Oracle® Communications LSMS

Full Upgrade Guide

Release 14.0

F91165-11

January 2026

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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.
Refer to Appendix E for instructions on accessing My Oracle Support.

What's New in This Guide

This section introduces the documentation updates for Release 14.0 in Oracle Communications LSMS Full Upgrade Guide.

Release 14.0 – F91165-11, January 2026

- Added a note on choosing a method of root login after Procedure 15, Segmented Configuration for LSMS Cards and Procedure 16, TMN Toolkit and Marben OSI License Installation.
- Updated step 9 of Procedure 19, Restore Database with the command to check if lsms status is UNINITIALIZED "INHIBITED".

Release 14.0 – F91165-10, September 2025

- Updated step 14 in Procedure 11, Install the LSMS Application and added a note that default permission and ownership will automatically be added to the config file for lsmsadm user.
- Edited step 10 in Procedure 19, Restore Database that Procedure 18 needs to be executed to verify the system health check after DB full upgrade.
- Added a note to Procedure 22. that the procedure is only required when ELAP version is 10.2.

Release 14.0 – F91165-09, August 2025

- Updated the release versions in the Full Upgrade Paths table.
- Added a note in step 8 in Procedure 6, Backup LSMS DB that the edit supDBdump.sql to fix authorization table command is only required while upgrading from 13.X release.
- Updated step 9 in Procedure 6, Backup LSMS DB with information on migrating from 14.0.0.X to 14.0.0.Y by editing the file MySQLUserGrants.sql.
- Added step 14 in Procedure 11, Install the LSMS Application to create config file in the SSH directory
- Updated step 6 in Procedure 19, Restore Database with a command to restore supDB.

Release 14.0 – F91165-08, April 2025

- Added step 3 in Procedure 6, Backup LSMS DB to disable LSMS backup on both A and B servers

Release 14.0 – F91165-07, November 2024

- Added the command `# rm -rf /var/TKLC/lsms/free/<regionDB>` to extract the snapshot data from the archive tar files copied from LSMS in step 5 in Procedure 19.
- Updated the command to exchange key with remote ELAP and LSMS in step 4 and 5 in Procedure 22.
- Removed step 7 from Procedure 22.

Release 14.0 – F91165-06, October 2024

- Updated the note about valid licenses to be installed on LSMS A and B servers in the Procedure 16, TMN Toolkit and Marben OSI License Installation section.

Release 14.0 – F91165-05, September 2024

- Added a note in step 7 in Procedure 6, Backup LSMS DB to take a note of EMS configuration.
- Added information about editing the `MySQLUserGrants.sql` file in Procedure 6, Backup LSMS DB.
- Added information about a warning displayed during the upgrade in step 11 in Procedure 11, Install the LSMS Application.

Release 14.0 – F91165-04, September 2024

- Updated the Required Materials section to add reference to Release Notes to access the procedure to obtain the license key files for Marben OSI and TMN Toolkit from Artifex for successful communication between LSMS and NPAC.

Release 14.0 – F91165-03 , August 2024

- Updated the Required Materials section.
- Added a note in the Upgrade Timeline for LSMS Procedure Execution Order section.
- Updated the note in step 4 in Procedure 6, BACKUP LSMS DB.
- Updated step 8 in Procedure 6, BACKUP LSMS DB.
- Updated Procedure 10, Configure Network Interface Using Platcfg Utility.
- Added a note in Procedure 15, Segmented Configuration for LSMS Cards.
- Updated step 2 in Procedure 16, TMN Toolkit and Marben OSI License Installation.
- Removed the Appendix “Procedure to Procure TMN and Marben Licenses”.
- Replaced the reference to Appendix F with Appendix E throughout the document.

Release 14.0 – F91165-02 , June 2024

- Added the procedure for SSH Key Exchange between ELAP and LSMS.
- Updated the reference to Procedure 22 in Timeline table for Maintenance Window Task.

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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 14.0.0.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

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. 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

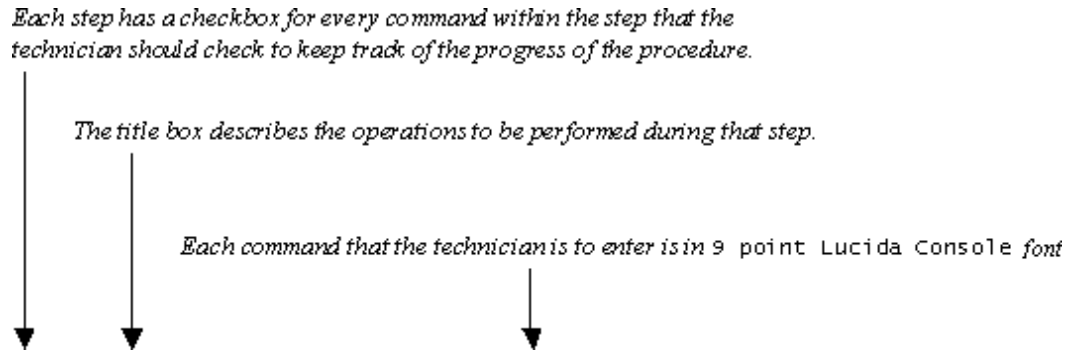
1.4 Definitions

Table 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:



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

Figure 1. Example of a step that indicates the Server on which it needs to be executed

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

Figure 2. Example of a step that needs to be executed on both MPS A and MPS B servers

1.6 Required Materials

- LSMS 14.0 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 14.0 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: _____

  Other IPs required: _____

  Remote Server IP to copy DB Backup: _____

- Passwords for users on the local system:

LSMS USERS		
login	**MPS A password**	**MPS B password**
lsmsmgr		
lsmsadm		
lsmsall		
lsmsuext		

lsmsuser		
lsmsview		
root		
mysql dbroot user		
admusr		
Command-line		

Table 3: User Password Table

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.

1.7 E5APPB Server (Rear)

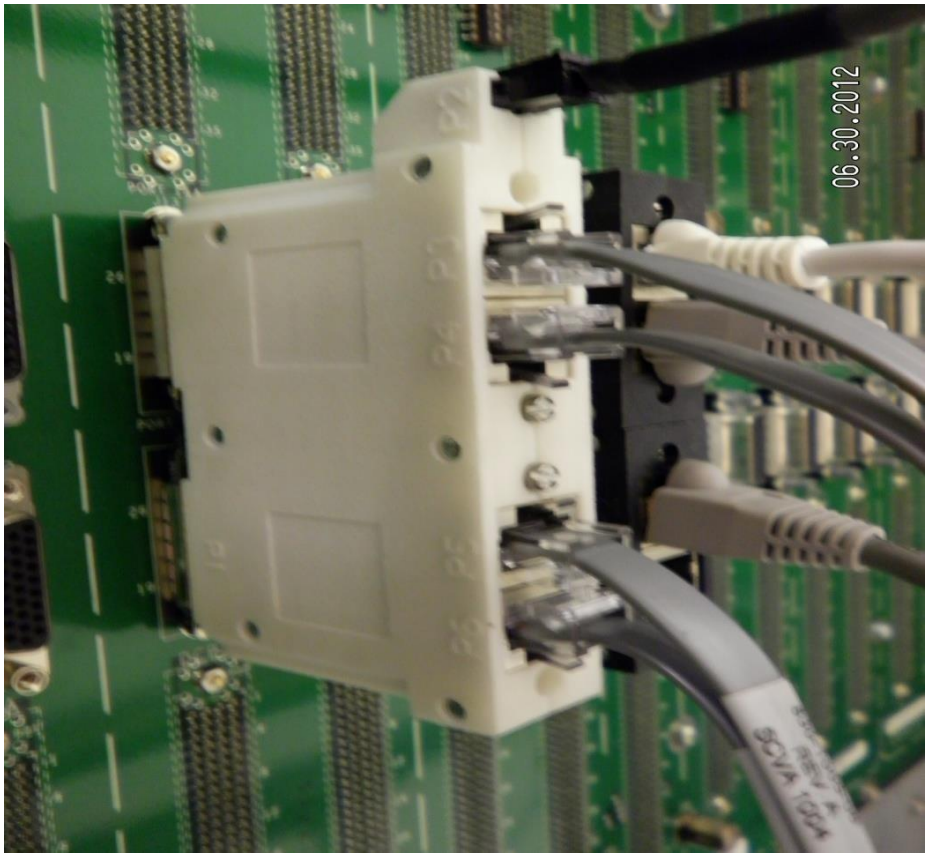


Figure 3. E5-APP-B Server (Rear)

1.7 Switch Configuration

VLAN configuration on the switch is done based on the LSMS/NAS Segmented Type Configuration. Please note that the VLAN IDs can be different based on the LAB network configuration.

==========

Name |VTag| Rout If | Tagged ports | Untagged ports

---

default |1 | sw0 | |1/1/1-1/1/24
vlan2 |2 | |1/1/3,1/1/4 |
vlan3 |3 | |1/1/3,1/1/4 |
naspri-network |5 | |1/1/3,1/1/4,1/1/17 |

nassec-network |6 | |1/1/3,1/1/4,1/1/18 |
elap-network |159 | |1/1/3,1/1/4,1/1/19 |
gui-network |161 | |1/1/3,1/1/4,1/1/20 |

Optionally assign some name to the switch ports:
interface 1/1/3
name LSMS-A_NAS/ELAP/GUI
!
interface 1/1/4
name LSMS-B_NAS/ELAP/GUI
!
interface 1/1/17
name LSMS-A_NAS-pri
!
interface 1/1/18
name LSMS-B_NAS-sec
!
interface 1/1/19
name ELAP-network-uplink
!
interface 1/1/20
name Gui-network-uplink

1.8 Fallback

If for any reason a fallback to the original configuration is required, the procedure will be to re-IPM the server and install the old LSMS version.

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 4 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	14.0.Y
Full upgrade Source Release	**Full upgrade Destination Release**
13.5.X	14.0.0.Y
14.0.0.X	14.0.0.Y

***Note : LSMS 14.0.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.

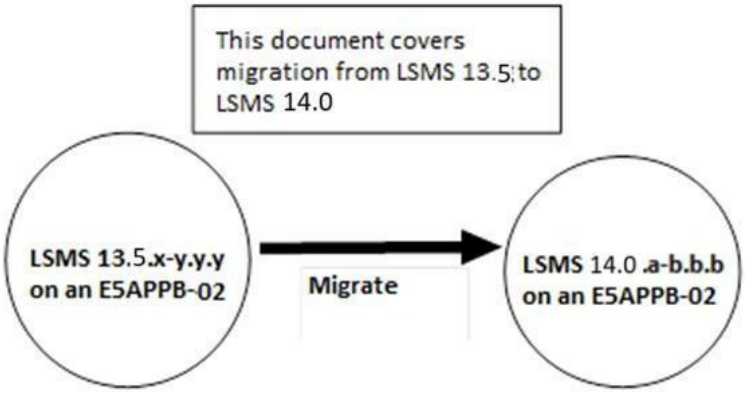


Figure 4: Full upgrade Path - LSMS 13.5.X to 14.0.Y

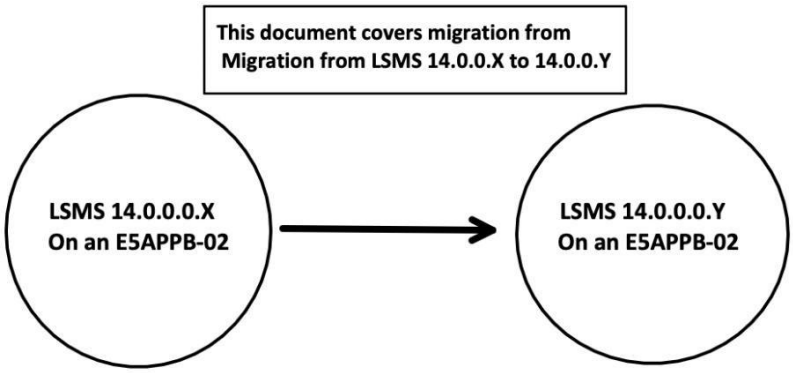


Figure 5: Full upgrade Path - LSMS 14.0.0.X to 14.0.0.Y

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 this required information, missing any information will be fatal post upgrade.

3.1.1.1 Preparation phase

Before planning or starting Full Upgrade to LSMS 14.0 customer will have to procure TMN and Marben Licenses for NPAC connection to work on OL8 post upgrade. Contact My Oracle Support (3.7Appendix E) to procure the licenses.

Table 5: 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			

3.1.1.2 Maintenance Window Tasks

Table 6: 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	**Minicommate** for MPS B and **Minicomnas** 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				
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 14.0.X to NPAC	15	325				
Procedure 22	Direct SSH	SSH Key Exchange Between ELAP and LSMS	15	340				
Procedure 23	Minicom mate	Connect LSMS 14.0.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				

3.1.1.3 Post Upgrade Phase

LSMS 1A					LSMS 1B		
Procedure	**Task**	**1A**	**Task Start time (min)**	**1B**	**Task**	**Procedure**
Procedure 21	Export the Database from LSMS 14.0.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.

3.2.1.1 Maintenance Window Tasks

Table 7: 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	Direct Serial/Minicom Connection	IPM MPS A server	120	0	0	IPM MPS B server and NAS server	Direct Serial/Minicom Connection	Procedure 8
Procedure 9		Pre-Install Configuration				Pre-Install Configuration		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				
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 14.0.X to NPAC	15	190				
Procedure 23	Direct SSH	Connect LSMS 14.0.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 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.

Procedure 1 SETTING UP FULL UPGRADE ENVIRONMENT

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!				

Procedure 2 PRE-FULL UPGRADE SYSTEM HEALTH CHECK

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

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>

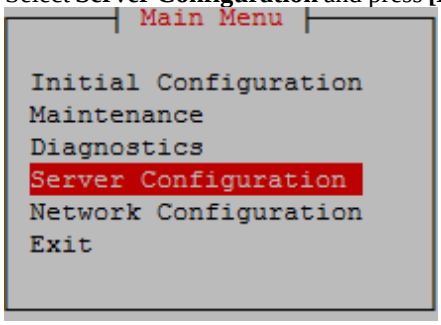
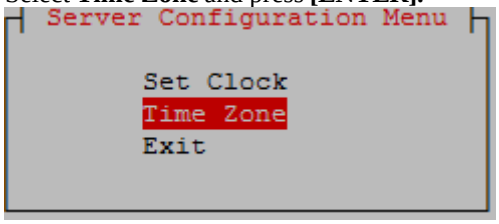
2. ☐	**MPS A and B:** Validate date, time and time zone to ensure accuracy.	`# date` `Thu May 12 05:55:27 EDT 2016`
3. ☐	**MPS A and B:** Execute the "hastatus" command to verify the HA state of this server.	Execute the following command on both LSMS A and B to verify the HA state of mated LSMS pair. `# 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.

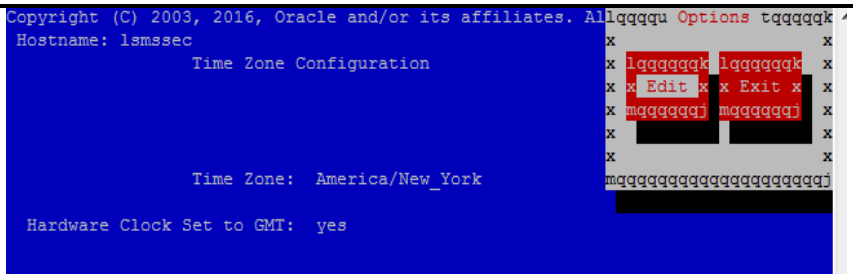
4. ☐	**LSMS Standby server:**
	Verify that the STANDBY server's MySQL replication is functioning properly.
		Execute the following command to verify that MySQL replication is working correctly on the STANDBY LSMS server:
		`# tail /var/TKLC/lsms/logs/dbreplMon.log`
		If MySQL replication is functioning 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.

5.	**LSMS Active server:**
	Verify that the ACTIVE server's MySQL replication is functioning properly.
		Execute 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... 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
7. ☐	**LSMS Active server:** Capture the output of 'sentry status' command	Execute 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
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.

		
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!		

Procedure 3 VERIFY LSMS QUERY SERVER

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!		

3.4 Data Backup before Full upgrade

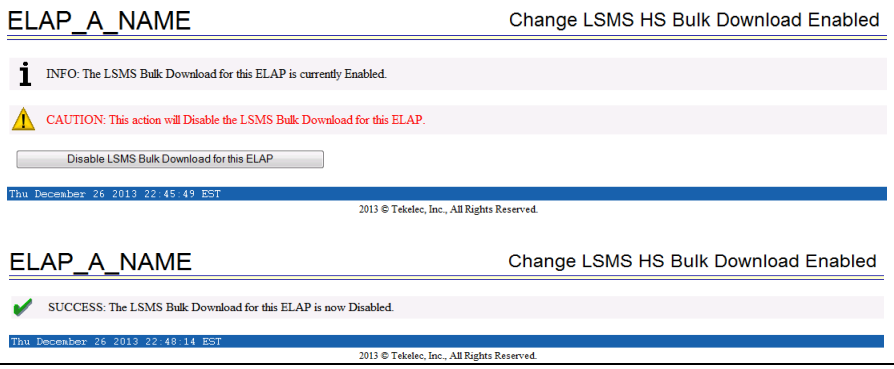
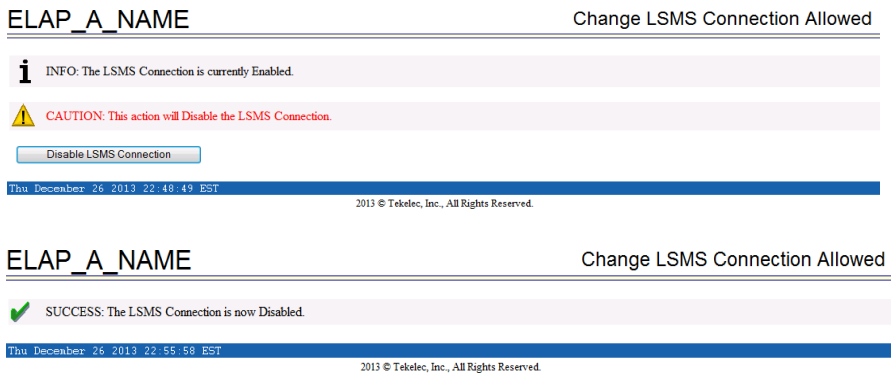
Procedure 4 DISCONNECT ELAP FROM LSMS

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	NOTE: 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. 
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!		

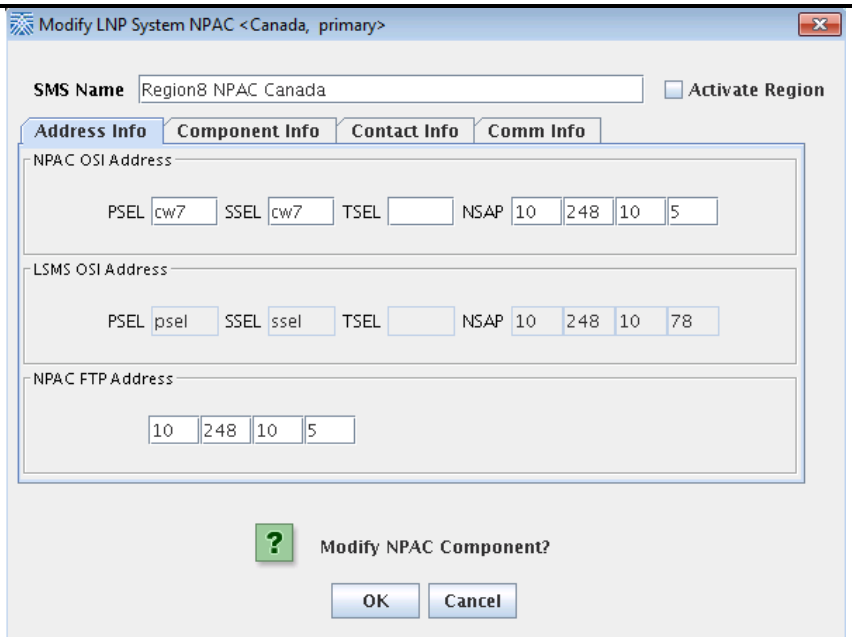
Procedure 5 DISCONNECT NPAC FROM LSMS

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>`

2. ☐	**LSMS Active server:**
	Stop all connected NPAC regions
		Execute 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.
		
		Execute 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.`
		Execute 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'.

		 **Note: Similarly, Deactivate all the active NPAC regions.**
This procedure is complete!		

Procedure 6 BACKUP LSMS DB

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.	
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`
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
		Execute 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 execute 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`

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 execution time of 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

7. ☐	**LSMS Active server:**
	Verify the snapshot files for all existing NPAC regions
		Execute 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 14.0.0.X to 14.0.0.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`

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 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';` 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 14.0.0.X to 14.0.0.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, 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.
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!		

Procedure 7 TRANSFER DATABASE TO REMOTE SERVER

Procedure 7 - Transfer Database to Remote Server

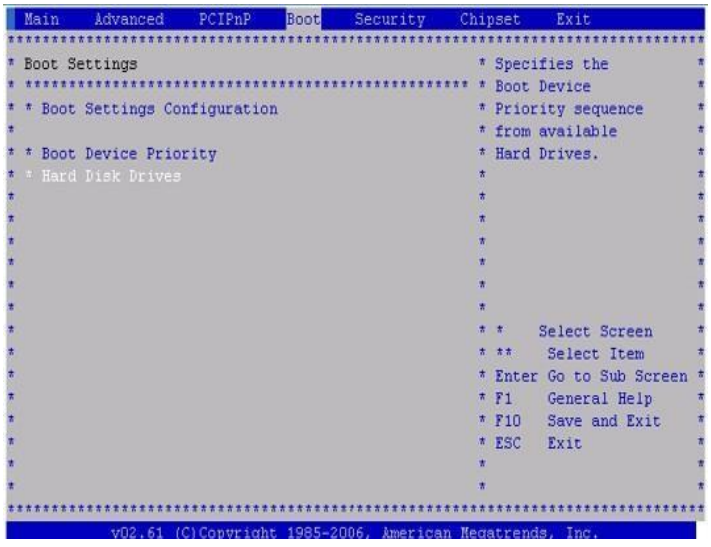
STEP #	This procedure transfers the database backup from the LSMS server to the remote server. Estimated time: 30 minutes **Note: 100mbps link is required for database transfer to remote server.**	
1. ☐	**LSMS Active server:** Log in to the server as the user "root"	Login: root Password: <root_password>
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

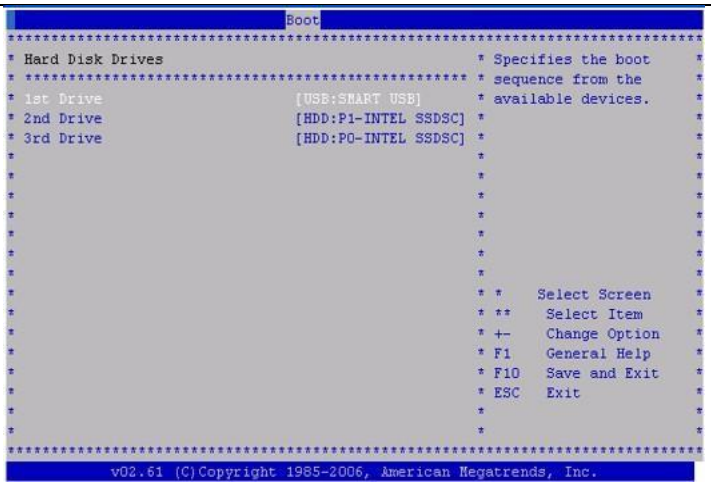
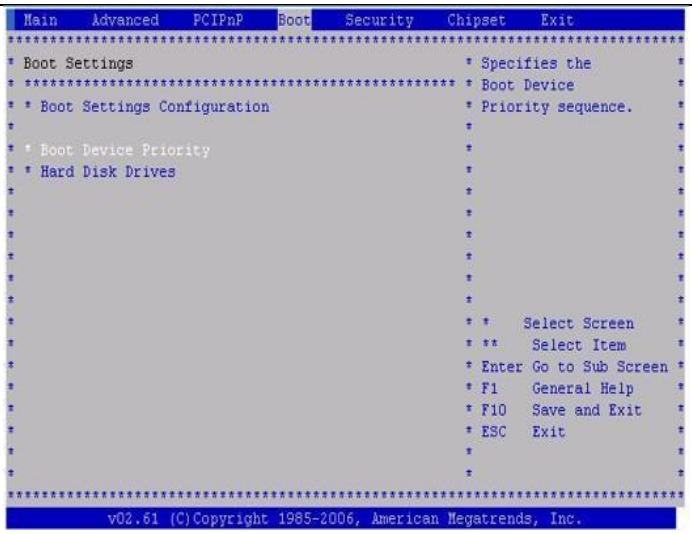
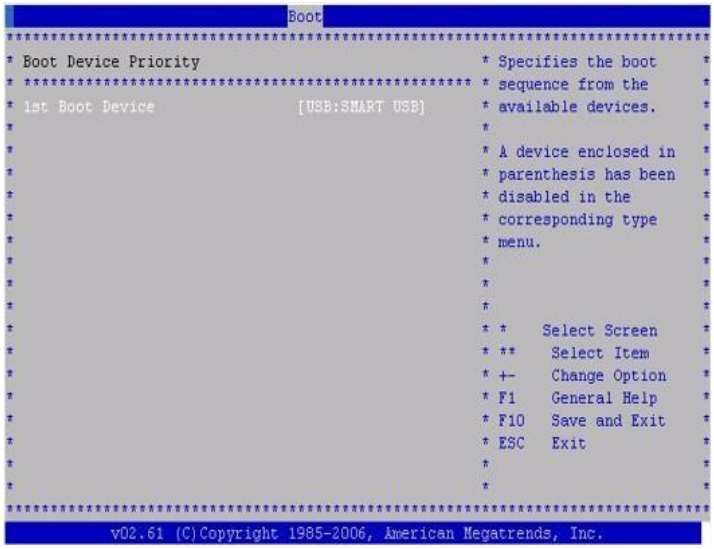
		rtt min/avg/max/mdev = 0.020/0.020/0.022/0.005 ms
3. ☐	**LSMS Active server:** List the snapshot files	# ls -lrt /var/TKLC/lsms/free/*snapshot* # ls –lrt /var/TKLC/lsms/free/supDBdump.sql # ls –lrt /var/TKLC/lsms/free/MySQLUserGrants.sql
4. ☐	**Remote server:** Remove the existing DB snapshot files	# 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
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!		

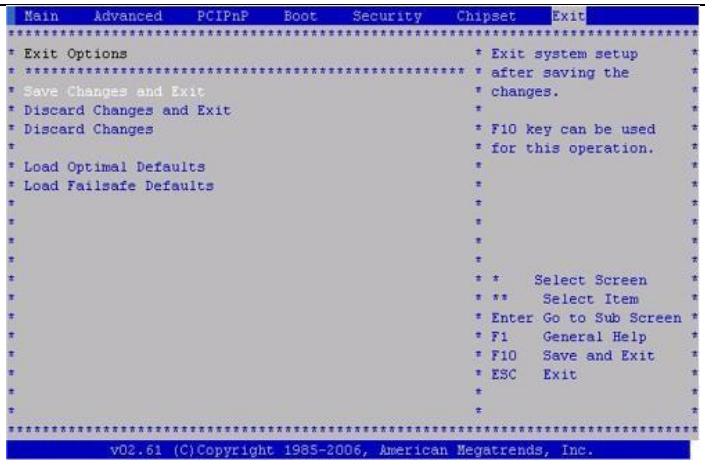
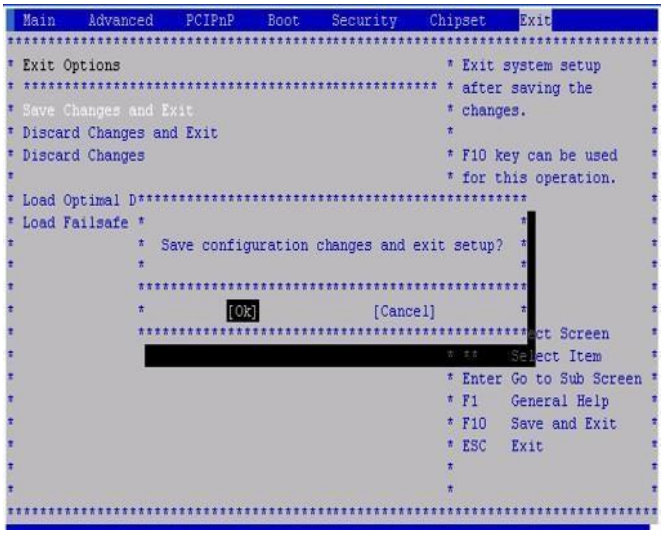
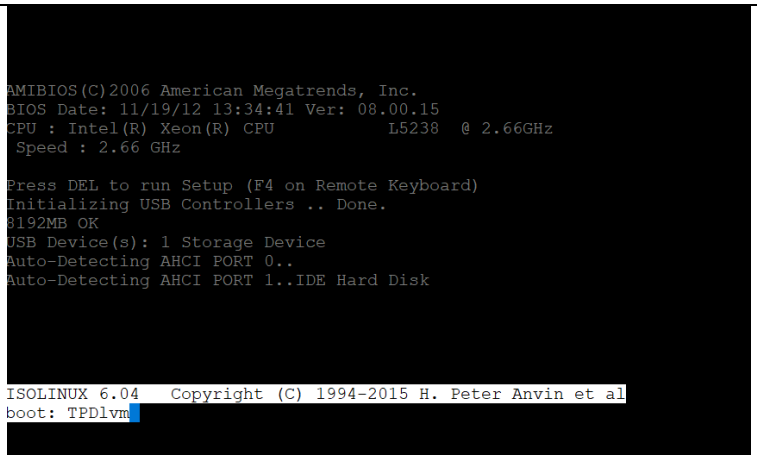
3.5 IPM and LSMS 14.0.X Installation

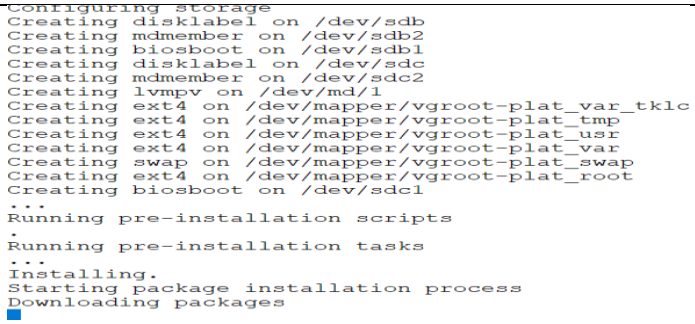
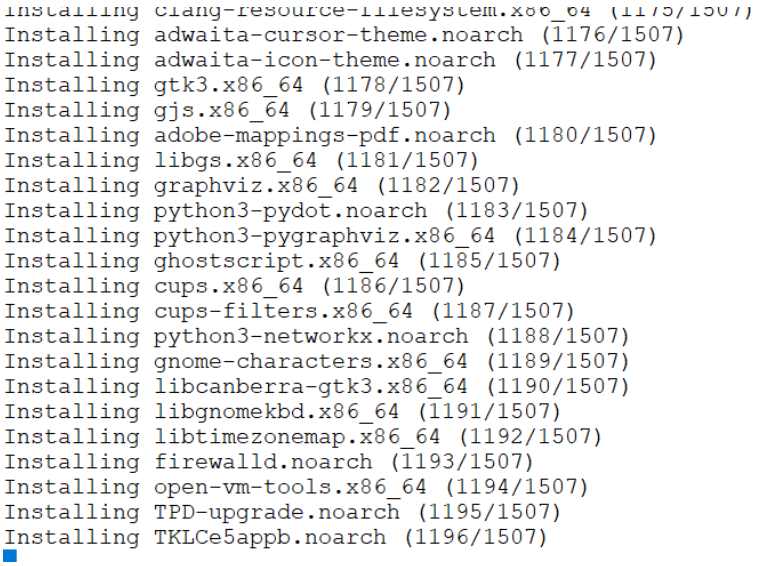
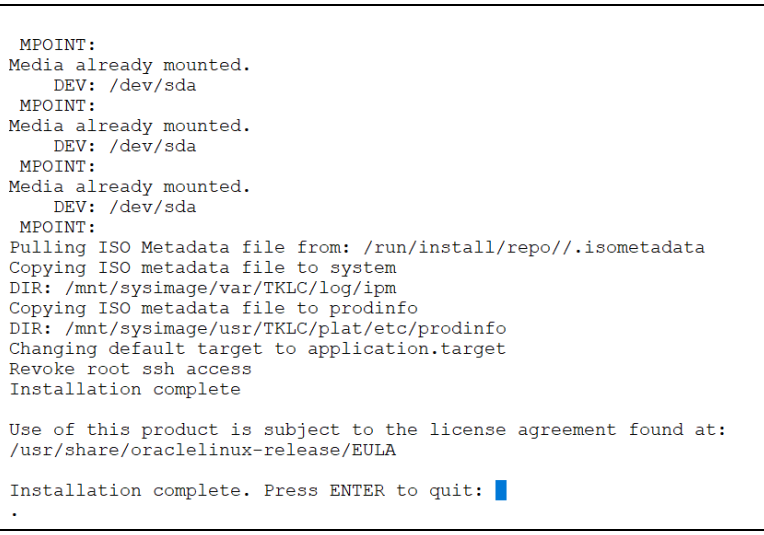
Procedure 8 IPM MPS SERVER WITH 64 BIT TPD 8.6.X

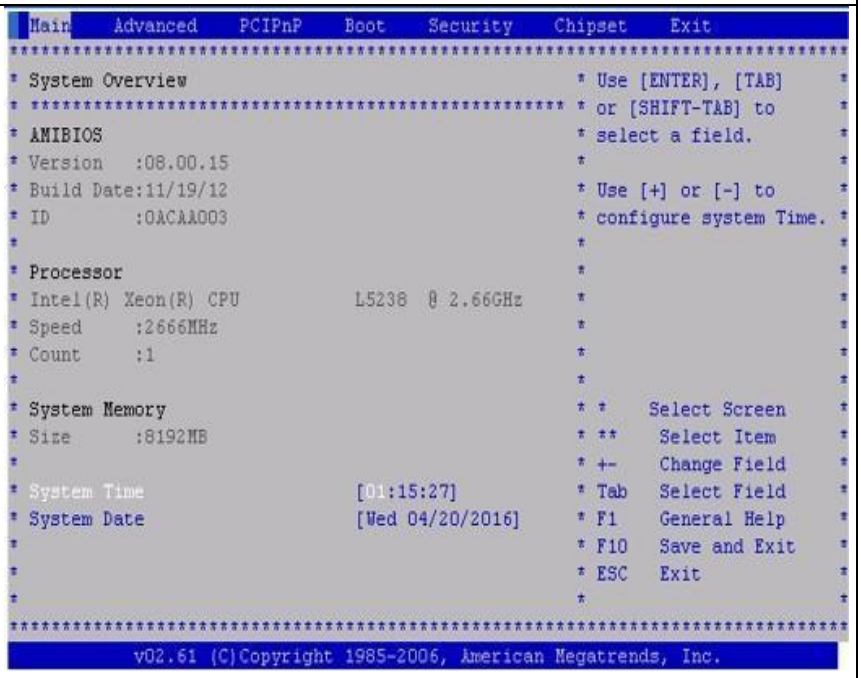
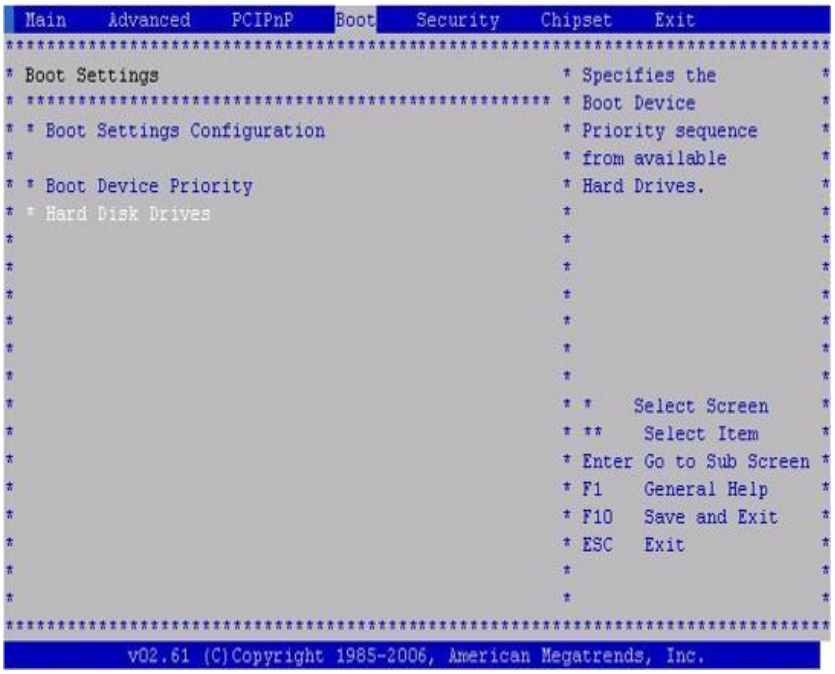
Procedure 8 - IPM MPS Server with 64 bit TPD 8.6.x

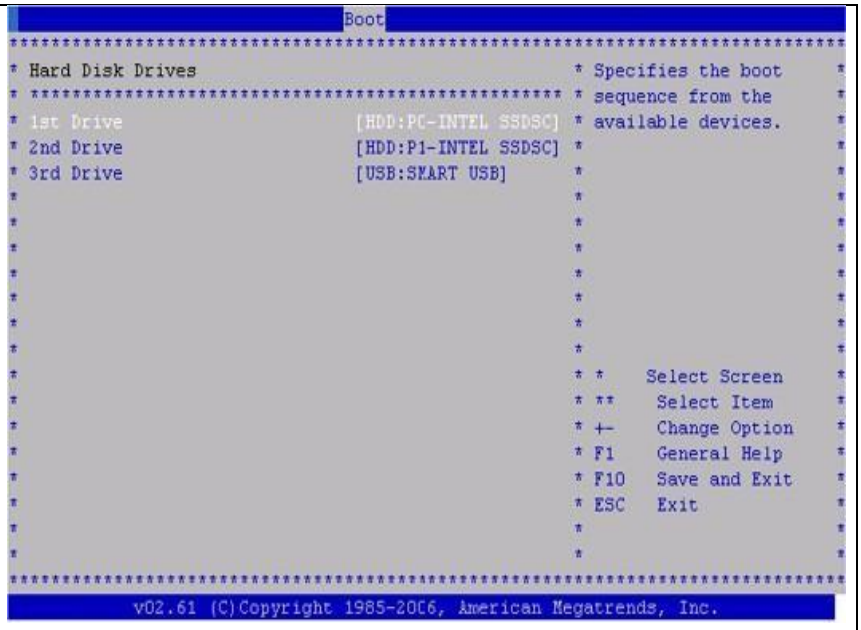
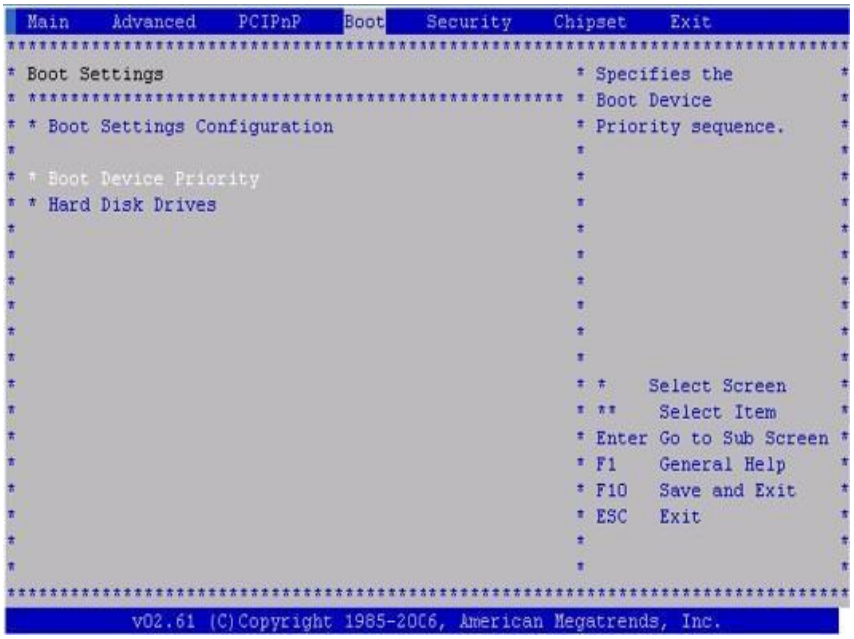
<table>
<tr><th>S
T
E
P
#</th><th>A</th><th>B</th><th>NAS</th><th colspan="2">This procedure will remove the LSMS application and all the data from the server.
Estimated time: 45 minutes
Note : Below procedure needs to be executed on both MPS A, MPS B and NAS servers.</th></tr>
<tr><td>1.</td><td>☐</td><td>☐</td><td>☐</td><td>MPS X:
Insert TPD 8.6.x USB media into the USB port</td><td>Reboot server
<code># reboot</code></td></tr>
<tr><td>2.</td><td>☐</td><td>☐</td><td>☐</td><td>MPS X:
Press ‘del’ key to enter the BIOS. Enter System Time and System Date.</td><td>
</td></tr>
<tr><td>3.</td><td>☐</td><td>☐</td><td>☐</td><td>MPS X:
Select Boot → Hard Disk Drives option</td><td> 
</td></tr>
<tr><td>4.</td><td>☐</td><td>☐</td><td>☐</td><td>MPS X:
Press ‘Enter’ key and select USB as the 1st Drive</td><td></td></tr>
</table>

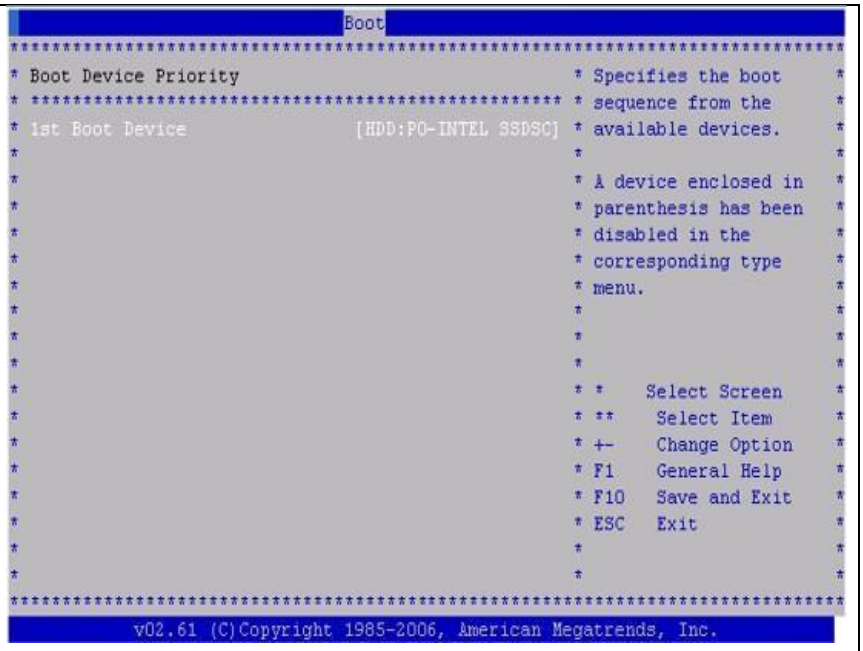
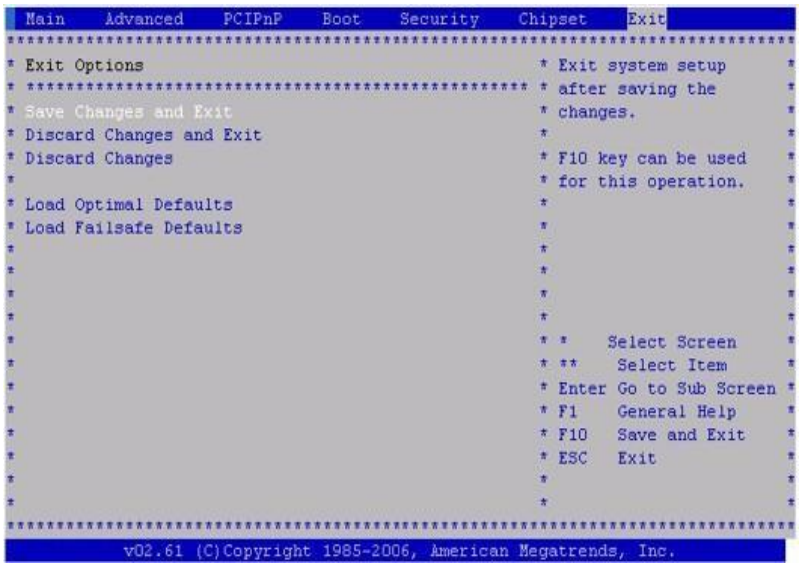
					
5.	☐	☐	☐	**MPS X:** Press 'Esc' key and select Boot Device Priority	
6.	☐	☐	☐	**MPS X:** Verify that the 1st Boot Device is set to USB.	
7.	☐	☐	☐	**MPS X:**	

				Press 'Esc' key and select *Exit* → *Save Changes and Exit* option	
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.	
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.	
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 begin.	
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.	
13.	☐	☐	☐	**MPS X:** Press 'del' key to enter the BIOS	
14.	☐	☐	☐	**MPS X:** Select *Boot* → *Hard Disk Drives* option	
15.	☐	☐	☐	**MPS X:**	

				Press ‘Enter’ key and select HDD:P0 as the 1st Drive	
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.	

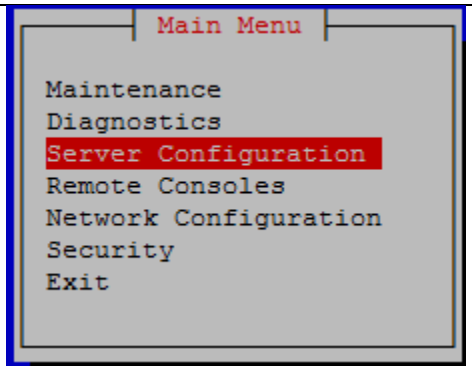
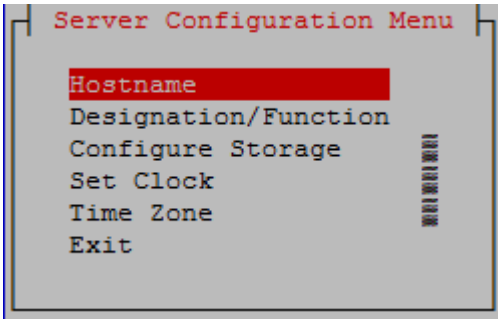
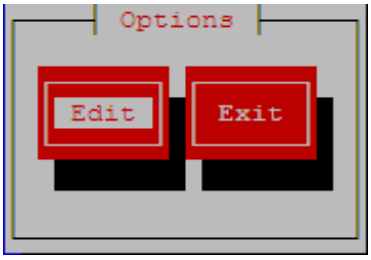
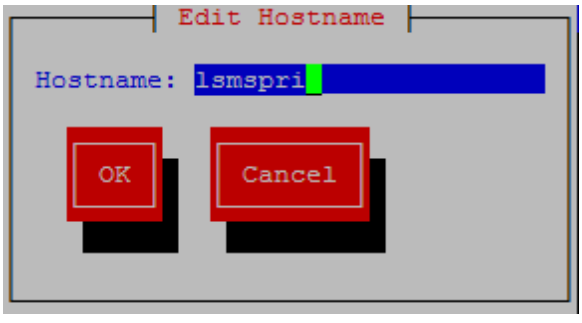
					
18.	☐	☐	☐	**MPS X:** Press 'Esc' key and select *Exit* → *Save Changes and Exit* option	
19.	☐	☐	☐	**MPS X:** Select [OK] to save the configuration changes. The server will reboot.	

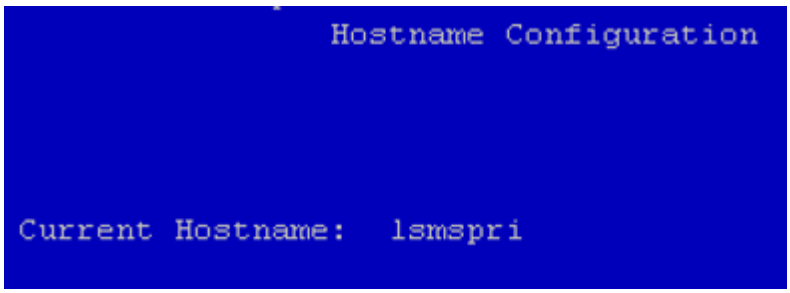
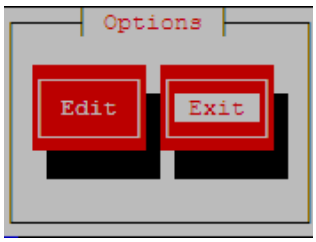
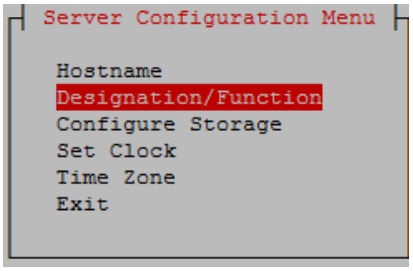
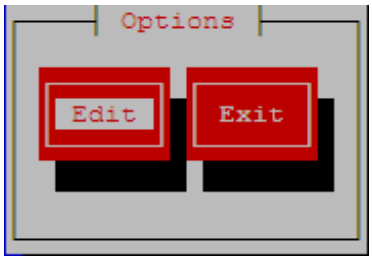
					 When the message "Upstart Job ntdMgr: started", is displayed, press the Enter Key to get the Login prompt.
20.	☐	☐	☐	**MPS X:** Log in to the server as the user "root"	Oracle Linux Server 8.7 Kernel 4.18.0-477.27.0.1.el8_8.x86_64 on an x86_64 localhost login: root Password:
21.	☐	☐	☐	**MPS X:** Verify that the platform revision is same as the ISO used.	# getPlatRev 8.6.0.x.0-110.y.0
				This procedure is complete!	

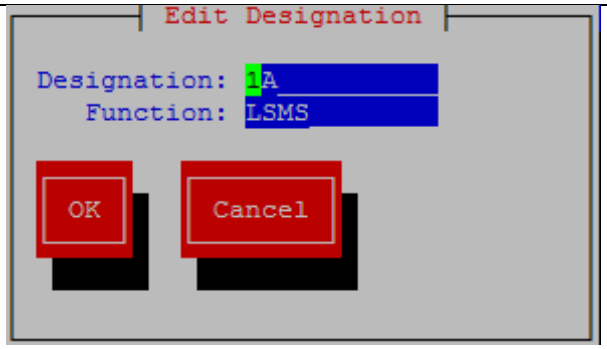
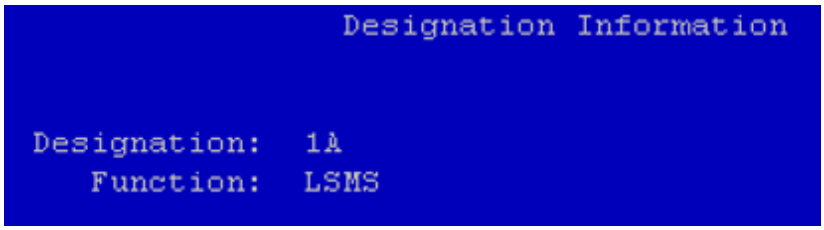
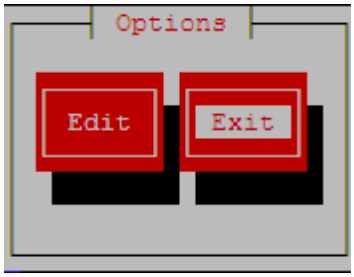
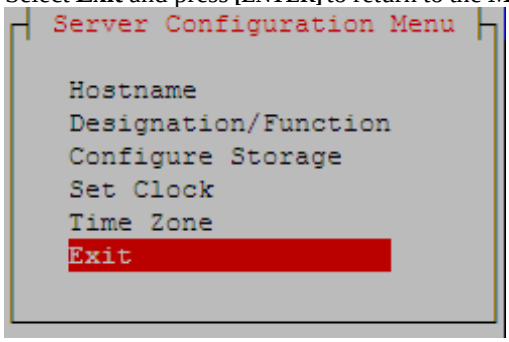
Procedure 9 PRE INSTALL CONFIGURATION

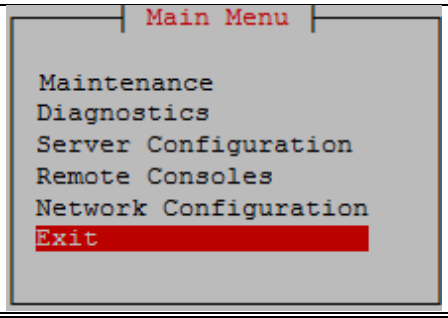
Procedure 9 – Pre-Install Configuration

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	
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].

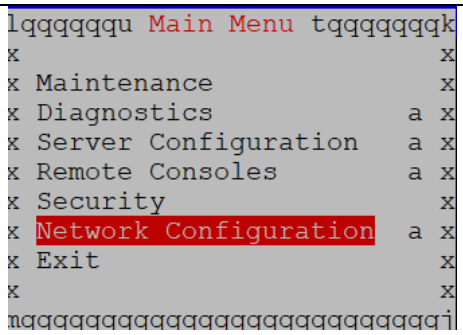
				Note: While connected to the serial console, some console output might come when the user is using the serial console to configure the LSMS. Those serial output are harmless and can be ignored.
5.	☐	☐	**MPS X**: Verify that the Hostname is correct then select and press "Exit". **Otherwise repeat the step above.**	 
6.			**MPS X:** Navigate to the Designation Information screen.	Select Designation/Function and press [ENTER] 
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".	

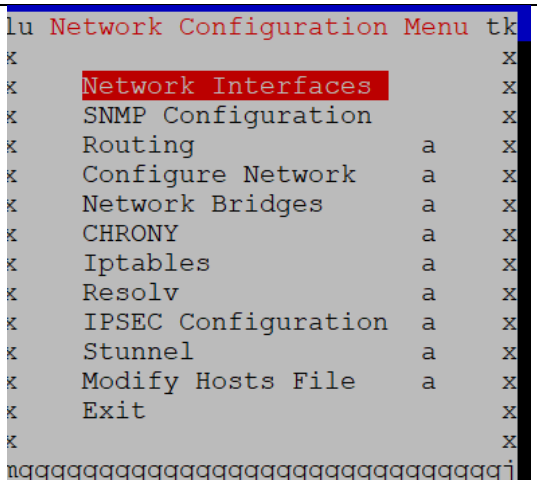
			NOTE: Designation and Function should be entered in UPPERCASE.	
8.	☐	☐	**MPS X:** Verify that the Designation and Function is correct then select and press "Exit". Otherwise repeat the step above.	 
9.	☐	☐	**MPS X:** Exit the platcfg menu **NOTE:** **<u>DO NOT</u>** set the time zone in platcfg. The 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.

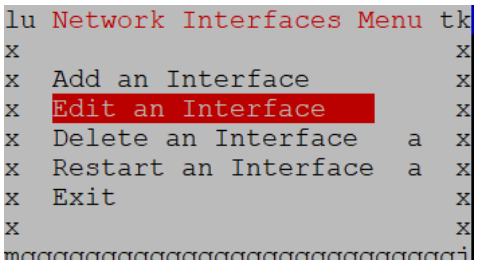
					
	This procedure is complete!				

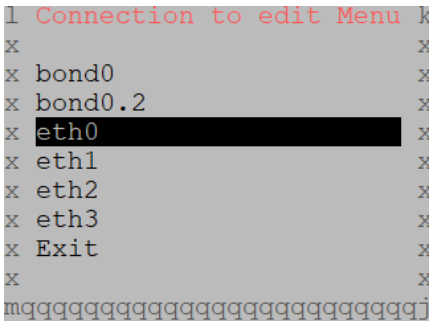
Procedure 10 CONFIGURE NETWORK INTERFACE USING PLATCFG UTILITY

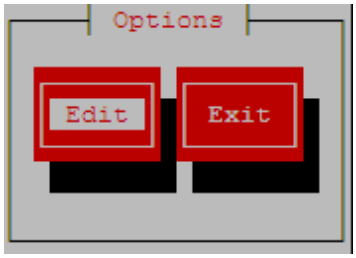
Procedure 10 – Configure Network Interfaces using platcfg utility

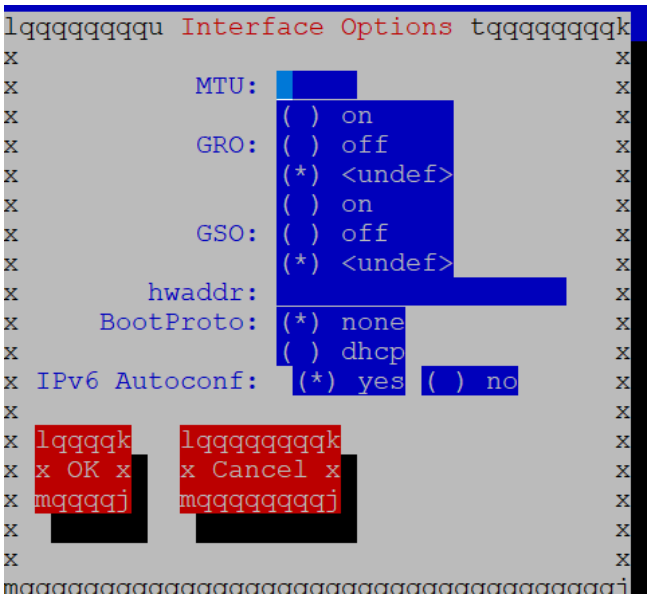
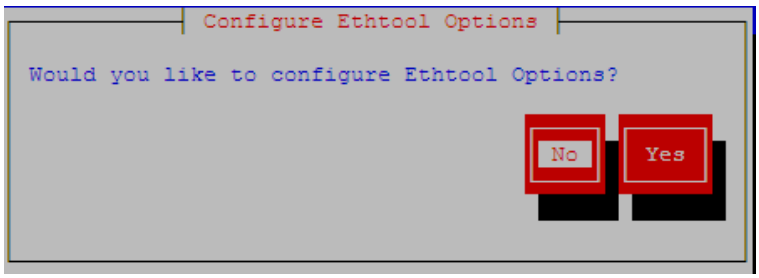
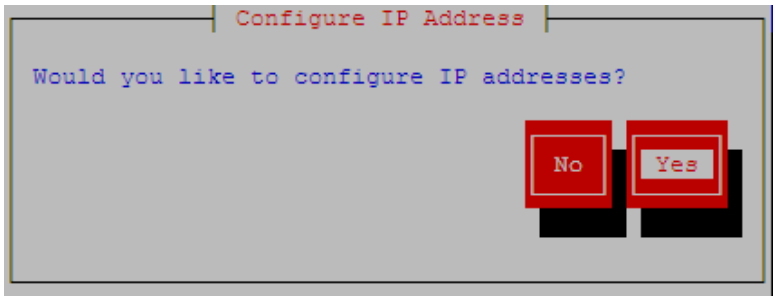
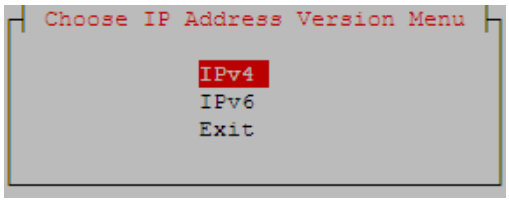
STEP #	B	This procedure configures the network interfaces and makes the E5APPB servers accessible to the network. Estimated time: 5 minutes	
1.	☐	**MPS X:** Login as root user.	`Console Login: root` `Password: <root_password>`
2.	☐	**MPS X:** Login to platcfg utility	`# su - platcfg`
3.	☐	**MPS X:**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

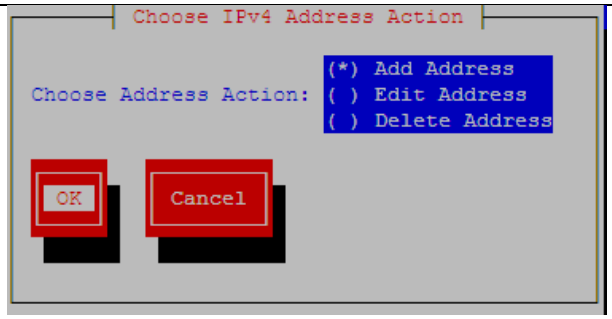
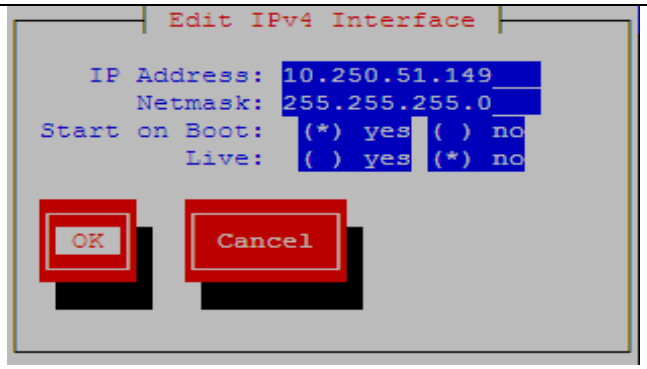
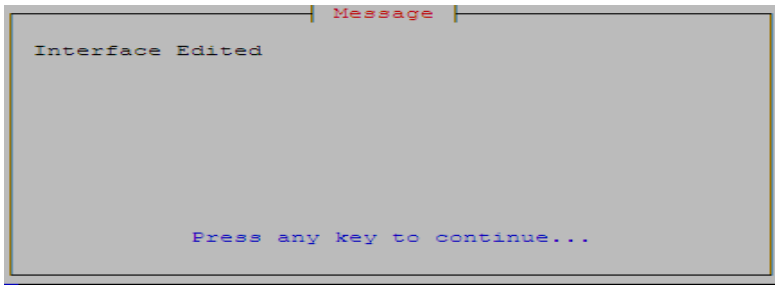
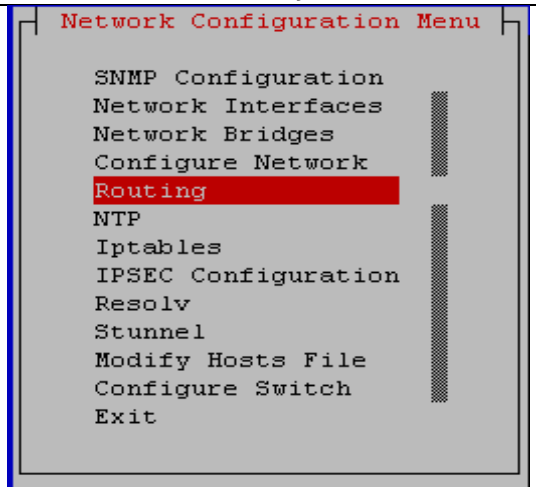

Network Configuration Menu
Network Interfaces
SNMP Configuration
Routing
Configure Network
Network Bridges
CHRONY
Iptables
Resolv
IPSEC Configuration
Stunnel
Modify Hosts File
Exit

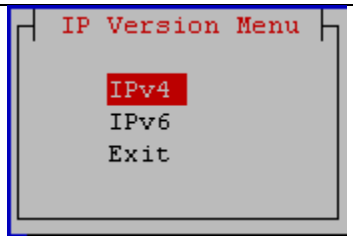

Network Interfaces Menu
Add an Interface
Edit an Interface
Delete an Interface
Restart an Interface
Exit


Connection to edit Menu
bond0
bond0.2
eth0
eth1
eth2
eth3
Exit

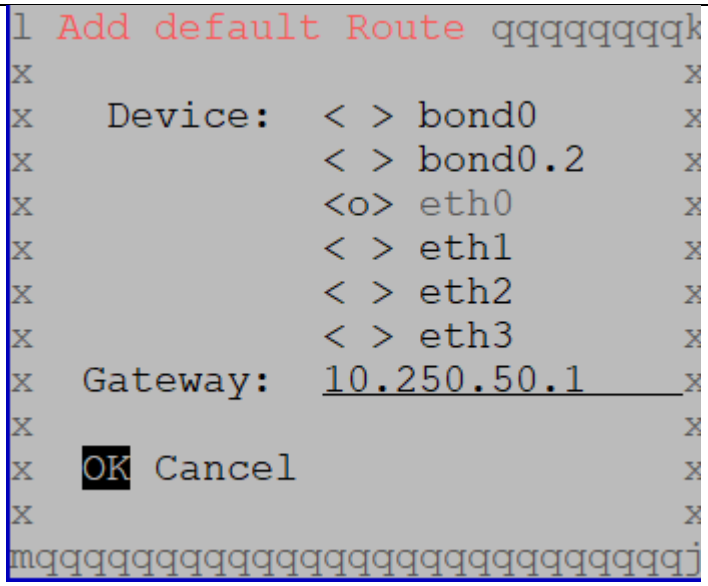

Options
Edit
Exit

4.	☐	**MPS X:** Select Interface Options	   

			
5.	☐	**MPS X:** Input the Interface Address	  Select “Exit” until you exit from the platcfg utility.
6.	☐	**MPS X:** **Configure default route.**	




```
l IPv4 Static Routes qqqq
```

			 cc cc Select “Exit” until you exit from the platcfg utility.

Procedure 11 INSTALL THE LSMS APPLICATION

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 3.7A.1 or copy LSMS 14.0.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]**.

```
lqqqqqqu Main Menu tqqqqqqqk
x                          x
x Maintenance              x
x Diagnostics              x
x Server Configuration   a x
x Network Configuration  a x
x Remote Consoles        a x
x Security               a x
x Exit                     x
x                          x
mqqqqqqqqqqqqqqqqqqqqqqqqqqj
```

Select the "**Upgrade"** menu and press **[ENTER]**.

```
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
mqqqqqqqqqqqqqqqqqqqqqqqqqqqj
```

Select the "**Early Upgrade Checks**" menu to verify that the system is ready for upgrade.

```
lqqqqqqqu Upgrade Menu tqqqqqqqqk
x                             x
x Validate Media              x
x Early Upgrade Checks      a x
x Initiate Upgrade            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
mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj
```

Select the desired upgrade media and press [ENTER].

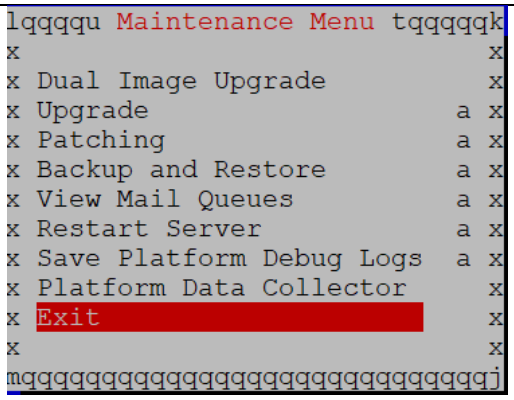
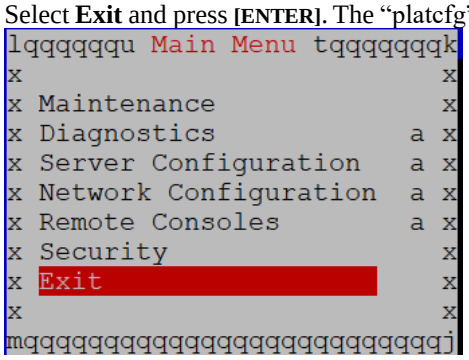
```
lqqqqqqqqqqqqqqqqqu Choose Upgrade Media Menu tqqqqqqqqqqqqqqqqqk
x                                                                x
x LSMS-14.0.0.0.0_140.6.5-x86_64.iso       - 14.0.0.0.0_140.6.5  x
x Exit                                                           x
x                                                                x
mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj
```

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.

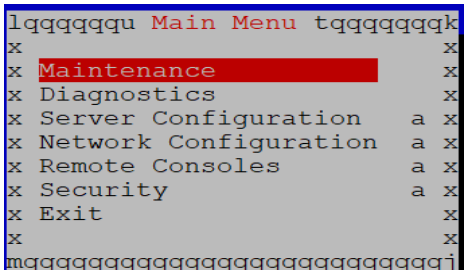
<table>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>
<pre>
Early Checks failed for the next upgrade
Look at earlyChecks.log for more info
tarting Early Upgrade Checks at 1011413059
Running earlyUpgradeChecks() for Upgrade::EarlyPolicy::TPDEarlyChecks upgrade policy...
Verified server is not pending 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
</pre>
<pre>
[admusr@epappri ~]$ cat /proc/mdstat
Personalities : [raid1]
md1 : active raid1 sdb2[1] sda2[0]
      262080 blocks super 1.0 [2/2] [UU]

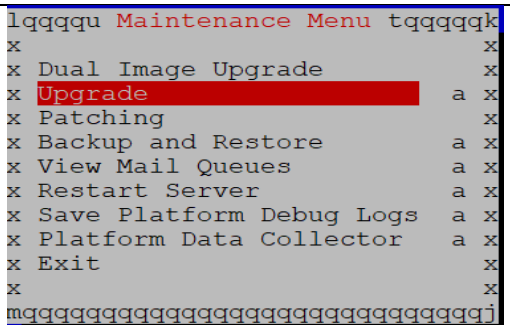
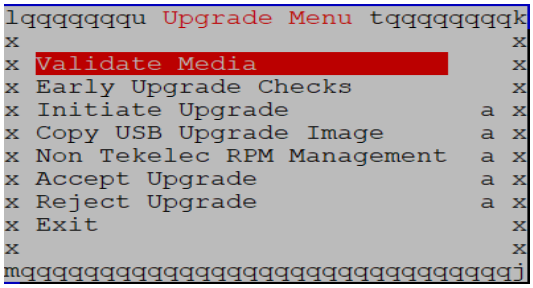
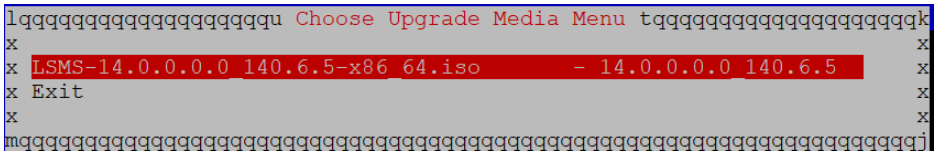
md2 : active raid1 sda1[0] sdb1[1]
      468447232 blocks super 1.1 [2/2] [UU]
      [=====>.............] resync = 29.7% (139377920/468447232) finish=73.0min speed=75060K/sec
      bitmap: 4/4 pages [16KB], 65536KB chunk

unused devices: <none>
</pre>
Contact My Oracle Support following the instructions on the Appendix E, if the early upgrade checks fail due to any other reason.
</td>
</tr>
<tr>
<td>5.</td>
<td>☐</td>
<td>☐</td>
<td>MPS X: Exit the platcfg menu</td>
<td>
Select Exit and press [ENTER] to return to the Maintenance Menu.
<pre>
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
mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj
</pre>
<pre>
lqqqqqqqu Upgrade Menu tqqqqqqqqk
x   x
x Validate Media   x
x Early Upgrade Checks   a 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   x
x Exit   x
x   x
mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj
</pre>
Select Exit and press [ENTER] to return to the Main Menu.
</td>
</tr>
</table>

				 Select **Exit** and press **[ENTER]**. The "platcfg" utility terminates. 

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]**. 

			Press any key to return to the menu and then press Exit all way back to the Maintenance Menu	   The results of the validation will be displayed, similar to the example below. Press the “enter” key to continue.

				## ############################################################ ############################ 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.
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]**. lqqqqqqqu Upgrade Menu tqqqqqqqqk x x x Validate Media x x Early Upgrade Checks a x x Initiate Upgrade 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 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].

				lqqqqqqqqqqqqqqqqqqu Choose Upgrade Media Menu tqqqqqqqqqqqqqqqqqqk 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 mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj

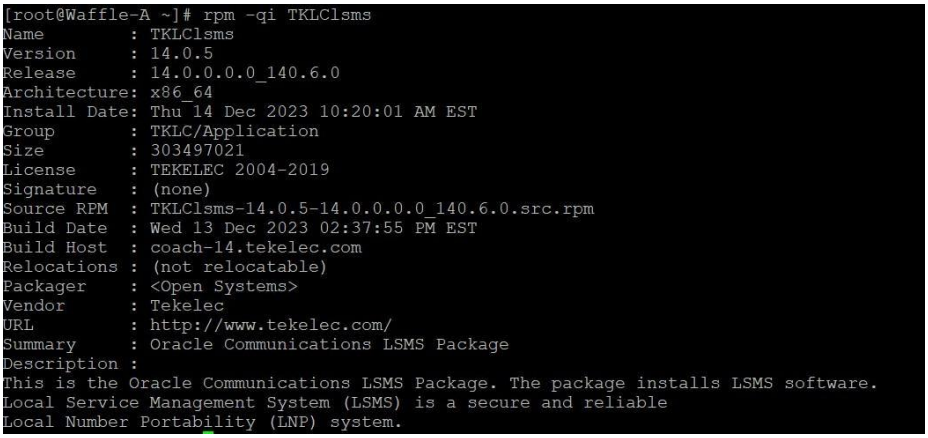
9.	☐	☐	**MPS X**:
			Upgrade proceeds
				The screen displays the output like following, indicating that the upgrade software is first running the upgrade checks, and then proceeding with the upgrade.
				`No Application installed yet.. Skip alarm check!`
				`Verified all raid mirrors are synced.`
				`Early Upgrade Checks Have Passed!`
				`Early Upgrade Checks finished at 1447429031`
				`Initializing upgrade information...`
				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.

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>`

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 - 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

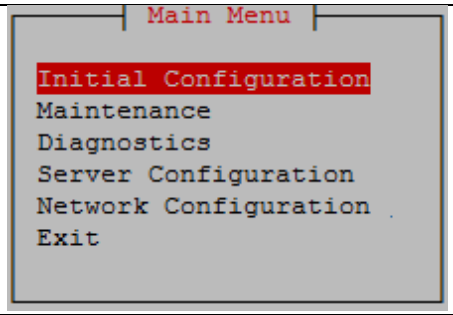
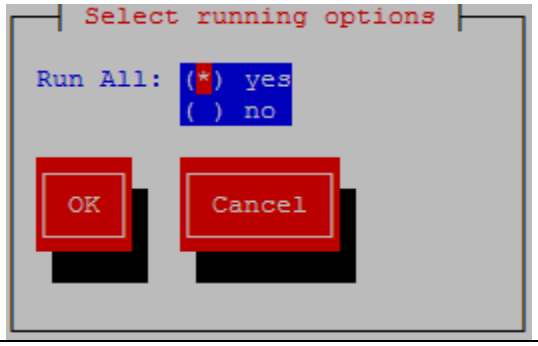
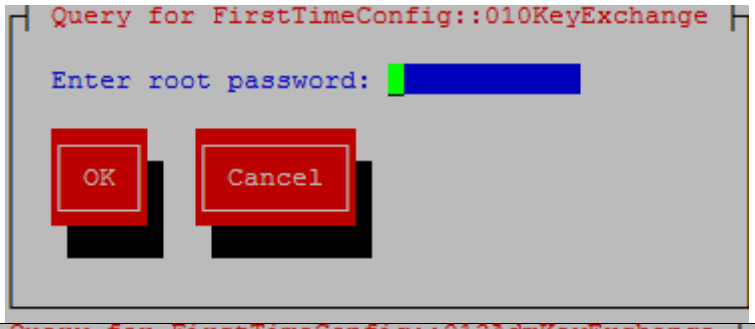
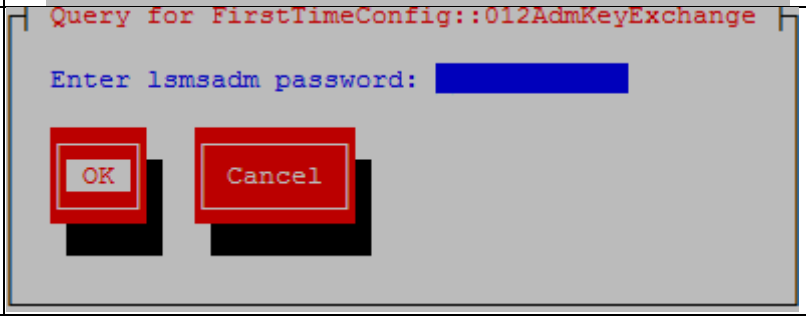
				1512594615::#warning: /usr/TKLC/plat/etc/service_conf created as /usr/TKLC/plat/etc/service_conf.rpmnew 1512594630::TKLCalarms ###warning: /usr/TKLC/plat/etc/alarms/alarms.xml saved as /usr/TKLC/plat/etc/alarms/alarms.xml.rpmsave 1512594637::alarmMgr ###warning: /usr/TKLC/plat/etc/alarmMgr/alarmMgr.conf created as /usr/TKLC/plat/etc/alarmMgr/alarmMgr.conf.rpmnew 1512594770::WARNING: This capability is not defined 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 1702719042::WARNING: TKLClsms-Config-2.0.3-0.70555: Current hostname "lsmspri" being reset to default.

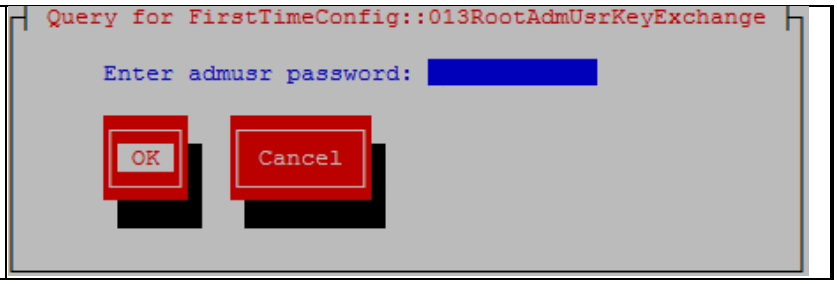
				1702719098::TKLClsms ##############################warning: user %{root} does not exist - using root 1702719104::warning: group %{root} does not exist - using root 1702719175::WARNING: Could not dup STDERR to STDOUT: Bad file descriptor 1702719391::WARNING: A new file was added to xml alarm files...reparsing xml... 1702719391::WARNING: FILE: /usr/TKLC/plat/etc/alarms/lsmsAlarms.xml
13.	☐	☐	**MPS X:** Verify LSMS release.	# rpm -qi TKLClsms 
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: 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!	

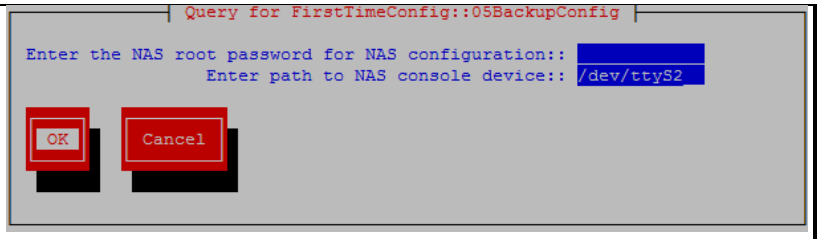
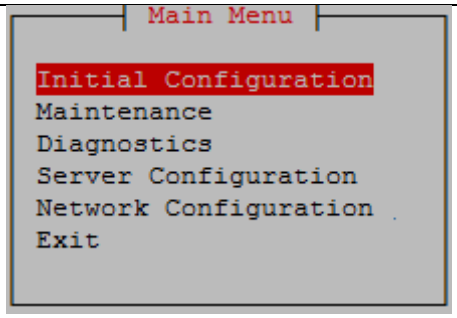
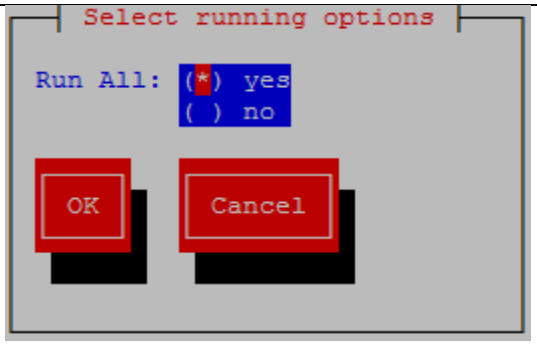
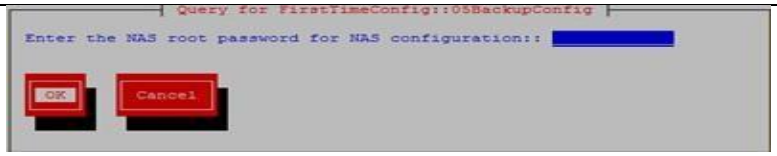
3.6 Initial Configuration

Procedure 12 LSMS INITIAL CONFIGURATION

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"**	
4. ☐	**MPS A:** Select **"yes"** Select **OK** and press **[ENTER]**	
5. ☐	**MPS A:** Enter password for "root" Select **OK** and press **[ENTER]**	
6. ☐	**MPS A:** Enter password for "lsmsadm" Select **OK** and press **[ENTER]**	

7. ☐	**MPS A:** Enter password for “admusr” Select **OK** and press **[ENTER]**	

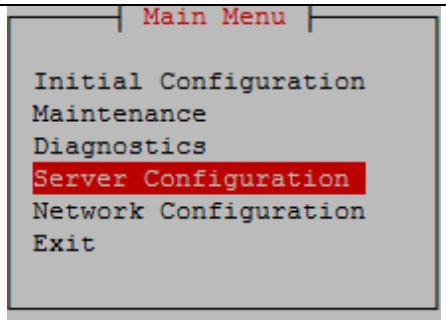
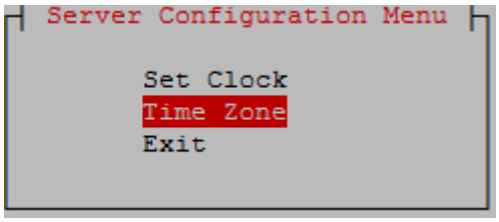
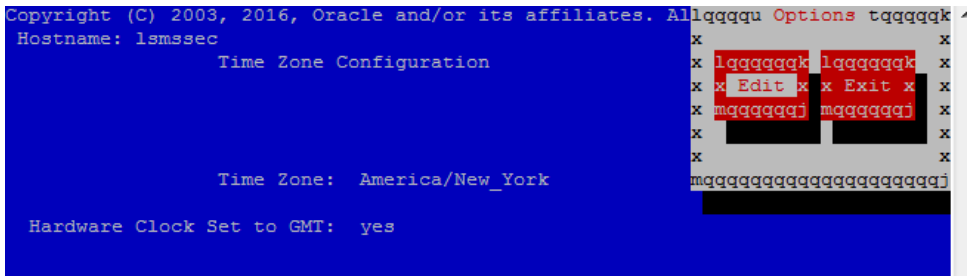
8. ☐	**MPS A:** Enter the NAS password used to login into NAS console. Accept the default serial port (ttyS2) when prompted for the path to the NAS console device. Select **OK** and press **[ENTER]**	
9. ☐	A message is displayed indicating the root Key Exchange was successful. A message is displayed 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	
10. ☐	**MPS A:** Switch to mate	`#ssh mate`
11. ☐	**MPS B:** Start lsmsmgr	`# su - lsmsmgr`
12. ☐	**MPS B:** Select **"Initial Configuration"**	
13. ☐	**MPS B:** Select **"yes"** Select **OK** and press **[ENTER]**	
14. ☐	**MPS B:** Enter the NAS password used to login into NAS console.	

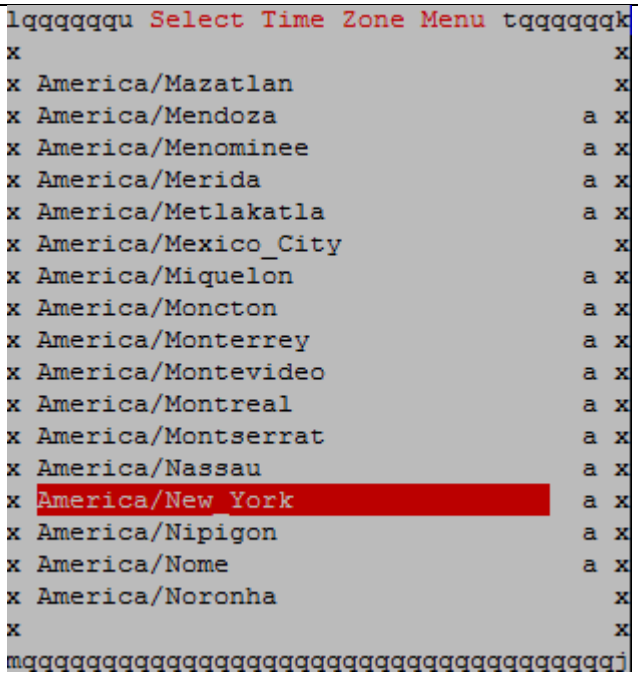
	Select **OK** and press **[ENTER]**	
15. ☐	A message is displayed indicating the Database creation was successful. A message is displayed indicating the NAS Backup Configuration was successful. Select **Exit** and press **[ENTER]** repeatedly to exit lsmsmgr	
16. ☐	**MPS B:** Log into the LSMS B server via minicom.	`# minicom mate`
17. ☐	**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.
18. ☐	**MPS A:** Log into the LSMS A server via minicom.	`# minicom mate`
19. ☐	**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!		

Procedure 13 CONFIGURE TIME ZONE AND CLOCK

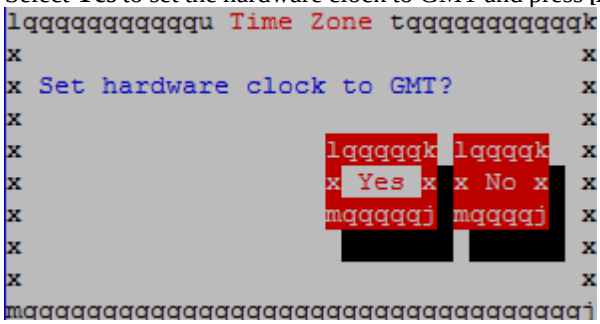
Procedure 13 – Configure Time Zone and Clock.

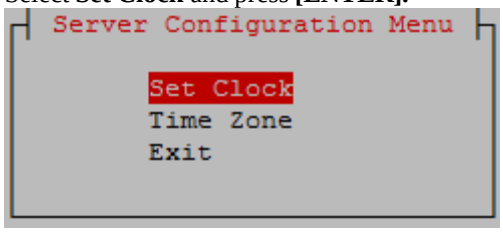
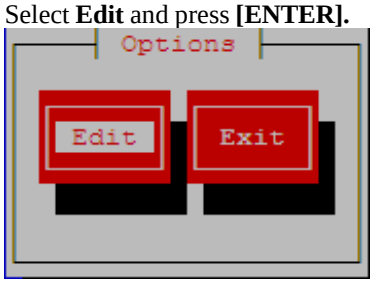
STEP #	This procedure configures the time zone and clock. Estimated time: 5 minutes **Note: Below procedure needs to be executed on both MPS A and B servers.**	
1. ☐	**MPS X:** Log in to the server as the user "root".	`Login: root` `Password: <root_password>`
2. ☐	**MPS X:** Start lsmsmgr utility by logging in as lsmsmgr user.	`# su - lsmsmgr`
3. ☐	**MPS X::** Verify time zone.	Select **Server Configuration** and press **[ENTER].**

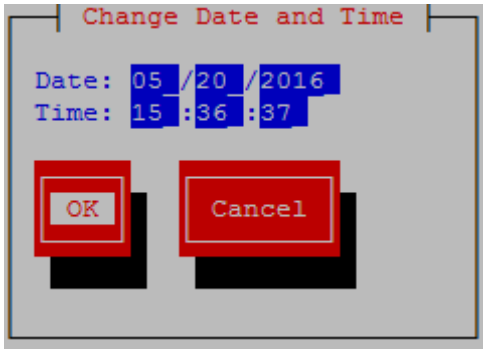
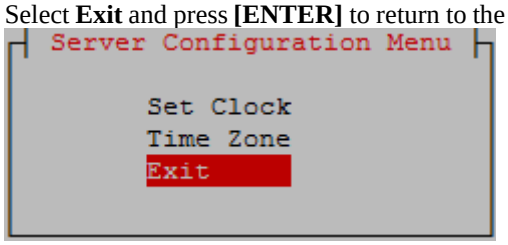
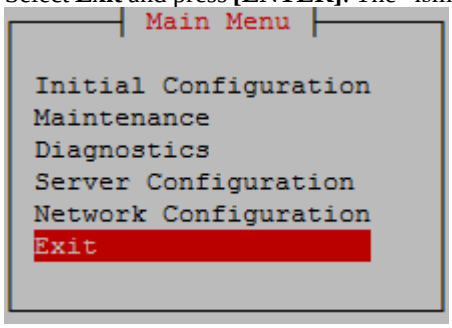
		 Select **Time Zone** and press **[ENTER].**  The screen shows the current time zone setting.  If this is not correct, select Edit and press **[ENTER].** If the time zone is correct, select **Exit**, press **[ENTER]** and skip the next step
4. ☐	**MPS X:** Change time zone.	Select appropriate time zone and press **[ENTER].**



Select **Yes** to set the hardware clock to GMT and press **[ENTER].**



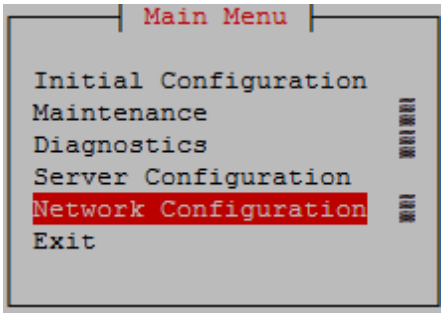
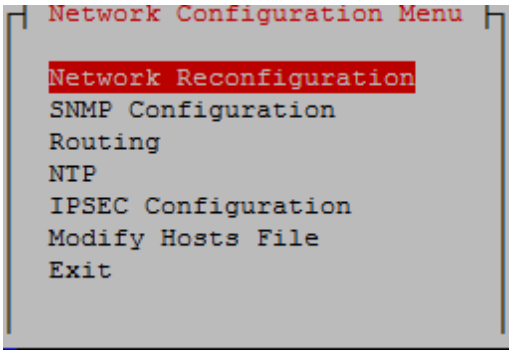
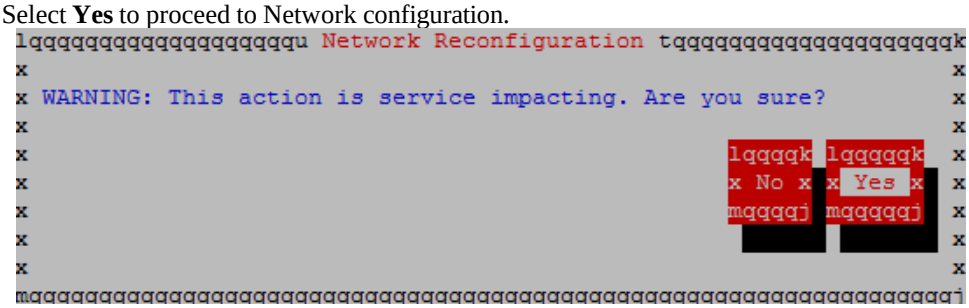
5. ☐	**MPS X:** Set clock.	Select **Set Clock** and press **[ENTER].**  Select **Edit** and press **[ENTER].** 

		Enter correct time.  Use right arrow to get to **OK** and press **[ENTER].**
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!		

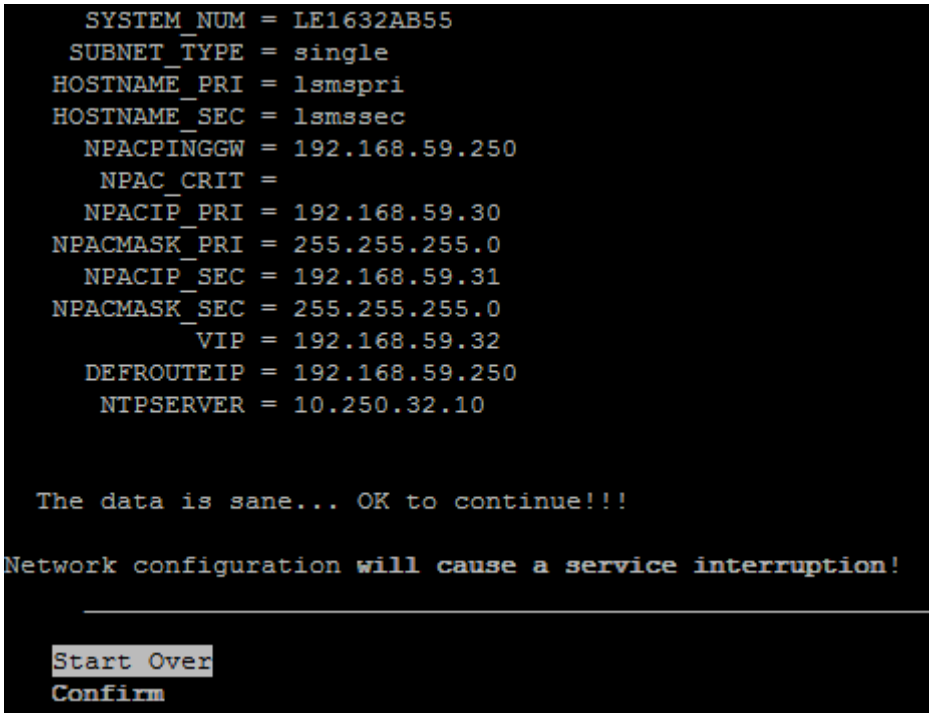
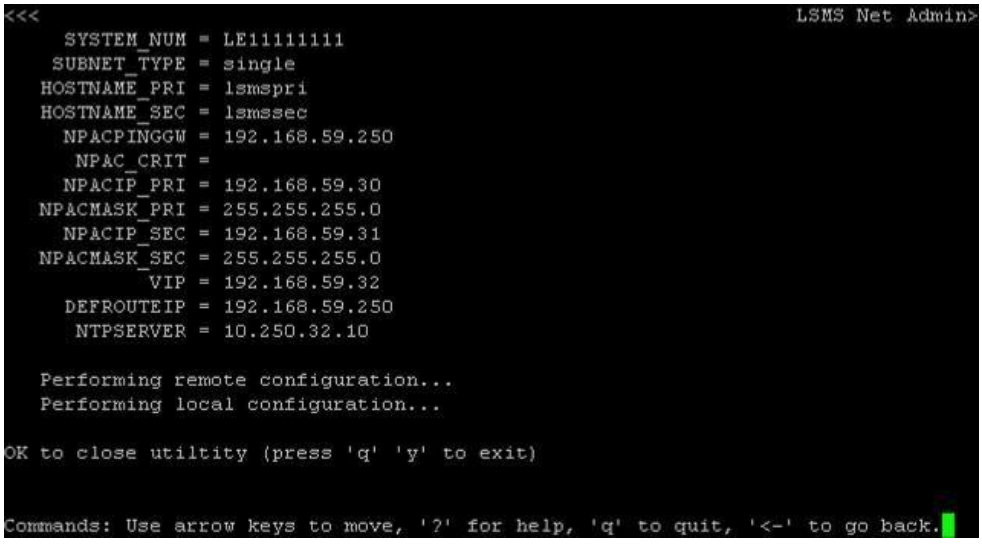
Procedure 14 SINGLE SUBNET CONFIGURATION FOR LSMS MPS CARDS

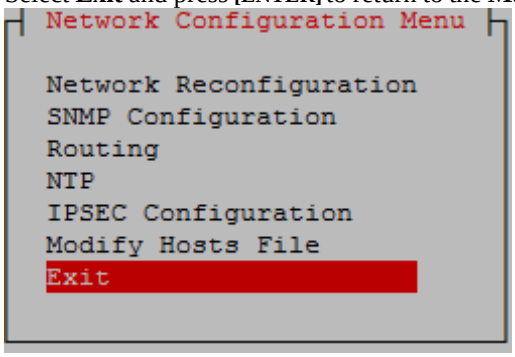
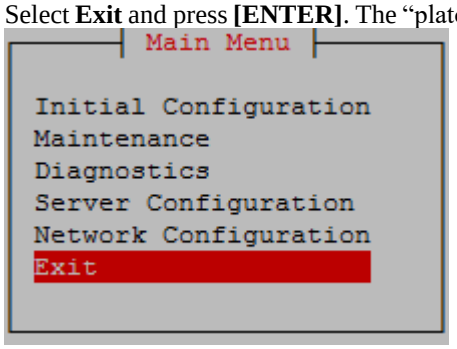
Procedure 14 – Single Subnet Configuration for LSMS MPS Cards.

S T E P #	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`
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**.

		LSMS Net Admin> Network configuration **will cause a service interruption!** lqqqqqqqqqqqk x segmented x Subnet Type:x single x mqqqqqqqqqqqj **Continue**
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: In a single subnet configuration, the Application, EMS, and NPAC networks are collapsed onto one interface. This is the interface that holds the NPAC network on a segmented network configuration. System Number: **LE1632AB55** Primary Server Hostname:lsmspri Secondary Server Hostname:lsmssec **APP/NPAC/EMS Network** Pingable Gateway: **192.168.59.250** [•] Critical Primary IP: **192.168.59.30** Netmask:[255.255.255.0] Secondary IP: **192.168.59.31** Netmask:[255.255.255.0] VIP: **192.168.59.32** Default Route IP: **192.168.59.250** NTP Server: **10.250.32.10** **Start Over** Submit 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: o LE is the new System Number Prefix for LSMS. o YY = YEAR – year of the system shipment o WW= WEEK – calendar week of the YY year when the system is shipped o MM = MANUFACTURER (if other than TKLC) – Here 00 as Manufacturer is Oracle o XX = number in line of systems shipped that week

	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. 

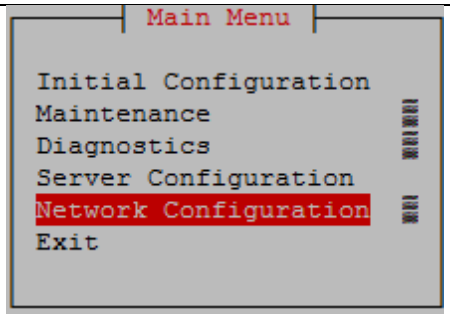
5. ☐	**MPS A:** Exit the lsmsmgr menu	Select **Exit** and press **[ENTER]** to return to the **Main Menu**.  Select **Exit** and press **[ENTER]**. The "platcfg" utility terminates. 
		This procedure is complete!
	Note: Currently, **root login is disabled over IP access**.	To proceed, use **one of the following methods**: 1. **Login via Conserver** Log in directly as root using the conserver console. 2. **Login via IP using admusr user** Log in over IP as admusr Switch to root: # su Enter the **root password** when prompted.

Procedure 15 SEGMENTED CONFIGURATION FOR LSMS CARDS

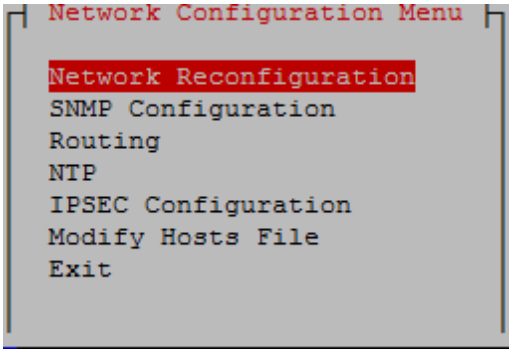
Procedure 15 - Segmented Configuration for MPS LSMS Cards

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>`

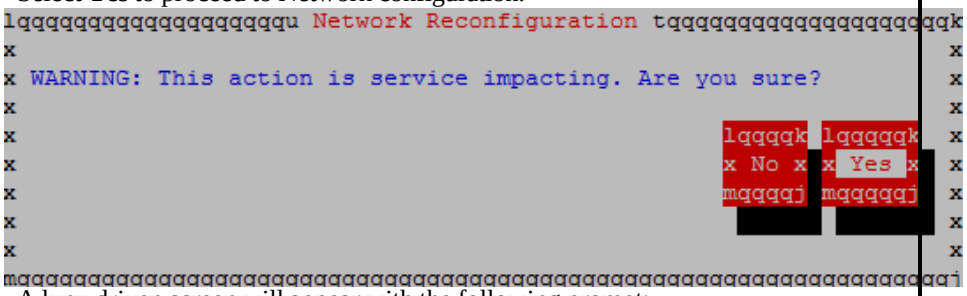
2. ☐	**MPS A:** Start lsmsmgr utility by login as lsmsmgr user	`# su - lsmsmgr`
3. ☐	**MPS A:** Change the network configuration	Select **Network Configuration** and press **[ENTER].**



Select **Network Reconfiguration** and press **[ENTER].**



Select **Yes** to proceed to Network configuration.

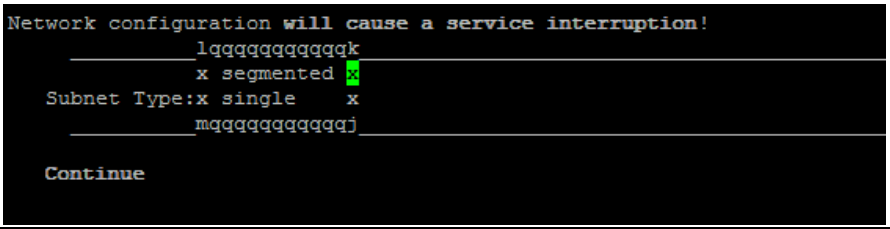


A lynx driven screen will appear with the following prompt;

Do you want to execute "//usr/TKLC/lsms/tools/lsmsnetAdm-bin/lsmsnetadm.cgi"?

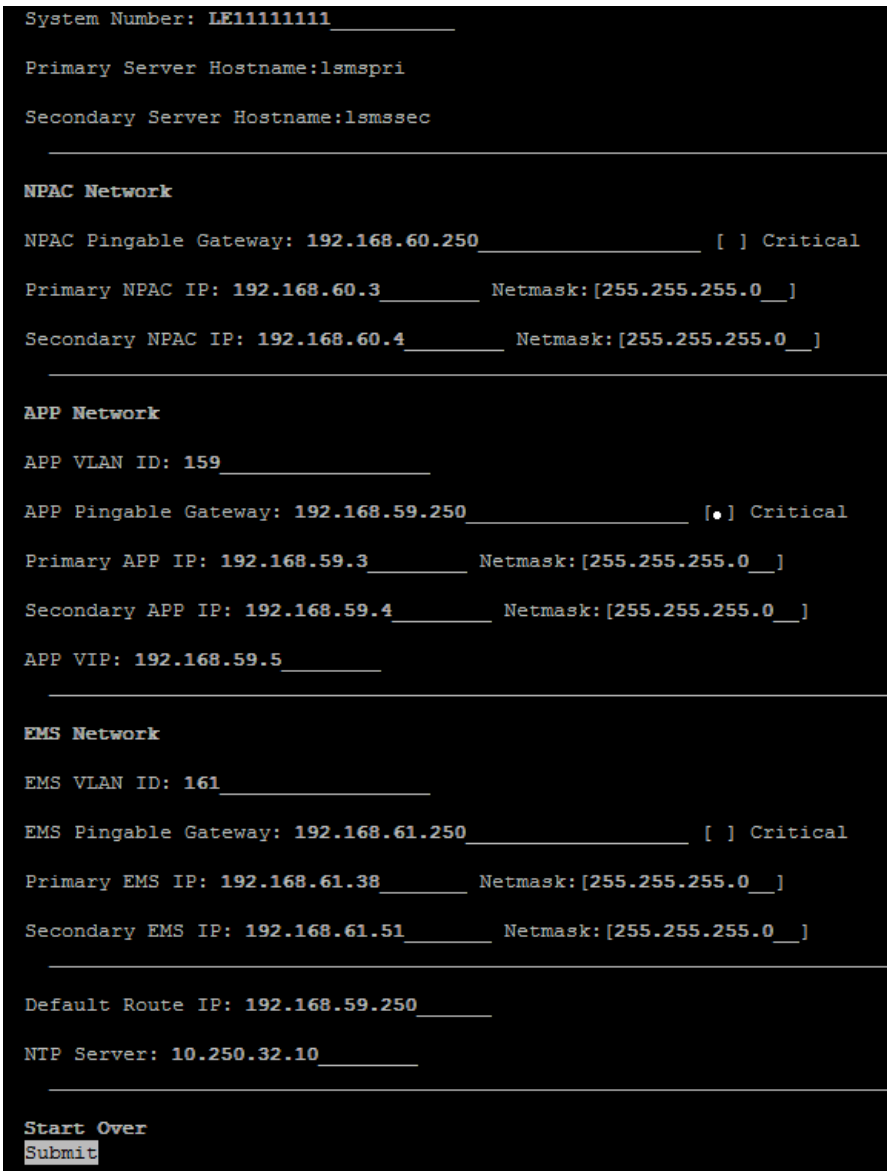
Type “Y/y” to continue and the next screen will appear and press the right arrow key to follow the link

Select **Segmented** from the Subnet Type menu and then select **Continue**.



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

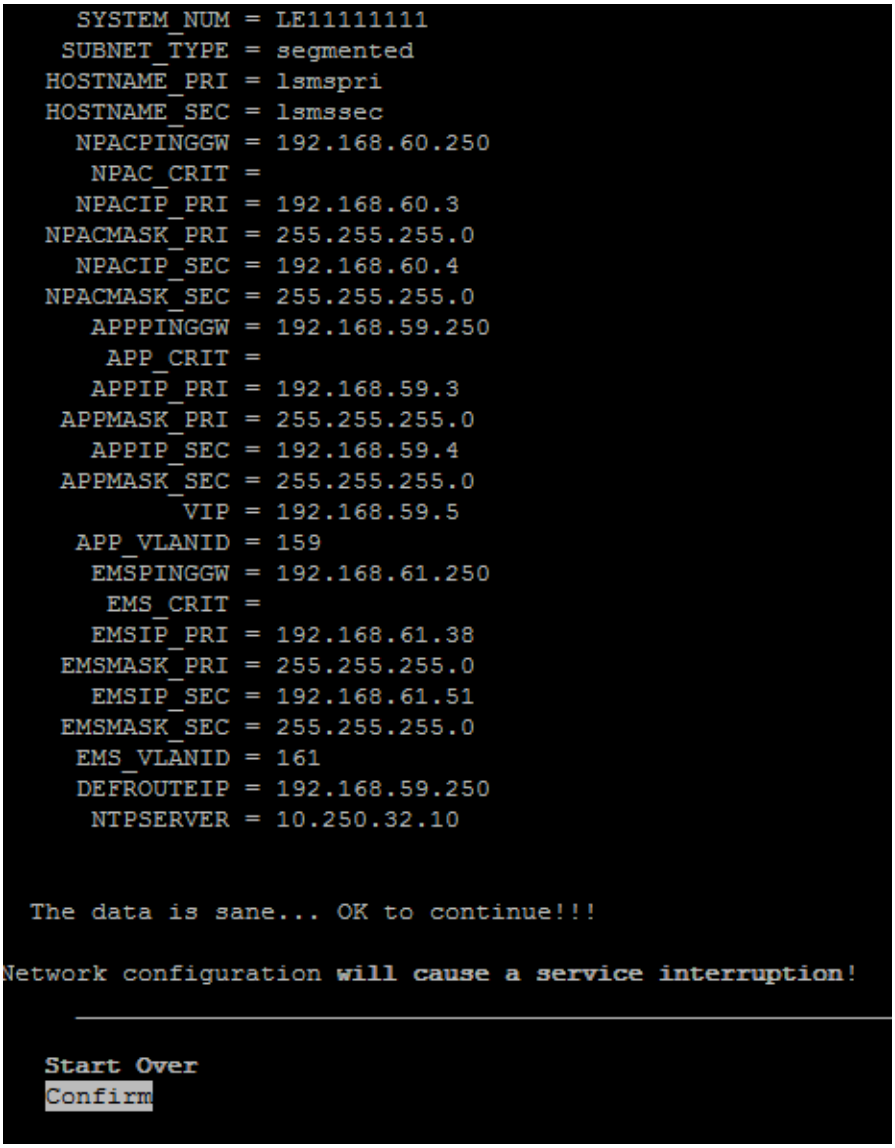
arrow key to display the dropdown menu, choose the desired value from the list) for each fields:

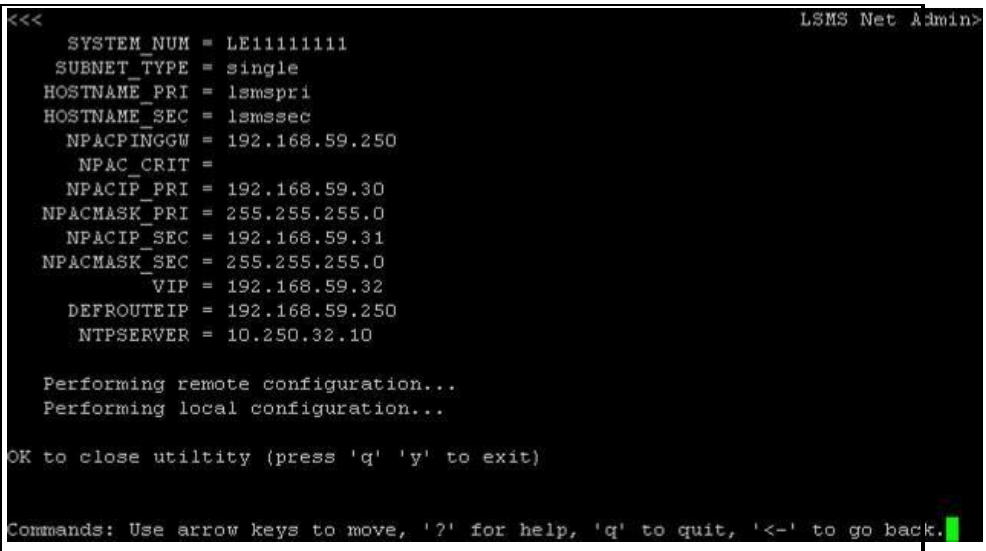


Note: The System Number shall be as follows:

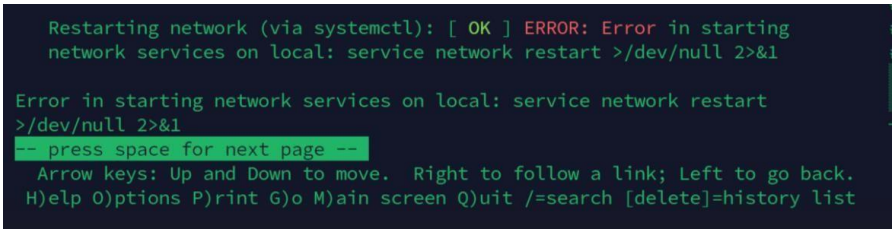
- LEYYWWMMXX
- Where:
  - LE is the new System Number Prefix for LSMS
  - YY = YEAR – year of the system shipment
  - WW= WEEK – calendar week of the YY year when the system is shipped
  - MM = MANUFACTURER (if other than TKLC) – Here 00 as Manufacturer is Oracle
  - XX = number in line of systems shipped that week

*Default route should be the route of the APP IP address.

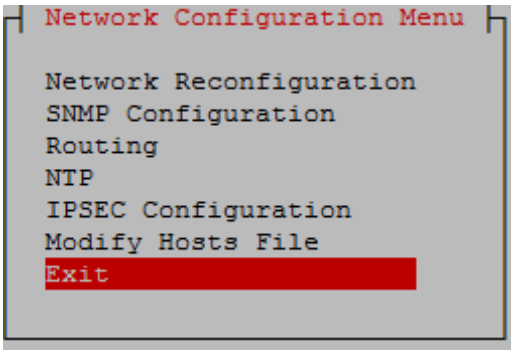
		Once the values are entered press the down arrow to select the "Submit" button and press the right arrow to follow the link.
5. ☐	**MPS A:** Apply network settings	If the values pass a sanity test for validity, then the "Confirm" button will be visible. Use the down arrow to select "Confirm" and press 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. Type "**q**" and then "**y**" to exit the Network Configuration.

<table>
<tr>
<td></td>
<td></td>
<td>


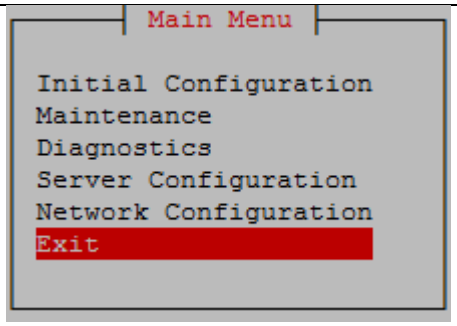
NOTE: If below error is observed after network configuration, run “systemctl restart network” command after exiting from lsmsmgr menu.



systemctl restart network
</td>
</tr>
<tr>
<td>6.
☐</td>
<td>MPS A: Exit the lsmsmgr menu</td>
<td>
Select Exit and press [ENTER] to return to the Main Menu.



Select Exit and press [ENTER]. The “platcfg” utility terminates.
</td>
</tr>
</table>

		
		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** Log in over IP as admusr Switch to root: # su Enter the **root password** when prompted.

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 14.0 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.

Procedure 16 - TMN Toolkit and Marben OSI License Installation

S T E P #				
			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 **3.7C.1** or **3.7C.2** If upgrading from LSMS 14.0.0.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**

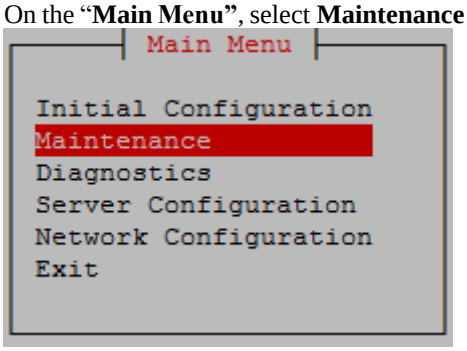
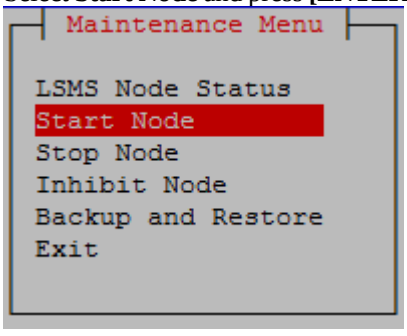
3.	☐	☐	**MPS X:** Install the Marben OSI License file	Copy Marben OSI License string using below command: `# echo "<Marben OSI license string>" > /usr/TKLC/osi/conf/license`
4.	☐	☐	**MPS X:** Restart the system	Reboot the system to take effect `# reboot`
		This procedure is complete!		

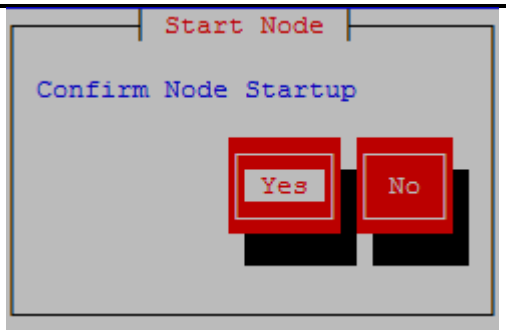
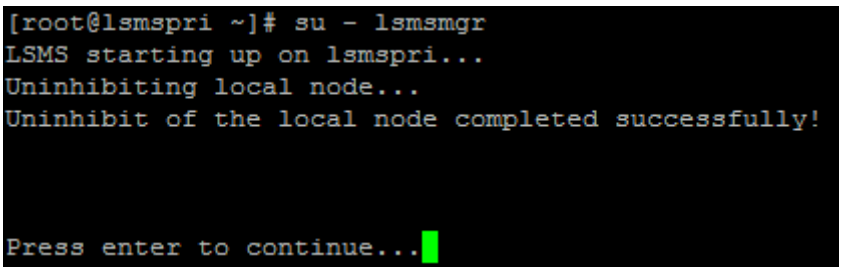
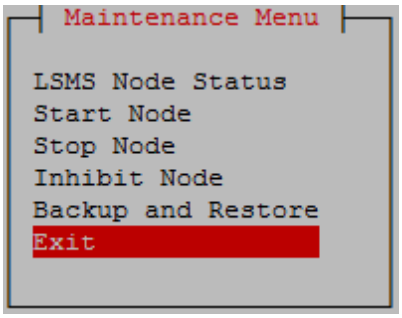
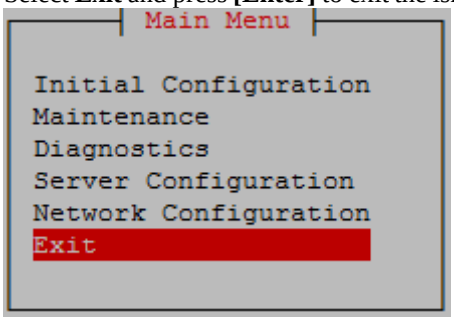
Procedure 17 START LSMS SERVICES

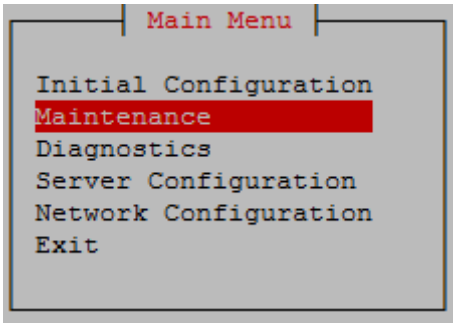
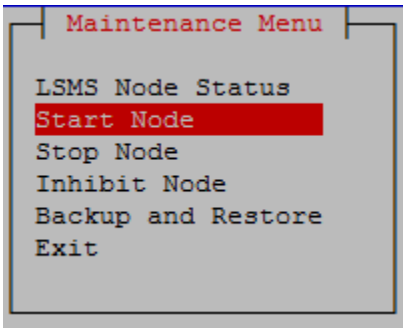
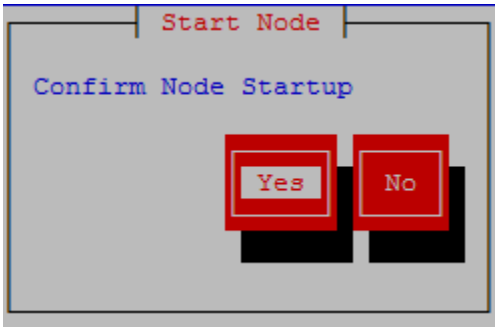
Procedure 17 - Start LSMS services

STEP #	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`
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]**

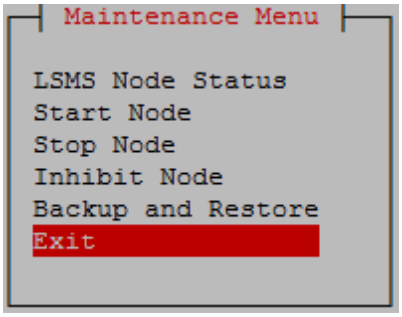
		 Press **Enter** once the node is uninhibited successfully.  Select **Exit** and press **[Enter]** to return to Main Menu.  Select **Exit** and press **[Enter]** to exit the lsmsmgr menu. 
5. ☐	**MPS A:** Switch to mate	`#ssh mate`
6. ☐	**MPS B:** Log in to the server as the user "root".	`Login: root` `Password: <root_password>`

7. ☐	**MPS B:** Start lsmsmgr	`# su - lsmsmgr`
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.

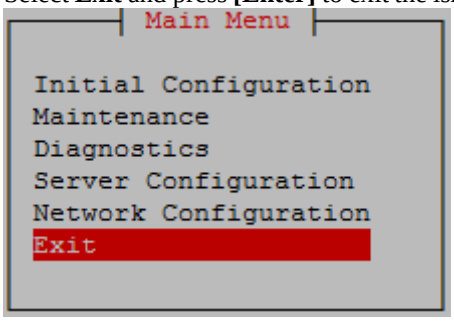
```
[root@lsmssec ~]# su - lsmsmgr
LSMS starting up on lsmssec...
Checking status from active mate...
Running status on lsmspri node
Copying DB from active mate. Local node will become standby.
  This may take a while
LSMS shutting down lsmssec...
Syncing Binary Logs ...
Syncing mate:/mnt/snap/ to /var/TKLC/lsms/db/
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.



Select **Exit** and press **[Enter]** to exit the lsmsmgr menu.



This procedure is complete!

Procedure 18 POST CONFIGURATION HEALTH CHECK

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: Execute the "hastatus" command to verify the HA state of this server.	Execute 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.
3. ☐	**LSMS Standby server:** Verify that the STANDBY server's MySQL replication is functioning properly.	Execute 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.
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

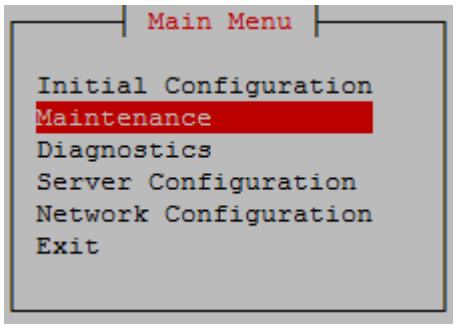
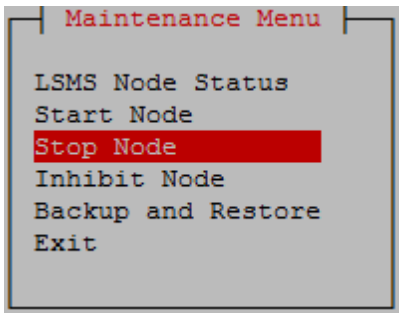
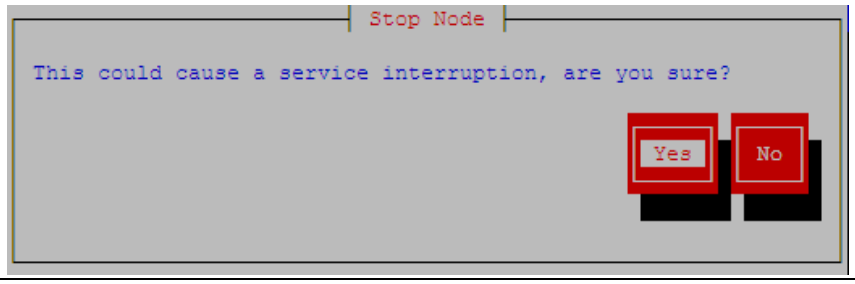
		Running modules in class net... OK Running modules in class proc... OK Running modules in class services... OK Running modules in class system... OK Running modules in class upgrade... OK • LOG LOCATION: /var/TKLC/log/syscheck/fail_log
5. ☐	**LSMS Active server:** Capture the output of 'sentry status' command	Execute 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!		

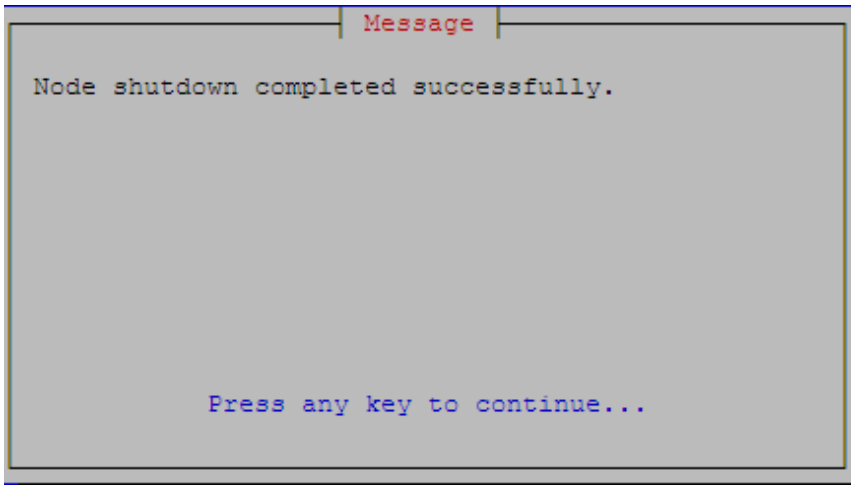
3.7 Data Migration

Procedure 19 RESTORE DATABASE

Procedure 19 - Restore Database

S T E P #	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

		# scp –p root@<Remote IP>: <Remote IP Path>/mysql-snapshot-<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
4. ☐	**MPS A and B server:** Stop LSMS processes	Note: Execute this step on Standby LSMS server first followed by the active LSMS server. # su – lsmsmgr   

		 Exit the lsmsmgr menu.
4. ☐	**MPS A and B:** Execute the "hastatus" command to verify the HA state of this server.	Execute 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>`

6. ☐	**MPS A server:**
	Restore supDB and MySQL Users.
		Execute 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`

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: Execute 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/hafailo`
		`ver--inhibit`
		`# hastatus`
		
		`UNINITIALIZED "INHIBITED"`
		
		`# startNode`

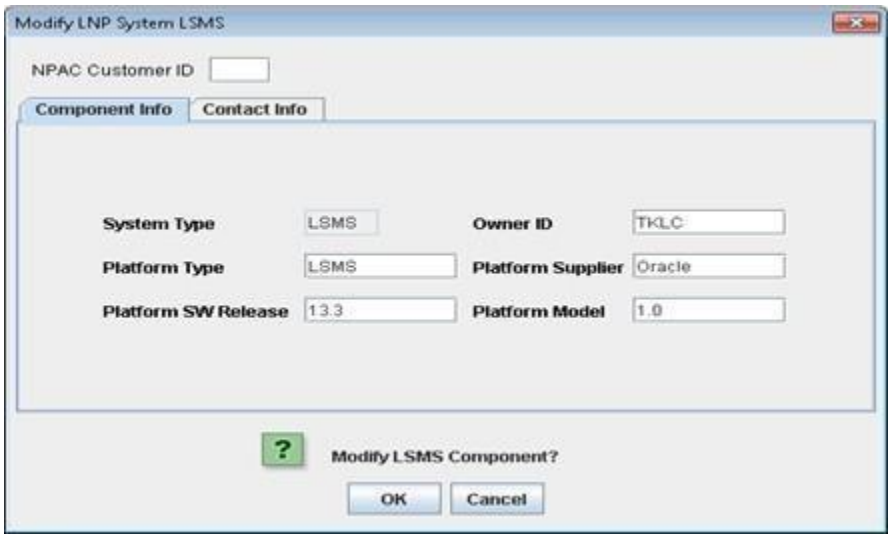
10. ☐	**MPS A and B:** System Heath Check	Execute Procedure 18 to verify the system health check after DB full upgrade.
11. ☐	**LSMS Active server:** Login to LSMS GUI	Login to LSMS Active GUI as lsmsall user.
12. ☐	**LSMS Active server:** Configure MySQL Port	Refer to the recorded value of MySQL Port 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.

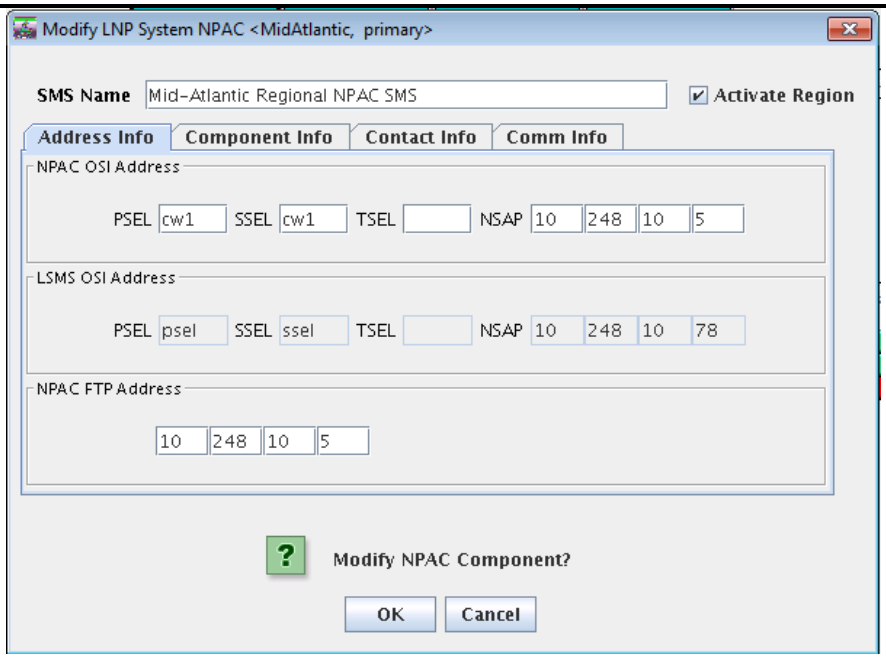
13. ☐	**LSMS Active server:** Verify the ELAP Credentials	Go to "Configure -> LNP System -> EMS -> View" to verify the ELAP Credentials are identical to the recorded value of the ELAP Credentials in Procedure 6step 12. Otherwise, go to "Configure -> LNP System -> EMS -> Modify" and configure the ELAP 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!		

Procedure 20 CONNECT LSMS 14.0.X TO NPAC

Procedure 20 - Connect LSMS to NPAC

STEP #	
	This procedure connects the LSMS to the NPAC. Estimated time:15 minutes

NOTE: Execute 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 14.0.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.
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. 
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!		

Procedure 21 EXPORT THE DATABASE FROM LSMS 14.0.X TO THE QUERY SERVER

Procedure 21 – Export the Database from LSMS 14.0.X to the Query Server

STEP #	This procedure provides the steps to export the database from the LSMS 14.0.X system to the query server. Estimated time:30 minutes	
1. ☐	**LSMS Active server:** Login as root.	Login to LSMS 14.0.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**
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
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 14.0.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
6. ☐	**LSMS 14.0.X Query Server:** Login as root to the Query Server	login: root Password:<root_password>
7. ☐	**LSMS 14.0.X Query Server:** Shutdown the Mysql server	# cd /opt/mysql/mysql/bin # ./mysqladmin -u root -p shutdown Enter password:
8. ☐	**LSMS 14.0.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 14.0.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 14.0.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)
11. ☐	**LSMS Active server:** As the root user, remove the intermediate tarballs from the LSMS 14.0.X server. As the root user, remove the snapinfo.sql script from the LSMS 14.0.X server	[root@lsmspri root]# rm /var/TKLC/lsms/free/mysql-snapshot* [root@lsmspri root]# rm /var/TKLC/lsms/free/snapinfo.sql

12. ☐	**LSMS 14.0.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
13. ☐	**LSMS 14.0.X Query Server:** Prepare the Query Server for the EMS Configuration	mysql> SET GLOBAL SQL_REPLICA_SKIP_COUNTER = 100; Query OK, 0 rows affected
14. ☐	**LSMS 14.0.X Query Server:** Validate the operation of the query server.	Perform Error! Reference source not found..
This procedure is complete!		

Procedure 22 SSH KEY EXCHANGE BETWEEN ELAP AND LSMS

Procedure 22 - SSH KEY EXCHANGE BETWEEN ELAP AND LSMS

STEP #	This procedure exchanges SSH keys between the ELAP and LSMS 14.0 (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>
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 ''

Procedure 22 - SSH KEY EXCHANGE BETWEEN ELAP AND LSMS

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

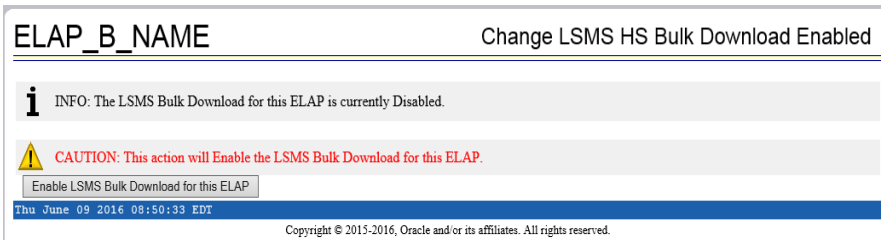
3.	**Active ELAP:**
	Verify that the keys are generated for elapdev user on both ELAP A and B serves.
		Check that rsa keys are generated for the elapdev user on local and mate using below command.
		
		Run below commands to verify the keys.
		$ ls -lrt .ssh/id_rsa*
		$ ssh mate 'ls -lrt .ssh/id_rsa*'
		
		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

Procedure 22 - SSH KEY EXCHANGE BETWEEN ELAP AND LSMS

4.	**Active ELAP:** Exchange Secure Shell Keys with LSMS 14.0 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.
5.	**Active ELAP:** Exchange Secure Shell Keys with LSMS 14.0 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!		

Procedure 23 CONNECT LSMS 14.0.X TO ELAP

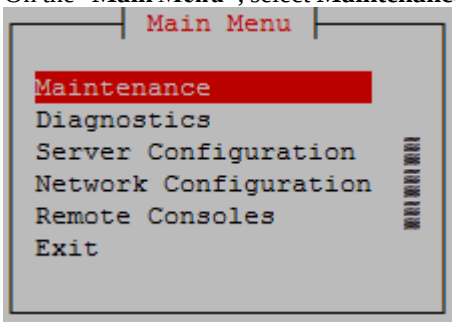
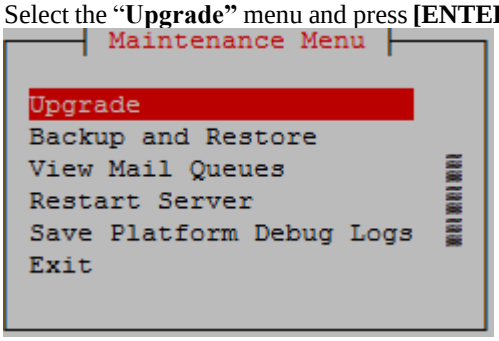
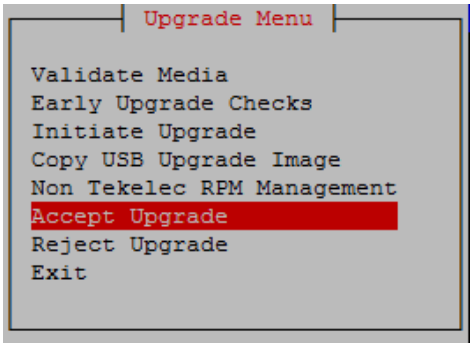
Procedure 23 - Connect LSMS to ELAP

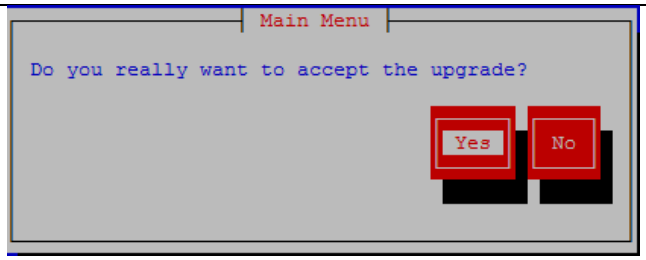
STEP #		
	This procedure connects the LSMS to ELAP. Estimated time:10 minutes	
7. ☐	**ELAP Active server:** Login to ELAP GUI	Login to ELAP GUI through VIP as uiadmin.
8. ☐	**ELAP Active server:** Enable the LSMS Connection	Go to menu Maintenance -> LSMS Connection -> Change Enabled Click on 'Enable LSMS Connection' button.
9.	**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!	

Procedure 24 ACCEPT THE UPGRADE

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`
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]**.




```
Called with options: --accept
Loading Backout::BackoutType::RPM
Accepting Upgrade
Executing common accept tasks
Setting POST_UPGRADE_ACTION to ACCEPT in upgrade info.
Cleaning backout directory.
Clearing Upgrade Accept/Reject alarm.
Cleaning message from MOTD.
Removing SWAP /dev/mapper/vgroot-plat_swap from fstab.
Removed 1 swap entries from fstab
```

This procedure is complete!

APPENDIX A. ISO IMAGE COPY FROM USB MEDIA

Assumption: The USB media contains the desired LSMS ISO.

A.1 ISO IMAGE COPY FROM USB MEDIA

Appendix 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`

3.	☐	☐	**MPS X:** Run syscheck to make sure there is no error.	Execute 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`

4.	☐	☐	**MPS X:** Verify ISO image doesn't already exist.	Execute 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 executing the following command:
				
				`# rm –f /var/TKLC/upgrade/<ISO image>`

5.	☐	☐	**MPS X:** Delete unwanted ISOs from USB media.	Execute the following command to create a directory to mount the USB media:
				`# mkdir -p /mnt/usb`
				
				Execute 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`
				
				Execute the following command to mount the USB media using the USB drive name from the output above:

				# mount /dev/sdc1 /mnt/usb Execute 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-14.0.0.0.0_140.6.5-x86_64.isoOnly 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 For e.g., # rm –f /mnt/usb/ LSMS-14.0.0.0.0_140.6.5-x86_64.iso
6.	☐	☐	**MPS X:** Verify space exists for ISO.	Execute 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	Execute the following command to copy ISO: # cp /mnt/usb/<xyz.iso> /var/TKLC/upgrade/ Execute the following command to unmount the USB media: # umount /mnt/usb
8.	☐	☐	**MPS X:** Verify ISO image exists.	Execute the following command to perform directory listing: # ls –al /var/TKLC/upgrade The output should look like: 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-14.0.0.0.0_140.6.5-x86_64.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

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`

3.	☐	**NAS:** Run syscheck to make sure there is no error.	Execute 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`

4.	☐	**NAS:** Mount the USB media.	Execute the following command to create a directory to mount the USB media:
			`# mkdir -p /mnt/usb`
			
			Execute 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`
			
			Execute 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	Execute 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	Execute the following command to perform directory listing: # ls –al /mnt/usb/ List of backup files should be displayed. Execute the following command to unmount the USB media: `# umount /mnt/usb`
7.	☐	**NAS:** Logout from server.	Logout from the server by executing the following command: `# logout`
8.	☐	**NAS:** Remove USB media.	Remove media from USB drive.

APPENDIX B. START AND VERIFY REPLICATION ON QUERY SERVER

Appendix B – Start and Verify REPLICATION ON Query Server

S T E P #	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 14.0.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>

2. ☐ ☐	**LSMS 14.0.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`

APPENDIX C. COPYING LICENSE FILE ON THE LSMS SERVER

C.1 Copying File Using SCP

STEP #	This procedure will help copying the license file from a desktop to LSMS server	
1. ☐	**Server X:** Login to server where license file is present	Loging 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

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.
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!		

APPENDIX D. SWOPS SIGN OFF.

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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APPENDIX 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

APPENDIX 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.