Oracle® Communications LSMS

Full Upgrade Guide

Release 14.0

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ORACLE

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

TABLE OF CONTENTS

List of Figures

List of Tables

1. INTRODUCTION

1.1 Purpose and Scope

This document is designed to detail the steps necessary to upgarde the functionality of the LSMS 13.5.X. on E5APPB-02 to the LSMS 14.0.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

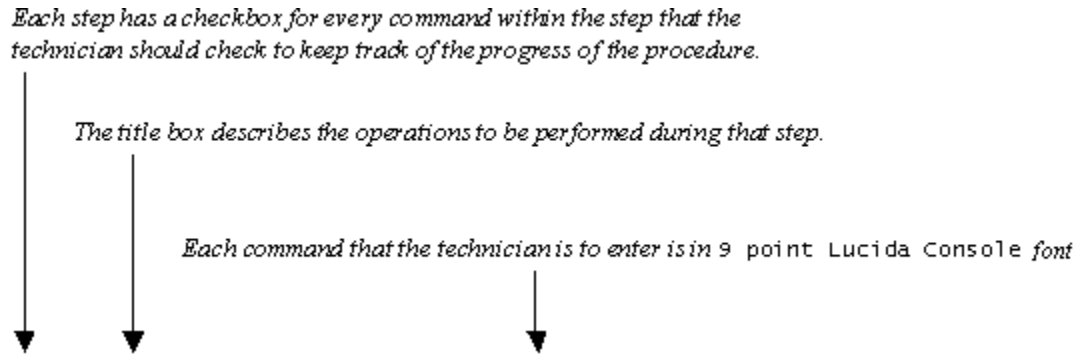
1.4 Definitions

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

- 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
- 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: _____

  NMS IPs: _____

  Other IPs required: _____
- 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)

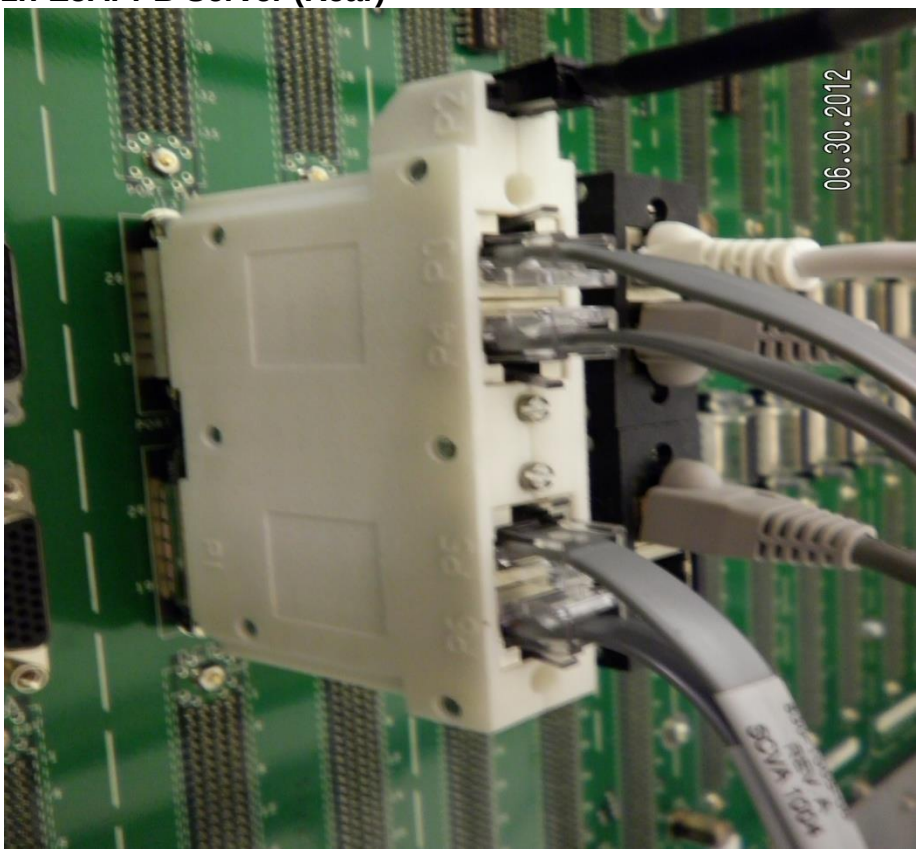


Figure 3. E5-APP-B Server (Rear)

1.8 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
```

1.9 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 Ugrade paths for E5APPB-02

TPD Release for IPM	LSMS Initial Installation Release
8.6.0.2.0_110.14.0 or later	14.0.Y
Full upgrade Source Release	**Full upgrade Destination Release**
13.5.X	14.0.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.

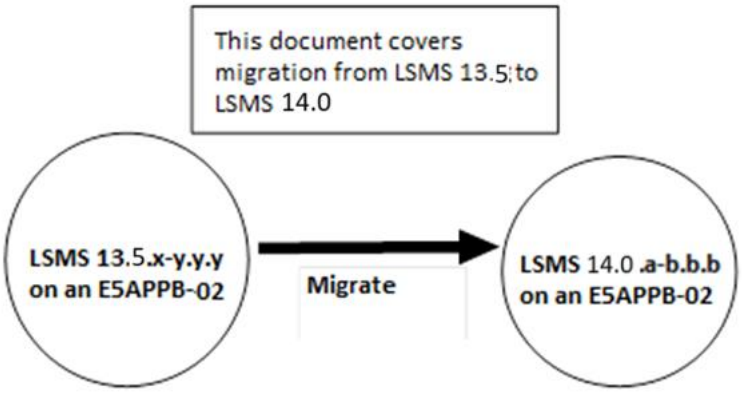


Figure 4: Full upgrade Path - LSMS 13.5.X to 14.0.Y

3. FULL UPGRADE PROCEDURES

3.1 Upgrade Timeline for LSMS Procedure Execution Order

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. Follow steps mentioned in 3.7Appendix D to procure the license.

Table 5: Timeline table for full upgrade preparation

LSMS 1A				LSMS 1B		
Procedure	**Task**	**1A**	**Task Start time (min)**	**1B**	**Task**	**Procedure**
1.0Procedure 1 -	Setup upgrade environment	5	0			
			5	5	Setup upgrade environment	1.0Procedure 1 -
0	Pre Full upgrade Health Check	5	10	5	Pre Full upgrade Health Check	0
1.0Procedure 3 - **Error! Reference source not found.**	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**
1.0Procedure 4 - 1.0Procedure 5 -	Direct SSH	Disconnect ELAP from LSMS Disconnect NPAC from LSMS	10	0				
1.0Procedure 6 - 1.0Procedure 7 -	Direct SSH	Backup LSMS DB Transfer Database to Remote Server	120	10	100	IPM MPS B server and NAS server	**Minicom mate** for MPS B and **Minicom nas** for NAS server	1.0Procedure 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	1.0Procedure 9 - Procedure 10 1.0Procedure 11 - 1.0Procedure 13 - 1.0Procedure 16 -
1.0Procedure 8 - 1.0Procedure 9 -	Minicom mate	IPM MPS A server Pre-Install Configuration	60	130				
1.0Procedure 10 -	Minicom mate	Install the Application	25	190				
1.0Procedure 12 -	Minicom mate	LSMS Initial Configuration	15	215				
1.0Procedure 13 -	Minicom mate	Configure Time Zone and Clock.	5	230				
1.0Procedure 14 - OR 1.0Procedure 15 - **Error! Reference source not found.**	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				
1.0Procedure 16 -	Minicom mate	TMN Toolkit and Marben OSI License Installation	5	245				
1.0Procedure 17 -	Minicom mate	Start LSMS services	10	250				
1.0Procedure 18 -	Minicom mate	Post Configuration Health Check	5	260				

1.0Procedure 19 -	Minicom mate	Restore Database	60	265				
1.0Procedure 20 -	Minicom mate	Connect LSMS 14.0.X to NPAC	15	325				
1.0Procedure 22 -	Minicom mate	Connect LSMS 14.0.X to ELAP	10	340	5	Accept the upgrade	Direct SSH	1.0Procedure 23 -
1.0Procedure 23 -	Minicom mate	Accept the upgrade	5	350				
		Upgrade Completed		355				

3.1.1.3 Post Upgrade Phase

LSMS 1A				LSMS 1B		
Procedure	**Task**	**1A**	**Task Start time (min)**	**1B**	**Task**	**Procedure**
1.0Procedure 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 1.0Procedure 9 - Procedure 10	Direct Serial/Minicom Connection	IPM MPS A server Pre-Install Configuration Install the Application	120	0	0	IPM MPS B server and NAS server Pre-Install Configuration Install the Application	Direct Serial/Minicom Connection	1.0Procedure 8 - 1.0Procedure 9 - Procedure 10

1.0Procedure 11 - 1.0Procedure 13 -		Configure Time Zone and Clock.				Configure Time Zone and Clock.		1.0Procedure 13 -
1.0Procedure 12 -	Direct Serial/Minicom Connection	LSMS Initial Configuration	15	120				
1.0Procedure 13 -	Direct Serial/Minicom Connection	Configure Time Zone and Clock.	5	135				
1.0Procedure 14 - OR 1.0Procedure 15 - **Error! Reference source not found.**	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				
3.7Appendix D	Procure TMN License	Procure TMN License Note: Timing to accuire TMN license may wary depending on Artifex team availability.	-		-	Procure TMN License Note: Timing to accuire TMN license may wary depending on Artifex team availability.	Procure TMN License	3.7Appendix D
1.0Procedure 16 -	Direct SSH	TMN Toolkit and Marben OSI License Installation	5	150				
				155	5	TMN Toolkit and Marben OSI License Installation	Direct SSH	1.0Procedure 16 -
1.0Procedure 17 -	Direct SSH	Start LSMS services	10	160				
				170	10	Start LSMS services	Direct SSH	1.0Procedure 17 -

1.0Procedure 18 -	Direct SSH	Post Configuration Health Check	5	180				
				185	5	Post Configuration Health Check	Direct SSH	1.0Procedure 18 -
1.0Procedure 20 -	Direct SSH	Connect LSMS 14.0.X to NPAC	15	190				
1.0Procedure 22 -	Direct SSH	Connect LSMS 14.0.X to ELAP	10	205	5	Accept the upgrade	Direct SSH	1.0Procedure 23 -
1.0Procedure 23 -	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 F.

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.

Procedure 2 – Pre-Full upgrade System Health Check

S T E P #	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 F.
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 F.
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

Procedure 2 – Pre-Full upgrade System Health Check

		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 F.
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 F. 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...

Procedure 2 – Pre-Full upgrade System Health Check

		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. ☐	**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!

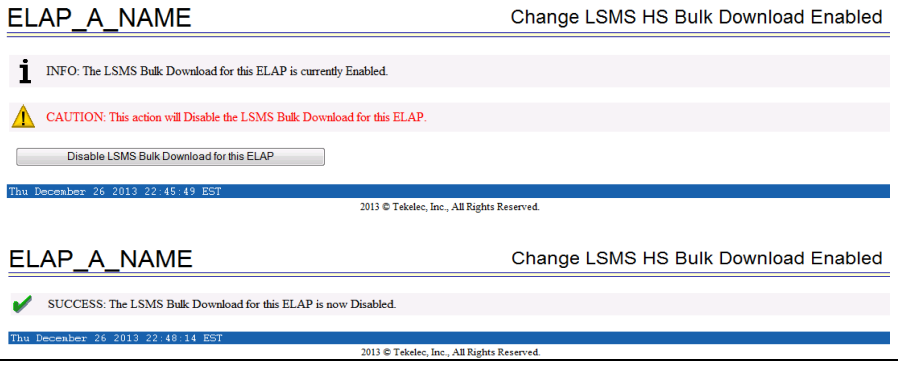
3.4 Data Backup before Full upgrade

Procedure 4 - DISCONNECT ELAP FROM LSMS

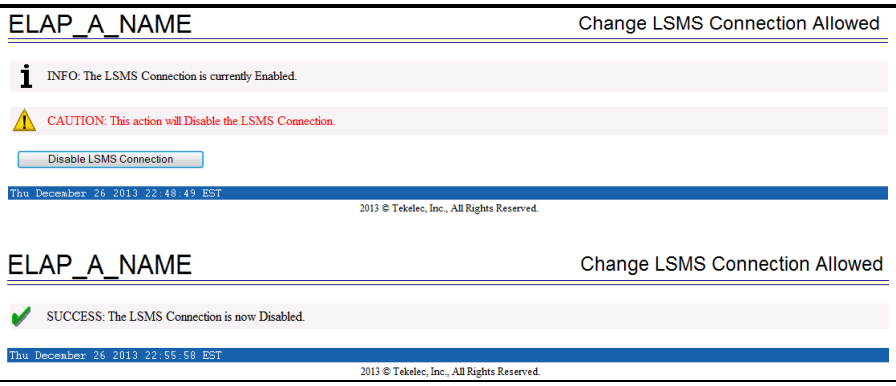
Procedure 4 - Disconnect ELAP from LSMS

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.

Procedure 4 - Disconnect ELAP from LSMS

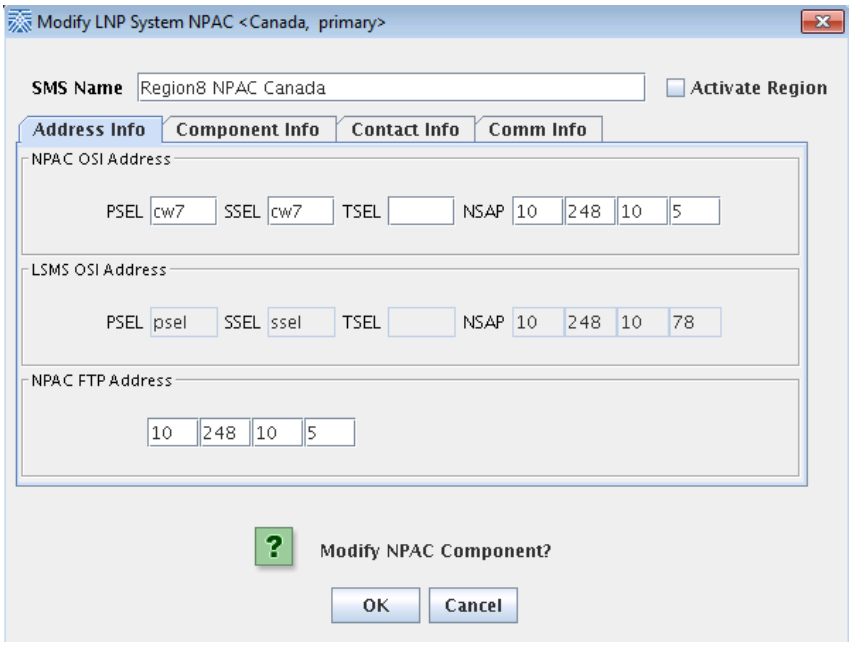
		
7. ☐	**All connected ELAPs:** Disconnect LSMS connection	Repeat the steps 4 to 6 for all ELAPs connected to LSMS.
This procedure is complete!		

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.

Procedure 5 - Disconnect NPAC from LSMS

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 server:** Remove existing DB snapshots	`# rm -rf /var/TKLC/lsms/free/mysql-snapshot-*` `# rm -rf /var/TKLC/lsms/free/snapinfo.sql`

Procedure 6 - Backup LSMS DB

4. ☐	**LSMS Active server:**
	Enable "QUERY_SERVER" and "RESYNCDB_QUERY_SERVER" Feature
		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`

5. ☐	**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

6. ☐	**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`

Procedure 6 - Backup LSMS DB

		westernDB logDB mysql noreplDB performance_schema supDB
7. ☐	**LSMS Active server:** Take MySQL dump of supDB.	Execute 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. **Edit supDBdump.sql to fix Authorization table** **# sed -i 's/function/functions/g' supDBdump.sql**
8. ☐	**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<>''" | 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' >> /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 like: *GRANT USAGE ON *.* TO 'lsmsadm'@'%' IDENTIFIED BY '570851ac3cc01499';* Edit the .sql file and replace the password of all the users with plain text password to contain something like:

Procedure 6 - Backup LSMS DB

		*GRANT USAGE ON *.* TO 'lsmsadm'@'%' IDENTIFIED BY 'password-in-plain-text';* 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 or we can assign default passwords which the customer/end user can change later on.
9. ☐	**LSMS Active server:** Log into the Active LSMS server GUI	Login to LSMS GUI as lsmsall user.
10. ☐	**LSMS Active server:** Record the configured MySQL Port	Go to "Admin -> MySQL Port -> View" and record the configured MySQL Port.
11. ☐	**LSMS Active server:** Record the configured ELAP Credentials	Go to "Configure -> LNP System -> EMS -> View" and record the configured ELAP Credentials.
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**

Procedure 7 - Transfer Database to Remote Server

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** *<u>/var/TKLC/lsms/free/mysql-snapshot-<NPAC region>.tar.gz</u>* **root@**<Remote IP>**:<**Remote IP Path> Password: **<root_password>** **# scp -p** *<u>/var/TKLC/lsms/free/supDBdump.sql</u>* **root@**<Remote IP>**:<**Remote IP Path> Password: **<root_password>** **# scp -p** *<u>/var/TKLC/lsms/free/MySQLUserGrants.sql</u>* **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 *<u>mysql-snapshot-<NPAC region>.tar.gz</u>* sftp> put supDBdump.sql Uploading *<u>supDBdump.sql</u>* sftp> put MySQLUserGrants.sql Uploading *<u>MySQLUserGrants.sql</u>* 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!		

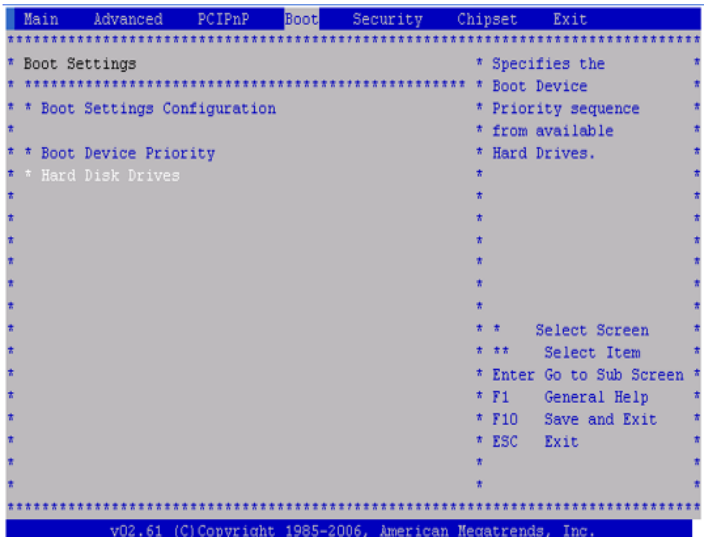
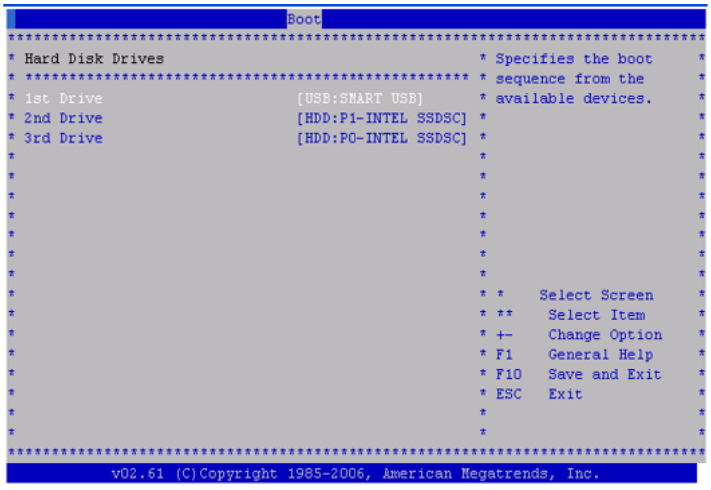
3.5 IPM and LSMS 14.0.X Installation

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

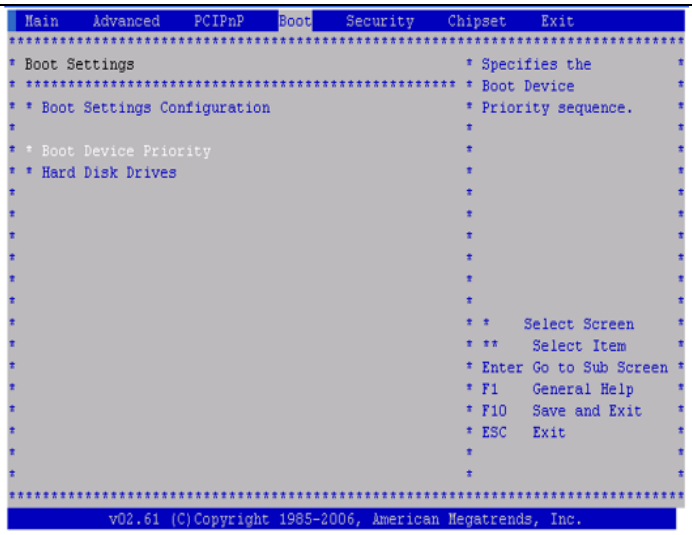
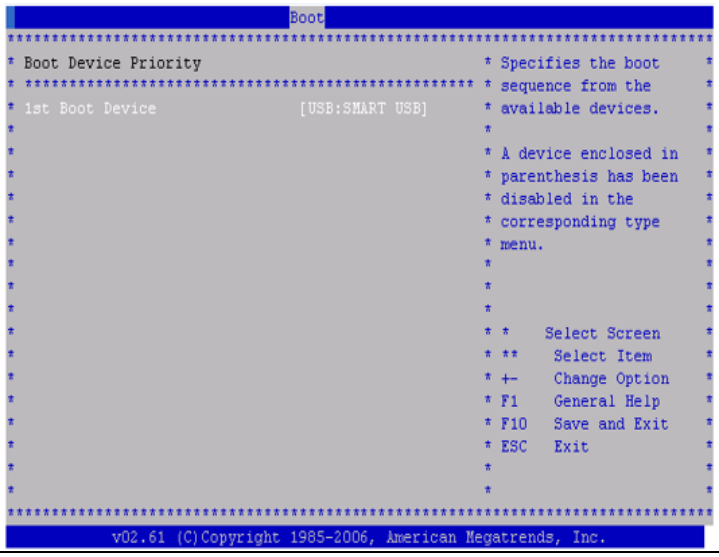
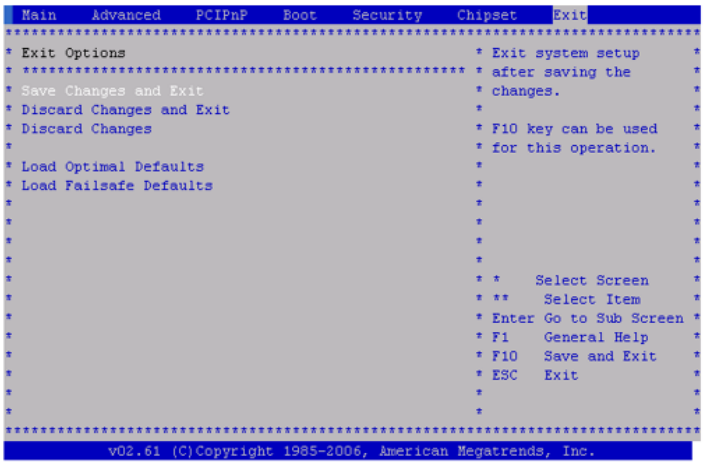
Procedure 8 - IPM MPS Server with 64 bit TPD 8.6.x

STEP #	A	B	NAS		
				This procedure will remove the LSMS application and all the data from the server. Estimated time: 45 minutes **Note : Below procedure needs to be executed on both MPS A, MPS B and NAS servers.**	
1.	☐	☐	☐	**MPS X**:	Reboot server **# reboot**

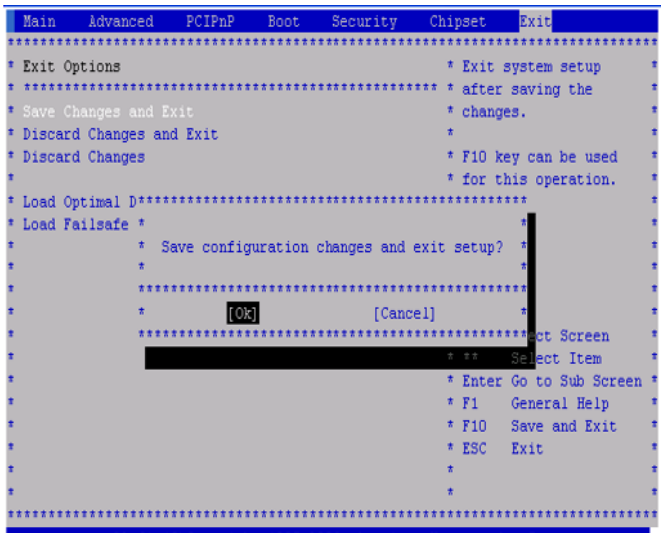
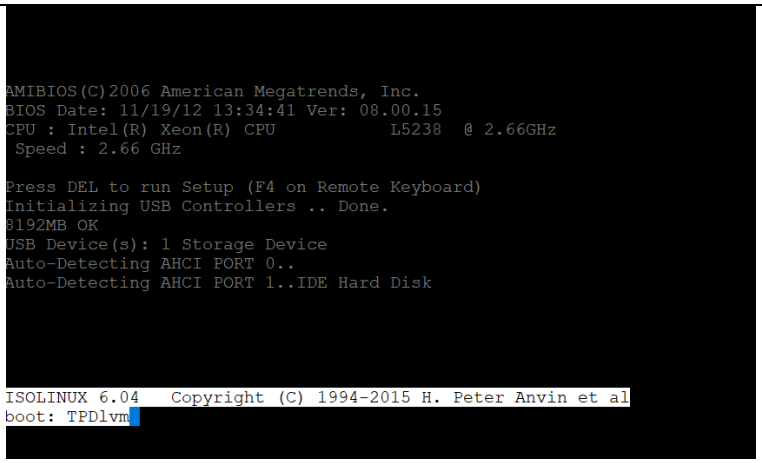
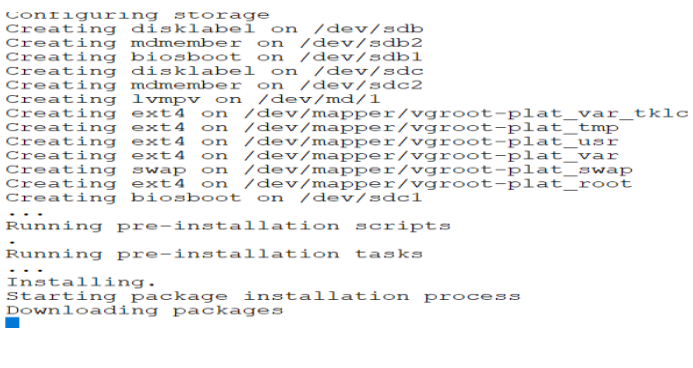
Procedure 8 - IPM MPS Server with 64 bit TPD 8.6.x

				Insert TPD 8.6.x USB media into the USB port	
2.	☐	☐	☐	**MPS X:** Press 'del' key to enter the BIOS. Enter System Time and System Date.	
3.	☐	☐	☐	**MPS X:** Select *Boot → Hard Disk Drives* option	
4.	☐	☐	☐	**MPS X:** Press 'Enter' key and select USB as the 1st Drive	

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

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	

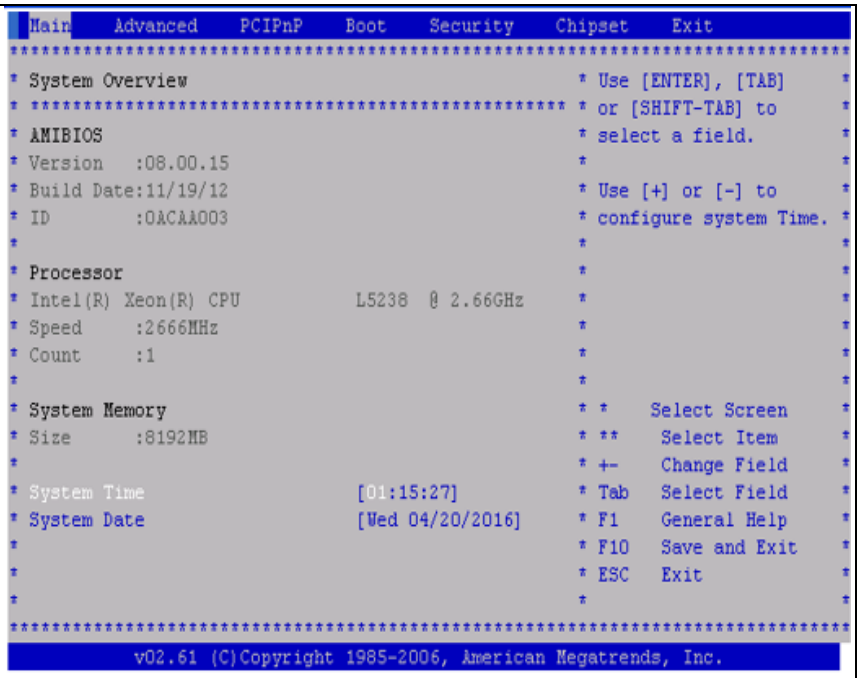
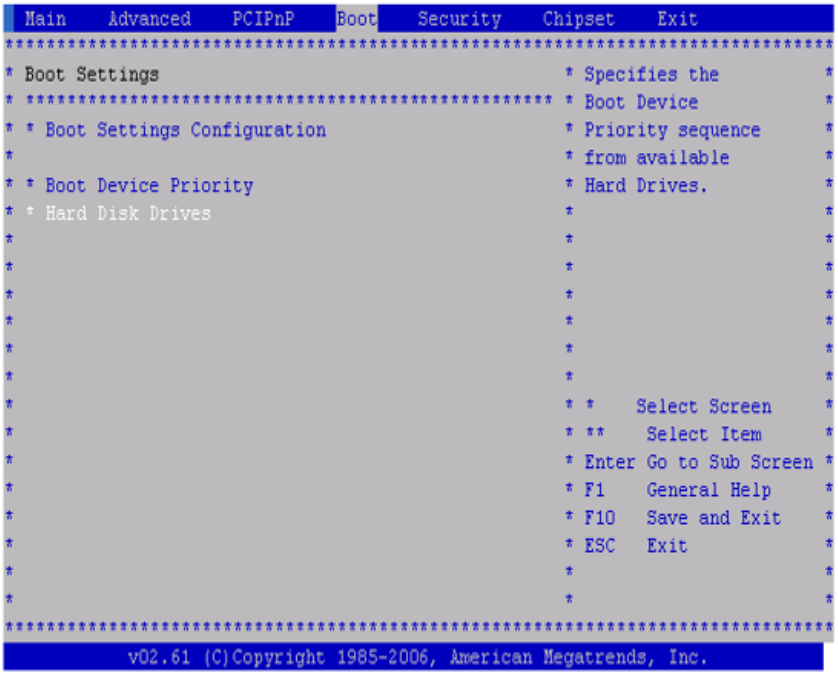
Procedure 8 - IPM MPS Server with 64 bit TPD 8.6.x

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:**	

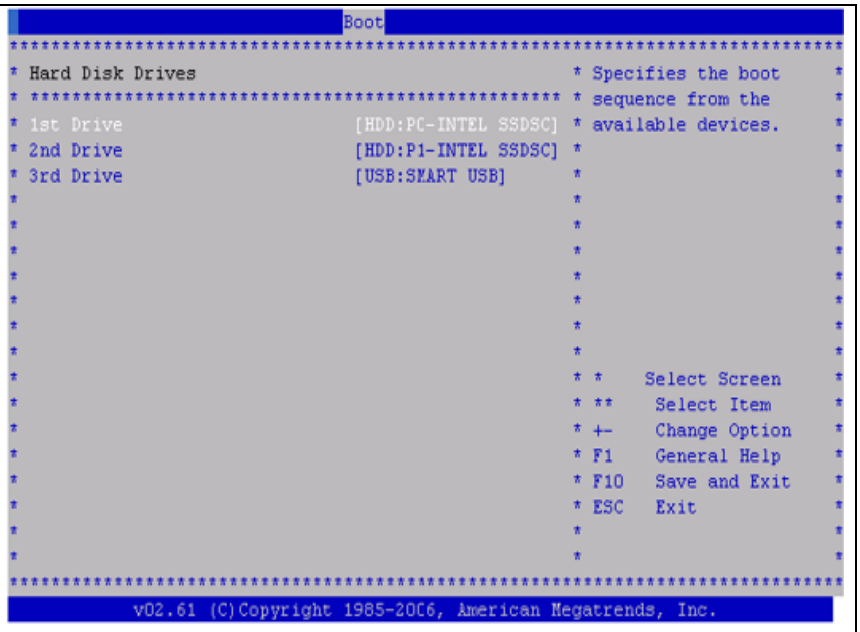
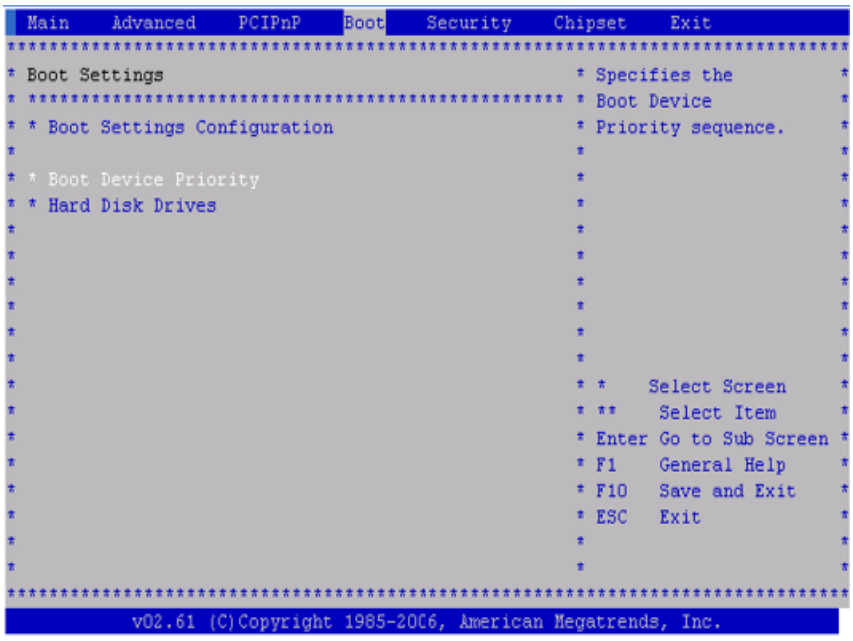
Procedure 8 - IPM MPS Server with 64 bit TPD 8.6.x

				Once the drive formatting and file system creation steps are complete, the screen at right will appear indicating that the package installation has begin.	Installing clang-resource-filesystem.x86_64 (1175/1507) Installing adwaita-cursor-theme.noarch (1176/1507) Installing adwaita-icon-theme.noarch (1177/1507) Installing gtk3.x86_64 (1178/1507) Installing gjs.x86_64 (1179/1507) Installing adobe-mappings-pdf.noarch (1180/1507) Installing libgs.x86_64 (1181/1507) Installing graphviz.x86_64 (1182/1507) Installing python3-pydot.noarch (1183/1507) Installing python3-pygraphviz.x86_64 (1184/1507) Installing ghostscript.x86_64 (1185/1507) Installing cups.x86_64 (1186/1507) Installing cups-filters.x86_64 (1187/1507) Installing python3-networkx.noarch (1188/1507) Installing gnome-characters.x86_64 (1189/1507) Installing libcanberra-gtk3.x86_64 (1190/1507) Installing libgnomekbd.x86_64 (1191/1507) Installing libtimezonemap.x86_64 (1192/1507) Installing firewalld.noarch (1193/1507) Installing open-vm-tools.x86_64 (1194/1507) Installing TPD-upgrade.noarch (1195/1507) Installing TKLCe5appb.noarch (1196/1507)
12.	☐	☐	☐	**MPS X:** Once all the packages have been successfully installed, the screen at right will appear letting you know the installation process is complete. **Remove USB media before Reboot.** **On MPS server press <ENTER> to reboot the system and continue with the next step.**	MPOINT: Media already mounted. DEV: /dev/sda MPOINT: Media already mounted. DEV: /dev/sda MPOINT: Media already mounted. DEV: /dev/sda MPOINT: Pulling ISO Metadata file from: /run/install/repo//.isometadata Copying ISO metadata file to system DIR: /mnt/sysimage/var/TKLC/log/ipm Copying ISO metadata file to prodinfo DIR: /mnt/sysimage/usr/TKLC/plat/etc/prodinfo Changing default target to application.target Revoke root ssh access Installation complete Use of this product is subject to the license agreement found at: /usr/share/oraclelinux-release/EULA Installation complete. Press ENTER to quit:

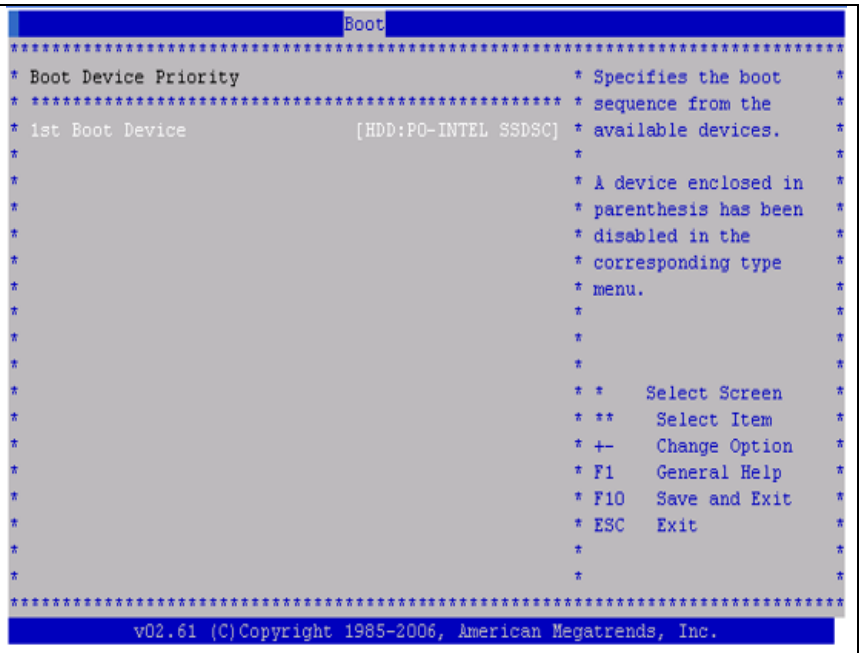
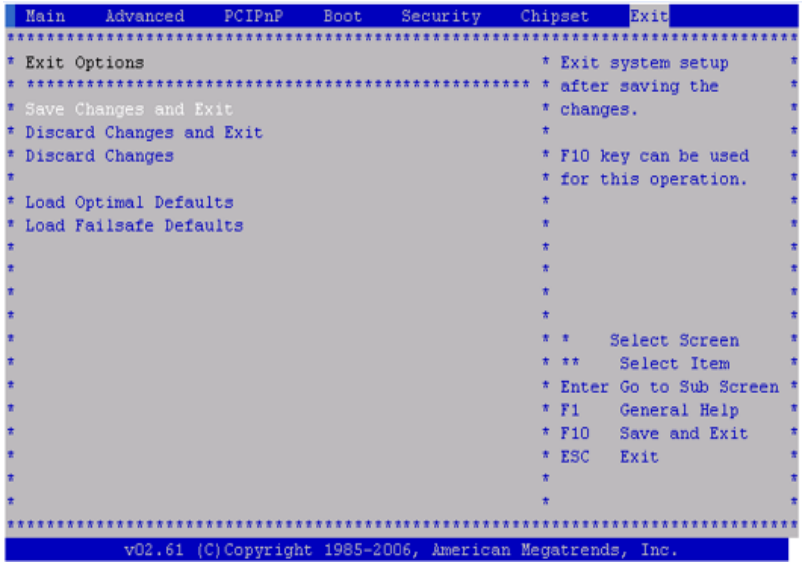
Procedure 8 - IPM MPS Server with 64 bit TPD 8.6.x

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	

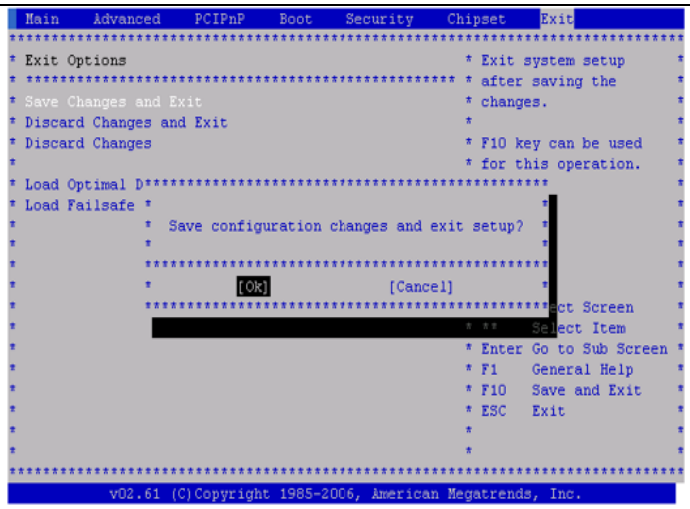
Procedure 8 - IPM MPS Server with 64 bit TPD 8.6.x

					
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.	

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

					
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.	

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

					 **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`

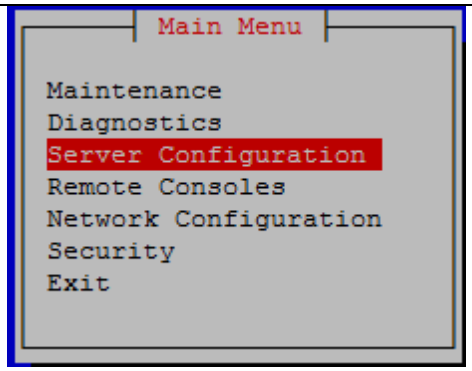
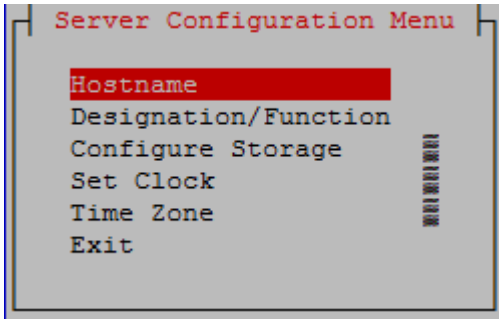
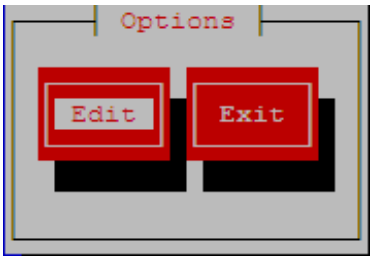
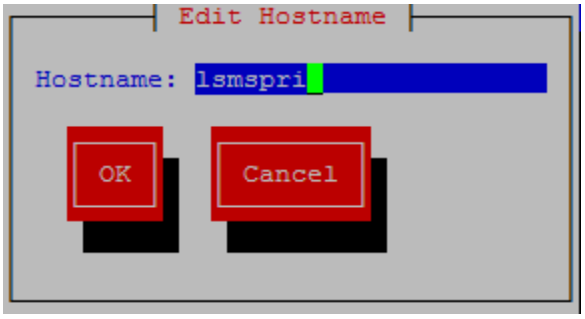
				This procedure is complete!	

Procedure 9 - PRE INSTALL CONFIGURATION

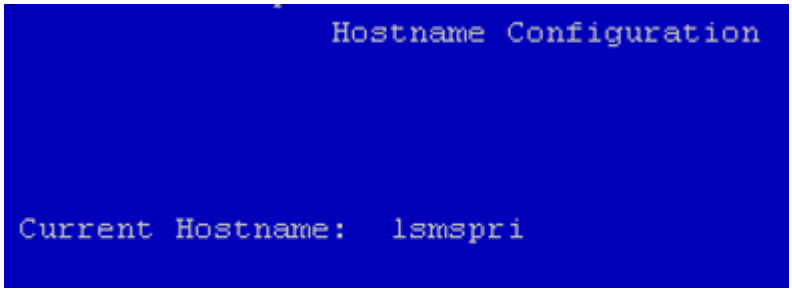
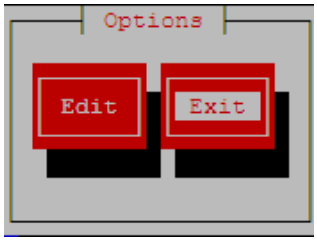
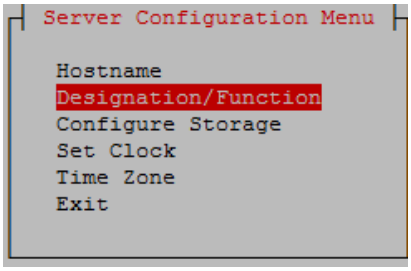
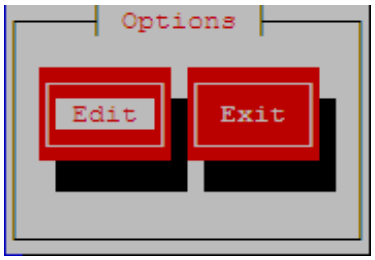
Procedure 9 – Pre-Install Configuration

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`

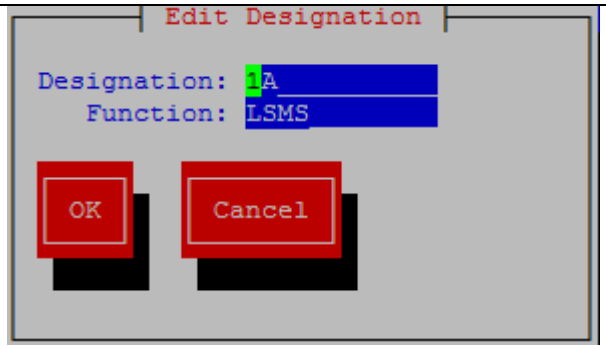
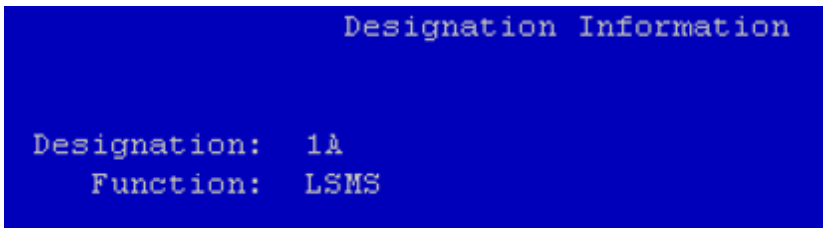
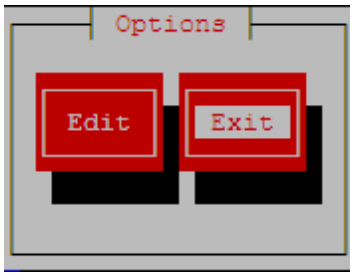
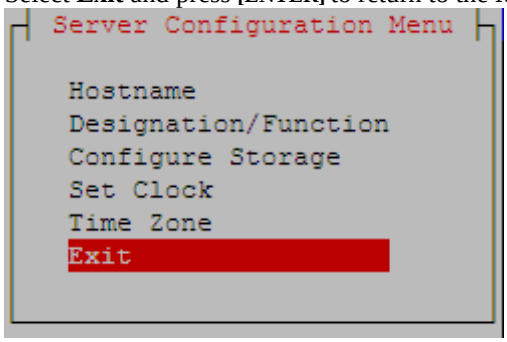
Procedure 9 – Pre-Install Configuration

				
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].

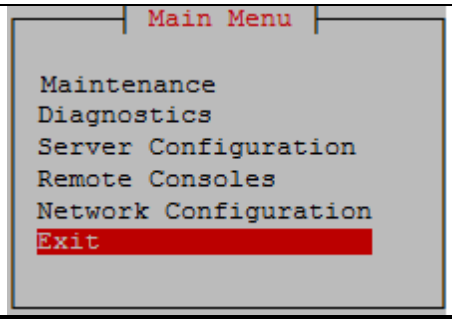
Procedure 9 – Pre-Install Configuration

				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".	

Procedure 9 – Pre-Install Configuration

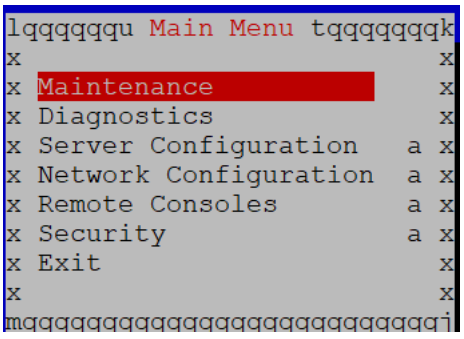
			NOTE: Designation and Function should be entered in UPPERCASE.	
8.	☐	☐	**MPS X:** Verify that the Designation and Function is correct then select and press "Exit". Otherwise repeat the step above.	 
9.	☐	☐	**MPS X:** Exit the platcfg menu **NOTE:** **DO NOT** set the time zone in platcfg. The time zone will be set later in initial configurations.	Select **Exit** and press **[ENTER]** to return to the **Main Menu**.  Select **Exit** and press **[ENTER]**. The "platcfg" utility terminates.

Procedure 9 – Pre-Install Configuration

				
This procedure is complete!				

Procedure 10 - INSTALL THE LSMS APPLICATION

Procedure 10 - 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]**.  Select the "**Upgrade"** menu and press **[ENTER]**.

Procedure 10 - Install the LSMS Application

```
lqqqqu Maintenance Menu tqqqqqk
x                             x
x Dual Image Upgrade          x
x Upgrade                   a x
x Patching                    x
x Backup and Restore        a x
x View Mail Queues          a x
x Restart Server            a x
x Save Platform Debug Logs  a x
x Platform Data Collector   a x
x Exit                        x
x                             x
mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj
```

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
mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj
```

Select the desired upgrade media and press [ENTER].

```
lqqqqqqqqqqqqqqqqqqqqqu Choose Upgrade Media Menu tqqqqqqqqqqqqqqqqqqqqqqk
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
mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj
```

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.

```
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
```

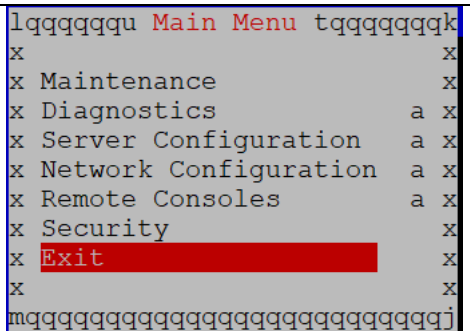
Procedure 10 - Install the LSMS Application

<table>
<tr><td></td><td></td><td></td><td></td><td><pre>
[admusr@epappri ~]$ cat /proc/mdstat
Personalities : [raid1]
md1 : active raid1 sdb2[1] sda2[0]
      262080 blocks super 1.0 [2/2] [UU]

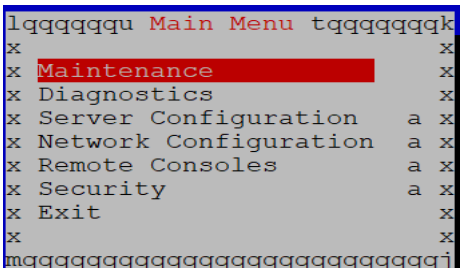
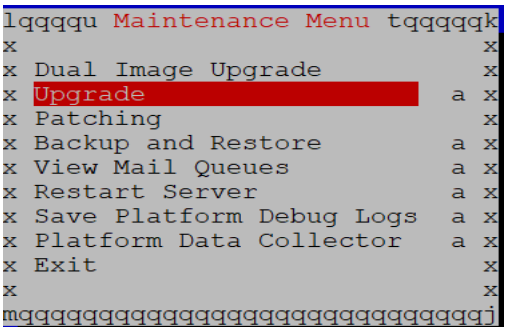
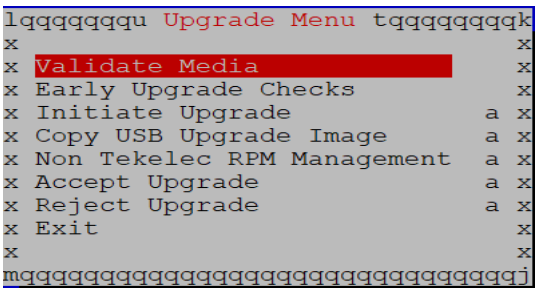
md2 : active raid1 sda1[0] sdb1[1]
      468447232 blocks super 1.1 [2/2] [UU]
      [=====>..............] resync = 29.7% (139377920/468447232) finish=73.0min speed=75060K/sec
      bitmap: 4/4 pages [16KB], 65536KB chunk

unused devices: <none>
</pre>
Contact My Oracle Support following the instructions on the Appendix F, 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>
lqqqqqqqqqqqqqqqqqqqqu Choose Upgrade Media Menu tqqqqqqqqqqqqqqqqqqqqqk
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
mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj
</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
mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj
</pre>
Select Exit and press [ENTER] to return to the Main Menu.
<pre>
lqqqqu Maintenance Menu tqqqqqk
x   x
x Dual Image Upgrade   x
x Upgrade   a x
x Patching   a 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   x
x Exit   x
x   x
mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj
</pre>
Select Exit and press [ENTER]. The “platcfg” utility terminates.</td></tr>
</table>

Procedure 10 - Install the LSMS Application

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]**.   

Procedure 10 - Install the LSMS Application

			Press any key to return to the menu and then press Exit all way back to the Maintenance Menu	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 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]**.

Procedure 10 - Install the LSMS Application

				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 mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj 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]. lqqqqqqqqqqqqqqqqqqqqu Choose Upgrade Media Menu tqqqqqqqqqqqqqqqqqqqqqk 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 mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj
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>

Procedure 10 - Install the LSMS Application

12.	☐	☐	**MPS X :** Check the upgrade and warnings	**# 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

Procedure 10 - Install the LSMS Application

				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

Procedure 10 - Install the LSMS Application

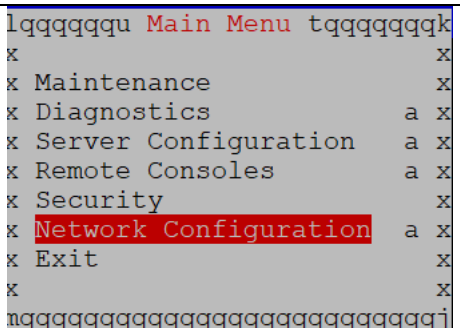
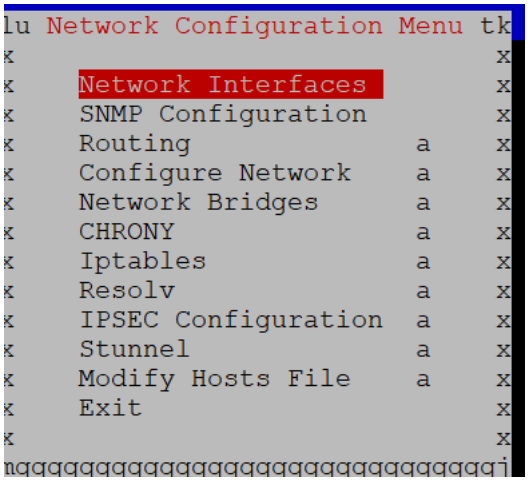
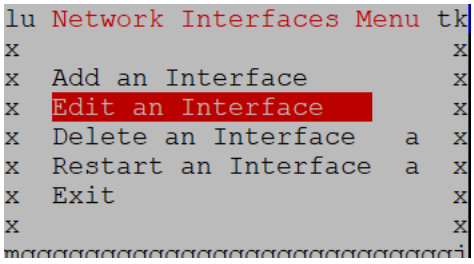
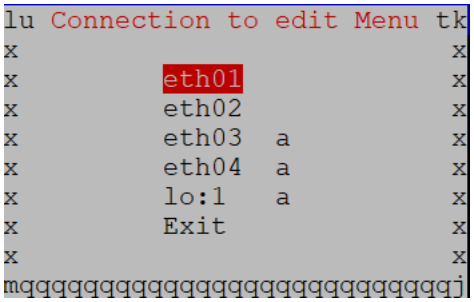
				1702719042::WARNING: TKLClsms-Config-2.0.3-0.70555: Current hostname "lsmspri" being reset to default. 1702719098::TKLClsms ##############################warning: user %{root} does not exist - using root 1702719104::warning: group %{root} does not exist - using root 1702719175::WARNING: Could not dup STDERR to STDOUT: Bad file descriptor 1702719391::WARNING: A new file was added to xml alarm files...reparsing xml... 1702719391::WARNING: FILE: /usr/TKLC/plat/etc/alarms/lsmsAlarms.xml
13.	☐	☐	**MPS X:** Verify LSMS release.	**# rpm -qi TKLClsms** [root@Waffle-A ~]# rpm -qi TKLClsms Name : TKLClsms Version : 14.0.5 Release : 14.0.0.0.0_140.6.0 Architecture: x86_64 Install Date: Thu 14 Dec 2023 10:20:01 AM EST Group : TKLC/Application Size : 303497021 License : TEKELEC 2004-2019 Signature : (none) Source RPM : TKLClsms-14.0.5-14.0.0.0.0_140.6.0.src.rpm Build Date : Wed 13 Dec 2023 02:37:55 PM EST Build Host : coach-14.tekelec.com Relocations : (not relocatable) Packager : <Open Systems> Vendor : Tekelec URL : http://www.tekelec.com/ Summary : Oracle Communications LSMS Package Description : This is the Oracle Communications LSMS Package. The package installs LSMS software. Local Service Management System (LSMS) is a secure and reliable Local Number Portability (LNP) system.
		This procedure is complete!		

Procedure 11 - CONFIGURE NETWORK INTERFACE USING PLATCFG UTILITY

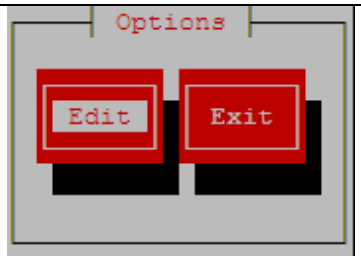
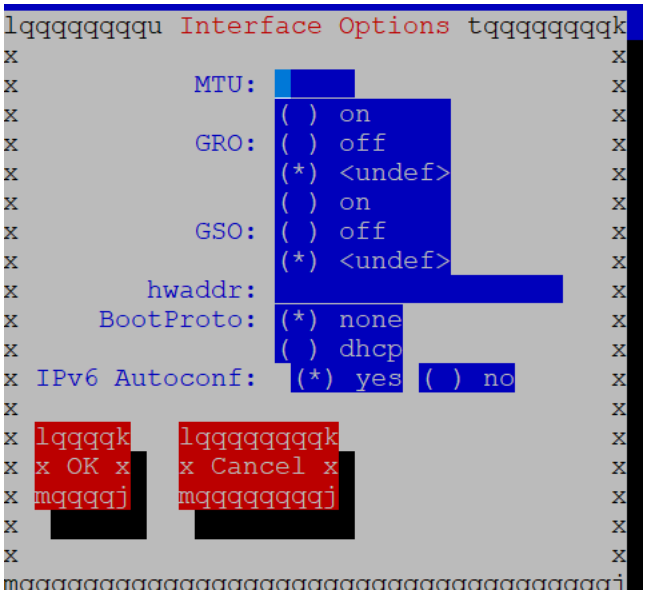
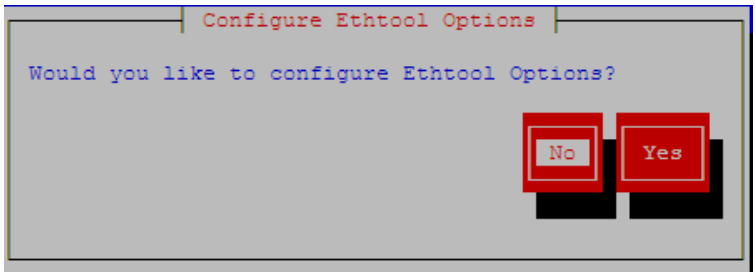
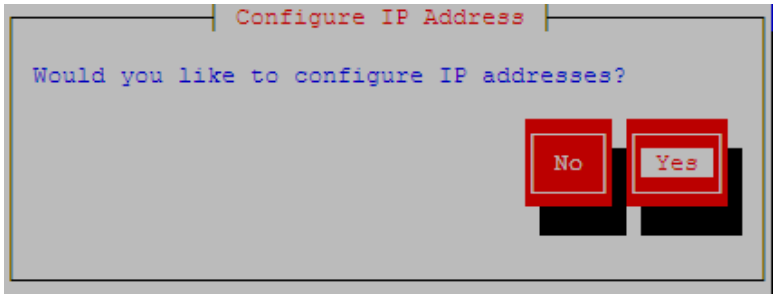
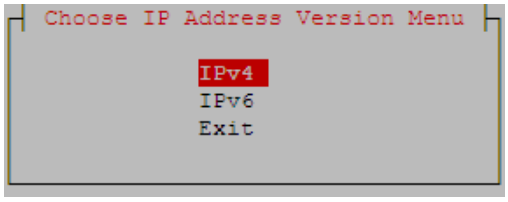
Procedure 11 – Configure Network Interfaces using platcfg utility

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**

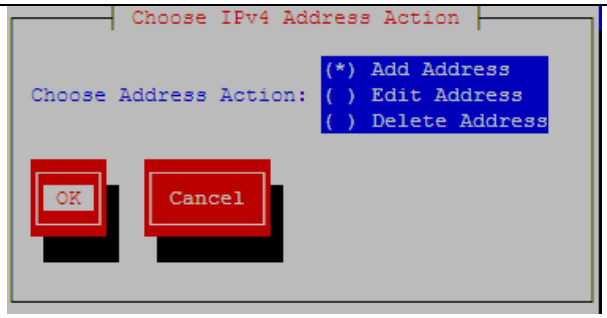
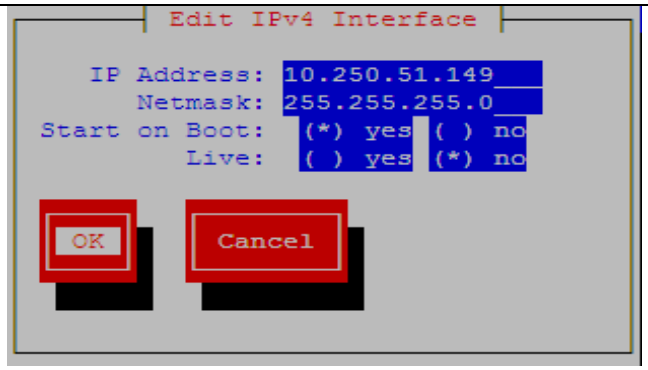
Procedure 11 – Configure Network Interfaces using platcfg utility

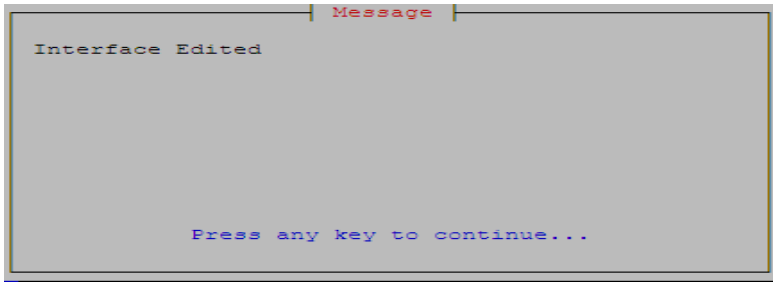
3.	☐	**MPS X:** Configure Network Interface	   

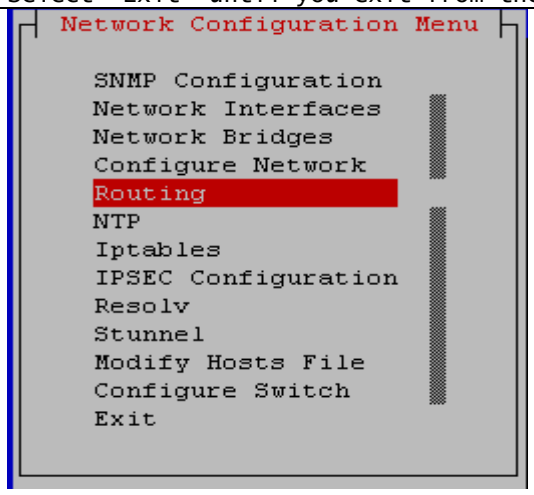
Procedure 11 – Configure Network Interfaces using platcfg utility

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

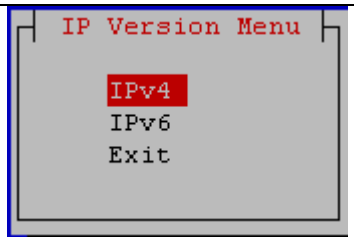
Procedure 11 – Configure Network Interfaces using platcfg utility

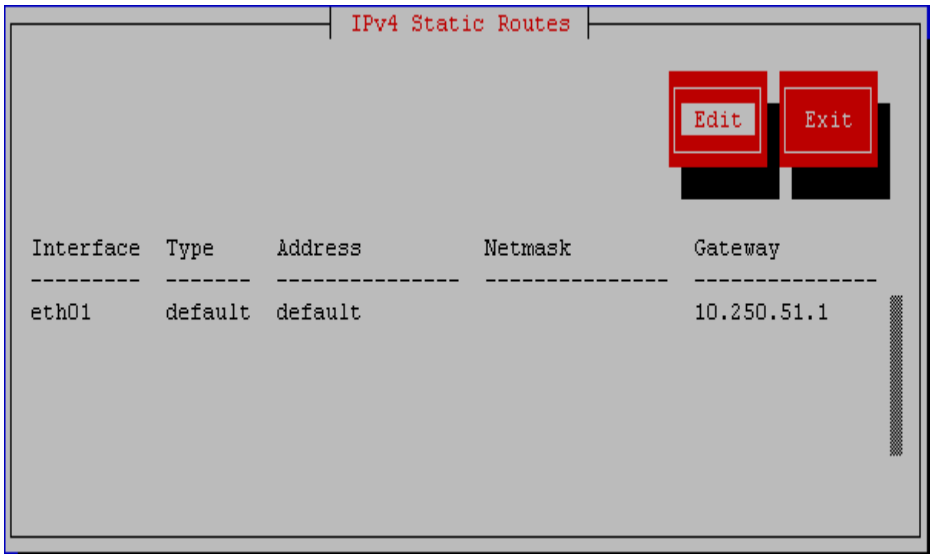
<table>
<tr><td></td><td></td><td></td><td> 
</td></tr>
<tr><td>5.</td><td>☐</td><td>MPS X:
Input the Interface Address</td><td> 

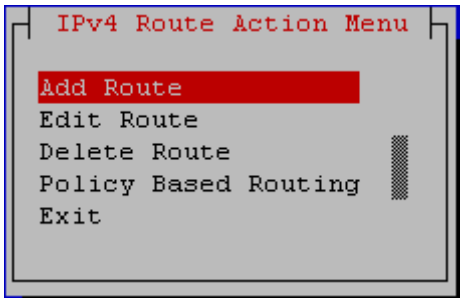
 

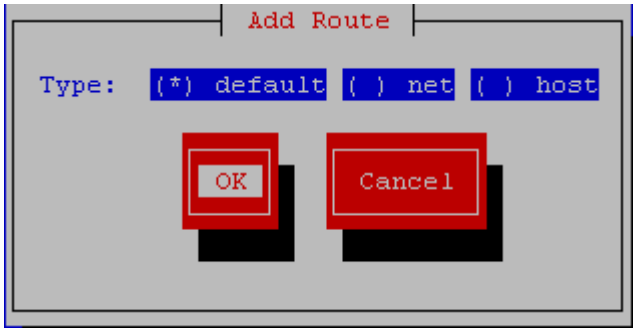
Select “Exit” until you exit from the platcfg utility.</td></tr>
<tr><td>6.</td><td>☐</td><td>MPS X:
Configure default route.</td><td> 
</td></tr>
</table>

Procedure 11 – Configure Network Interfaces using platcfg utility

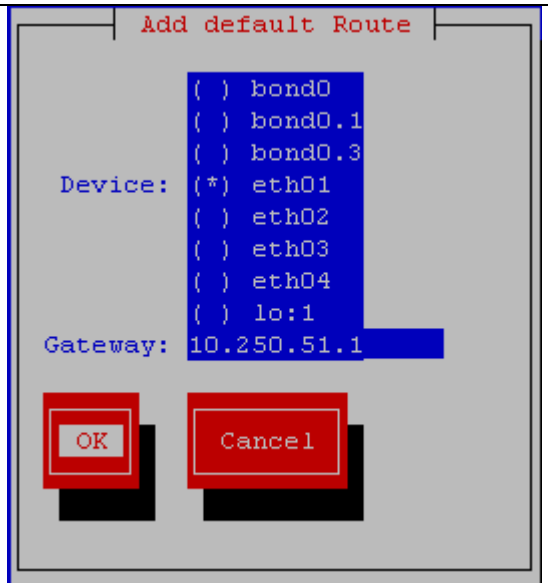








Procedure 11 – Configure Network Interfaces using platcfg utility



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

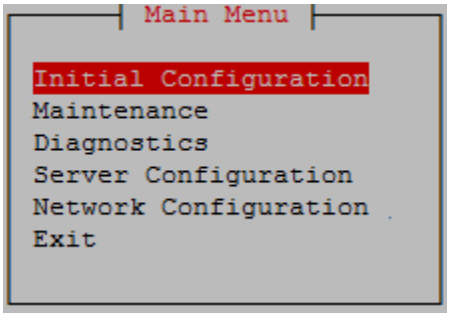
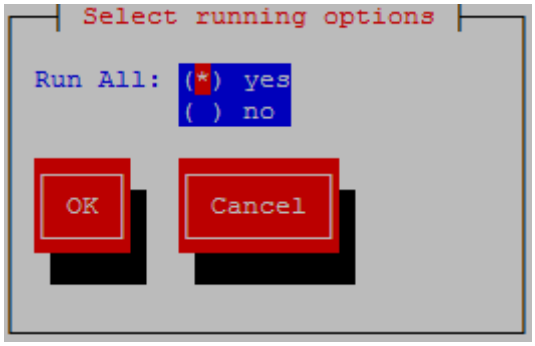
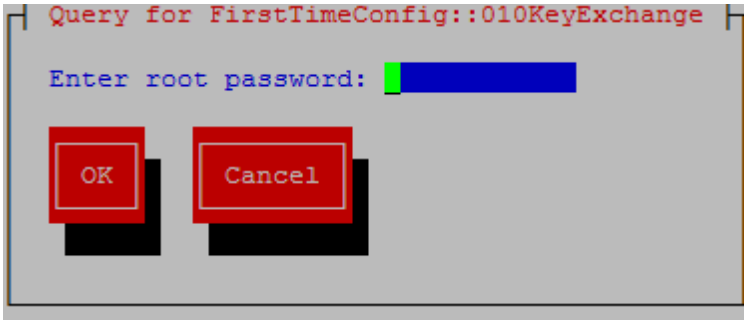
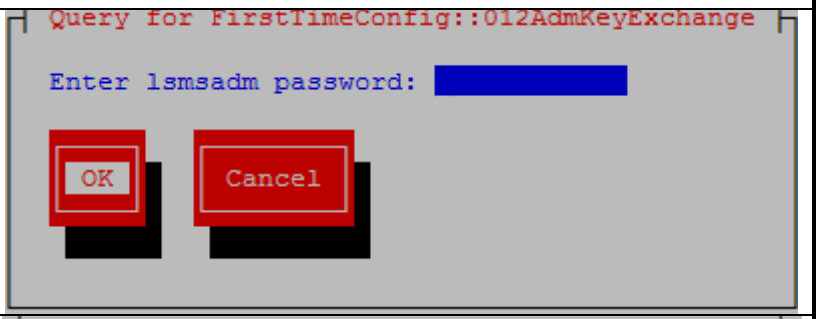
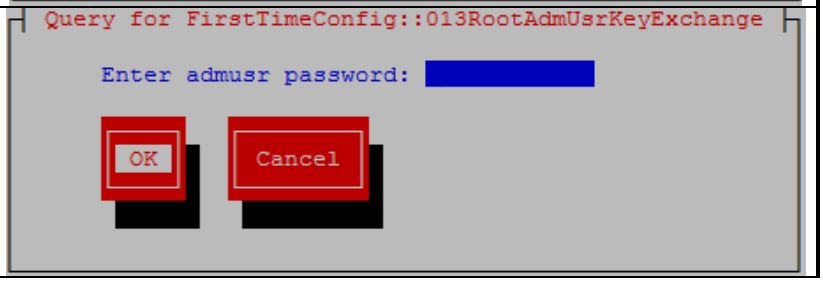
3.6 Initial Configuration

Procedure 12 - LSMS INITIAL CONFIGURATION

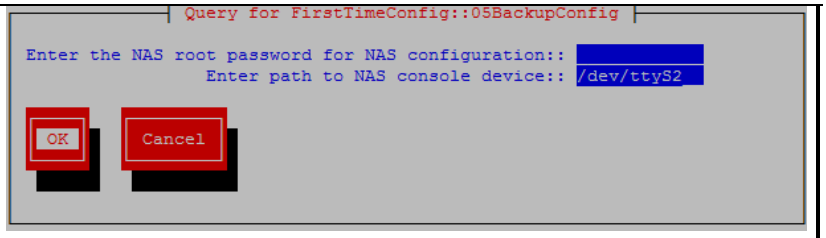
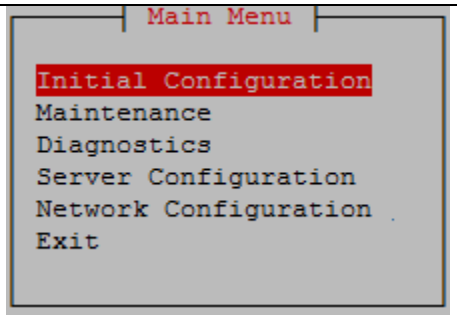
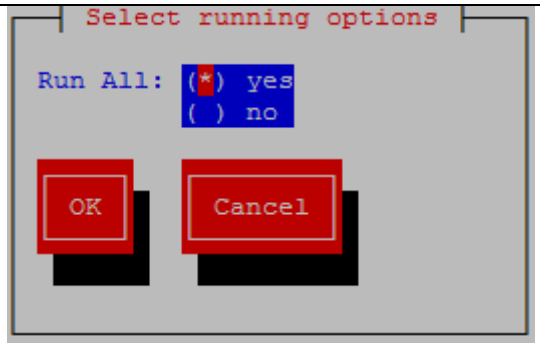
Procedure 12 - LSMS Initial Configuration

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**

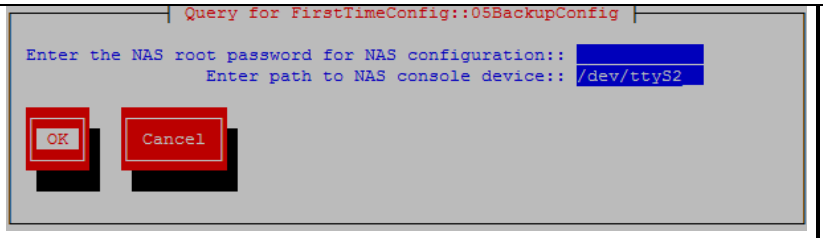
Procedure 12 - LSMS Initial Configuration

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]**	

Procedure 12 - LSMS Initial Configuration

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]**	

Procedure 12 - LSMS Initial Configuration

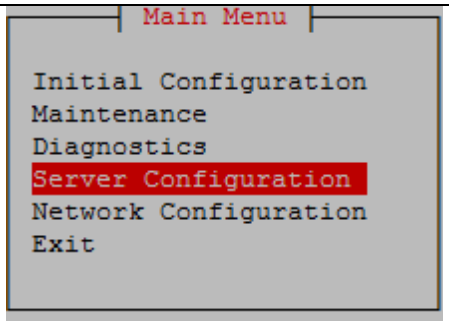
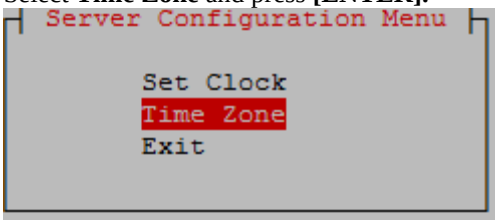
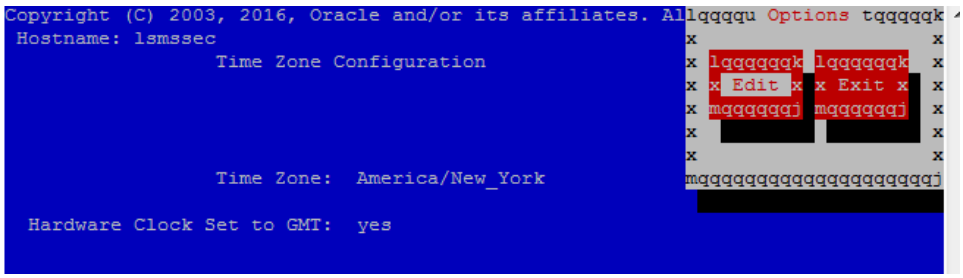
14. ☐	**MPS B:** Enter the NAS password used to login into NAS console. Select **OK** and press **[ENTER]**	
15. ☐	A message is displayed indicating the Database creation was successful. A message is displayed indicating the NAS Backup Configuration was successful. Select **Exit** and press **[ENTER]** 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

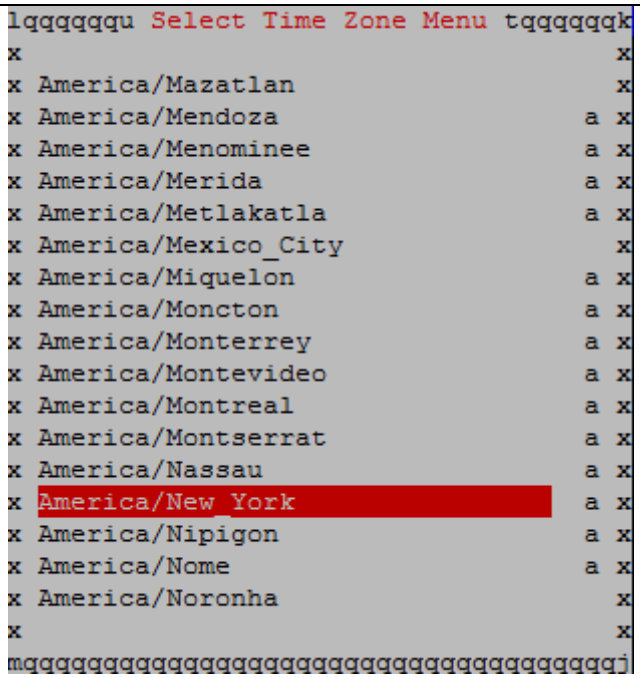
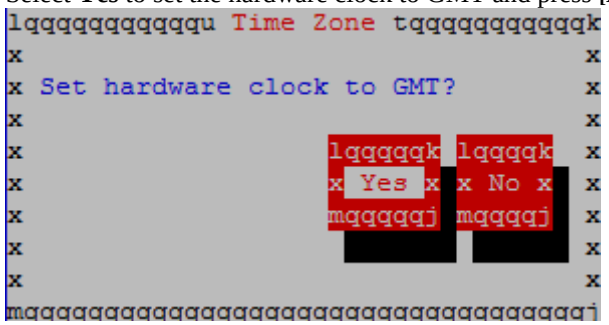
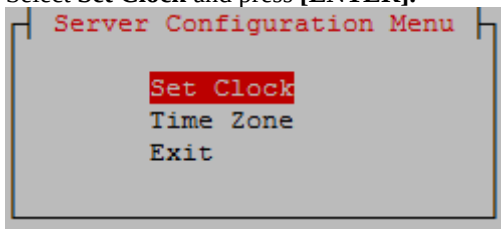
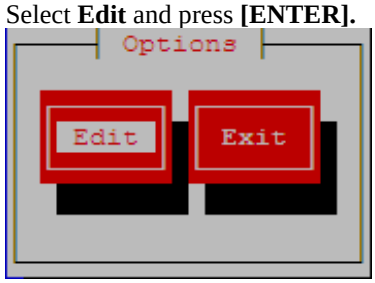
Procedure 13 – Configure Time Zone and Clock.

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].**

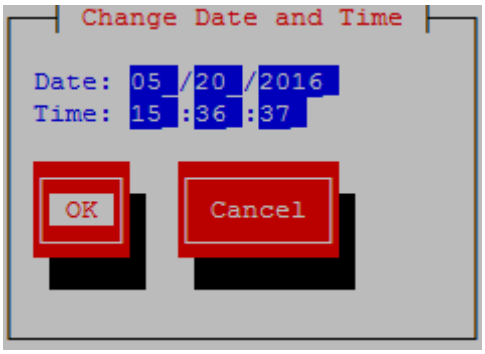
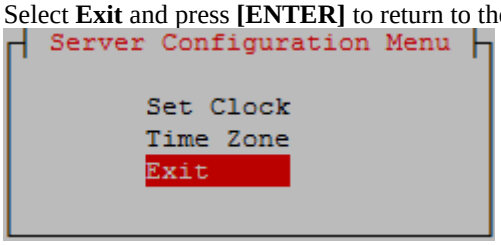
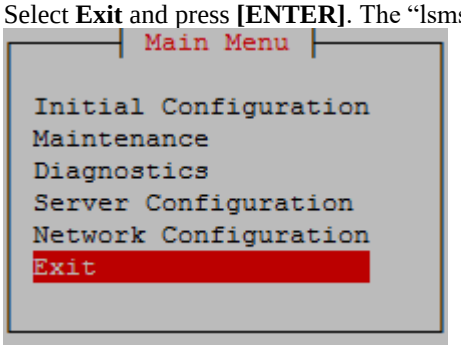
Procedure 13 – Configure Time Zone and Clock.

		 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].**

Procedure 13 – Configure Time Zone and Clock.

		 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].** 

Procedure 13 – Configure Time Zone and Clock.

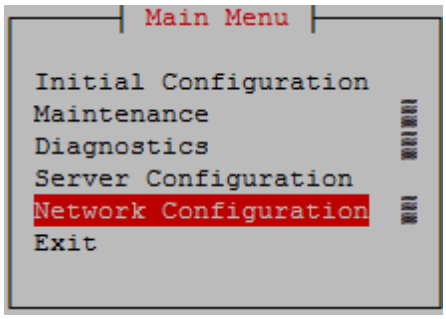
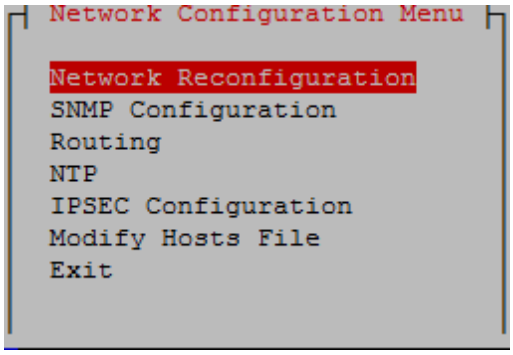
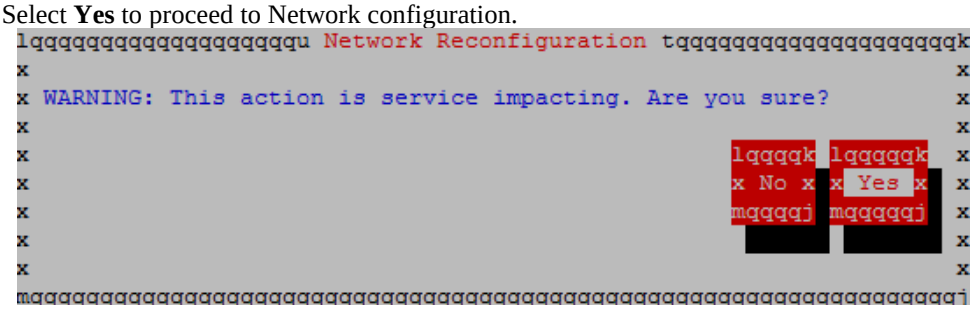
		Enter correct time.  Use right arrow to get to **OK** and press **[ENTER].**
6. ☐	**MPS X:** Exit the lsmsmgr menu	Select **Exit** and press **[ENTER]** to return to the **Main Menu**.  Select **Exit** and press **[ENTER]**. The "lsmsmgr" utility terminates. 
This procedure is complete!		

Procedure 14 - SINGLE SUBNET CONFIGURATION FOR LSMS MPS CARDS

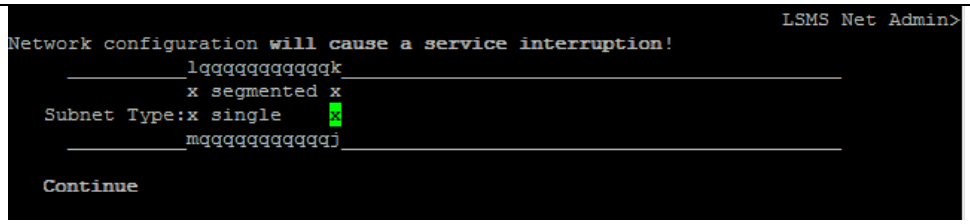
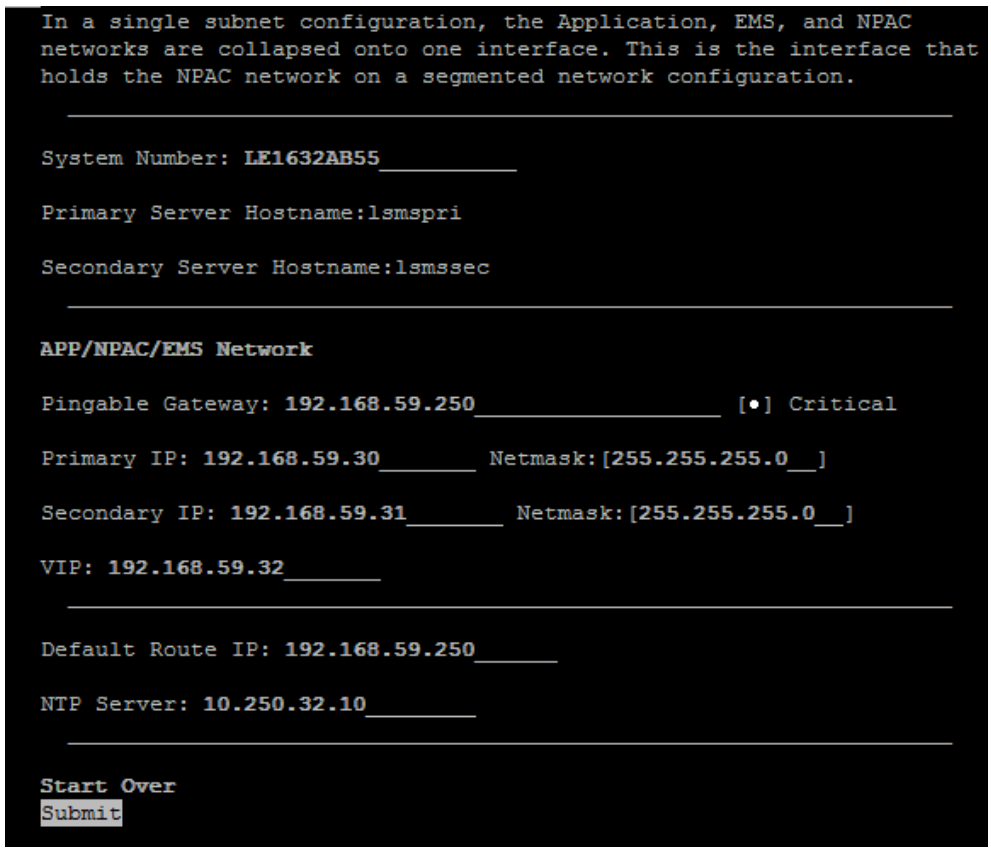
Procedure 14 - Single Subnet Configuration for LSMS MPS Cards.

STEP #	This procedure configures the system as single subnet at the customer site. Estimated time: 10 minutes	
1. ☐	**MPS A:** Log in to the server as the user "root".	`Login: root` `Password: <root_password>`

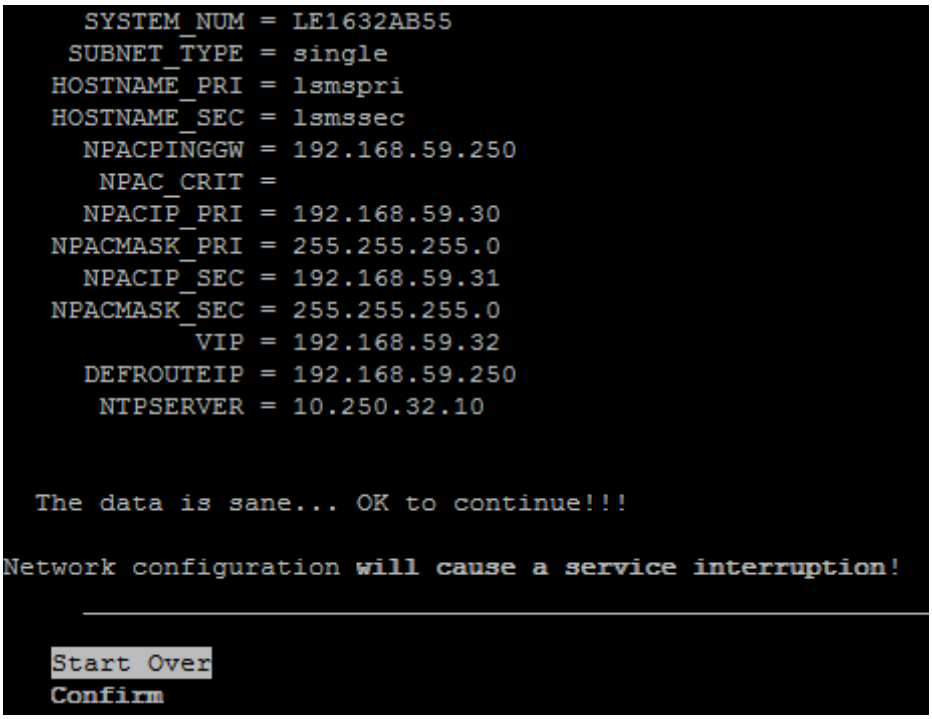
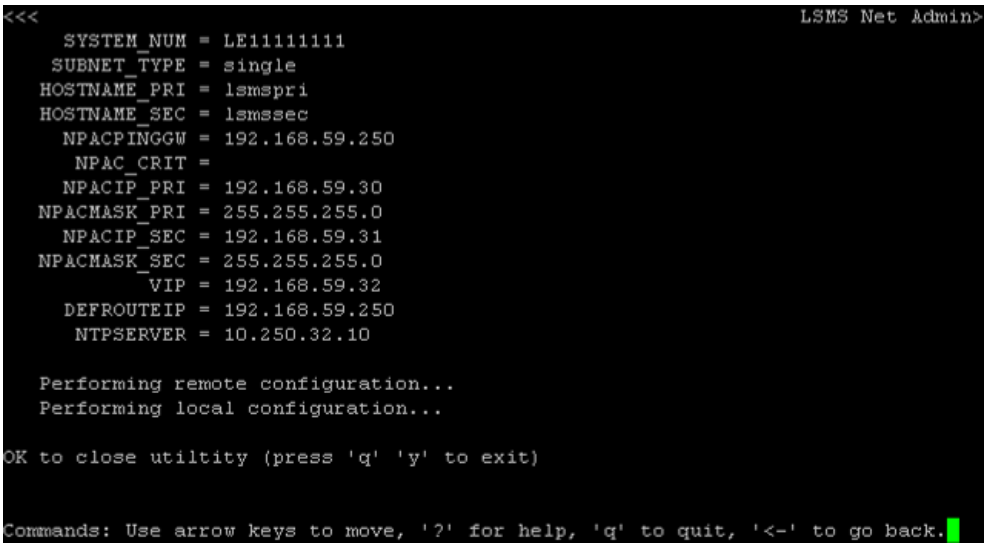
Procedure 14 - Single Subnet Configuration for LSMS MPS Cards.

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**.

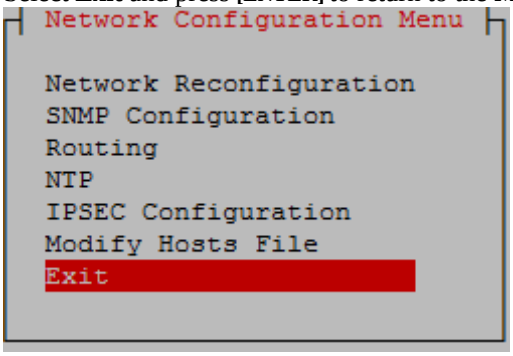
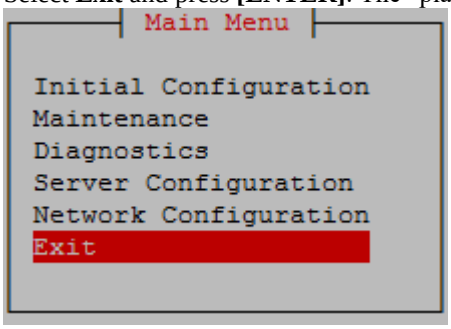
Procedure 14 - Single Subnet Configuration for LSMS MPS Cards.

		
4. ☐	**MPS A:** Enter network values.	Using the up and down arrows, scroll through the text fields, entering the desired values (to enter the netmask, highlight the field and then use the enter key or right arrow key to display the dropdown menu, choose the desired value from the list) for each fields:  Once the values are entered press the down arrow to select the “Submit” button and press the right arrow to follow the link. **Note:** The System Number shall be as follows: • LEYYWWMMXX • Where: 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

Procedure 14 - Single Subnet Configuration for LSMS MPS Cards.

	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 F. Type "**q**" and then "**y**" to exit the Network Configuration. 

Procedure 14 - Single Subnet Configuration for LSMS MPS Cards.

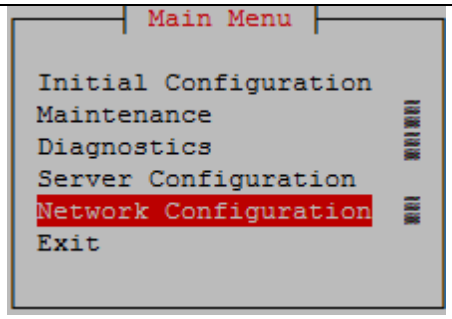
5. ☐	**MPS A:** Exit the lsmsmgr menu	Select **Exit** and press **[ENTER]** to return to the **Main Menu**.  Select **Exit** and press **[ENTER]**. The "platcfg" utility terminates. 
This procedure is complete!		

Procedure 15 - SEGMENTED CONFIGURATION FOR LSMS CARDS

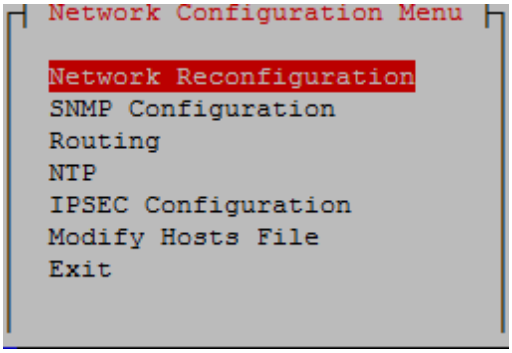
Procedure 15 - Segmented Configuration for MPS LSMS Cards

STEP #	This procedure configures the system as segmented subnet at the customer site. Estimated time: 10 minutes	
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]**.

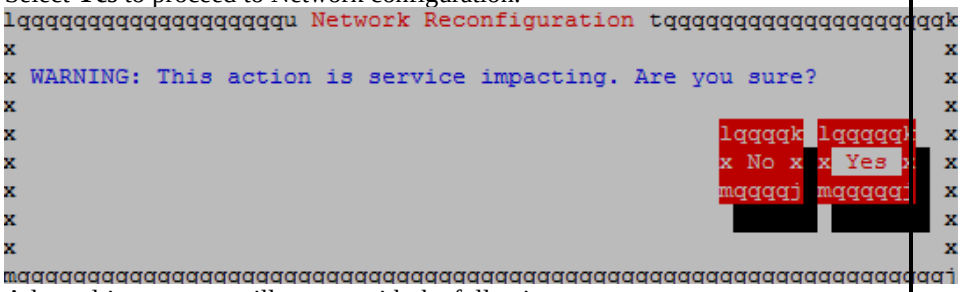
Procedure 15 - Segmented Configuration for MPS LSMS Cards



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



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

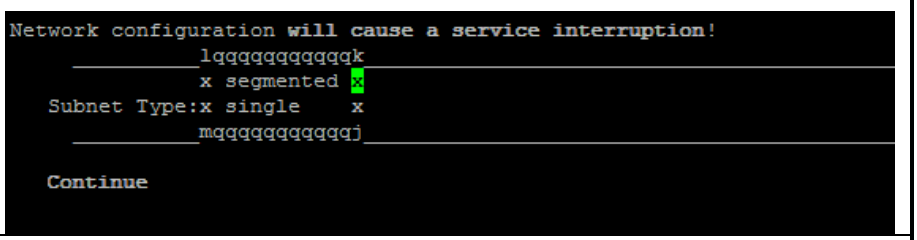


A lynx driven screen will appear with the following prompt;

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

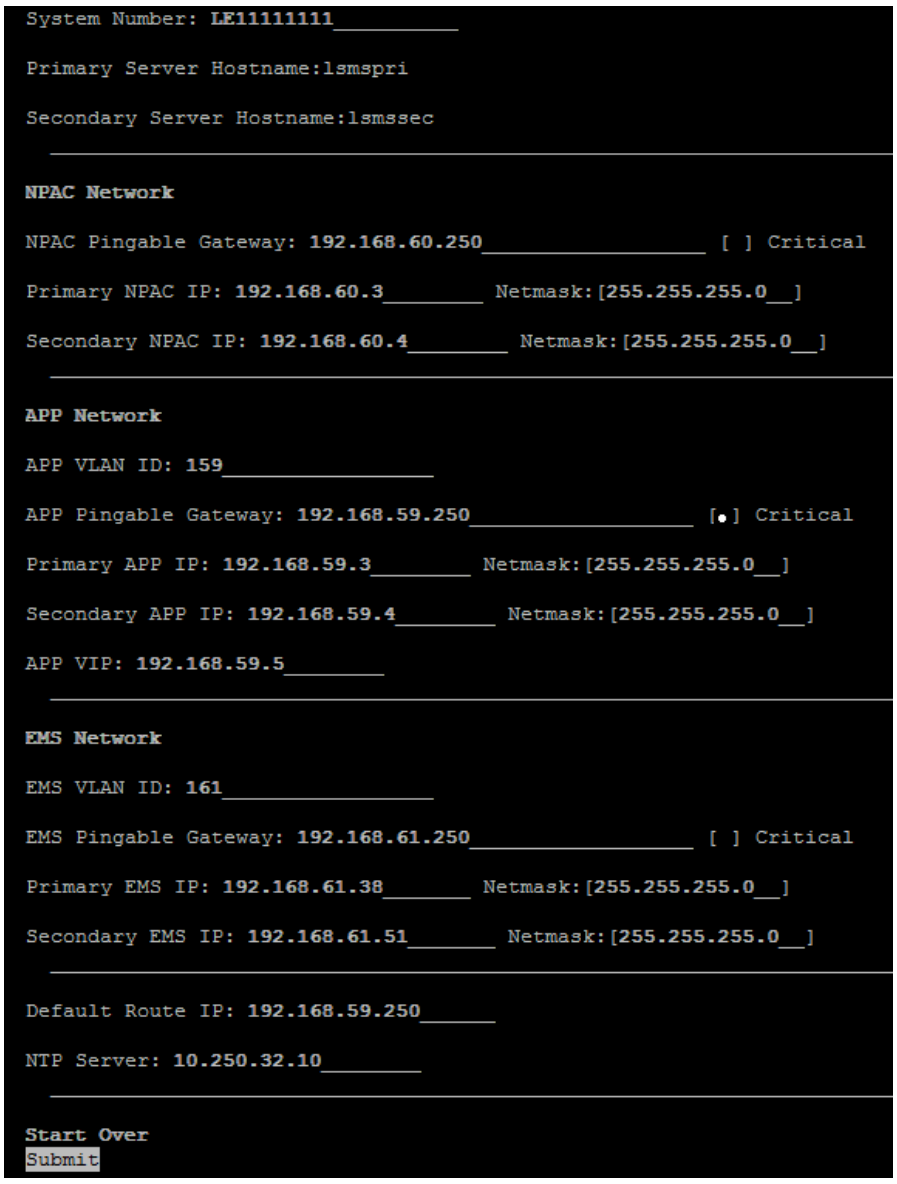
Type “Y/y” to continue and the next screen will appear and press the right arrow key to follow the link

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

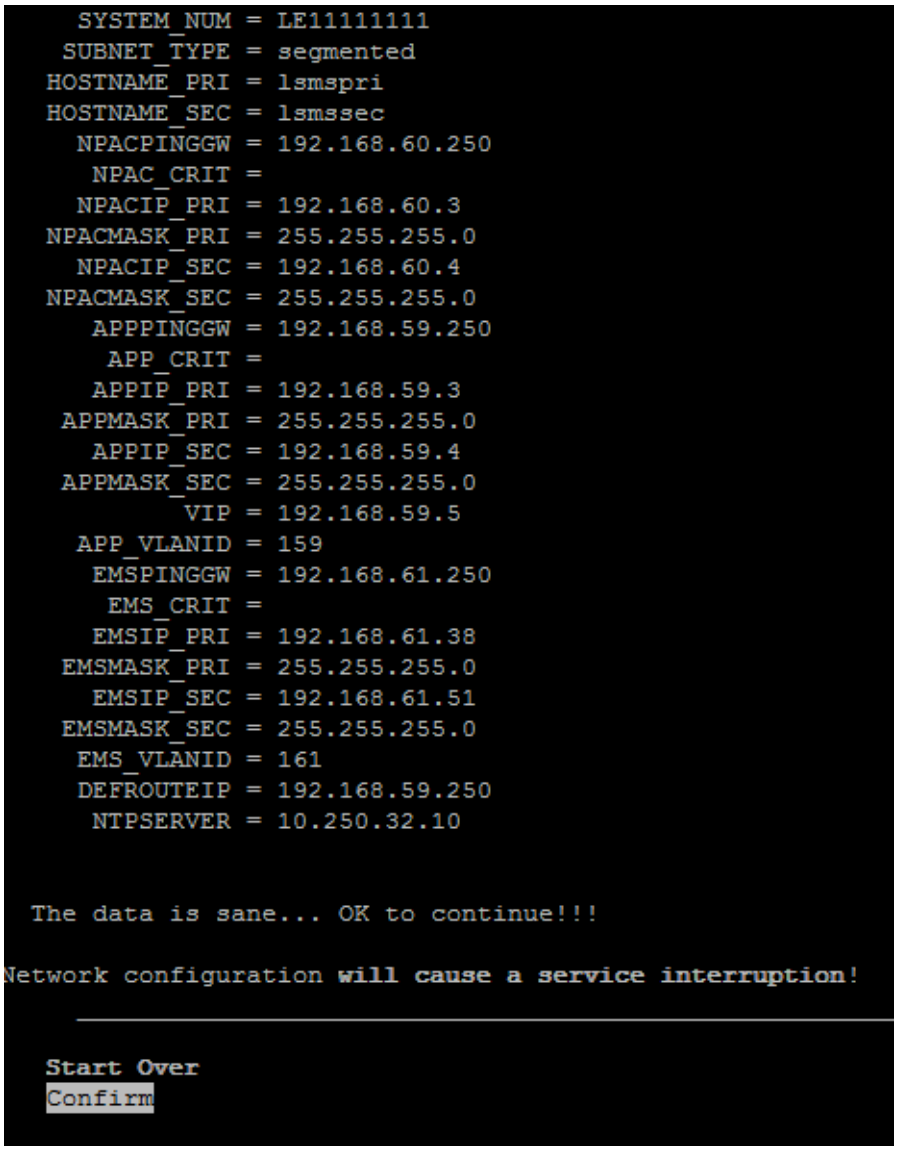


4. ☐	**MPS A:** Enter network values.	Using the up and down arrows, scroll through the text fields, entering the desired values (to enter the netmask, highlight the field and then use the enter key or right

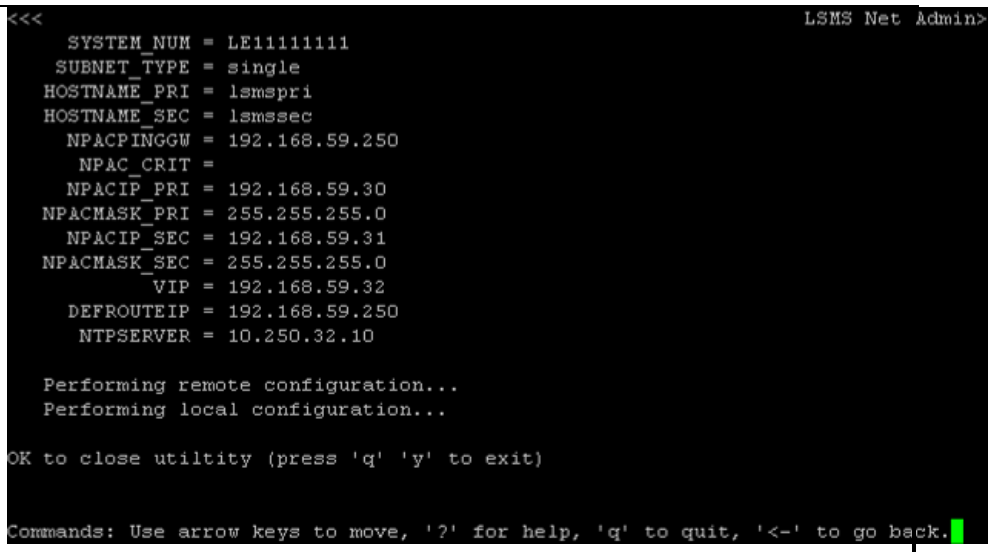
Procedure 15 - Segmented Configuration for MPS LSMS Cards

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

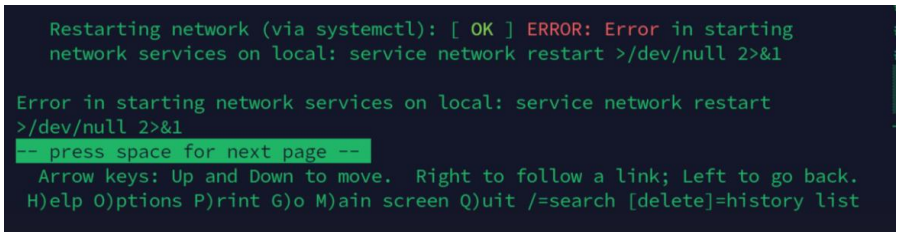
Procedure 15 - Segmented Configuration for MPS LSMS Cards

		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 F. Type "**q**" and then "**y**" to exit the Network Configuration.

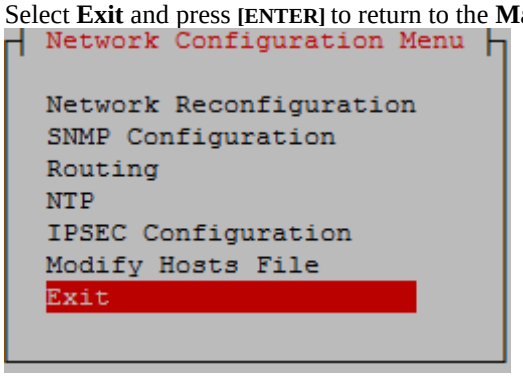
Procedure 15 - Segmented Configuration for MPS LSMS Cards



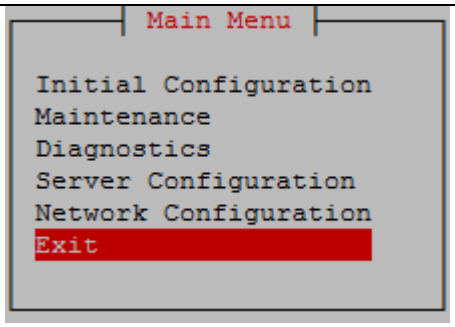
NOTE: If below error is observed after network configuration, run "systemctl restart network" command after exiting from lsmsmgr menu.



 # systemctl restart network

6. ☐	**MPS A:** Exit the lsmsmgr menu	Select **Exit** and press **[ENTER]** to return to the **Main Menu**.  Select **Exit** and press **[ENTER]**. The "platcfg" utility terminates.

Procedure 15 - Segmented Configuration for MPS LSMS Cards

		
This procedure is complete!		

Procedure 16 - TMN TOOLKIT AND MARBEN OSI LICENSE INSTALLATION

Note: Valid Licenses need to be installed on both A and B LSMS servers. Follow procedure mentioned in 3.7Appendix D.

Contact NE Technologies Inc. to get a valid license file by providing

1. **host name, lsmspri for A and lsmssec for B; and**
2. **Mac address for Ethernet interface eth01 (interface name after IPM'ed but before LSMS installation) or eth0 (interface name after LSMS installation).**

Procedure 16 - TMN Toolkit and Marben OSI License Installation

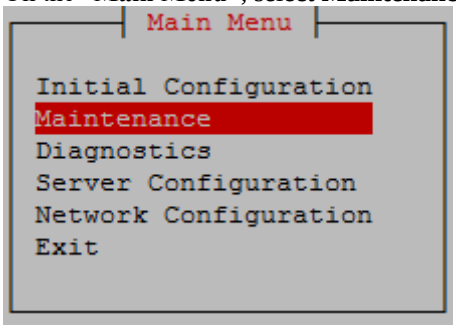
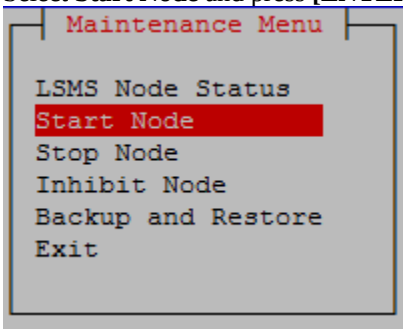
STEP #				
			This procedure will install the TMN Toolkit and Marben OSI License to both A and B LSMS servers. Estimated time: 5 minutes	
1.	☐	☐	**MPS X:** Log in to the server as the user "root"	`Login: root` `Password: <root_password>`
2.	☐	☐	**MPS X:** Install the TMN toolkit license file	Copy the TMN Toolkit license file to **/usr/local/netech/etc/license** path following any steps mentioned in **3.7C.1** or **3.7C.2**
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

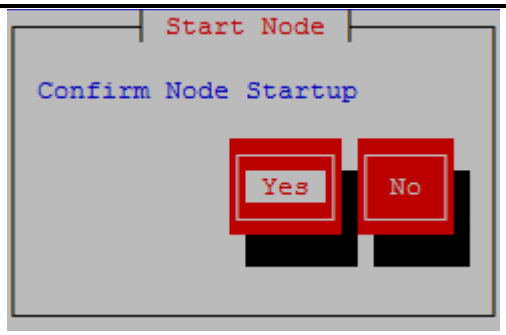
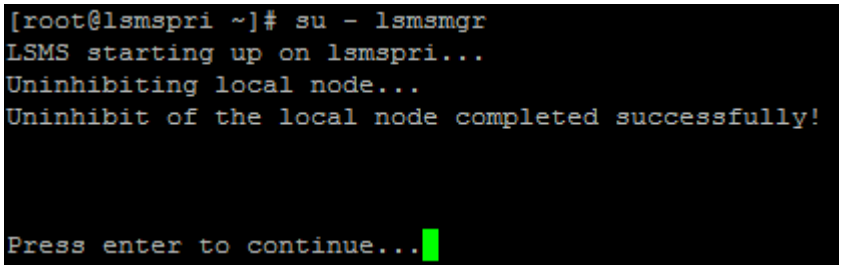
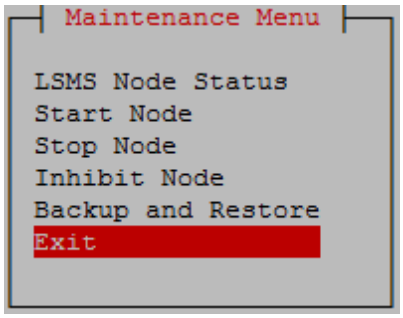
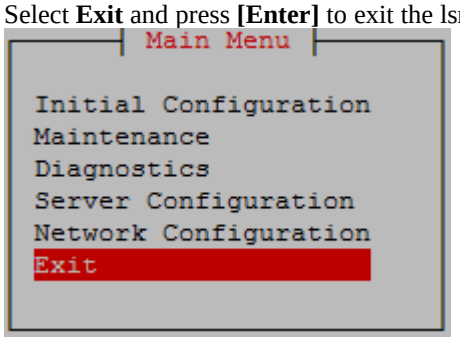
Procedure 17 - Start LSMS services

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>`

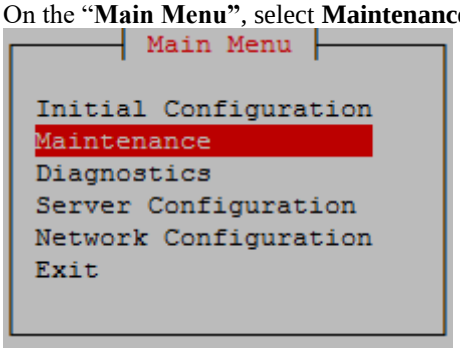
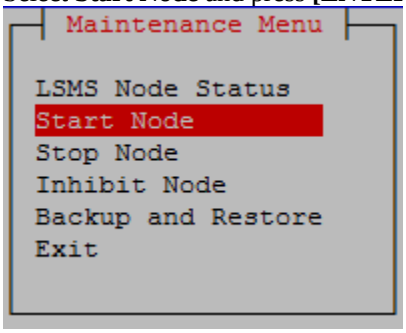
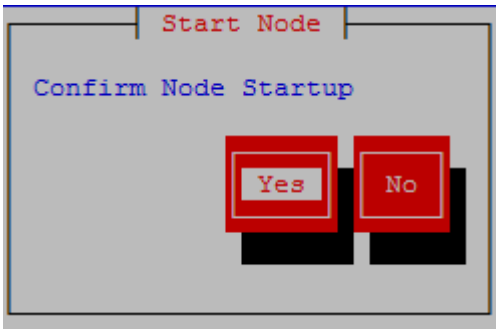
2.
☐
	MPS A : Check hastatus	`Run below command to check lsms status is UNINITIALIZED "INHIBITED" before running startNode`
		# hastatus
		UNINITIALIZED
		`if status is UNINITIALIZED and not UNINITIALIZED "INHIBITED" run hafailover else continue with Step 3.`
		# /usr/TKLC/plat/sbin/hafailover --inhibit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

Procedure 17 - Start LSMS services

		 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>**

Procedure 17 - Start LSMS services

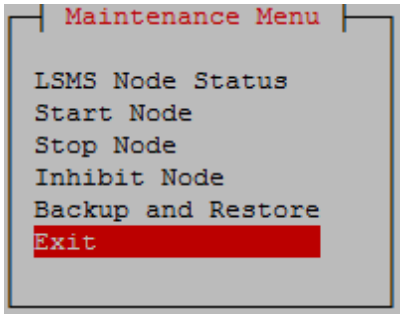
7. ☐	**MPS B:** Start lsmsmgr	`# su - lsmsmgr`
8. ☐	**MPS B:** Start Node - This will make node standby and start application	On the "**Main Menu"**, select **Maintenance** and press **[ENTER]**.  Select **Start Node** and press **[ENTER]**.  Select **Yes** to confirm node startup press **[Enter]**  Press **Enter** once the node is uninhibited successfully.

Procedure 17 - Start LSMS services

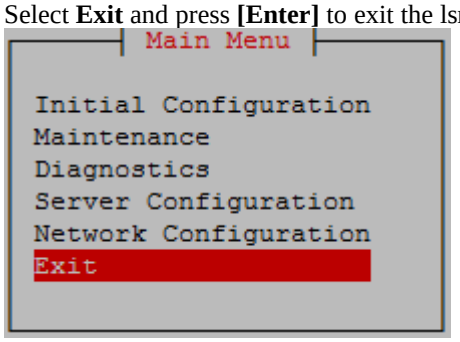
```
[root@lsmssec ~]# su - lsmsmgr
LSMS starting up on lsmssec...
Checking status from active mate...
Running status on lsmspri node
Copying DB from active mate. Local node will become standby.
  This may take a while
LSMS shutting down lsmssec...
Syncing Binary Logs ...
Syncing mate:/mnt/snap/ to /var/TKLC/lsms/db/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

STEP #	This procedure determines the health of the Server after an installation. This procedure will perform a syscheck on each LSMS server. Estimated time:5 minutes	
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 F.
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 F.
4.	**MPS A and B:**	**# syscheck**

Procedure 18 – Post Configuration Health Check

☐	Execute 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 F. Capture the output from this command and make it available to Oracle Technical Services if required.
This procedure is complete!		

3.7 Data Migration

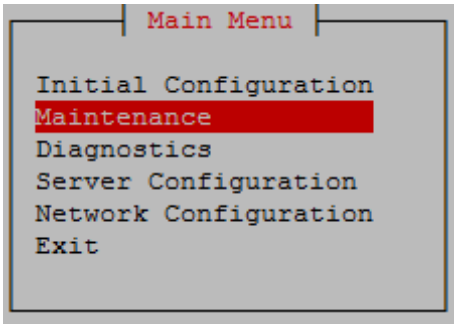
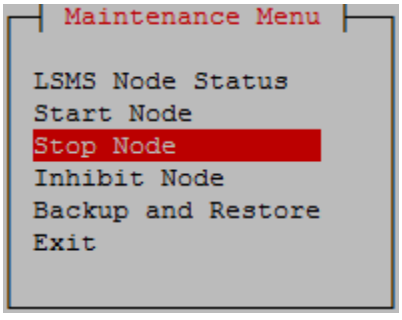
Procedure 19 - RESTORE DATABASE

Procedure 19 - Restore Database

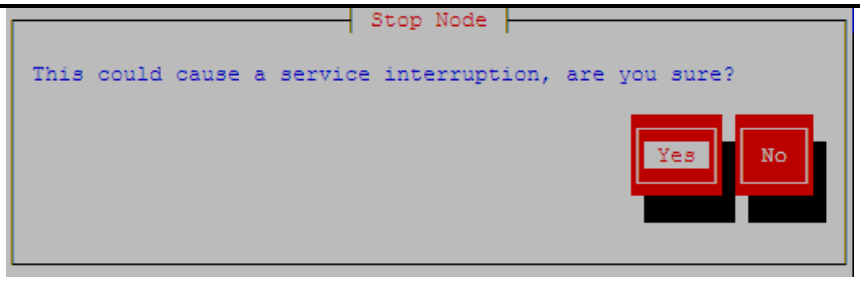
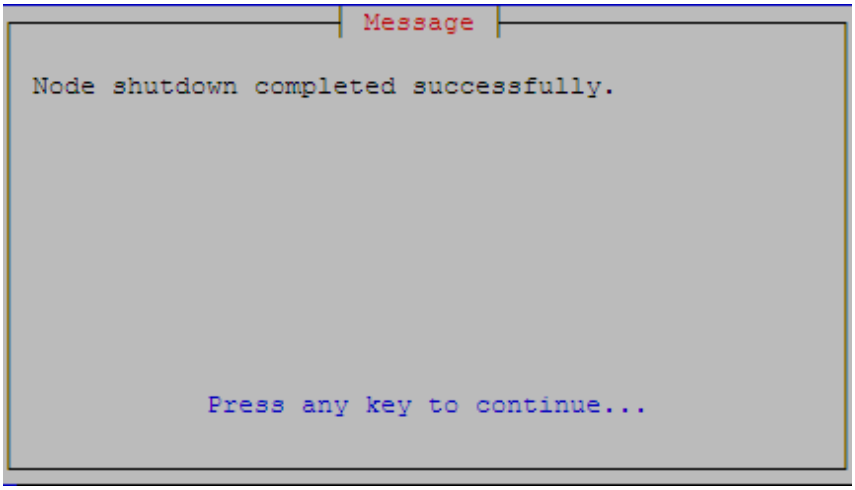
STEP #	This procedure restores the database on the LSMS server. Estimated time:60 minutes	
1. ☐	**MPS A server:** Log in to the server as the user "root".	Login: **root** Password: **<root_password>**

Procedure 19 - Restore Database

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`  

Procedure 19 - Restore Database

		  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 F.

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>`

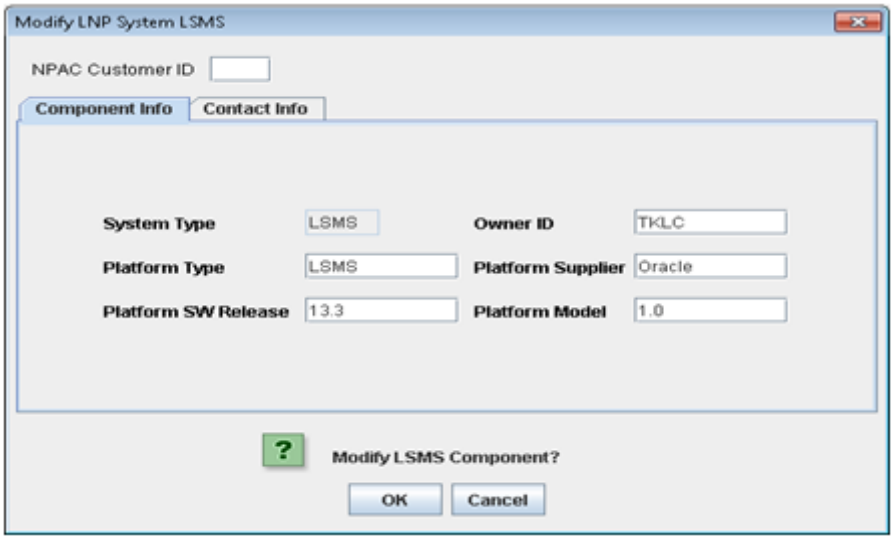
6. ☐	**MPS A server:**
	Restore supDB and MySQL Users.
		Execute the below commands:
		`# systemctl start mysqld`
		Restore the 'supDB'
		`# mysql -udbroot -p[dbroot_password] supDB < /var/TKLC/lsms/free/supDBdump.sql`
		Restore MySQL users

Procedure 19 - Restore Database

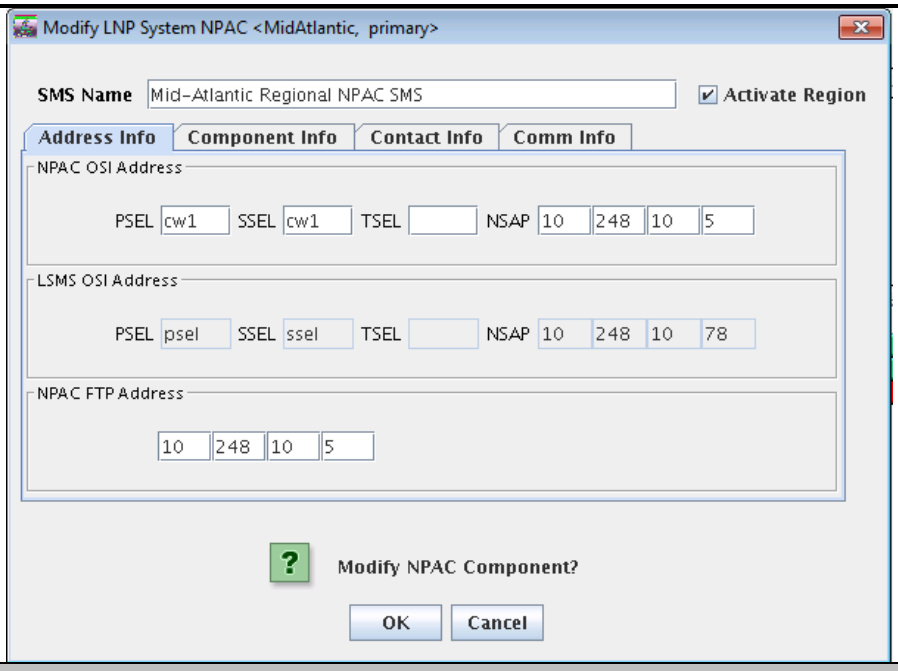
		# mysql -udbroot -p[dbroot_password] < /var/TKLC/lsms/free/MySQLUserGrants.sql **# stemctl stop mysqld** **Note:** Below warning message can be ignored if displayed: Warning: Using a password on the command line interface can be insecure.
7. ☐	**MPS A server:** Remove the snapshot files	Remove the snapshot 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. **# startNode**
10. ☐	**MPS A and B:** System Heath Check	Execute Procedure 17 - 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 25Procedure 6 - step 10. 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 6 - step 11. Otherwise, go to "Configure -> LNP System -> EMS -> Modify" and configure the ELAP Credentials recorded from LSMS 13.5.X.
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	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.

Procedure 20 - Connect LSMS to NPAC



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`

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

		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** *<u>/var/TKLC/lsms/free/mysql-snapshot-<NPAC region>.tar.gz</u>* **root@**<Query Server IP>**:/usr/mysql1** **# scp -p** *<u>/var/TKLC/lsms/free/snapinfo.sql</u>* **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

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

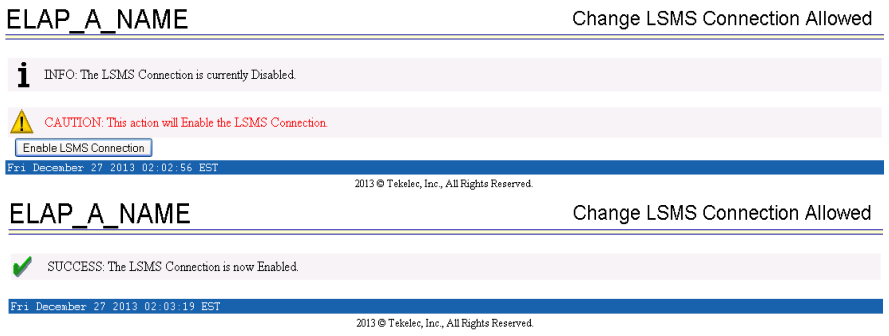
		Uploading *mysql-snapshot-<NPAC region>.tar.gz* sftp> put snapinfo.sql Uploading *snapinfo.sql* sftp> bye
6. ☐	**LSMS 14.0.X Query Server:** Login as root to the Query Server	login: **root** Password:<**root_password**>
7. ☐	**LSMS 14.0.X Query Server:** Shutdown the Mysql server	# **cd /opt/mysql/mysql/bin** # ./**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-slave-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 master;** Query OK, 0 rows affected (0.23 sec) mysql> **reset slave;** 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**

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

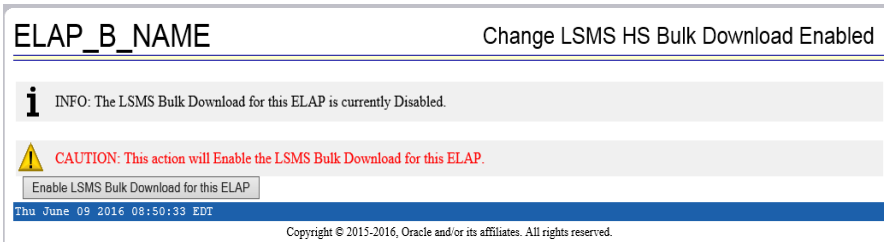
12. ☐	**LSMS 14.0.X Query Server:** Start the Mysql command line utility	**NOTE:** EMS changes may cause the Query server to disconnect. These steps will help prevent the disconnect. login: **root** **# /opt/mysql/mysql/bin/mysql –u root –p**
13. ☐	**LSMS 14.0.X Query Server:** Prepare the Query Server for the EMS Configuration	mysql> **SET GLOBAL SQL_SLAVE_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 - CONNECT LSMS 14.0.X TO ELAP

Procedure 22 - Connect LSMS to ELAP

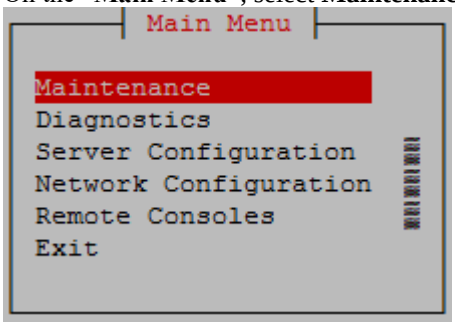
STEP #	This procedure connects the LSMS to ELAP. Estimated time:10 minutes	
1. ☐	**ELAP Active server:** Login to ELAP GUI	Login to ELAP GUI through VIP as uiadmin.
2. ☐	**ELAP Active server:** Enable the LSMS Connection	Go to menu Maintenance -> LSMS Connection -> Change Enabled Click on 'Enable LSMS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

Procedure 22 - Connect LSMS to ELAP

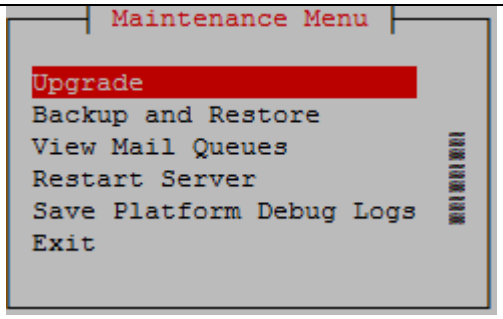
3.	**ELAP Active server:** Enable the bulkload.	Go to menu Maintenance -> LSMS HS Bulk Download -> Change Enabled Click on 'Enable LSMS Bulk Download for the ELAP' button.  After clicking on the button,success message will be displayed. SUCCESS The LSMS HS Bulk Download is now enabled.
This procedure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

Procedure 23 - ACCEPT THE UPGRADE

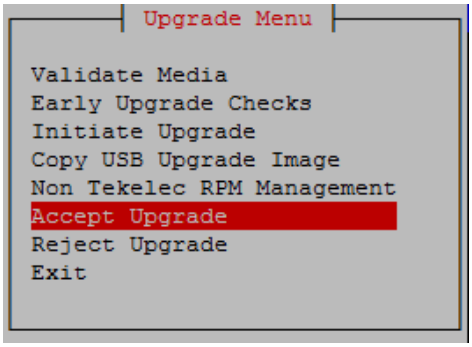
Procedure 23 – Accept the upgrade.

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]**.

Procedure 23 – Accept the upgrade.

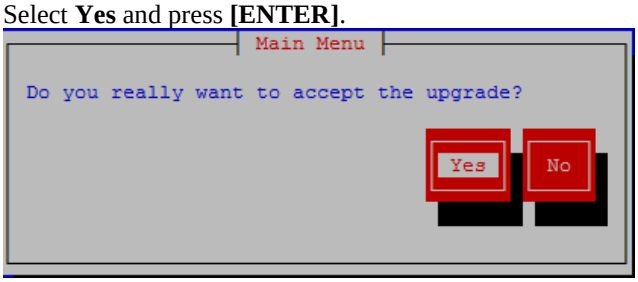


Select the "**Accept Upgrade"** menu and press **[ENTER]**.



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
```

Procedure 23 – Accept the upgrade.

					
		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

S T E P #	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- 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

STEP #		
	This procedure provides the steps to start and verify Replication on the query server **This step is performed only if a query server exists in the customer system.** Estimated time:30 minutes	
1. ☐	**LSMS 14.0.X Query Server:** Start Replication.	mysql> **start slave;** Query OK, 0 rows affected (0.00 sec)
☐	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> **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 F 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. PROCEDURE TO PROCURE TMN AND MARBEN LICENSES

This procedure describes the steps to collect data for procuring the TMN and Marben licenses. These licenses are bases on hardware ID and hostname of the server. User will have to provide below information to Artifex team to get the licenses.

Get below information from both primary and secondary servers:

```
# ifconfig eth0
eth0      Link encap:Ethernet  HWaddr 00:00:17:0F:2C:9D
          inet addr:10.75.140.10  Bcast:192.168.61.255  Mask:255.255.255.0
          inet6 addr: 2606:b400:605:b915:200:17ff:fe0f:2c9d/64 Scope:Global
          inet6 addr: fe80::200:17ff:fe0f:2c9d/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:5154 errors:0 dropped:0 overruns:0 frame:0
          TX packets:6943 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:546690 (533.8 KiB)  TX bytes:732196 (715.0 KiB)
          Memory:fdee0000-fdefffff

#  /sbin/ifconfig -a | grep -i ether | grep eth0
eth0      Link encap:Ethernet  HWaddr 00:00:17:0F:2C:9D

# hostname
lsmspri
```

Below mentioned information is fixed for all LSMS running on 14.X release. So provide this information as it is:

```
# uname -r
4.18.0-477.27.0.1.el8_8.x86_64

# rpm -qa | grep -i TMN
TMN-DSGRT.6.0.1-2022.05.10.x86_64

# rpm -qa | grep -i marben
Marben-OSI-3.3a-2022.05.16.x86_64
```

Send this information to release@artifexltd.com , support@artifexltd.com and CC to dknaik@artifexltd.com

APPENDIX E. 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:

.

APPENDIX F. 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