All tests passed on ACTIVE`

		WARNING: If at least the last line of your output does not match the lines above then do not proceed with this upgrade and contact My Oracle Support following the instructions on the Appendix E.

☐ 6.	**MPS A and B:**
	Execute syscheck
		`# syscheck`
		`Running modules in class disk...`
		`Running modules in class services...`
		`OK`
		`OK`
		`Running modules in class system...`
		`OK`
		`Running modules in class lsmshc...`
		`OK`
		`Running modules in class hardware...`
		`OK`
		`Running modules in class proc...`
		`OK`
		`Running modules in class net...`
		`OK`
		`LOG LOCATION: /var/TKLC/log/syscheck/fail_log`

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Table 3-7 (Cont.) Procedure 2 PRE-FULL UPGRADE SYSTEM HEALTH CHECK

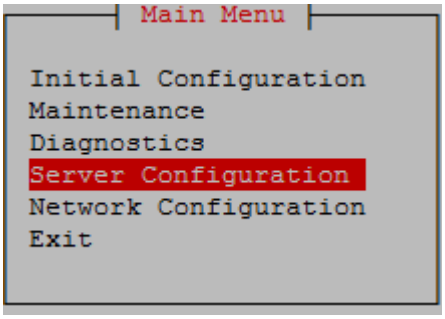
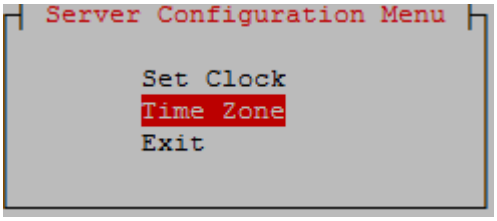
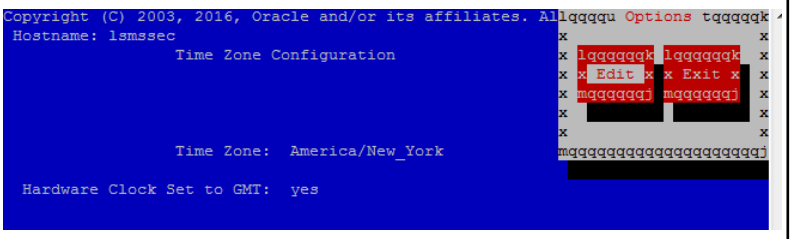
STEP #	This procedure determines the health of the MPS before and after full upgrade. Estimated time: 5 minutes	
7.	**LSMS Active server:** Capture the output of 'sentry status' command	Run the following command on the ACTIVE LSMS server to display the current LSMS sentry status: `# sentry status` **Note:** Verify that the output displays a Status of "running" for all processes; the regional processes (npacagents) may or may not be associated in the Comment field. If the output from this command displays any other Status than "running" contact My Oracle Support following the instructions on the Appendix E. Capture the output from this command and make it available to Oracle Technical Services if required.

8.	**LSMS Active server:**
	SSH to NAS server and execute syscheck.
		`# ssh backupserver`
		`# syscheck`
		`Running modules in class disk...`
		`OK`
		`Running modules in class services...`

		`OK`
		`Running modules in class system...`
		`OK`
		`Running modules in class lsmshc...`
		`OK`
		`Running modules in class hardware...`
		`OK`
		`Running modules in class proc...`
		`OK`
		`Running modules in class net...`
		`OK`
		`LOG LOCATION: /var/TKLC/log/syscheck/fail_log`

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Table 3-7 (Cont.) Procedure 2 PRE-FULL UPGRADE SYSTEM HEALTH CHECK

STEP #	This procedure determines the health of the MPS before and after full upgrade. Estimated time: 5 minutes	
☐ 9.	Note down the Time zone	Note the time zone which will be required to be configured post upgrade. `# su - lsmsmgr` Select **Server Configuration** and press **[ENTER].**  Select **Time Zone** and press **[ENTER].**  The screen shows the current time zone setting.
		

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Table 3-7 (Cont.) Procedure 2 PRE-FULL UPGRADE SYSTEM HEALTH CHECK

STEP #	This procedure determines the health of the MPS before and after full upgrade. Estimated time: 5 minutes	
10.	**Repeat on the day of the scheduled full upgrade**	All Health Checks should be repeated the day of the full upgrade. If any problems are encountered, resolve before proceeding further.
This procedure is complete!		

3.4.3 Procedure 3 VERIFY LSMS QUERY SERVER

Table 3-8 Procedure 3 - Verify LSMS Query Server

STEP #	This procedure determines if the LSMS 13.5 has an Optional Query Server. Estimated time: 10 minutes	
□1.	**LSMS Active server:** Log in to the server as the user "lsmsadm".	`Login: lsmsadm` `Password: <lsmsadm_password>`

□2.	**LSMS Active server:** Verify if the Query Server Feature is active on the LSMS System.	`$ /usr/TKLC/lsms/tools/lsmsdb -c queryservers`
		`/usr/TKLC/lsms/tools/lsmsdb: Query Server Feature is not enabled.`
		`---OR---`
		`cs2-bss2 (<LSMS Query Server IP>) Connected`
		`---OR---`
		`cs2-bss2 (<LSMS Query Server IP>) Disconnected`

□3.	**LSMS Active server:** Note down the Query Server IP Address (es).	If the Query Server exists on the LSMS System, note the IP address(es) for later use.
This procedure is complete!		

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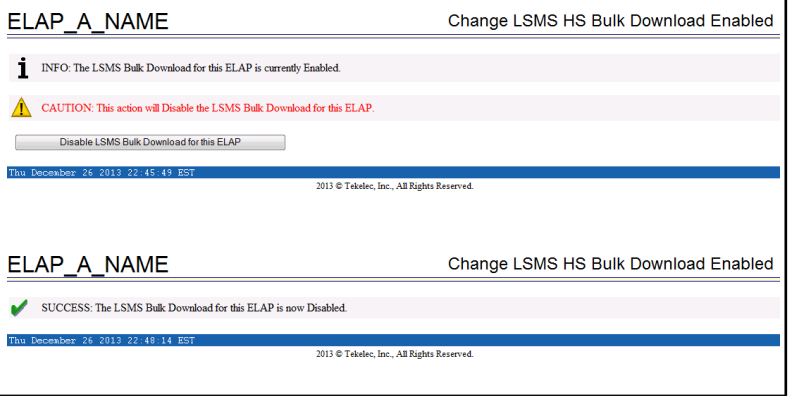
3.5 Data Backup before Full upgrade

3.5.1 Procedure 4 DISCONNECT ELAP FROM LSMS

Table 3-9 Procedure 4 - Disconnect ELAP from LSMS

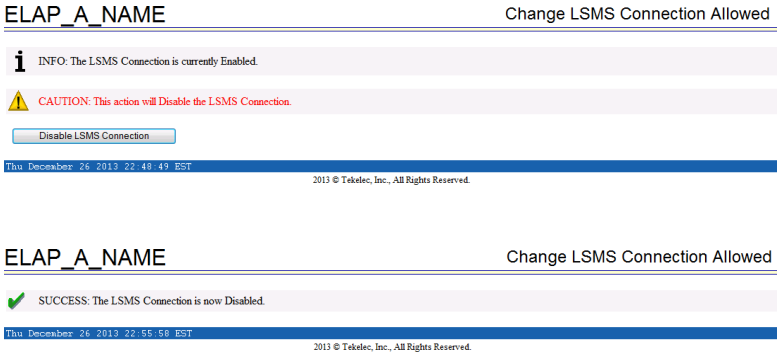
STEP #	This procedure disconnects the ELAP from LSMS.Estimated time: 5 minutes Note: This procedure needs to be executed on all the connected ELAPs.	
1.	**ELAP Active server:** Verify ELAP 10.2 install	Verify the following. 1. ELAP 10.2 is successfully installed and configured. 2. ELAP 10.2 is connected to Eagle for data download
2.	**LSMS Active server:** Log in to the server as the user “lsmsadm”.	`Login: lsmsadm` `Password: <lsmsadm_password>`

3.	**LSMS Active server:** Disconnect the connected ELAPs	`$ eagle status`
		
		Look for all connected ELAPs and disconnect each of them.
		
		`$ eagle stop <ELAP CLLI>`
		`eagle: Stopping...`
		
		`eagle: eagleagent STPA stopped at Tue Apr 26 05:48:52 2023`

4.	**ELAP Active server:** Login to ELAP GUI	Login to the ELAP (connected to LSMS) GUI through VIP as uiadmin.
5.	**ELAP Active server:** Disable the Bulk Download	Go to menu Maintenance -> LSMS HS Bulk Download -> Change Enabled Click on ‘Disable LSMS Bulk Download for this ELAP button. 

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Table 3-9 (Cont.) Procedure 4 - Disconnect ELAP from LSMS

STEP #	This procedure disconnects the ELAP from LSMS.Estimated time: 5 minutes Note: This procedure needs to be executed on all the connected ELAPs.	
6.	**ELAP Active server:** Disable the LSMS Connection	Go to menu Maintenance -> LSMS Connection -> Change Enabled Click on 'Disable LSMS Connection' button. 
7.	**All connected ELAPs:** Disconnect LSMS connection	Repeat the steps 4 to 6 for all ELAPs connected to LSMS.
This procedure is complete!		

3.5.2 Procedure 5 DISCONNECT NPAC FROM LSMS

Table 3-10 Procedure 5 - Disconnect NPAC from LSMS

STEP #	This procedure disconnects NPAC from LSMS. Estimated time: 5 minutes	
1.	**LSMS Active server:** Log in to the server as the user "lsmsadm".	`Login: lsmsadm` `Password: <lsmsadm_password>`

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Table 3-10 (Cont.) Procedure 5 - Disconnect NPAC from LSMS

STEP #	This procedure disconnects NPAC from LSMS. Estimated time: 5 minutes	

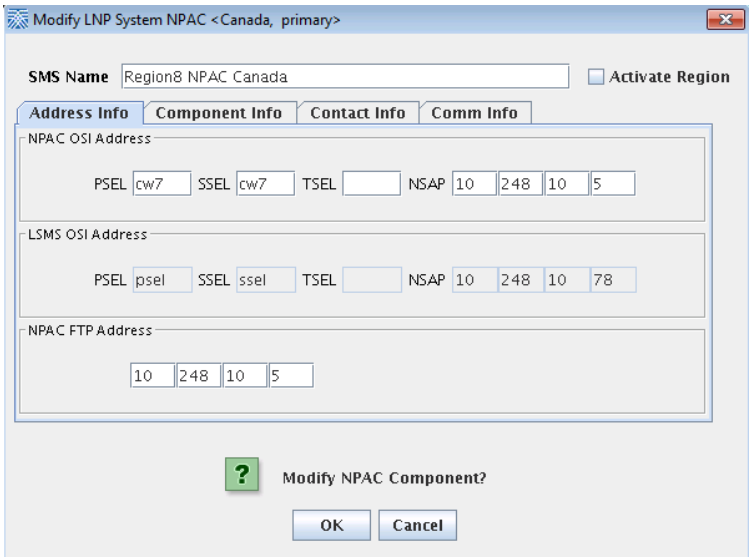
□2.	**LSMS Active server:**
	Stop all connected NPAC regions
		Run the following command to list the active NPAC regions
		
		`$ dbnames -n all -a`
		`Canada CanadaDB`
		`MidAtlantic MidAtlanticDB`
		`Midwest MidwestDB`
		`Northeast NortheastDB`
		`Southeast SoutheastDB`
		`Southwest SouthwestDB`
		`WestCoast WestCoastDB`
		`Western WesternDB`
		
		Note: The above output shall vary depending on LSMS configuration. Note: Store this output as it will be required during DB restore phase post upgrade.

		Run the following command to stop an NPAC region.
		
		`$ lsms stop <region name>`
		
		`Checking if npacagent is running. .. Yes.`
		`Stopping npacagent....`
		`OK.`
		`npacagent stopped: Wed Jan 2 05:52:42 2014`
		`Command complete.`
		
		Run the above command for all active regions.

□3.	**LSMS Active server:** Login to LSMS GUI	Login to LSMS Active GUI through VIP as 'lsmsall' user.
□4.	**LSMS Active server:** Deactivate all active regions	Click on the NPAC region. Go to the menu Configure -> LNP System -> NPAC -> Modify -> Primary Uncheck the 'Activate Region' checkbox and click 'OK'.

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Table 3-10 (Cont.) Procedure 5 - Disconnect NPAC from LSMS

STEP #	This procedure disconnects NPAC from LSMS. Estimated time: 5 minutes	
		 **Note:**Deactivate all the active NPAC regions.
This procedure is complete!		

3.5.3 Procedure 6 BACKUP LSMS DB

Table 3-11 Procedure 6 - Backup LSMS DB

S T E P #	This procedure outlines the steps to backup the LSMS DB. Estimated time: 90 minutes Note: The estimated time may differ depending on the DB size.	
1.	**LSMS Active server:** Log in to the server as the user “root”	`Login: root` `Password: <root_password>`
2.	**LSMS Active server:** Record DB counts	`# lsmsdb –c counts`

3.	LSMS Active and Standby Server:
	Disable LSMS backup on both A and B servers
		Run the following command on both LSMS A and B to disable LSMS backup:
		`# sed -i '/^#/! {/lsmsbkp_wrapper/ s/^/#/}'`
		`/etc/cron.d/lsmsbkp.cron`

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Table 3-11 (Cont.) Procedure 6 - Backup LSMS DB

STEP #	This procedure outlines the steps to backup the LSMS DB. Estimated time: 90 minutes Note: The estimated time may differ depending on the DB size.	
4..	**LSMS Active server:** Remove existing DB snapshots	`# rm –rf /var/TKLC/lsms/free/mysql-snapshot-*` `# rm –rf /var/TKLC/lsms/free/snapinfo.sql`

5.	**LSMS Active server:**
	Enable "QUERY_SERVER" and "RESYNCDB_QUERY_SERVER" Feature
	Note: Even if Query Server is not connected this step is required to take backup
		Run below command to verify "QUERY_SERVER" and "RESYNCDB_QUERY_SERVER" feature is enabled:
		
		`# lsmsdb -c features | grep –w QUERY_SERVER`
		`# lsmsdb -c features | grep –w RESYNCDB_QUERY_SERVER`
		
		If these features are not enabled then run the below commands to enable them:
		
		`# su – lsmsadm`
		`$ dbcfginternal QUERY_SERVER Y`
		
		Provide the "Customer Service ID"
		
		`$ dbcfginternal RESYNCDB_QUERY_SERVER Y`
		
		Provide the "Customer Service ID"
		
		`$ exit`

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Table 3-11 (Cont.) Procedure 6 - Backup LSMS DB

STEP #	This procedure outlines the steps to backup the LSMS DB. Estimated time: 90 minutes Note: The estimated time may differ depending on the DB size.	

□6.	**LSMS Active server:**
	Backup the LSMS DB
		`# lsmsdb –c snapshot`
		
		`WARNING: This command may cause a brief interruption in traffic being sent from the NPAC to connected network elements and local LSMS provisioning may be INTERRUPTED.`
		`Do you want to continue? [Y/N]Y`
		`Creating snapshot of the database partition, please wait...`
		`File descriptor 5 (socket:[34104267]) leaked on lvcreate invocation. Parent PID 28676: /usr/TKLC/lsms/tools/lsmsdb`
		`Logical volume "dbbackup" created`
		`The database is available to the application again.`
		`Disk snapshot created successfully.`
		`Snapshot mounted successfully.`
		`Created snapinfo.sql file successfully`
		`MidAtlanticDB/`
		`MidAtlanticDB/NumberPoolBlock.frm`
		`MidAtlanticDB/ServiceProvNetwork.MYD`
		`.`
		`.`
		`.`
		`Logical volume "dbbackup" successfully removed`
		
		Note: The time taken to run the above command shall vary according to the DB size.
		Verify that the following snapshot files are created at /var/TKLC/lsms/free directory:
		• mysql-snapshot-noreplDB.tar.gz
		• mysql-snapshot-supDB.tar.gz
		• `mysql-snapshot-<regionDB>.tar.gz`
		`snapinfo.sql`

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Table 3-11 (Cont.) Procedure 6 - Backup LSMS DB

STEP #	This procedure outlines the steps to backup the LSMS DB. Estimated time: 90 minutes Note: The estimated time may differ depending on the DB size.	

□7.	**LSMS Active server:**
	Verify the snapshot files for all existing NPAC regions
		Run the following command and verify that the snapshot files are created for all the NPAC regions listed in the command output.
		Note: The below command shows only the regions for which the DB exists.
		
		`# lsmsdb -c dblist`
		`CanadaDB`
		`MidAtlanticDB`
		`MidwestDB`
		`NortheastDB`
		`ReplTestDB`
		`SoutheastDB`
		`SouthwestDB`
		`WestCoastDB`
		`WesternDB`
		`logDB`
		`mysql`
		`noreplDB`
		`performance_schema`
		`supDB`

□8.	**LSMS Active server:**
	Take MySQL dump of supDB.
	Note: Take a note of EMS configuration (IP, user, Group) and delete the same on LSMS.
		Run the following command on LSMS Active server CLI to take MySQL dump of the supDB database.
		
		`# mysqldump -udbroot -p[dbroot_password] supDB >`
		
		`/var/TKLC/lsms/free/supDBdump.sql`
		
		Note: Below warning message can be ignored if displayed:
		`Warning: Using a password on the command line interface can be insecure.`
		
		Note: Do not run the following command when upgrading from 14.1.0.X to 14.1.0.Y. This command is only required while upgrading from 13.X release.
		
		`Edit supDBdump.sql to fix Authorization table`
		`# sed -i 's/function/functions/g' supDBdump.sql`

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Table 3-11 (Cont.) Procedure 6 - Backup LSMS DB

STEP #	This procedure outlines the steps to backup the LSMS DB. Estimated time: 90 minutes Note: The estimated time may differ depending on the DB size.	
9.	**LSMS Active server:** Take MySQL dump of mysql.user.	Create MySQLUserGrants.sql file listing all the users and their privileges using the following shell script MySQLUser.sh in the root directory: File: MySQLUser.sh `MYSQL_CONN="-udbroot -ppassword"` `mysql ${MYSQL_CONN} --skip-column-names -A -e "SELECT CONCAT('SHOW CREATE USER '''',user,''''@'''',host,''''';') FROM mysql.user WHERE user<>''" | sed '/mysql/d' | mysql ${MYSQL_CONN} --skip- column-names -A \| sed 's/$/;/g' | sed "s/IDENTIFIED WITH 'mysql_native_password' AS/IDENTIFIED BY/g" | sed "s/IDENTIFIED WITH 'mysql_native_password'/IDENTIFIED BY/g" | sed "s/REQUIRE NONE PASSWORD EXPIRE DEFAULT ACCOUNT UNLOCK//g" > /var/TKLC/lsms/free/MySQLUserGrants.sql` `mysql ${MYSQL_CONN} --skip-column-names -A -e "SELECT CONCAT('SHOW GRANTS FOR '''',user,''''@'''',host,''''';') FROM mysql.user WHERE user<>''" | mysql ${MYSQL_CONN} --skip- column-names -A \| sed 's/$/;/g' |sed 's/IDENTIFIED BY PASSWORD/IDENTIFIED BY/g' | sed '/mysql/d' >> /var/TKLC/lsms/free/MySQLUserGrants.sql`  **Note:** Edit MYSQL_CONN for the proper connection properties and this will generate the MySQLUserGrants.sql file with grant statements from the 5.7 machine that you can source into the 8.0 machine. Run the MySQLUser.sh file to generate MySQLUserGrants.sql  `# chmod +x MySQLUser.sh` `# ./MySQLUser.sh`  Run the below command to edit MySQLUserGrants.sql  `# sed -i 's/CREATE USER/CREATE USER IF NOT EXISTS/g' MySQLUserGrants.sql`  The content of the MySQLUserGrants.sql will be: `GRANT USAGE ON *.* TO 'lsmsadm'@'%' IDENTIFIED BY '57570851ac3cc01499';` Edit the .sql file and replace the password of all the users with plain text password to contain something like: `GRANT USAGE ON *.* TO 'lsmsadm'@'%' IDENTIFIED BY 'password- in-plain-text';`

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Table 3-11 (Cont.) Procedure 6 - Backup LSMS DB

STEP #	This procedure outlines the steps to backup the LSMS DB. Estimated time: 90 minutes Note: The estimated time may differ depending on the DB size.	

		Run below commands to recover plain text password for default lsms users:
		For dbroot user:
		`/usr/TKLC/lsms/tools/pass_fetch pass1`
		For materepl user:
		`/usr/TKLC/lsms/tools/pass_fetch pass3 -> materepl`
		For cmdline user:
		`/usr/TKLC/lsms/tools/pass_fetch pass4`
		For other default users:
		`/usr/TKLC/lsms/tools/pass_fetch pass2`
		Remove entry for `lsmsrepl`@`<lsmsqs IP>` from the `MySQLUserGrants.sql`. This will be added during LSMSQS configuration.
		Note: There is no way to reverse the hash to recover the plain text. So the customer has to provide us the plain text passwords for users which were added by customer.
		Edit the `MySQLUserGrants.sql` file and edit the second line:
		`CREATE USER IF NOT EXISTS 'dbnopriv'@'%'IDENTIFIED BY;`
		`Here '' are missing after IDENTIFIED BY ;`
		`Example: CREATE USER IF NOT EXISTS 'dbnopriv'@'%'`
		`IDENTIFIED BY '';`
		For migration from 14.1.0.X to 14.1.0.Y edit the file MySQLUserGrants.sql.
		Remove below two lines in MySQLUserGrants.sql:
		`GRANT SELECT, INSERT, UPDATE, DELETE, CREATE, DROP, RELOAD, SHUTDOWN, PROCESS, FILE, REFERENCES, INDEX, ALTER, SHOW DATABASES, SUPER, CREATE TEMPORARY TABLES, LOCK TABLES, EXECUTE, REPLICATION SLAVE,`

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Table 3-11 (Cont.) Procedure 6 - Backup LSMS DB

STEP #	This procedure outlines the steps to backup the LSMS DB. Estimated time: 90 minutes Note: The estimated time may differ depending on the DB size.	
		REPLICATION CLIENT, CREATE VIEW, SHOW VIEW, CREATE ROUTINE, ALTER ROUTINE, CREATE USER IF NOT EXISTS, EVENT, TRIGGER, CREATE TABLESPACE, CREATE ROLE, DROP ROLE ON *.* TO `dbroot`@`%` WITH GRANT OPTION; GRANT APPLICATION_PASSWORD_ADMIN,AUDIT_ABORT_EXEMPT,AUDIT_ADMIN,AUTHENTICATION_POLICY_ADMIN,BACKUP_ADMIN,BINLOG_ADMIN,BINLOG_ENCRYPTION_ADMIN,CLONE_ADMIN,CONNECTION_ADMIN,ENCRYPTION_KEY_ADMIN,FIREWALL_EXEMPT,FLUSH_OPTIMIZER_COSTS,FLUSH_STATUS,FLUSH_TABLES,FLUSH_USER_RESOURCES,GROUP_REPLICATION_ADMIN,GROUP_REPLICATION_STREAM,INNODB_REDO_LOG_ARCHIVE,INNODB_REDO_LOG_ENABLE,PASSWORDLESS_USER_ADMIN,PERSIST_RO_VARIABLES_ADMIN,REPLICATION_APPLIER,REPLICATION_SLAVE_ADMIN,RESOURCE_GROUP_ADMIN,RESOURCE_GROUP_USER,ROLE_ADMIN,SENSITIVE_VARIABLES_OBSERVER,SERVICE_CONNECTION_ADMIN,SESSION_VARIABLES_ADMIN,SET_USER_ID,SHOW_ROUTINE,SYSTEM_USER,SYSTEM_VARIABLES_ADMIN,TABLE_ENCRYPTION_ADMIN,TELEMETRY_LOG_ADMIN,XA_RECOVER_ADMIN ON *.* TO `dbroot`@`%` WITH GRANT OPTION; Add below line at the end of MySQLUserGrants.sql: “GRANT ALL PRIVILEGES ON *.* TO 'dbroot'@'%' WITH GRANT OPTION;”
10.	**LSMS Active server:** Log into the Active LSMS server GUI	Login to LSMS GUI as lsmsall user.
11.	**LSMS Active server:** Record the configured MySQL Port	Go to “Admin -> MySQL Port -> View” and record the configured MySQL Port.
12.	**LSMS Active server:** Record the configured ELAP Credentials	Go to “Configure -> LNP System -> EMS -> View” and record the configured ELAP Credentials.

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Table 3-11 (Cont.) Procedure 6 - Backup LSMS DB

STEP #	This procedure outlines the steps to backup the LSMS DB. Estimated time: 90 minutes Note: The estimated time may differ depending on the DB size.	

□13.	**LSMS Active and Standby Server**
	Copy and Backup license file when upgrading from LSMS 14.0.0.X release
		Login to LSMS CLI and take back up of the below 2 files from both Active and Standby server:
		
		`/usr/TKLC/osi/conf/license`
		`/usr/local/netech/etc/license`
		
		These licenses will be required after full upgrade is complete

This procedure is complete!		

3.5.4 Procedure 7 TRANSFER DATABASE TO REMOTE SERVER

Table 3-12 Procedure 7 - Transfer Database to Remote Server

STEP #	This procedure transfers the database backup from the LSMS server to the remote server. Estimated time: 30 minutes Note: 100mbps link is required for database transfer to remote server.	

□1.	**LSMS Active server:**
	Log in to the server as the user “root”
		`Login: root`
		
		`Password: <root_password>`

□2.	**LSMS Active server:**
	Verify Connectivity between the **LSMS** and the remote server.
	If the remote server cannot be pinged, verify the network connectivity.
		`# ping <remote IP> –c 3`
		`PING <Remote IP> (<Remote IP>) 56(84) bytes of data.`
		`64 bytes from <Remote IP>: icmp_seq=1 ttl=64 time=0.022 ms`
		`64 bytes from <Remote IP>: icmp_seq=2 ttl=64 time=0.020 ms`
		`64 bytes from <Remote IP>: icmp_seq=3 ttl=64 time=0.020 ms`
		`--- <Remote IP> ping statistics ---`
		`3 packets transmitted, 3 received, 0% packet loss, time 2001ms`
		`rtt min/avg/max/mdev = 0.020/0.020/0.022/0.005 ms`

□3.	**LSMS Active server:**
	List the snapshot files
		`# ls -lrt /var/TKLC/lsms/free/*snapshot*`
		`# ls –lrt /var/TKLC/lsms/free/supDBdump.sql`
		`# ls –lrt /var/TKLC/lsms/free/MySQLUserGrants.sql`

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Table 3-12 (Cont.) Procedure 7 - Transfer Database to Remote Server

STEP #	This procedure transfers the database backup from the LSMS server to the remote server. Estimated time: 30 minutes Note: 100mbps link is required for database transfer to remote server.	

4.	**Remote server:**
	Remove the existing DB snapshot files
		`# rm /var/TKLC/lsms/free/mysql-snapshot-*`
		`# rm /var/TKLC/lsms/free/supDBdump.sql`
		`# rm /var/TKLC/lsms/free/MySQLUserGrants.sql`

5.	**LSMS Active server:**
	Copy snapshot files to a Remote Server.
		Transfer all the NPAC region DB snapshot files, the MySQL dump of supDB and the MySQL dump of mysql.user
		Note: The NPAC regions are: CanadaDB, MidAtlanticDB, MidwestDB, NortheastDB, SoutheastDB, SouthwestDB, WestCoastDB and WesternDB
		
		`# scp –p /var/TKLC/lsms/free/mysql-snapshot-<NPAC region>.tar.gz root@<Remote IP>:<Remote IP Path>`
		`Password: <root_password>`
		`# scp –p /var/TKLC/lsms/free/supDBdump.sql root@<Remote IP>:<Remote IP Path>`
		`Password: <root_password>`
		`# scp –p /var/TKLC/lsms/free/MySQLUserGrants.sql root@<Remote IP>:<Remote IP Path>`
		`Password: <root_password>`
		
		`Or`
		
		`# cd /var/TKLC/lsms/free/`
		`# sftp <username>@<IP address of remote computer>`
		`Connecting to <IP address of remote computer>...`
		`The authenticity of host '<IP address of remote computer>' can't be established.`
		`DSA key fingerprint is 58:a5:7e:1b:ca:fd:1d:fa:99:f2:01:16:79:d8:b4:24.`
		`Are you sure you want to continue connecting (yes/no)? yes`
		`Warning: Permanently added '<IP address of remote computer>' (DSA) to the list of known hosts.`
		`<username>@<IP address of remote computer>'s password:`
		`sftp> cd <target directory>`
		`sftp> put mysql-snapshot-<NPAC region>.tar.gz`
		`Uploading mysql-snapshot-<NPAC region>.tar.gz`
		`sftp> put supDBdump.sql`
		`Uploading supDBdump.sql`
		`sftp> put MySQLUserGrants.sql`
		`Uploading MySQLUserGrants.sql`
		`sftp> bye`

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Table 3-12 (Cont.) Procedure 7 - Transfer Database to Remote Server

STEP #	This procedure transfers the database backup from the LSMS server to the remote server. Estimated time: 30 minutes Note: 100mbps link is required for database transfer to remote server.	

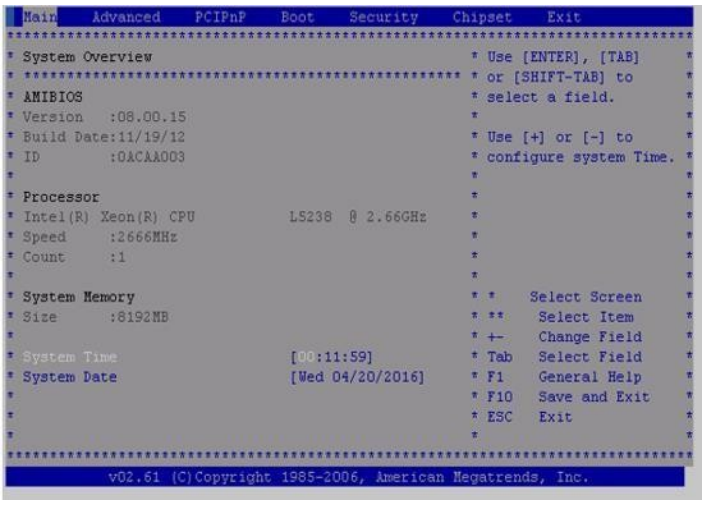
6.	**Remote Server:**
	Verify the snapshot files are
	present on the remote server.
		`# ls -lrt /var/TKLC/lsms/free/*snapshot*`
		`# ls -lrt /var/TKLC/lsms/free/supDBdump.sql`
		`# ls -lrt /var/TKLC/lsms/free/MySQLUserGrants.sql`

This procedure is complete!		

3.6 IPM and LSMS 14.1.X Installation

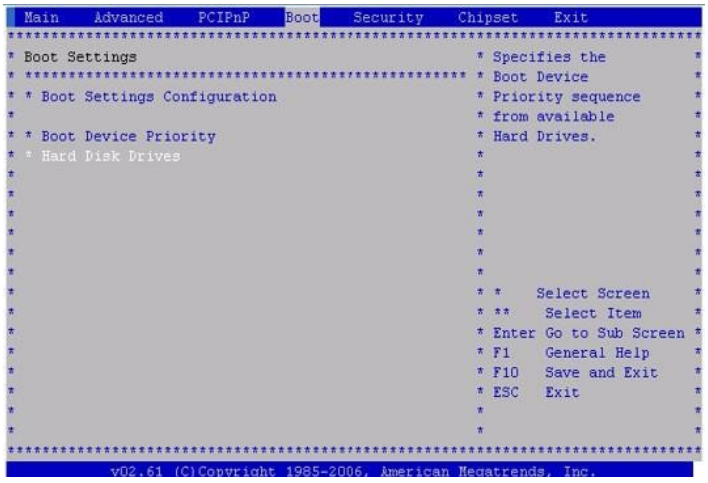
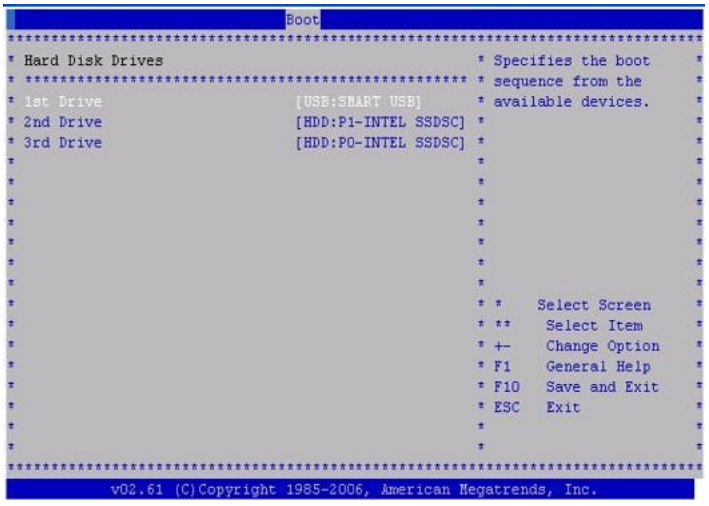
3.6.1 Procedure 8 IPM MPS SERVER WITH 64 BIT TPD 8.10.X

Table 3-13 Procedure 8 - IPM MPS Server with 64 bit TPD 8.6.x

STEP #	A	B	NAS	This procedure will remove the LSMS application and all the data from the server. Estimated time: 45 minutes Note: Below procedure needs to be performed on both MPS A, MPS B and NAS servers.	
1.	☐	☐	☐	**MPS X**: Insert TPD 8.6.x USB media into the USB port	Reboot server `# reboot`
2.	☐	☐	☐	**MPS X:** Press the Delete key to enter the BIOS. Enter System Time and System Date.	

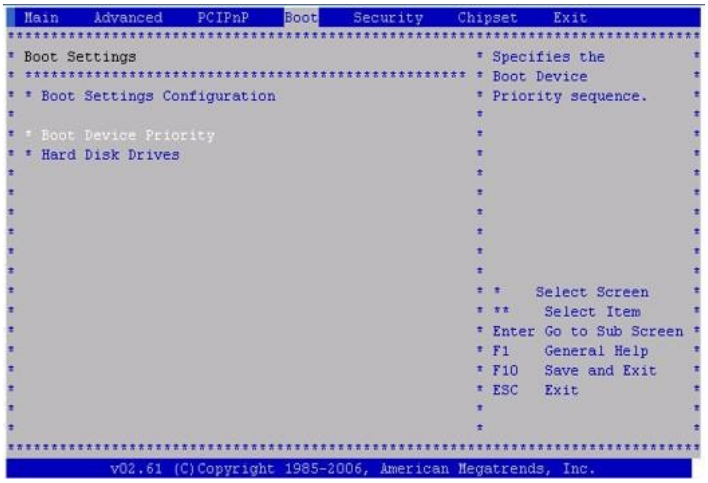
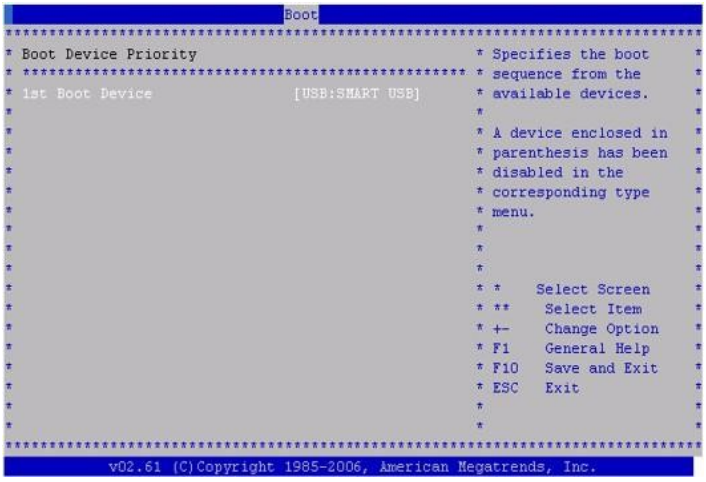
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Table 3-13 (Cont.) Procedure 8 - IPM MPS Server with 64 bit TPD 8.6.x

STEP #	A	B	NAS	This procedure will remove the LSMS application and all the data from the server. Estimated time: 45 minutes Note: Below procedure needs to be performed on both MPS A, MPS B and NAS servers.	
3.	☐	☐	☐	**MPS X:** Select *Boot → Hard Disk Drives* option	
4.	☐	☐	☐	**MPS X:** Press 'Enter' key and select USB as the 1st Drive	

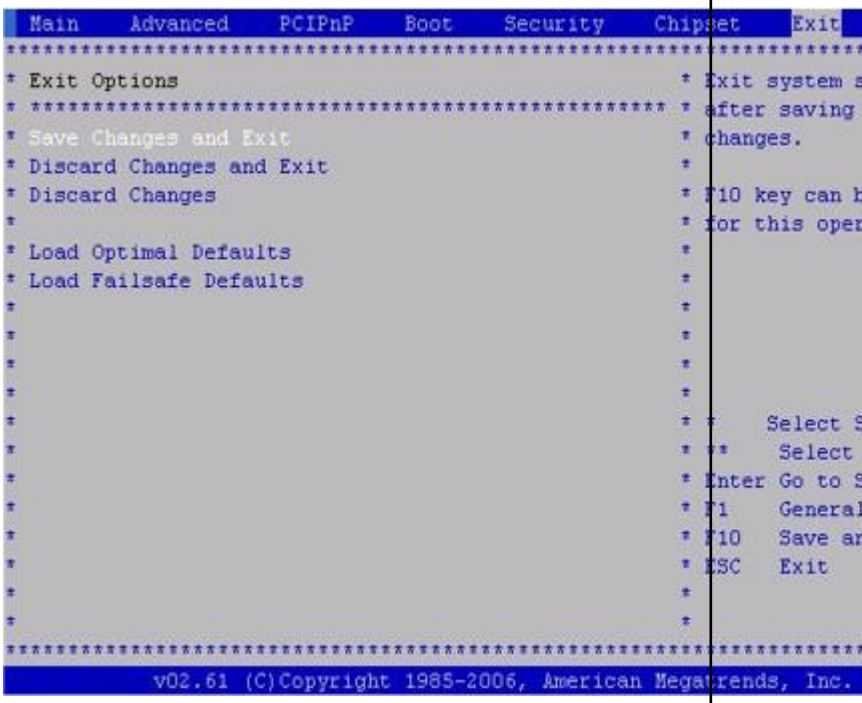
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Table 3-13 (Cont.) Procedure 8 - IPM MPS Server with 64 bit TPD 8.6.x

STEP #	A	B	NAS	This procedure will remove the LSMS application and all the data from the server. Estimated time: 45 minutes Note: Below procedure needs to be performed on both MPS A, MPS B and NAS servers.	
5.	☐	☐	☐	**MPS X:** Press 'Esc' key and select Boot Device Priority	
6.	☐	☐	☐	**MPS X:** Verify that the 1st Boot Device is set to USB.	

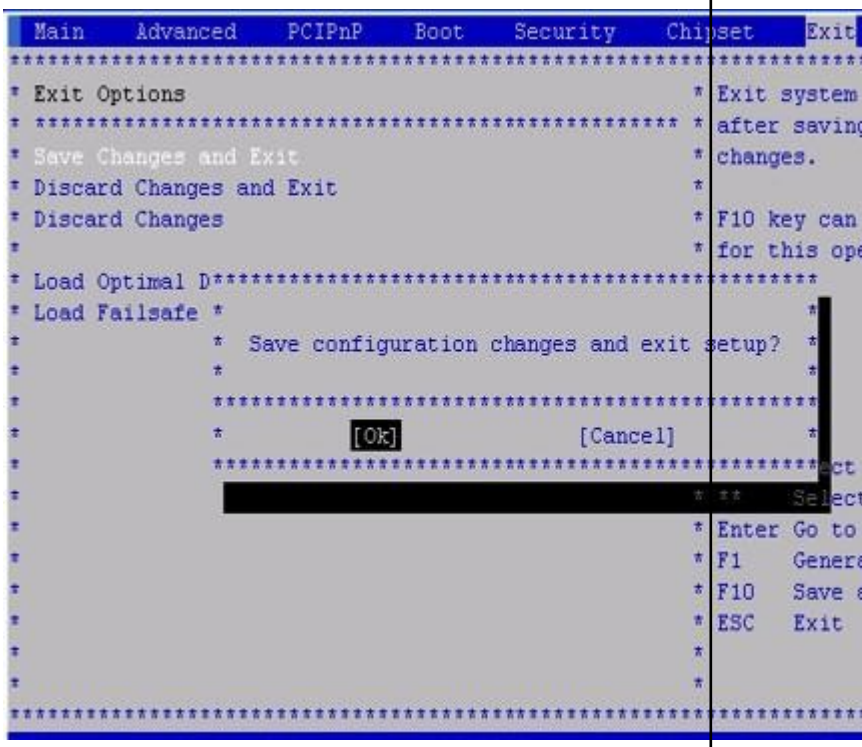
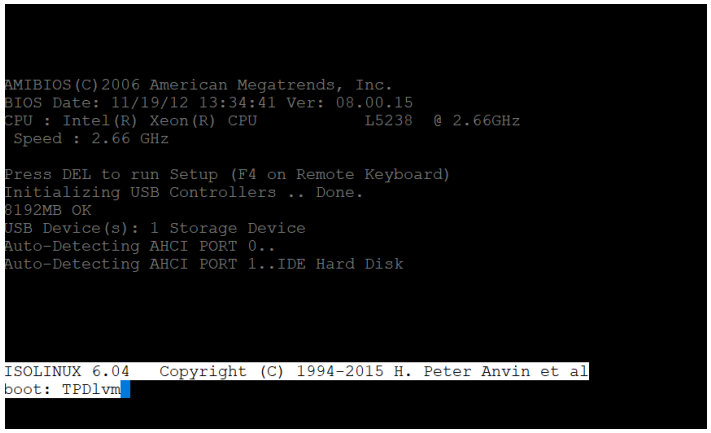
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Table 3-13 (Cont.) Procedure 8 - IPM MPS Server with 64 bit TPD 8.6.x

STEP #	A	B	NAS	This procedure will remove the LSMS application and all the data from the server. Estimated time: 45 minutes Note: Below procedure needs to be performed on both MPS A, MPS B and NAS servers.	
7.	☐	☐	☐	**MPS X:** Press 'Esc' key and select Exit → Save Changes and Exit option	

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Table 3-13 (Cont.) Procedure 8 - IPM MPS Server with 64 bit TPD 8.6.x

STEP #	A	B	NAS	This procedure will remove the LSMS application and all the data from the server. Estimated time: 45 minutes Note: Below procedure needs to be performed on both MPS A, MPS B and NAS servers.	
8.	☐	☐	☐	**MPS X:** Select [OK] to save the configuration changes. The server will reboot and TPD boot prompt will appear.	
9.	☐	☐	☐	**MPS X:** Start the IPM process by entering the TPDlvm command at the boot prompt.	

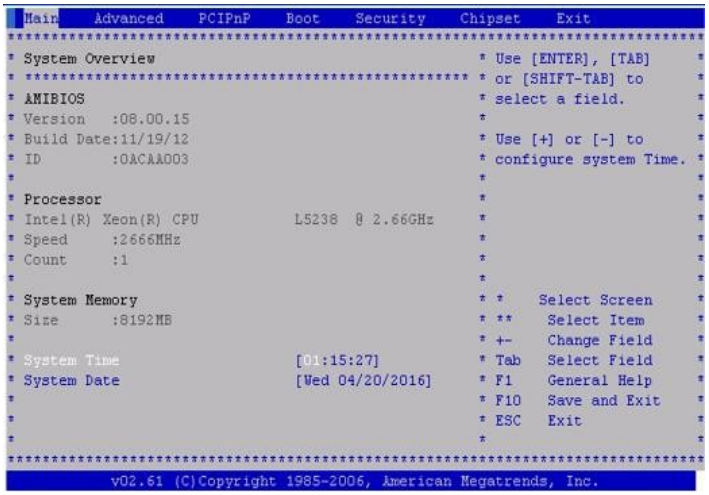
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Table 3-13 (Cont.) Procedure 8 - IPM MPS Server with 64 bit TPD 8.6.x

STEP #	A	B	NAS	This procedure will remove the LSMS application and all the data from the server. Estimated time: 45 minutes Note: Below procedure needs to be performed on both MPS A, MPS B and NAS servers.	
10.	☐	☐	☐	**MPS X:** After a few seconds, additional messages will begin scrolling by on the screen as the Linux kernel boots, and then the drive formatting and file system creation steps will begin.	Configuring storage Creating disklabel on /dev/sdb Creating mdmember on /dev/sdb2 Creating biosboot on /dev/sdb1 Creating disklabel on /dev/sdc Creating mdmember on /dev/sdc2 Creating lvmpv on /dev/md/1 Creating ext4 on /dev/mapper/vgroot-plat_var_tklc Creating ext4 on /dev/mapper/vgroot-plat_tmp Creating ext4 on /dev/mapper/vgroot-plat_usr Creating ext4 on /dev/mapper/vgroot-plat_var Creating swap on /dev/mapper/vgroot-plat_swap Creating ext4 on /dev/mapper/vgroot-plat_root Creating biosboot on /dev/sdc1 ... Running pre-installation scripts . Running pre-installation tasks ... Installing. Starting package installation process Downloading packages
11.	☐	☐	☐	**MPS X:** Once the drive formatting and file system creation steps are complete, the screen at right will appear indicating that the package installation has begun.	Installing clang-resource-filesystem.x86_64 (1175/1507) Installing adwaita-cursor-theme.noarch (1176/1507) Installing adwaita-icon-theme.noarch (1177/1507) Installing gtk3.x86_64 (1178/1507) Installing gjs.x86_64 (1179/1507) Installing adobe-mappings-pdf.noarch (1180/1507) Installing libgs.x86_64 (1181/1507) Installing graphviz.x86_64 (1182/1507) Installing python3-pydot.noarch (1183/1507) Installing python3-pygraphviz.x86_64 (1184/1507) Installing ghostscript.x86_64 (1185/1507) Installing cups.x86_64 (1186/1507) Installing cups-filters.x86_64 (1187/1507) Installing python3-networkx.noarch (1188/1507) Installing gnome-characters.x86_64 (1189/1507) Installing libcanberra-gtk3.x86_64 (1190/1507) Installing libgnomekbd.x86_64 (1191/1507) Installing libtimezonemap.x86_64 (1192/1507) Installing firewalld.noarch (1193/1507) Installing open-vm-tools.x86_64 (1194/1507) Installing TPD-upgrade.noarch (1195/1507) Installing TKLCe5appb.noarch (1196/1507)

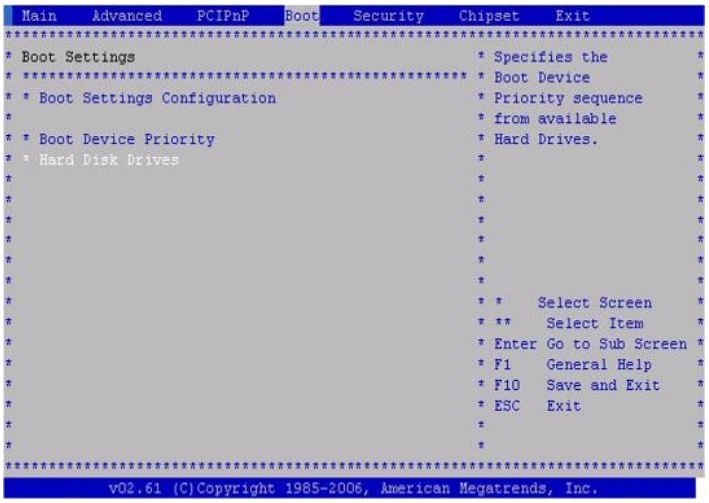
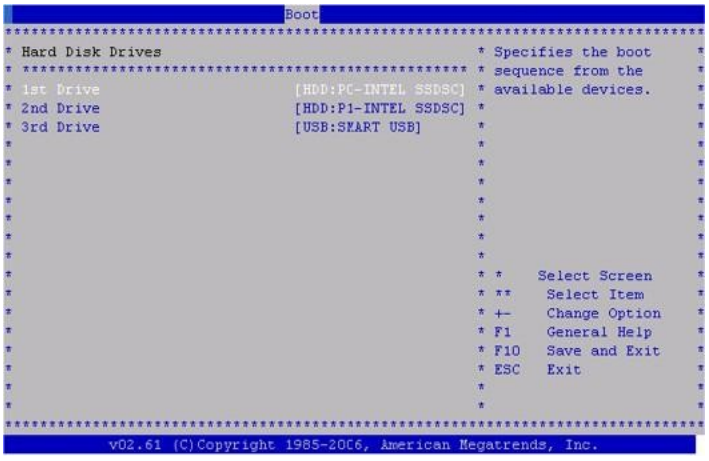
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Table 3-13 (Cont.) Procedure 8 - IPM MPS Server with 64 bit TPD 8.6.x

STEP #	A	B	NAS	This procedure will remove the LSMS application and all the data from the server. Estimated time: 45 minutes Note: Below procedure needs to be performed on both MPS A, MPS B and NAS servers.	
12.	☐	☐	☐	**MPS X:** Once all the packages have been successfully installed, the screen at right will appear letting you know the installation process is complete. **Remove USB media before Reboot. On MPS server press <ENTER> to reboot the system and continue with the next step.**	MPOINT: Media already mounted. DEV: /dev/sda MPOINT: Media already mounted. DEV: /dev/sda MPOINT: Media already mounted. DEV: /dev/sda MPOINT: Pulling ISO Metadata file from: /run/install/repo//.isometadata Copying ISO metadata file to system DIR: /mnt/sysimage/var/TKLC/log/ipm Copying ISO metadata file to prodinfo DIR: /mnt/sysimage/usr/TKLC/plat/etc/prodinfo Changing default target to application.target Revoke root ssh access Installation complete Use of this product is subject to the license agreement found at: /usr/share/oraclelinux-release/EULA Installation complete. Press ENTER to quit: .
13.	☐	☐	☐	**MPS X:** Press 'del' key to enter the BIOS	

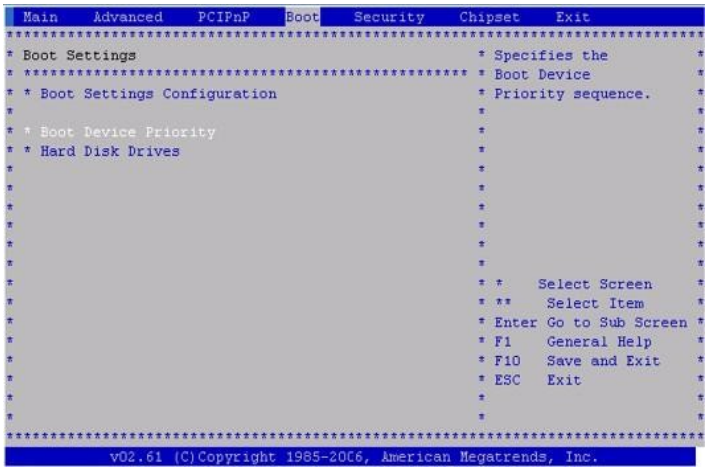
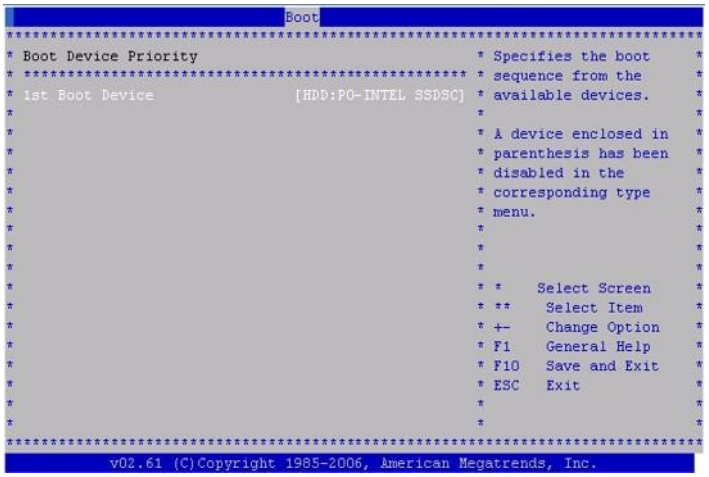
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Table 3-13 (Cont.) Procedure 8 - IPM MPS Server with 64 bit TPD 8.6.x

STEP #	A	B	NAS	This procedure will remove the LSMS application and all the data from the server. Estimated time: 45 minutes Note: Below procedure needs to be performed on both MPS A, MPS B and NAS servers.	
14.	☐	☐	☐	**MPS X:** Select *Boot → Hard Disk Drives* option	
15.	☐	☐	☐	**MPS X:** Press 'Enter' key and select HDD:P0 as the 1st Drive	

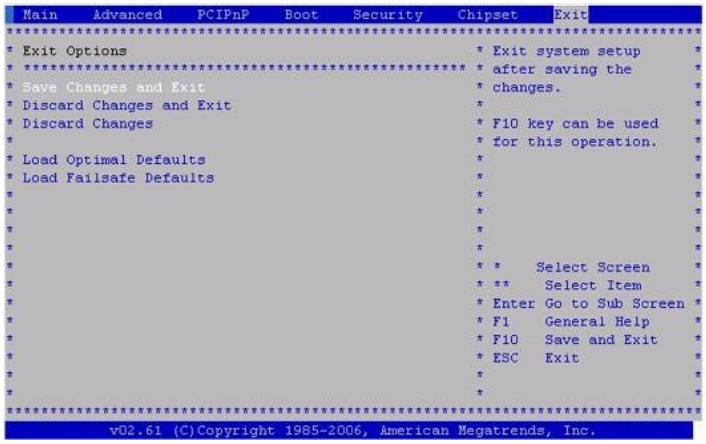
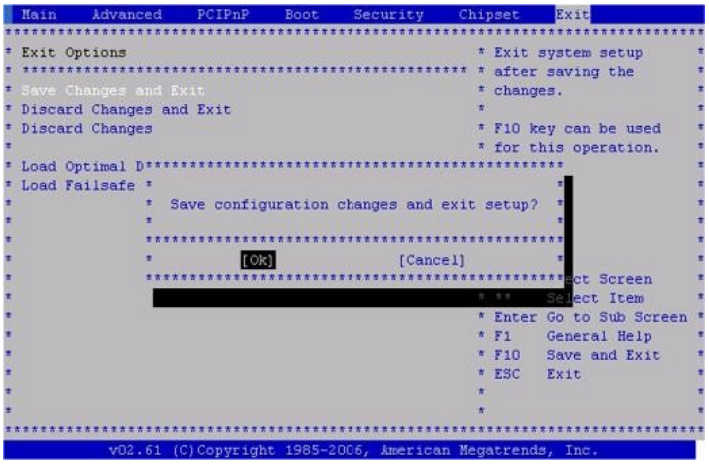
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Table 3-13 (Cont.) Procedure 8 - IPM MPS Server with 64 bit TPD 8.6.x

STEP #	A	B	NAS	This procedure will remove the LSMS application and all the data from the server. Estimated time: 45 minutes Note: Below procedure needs to be performed on both MPS A, MPS B and NAS servers.	
16.	☐	☐	☐	**MPS X:** Press 'Esc' key and select Boot Device Priority	
17.	☐	☐	☐	**MPS X:** Verify that the 1st Boot Device is set to HDD:P0.	

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Table 3-13 (Cont.) Procedure 8 - IPM MPS Server with 64 bit TPD 8.6.x

STEP #	A	B	NAS	This procedure will remove the LSMS application and all the data from the server. Estimated time: 45 minutes Note: Below procedure needs to be performed on both MPS A, MPS B and NAS servers.	
18.	☐	☐	☐	**MPS X:** Press 'Esc' key and select *Exit → Save Changes and Exit* option	
19.	☐	☐	☐	**MPS X:** Select [OK] to save the configuration changes. The server will reboot.	 **When the message "Upstart Job ntdMgr: started", is displayed, press the Enter Key to get the Login prompt.**

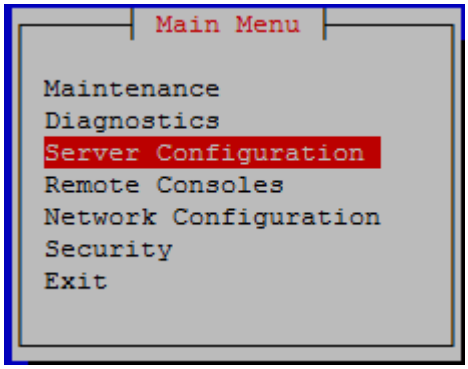
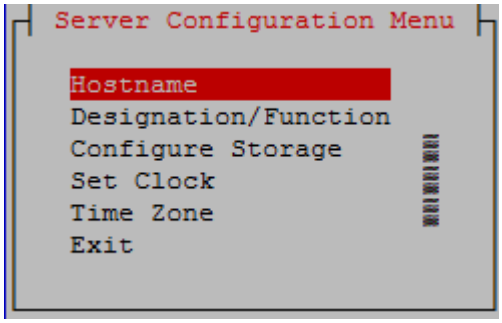
20.	☐	☐	☐	**MPS X:** Log in to the server as the user "root"	`Oracle Linux Server 8.7`
					`Kernel 4.18.0-477.27.0.1.el8_8.x86_64 on an x86_64`
					
					`localhost login: root`
					`Password:`

21.	☐	☐	☐	**MPS X:** Verify that the platform revision matches the ISO used.	`# getPlatRev` `8.10.0.x.0-110.y.0`
	This procedure is complete!				

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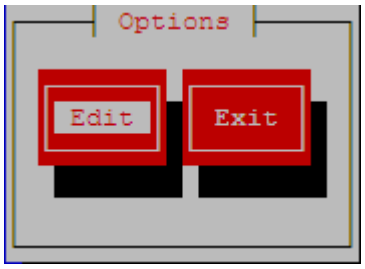
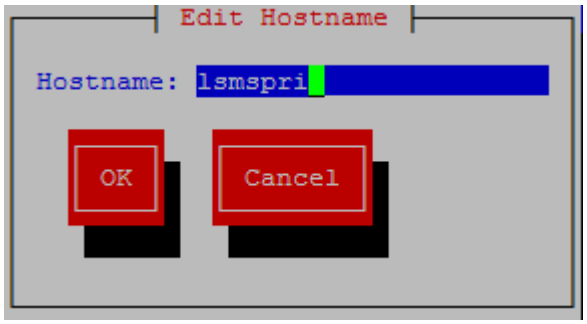
3.6.2 Procedure 9 Pre-Install Configuration

Table 3-14 Procedure 9 – Pre-Install Configuration

STEP #	A	B	This procedure will perform the initial configuration required for LSMS installation. Estimated time: 15 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	
1.	☐	☐	**MPS X:** Log in to the server as the user “root”	`Login: root` `Password: <root_password>`
2.	☐	☐	**MPS X:** Switch user to platcfg. Select “Server Configuration” Menu	`# su - platcfg`
				
3.	☐	☐	**MPS X:** Select “Hostname” Menu	

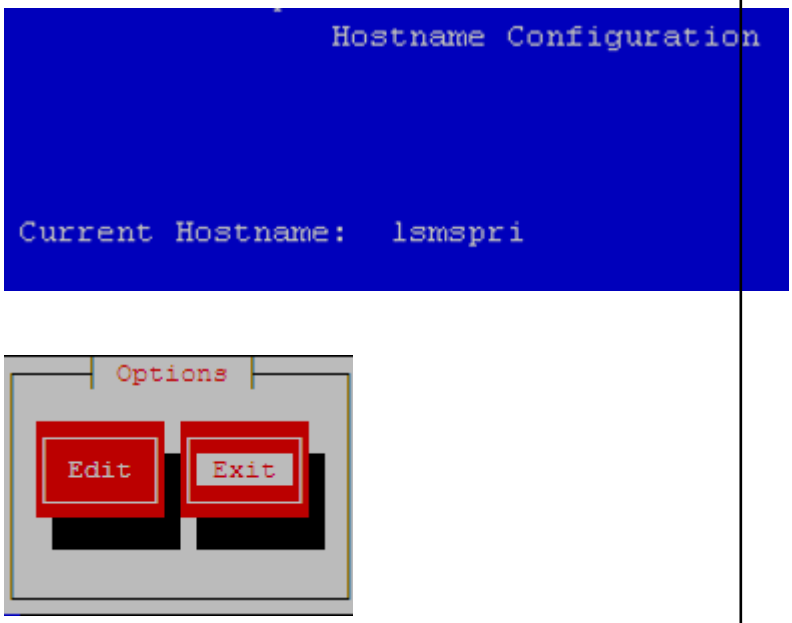
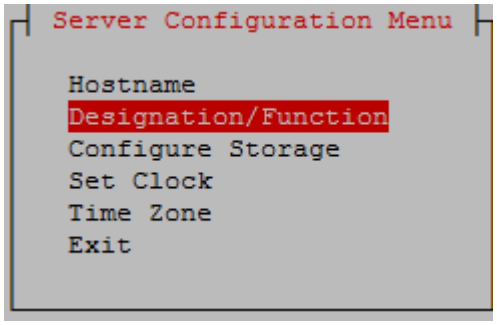
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Table 3-14 (Cont.) Procedure 9 – Pre-Install Configuration

STEP #	A	B	This procedure will perform the initial configuration required for LSMS installation. Estimated time: 15 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	
4.	☐	☐	**MPS X:** Change the host name. 1. Select "Edit" from the options dialogue box. 2. Set the hostname	Select Edit and press [ENTER]   Select OK and press [ENTER]. **Note:** While connected to the serial console, some console output might come when the user is using the serial console to configure the LSMS. Those serial output are harmless and can be ignored.

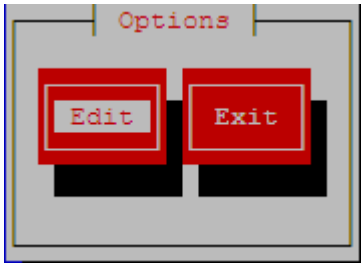
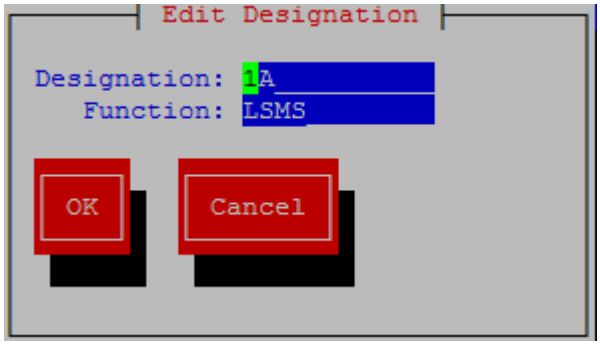
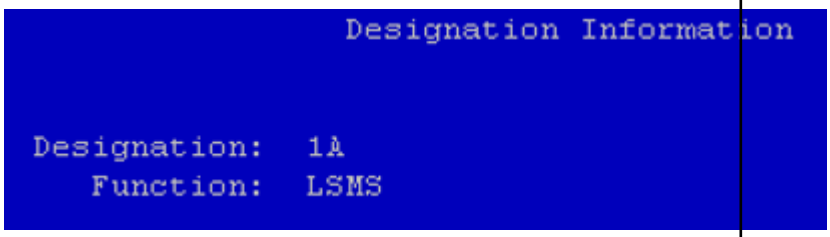
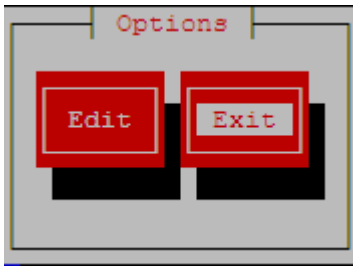
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Table 3-14 (Cont.) Procedure 9 – Pre-Install Configuration

STEP #	A	B	This procedure will perform the initial configuration required for LSMS installation. Estimated time: 15 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	
5.	☐	☐	**MPS X**: Verify that the Hostname is correct then select and press "Exit". **Otherwise repeat the step above.**	
6.			**MPS X:** Navigate to the Designation Information screen.	Select Designation/Function and press [ENTER] 

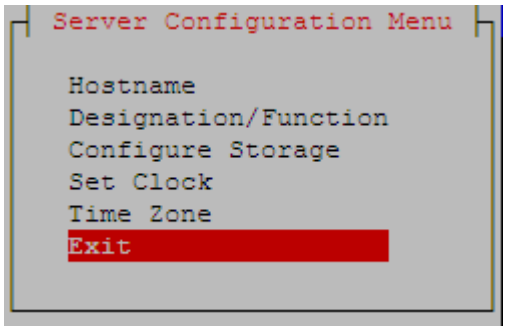
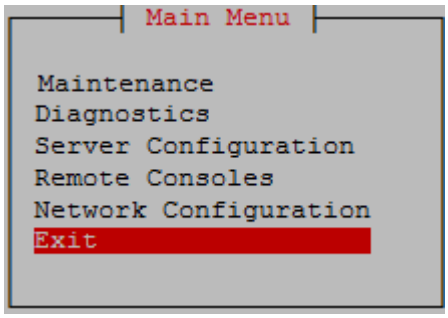
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Table 3-14 (Cont.) Procedure 9 – Pre-Install Configuration

STEP #	A	B	This procedure will perform the initial configuration required for LSMS installation. Estimated time: 15 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	
7.	☐	☐	**MPS X:** 1. Select "Edit" from the options dialogue box. 2. Set the Designation as "1A" on Server A and as "1B" on Server B, Function as "LSMS and press "OK". **Note:** Designation and Function should be entered in UPPERCASE.	 
8.	☐	☐	**MPS X:** Verify that the Designation and Function is correct then select and press "Exit". Otherwise repeat the step above.	 

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Table 3-14 (Cont.) Procedure 9 – Pre-Install Configuration

STEP #	A	B	This procedure will perform the initial configuration required for LSMS installation. Estimated time: 15 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	
9.	☐	☐	**MPS X:** Exit the platcfg menu **Note:** **DO NOT** set the time zone in platcfg. The time zone will be set later in initial configurations.	Select **Exit** and press **[ENTER]** to return to the **Main Menu**.  Select **Exit** and press **[ENTER]**. The "platcfg" utility terminates.
				
This procedure is complete!				

3.6.3 Procedure 10 CONFIGURE NETWORK INTERFACE USING PLATCFG UTILITY

Table 3-15 Procedure 10 – Configure Network Interfaces using platcfg utility

STEP #	B	This procedure configures the network interfaces and makes the E5APPB servers accessible to the network. Estimated time: 5 minutes	
1.	☐	**MPS X:** Login as root user.	`Console Login: root` `Password: <root_password>`

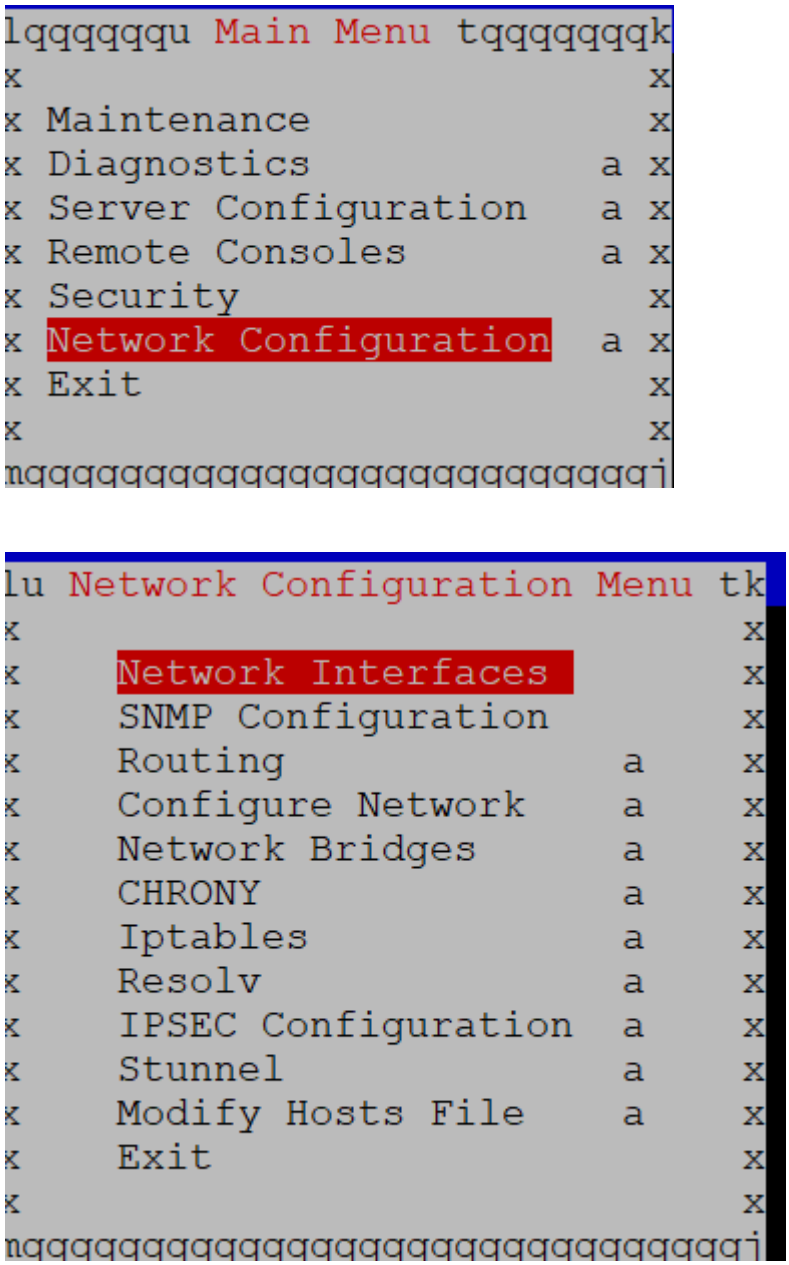
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Table 3-15 (Cont.) Procedure 10 – Configure Network Interfaces using platcfg utility

STEP #	B	This procedure configures the network interfaces and makes the E5APPB servers accessible to the network. Estimated time: 5 minutes	
2.	☐	**MPS X:** Login to platcfg utility	`# su - platcfg`

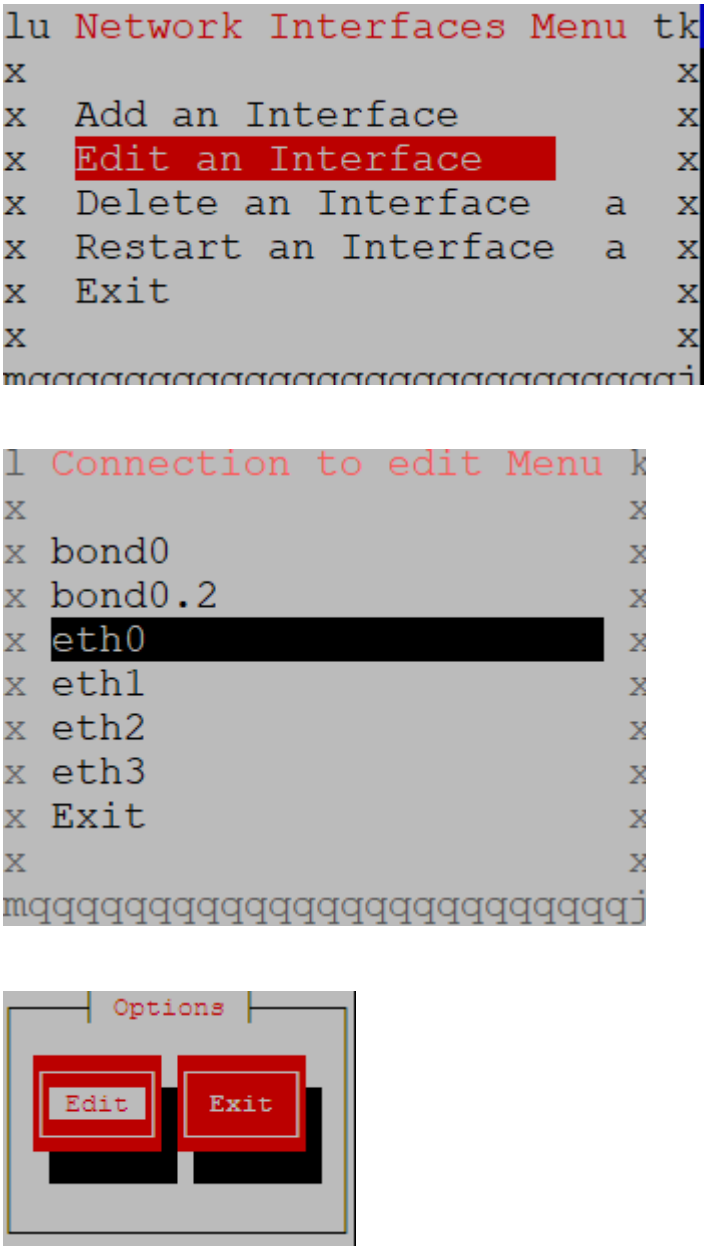
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Table 3-15 (Cont.) Procedure 10 – Configure Network Interfaces using platcfg utility

STEP #	B	This procedure configures the network interfaces and makes the E5APPB servers accessible to the network. Estimated time: 5 minutes	
3.	☐	**MPS X:** Configure Network Interface	

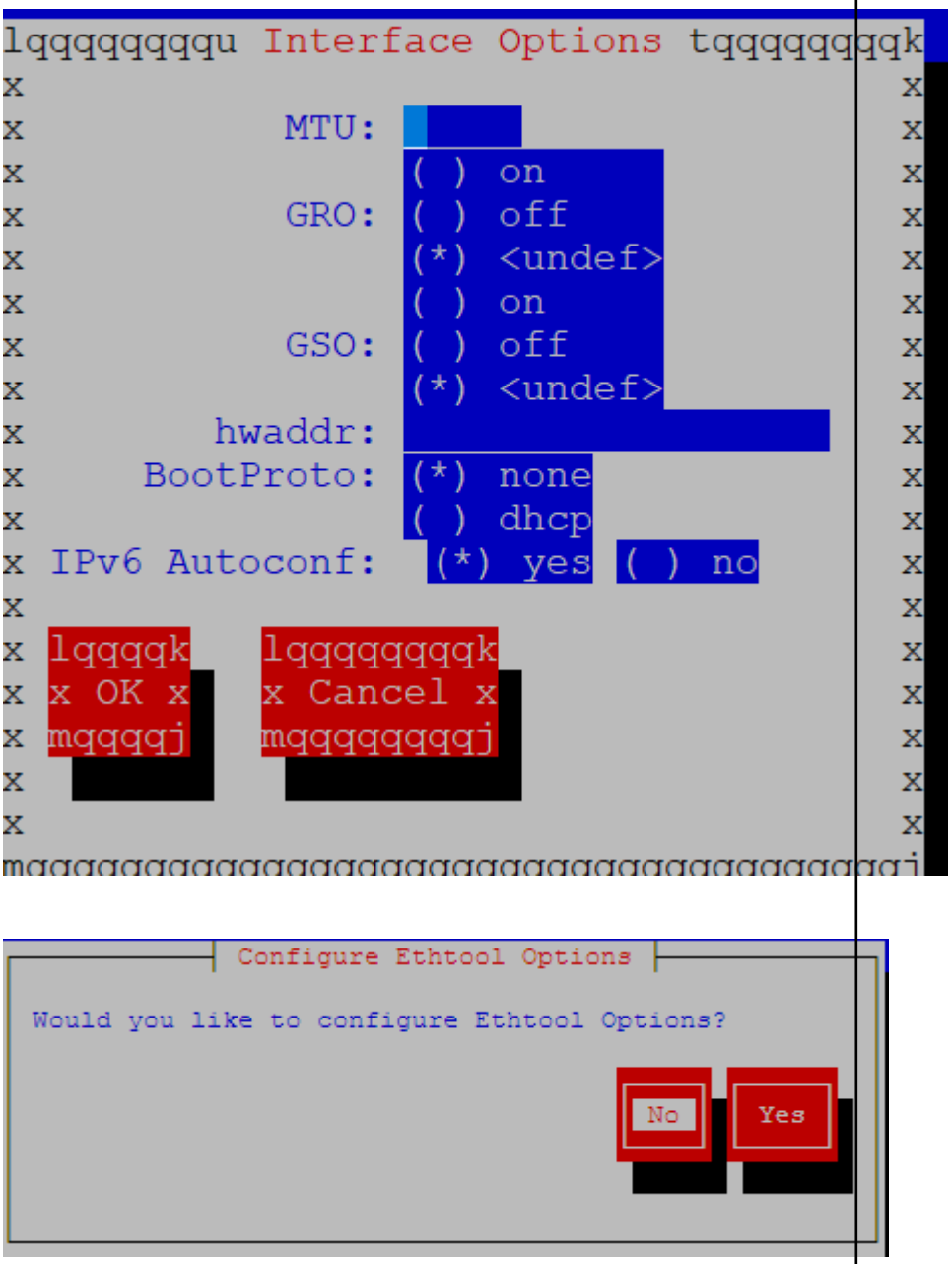
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Table 3-15 (Cont.) Procedure 10 – Configure Network Interfaces using platcfg utility

STEP #	B	This procedure configures the network interfaces and makes the E5APPB servers accessible to the network. Estimated time: 5 minutes
		

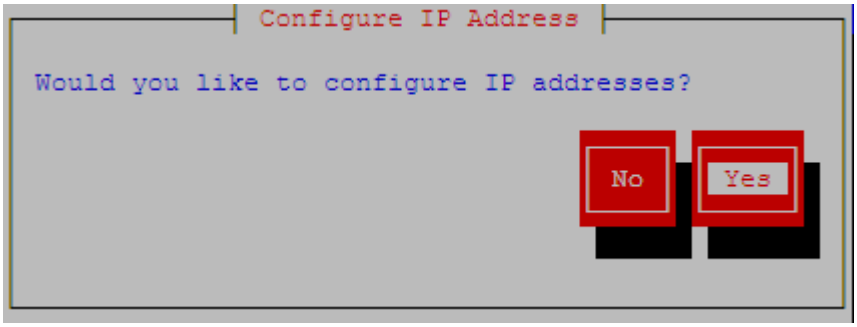
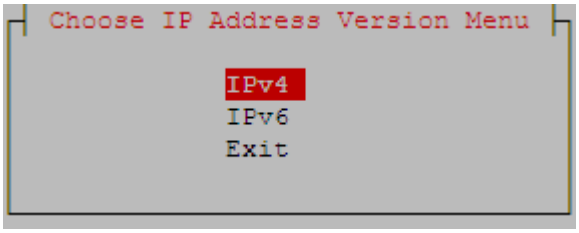
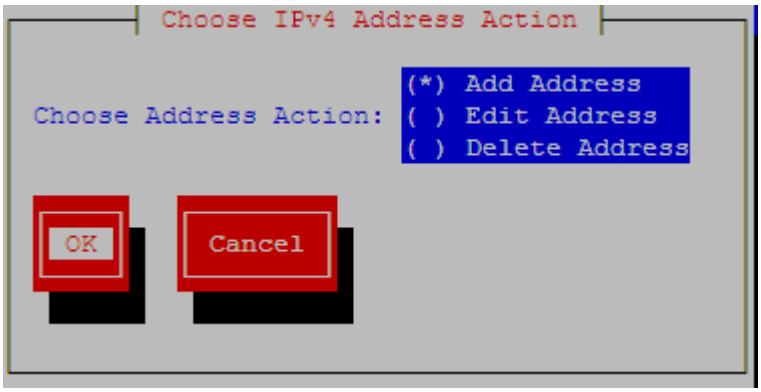
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Table 3-15 (Cont.) Procedure 10 – Configure Network Interfaces using platcfg utility

STEP #	B	This procedure configures the network interfaces and makes the E5APPB servers accessible to the network. Estimated time: 5 minutes	
4.	☐	**MPS X:** Select Interface Options	

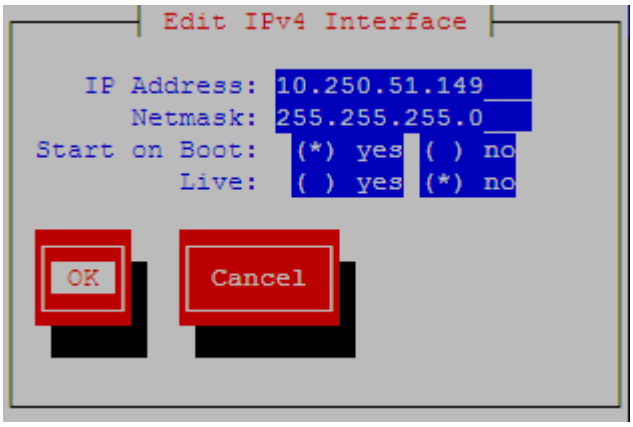
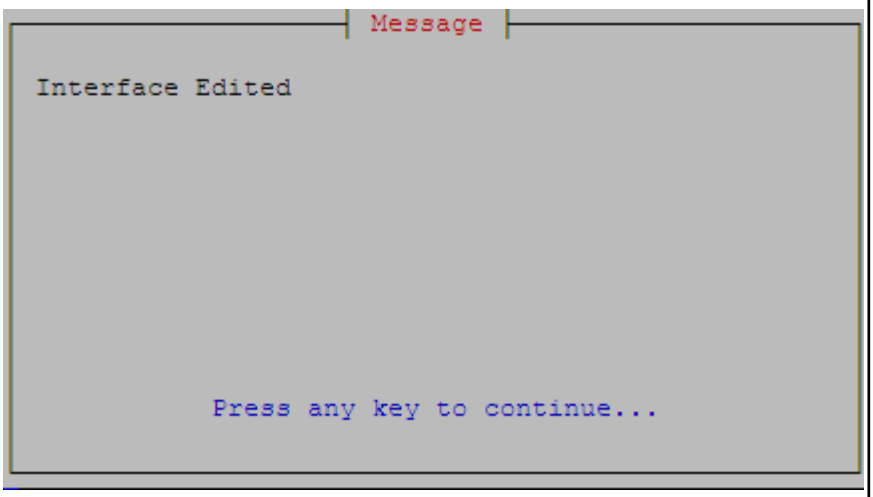
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Table 3-15 (Cont.) Procedure 10 – Configure Network Interfaces using platcfg utility

STEP #	B	This procedure configures the network interfaces and makes the E5APPB servers accessible to the network. Estimated time: 5 minutes
		  

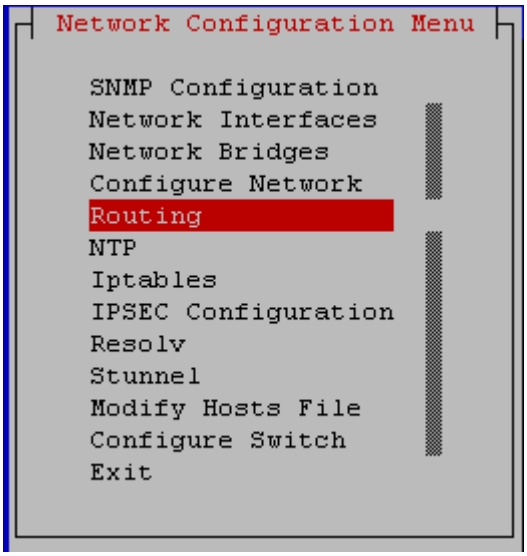
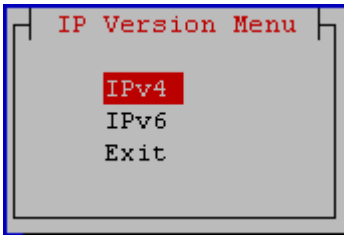
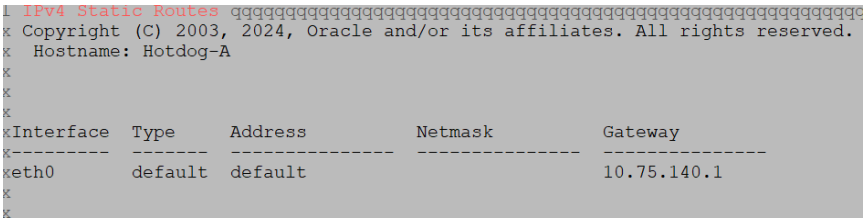
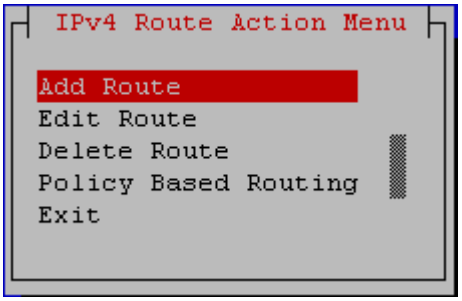
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Table 3-15 (Cont.) Procedure 10 – Configure Network Interfaces using platcfg utility

STEP #	B	This procedure configures the network interfaces and makes the E5APPB servers accessible to the network. Estimated time: 5 minutes	
5.	☐	**MPS X:** Input the Interface Address	  Select “Exit” until you exit from the platcfg utility.

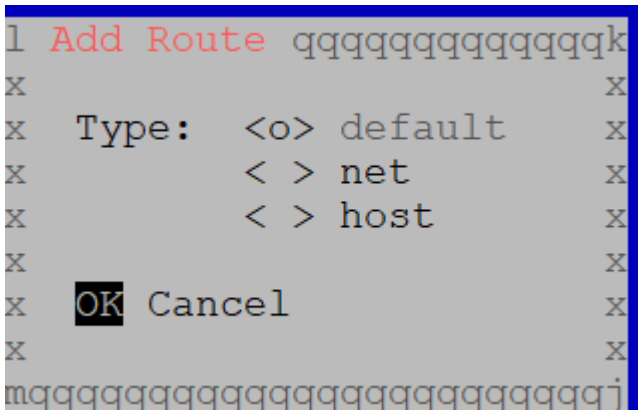
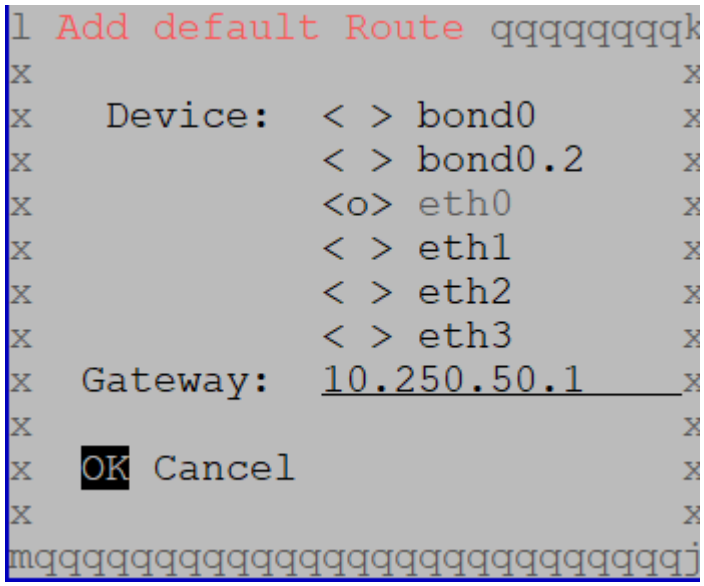
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Table 3-15 (Cont.) Procedure 10 – Configure Network Interfaces using platcfg utility

STEP #	B	This procedure configures the network interfaces and makes the E5APPB servers accessible to the network. Estimated time: 5 minutes	
6.	☐	**MPS X:** Configure default route.	   

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Table 3-15 (Cont.) Procedure 10 – Configure Network Interfaces using platcfg utility

STEP #	B	This procedure configures the network interfaces and makes the E5APPB servers accessible to the network. Estimated time: 5 minutes	
			  Select “Exit” until you exit from the platcfg utility.

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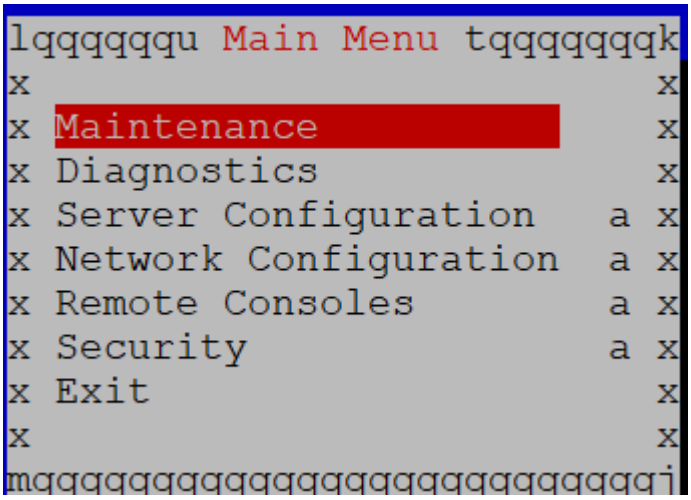
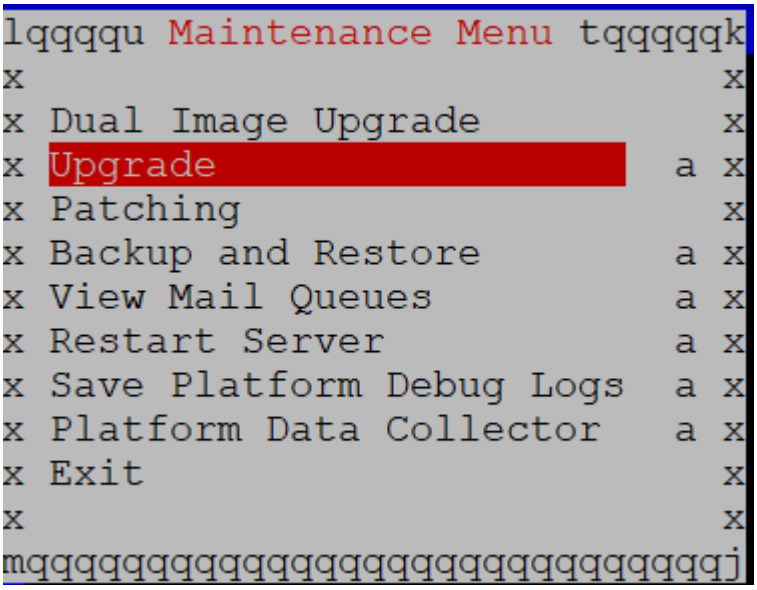
3.6.4 Procedure 11 INSTALL THE LSMS APPLICATION

Table 3-16 Procedure 11 - Install the LSMS Application

STEP #	A	B	This procedure installs the application on the server. Estimated time: 25 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	
1.	☐	☐	**MPS X:** Log in to console the server as the user “root”	`Console Login: root` `Password: <root_password>`
2.	☐	☐	**MPS X:** Perform Procedure in 3.7, A.1 or copy LSMS 14.1.X ISO to `/var/TKLC/upgrade directory`.	
3.	☐	☐	**MPS X:** Start platcfg utility by logging in as platcfg user.	`# su - platcfg`
4.	☐	☐	**MPS X:** Early upgrade checks	The platcfg **Main Menu** appears. On the “**Main Menu**", select **Maintenance** and press **[ENTER]**.

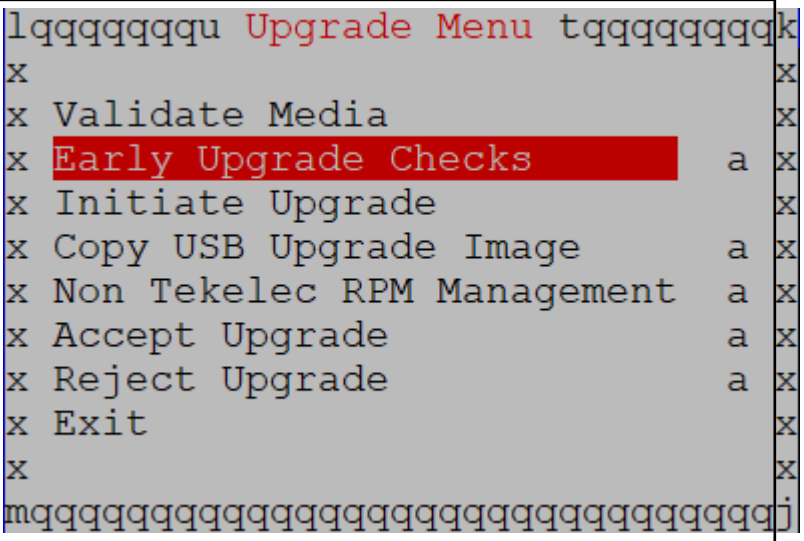
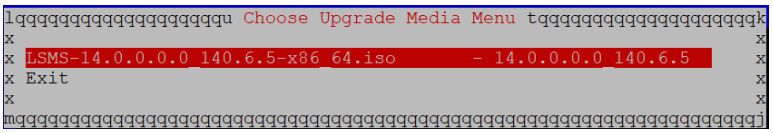
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Table 3-16 (Cont.) Procedure 11 - Install the LSMS Application

STEP #	A	B	This procedure installs the application on the server. Estimated time: 25 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	
				 Select the "**Upgrade"** menu and press **[ENTER]**.  Select the "**Early Upgrade Checks**" menu to verify that the system is ready for upgrade.

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Table 3-16 (Cont.) Procedure 11 - Install the LSMS Application

STEP #	A	B	This procedure installs the application on the server. Estimated time: 25 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.
			 Select the desired upgrade media and press [ENTER].  If the Early Upgrade Checks fail due to the ongoing syncing of raid mirrors, then follow the steps 5 and 6 to ignore the disk mirroring before the LSMS installation. If the Early Upgrade Checks passed then jump to Step 7.

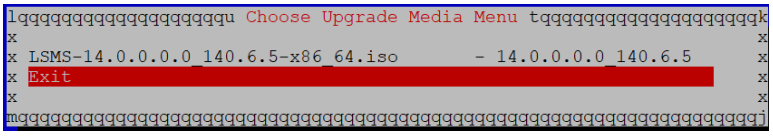
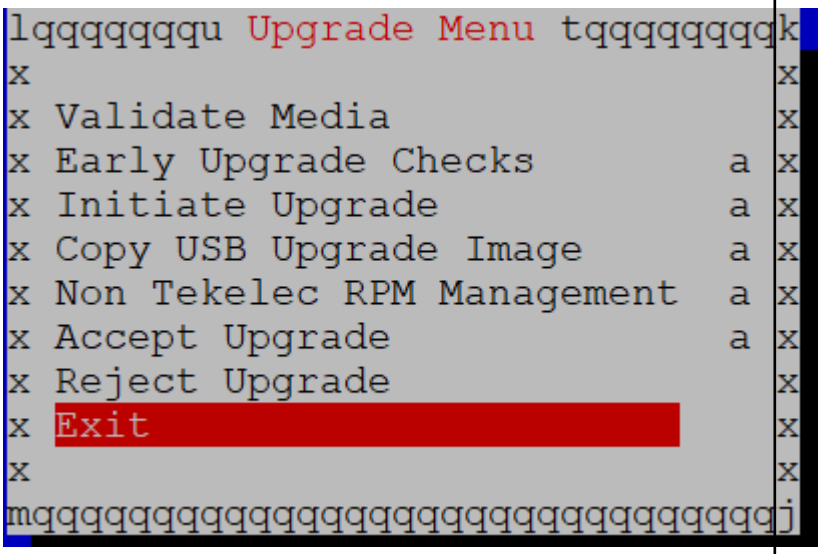
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Table 3-16 (Cont.) Procedure 11 - Install the LSMS Application

STEP #	A	B	This procedure installs the application on the server. Estimated time: 25 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	
				Early Checks failed for the next upgrade Look at earlyChecks.log for more info tarting Early Upgrade Checks at 1011413059 Running earlyUpgradeChecks() for Upgrade::EarlyPolicy::TPDEarlyChecks upgrade policy... Verified server is not pending accept of previous upgrade ERROR: Raid mirrors are syncing! ERROR: md2 is syncing! ERROR: earlyUpgradeChecks() code failed for Upgrade::EarlyPolicy::TPDEarlyChecks ERROR: Failed running earlyUpgradeChecks() code Hardware architectures match Install products match. No Application installed yet.. Skip alarm check! ERROR: Early Upgrade Checks Failed! User has requested just to run early checks. No upgrade will be performed... Early Upgrade Checks finished at 1011413059 [admusr@epappri ~]$ cat /proc/mdstat Personalities : [raid1] md1 : active raid1 sdb2[1] sda2[0] 262080 blocks super 1.0 [2/2] [UU] md2 : active raid1 sda1[0] sdb1[1] 468447232 blocks super 1.1 [2/2] [UU] [=====>.....] resync = 29.7% (139377920/468447232) finish=73.0min speed=75060K/sec bitmap: 4/4 pages [16KB], 65536KB chunk unused devices: <none> Contact My Oracle Support following the instructions on the Appendix E, if the early upgrade checks fail due to any other reason.

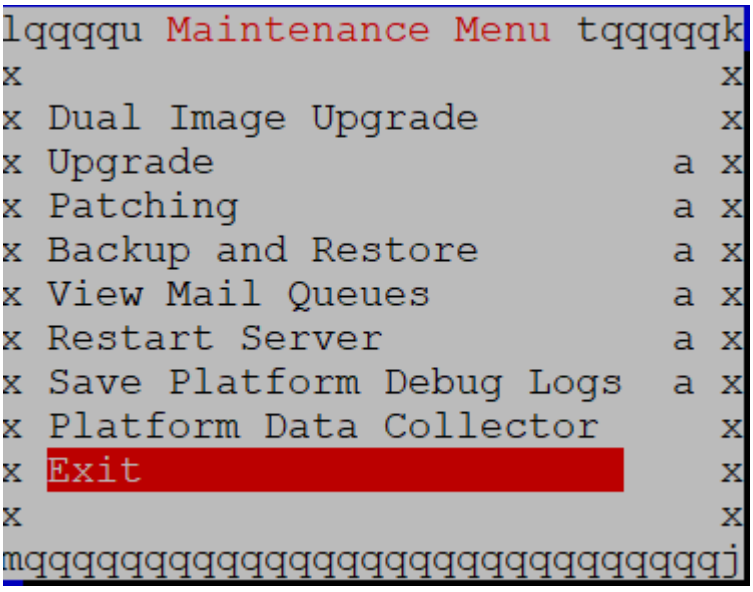
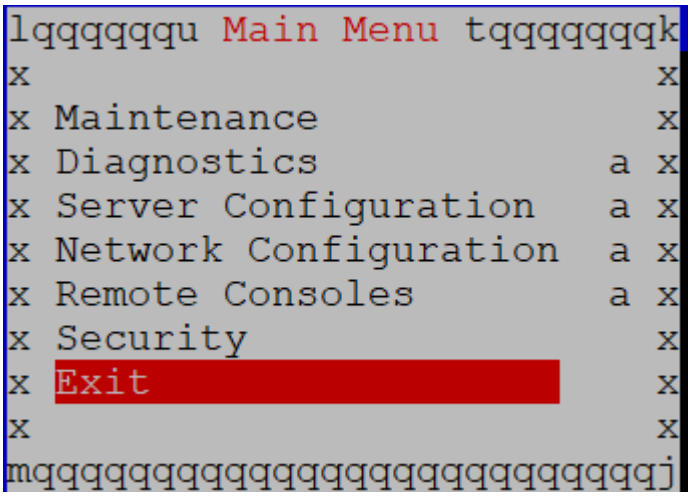
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Table 3-16 (Cont.) Procedure 11 - Install the LSMS Application

STEP #	A	B	This procedure installs the application on the server. Estimated time: 25 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	
5.	☐	☐	**MPS X:** Exit the platcfg menu	Select **Exit** and press **[ENTER]** to return to the **Maintenance Menu**.   Select **Exit** and press **[ENTER]** to return to the **Main Menu**.

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Table 3-16 (Cont.) Procedure 11 - Install the LSMS Application

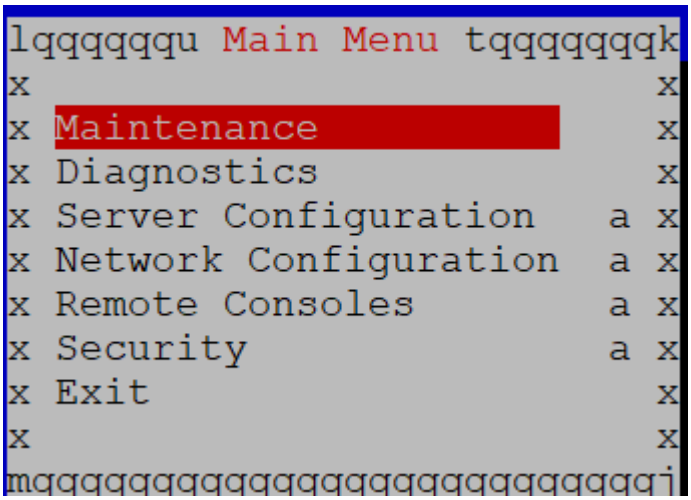
STEP #	A	B	This procedure installs the application on the server. Estimated time: 25 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.
			 Select **Exit** and press **[ENTER]**. The “platcfg” utility terminates. 

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Table 3-16 (Cont.) Procedure 11 - Install the LSMS Application

STEP #	A	B	This procedure installs the application on the server. Estimated time: 25 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	

6.	☐	☐	**MPS X:** Ignore disk mirroring before LSMS installation	`# echo "IGNORE_EARLY_CHECKS=1" > /var/TKLC/log/upgrade/tmp_upgrade.conf`
				
				Verify:
				
				`# cat /var/TKLC/log/upgrade/tmp_upgrade.conf`
				`IGNORE_EARLY_CHECKS=1`

7.	☐	☐	**MPS X**: Validate the upgrade media Use the "Arrow" and the **[ENTER]** keys to navigate the Menu options as shown to choose the upgrade media.	On the platcfg "**Main Menu"**, select **Maintenance** and press **[ENTER]**. 

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Table 3-16 (Cont.) Procedure 11 - Install the LSMS Application

S T E P #	A	B	This procedure installs the application on the server. Estimated time: 25 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	

			Press any key to return to the menu and then press Exit all way back to the Maintenance Menu	`lqqqqu Maintenance Menu tqqqqqk`
				`x                             x`
				`x Dual Image Upgrade          x`
				`x Upgrade                   a x`
				`x Patching                    x`
				`x Backup and Restore        a x`
				`x View Mail Queues          a x`
				`x Restart Server            a x`
				`x Save Platform Debug Logs  a x`
				`x Platform Data Collector   a x`
				`x Exit                        x`
				`x                             x`
				`mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj`
				
				`lqqqqqqqu Upgrade Menu tqqqqqqqqk`
				`x                               x`
				`x Validate Media                x`
				`x Early Upgrade Checks          x`
				`x Initiate Upgrade            a x`
				`x Copy USB Upgrade Image      a x`
				`x Non Tekelec RPM Management  a x`
				`x Accept Upgrade              a x`
				`x Reject Upgrade              a x`
				`x Exit                          x`
				`x                               x`
				`mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj`
				
				`lqqqqqqqqqqqqqqqqqqqu Choose Upgrade Media Menu tqqqqqqqqqqqqqqqqqqqqk`
				`x                                                                    x`
				`x LSMS-14.0.0.0.0_140.6.5-x86_64.iso      - 14.0.0.0.0_140.6.5        x`
				`x Exit                                                               x`
				`x                                                                    x`
				`mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj`
				
				The results of the validation will be displayed, similar to the example below. Press the “Enter” key to continue.

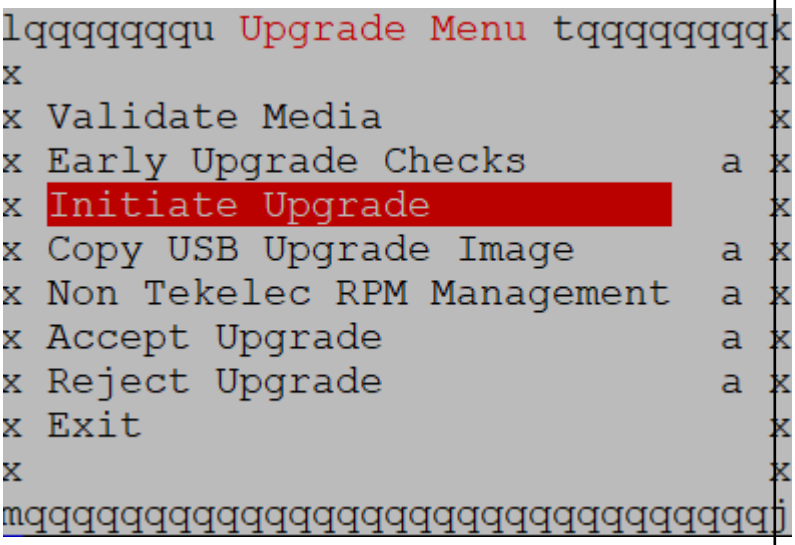
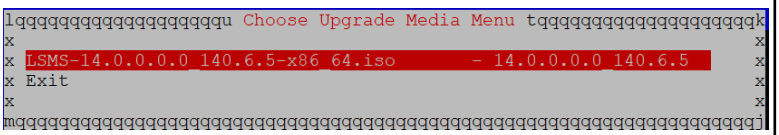
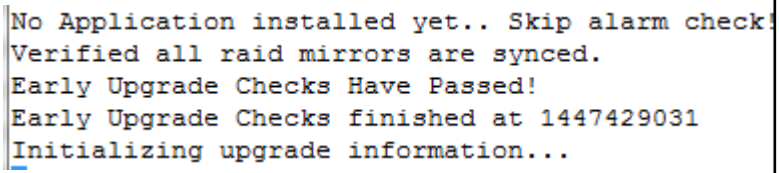
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Table 3-16 (Cont.) Procedure 11 - Install the LSMS Application

STEP #	A	B	This procedure installs the application on the server. Estimated time: 25 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	
				## ############################################################ ############################ JMVT Validate Utility v2.3.4, (c)Tekelec, May 2014 Validating /var/TKLC/upgrade/LSMS-14.0.0.0.0_140.6.5-x86_64.iso Date&Time: 2023-12-16 06:37:36 Volume ID: 14.0.0.0.0_140.6.5 Part Number: N/A Version: 14.0.0.0.0_140.6.5 Disc Label: LSMS Disc description: LSMS The media validation is complete, the result is: PASS CDROM is Valid PRESS ANY KEY TO RETURN TO THE PLATCFG MENU.

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Table 3-16 (Cont.) Procedure 11 - Install the LSMS Application

STEP #	A	B	This procedure installs the application on the server. Estimated time: 25 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	
8.	☐	☐	**MPS X:** Navigate to the Initiate Upgrade menu. Use the "Arrow" and the **[ENTER]** keys to navigate the Menu options as shown to choose the upgrade media.	Select the **Initiate Upgrade** menu and press **[ENTER]**.  The screen displays a message that it is searching for upgrade media. When the upgrade media is found, an Upgrade Media selection menu appears similar to the example below. Select the desired upgrade media and press [ENTER]. 
9.	☐	☐	**MPS X**: Upgrade proceeds	The screen displays the output like following, indicating that the upgrade software is first running the upgrade checks, and then proceeding with the upgrade.  Many informational messages appear on the terminal screen as the upgrade proceeds. The messages are not shown here for clarity sake. When installation is complete, the server reboots.

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Table 3-16 (Cont.) Procedure 11 - Install the LSMS Application

STEP #	A	B	This procedure installs the application on the server. Estimated time: 25 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	
10.	☐	☐	**MPS X**: Upgrade completed	After the final reboot, the screen displays the login prompt as in the example below. 1462266947: Upstart Job TKLCsnmp-subagent: started #################### 1462266947: Upstart Job syscheck: started #################### 1462266947: Upstart Job tpdProvd: started #################### 1462266949: Upstart Job ntdMgr: started #################### Oracle Linux Server release 6.7 Kernel 2.6.32-573.18.1.el6prerel7.0.3.0.0_86.44.0.x86_64 on an x86_64 lsmspri login:
11.	☐	☐	**MPS X:** Login as root user.	`Login: root` `Password: <root_password>`

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Table 3-16 (Cont.) Procedure 11 - Install the LSMS Application

STEP #	A	B	This procedure installs the application on the server. Estimated time: 25 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	
12.	☐	☐	**MPS X :** Check the upgrade and warnings	# grep -i error /var/TKLC/log/upgrade/upgrade.log 1724760824::ERROR: Command returned non-zero exit code 256 (systemctl start TKLCpldhcp) # grep -i error /var/TKLC/log/upgrade/ugwrap.log # grep -i warning /var/TKLC/log/upgrade/upgrade.log 1724760624::WARNING: TKLClsms-Config-2.0.4-14.0.0.1.0_140.9.0: Current hostname "Steak-B" being reset to default. 1724760681::TKLClsms warning: user %{root} does not exist - using root 1724760681::warning: group %{root} does not exist - using root 1724760759::WARNING: Could not dup STDERR to STDOUT: Bad file descriptor 1724760971::WARNING: A new file was added to xml alarm files...reparsing xml... 1724760971::WARNING: FILE: /usr/TKLC/plat/etc/alarms/lsmsAlarms.xml # # grep "Upgrade returned success" /var/TKLC/log/upgrade/upgrade.log 1248284646:: Upgrade returned success!# grep -i error /var/TKLC/log/upgrade/upgrade.log Only below error is expected 1512594958::ERROR: Command returned non-zero exit code 768 (/sbin/service TKLCpldhcp start) # grep -i error /var/TKLC/log/upgrade/ugwrap.log There should be no error output. # grep -i warning /var/TKLC/log/upgrade/upgrade.log The following warning are expected: The following warning are expected: 1512594173::WARNING: /usr/TKLC/plat/etc/alarms/alarms.xml has been updated...reparsing xml... 1512594265::warning: erase unlink of /etc/ssm/hwmgmtd.conf failed: No such file or directory 1512594267::kexec-tools #warning: /etc/kdump.conf created as /etc/kdump.conf.rpmnew 1512594414::setup ##warning: /etc/shadow created as /etc/shadow.rpmnew 1512594430::ca-certificates ################warning: /etc/pki/tls/certs/ca-bundle.crt created as /etc/pki/tls/certs/ca-bundle.crt.rpmnew 1512594464::warning: user mysql does not exist -

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Table 3-16 (Cont.) Procedure 11 - Install the LSMS Application

STEP #	A	B	This procedure installs the application on the server. Estimated time: 25 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	
				using root 1512594464::warning: group mysql does not exist - using root 1512594464::warning: user mysql does not exist - using root 1512594464::warning: group mysql does not exist - using root 1512594464::2017-12-06 16:07:44 0 [Warning] TIMESTAMP with implicit DEFAULT value is deprecated. Please use -- explicit_defaults_for_timestamp server option (see documentation for more details). 1512594465::2017-12-06 16:07:44 14331 [Warning] InnoDB: New log files created, LSN=45781 1512594465::2017-12-06 16:07:44 14331 [Warning] InnoDB: Creating foreign key constraint system tables. 1512594467::2017-12-06 16:07:46 0 [Warning] TIMESTAMP with implicit DEFAULT value is deprecated. Please use -- explicit_defaults_for_timestamp server option (see documentation for more details). 1512594468::WARNING: Default config file /etc/my.cnf exists on the system 1512594469::samhain warning: /etc/samhainrc created as /etc/samhainrc.rpmnew 1512594473::php-common #warning: /etc/php.ini created as /etc/php.ini.rpmnew 1512594551::initscripts ##warning: /etc/sysctl.conf created as /etc/sysctl.conf.rpmnew 1512594603::ntp warning: /etc/ntp.conf created as /etc/ntp.conf.rpmnew 1512594615::TKLCplat ################warning: /usr/TKLC/plat/etc/pid_conf created as /usr/TKLC/plat/etc/pid_conf.rpmnew 1512594615::#warning: /usr/TKLC/plat/etc/ service_conf created as /usr/TKLC/plat/etc/service_conf.rpmnew 1512594630::TKLCalarms ###warning: /usr/TKLC/plat/etc/alarms/alarms.xml saved as /usr/TKLC/plat/etc/alarms/alarms.xml.rpmsave 1512594637::alarmMgr ###warning: /usr/TKLC/plat/etc/alarmMgr/alarmMgr.conf created as /usr/TKLC/plat/etc/alarmMgr/alarmMgr.conf.rpmnew 1512594770::WARNING: This capability is not defined

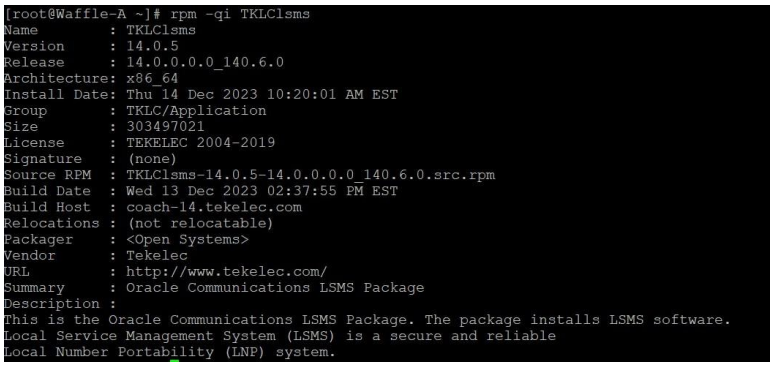
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Table 3-16 (Cont.) Procedure 11 - Install the LSMS Application

STEP #	A	B	This procedure installs the application on the server. Estimated time: 25 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	
				in the default capabilities. 1512594770::WARNING: Nor is it defined in the current hardware ID's capabilities. 1512594770::WARNING: CAPABILITY: service disabled 1512594770::WARNING: HARDWARE ID: E5APPB 1512594885::sudo warning: /etc/sudoers created as /etc/sudoers.rpmnew 1512594922::WARNING: TKLClsms-Config-1.4.9-13.2.1.0.0_132.22.0: Current hostname "lsmspri" being reset to default. 1512594923::WARNING: Hostname not changed because it is the same. 1512594966::WARNING: Could not write to config file /usr/my- new.cnf: Permission denied 1512594966::Installing MySQL system tables...2017-12-06 16:16:06 0 [Warning] 'THREAD_CONCURRENCY' is deprecated and will be removed in a future release. 1512594966::2017-12-06 16:16:06 31217 [Warning] The option innodb (skip-innodb) is deprecated and will be removed in a future release 1512594966::Filling help tables...2017-12-06 16:16:06 0 [Warning] 'THREAD_CONCURRENCY' is deprecated and will be removed in a future release. 1512594966::2017-12-06 16:16:06 31220 [Warning] The option innodb (skip-innodb) is deprecated and will be removed in a future release 1512594966::WARNING: Could not copy config file template /usr/share/mysql/my-default.cnf to 1512594966::WARNING: Default config file /etc/my.cnf exists on the system 1512594972::WARNING: A new file was added to xml alarm files...reparsing xml... 1512594972::WARNING: FILE: /usr/TKLC/plat/etc/alarms/lsmsAlarms.xml 1512594974::WARNING: Module variable EXPECTED_CPUS is deprecated! 1512594975::WARNING: CONFIG: /usr/TKLC/plat/lib/Syscheck/modules/system/cpu/config 1512594975::WARNING: Module variable EXPECTED_CPU_ALM is deprecated! 1512594975::WARNING: CONFIG: /usr/TKLC/plat/lib/Syscheck/modules/system/cpu/config

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Table 3-16 (Cont.) Procedure 11 - Install the LSMS Application

STEP #	A	B	This procedure installs the application on the server. Estimated time: 25 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	
				1702719042::WARNING: TKLClsms-Config-2.0.3-0.70555: Current hostname "lsmspri" being reset to default. 1702719098::TKLClsms ##############################warning: user %{root} does not exist - using root 1702719104::warning: group %{root} does not exist - using root 1702719175::WARNING: Could not dup STDERR to STDOUT: Bad file descriptor 1702719391::WARNING: A new file was added to xml alarm files...reparsing xml... 1702719391::WARNING: FILE: /usr/TKLC/plat/etc/alarms/lsmsAlarms.xml
13.	☐	☐	**MPS X:** Verify LSMS release.	# rpm -qi TKLClsms 

```
[root@Waffle-A ~]# rpm -qi TKLClsms
Name        : TKLClsms
Version     : 14.0.5
Release     : 14.0.0.0.0_140.6.0
Architecture: x86_64
Install Date: Thu 14 Dec 2023 10:20:01 AM EST
Group       : TKLC/Application
Size        : 303497021
License     : TEKELEC 2004-2019
Signature   : (none)
Source RPM  : TKLClsms-14.0.5-14.0.0.0.0_140.6.0.src.rpm
Build Date  : Wed 13 Dec 2023 02:37:55 PM EST
Build Host  : coach-14.tekelec.com
Relocations : (not relocatable)
Packager    : <Open Systems>
Vendor      : Tekelec
URL         : http://www.tekelec.com/
Summary     : Oracle Communications LSMS Package
Description :
This is the Oracle Communications LSMS Package. The package installs LSMS software.
Local Service Management System (LSMS) is a secure and reliable
Local Number Portability (LNP) system.
```


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Table 3-16 (Cont.) Procedure 11 - Install the LSMS Application

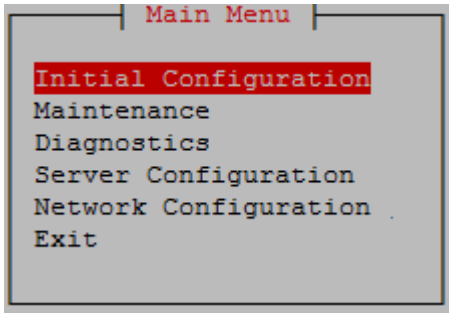
STEP #	A	B	This procedure installs the application on the server. Estimated time: 25 minutes Note: Below procedure needs to be executed on both MPS A and MPS B servers.	
14			**Create config file in ssh directory :** Do not run this if ELAP is already upgraded to ELAP11	Run below steps on both servers after installation is complete: 1. switch to lsmsadm user 2. cd .ssh 3. Create a config file using *vi config* in the /var/TKLC/lsms/lsmsadm/.ssh with below content `Host *` `HostKeyAlgorithms +ssh-rsa` `PubkeyAcceptedKeyTypes +ssh-rsa` **Note:** Default permission and ownership will automatically be added to this file for lsmsadm user 4. Switch back to root user 5. Add ssh-rsa at the end of the line of file /etc/ssh/sshd_config. For example: `HostKeyAlgorithms ssh-ed25519,ssh-ed25519-cert-v01@openssh.com,ecdsa-sha2-nistp384,ecdsa-sha2-nistp384-cert-v01@openssh.com,rsa-sha2-512,rsa-sha2- 512-cert-v01@openssh.com,rsa-sha2-256,rsa-sha2-256- cert-v01@openssh.com,ecdsa-sha2-nistp256,ecdsa-sha2- nistp256-cert-v01@openssh.com,ecdsa-sha2- nistp521,ecdsa-sha2-nistp521-cert- v01@openssh.com,ssh-rsa` 6. Restart sshd service using the below command: `systemctl restart sshd` 7. Perform steps 1-6 on mate server.
		This procedure is complete!		

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3.7 Initial Configuration

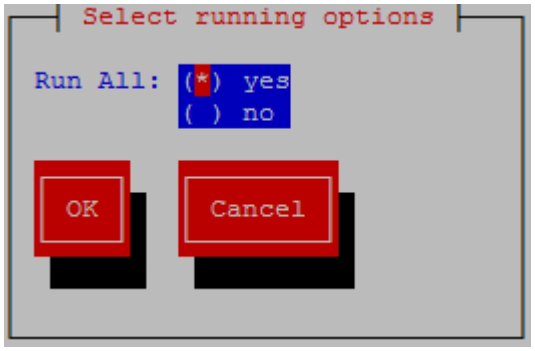
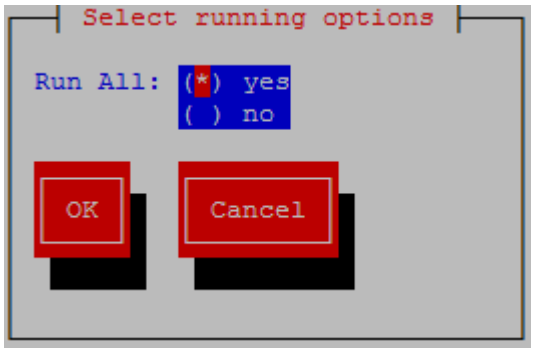
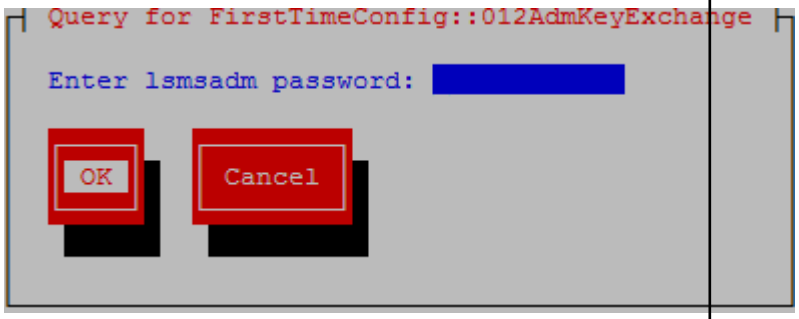
3.7.1 Procedure 12 LSMS INITIAL CONFIGURATION

Table 3-17 Procedure 12 - LSMS Initial Configuration

STEP #	This procedure does the initial configuration on the LSMS servers. Estimated time: 15 minutes	
1.	**MPS A:** Log in to the server as the user “root”.	`Login: root` `Password: <root_password>`
2.	**MPS A:** Start lsmsmgr utility by logging in as lsmsmgr user	`# su - lsmsmgr`
3.	**MPS A:** Select **“Initial Configuration”**	

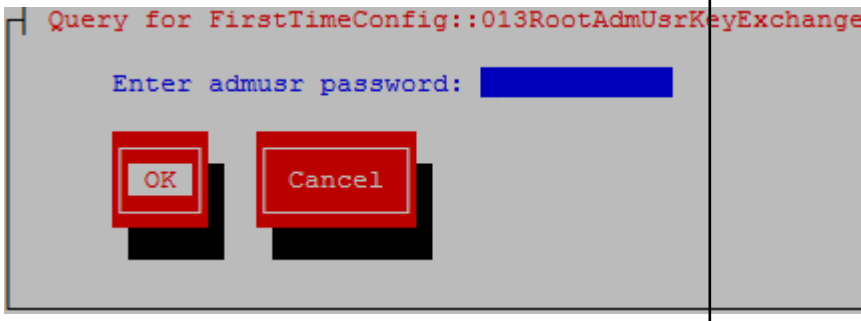
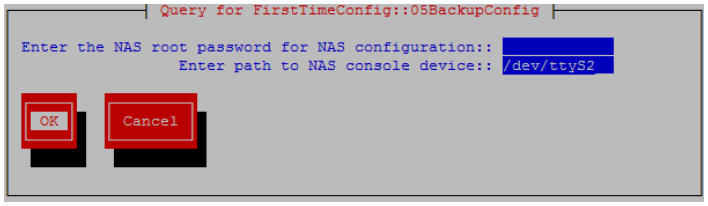
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Table 3-17 (Cont.) Procedure 12 - LSMS Initial Configuration

STEP #	This procedure does the initial configuration on the LSMS servers. Estimated time: 15 minutes	
4.	**MPS A:** Select **"yes"** Select **OK** and press **[ENTER]**	 
5.	**MPS A:** Enter password for "lsmsadm" Select **OK** and press **[ENTER]**	

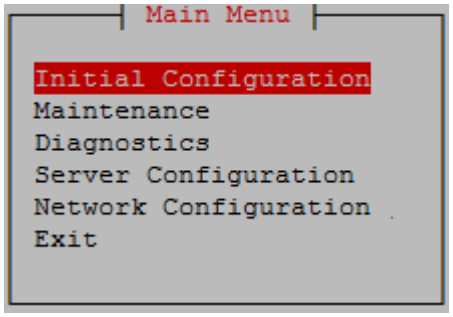
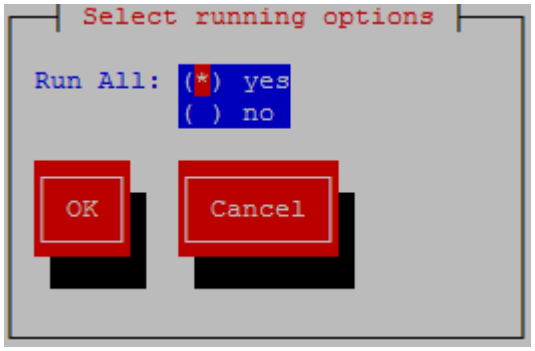
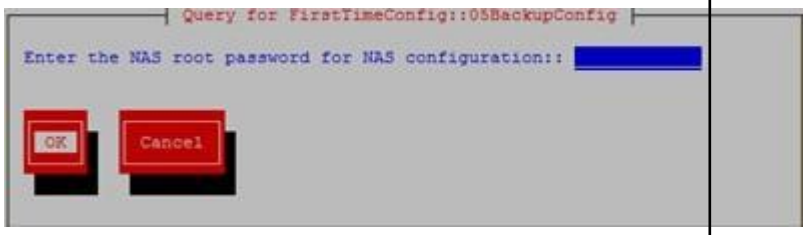
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Table 3-17 (Cont.) Procedure 12 - LSMS Initial Configuration

STEP #	This procedure does the initial configuration on the LSMS servers. Estimated time: 15 minutes	
6.	**MPS A:** Enter password for “admusr” Select **OK** and press **[ENTER]**	
7.	**MPS A:** Enter the NAS password used to login into NAS console. Accept the default serial port (ttyS2) when prompted for the path to the NAS console device. Select **OK** and press **[ENTER]**	
8.	A message is displayed indicating the root Key Exchange was successful. A message is displayed indicating the lsmsadm Key Exchange was successful. A message is displayed indicating the admusr Key Exchange was successful. A message is displayed indicating the Time Synchronization was successful. A message is displayed indicating the Database creation was successful. A message is displayed indicating the NAS Backup Configuration was successful. A message is displayed indicating the inhibiting of the node was successful. Select **Exit** and press **[ENTER]** repeatedly to exit lsmsmgr	
9.	**MPS A:** Switch to mate	`#ssh mate`
10.	**MPS B:** Start lsmsmgr	`# su - lsmsmgr`

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Table 3-17 (Cont.) Procedure 12 - LSMS Initial Configuration

STEP #	This procedure does the initial configuration on the LSMS servers. Estimated time: 15 minutes	
11.	**MPS B:** Select **"Initial Configuration"**	
12.	**MPS B:** Select **"yes"** Select **OK** and press **[ENTER]**	
13.	**MPS B:** Enter the NAS password used to login into NAS console. Select **OK** and press **[ENTER]**	
14.	A message is displayed indicating the Database creation was successful. A message is displayed indicating the NAS Backup Configuration was successful. Select **Exit** and press **[ENTER]** repeatedly to exit lsmsmgr	
15.	**MPS B:** Log into the LSMS B server via minicom.	`# minicom mate`
16.	**MPS A:** Perform init 6 to reboot the LSMS B card.	`# init 6` Watch for errors during boot process. When the login prompt is displayed, exit from minicom.

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Table 3-17 (Cont.) Procedure 12 - LSMS Initial Configuration

STEP #	This procedure does the initial configuration on the LSMS servers. Estimated time: 15 minutes	
□17.	**MPS A:** Log into the LSMS A server via minicom.	`# minicom mate`
□18.	**MPS B:** Perform init 6 to reboot the LSMS A card.	`# init 6` Watch for errors during boot process. When the login prompt is displayed, exit from minicom.
This procedure is complete!		

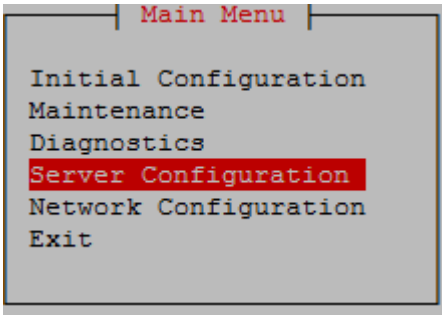
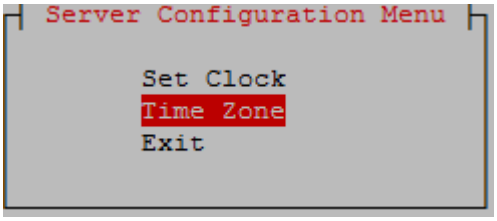
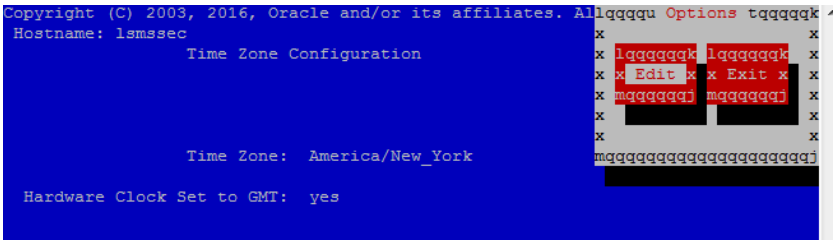
3.7.2 Procedure 13 CONFIGURE TIME ZONE AND CLOCK

Table 3-18 Procedure 13 – Configure Time Zone and Clock.

STEP #	This procedure configures the time zone and clock. Estimated time: 5 minutes Note: Below procedure needs to be executed on both MPS A and B servers.	
□1.	**MPS X:** Log in to the server as the user “root”.	`Login: root` `Password: <root_password>`
□2.	**MPS X:** Start lsmsmgr utility by logging in as lsmsmgr user.	`# su - lsmsmgr`

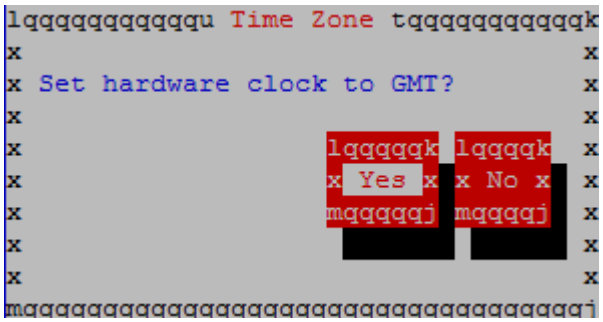
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Table 3-18 (Cont.) Procedure 13 – Configure Time Zone and Clock.

STEP #	This procedure configures the time zone and clock. Estimated time: 5 minutes Note: Below procedure needs to be executed on both MPS A and B servers.	
3.	**MPS X::** Verify time zone.	Select **Server Configuration** and press **[ENTER].**  Select **Time Zone** and press **[ENTER].**  The screen shows the current time zone setting.  If this is not correct, select Edit and press **[ENTER].** If the time zone is correct, select **Exit**, press **[ENTER]** and skip the next step

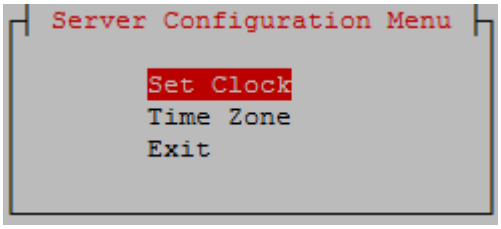
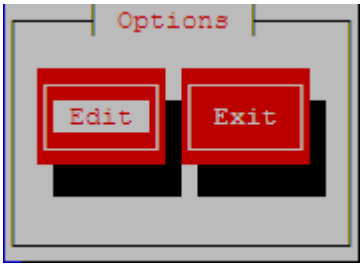
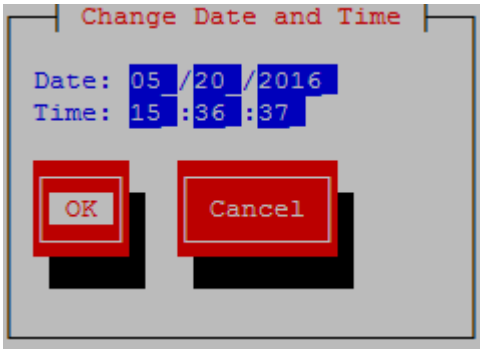
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Table 3-18 (Cont.) Procedure 13 – Configure Time Zone and Clock.

STEP #	This procedure configures the time zone and clock. Estimated time: 5 minutes Note: Below procedure needs to be executed on both MPS A and B servers.	
4.	**MPS X:** Change time zone.	Select appropriate time zone and press **[ENTER].**  Select **Yes** to set the hardware clock to GMT and press **[ENTER].** 

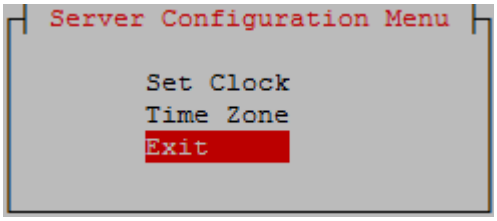
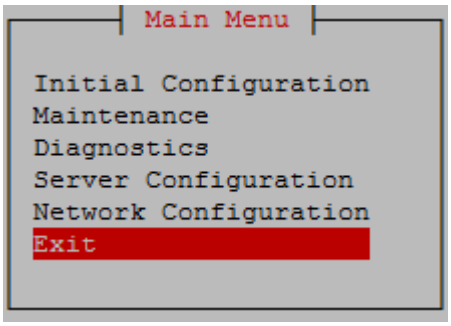
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Table 3-18 (Cont.) Procedure 13 – Configure Time Zone and Clock.

STEP #	This procedure configures the time zone and clock. Estimated time: 5 minutes Note: Below procedure needs to be executed on both MPS A and B servers.	
5.	**MPS X:** Set clock.	Select **Set Clock** and press **[ENTER].**  Select **Edit** and press **[ENTER].**  Enter correct time.  Use right arrow to get to **OK** and press **[ENTER].**

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Table 3-18 (Cont.) Procedure 13 – Configure Time Zone and Clock.

STEP #	This procedure configures the time zone and clock. Estimated time: 5 minutes Note: Below procedure needs to be executed on both MPS A and B servers.	
6.	**MPS X:** Exit the lsmsmgr menu	Select **Exit** and press **[ENTER]** to return to the **Main Menu**.  Select **Exit** and press **[ENTER]**. The "lsmsmgr" utility terminates. 
This procedure is complete!		

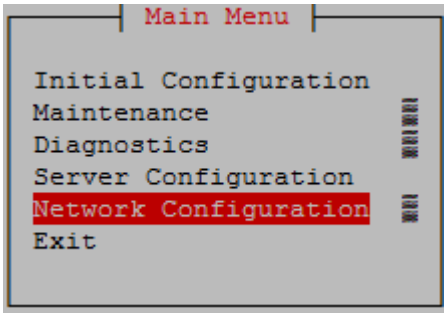
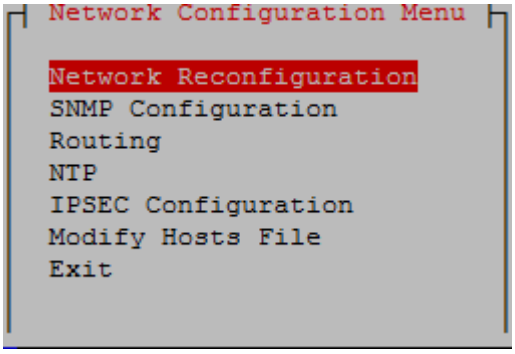
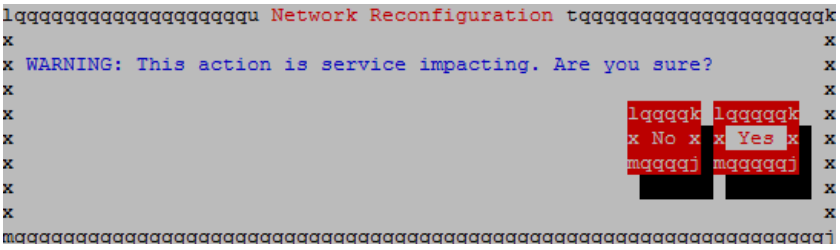
3.7.3 Procedure 14 SINGLE SUBNET CONFIGURATION FOR LSMS MPS CARDS

Table 3-19 Procedure 14 – Single Subnet Configuration for LSMS MPS Cards.

STEP #	This procedure configures the system as single subnet at the customer site. Estimated time: 10 minutes Note: All the information should be taken before starting upgrade as part of Section 1.6	
1.	**MPS A:** Log in to the server as the user "root".	`Login: root` `Password: <root_password>`
2.	**MPS A:** Start lsmsmgr utility as lsmsmgr user.	`# su - lsmsmgr`

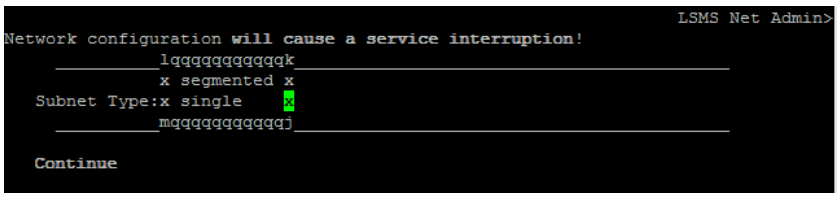
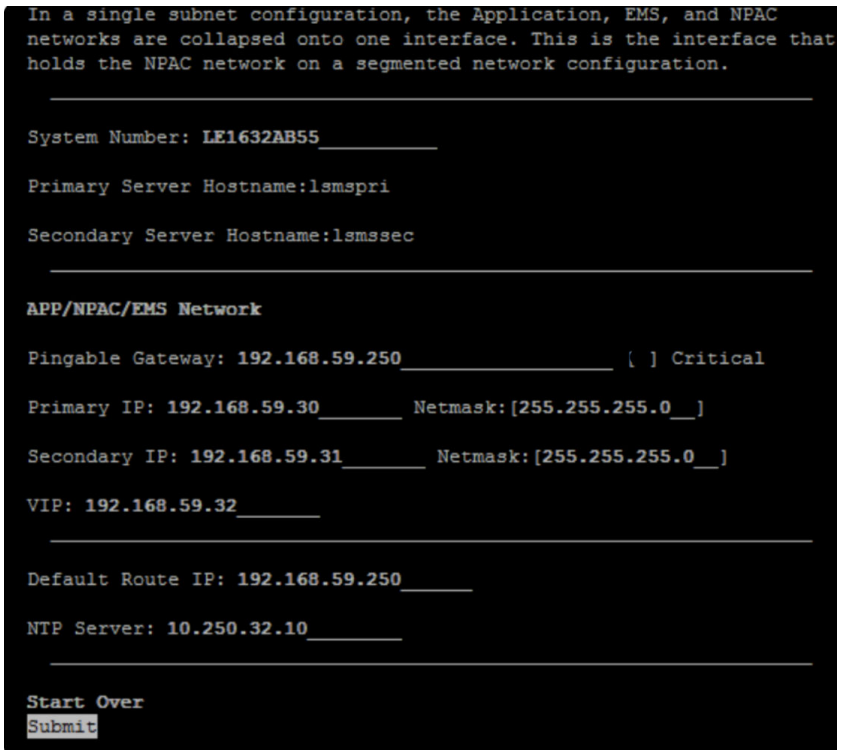
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Table 3-19 (Cont.) Procedure 14 – Single Subnet Configuration for LSMS MPS Cards.

STEP #	This procedure configures the system as single subnet at the customer site. Estimated time: 10 minutes Note: All the information should be taken before starting upgrade as part of Section 1.6	
3.	**MPS A:** Change the network configuration	Select **Network Configuration** and press **[ENTER].**  Select **Network Reconfiguration** and press **[ENTER].**  Select **Yes** to proceed to Network configuration.  A lynx driven screen will appear with the following prompt; Do you want to execute "/usr/TKLC/lsms/tools/lsmsnetAdm-bin/lsmsnetadm.cgi"? Type "Y/y" to continue and the next screen will appear and press the right arrow key to follow the link Select **Single** from the Subnet Type menu and then select **Continue**.

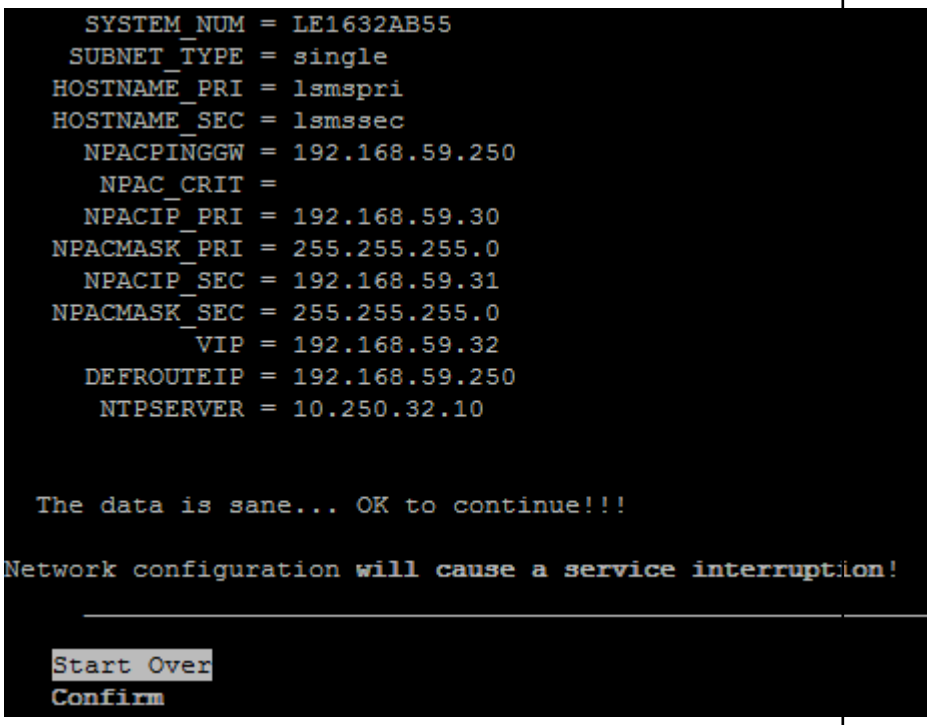
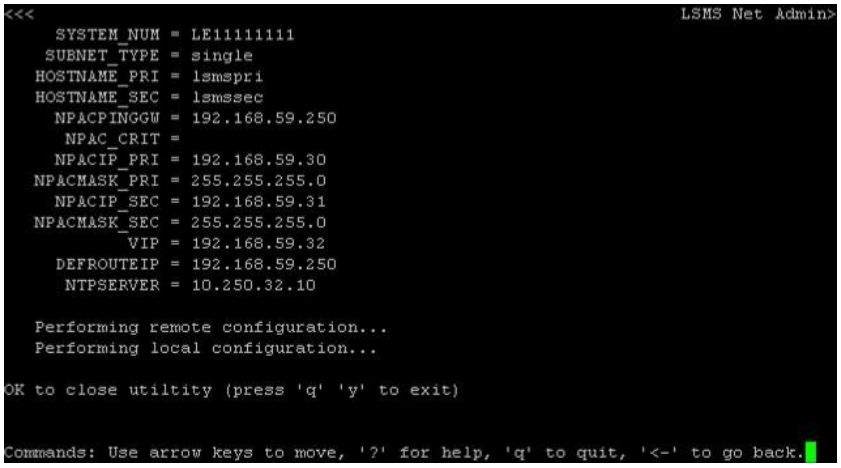
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Table 3-19 (Cont.) Procedure 14 – Single Subnet Configuration for LSMS MPS Cards.

STEP #	This procedure configures the system as single subnet at the customer site. Estimated time: 10 minutes Note: All the information should be taken before starting upgrade as part of Section 1.6	
		
4.	**MPS A:** Enter network values.	Using the up and down arrows, scroll through the text fields, entering the desired values (to enter the netmask, highlight the field and then use the enter key or right arrow key to display the dropdown menu, choose the desired value from the list) for each fields:  Once the values are entered press the down arrow to select the “Submit” button and press the right arrow to follow the link. **Note:** The System Number shall be as follows: • *LEYYWWMMXX* • Where: – LE is the new System Number Prefix for LSMS. – YY = YEAR – year of the system shipment – WW= WEEK – calendar week of the YY year when the system is shipped – MM = MANUFACTURER (if other than TKLC) – Here 00 as Manufacturer is Oracle – XX = number in line of systems shipped that week

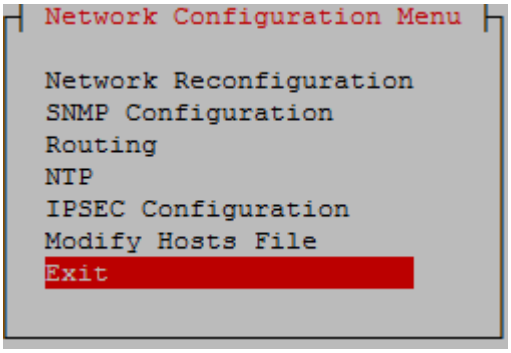
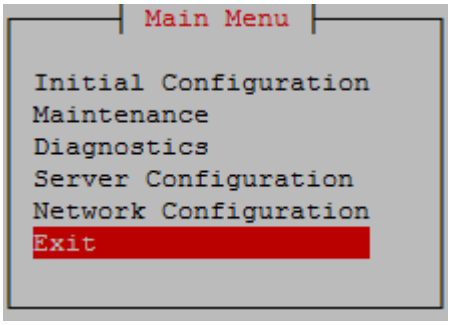
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Table 3-19 (Cont.) Procedure 14 – Single Subnet Configuration for LSMS MPS Cards.

STEP #	This procedure configures the system as single subnet at the customer site. Estimated time: 10 minutes Note: All the information should be taken before starting upgrade as part of Section 1.6	
	MPS A: Apply network settings	If the values pass a sanity test for validity, then the "Confirm" button will be visible. Use the down arrow to select "Confirm" and press the right arrow to apply the changes. If the sanity tests failed, the reasons will be stated. Use the left arrow key to go back to the edit screen.  The execution could take a few minutes, be patient. The screen will eventually report the status of the completion. If an error occurs, contact My Oracle Support following the instructions on the Appendix E. Type "**q**" and then "**y**" to exit the Network Configuration. 

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Table 3-19 (Cont.) Procedure 14 – Single Subnet Configuration for LSMS MPS Cards.

STEP #	This procedure configures the system as single subnet at the customer site. Estimated time: 10 minutes Note: All the information should be taken before starting upgrade as part of Section 1.6	
5.	**MPS A:** Exit the lsmsmgr menu	Select **Exit** and press **[ENTER]** to return to the **Main Menu**.  Select **Exit** and press **[ENTER]**. The "platcfg" utility terminates. 
		This procedure is complete!
	Note: Currently, **root login is disabled over IP access**.	To proceed, use **one of the following methods**: 1. Login via Conserver Log in directly as root using the conserver console. 2. Login via IP using admusr user Switch to root: # su Enter the **root password** when prompted.

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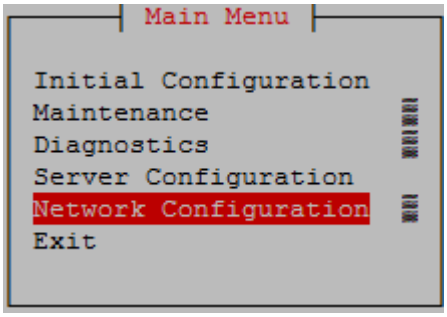
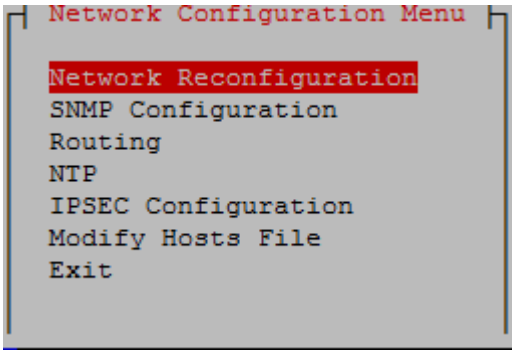
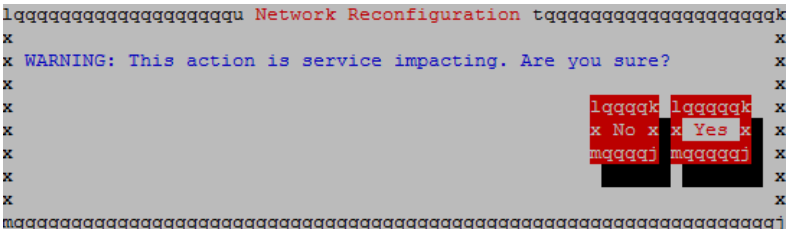
3.7.4 Procedure 15 SEGMENTED CONFIGURATION FOR LSMS CARDS

Table 3-20 Procedure 15 - Segmented Configuration for MPS LSMS Cards

STEP #	**This procedure configures the system as segmented subnet at the customer site.** **Estimated time: 10 minutes** **Note: All the information should be taken before starting upgrade as part of Section 1.6**	
1.	**MPS A:** Log in to the server as the user “root”.	`Login: root` `Password: <root_password>`
2.	**MPS A:** Start lsmsmgr utility by login as lsmsmgr user	`# su - lsmsmgr`

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Table 3-20 (Cont.) Procedure 15 - Segmented Configuration for MPS LSMS Cards

STEP #	This procedure configures the system as segmented subnet at the customer site. Estimated time: 10 minutes Note: All the information should be taken before starting upgrade as part of Section 1.6	
3.	**MPS A:** Change the network configuration	Select **Network Configuration** and press **[ENTER].**  Select **Network Reconfiguration** and press **[ENTER].**  Select **Yes** to proceed to Network configuration.  A lynx driven screen will appear with the following prompt; Do you want to execute "//usr/TKLC/lsms/tools/lsmsnetAdm- bin/ lsmsnetadm.cgi"? Type “Y/y” to continue and the next screen will appear and press the right arrow key to follow the link Select **Segmented** from the Subnet Type menu and then select **Continue**.

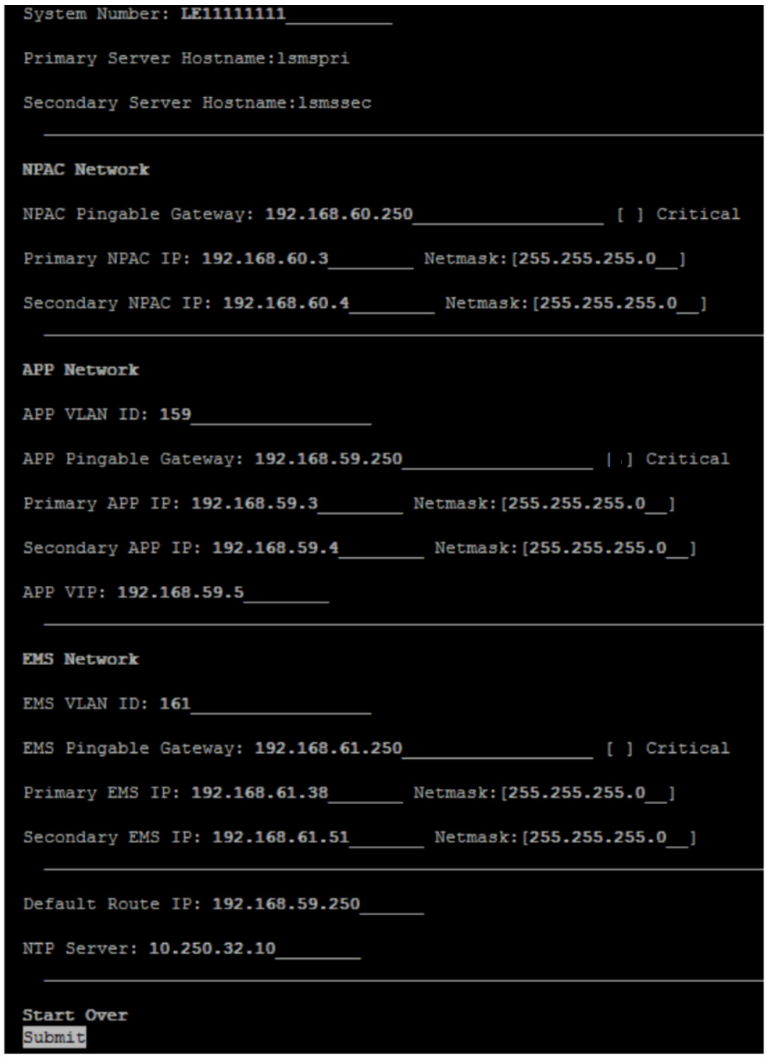
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Table 3-20 (Cont.) Procedure 15 - Segmented Configuration for MPS LSMS Cards

STEP #	This procedure configures the system as segmented subnet at the customer site. Estimated time: 10 minutes Note: All the information should be taken before starting upgrade as part of Section 1.6	
		Network configuration will cause a service interruption! lqqqqqqqqqqk x segmented x Subnet Type:x single x mqqqqqqqqqqj Continue

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Table 3-20 (Cont.) Procedure 15 - Segmented Configuration for MPS LSMS Cards

STEP #	This procedure configures the system as segmented subnet at the customer site. Estimated time: 10 minutes Note: All the information should be taken before starting upgrade as part of Section 1.6	
4.	**MPS A:** Enter network values.	Using the up and down arrows, scroll through the text fields, entering the desired values (to enter the netmask, highlight the field and then use the enter key or right arrow key to display the dropdown menu, choose the desired value from the list) for each fields:  **Note:** The System Number shall be as follows: • *LEYYWWMMXX* • Where: – LE is the new System Number Prefix for LSMS – YY = YEAR – year of the system shipment – WW= WEEK – calendar week of the YY year when the system is shipped

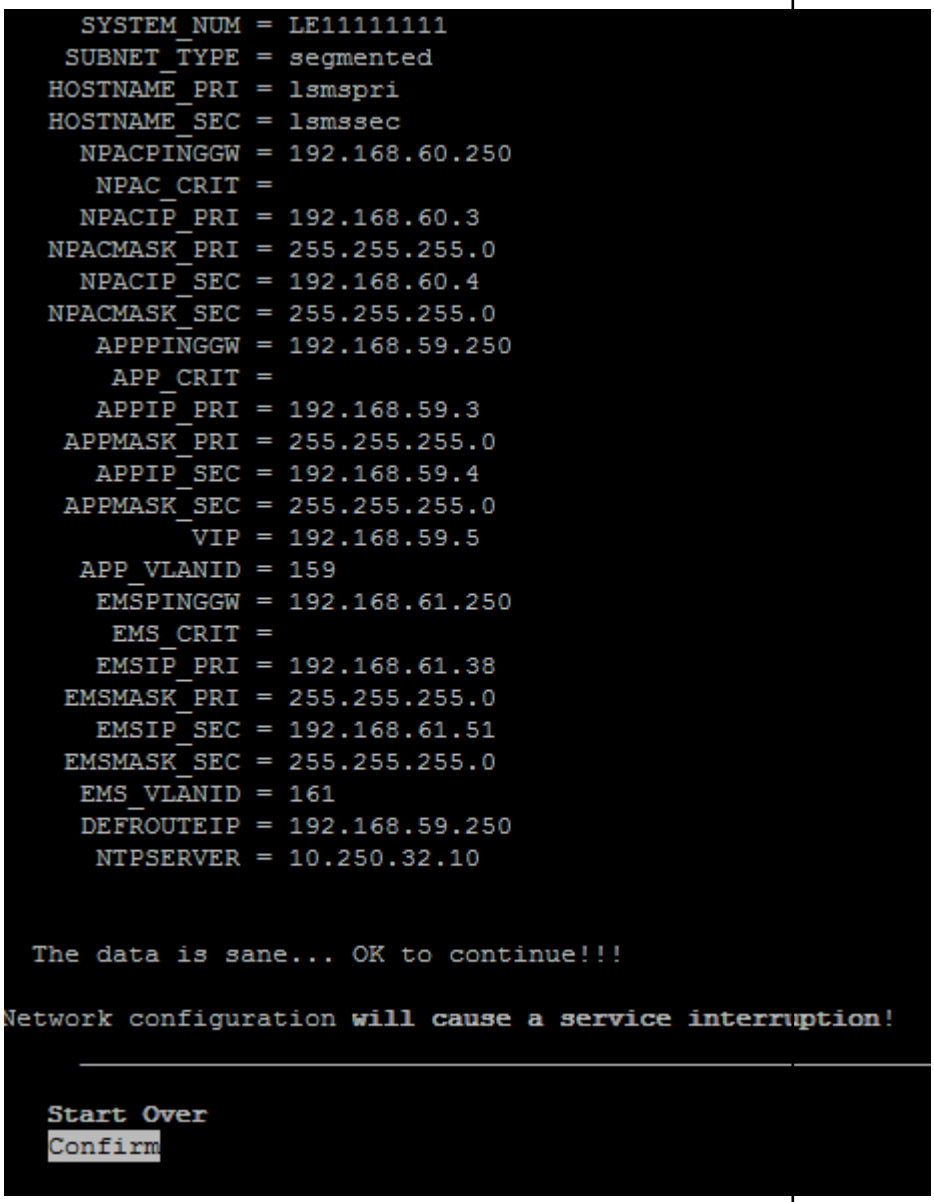
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Table 3-20 (Cont.) Procedure 15 - Segmented Configuration for MPS LSMS Cards

STEP #	This procedure configures the system as segmented subnet at the customer site. Estimated time: 10 minutes Note: All the information should be taken before starting upgrade as part of Section 1.6	
		– MM = MANUFACTURER (if other than TKLC) – Here 00 as Manufacturer is Oracle – XX = number in line of systems shipped that week *Default route should be the route of the APP IP address. Once the values are entered press the down arrow to select the "Submit" button and press the right arrow to follow the link.

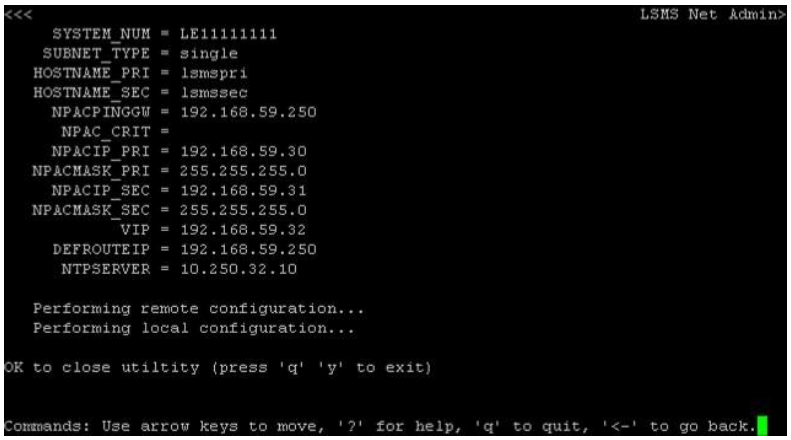
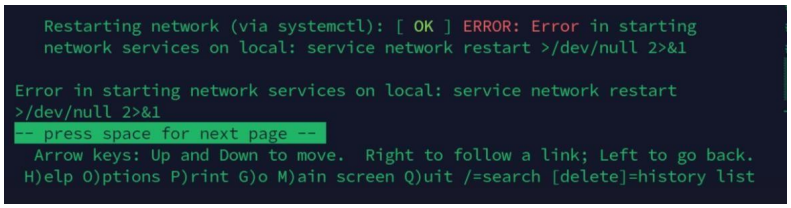
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Table 3-20 (Cont.) Procedure 15 - Segmented Configuration for MPS LSMS Cards

STEP #		
	This procedure configures the system as segmented subnet at the customer site. **Estimated time: 10 minutes** **Note: All the information should be taken before starting upgrade as part of Section 1.6**	
5.	**MPS A:** Apply network settings	If the values pass a sanity test for validity, then the "Confirm" button will be visible. Use the down arrow to select "Confirm" and press the right arrow to apply the changes. If the sanity tests failed, the reasons will be stated. Use the left arrow key to go back to the edit screen.  The execution could take a few minutes, be patient. The screen will eventually report the status of the completion. If an error occurs, contact My Oracle Support following the instructions on the Appendix E.

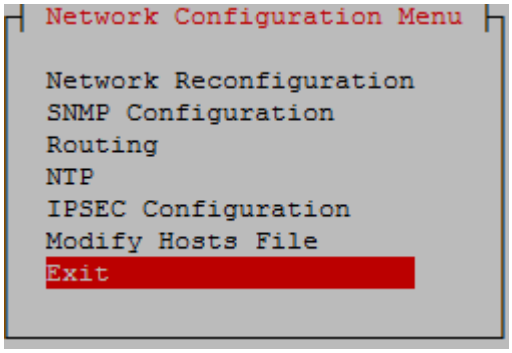
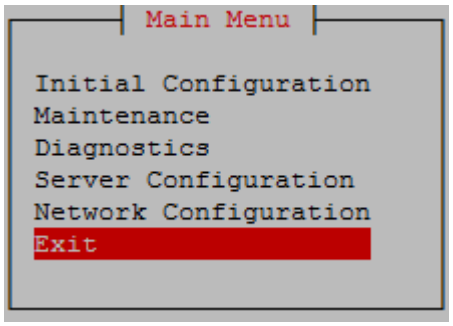
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Table 3-20 (Cont.) Procedure 15 - Segmented Configuration for MPS LSMS Cards

STEP #	This procedure configures the system as segmented subnet at the customer site. Estimated time: 10 minutes Note: All the information should be taken before starting upgrade as part of Section 1.6	
		Type "**q**" and then "**y**" to exit the Network Configuration.
		 **Note:** If below error is observed after network configuration, run "systemctl restart network" command after exiting from lsmsmgr menu.  `# systemctl restart network`

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Table 3-20 (Cont.) Procedure 15 - Segmented Configuration for MPS LSMS Cards

STEP #	This procedure configures the system as segmented subnet at the customer site. Estimated time: 10 minutes Note: All the information should be taken before starting upgrade as part of Section 1.6	
6.	**MPS A:** Exit the lsmsmgr menu	Select **Exit** and press **[ENTER]** to return to the **Main Menu**.  Select **Exit** and press **[ENTER]**. The "platcfg" utility terminates.  **This procedure is complete!** To proceed, use **one of the following methods**: 1. Login via Conserver 2. Login via IP using admusr user Log in over IP as admusr Switch to root: # su Enter the **root password** when prompted.

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3.7.5 Procedure 16 TMN TOOLKIT AND MARBEN OSI LICENSE INSTALLATION

> **Note**
>
> Valid licenses need to be installed on both A and B LSMS servers. Refer to LSMS 14.1 Release Notes, section 3.3: Marben OSI and TMN Toolkit license key files, for details. Be sure to start the process at least 7 days before the scheduled upgrade date. If needed, temporary TMN Toolkit and Marben OSI licenses are available on the Oracle Software Delivery Cloud (edelivery.oracle.com) with the LSMS software.

Table 3-21 Procedure 16 - TMN Toolkit and Marben OSI License Installation

STEP #	A	B	This procedure will install the TMN Toolkit and Marben OSI License to both A and B LSMS servers. Estimated time: 5 minutes	
1.	☐	☐	**MPS X:** Log in to the server as the user “root”	`Login: root` `Password: <root_password>`
2.	☐	☐	**MPS X:** Install the TMN toolkit license file	Copy the TMN Toolkit license file to **/usr/local/netech/etc/license** path following any steps mentioned in **3.7**, **C.1** or **3.7**, **C.2** If upgrading from LSMS 14.1.0.X release copy backed up licenses on respective paths, there will be no need to procure new licenses. Open the file ‘/usr/local/netech/etc/license’ using vi or vim and copy the content of license in the file and save the file. Cross check the content of file using : `# cat /usr/local/netech/etc/license`
3.	☐	☐	**MPS X:** Install the Marben OSI License file	Copy Marben OSI License string using below command: `# echo "<Marben OSI license string>" > /usr/TKLC/osi/conf/license`
4.	☐	☐	**MPS X:** Restart the system	Reboot the system to take effect `# reboot`
This procedure is complete!				

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3.7.6 Procedure 17 START LSMS SERVICES

Table 3-22 Procedure 17 - Start LSMS services

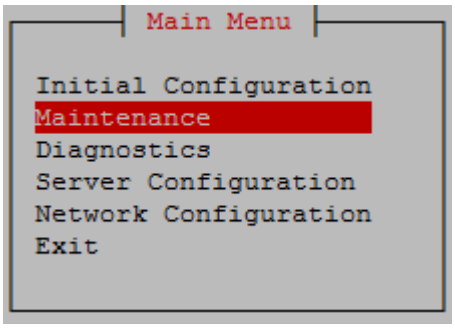
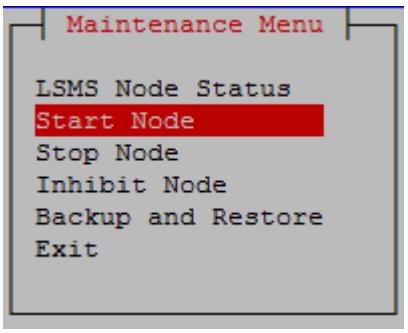
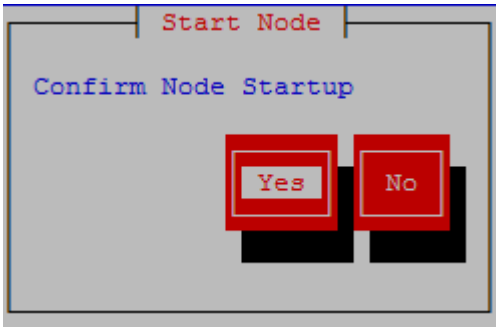
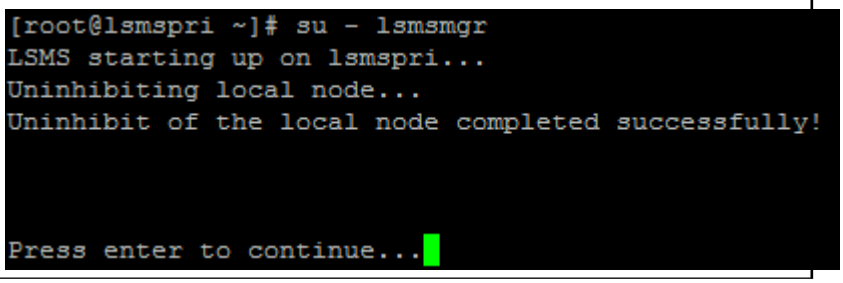
S T E P #	This procedure starts the LSMS services. Estimated time: 10 minutes	
□1.	**MPS A:** Log in to the server as the user “root”.	`Login: root` `Password: <root_password>`

□2.	**MPS A :** Check hastatus	Run below command to check lsms status is UNINITIALIZED "INHIBITED" before running startNode:
		
		`# hastatus`
		`UNINITIALIZED`
		
		if status is UNINITIALIZED and not UNINITIALIZED "INHIBITED" run hafailover else continue with Step 3.
		
		`# /usr/TKLC/plat/sbin/hafailover --inhibit`
		`# hastatus`
		`UNINITIALIZED "INHIBITED"`

□3.	**MPS A:** Start lsmsmgr	`# su - lsmsmgr`

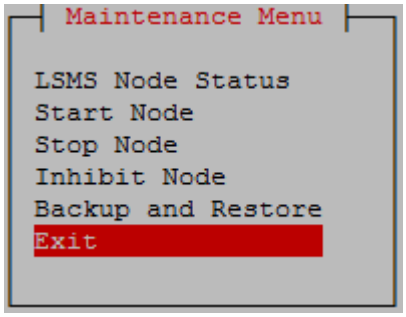
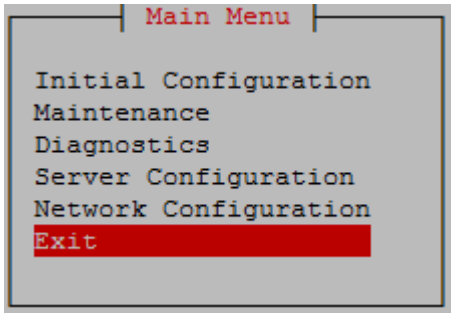
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Table 3-22 (Cont.) Procedure 17 - Start LSMS services

S T E P #	This procedure starts the LSMS services. Estimated time: 10 minutes	
4.	**MPS A:** Start Node This will make node active and start application	On the "**Main Menu**", select **Maintenance** and press **[ENTER]**.  Select **Start Node** and press **[ENTER]**.  Select **Yes** to confirm node startup press **[Enter]**  Press **Enter** once the node is uninhibited successfully. 

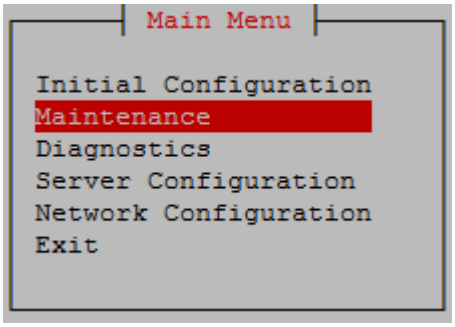
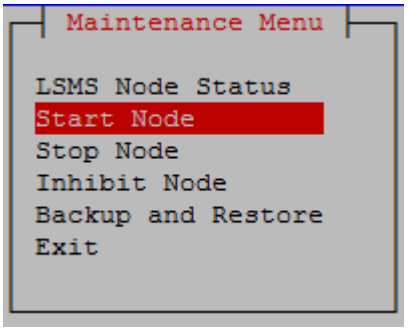
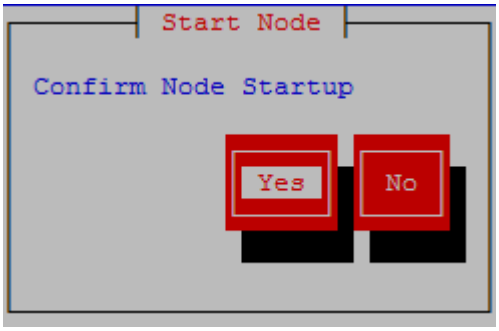
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Table 3-22 (Cont.) Procedure 17 - Start LSMS services

S T E P #	This procedure starts the LSMS services. Estimated time: 10 minutes	
		Select **Exit** and press **[Enter]** to return to Main Menu.  Select **Exit** and press **[Enter]** to exit the lsmsmgr menu. 
5.	**MPS A:** Switch to mate	`#ssh mate`
6.	**MPS B:** Log in to the server as the user “root”.	`Login: root` `Password: <root_password>`
7.	**MPS B:** Start lsmsmgr	`# su - lsmsmgr`

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Table 3-22 (Cont.) Procedure 17 - Start LSMS services

S T E P #	This procedure starts the LSMS services. Estimated time: 10 minutes	
□8.	**MPS B:** Start Node - This will make node standby and start application	On the "**Main Menu**", select **Maintenance** and press **[ENTER]**.  Select **Start Node** and press **[ENTER]**.  Select **Yes** to confirm node startup press **[Enter]**  Press **Enter** once the node is uninhibited successfully.

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Table 3-22 (Cont.) Procedure 17 - Start LSMS services

S T E P #	This procedure starts the LSMS services. Estimated time: 10 minutes	
		[root@lsmssec ~]# su - lsmsmgr LSMS starting up on lsmssec... Checking status from active mate... Running status on lsmspri node Copying DB from active mate. Local node will become standby. This may take a while LSMS shutting down lsmssec... Syncing Binary Logs ... Syncing mate:/mnt/snap/ to /var/TKLC/lsms/db/ Sync'ed LSMS starting up on lsmssec... Uninhibiting node lsmssec... Startup of local node successful Press enter to continue... Select **Exit** and press **[Enter]** to return to Main Menu. Maintenance Menu LSMS Node Status Start Node Stop Node Inhibit Node Backup and Restore Exit Select **Exit** and press **[Enter]** to exit the lsmsmgr menu. Main Menu Initial Configuration Maintenance Diagnostics Server Configuration Network Configuration Exit **Note:** If the hastatus output shows UNINITIALIZED INHIBITED or UNINITIALIZED instead of STANDBY, run startNode again from the

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Table 3-22 (Cont.) Procedure 17 - Start LSMS services

S T E P #	This procedure starts the LSMS services. Estimated time: 10 minutes	
		CLI. Then run hastatus to verify that the status has changed to STANDBY. `[root@lsmssec ~]# startNode`
This procedure is complete!		

3.7.7 Procedure 18 POST CONFIGURATION HEALTH CHECK

Table 3-23 Procedure 18 – Post Configuration Health Check

S T E P #	This procedure determines the health of the Server after an installation. This procedure will perform a syscheck on each LSMS server. Estimated time:5 minutes	
1.	**MPS A and B:** Log in to the server as the user “root”.	`Login: root` `Password: <root_password>`
2.	**MPS A and B:** Validate date, time and time zone to ensure accuracy.	`# date` `Thu May 12 05:55:27 EDT 2016`
	MPS A and B: Run the “hastatus” command to verify the HA state of this server.	Run the following command on both LSMS A and B to verify the HA state of mated LSMS pair. `# hastatus` Verify that the hastatus of one of the servers is Active and the other is Standby. **WARNING**: If the output from the above command is anything else other than “ACTIVE” and “STANDBY”, do not proceed with this procedure and contact My Oracle Support following the instructions on the Appendix E.

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Table 3-23 (Cont.) Procedure 18 – Post Configuration Health Check

STEP #	This procedure determines the health of the Server after an installation. This procedure will perform a syscheck on each LSMS server. Estimated time:5 minutes	

□3.	**LSMS Standby server:**
	Verify that the STANDBY server's MySQL replication is functioning properly.
		Run the following command to verify that MySQL replication is working correctly on the STANDBY LSMS server:
		`# tail /var/TKLC/lsms/logs/dbreplMon.log`
		If MySQL replication is functioning correctly then the following output will be observed, make sure that at least the last line of your output matches the lines below.
		`Thu May 12 05:58:12 2016 All tests passed on STANDBY`
		`FIPS integrity verification test failed.`
		`FIPS integrity verification test failed.`
		`Thu May 12 05:59:19 2016 All tests passed on STANDBY`
		`FIPS integrity verification test failed.`
		`FIPS integrity verification test failed.`
		`Thu May 12 06:00:25 2016 All tests passed on STANDBY`
		`FIPS integrity verification test failed.`
		`FIPS integrity verification test failed.`
		`Thu May 12 06:01:32 2016 All tests passed on STANDBY`
		WARNING: If at least the last line of your output does not match the lines above then do not proceed with this upgrade and contact My Oracle Support following the instructions on the Appendix E.

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Table 3-23 (Cont.) Procedure 18 – Post Configuration Health Check

STEP #	This procedure determines the health of the Server after an installation. This procedure will perform a syscheck on each LSMS server. Estimated time:5 minutes	

4.	**MPS A and B:**
	Execute syscheck
		`# syscheck`
		`Running modules in class disk...`
		`OK`
		`Running modules in class hardware...`
		`OK`
		`Running modules in class lsmshc...`
		`OK`
		`Running modules in class net...`
		`OK`
		`Running modules in class proc...`
		`OK`
		`Running modules in class services...`
		`OK`
		`Running modules in class system...`
		`OK`
		`Running modules in class upgrade...`
		`OK`
		`LOG LOCATION: /var/TKLC/log/syscheck/fail_log`

5.	**LSMS Active server:** Capture the output of 'sentry status' command	Run the following command on the ACTIVE LSMS server to display the current LSMS sentry status: `# sentry status` **Note:** Verify that the output displays a Status of "running" for all processes; the regional processes (npacagents) may or may not be associated in the Comment field. If the output from this command displays any other Status than "running" contact My Oracle Support following the instructions on the Appendix E. Capture the output from this command and make it available to Oracle Technical Services if required.
This procedure is complete!		

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3.8 Data Migration

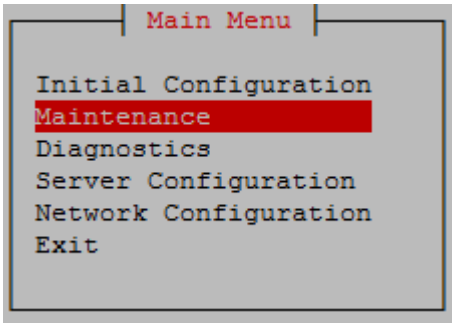
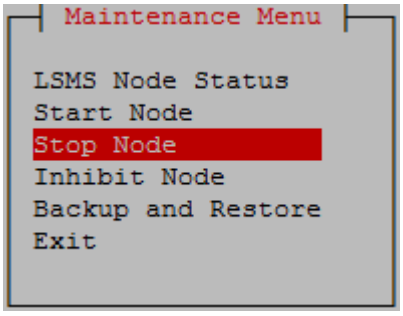
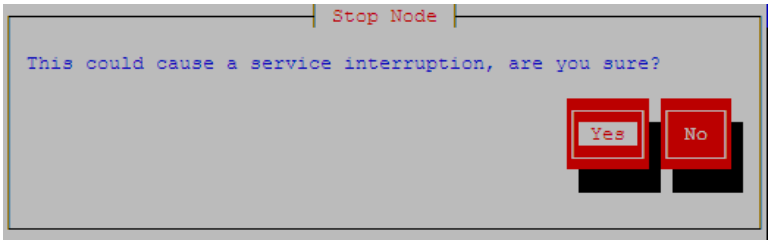
3.8.1 Procedure 19 RESTORE DATABASE

Table 3-24 Procedure 19 - Restore Database

STEP #	This procedure restores the database on the LSMS server. Estimated time:60 minutes	
1.	**MPS A server:** Log in to the server as the user “root”.	Login: root Password: <root_password>
2.	**MPS A server:** Copy the snapshot files from the Remote server to the current LSMS Active server.	Transfer all the NPAC region DB snapshot files, supDB MySQL dump and users MySQL dump from the Remote server to current LSMS A server. **Note:** The NPAC regions are: CanadaDB, MidAtlanticDB, MidwestDB, NortheastDB, SoutheastDB, SouthwestDB, WestCoastDB, and WesternDB. <NPAC region>.tar.gz /var/TKLC/lsms/free Password: <root_password> # scp –p root@<Remote IP>:<Remote IP Path>/supDBdump.sql /var/TKLC/lsms/free Password: <root_password> # scp –p root@<Remote IP>:<Remote IP Path>/MySQLUserGrants.sql /var/TKLC/lsms/free Password: <root_password>
3.	**MPS A server:** Create DB schema for all regional DB for which restore needs to be done	Switch user to lsmsadm and create regional DB for all regions that were connected to LSMS before migration # su – lsmsadm $ npac_db_setup create <region name> **Note:** Run above command for all regions

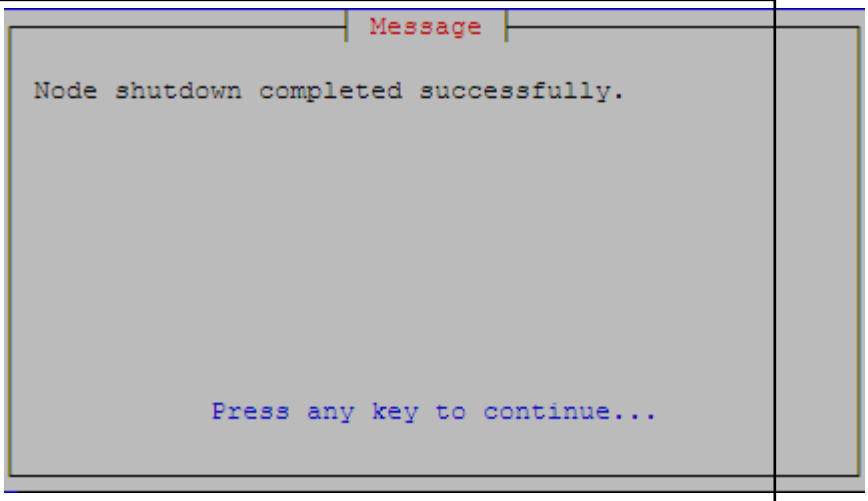
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Table 3-24 (Cont.) Procedure 19 - Restore Database

STEP #	This procedure restores the database on the LSMS server. Estimated time:60 minutes	
4.	**MPS A and B server:** Stop LSMS processes	**Note:** Perform this step on Standby LSMS server first followed by the active LSMS server. `# su - lsmsmgr`   

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Table 3-24 (Cont.) Procedure 19 - Restore Database

STEP #	This procedure restores the database on the LSMS server. Estimated time:60 minutes	
		 Exit the lsmsmgr menu.
4.	**MPS A and B:** Run the "hastatus" command to verify the HA state of this server.	Run the following command on both LSMS A and B to verify the HA state of mated LSMS pair. `# hastatus` Verify that the hastatus of both the servers is 'UNINITIALIZED "INHIBITED"'. **WARNING**: If the output from the above command is anything else other, do not proceed with this procedure and contact My Oracle Support following the instructions on the Appendix E.

5.	**MPS A server:**
	Extract the snapshot data from the archive tar files copied from LSMS.
		`# cd /var/TKLC/lsms/free`
		
		Restore the <regionDB> with the regional database name (For example: CanadaDB)
		
		`# tar -xzvf /var/TKLC/lsms/free/mysql-snapshot-<regionDB>.tar.gz`
		`# scp /var/TKLC/lsms/free/<regionDB>/*MY* /var/TKLC/lsms/db/<regionDB>`
		`# rm -rf /var/TKLC/lsms/free/<regionDB>`

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Table 3-24 (Cont.) Procedure 19 - Restore Database

STEP #	This procedure restores the database on the LSMS server. Estimated time:60 minutes	

□6.	**MPS A server:**
	Restore supDB and MySQL Users.
		Run the below commands:
		
		`# systemctl start mysqld`
		
		Restore the 'supDB'
		
		`# mysql -udbroot -p[dbroot_password] supDB <`
		
		`/var/TKLC/lsms/free/supDBdump.sql`
		
		`mysql -u dbroot -p<mysql_password> supDB -e 'UPDATE LsmsUser set FirstLogonFlag=1;'`
		
		Restore MySQL users
		
		`# mysql -udbroot -p[dbroot_password] < /var/TKLC/lsms/free/MySQLUserGrants.sql`
		`# systemctl stop mysqld`
		
		Note: Below warning message can be ignored if displayed:
		
		`Warning: Using a password on the command line interface can be insecure.`

□7.	**MPS A server:**
	Remove the snapshot files
		Remove the snapshot files.
		
		`# cd /var/TKLC/lsms/free`
		`# rm –f mysql-snapshot-*`
		`# rm –f supDBdump.sql`
		`# rm –f MySQLUserGrants.sql`

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Table 3-24 (Cont.) Procedure 19 - Restore Database

STEP #	This procedure restores the database on the LSMS server. Estimated time:60 minutes	

□8.	**MPS A server:** Check ownership of database files	Verify dbadm:dbadm ownership of all database files and directories.
		
		`# cd /var/TKLC/lsms/db`
		`# ls –ltr <DB Name>`
		
		where <DB NAME> is supDB or <region>DB, where <region> is the name of an NPAC region.
		If any databases have ownership other than dbadm:dbadm, change them using this command:
		
		`# chown -R dbadm:dbadm <DB NAME>`

□9.	**MPS A and B server:** Start LSMS processes	**Note:** Run this step on LSMS A server first followed by LSMS B server.
		Run the below command to check if lsms status is UNINITIALIZED "INHIBITED" before running startNode.
		
		`# hastatus`
		`UNINITIALIZED`
		
		If the status is UNINITIALIZED and not UNINITIALIZED "INHIBITED", run hafailover, else continue with Step 3.
		
		`#/usr/TKLC/plat/sbin/hafailover--inhibit`
		`# hastatus`
		`UNINITIALIZED "INHIBITED"`
		`# startNode`

□10.	**MPS A and B:** System Heath Check	Perform Procedure 18 to verify the system health check after DB full upgrade.
□11.	**LSMS Active server:** Login to LSMS GUI	Login to LSMS Active GUI as lsmsall user.
□12.	**LSMS Active server:** Configure MySQL Port	Refer to the recorded value of MySQL Port in 28 Procedure 6 step 11. If the MySQL Port is default port, then skip the next step. Otherwise, go to “Admin -> MySQL Port -> Modify” and configure the port recorded from LSMS 13.5.X.

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Table 3-24 (Cont.) Procedure 19 - Restore Database

STEP #	This procedure restores the database on the LSMS server. Estimated time:60 minutes	
13.	**LSMS Active server:** Verify the ELAP Credentials	Go to “Configure -> LNP System -> EMS -> View” to verify the ELAP Credentials are identical to the recorded value of the ELAP Credentials in Procedure 6, step 12. Otherwise, go to “Configure -> LNP System -> EMS -> Modify” and configure the ELAP Credentials recorded from LSMS 13.5.X. **Note:** Re-configure the EMS on LSMS with the details captured in Procedure 6, step 8.
This procedure is complete!		

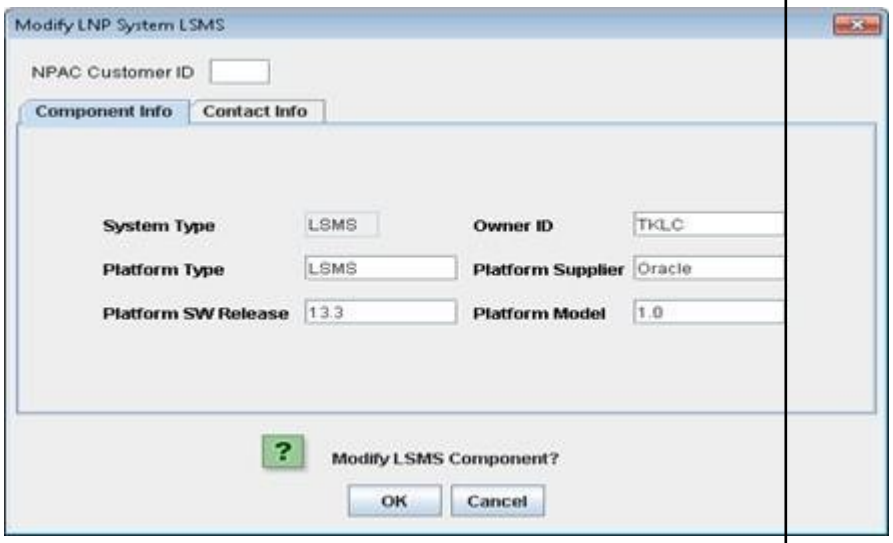
3.8.2 Procedure 20 CONNECT LSMS 14.1.X TO NPAC

Table 3-25 Procedure 20 - Connect LSMS to NPAC

STEP #	This procedure connects the LSMS to the NPAC. Estimated time:15 minutes	
Note: Perform this procedure only when the NPAC region is not visible on the LSMS GUI, after the DB is restored.		
1.	**MPS X:** Verify LSMS installation	**Note:** 1. LSMS 14.1.X is successfully installed and configured. 2. NAS is successfully installed and configured.
2.	**LSMS Active server:** Login to LSMS Active GUI	Login to LSMS Active GUI through VIP as lsmsall user.

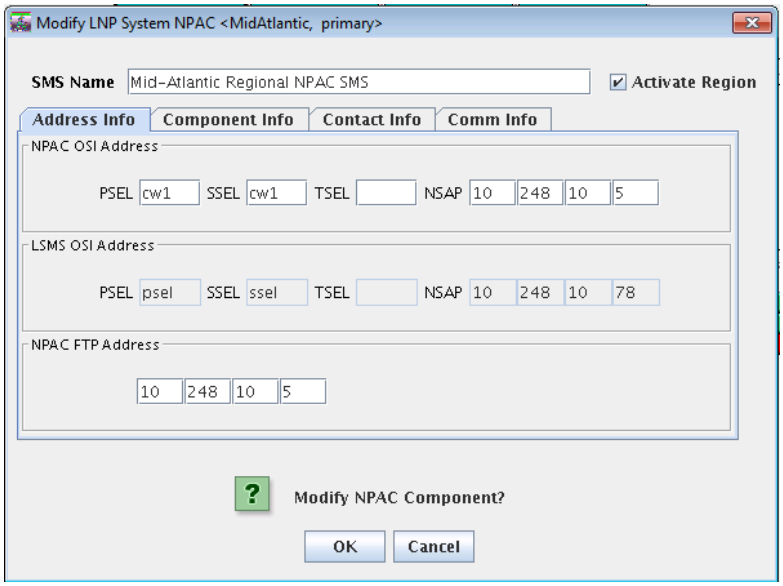
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Table 3-25 (Cont.) Procedure 20 - Connect LSMS to NPAC

S T E P #	This procedure connects the LSMS to the NPAC. Estimated time:15 minutes	
□3.	**LSMS Active server:** Update NPAC Customer ID if required **Note:** If after restore NPAC ID is coming as it was before starting upgrade skip this step	Click on the NPAC region. Go to the menu Configure -> LNP System -> LSMS -> Modify Enter the new LNP SPID in the 'NPAC Customer ID' field and fill appropriate information in all other fields. 

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Table 3-25 (Cont.) Procedure 20 - Connect LSMS to NPAC

STEP #	This procedure connects the LSMS to the NPAC. Estimated time:15 minutes	
4.	**LSMS Active server:** Create NPAC region(s) and connect it to the NPAC	Click on the NPAC region. Go to the menu Configure -> LNP System -> NPAC -> Modify -> Primary Enter the NPAC IP in the 'NSAP' field and NPAC FTP Address and check the 'Activate Region' checkbox. Fill the information in all other tabs. 
This procedure is complete!		

3.8.3 Procedure 21 EXPORT THE DATABASE FROM LSMS 14.1.X TO THE QUERY SERVER

Table 3-26 Procedure 21 – Export the Database from LSMS 14.1.X to the Query Server

STEP #	This procedure provides the steps to export the database from the LSMS 14.1.X system to the query server. Estimated time:30 minutes	
1.	**LSMS Active server:** Login as root.	Login to LSMS 14.1.X CLI as root user.
2.	**LSMS Active server:** Remove the existing DB snapshot files	`# rm /var/TKLC/lsms/free/mysql-snapshot-*` `# rm /var/TKLC/lsms/free/snapinfo.sql`

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Table 3-26 (Cont.) Procedure 21 – Export the Database from LSMS 14.1.X to the Query Server

STEP #	This procedure provides the steps to export the database from the LSMS 14.1.X system to the query server. Estimated time:30 minutes	

3.	**LSMS Active server:**
	Create a snapshot
		`# lsmsdb –c snapshot`
		`WARNING: This command may cause a brief interruption in traffic being sent from the NPAC to connected network elements and local LSMS provisioning may be INTERRUPTED.`
		`Do you want to continue? [Y/N]Y`
		`Creating snapshot of the database partition, please wait...`
		`lvcreate -- WARNING: the snapshot will be automatically disabled once it gets full`
		`lvcreate -- INFO: using default snapshot chunk size of 64 KB for "/dev/vgapp/dbbackup"`
		`lvcreate -- doing automatic backup of "vgapp"`
		`lvcreate -- logical volume "/dev/vgapp/dbbackup" successfully created`
		`The database is available to the application again.`
		`Disk snapshot created successfully.`
		`mount: block device /dev/vgapp/dbbackup is write-protected, mounting read-only`
		`Snapshot mounted successfully.`
		`Created snapinfo.sql file successfully`
		`CanadaDB/`
		`CanadaDB/db.opt`
		`CanadaDB/SubscriptionVersion.frm`
		`CanadaDB/SubscriptionVersion.MYI`
		`CanadaDB/SubscriptionVersion.MYD`
		`CanadaDB/NumberPoolBlock.frm`
		`CanadaDB/NumberPoolBlock.MYI`
		`CanadaDB/NumberPoolBlock.MYD`
		`CanadaDB/ServiceProvNetwork.frm`
		`CanadaDB/ServiceProvNetwork.MYI`
		`CanadaDB/ServiceProvNetwork.MYD`
		`CanadaDB/ServiceProvLRN.frm`
		`CanadaDB/ServiceProvLRN.MYI`
		`……..`
		`Truncate`
		`……`
		`(truncated )`
		`lvremove -- doing automatic backup of volume group "vgapp"`
		`lvremove -- logical volume "/dev/vgapp/dbbackup" successfully removed`

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Table 3-26 (Cont.) Procedure 21 – Export the Database from LSMS 14.1.X to the Query Server

STEP #	This procedure provides the steps to export the database from the LSMS 14.1.X system to the query server. Estimated time:30 minutes	

☐4.	**LSMS Active server:**
	Verify the snapshot
		`# cd /var/TKLC/lsms/free`
		`[root@lsmspri free]# ls`
		`mysql-snapshot-SouthwestDB.tar.gz`
		`mysql-snapshot-supDB.tar.gz`
		`mysql-snapshot-CanadaDB.tar.gz`
		`mysql-snapshot-WestCoastDB.tar.gz`
		`mysql-snapshot-MidAtlanticDB.tar.gz`
		`snapinfo.sql`
		`mysql-snapshot-MidwestDB.tar.gz`
		`mysql-snapshot-NortheastDB.tar.gz`
		`mysql-snapshot-SoutheastDB.tar.gz`

☐5.	**LSMS Active server:**
	Copy snapshot files to LSMS 14.1.X Query Server or a Remote Server.
		Transfer all the NPAC region DB snapshot files.
		Note: The NPAC regions are: CanadaDB, MidAtlanticDB, MidwestDB, NortheastDB, SoutheastDB, SouthwestDB, WestCoastDB and WesternDB
		
		`# scp –p /var/TKLC/lsms/free/mysql-snapshot-<NPAC region>.tar.gz root@<Query Server IP>:/usr/mysql1`
		`# scp –p /var/TKLC/lsms/free/snapinfo.sql root@<Query Server IP>:/usr/mysql1`
		`Or`
		`# sftp <username>@<IP address of remote computer>`
		`Connecting to <IP address of remote computer>...`
		`The authenticity of host '<IP address of remote computer>' can't be established.`
		`DSA key fingerprint is 58:a5:7e:1b:ca:fd:1d:fa:99:f2:01:16:79:d8:b4:24.`
		`Are you sure you want to continue connecting (yes/no)? yes`
		`Warning: Permanently added '<IP address of remote computer>' (DSA) to the list of known hosts.`
		`<username>@<IP address of remote computer>'s password:`
		`sftp> cd <target directory>`
		`sftp> put mysql-snapshot-<NPAC region>.tar.gz`
		`Uploading mysql-snapshot-<NPAC region>.tar.gz`

		`sftp> put snapinfo.sql`
		`Uploading snapinfo.sql`
		`sftp> bye`

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Table 3-26 (Cont.) Procedure 21 – Export the Database from LSMS 14.1.X to the Query Server

STEP #	This procedure provides the steps to export the database from the LSMS 14.1.X system to the query server. Estimated time:30 minutes	
6.	**LSMS 14.1.X Query Server:** Login as root to the Query Server	`login: root` `Password:<root_password>`

7.	**LSMS 14.1.X Query Server:**
	Shutdown the Mysql server
		`# cd /opt/mysql/mysql/bin`
		`# ./mysqladmin -u root -p shutdown`
		`Enter password:`

8.	**LSMS 14.1.X Query Server:**
	Extract the data for EACH region. Replace regionDB with regional database name
	Remove each tar.gz after it has extracted.
		`# cd /usr/mysql1`
		`# gunzip -c mysql-snapshot-<regionDB>.tar.gz | tar -xvf -`
		`# rm mysql-snapshot-<regionDB>.tar.gz`

9.	**LSMS 14.1.X Query Server:**
	Start the Mysql daemon on the Query Server.
		`# cd /opt/mysql/mysql/bin`
		`# ./mysqld_safe --skip-replica -start &`
		`1255`
		`# Starting mysqld daemon with databases from /usr/mysql1:`

10.	**LSMS 14.1.X Query Server:**
	Start the Mysql command line utility
	Reset the configuration information for master
	Reset the configuration information for slave
	Configure the query server to start replication from the correct position on the master.
		`# ./mysql -u root -p`
		`mysql> RESET BINARY LOGS AND GTIDS;`
		`Query OK, 0 rows affected (0.23 sec)`
		`mysql> reset replica;`
		`Query OK, 0 rows affected (0.19 sec)`
		`mysql> source /usr/mysql1/snapinfo.sql`
		`Query OK, 0 rows affected (0.17 sec)`

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Table 3-26 (Cont.) Procedure 21 – Export the Database from LSMS 14.1.X to the Query Server

STEP #	This procedure provides the steps to export the database from the LSMS 14.1.X system to the query server. Estimated time:30 minutes	
□1 1.	**LSMS Active server:** As the root user, remove the intermediate tarballs from the LSMS 14.1.X server. As the root user, remove the snapinfo.sql script from the LSMS 14.1.X server	`[root@lsmspri root]# rm /var/TKLC/lsms/free/mysql-snapshot*` `[root@lsmspri root]# rm /var/TKLC/lsms/free/snapinfo.sql`

□1
2.
	LSMS 14.1.X Query Server:
	Start the Mysql command line utility
		Note: EMS changes may cause the Query server to disconnect. These steps will help prevent the disconnect.
		`login: root`
		`# /opt/mysql/mysql/bin/mysql –u root –p`

□1 3.	**LSMS 14.1.X Query Server:** Prepare the Query Server for the EMS Configuration	`mysql> SET GLOBAL SQL_REPLICA_SKIP_COUNTER = 100;` `Query OK, 0 rows affected`
□1 4.	**LSMS 14.1.X Query Server:** Validate the operation of the query server.	`Perform Error! Reference source not found..`
This procedure is complete!		

3.8.4 Procedure 22 SSH KEY EXCHANGE BETWEEN ELAP AND LSMS

Table 3-27 Procedure 22 - SSH KEY EXCHANGE BETWEEN ELAP AND LSMS

STEP #	This procedure exchanges SSH keys between the ELAP and LSMS 14.1 (TPD 8) . Note: This Procedure is only required when ELAP version is 10.2. Skip this procedure if ELAP version is 11.x Estimated Time: 15 mins Should this procedure fail, Contact Oracle technical services and ask for FULL UPGRADE ASSISTANCE.	
1.	**Active ELAP:** Login as elapdev.	`login: elapdev` `Password: <elapdev_password>`

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Table 3-27 (Cont.) Procedure 22 - SSH KEY EXCHANGE BETWEEN ELAP AND LSMS

STEP #	This procedure exchanges SSH keys between the ELAP and LSMS 14.1 (TPD 8) . Note: This Procedure is only required when ELAP version is 10.2. Skip this procedure if ELAP version is 11.x Estimated Time: 15 mins Should this procedure fail, Contact Oracle technical services and ask for FULL UPGRADE ASSISTANCE.	

2.	**Active ELAP:**
	Generate RSA keys on ELAP 10.2 server
		Note: RSA keys don't exist on OL6 server ELAP 10.2. To exchange keys with LSMS 14, we need to generate RSA keys first on ELAP 10.2 server.
		Please run below commands on the Active ELAP to generate RSA keys on ELAP A and B servers.
		1. Go to elapdev home directory using cd command.
		`cd`
		2. Generate key on local ELAP.
		`/usr/bin/ssh-keygen -t rsa -f .ssh/id_rsa -N ''`
		3. Generate key on remote ELAP
		`ssh mate "/usr/bin/ssh-keygen -t rsa -f .ssh/id_rsa -N '' "`
		Example:
		`[elapdev@Ithaca-A ~]$ cd`
		`[elapdev@Ithaca-A ~]$ /usr/bin/ssh-keygen -t rsa -f .ssh/id_rsa -N ''`
		`Generating public/private rsa key pair.`
		`Your identification has been saved in .ssh/id_rsa.`
		`Your public key has been saved in .ssh/id_rsa.pub.`
		`The key fingerprint is:`
		`3e:d0:ea:25:fc:84:66:ff:4c:16:00:16:99:c8:ed:af elapdev@Ithaca-A`
		`The key's randomart image is:`
		`+--[ RSA 2048]    +`
		`|    . o++    |`
		`|    o.+.    |`
		`|    . .    |`
		`|    .. .    |`
		`|    ..S .    |`
		`|    . =. .    |`
		`|    B.= o    |`
		`|    +E* =    |`

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Table 3-27 (Cont.) Procedure 22 - SSH KEY EXCHANGE BETWEEN ELAP AND LSMS

STEP #	This procedure exchanges SSH keys between the ELAP and LSMS 14.1 (TPD 8) . Note: This Procedure is only required when ELAP version is 10.2. Skip this procedure if ELAP version is 11.x Estimated Time: 15 mins Should this procedure fail, Contact Oracle technical services and ask for FULL UPGRADE ASSISTANCE.	

		`|  . o.o  |`
		`+------------------+`
		
		`[elapdev@Ithaca-A ~]# ssh mate "/usr/bin/ssh-keygen -t rsa`
		`-f .ssh/id_rsa -N '' “`

3.	**Active ELAP:**
	Verify that the keys are generated for elapdev user on both ELAP A and B serves.
		Check that rsa keys are generated for the elapdev user on local and mate using below command. Run below commands to verify the keys.
		
		`$ ls -lrt .ssh/id_rsa*`
		`$ ssh mate 'ls -lrt .ssh/id_rsa*'`
		
		Example:
		
		`[elapdev@Crete-A ~]$ ls -lrt .ssh/id_rsa*`
		`-rw-r--r-- 1 elapdev elap 569 Mar 20 08:16 .ssh/id_rsa.pub`
		`-rw------- 1 elapdev elap 2602 Mar 20 08:16 .ssh/id_rsa`
		`[elapdev@Crete-A ~]$ ssh mate 'ls -lrt .ssh/id_rsa*'`
		`-rw-r--r-- 1 elapdev elap 569 Mar 20 08:17 .ssh/id_rsa.pub`
		`-rw------- 1 elapdev elap 2602 Mar 20 08:17 .ssh/id_rsa`

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Table 3-27 (Cont.) Procedure 22 - SSH KEY EXCHANGE BETWEEN ELAP AND LSMS

STEP #	This procedure exchanges SSH keys between the ELAP and LSMS 14.1 (TPD 8) . Note: This Procedure is only required when ELAP version is 10.2. Skip this procedure if ELAP version is 11.x Estimated Time: 15 mins Should this procedure fail, Contact Oracle technical services and ask for FULL UPGRADE ASSISTANCE.	

4.	**Active ELAP:**
	Exchange Secure Shell Keys with LSMS 14.1
	SSH keys will first be exchanged between ELAP A and LSMS A and then between ELAP B and LSMS A.
		Exchange secure shell keys with LSMS A server using below command. Run below commands to exchange keys with LSMS.
		1. Exchange key with local ELAP and LSMS.
		`/usr/TKLC/plat/bin/keyexchange lsmsadm@lsmsAIpAddr -- key=id_rsa.pub 2>&1`
		2. Exchange Key with remote ELAP and LSMS
		`/usr/bin/ssh -l elapdev mate -t "/usr/TKLC/plat/bin/keyexchange lsmsadm@lsmsAIpAddr -- key=id_rsa.pub 2>&1"`
		Example:
		`[elapdev@Ithaca-A ~]$ /usr/TKLC/plat/bin/keyexchange lsmsadm@10.75.140.10 -- key=id_rsa.pub 2>&1`
		`The server does not know of 10.75.140.10.`
		`Will just exchange host keys for the name given!`
		`Password of lsmsadm:`
		`ssh is working correctly.`

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Table 3-27 (Cont.) Procedure 22 - SSH KEY EXCHANGE BETWEEN ELAP AND LSMS

STEP #	This procedure exchanges SSH keys between the ELAP and LSMS 14.1 (TPD 8) . Note: This Procedure is only required when ELAP version is 10.2. Skip this procedure if ELAP version is 11.x Estimated Time: 15 mins Should this procedure fail, Contact Oracle technical services and ask for FULL UPGRADE ASSISTANCE.	

5.	**Active ELAP:**
	Exchange Secure Shell Keys with LSMS 14.1
	SSH keys will next be exchanged between ELAP A and LSMS B and then between ELAP B and LSMS B
		Exchange secure shell keys with LSMS B server using below command. Run below commands to exchange keys with LSMS.
		1. Exchange key with local ELAP and LSMS.
		`/usr/TKLC/plat/bin/keyexchange lsmsadm@lsmsBIpAddr -- key=id_rsa.pub 2>&1`
		2. Exchange Key with remote ELAP and LSMS
		`/usr/bin/ssh -l elapdev mate -t "/usr/TKLC/plat/bin/keyexchange lsmsadm@lsmsBIpAddr -- key=id_rsa.pub 2>&1"`
		Example:
		`[elapdev@Ithaca-A ~]$ /usr/TKLC/plat/bin/keyexchange lsmsadm@10.75.140.11 -- key=id_rsa.pub 2>&1`
		`The server does not know of 10.75.140.10. Will just exchange host keys for the name given!`
		`Password of lsmsadm:`
		`ssh is working correctly.`

6.	**Active ELAP:** Note down date and timestamp	`$date`
This procedure is complete!		

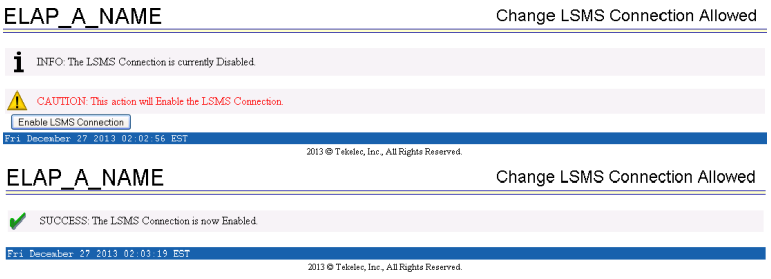
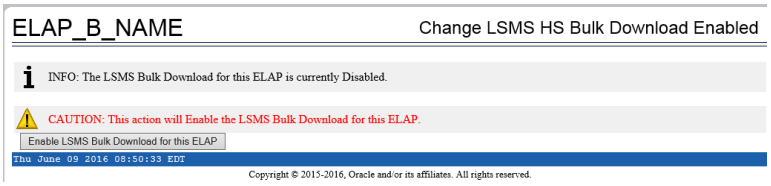
3.8.5 Procedure 23 CONNECT LSMS 14.1.X TO ELAP

Table 3-28 Procedure 23 - Connect LSMS to ELAP

STEP #	This procedure connects the LSMS to ELAP. Estimated time:10 minutes	
□1.	**ELAP Active server:** Login to ELAP GUI	Login to ELAP GUI through VIP as uiadmin.

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Table 3-28 (Cont.) Procedure 23 - Connect LSMS to ELAP

STEP #	This procedure connects the LSMS to ELAP. Estimated time:10 minutes	
2.	**ELAP Active server:** Enable the LSMS Connection	Go to menu Maintenance -> LSMS Connection -> Change Enabled Click on 'Enable LSMS Connection' button. 
3.	**ELAP Active server:** Enable the bulkload.	Go to menu Maintenance -> LSMS HS Bulk Download -> Change Enabled Click on 'Enable LSMS Bulk Download for the ELAP' button.  After clicking on the button,success message will be displayed. SUCCESS. The LSMS HS Bulk Download is now enabled.
This procedure is complete!		

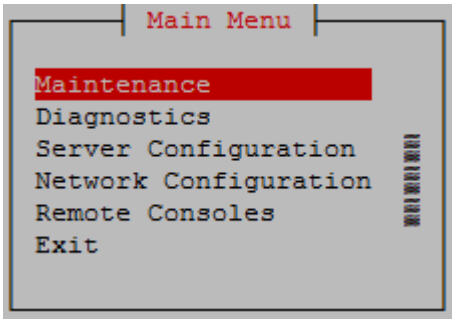
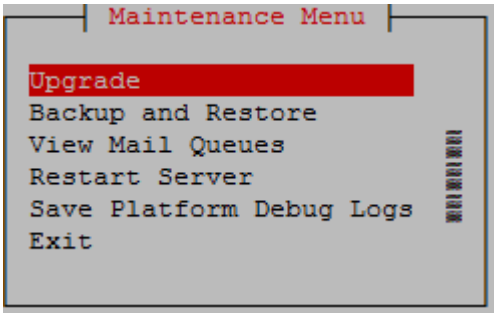
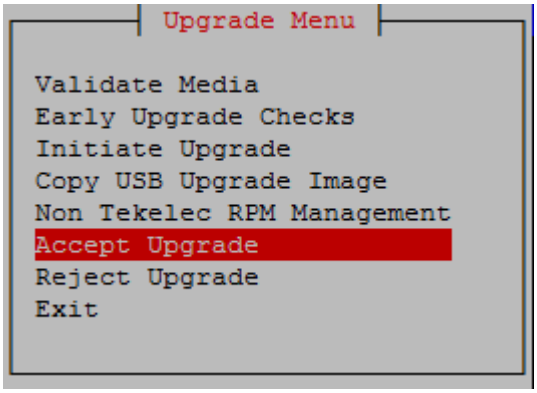
3.8.6 Procedure 24 ACCEPT THE UPGRADE

Table 3-29 Procedure 24 – Accept the upgrade.

STEP #	A	B	This procedure will accept the upgrade. Estimated time: 5 minutes	
1.	☐	☐	**MPS X:** Log in to the server as the user "root".	`Login: root` `Password: <root_password>`
2.	☐	☐	**MPS X:** Start platcfg utility.	`# su - platcfg`

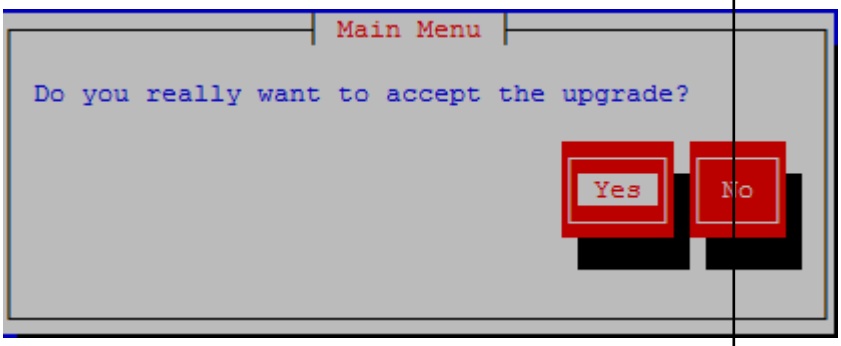
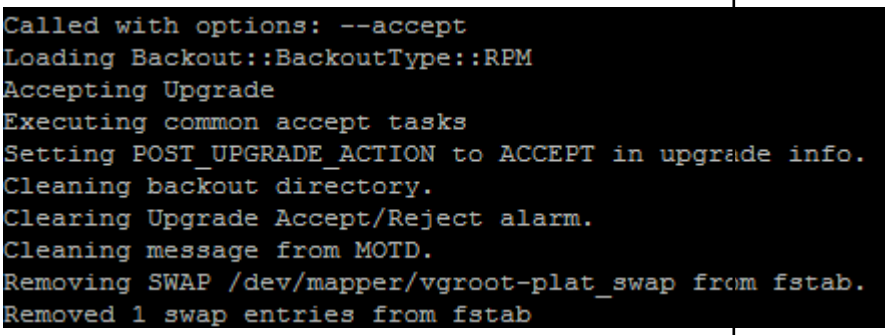
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Table 3-29 (Cont.) Procedure 24 – Accept the upgrade.

STEP #	A	B	This procedure will accept the upgrade. Estimated time: 5 minutes	
3.	☐	☐	**MPS X:** Accept Upgrade	On the "**Main Menu**", select **Maintenance** and press **[ENTER]**.  Select the "**Upgrade**" menu and press **[ENTER]**.  Select the "**Accept Upgrade**" menu and press **[ENTER]**.  **Note:** The "Reject Upgrade" menu is also available after the LSMS installation. However, this option should not be used after the first installation of application. It should be used in subsequent upgrades to return to a previous application release. Select **Yes** and press **[ENTER]**.

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Table 3-29 (Cont.) Procedure 24 – Accept the upgrade.

STEP #	A	B	This procedure will accept the upgrade. Estimated time: 5 minutes
			  
			This procedure is complete!

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4

DIU Upgrade Procedure

4.1 Procedure 25 DIU Upgrade Server B

> **Note**
>
> Ensure that the Legacy Upgrade before DIU is accepted, otherwise it might cause an error while initiating background upgrade in DIU.

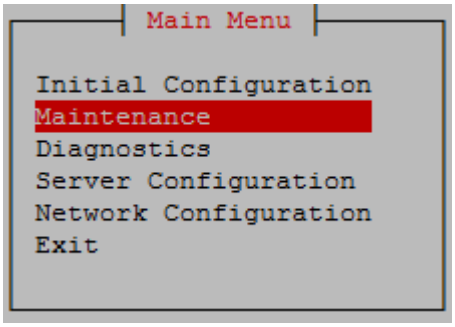
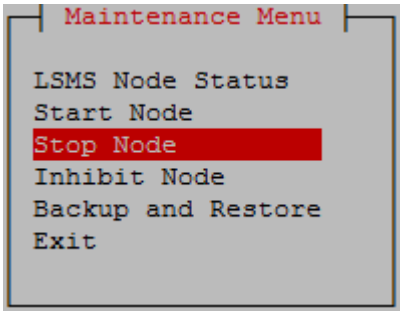
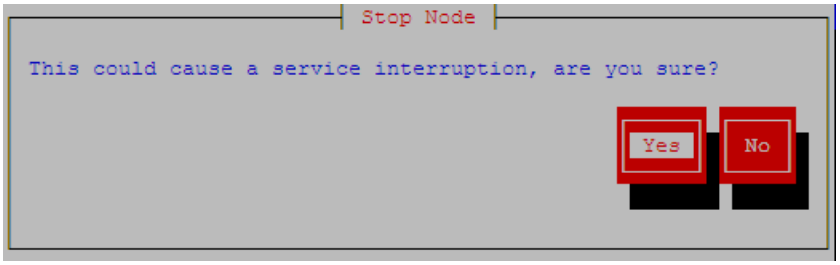
Table 4-1 Procedure 25 DIU Upgrade Server B

S. No	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
1	**MPS B:** Login prompt is displayed.	`<hostname> console login:` **Note:** Press enter if no login prompt is displayed.
2	**MPS B:** Log in as "root" user.	`[hostname] consolelogin: root` `password:  password`
3	**MPS B:** Copy DIU ISO	Perform the procedure in Procedure A.1 or copy LSMS APPB DIU ISO to `/var/TKLC/upgrade directory`. Make sure that only the DIU ISO and patch is present in the directory.
4	Create a terminal window log in MPS B.	If not already connected, connect to the E5-APP-B card via the serial port. For connecting the E5-APP-B B card, disconnect the console cable from the serial port on the E5-APP-B A card's adapter. The cable should be disconnected at the point where it connects to the serial port labeled 'S1' on the E5-APP-B A card's adapter and use it for serial access. Cable part numbers - 830-1220-xx

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Table 4-1 (Cont.) Procedure 25 DIU Upgrade Server B

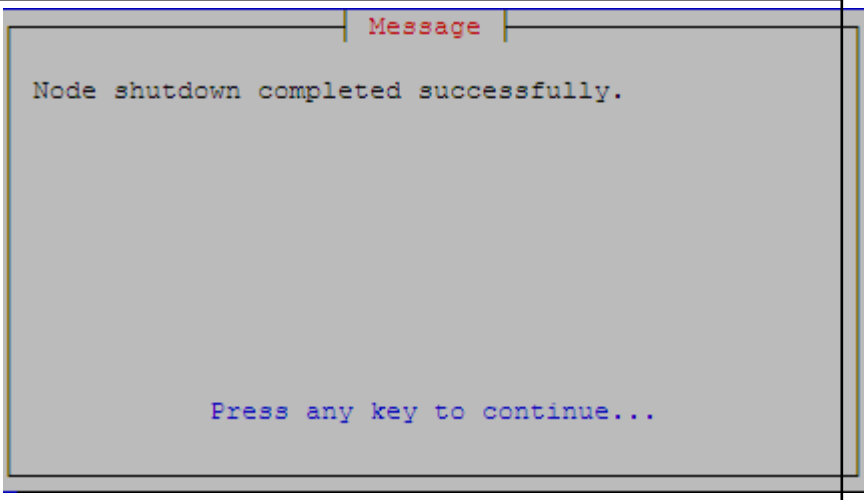
S. No	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure

5	**MPS B:** Stop Node and Move all custom files and run pre upgrade script	**Note:** NTP must be configured before starting DIU.
		Note: All custom files, scripts, folders need to be migrated to remote server before the DIU process is started. These need to be restored back to their place after the DIU process is completed.
		
		`<hostname> console login:`
		`root password:`
		`# su - lsmsmgr`
		
		 
		
		 
		
		 

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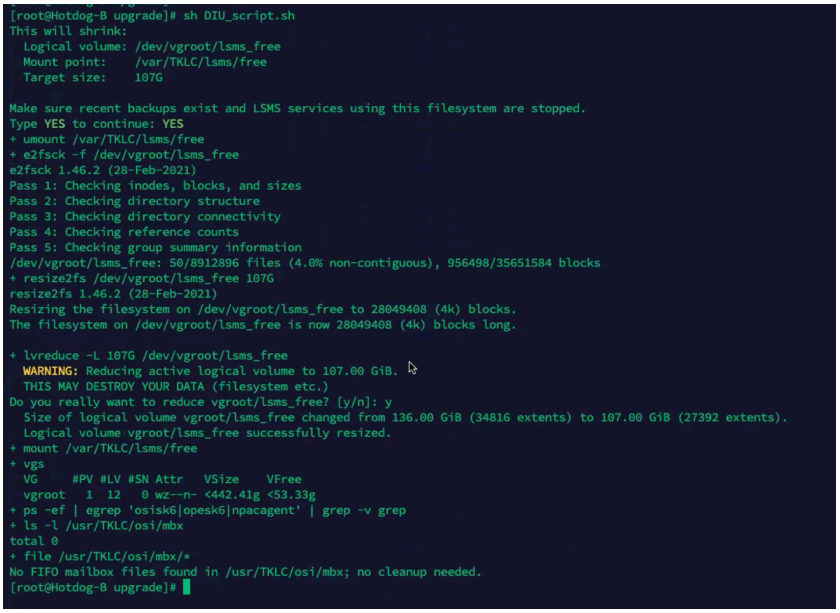
Table 4-1 (Cont.) Procedure 25 DIU Upgrade Server B

S. No	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure

		
		Exit the lsmsmgr menu.
		Run the following command and verify the HA state
		`# hastatus`
		Verify that the hastatus of server is 'UNINITIALIZED "INHIBITED"'
		Before running below script, make sure to grep and kill 'osisk6|opesk6|npacagent' process if running
		`# ps -ef | egrep 'osisk6|opesk6|npacagent' | grep -v grep`
		`# kill –9 <PID>`
		Note: Bring DIU_script.sh from Oracle Software Delivery Cloud (OSDC) and place it in /usr/TKLC/lsms/tools/ directory. Use DIU_script.sh to cleanup the extra files and make extra space for DIU.
		Change permission and group of the script:
		`[root@MPS-B tools]# chmod 777 DIU_script.sh`
		`[root@MPS-B tools]# chown root:root DIU_script.sh`
		Note: Before running the pre-upgrade script, ensure the mount point `/var/TKLC/lsms/free` is not in active use. Specifically, verify that no interactive shells (e.g., `bash`) or other processes have their current working directory set to `/var/TKLC/lsms/free` (or any subdirectory), as this will cause the unmount step to fail with "target is busy."
		Run the pre-upgrade script.

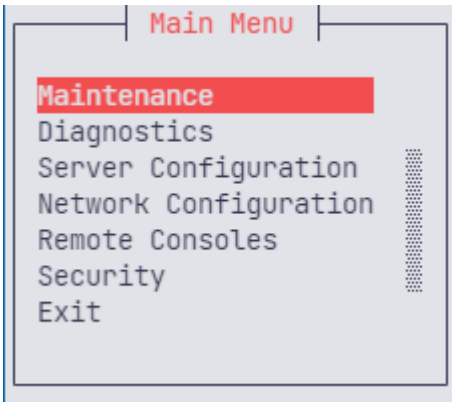
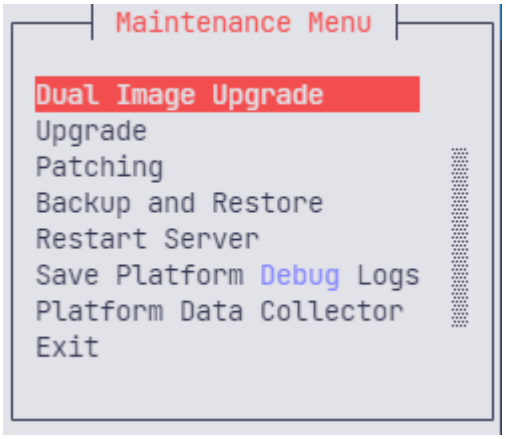
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Table 4-1 (Cont.) Procedure 25 DIU Upgrade Server B

S. No	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
		 [root@Hotdog-B upgrade]# sh DIU_script.sh This will shrink: Logical volume: /dev/vgroot/lsms_free Mount point: /var/TKLC/lsms/free Target size: 107G Make sure recent backups exist and LSMS services using this filesystem are stopped. Type YES to continue: YES + umount /var/TKLC/lsms/free + e2fsck -f /dev/vgroot/lsms_free e2fsck 1.46.2 (28-Feb-2021) Pass 1: Checking inodes, blocks, and sizes Pass 2: Checking directory structure Pass 3: Checking directory connectivity Pass 4: Checking reference counts Pass 5: Checking group summary information /dev/vgroot/lsms_free: 50/8912896 files (4.0% non-contiguous), 956498/35651584 blocks + resize2fs /dev/vgroot/lsms_free 107G resize2fs 1.46.2 (28-Feb-2021) Resizing the filesystem on /dev/vgroot/lsms_free to 28049408 (4k) blocks. The filesystem on /dev/vgroot/lsms_free is now 28049408 (4k) blocks long. + lvreduce -L 107G /dev/vgroot/lsms_free WARNING: Reducing active logical volume to 107.00 GiB. THIS MAY DESTROY YOUR DATA (filesystem etc.) Do you really want to reduce vgroot/lsms_free? [y/n]: y Size of logical volume vgroot/lsms_free changed from 136.00 GiB (34816 extents) to 107.00 GiB (27392 extents). Logical volume vgroot/lsms_free successfully resized. + mount /var/TKLC/lsms/free + vgs VG #PV #LV #SN Attr VSize VFree vgroot 1 12 0 wz--n- <442.41g <53.33g + ps -ef | egrep 'osisk6|opesk6|npacagent' | grep -v grep + ls -l /usr/TKLC/osi/mbx total 0 + file /usr/TKLC/osi/mbx/* No FIFO mailbox files found in /usr/TKLC/osi/mbx; no cleanup needed. [root@Hotdog-B upgrade]# Run vgs to make sure Free space is more than 50G [root@Steak-B ~]# vgs VG #PV #LV #SN Attr VSize VFree vgroot 1 12 0 wz--n- <442.41g <53.33g
6	MPS B: Start platcfg utility.	$ su - platcfg

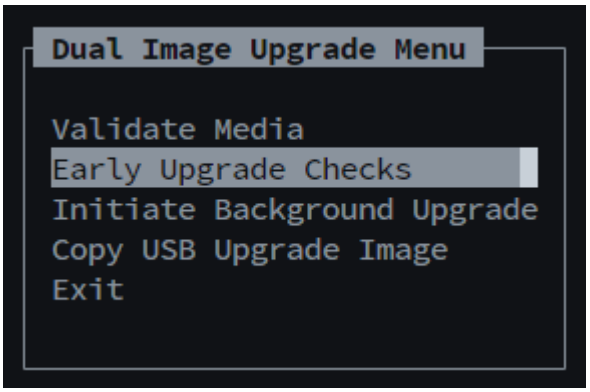
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Table 4-1 (Cont.) Procedure 25 DIU Upgrade Server B

S. No	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
7	MPS B: Navigate to the Upgrade menu. **NOTE**: Make sure to select Dual Image Upgrade only.	The platcfg Main Menu appears. 1. On the Main Menu, select Maintenance and press [ENTER].  2. Select the Dual Image Upgrade menu and press [ENTER]. 
8.	**MPS B:** Validate ISO file.	Validate ISO file using Procedure A.2.

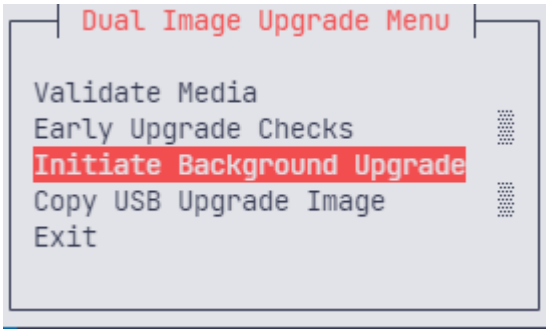
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Table 4-1 (Cont.) Procedure 25 DIU Upgrade Server B

S. No	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
9.	**MPS B:** Select Early Upgrade Checks	Select the "Early Upgrade Checks" menu to verify that the system is ready for upgrade.  **Note:** Please note that the previous upgrade should be accepted before proceeding for DIU upgrade. If the previous upgrade is not accepted, then early upgrade checks will fail with the error that previous upgrade is not yet accepted. If the Early Upgrade Checks fail due to the NTP related alarms, then ignore the NTP alarms using the following commands: • Exit the platcfg menu. • Change to root user using the "su –" command. • vim /usr/TKLC/plat/etc/upgrade/upgrade.conf • Edit the following line to include the NTP related alarms. – EARLY_CHECK_ALARM_WHITELIST=TKSPLATMI2 – Add the following alarm code to ignore Storage Capacity Problem: TKSPLATMA5 – Add the following line for the RAID related alarms: – EARLY_CHECK_ALARM_WHITELIST=TKSPLATMA2 For example: To allowlist the NTP alarm, "tpdNTPDaemonNotSynchronizedWarning", which has the alarm code TKLCPLATMI10, the above-mentioned line should be edited as EARLY_CHECK_ALARM_WHITELIST=TKSPLATMI2,TKSPLATMI10 **Note:** There should not be any space between two alarms i.e. between TKSPLATMI2 and TKSPLATMI10. If the Early Upgrade Checks fail due to "Server Default Route Network Error", then this alarm shall be allowlisted in upgrade.conf file. To allowlist the alarm which has the alarm code TKSPLATMA14, the above-mentioned line should be edited as: EARLY_CHECK_ALARM_WHITELIST=TKSPLATMA2,TKSPLATMI2,TKSPLATMA5,TKSPL ATMI10, TKSPLATMA14,TKSPLATMA28,TKSPLATMI39

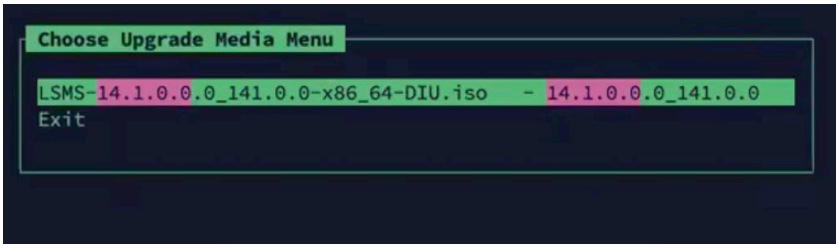
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Table 4-1 (Cont.) Procedure 25 DIU Upgrade Server B

S. No	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
		Note: Please note that TKSPLATMA5, TKSPLATMA2, TKSPLATMI2 should always be whitelisted.
10	**MPS B:** Navigate to the Initiate Upgrade menu	Select the Initiate Background Upgrade menu and press [ENTER]. 

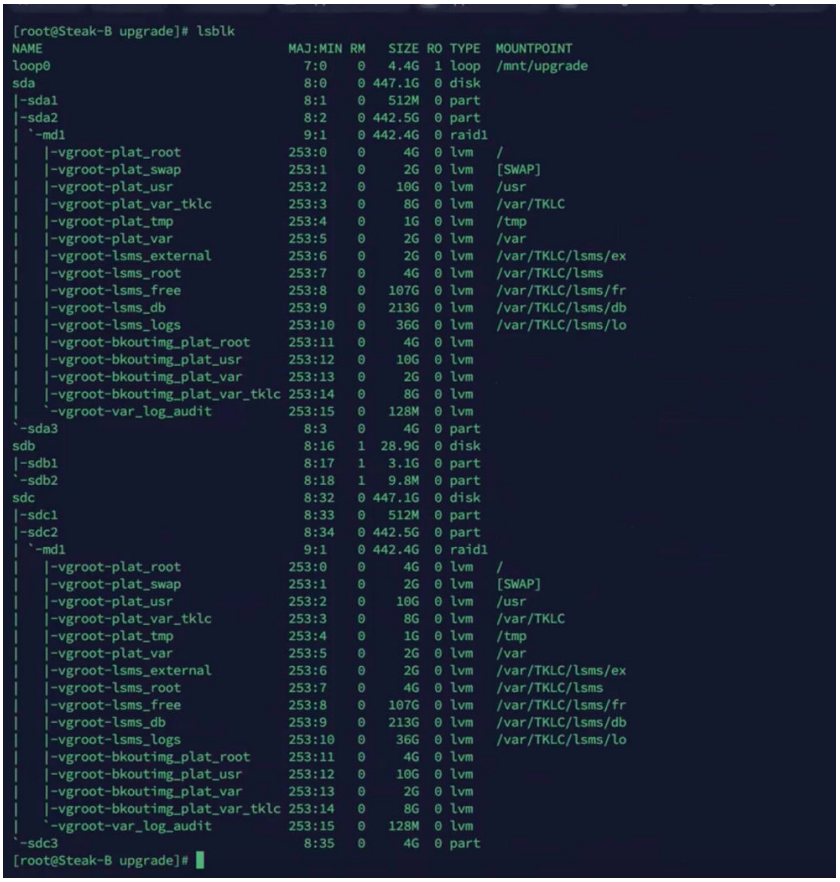
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Table 4-1 (Cont.) Procedure 25 DIU Upgrade Server B

S. No	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
11	**MPS B:** Select the Upgrade Media.	The screen displays a message that it is searching for upgrade media. When the upgrade media is found, an Upgrade Media selection menu appears similar as shown in the example below. Select the desired upgrade media and press **[ENTER]**.  In case there is a failure in the upgrade process, then run the following command to verify whether the raid is synced or not: • lsblk Key Points: • Under a healthy, in-sync RAID, both member partitions will show the same md device. • If the RAID is not in sync or missing a member, only one partition will show the md device. Example of lsblk output when raid is in sync,

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Table 4-1 (Cont.) Procedure 25 DIU Upgrade Server B

S. No	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
		 Please note that in the above raid in sync snapshot of lsblk, sdb is for USB as it shows 28.9G while sda and sdc are for HDD which is 447.1G. Hence whenever you run lsblk command, always take a note of which drive is showing USB and which drives are showing HDD. Raid not in sync example snapshot:

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Table 4-1 (Cont.) Procedure 25 DIU Upgrade Server B

S. No	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
		[root@Natal-A upgrade]# lsblk NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT sda 8:0 1 28.9G 0 disk `-sda1 8:1 1 28.9G 0 part sdb 8:16 0 894.3G 0 disk |-sdb1 8:17 0 512M 0 part `-sdb2 8:18 0 893.7G 0 part `-md1 9:1 0 893.5G 0 raid1 |-vgroot-plat_root 253:0 0 2G 0 lvm / |-vgroot-plat_swap 253:1 0 2G 0 lvm [SWAP] |-vgroot-plat_usr 253:2 0 8G 0 lvm /usr |-vgroot-plat_var_tklc 253:3 0 8G 0 lvm /var/TKLC |-vgroot-plat_tmp 253:4 0 1G 0 lvm /tmp |-vgroot-plat_var 253:5 0 2G 0 lvm /var |-vgroot-rt 253:6 0 68G 0 lvm /var/TKLC/epap/rt |-vgroot-logs 253:7 0 20G 0 lvm /var/TKLC/epap/logs |-vgroot-db 253:8 0 289.2G 0 lvm /var/TKLC/epap/db `-vgroot-free 253:9 0 204G 0 lvm /var/TKLC/epap/free sdc 8:32 0 894.3G 0 disk |-sdc1 8:33 0 512M 0 part `-sdc2 8:34 0 893.7G 0 part Please note that in the above raid in sync snapshot of lsblk, sda is for USB as it shows 28.9G while sdb and sdc are for HDD which is 447.1G. Hence whenever you run lsblk command, always take a note of which drive is showing USB and which drives are showing HDD. Here we are saying raid is not in sync because only sdb is showing md1 device but sdc is not showing any md device. If the raid is not in sync, then run the following command: `mdadm --add /dev/md1 /dev/sdX`

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Table 4-1 (Cont.) Procedure 25 DIU Upgrade Server B

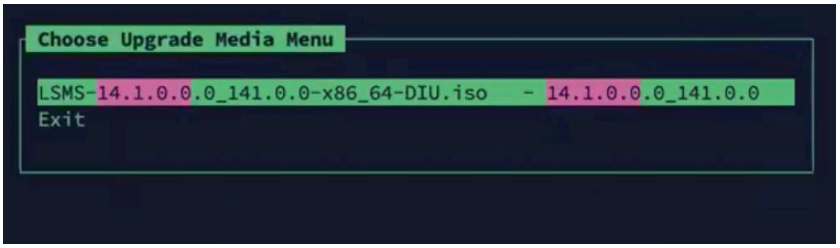
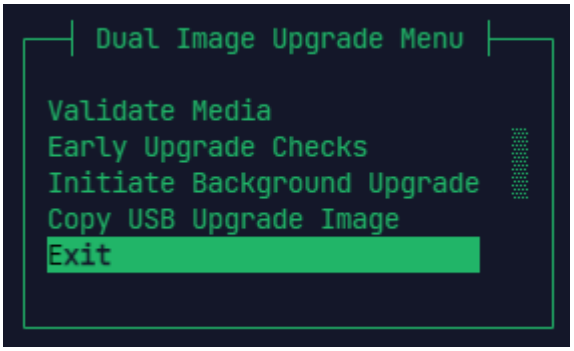
S. No	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure

		where sdX can be any of sda, sdb, or sdc according to LV configurations.
		sdX will never be the USB partition. This can be verified using lsblk command. In the above example, sdb and sdc are for hard disk and sda is for USB, here sdc is not in sync as it is not showing the proper md device md1. Hence, the command for syncing the above raid not in sync scenario will be like given below.
		`mdadm --add /dev/md1 /dev/sdc`
		The following command can be used to check the status of the sync after running the above command.
		
		`[root@MPS-B upgrade]# cat /proc/mdstat`
		`Personalities : [raid1]`
		`md1 : active raid1 sdb[3] sdc2[2] 468091904 blocks super 1.2 [2/1] [U_]`
		`[===>.................] recovery = 19.1% (89824128/468091904)`
		`finish=81.5min speed=77331K/sec`
		`bitmap: 4/4 pages [16KB], 65536KB chunk`
		`unused devices: <none>`
		
		Wait till the time recovery is not completed 100%.

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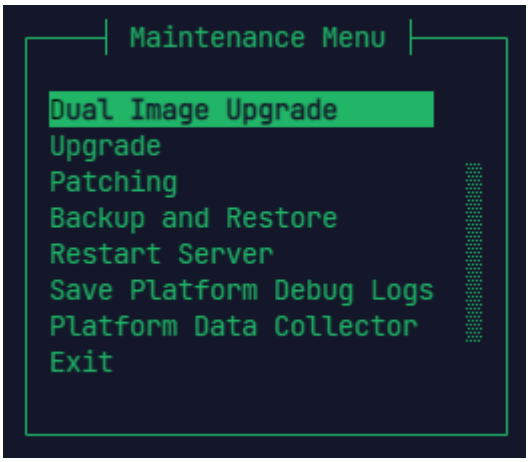
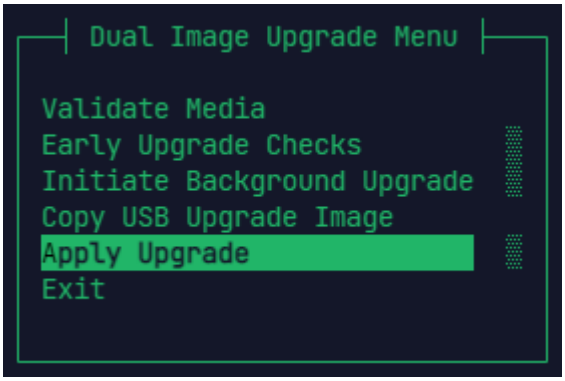
Table 4-1 (Cont.) Procedure 25 DIU Upgrade Server B

S. No	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure

12	**MPS B:** Upgrade proceeds.
	Apply Upgrade.
		Many informational messages appear on the terminal screen as the upgrade proceeds.
		After the background upgrade is done, the system will return to this screen.
		 
		
		After this, select [EXIT] and press [ENTER].
		From the Dual image Upgrade Menu, select [EXIT] and press [ENTER}.
		 
		
		Exit platcfg meny and verify the status using below command, It should show “Ready to Apply upgrade”
		`/var/TKLC/backout/diUpgrade –status`
		`[root@Arica-b tmp]# /var/TKLC/backout/diUpgrade --status`
		`State: Ready to Apply Upgrade`
		Status Messages:
		• Performing early checks
		• Downloading upgrade data
		• Verifying image
		• Performing image pre-install
		• Configuring images
		• Identifying resources
		• Reserving image storage

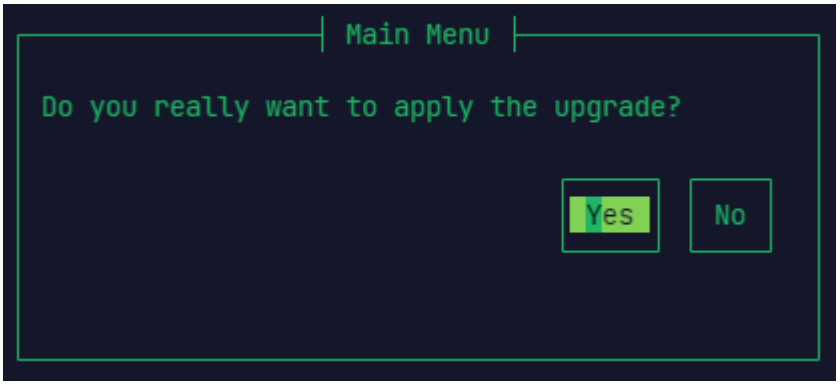
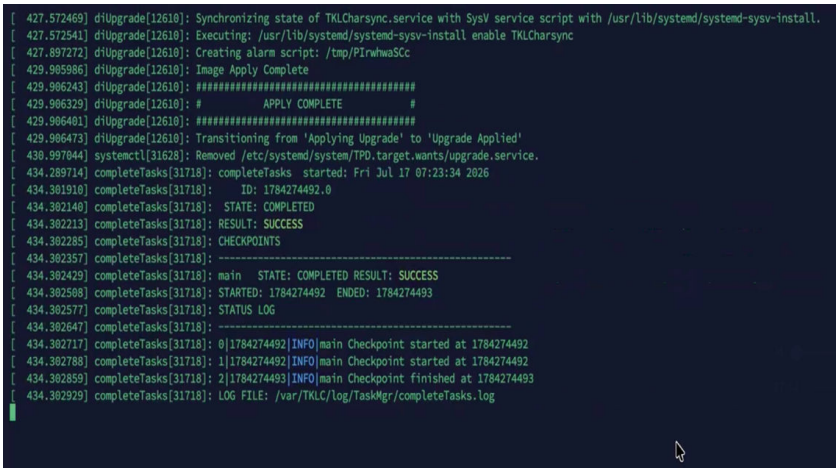
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Table 4-1 (Cont.) Procedure 25 DIU Upgrade Server B

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		• Installing image • Verifying configuration sanity • Performing image post-install • Image install complete From the platcfg menu -> select maintenance menu, select Dual Image Upgrade and then Press Enter.  From the Dual Image Upgrade Menu, select Apply Upgrade and press [ENTER].  Select YES and press ENTER.

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Table 4-1 (Cont.) Procedure 25 DIU Upgrade Server B

S. No	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
		 When the upgrade process is complete, the server reboots.
13	MPS B: Upgrade completed.	After the final reboot, the screen displays the login prompt as displayed in the example below.  Make sure to verify that the state is transitioned from “Applying upgrade” to “Upgrade Applied” and we get Completed Result: SUCCESS using below command. `/var/TKLC/backout/diUpgrade --status`
14	**MPS B:** log in as “root” user.	`[hostname] consolelogin: root` `password: password`

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Table 4-1 (Cont.) Procedure 25 DIU Upgrade Server B

S. No	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure

15	**MPS B:** Check the Upgrade log.	Examine the upgrade logs in the directory /var/TKLC/log/upgrade and verify that no errors and warnings were reported.
		
		`$ grep -i error /var/TKLC/log/upgrade/upgrade.log`
		`$ grep -i warning /var/TKLC/log/upgrade/upgrade.log`

16	**MPS B:** Check that the upgrade completed successfully.	Run the command from the root user: `[root@Floater04 ~]$ /var/TKLC/backout/diUpgrade --status`

17	**MPS B:** Check that the upgrade completed successfully.	Verify that the following output is displayed. If it is not, contact My Oracle Support following the instructions on the front page or the instructions on the Appendix E.
		
		`[root@Floater04 ~]# /var/TKLC/backout/diUpgrade --status`
		`State: Upgrade Applied`
		`Status Messages:`
		`- Performing early checks`
		`- Downloading upgrade data`
		`- Verifying image`
		`- Performing image pre-install`
		`- Configuring images`
		`- Identifying resources`
		`- Reserving image storage`
		`- Installing image`
		`- Verifying configuration sanity`
		`- Performing image post-install`
		`- Image install complete`
		`- Validating image pre-apply`
		`- Performing image pre-apply`
		`- Applying image`
		`- Performing configuration export`
		`- Performing image post-apply`
		`- Image Apply Complete`

19	**MPS B:** Reboot after installation	Reboot the system after the “Apply Complete Process” to finally finish the installation. `$ reboot`
20	**MPS B:** Install Complete.	The installation procedure is complete. If there are any issues in the upgrade, check Procedure A.48 Dual Image Upgrade Known Issues Fix.

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Table 4-1 (Cont.) Procedure 25 DIU Upgrade Server B

S. No	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
21	Note down the timestamp in log.	Run the following command: `$ date`

22	Start Node the server to make it Standby	
		`$ startNode`
		
		The command will take time depending on the DB size.
		
		`$ hastatus`
		`STANDBY`

4.2 Procedure 26 DIU Upgrade server A

> **Note**
>
> Ensure that the Legacy Upgrade before DIU is accepted, otherwise it might cause an error while initiating background upgrade in DIU.

Table 4-2 Procedure 26 DIU Upgrade server A

S. NO	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
1	**MPS A:** Login prompt is displayed.	 `<hostname> console login:` **Note:** Press enter if no login prompt is displayed.

2	**MPS A:** Log in as “root” user.	
		`[hostname] consolelogin: root`
		`password:  password`

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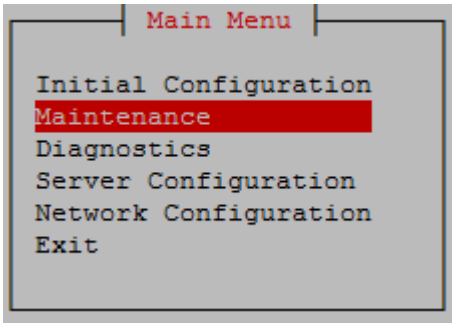
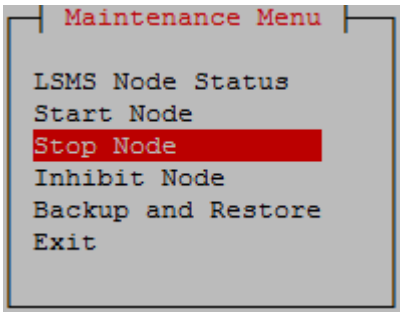
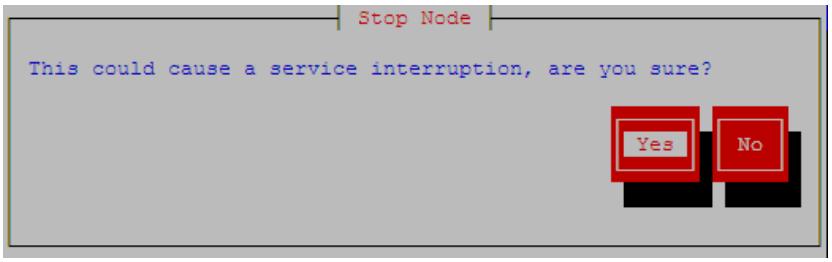
Table 4-2 (Cont.) Procedure 26 DIU Upgrade server A

S. NO	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
3	**MPS A:** Copy DIU ISO	Perform Procedure A.1 or download LSMS APPB DIU ISO Image from Oracle Software Delivery Cloud and place it in /var/TKLC/upgrade. Make sure that only the DIU ISO and patch is present in the directory.
4	Create a terminal window log in MPS A.	If not already connected, connect to the E5-APP-B card via the serial port. For connecting the E5-APP-B B card, disconnect the console cable from the serial port on the E5-APP-B A card's adapter. The cable should be disconnected at the point where it connects to the serial port labeled 'S1' on the E5-APP-B A card's adapter and use it for serial access. Cable part numbers - 830-1220-xx

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Table 4-2 (Cont.) Procedure 26 DIU Upgrade server A

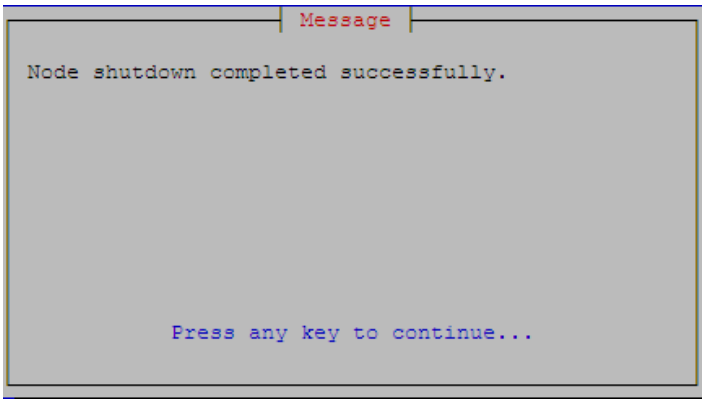
S. NO	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure

5	**MPS A:** Stop Node
	Move all custom files and run pre upgrade script
		Note: NTP must be configured before starting DIU.
		Note: All custom files, scripts, folders need to be migrated to remote server before the DIU process is started. These need to be restored back to their place after the DIU process is completed.
		
		`<hostname> console login:`
		`root password:`
		`# su – lsmsmgr`
		
		 
		
		 
		
		 

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Table 4-2 (Cont.) Procedure 26 DIU Upgrade server A

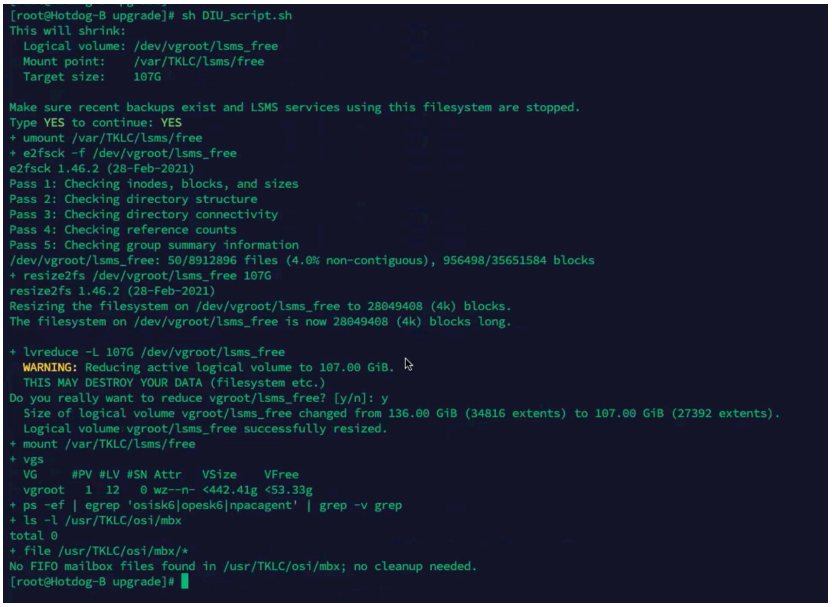
S. NO	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure

		
		Exit the lsmsmgr menu. Run the following command on both LSMS to verify the HA state:
		`# hastatus`
		Verify that the hastatus of the servers is 'UNINITIALIZED "INHIBITED"'
		Note: B node becomes ACTIVE automatically because of Switchover.
		Before running below script, make sure to grep and kill 'osisk6|opesk6|npacagent' process if running
		`# ps -ef | egrep 'osisk6|opesk6|npacagent' | grep -v grep`
		`# kill –9 <PID>`
		Note: Bring DIU_script.sh from Oracle Software Delivery Cloud (OSDC) and place it in /usr/TKLC/lsms/tools/ directory. Use DIU_script.sh to cleanup the extra files and make extra space for DIU.
		Change permission and group of the script:
		`[root@MPS-B tools]# chmod 777 DIU_script.sh`
		`[root@MPS-B tools]# chown root:root DIU_script.sh`
		Note: Before running the pre-upgrade script, ensure the mount point `/var/TKLC/lsms/free` is not in active use. Specifically, verify that no interactive shells (e.g., `bash`) or other processes have their current working directory set to `/var/TKLC/lsms/free` (or any subdirectory), as this will cause the unmount step to fail with "target is busy."
		Run the pre-upgrade script
		`# sh DIU_script.sh`

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Table 4-2 (Cont.) Procedure 26 DIU Upgrade server A

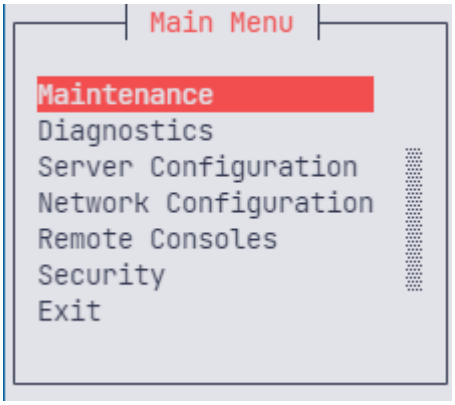
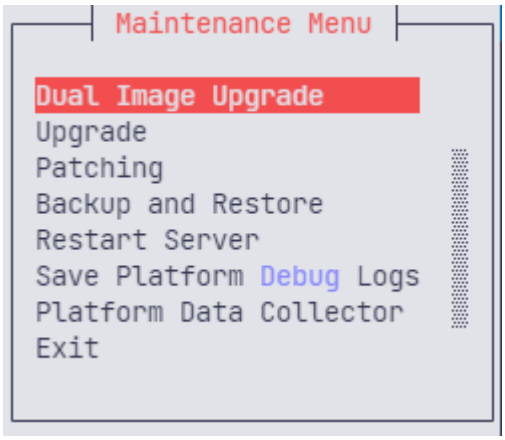
S. NO	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure

		
		
		Run vgs to make sure Free space is more than 50G:
		`[root@Steak-B ~]# vgs`
		`VG #PV #LV #SN Attr VSize VFree`
		`vgroot 1 12 0 wz--n- <442.41g <53.33g`

6	**MPS A:** Start platcfg utility.	`$ su - platcfg`

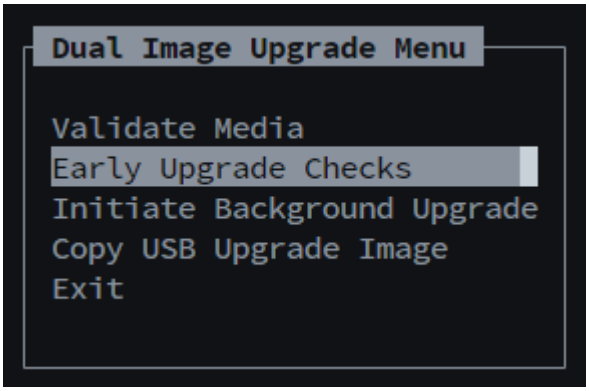
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Table 4-2 (Cont.) Procedure 26 DIU Upgrade server A

S. NO	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
7	**MPS A:** Navigate to the Upgrade menu. **Note:** Make sure to select Dual Image Upgrade only.	The platcfg Main Menu appears. On the Main Menu, select Maintenance and press [ENTER].  Select the Dual Image Upgrade menu and press [ENTER]. 
8.	MPS A: Validate ISO file.	Validate ISO file using Procedure A.2 in *EAGLE Application Processor Upgrade/Installation Guide for E5-APP-B*.
9.	MPS A: Select Early Upgrade Checks	Select the “Early Upgrade Checks” menu to verify that the system is ready for upgrade.

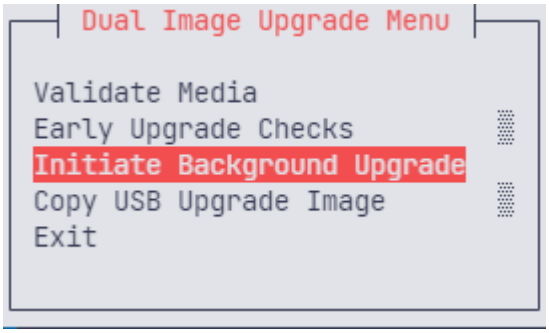
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Table 4-2 (Cont.) Procedure 26 DIU Upgrade server A

S. NO	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
		 **Note:**The previous upgrade should be accepted before proceeding for DIU upgrade. If the previous upgrade is not accepted, then early upgrade checks will fail with the error that previous upgrade is not yet accepted. If the Early Upgrade Checks fail due to the NTP related alarms, then ignore the NTP alarms using the following commands: • Exit the platcfg menu. • Change to root user using the `su -` command. • vim /usr/TKLC/plat/etc/upgrade/upgrade.conf • Edit the following line to include the NTP related alarms. EARLY_CHECK_ALARM_WHITELIST=TKSPLATMI2 • Add the following alarm code to ignore Storage Capacity Problem: TKSPLATMA5 • Add the following line for the RAID related alarms: EARLY_CHECK_ALARM_WHITELIST=TKSPLATMA2 For example: To allowlist the NTP alarm: “tpdNTPDaemonNotSynchronizedWarning” which has the alarm code TKLCPLATMI10, the above-mentioned line should be edited as EARLY_CHECK_ALARM_WHITELIST=TKSPLATMI2,TKSPLATMI10 **Note:** There should not be any space between the two alarms i.e. between TKSPLATMI2 and TKSPLATMI10 If the Early Upgrade Checks fail due to “Server Default Route Network Error”, then this alarm shall be allowlisted in upgrade.conf file. To allowlist the alarm which has the alarm code TKSPLATMA14, the above-mentioned line should be edited as: EARLY_CHECK_ALARM_WHITELIST=TKSPLATMA2,TKSPLATMI2,TKSPLATMA5,TK SPLATMI10, TKSPLATMA14,TKSPLATMA28,TKSPLATMI39 **Note:** Please note that TKSPLATMA5, TKSPLATMA2, TKSPLATMI2 should always be whitelisted.

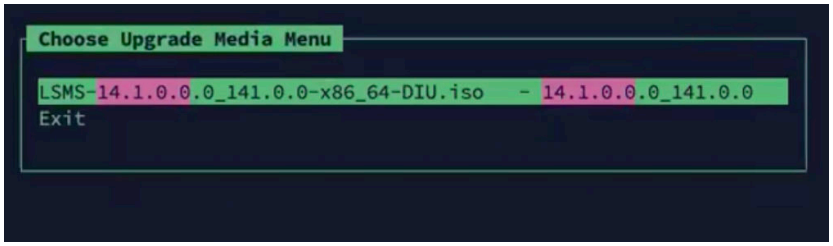
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Table 4-2 (Cont.) Procedure 26 DIU Upgrade server A

S. NO	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
10	MPS A: Navigate to the Initiate Upgrade menu	Select the Initiate Background Upgrade menu and press [ENTER]. 

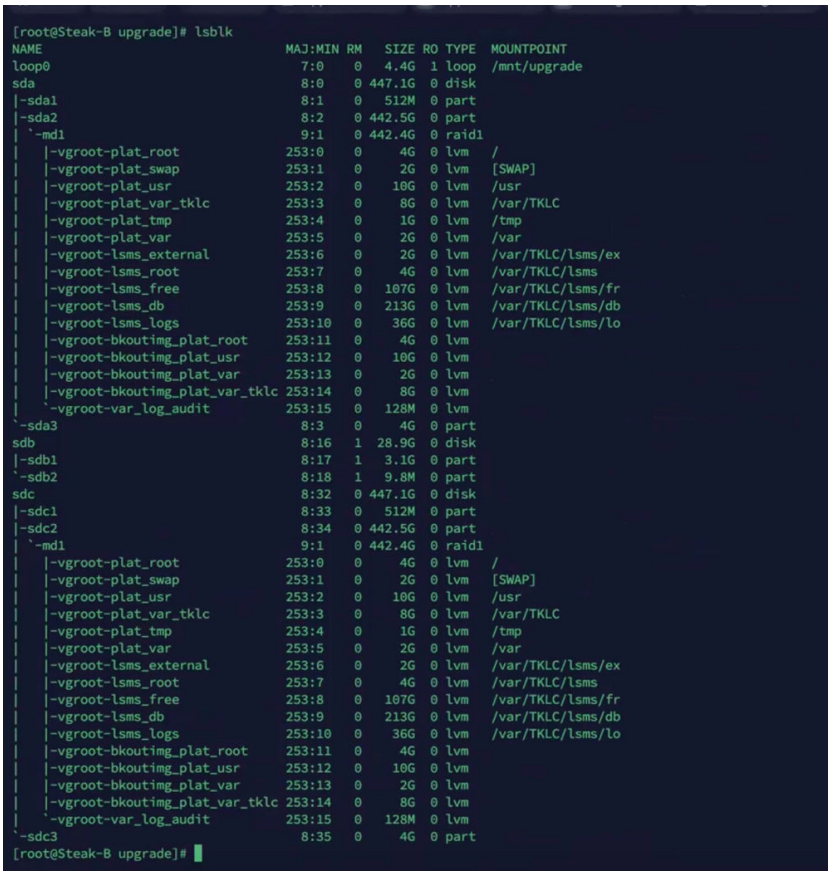
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Table 4-2 (Cont.) Procedure 26 DIU Upgrade server A

S. NO	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
11	MPS A: Select the Upgrade Media.	The screen displays a message that it is searching for upgrade media. When the upgrade media is found, an Upgrade Media selection menu appears similar as shown in the example below. Select the desired upgrade media and press [ENTER].  In case there is a failure in the upgrade process, then run the following command to verify whether the raid is synced or not: • lsblk Key Points: • Under a healthy, in-sync RAID, both member partitions will show the same md device. • If the RAID is not in sync or missing a member, only one partition will show the md device. Example of lsblk output when raid is in sync,

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Table 4-2 (Cont.) Procedure 26 DIU Upgrade server A

S. NO	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
		 Please note that in the above raid in sync snapshot of lsblk, sdb is for USB as it shows 28.9G while sda and sdc are for HDD which is 447.1G. Hence whenever you run lsblk command, always take a note of which drive is showing USB and which drives are showing HDD. Raid not in sync example snapshot: **Note:** the above raid in sync snapshot of lsblk, sda is for USB as it shows 28.9G while sdb and sdc are for HDD which is 447.1G. Hence whenever you run lsblk command, always take a note of which drive is showing USB and which drives are showing HDD. Here we are saying raid is not in sync because only sdb is showing md1 device but sdc is not showing any md device. If the raid is not in sync, then run the following command: `mdadm --add /dev/md1 /dev/sdX` where sdX can be any of sda, sdb, or sdc according to LV configurations. Please note that sdX will never be the USB partition. This can be verified using lsblk command. In the above example, sdb and sdc are

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Table 4-2 (Cont.) Procedure 26 DIU Upgrade server A

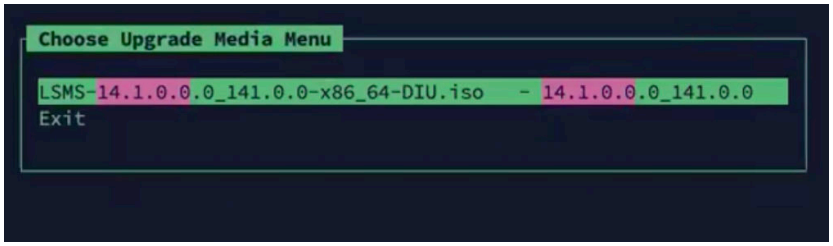
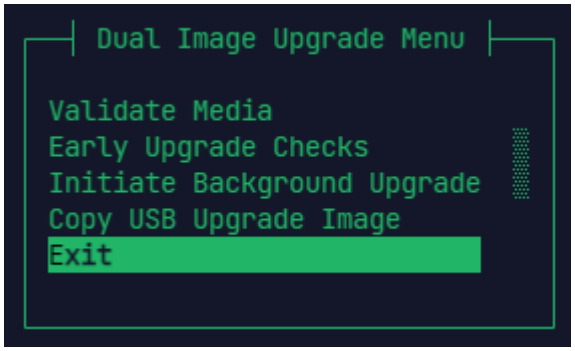
S. NO	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure

		for hard disk and sda is for USB, here sdc is not in sync as it is not showing the proper md device md1.
		Hence the command for syncing the above raid not in sync scenario will be like given below.
		
		`mdadm --add /dev/md1 /dev/sdc`
		
		The following command can be used to check the status of the sync after running the above command.
		
		`[root@Arica-A upgrade]# cat /proc/mdstat`
		`Personalities : [raid1]`
		`md1 : active raid1 sdb[3] sdc2[2] 468091904 blocks super 1.2 [2/1] [U_]`
		`[===>.................] recovery = 19.1% (89824128/468091904) finish=81.5min speed=77331K/sec`
		`bitmap: 4/4 pages [16KB], 65536KB chunk`
		`unused devices: <none>`
		
		Wait till the time recovery is not completed 100%.

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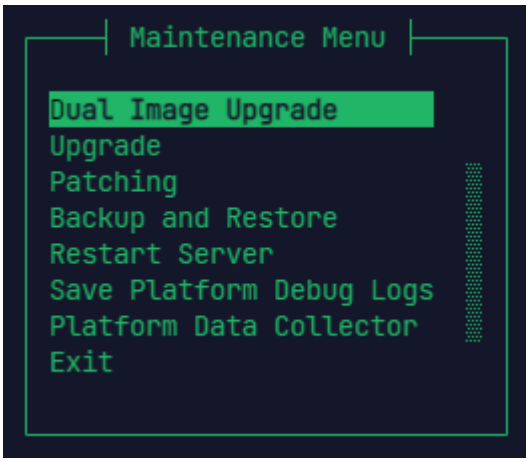
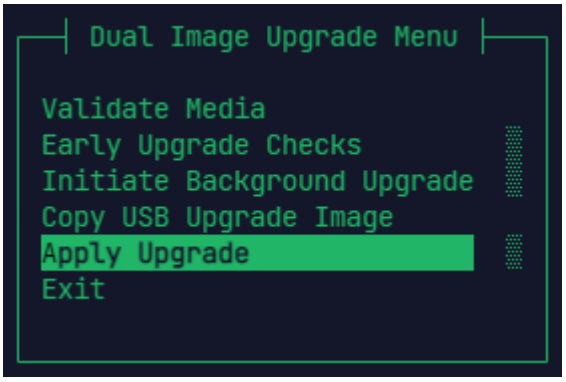
Table 4-2 (Cont.) Procedure 26 DIU Upgrade server A

S. NO	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure

12	**MPS A:** Upgrade proceeds.
	Apply Upgrade.
		Many informational messages appear on the terminal screen as the upgrade proceeds.
		After the background upgrade is done, the system will return to this screen.
		 
		
		Select [EXIT] and press [ENTER].
		From the Dual image Upgrade Menu, select [EXIT] and press [ENTER}.
		 
		
		Exit the platcfg menu and verify the status using below command, It should show “Ready to Apply upgrade”
		`/var/TKLC/backout/diUpgrade –status`
		`[root@Arica-a tmp]# /var/TKLC/backout/diUpgrade --status`
		`State: Ready to Apply Upgrade`

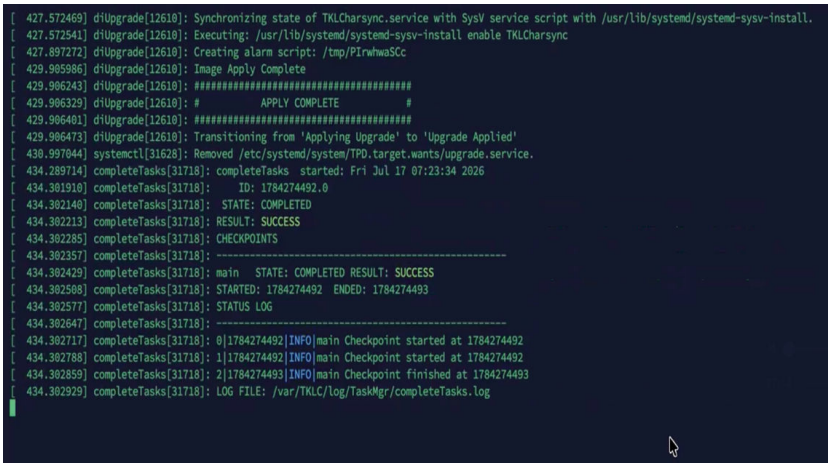
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Table 4-2 (Cont.) Procedure 26 DIU Upgrade server A

S. NO	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
		Status Messages: • Performing early checks • Downloading upgrade data • Verifying image • Performing image pre-install • Configuring images • Identifying resources • Reserving image storage • Installing image • Verifying configuration sanity • Performing image post-install • Image install complete From the platcfg menu-> select maintenance menu, select Dual Image Upgrade and then Press Enter.  From the Dual Image Upgrade Menu, select Apply Upgrade and press [ENTER]]. 

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Table 4-2 (Cont.) Procedure 26 DIU Upgrade server A

S. NO	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
		Select YES and press ENTER.  When the upgrade process is complete, the server reboots. After the final reboot, the screen displays the login prompt as displayed in the example below.
13	**MPS A:** Upgrade completed.	 Make sure to verify that the state is transitioned from “Applying upgrade” to “Upgrade Applied” and we get Completed Result: SUCCESS using below command. `/var/TKLC/backout/diUpgrade --status`

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Table 4-2 (Cont.) Procedure 26 DIU Upgrade server A

S. NO	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
14	**MPS A:** log in as "root" user.	`[hostname] consolelogin: root` `password: password`

15	MPS A: Check the Upgrade log.	Examine the upgrade logs in the directory /var/TKLC/log/upgrade and verify that no errors and warnings were reported.
		`$ grep –i error /var/TKLC/log/upgrade/upgrade.log`
		`$ grep -i warning /var/TKLC/log/upgrade/upgrade.log`

16	**MPS A:** Check that the upgrade completed successfully.	Run the command from the root user: `[root@Floater04 ~]$ /var/TKLC/backout/diUpgrade --status`

17	**MPS A:** Check that the upgrade completed successfully.	Verify that the following output is displayed. If it is not, contact My Oracle Support following the instructions on the front page or the instructions on the Appendix E.
		`[root@Floater04 ~]# /var/TKLC/backout/diUpgrade --status`
		`State: Upgrade Applied`
		`Status Messages:`
		`- Performing early checks`
		`- Downloading upgrade data`
		`- Verifying image`
		`- Performing image pre-install`
		`- Configuring images`
		`- Identifying resources`
		`- Reserving image storage`
		`- Installing image`
		`- Verifying configuration sanity`
		`- Performing image post-install`
		`- Image install complete`
		`- Validating image pre-apply`
		`- Performing image pre-apply`
		`- Applying image`
		`- Performing configuration export`
		`- Performing image post-apply`
		`- Image Apply Complete`

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Table 4-2 (Cont.) Procedure 26 DIU Upgrade server A

S. NO	Steps	This procedure performs Dual Image Upgrade on the server. Check off (□) each step as it is completed. Boxes have been provided for this purpose beside each step number. If this procedure fails, contact My Oracle Support and ask for ASSISTANCE. Estimated time: 80 mins Note: Make sure to follow DIU Upgrade Steps before starting this procedure
21	**MPS A:** Reboot after installation	Reboot the system after the “Apply Complete Process” to finish the installation. `$ reboot`
22	Install Complete.	The installation procedure is complete.
23	Note down the timestamp in log.	Run the following command: `$ date`

22	Start Node the server to make it Standby	
		`$ startNode`
		
		<will take time depending on DB size>
		
		`$ hastatus`
		
		STANDBY

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A
ISO IMAGE COPY FROM USB MEDIA

Assumption: The USB media contains the desired LSMS ISO.

A.1 ISO IMAGE COPY FROM USB MEDIA

Table A-1 ISO Image copy from USB media

STEP #	1A	1B	This procedure provides instructions to copy an ISO image from an USB media.	
1.	□	□	**MPS X:** Insert USB.	Insert media in USB drive
2.	□	□	**MPS X:** Log in to the server as the “root” user.	`[hostname] consolelogin: root` `password: password`

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Table A-1 (Cont.) ISO Image copy from USB media

STEP #	1A	1B	This procedure provides instructions to copy an ISO image from an USB media.	

3.	☐	☐	**MPS X:** Run syscheck to make sure there is no error.	Run the following command:
				
				`# syscheck`
				
				The output should look like:
				
				`[root@hostname ~]# syscheck`
				`Running modules in class proc...`
				
				`OK`
				
				`Running modules in class services...`
				
				`OK`
				
				`Running modules in class system...`
				
				`OK`
				
				`Running modules in class disk...`
				
				`OK`
				
				`Running modules in class hardware...`
				
				`OK`
				
				`Running modules in class net...`
				
				`OK`
				
				`LOG LOCATION: /var/TKLC/log/syscheck/fail_log`

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Table A-1 (Cont.) ISO Image copy from USB media

STEP #	1A	1B	This procedure provides instructions to copy an ISO image from an USB media.	

4.	☐	☐	**MPS X:** Verify ISO image doesn't already exist.	Run the following command to perform directory listing:
				
				`# ls –al /var/TKLC/upgrade`
				
				The output should look like:
				
				`[root@hostname ~]# ls -al /var/TKLC/upgrade`
				`total 16`
				`dr-xr-xr-x  2 root root 4096 Oct 22 16:31 .`
				`dr-xr-xr-x 21 root root 4096 Oct 18 13:40 ..`
				
				If an ISO image exists, remove it by running the following command:
				
				`# rm –f /var/TKLC/upgrade/<ISO image>`

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Table A-1 (Cont.) ISO Image copy from USB media

STEP #	1A	1B	This procedure provides instructions to copy an ISO image from an USB media.	

5.	□	□	**MPS X:** Delete unwanted ISOs from USB media.	Run the following command to create a directory to mount the USB media:
				
				`# mkdir -p /mnt/usb`
				
				Run the following command to get the USB drive name:
				
				`# fdisk -l |grep FAT`
				
				The output should look like:
				
				`/dev/sdc1 * 1 812 831472 6 FAT16`
				
				Run the following command to mount the USB media using the USB drive name from the output above:
				
				`# mount /dev/sdc1 /mnt/usb`
				
				Run the following command to perform directory listing and verify the file name format is as expected:
				
				`# ls -al /mnt/usb`
				
				The output should look like:
				
				`[root@hostname ~]# # ls -al /mnt/usb`
				`total 629400`
				`dr-xr-xr-x 2 root root 4096 Dec 5 13:33 .`
				`dr-xr-xr-x 22 root root 4096 Dec 5 13:55 ..`
				`-rw-r--r-- 1 root root 829595648 Dec 5 16:20 LSMS-14.1.0.0.0_141.6.0-x86_64.iso`
				
				Note: If you are performing DIU, only LSMS-14.1.0.0.0_141.6.0-x86_64-APPB-DIU.iso must be present.
				Only one ISO file should be listed, if additional files are listed, execute the following command to remove unwanted ISOs:
				
				`# rm –f /mnt/usb/<ISO_NAME>.iso`

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Table A-1 (Cont.) ISO Image copy from USB media

STEP #	1A	1B	This procedure provides instructions to copy an ISO image from an USB media.	
				For e.g., `# rm –f /mnt/usb/ LSMS-14.1.0.0.0_140.6.5-x86_64.iso`

6.	☐	☐	**MPS X:** Verify space exists for ISO.	Run the following command to verify the available disk space:
				
				`# df -h /var/TKLC`
				
				The output should look like:
				
				`[root@lsmspri log]# df -h /var/TKLC`
				`Filesystem Size Used Avail Use% Mounted on`
				`/dev/mapper/vgroot-plat_var_tklc`
				`3.9G 1.2G 2.5G 32% /var/TKLC`
				
				Verify that there is at least 620M in the Avail column. If not, clean up files until there is space available.
				CAUTION: 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. Contact Technical Services beforehand if removing files other than the `/var/TKLC/upgrade` directory as removing files is dangerous.

7.	☐	☐	Copy ISO from mounted path to the destination path	Run the following command to copy ISO:
				
				`# cp /mnt/usb/<xyz.iso> /var/TKLC/upgrade/`
				
				Run the following command to unmount the USB media:
				
				`# umount /mnt/usb`

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Table A-1 (Cont.) ISO Image copy from USB media

STEP #	1A	1B	This procedure provides instructions to copy an ISO image from an USB media.	

8.	☐	☐	**MPS X:** Verify ISO image exists.	Run the following command to perform directory listing: # ls –al /var/TKLC/upgrade
				The output should look like:
				
				`[root@lsmspri log]# ls -al /var/TKLC/upgrade`
				`total 895152`
				`drwxrwxr-x. 2 root admgrp 4096 Apr 20 17:16 .`
				`dr-xr-xr-x. 20 root root 4096 Apr 20 18:01 ..`
				`-r-------- 1 admusr admgrp 916621312 Apr 20 17:16 LSMS-14.1.0.0.0_141.6.0-x86_64.iso`
				
				Note: For DIU, the following ISO should be present: LSMS-14.1.0.0.0_141.6.0-x86_64-APPB-DIU.iso
				Repeat this procedure from step 5 if LSMS ISO file is not as expected.

9.	☐	☐	**MPS X:** Logout from server.	Logout from the server by executing the following command: `# logout`
10.	☐	☐	**MPS X:** Remove USB media.	Remove media from USB drive.
This procedure is complete!				

A.2 Copying LSMS backups from NAS to USB

Table A-2 Copying LSMS backups from NAS to USB

STEP #	NAS	This procedure provides instructions to copy LSMS backups from NAS to USB.	
1.	☐	**NAS:** Insert USB.	Insert media in USB drive
2.	☐	**NAS:** Log in to the server as the “root” user.	`[hostname] consolelogin: root` `password: password`

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Table A-2 (Cont.) Copying LSMS backups from NAS to USB

STEP #	NAS	This procedure provides instructions to copy LSMS backups from NAS to USB.	

3.	□	**NAS:** Run syscheck to make sure there is no error.	Run the following command:
			
			`# syscheck`
			
			The output should look like:
			
			`[root@hostname ~]# syscheck`
			`Running modules in class proc...`
			
			`OK`
			
			`Running modules in class services...`
			
			`OK`
			
			`Running modules in class system...`
			
			`OK`
			
			`Running modules in class disk...`
			
			`OK`
			
			`Running modules in class hardware...`
			
			`OK`
			
			`Running modules in class net...`
			
			`OK`
			
			`LOG LOCATION: /var/TKLC/log/syscheck/fail_log`

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Table A-2 (Cont.) Copying LSMS backups from NAS to USB

STEP #	NAS	This procedure provides instructions to copy LSMS backups from NAS to USB.	

4.	□	**NAS:** Mount the USB media.	Run the following command to create a directory to mount the USB media:
			`# mkdir -p /mnt/usb`
			Run the following command to get the USB drive name:
			`# fdisk -l |grep FAT`
			The output should look like:
			`/dev/sdc1 * 1 812 831472 6 FAT32`
			Run the following command to mount the USB media using the USB drive name from the output above:
			`# mount /dev/sdc1 /mnt/usb`
			Note: There should be space available in the USB. If not, clean up files until there is space available.

5.	□	Copy backup files to the mounted path	Run the following command to copy ISO: `# cp <backup files> /mnt/usb/`
			While copying backup files to USB, Following error is expected: `cp: failed to preserve ownership for `/mnt/usb/<backup_file>': Operation not permitted` **Note:** Please note the ownership of the backup files before copying. Therefore, after restoring the backups to server after IPM'ing, verify the ownership of backup files. If not matched, change the ownership with the **"chown"** command.

6.	□	**NAS:** Verify backup files exists	Run the following command to perform directory listing:
			`# ls –al /mnt/usb/`
			List of backup files is displayed.
			Run the following command to unmount the USB media:
			`# umount /mnt/usb`

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Table A-2 (Cont.) Copying LSMS backups from NAS to USB

STEP #	NAS	This procedure provides instructions to copy LSMS backups from NAS to USB.	
7.	□	**NAS:** Logout from server.	Logout from the server by running the following command: `# logout`
8.	□	**NAS:** Remove USB media.	Remove media from USB drive.

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B

START AND VERIFY REPLICATION ON QUERY SERVER

Table B-1 Start and Verify REPLICATION ON Query Server

STEP #	This procedure provides the steps to start and verify Replication on the query server This step is performed only if a query server exists in the customer system. Estimated time:30 minutes	
1. 	**LSMS 14.1.X** **Query Server:** Start Replication. Verify the replication status on the Query Server. **Note:** If the Slave_IO_Running and Slave_SQL_Running column values are set to **YES**, the status is good and the next step can be skipped. If the Slave_IO_Running and Slave_SQL_Running column values are set to **NO**, wait a few minutes and then repeat the "show slave status \G;" command If the values are still **NO**, proceed to the next step.	mysql> start slave; Query OK, 0 rows affected (0.00 sec) mysql> show slave status \G; *************************** 1. row *************************** Slave_IO_State: Waiting for master to send event Master_Host: <Master Host IP> Master_User: lsmsrepl Master_Port: 3306 Connect_Retry: 60 Master_Log_File: mysql-bin.000134 Read_Master_Log_Pos: 15778725 Relay_Log_File: cs2-bss2-relay-bin.000001 Relay_Log_Pos: 4137221 Relay_Master_Log_File: mysql-bin.000134 Slave_IO_Running: Yes Slave_SQL_Running: Yes Replicate_Do_DB: Replicate_Ignore_DB: ResyncDB,mysql Replicate_Do_Table: Replicate_Ignore_Table: supDB.LsmsUserSpid,supDB.LsmsUser,supDB.DbConfig Replicate_Wild_Do_Table: Replicate_Wild_Ignore_Table: ResyncDB.%,supDB.%Key,mysql.% Last_Errno: 1008 Truncated..... Seconds_Behind_Master: NULL 1 row in set (0.00 sec) mysql>

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Table B-1 (Cont.) Start and Verify REPLICATION ON Query Server

STEP #	This procedure provides the steps to start and verify Replication on the query server This step is performed only if a query server exists in the customer system. Estimated time:30 minutes	
2. □	**LSMS 14.1.X Query Server:** **OPTIONAL:** If the Slave_IO_Running and Slave_SQL_Running column values are set to NO, the status is not good and the error will need to be investigated. Look at last few lines of error log, and record the error.	`# tail /usr/mysql1/*.err` Record error here: Contact My Oracle Support following the instructions on the Appendix E and ask for FULL UPGRADE ASSISTANCE.

3.
□
	LSMS Active Server:
	Login to the LSMS Primary server as lsmsadm.
	Verify the Query Server is Connected.
		`Login: lsmsadm`
		`Password: <lsmsadm_password>`
		`[lsmsadm@lsmspri lsmsadm]$ lsmsdb -c queryservers`
		`cs2-bss2 (<Query Server IP>) Connected`

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C

COPYING LICENSE FILE ON THE LSMS SERVER

C.1 Copying File Using SCP

Table C-1 Copying File Using SCP

STEP #	This procedure will help copying the license file from a desktop to LSMS server	
1.	**Server X:** Log in to server where license file is present	Logging to server using ID and password where license file is copied
2.	**Server X:** SCP the file from server to LSMS server	`scp <license file> root@<LSMS IP>: /usr/local/netech/etc/license`
3.	**LSMS MPS:** Check if the license file has been copied correctly	Run command to check for license file : `$ cat /usr/local/netech/etc/license` Expected Output: Contents of license file should be displayed
This procedure is complete!		

C.2 Copying File Using USB

Table C-2 Copying File Using USB

STEP #	This procedure will help copying the license file from a desktop to LSMS server	
1.	**Server X:** Copy license file to USB	Connect USB to desktop and copy the license file from desktop to USB.

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Table C-2 (Cont.) Copying File Using USB

STEP #	This procedure will help copying the license file from a desktop to LSMS server	
□ 2.	**LSMS MPS:** Confirm how the USB is enumerated on LSMS server	Connect the USB to LSMS MPS which contains the license file and check on how it is enumerated using command : `$dmesg | grep -i "removable disk"` Expected output sd 6:0:0:0: Attached scsi removable disk sdc This shows USB is enumerated as /dev/sdc.

□ 3.	**LSMS MPS:** Determine the partition name	Run command fdisk –l on enumerated name device to determine partition name :
		
		`$fdisk –l /dev/sdc`
		
		Expected Output :
		
		`Disk /dev/sdc: 2013 MB, 2013265920 bytes`
		`256 heads, 63 sectors/track, 243 cylinders`
		`Units = cylinders of 16128 * 512 = 8257536 bytes`
		`Device Boot Start End Blocks Id System`
		`/dev/sdc1 * 1 110 887008+ b W95 FAT32`
		
		This shows that partition name is /dev/sdc1

□ 4.	**LSMS MPS:** Copy license file from USB to MPS	Run below command to copy the license file from USB
		
		`$mkdir –p /tmp/usb`
		`$ mount /dev/sdc1 /tmp/usb`

□ 5.	**LSMS MPS**: Copy license file from /tmp directory	`$ cp /tmp/usb/<license-file> /usr/local/netech/etc/license`
□ 6.	**LSMS MPS:** Check if the license file has been copied correctly	Run command to check for license file: `$ cat /usr/local/netech/etc/license` Expected Output: Contents of license file should be displayed
□ 7.	**LSMS MPS:** Unmount the USB	Unmount the USB using command: `$umount /tmp/usb`
This procedure is complete!		

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D
SWOPS SIGN OFF.

Table D-1 Discrepancy List

Date	Test Case	Description of Failures and/or Issues. Any CSR's / RMA's issued during Acceptance. Discrepancy	Resolution and SWOPS Engineer Responsible	Resolution Date:

.

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E
MY ORACLE SUPPORT

> ⚠ **Caution**
>
> Use only the guide downloaded from the Oracle Technology Network (OTN)(http://www.oracle.com/technetwork/indexes/documentation/oracle-comms-tekelec-2136003.html).

Before upgrading your system, access the **My Oracle Support** web portal (https://support.oracle.com) and review any Knowledge Alerts that may be related to the System Health Check or the Upgrade.

Before beginning this procedure, contact My Oracle Support and inform them of your upgrade plans. If installing for an Oracle customer on a customer site, obtain the customer's Support Identifier (SI) before requesting assistance.

Web portal (preferred option): My Oracle Support (MOS) (https://support.oracle.com/)

Phone: Contact your local Oracle Global Customer Support Center (http://www.oracle.com/support/contact.html) Make the following selections on the Support telephone menu:

1. Select '**2**' for New Service Request
2. Select '**3**' for Hardware, Networking and Solaris Operating System Support
3. Select '**1**' for Technical Issues and when talking to the agent, please indicate that you are an existing Tekelec customer

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F

IMPORTANT STEPS/CHANGES IN THE DOCUMENT

This appendix highlights important updates to the document, as well as critical steps in the procedures that have previously caused issues or may present challenges during execution.

1. Procedure 6, Step 9 is critical. Ensure you thoroughly review and understand this step before starting the upgrade process. Failure to follow it correctly may result in issues that are difficult to resolve after the upgrade is complete.

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Glossary

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