Oracle® Communications LSMS

Upgrade/Installation Guide

Release 13.1

E61932 Revision 1

June 2015

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 I for instructions on accessing My Oracle Support.

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1. INTRODUCTION

1.1 Purpose and Scope

This document describes methods utilized and procedures executed to perform the following tasks:

a. An initial installation of the LSMS 13.1 application software if it is not currently installed on an in-service E5-APP-B system running a release of 32 bit version of TPD 5.5.1.
b. A software upgrade on an in-service E5-APP-B system running a release equal to 32 bit version of TPD 5.5.1 and LSMS Release 13.0.

Please note that the LSMS 13.1cannot be upgraded from any LSMS release older than 13.0. Migration has to be performed for such cases.

The audience for this internal document consists of Oracle customers and the following groups: Software System, Product Verification, Documentation, and Customer Service including Software Operations and NPI. This document provides step-by-step instructions to install or upgrade the LSMS application on an E5-APP-B.

This document does not address requirements relating to the interaction, if any, between Oracle Communication EAGLE and MPS upgrades. This document does not address feature activation.

1.2 References

1.2.1 External

None

1.2.2 Internal (Oracle)

The following are references internal to Oracle. They are provided here to capture the source material used to create this document. Internal references are only available to Oracle personnel.

[1] TEKELEC Acronym Guide, *MS005077, revision 2.35, Tekelec, September 2005.*

[2] Software Upgrade Procedure Template, *TM005074, Current Version, Tekelec*

[3] TPD Initial Product Manufacture User's Guide, 909-2130-001, Latest revision, Tekelec

[4] OC LSMS Product Functional Specification LSMS 13.1, PF006216, Latest revision, Tekelec

[5] *Electronic Software Release for 192 Million Number Project*, PD005306.doc, revision 1.4, Tekelec, May 2006.

[6] LSMS 12.0 Maintenance Manual, 910-5921-001, Current Version, Tekelec

[7] LSMS 12.0 Configuration Manual, 910-5923-001, Current Version, Tekelec

1.3 Software Release Numbering

Refer to Engineering Release Notes or other appropriate document with the most recent build numbers in order to identify the proper components (software loads etc.) that comprise the product's software release.

1.4 Acronyms

An alphabetized list of acronyms used in the document that are not included in [1]:

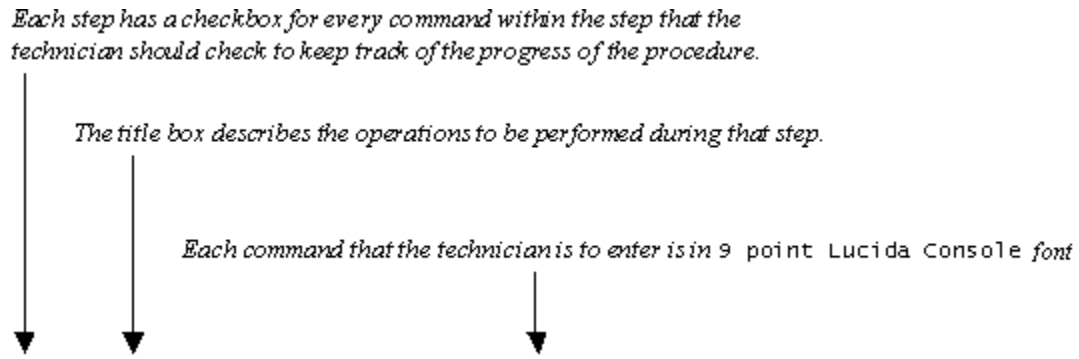
Table 1. Acronyms

E5-APP-B	Eagle5 Application Card class B cpu/board
GA	General Availability
IPM	Initial Product Manufacture
LA	Limited Availability
NPI	New Product Introduction

SCP	Secure Copy
SERVDI	Support ELAP Reload Via Database Image
SM	Service Module
TPD	Tekelec Platform Distribution
UTC	Universal Time Coordinated

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 ☐	Verify all materials required are present	Materials are listed in Material List (Section 3.1)

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

Also of note is the shading of the step number box. If a box is shaded completely black, this signifies there is a specific command to be entered. This is shown in Figure 2. If a box is not shaded at all, this signifies a step that needs to be performed but does not require a specific command be entered. This is shown above in Figure 1.

1 ■	**E5-APP-B:** Log in as the user "root"	`[hostname] consolelogin: root` password: *password*

Figure 2. Example of an instruction that performs a specific command

Other terminology follows.

Table 2. Terminology

Backout (abort)	The process to take a system back to a Source Release prior to completion of upgrade to Target release. Includes preservation of databases and system configuration.
Incremental upgrade	**Open Systems:** An upgrade that takes a target system from any given release to another release but not necessarily from the shipping baseline to the target release.
Incremental upgrade with Split-Mirror	An upgrade that uses split mirror technique to take target system from any given release to another release but not necessarily from the shipping baseline to the target release.
Accept split-mirror upgrade	The procedure performed after a split-mirror upgrade that re-mirrors disk partitions. This procedure must be run after a split-mirror upgrade (before the next upgrade) and it prevents backout to the source release.

Non-preserving upgrade	"Upgrade" that does not adhere to the standard goals of software upgrade methodology. The outcome of the execution is that the system is running on the Target Release, however the Source Release database is **not** preserved.
Rollback	The process to take a system from a Target Release back to a Source Release including preservation of databases and system configuration.
Source release	Software release to upgrade from.
Target release	Software release to upgrade to.
Upgrade media	USB media or ISO image for E5-APP-B.

1.6 Recommendations

This procedure should be followed thoroughly utilizing the steps as written. **When planning to upgrade the server, contact Oracle Customer Care at least 48 hours before the upgrade process has been planned to be initiated.** In the event any unexpected results are returned while executing steps in this procedure halt the activity and contact Oracle Customer Care for assistance.

Please read the following notes on procedures:

1. Any procedure completion times are estimates. Times may vary due to differences in database size, user experience, and user preparation.
2. The shaded area within response steps must be verified in order to successfully complete that step.
3. Output displayed in the procedures' response steps is presented. Actual output varies depending on system. Output is presented for reference only.
4. Where possible, command response outputs are shown as accurately as possible. However, exceptions may include the following:
   - Information such as ***time*** and ***date***.
   - ANY information marked with "***XXXX***." Where appropriate, instructions are provided to determine what output should be expected in place of "***XXXX***."
5. After completing each step and **at each point where data is recorded from the screen, *the technician performing the upgrade must check each step***. A checkbox has been provided beneath each step number for this purpose.
6. Captured data is required for future support reference if Oracle Technical Services is not present during the upgrade.
7. In procedures that require a command to be executed on a specific LSMS, the command is prefaced with 1A: or 1B:
8. User Interface menu items displayed in this document were correct at the time the document was published but may appear differently at time that this procedure is executed.

1.7 Requirements

- Screen logging is required throughout the procedure. These logs should be made available to Oracle Customer Care in the event their assistance is needed.
- Target-release USB media or ISO image
- The capability to log into a server, such as a PC with null modem cable for connection to serial port.
- The capability to log into the web GUI, such as a PC with Internet Explorer.

2. GENERAL DESCRIPTION

The LSMS application can be installed and upgraded based on the table below.

Table 3. Install-Upgrade paths

TPD Release for IPM	LSMS Initial Installation Release
5.5.1-75.20.0 (32-bit)	13.1.x
Upgrade Source Release	**Upgrade Destination Release**
13.0.x	13.1.y

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.

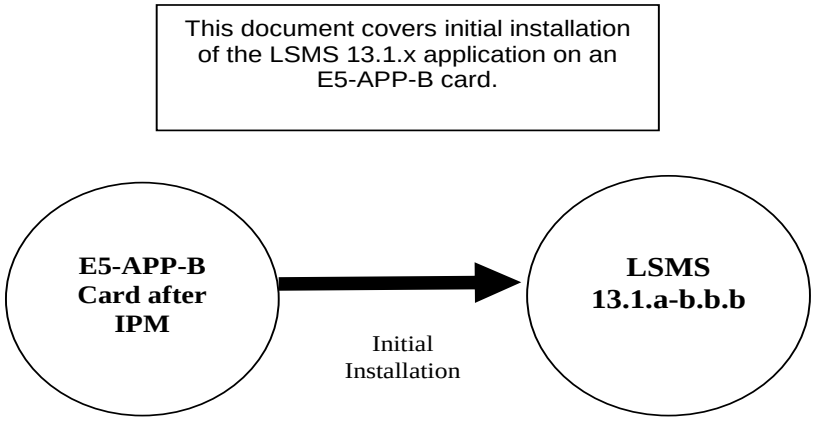


Figure 3: Initial Application Installation Path – Example shown

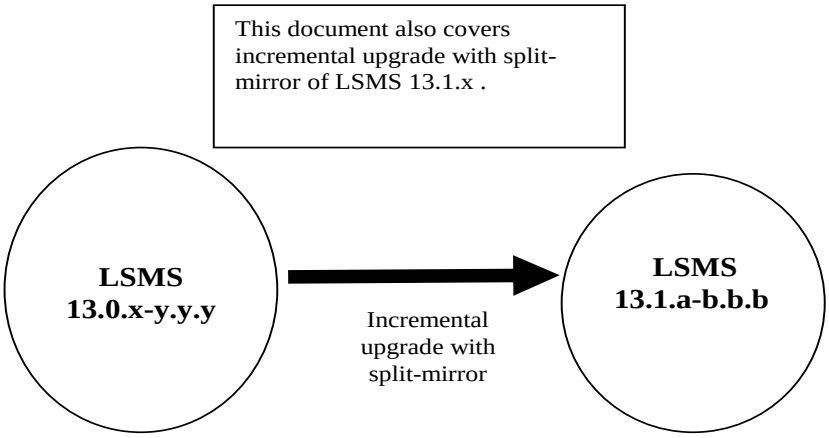


Figure 4: Incremental Upgrade With Split-Mirror Path - LSMS 13.1.x

*Note: Same procedure of upgrade (Incremental Upgrade with Split-Mirror) will be followed for all intermediate releases of 13.1.x

3. INSTALLATION/UPGRADE OVERVIEW

The general installation strategy is to install the IPM on the E5-APP-B server, then install the application.

3.1 Required Materials

- Two (2) target-release TPD-USB media and a target-release LSMS ISO file.
- A terminal and null modem cable to establish a serial connection.

3.2 Installation Phases

The general installation strategy is to IPM the E5-APP-B server and then install the application.

The following table illustrates the progression of the installation process by procedure with estimated times. The estimated times and the phases that must be completed may vary due to differences in typing ability and system configuration. The phases outlined in Table 4 are to be executed in the order they are listed.

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	**Cum.**		
Pre-install check and Connectivity setup	30	30	Verify requirements for install are met.	**Procedure 1**
Verify install	5	35	Verify this should be an install.	**Procedure 4**
IPM both servers (Optional)	90	125		**Procedure 22**
Pre-install health check	5	130	Run the syscheck utility to verify that all servers are operationally sound.	**Procedure 12**
Configure Server 1A	5	135	Set hostname, designation, and time.	**Procedure 5**
Configure Server 1B	5	140	Set hostname, designation, and time.	**Procedure 5**
Install Servers	30	170	Install software.	**Procedure 6**
Install TMN Toolkit License	5	175	Install TMN Toolkit License	**Procedure 8**
Post-install application processing	5	180	Perform first time configuration.	**Post-Initial Application** Processing
Post-upgrade health check	5	185	Run the syscheck utility to verify all servers are operationally sound.	**Procedure 10**
The following steps only need to be performed on the customer site.				
Site Configuration	15	200	Perform single subnet site specific configuration.	**Appendix B**

Table 4. Installation Phases

Note: E5-APP-B is generic term for E5-APP-B cards for LSMS13.1 E5-APP-B_02 cards will be used.

3.3 Incremental Upgrade with Split-Mirror Phases

The following table illustrates the progression of the upgrade process by procedure with estimated times and may vary due to differences in typing ability and system configuration. Incremental upgrade with split-mirror should be done on Server 1B first and then on Server 1A. The phases outlined in Table 5 are to be executed in the order they are listed.

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	Cum.		
Pre-install check and Connectivity setup	30	30	Verify requirements for upgrade are met.	**Procedure 1**
Verify incremental upgrade with split-mirror	5	35	Verify this should be an incremental upgrade.	**Procedure 4**
Pre-upgrade health check	5	40	Run the syscheck utility to verify the E5-APP-B server is operationally sound.	**Procedure 2**
Pre-upgrade Node status	5	45	Run the LSMS Node Status to verify that the server's HA states are operationally sound.	**Procedure 3**
Upgrade Servers	30	75	Execute the upgrade procedure on E5-APP-B servers.	**Procedure 7**
Post-upgrade health check	5	80	Run the syscheck utility to verify the E5-APP-B server is operationally sound.	**Procedure 10**
Accept Upgrade on Server 1A	*210	290	Accept the upgrade.	**Procedure 15**
Accept Upgrade on Server 1B	*210	500	Accept the upgrade.	**Procedure 15**

Table 5. Incremental Upgrade with split-mirror Phases

*NOTE: The re-mirroring of disks after accepting a major upgrade occurs automatically. The system is rebooted and the disk will be synced in the background; it takes between 3 to 4 hours to fully sync the disks but dependent on the amount of application data. Once this activity has initiated, normal system functionality is not impacted. User should not reboot system or initiate another upgrade/backout until the process has completed.

3.4 Backout Phases

The following table illustrates the progression of the backout process by procedure with estimated times and may vary due to differences in typing ability and system configuration. The phases outlined in Table 6 are to be executed in the order they are listed.

Phase	Elapsed Time (Hours or Minutes)		Activity	Impact	Procedure
	This Step	Cum.			
Determine state of system	15-30	15-30	Investigate and determine the state of the LSMS system. This may take anywhere from 15 to 30 minutes.	Cannot proceed with backout until failure analysis is complete. Some hand-fixes may be required before proceeding with backout.	**Contact the Technical Assistance Center.**
Backout Servers 1A and 1B	60	75-90	If required, backout E5-APP-B 1A first then 1B.		**Procedure 11**
Re-mirroring of disks on Servers 1A and 1B	210*	285-300	Starts automatically after completion of backout of MPS A and MPS B respectively.	Occurs ONLY after backout of Major Upgrade. Backout of other MPS can begin as soon as this activity begins.	**Starts Automatically Execute the command "cat /proc/mdstat" to get the disk-mirroring status.**
Post-backout health check	10	85-100	Run the syscheck utility to verify the E5-APP-B server is operationally sound.	Verify that the backout was successful.	**Procedure 10**

Table 6. Backout Procedure Overview

*NOTE: The re-mirroring of disks after a backout of a split mirror upgrade occurs automatically. The system is rebooted and the disk will be synced in the background; it takes between 3 to 4 hours to fully sync the disks but dependent on the amount of application data. Once this activity has initiated, normal system functionality is not impacted. User should not reboot system or initiate another upgrade until the process has completed.

3.5 **Log Files**

All commands executed during an upgrade or installation, are logged in the "/var/TKLC/log/upgrade/upgrade.log" file. This log file is automatically initiated when upgrade software is invoked. This log file is rolled every time an upgrade is initiated. A total of up to five upgrade log files are stored on the server.

The upgrade wrapper script, ugwrap, logs its actions also to the "/var/TKLC/log/upgrade/ugwrap.log" file. This log file is rolled every time ugwrap is initiated. A total of up to five ugwrap log files are stored on the server.

4. PREPARATION

4.1 Hardware Preparation

Not Applicable

4.1.1 Spare Equipment Inventory

Not Applicable

4.2 Software Preparation

4.2.1 Pre-Installation/Upgrade Requirement Check

Procedure 1: Verifying Pre-Installation Requirements

S T E P #	This procedure verifies that all pre-installation/Upgrade requirements have been met. **NOTE: Call Oracle Technical Services for assistance if modem access is the method use for upgrade.** Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND **ASK FOR UPGRADE ASSISTANCE.**	
1. ☐	Verify all materials required are present	Required materials: * Target-release USB or ISO image if software is being provided electronically. * The capability to log into a server, such as a PC with null modem cable for connection to serial port.
2. ☐	Establish a connection to E5-APP-B A.	If access to the LSMS servers is not available through an IP network, connect to the E5-APP-B card via the serial port as follows: For connecting the E5-APP-B A card, disconnect the console cable from the serial port on the E5-APP-B B card's adapter. The cable should be disconnected at the point where it connects to the serial port labeled 'S1' on the E5-APP-B B card's adapter and use it for serial access. **Cable part numbers - 830-1220-xx**
3. ☐	Create a terminal window for E5-APP-B A.	Create a terminal window, establish a serial connection to the E5APPB MPS console port ttyS0 with the properties - 115200,N,8,1 and give it a title of **"**E5-APP-B **A"**
4. ☐	E5-APP-B **A**: Enable capture file and verify the correspondent file is created.	Enable the data capture and verify that the data capture file is created at the path specified.
5. ☐	Log into E5-APP-B A.	<hostname> console login: root password: <password>
6. ☐	E5-APP-B **A**: Start screen Session.	Execute the following command to start screen and establish a console session with E5-APP-B A. **# screen -L**
7. ☐	Establish a connection to E5-APP-B B.	If access to the LSMS servers is not available through an IP network, connect to the E5-APP-B card via the serial port as follows:

		For connecting the E5-APP-B B card, disconnect the console cable from the serial port on the E5-APP-B A card's adapter. The cable should be disconnected at the point where it connects to the serial port labeled 'S1' on the E5-APP-B A card's adapter and use it for serial access. **Cable part numbers - 830-1220-xx**
8. ☐	Create a terminal window for E5-APP-B B.	Create a terminal window, establish a serial connection to the E5APPB MPS console port ttyS0 with the properties - 115200,N,8,1 and give it a title of **"**E5-APP-B **B"**
9. ☐	E5-APP-B B: Enable capture file and verify a correspondent file is created.	Enable the data capture and verify that the data capture file is created at the path specified.
10. ☐	Log into E5-APP-B B.	<hostname> console login: root password: <password>
11. ☐	**E5-APP-B** B: Start screen Session.	Execute the following command to start screen and establish a console session with E5-APP-B B. **`# screen -L`**

4.2.2 Pre-Upgrade Health Check

Procedure 2: Pre-Upgrade Health Check

S T E P #	This procedure determines the health of the server before beginning an upgrade. This procedure will perform a syscheck on each LSMS server, verify that MySQL replication is functioning correctly between the two LSMS servers, capture command output to be used later, check for and remove any .ugwrap_pid or .ugwrap_state files on each LSMS server. **WARNING**: If it is determined that MySQL replication is not healthy between the two LSMS servers, do not proceed with this upgrade and contact the Oracle Customer Care Center for assistance. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT THE ORACLE CUSTOMER CARE CENTER AND ASK FOR ASSISTANCE.	
1 ☐	**E5-APP-B:** Verify the health of each LSMS server via syscheck.	Execute section A.1 on both the 1A and 1B servers to verify the health of the server via syscheck.
2 ☐	**E5-APP-B:** Login to either LSMS server as the user "root".	**[hostname] consolelogin: root** password: ***password***
3 ☐	**E5-APP-B:** Execute the "hastatus" command to verify the HA state of this server.	Execute the following command to verify that you are on the STANDBY server. # **hastatus** If the output from the above command is "ACTIVE" then you are on the **ACTIVE** server and not the STANDBY server. Proceed to the next step of this procedure. If the output from the above command is "STANDBY" than you are on the **STANDBY** server, please proceed to Step 6 of this procedure.
4 ☐	**E5-APP-B:** SSH to the mate server.	Execute the following command to SSH to the mate server in order to verify that it is the STANDBY server. # **ssh mate**
5 ☐	**E5-APP-B:** Execute the "hastatus" command to verify the HA state of this server.	Execute the following command to verify that you are on the STANDBY server. # **hastatus** If the output from the above command is "STANDBY" than you are on the **STANDBY** server, please proceed to the next step of this procedure. **WARNING**: If the output from the above command is anything else other than "STANDBY" do not proceed with this upgrade and contact the Oracle Customer Care Center for assistance.
6 ☐	**E5-APP-B:** Login as the user "root" on the STANDBY server.	**[hostname] consolelogin: root** password: ***password***
7 ☐	**E5-APP-B:** Verify that the STANDBY	Execute the following command to verify that MySQL replication is working correctly on the STANDBY LSMS server:

	server's MySQL replication is functioning properly	`# 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 Mar 19 02:49:32 2015 All tests passed on STANDBY` `Tue Nov 13 15:16:38 2007 All tests passed on STANDBY` `Tue Nov 13 15:17:41 2007 All tests passed on STANDBY` `Tue Nov 13 15:18:45 2007 All tests passed on STANDBY` `Tue Nov 13 15:19:48 2007 All tests passed on STANDBY` `Tue Nov 13 15:20:52 2007 All tests passed on STANDBY` `Tue Nov 13 15:21:55 2007 All tests passed on STANDBY` `Tue Nov 13 15:22:59 2007 All tests passed on STANDBY` `Tue Nov 13 15:24:03 2007 All tests passed on STANDBY` `Tue Nov 13 15:25:08 2007 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 the Oracle Customer Care Center for assistance.
8 ☐	**E5-APP-B:** Login as the user "lsmsadm" on the ACTIVE server.	`[hostname] consolelogin: lsmsadm` password: ***password***
9 ☐	**E5-APP-B:** Capture the output of the "lsmsdb –c counts" command.	Execute the following command on the ACTIVE LSMS server to display the current LSMS database counts: `$ lsmsdb -c counts` **NOTE**: Capture the output from this command and make it available to the Oracle Customer Care Center if required.
10 ☐	**E5-APP-B:** Capture the output of the "lsmsdb –c features" command.	Execute the following command on the ACTIVE LSMS server to display the current LSMS feature configuration: `$ lsmsdb -c features` **NOTE**: Capture the output from this command and make it available to the Oracle Customer Care Center if required.
11 ☐	**E5-APP-B:** Capture the output of the "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

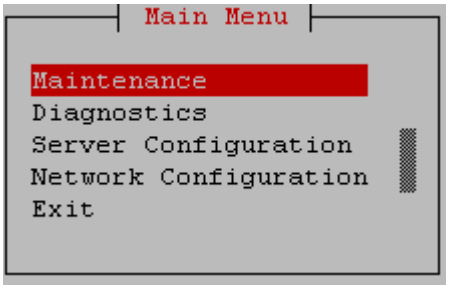
		regional processes (npacagents) may or may not be associated in the Comment field. If the output from this command displays any other Status than "running" contact the Oracle Customer Care Center and ask for assistance before proceeding with this upgrade. Capture the output from this command and make it available to the Oracle Customer Care Center if required.
12 ☐	**E5-APP-B:** Capture the output of the "eagle status" command.	Execute the following command on the ACTIVE LSMS to display the current LSMS oracle communications eagle status: `$ eagle status` **NOTE:** Capture the output from this command for comparison to the output captured during the Procedure 10: Post-Upgrade Health Check as well as make it available to the Oracle Customer Care Center if required.
13 ☐	**E5-APP-B:** Verify that an LSMS backup is not running on either LSMS server.	Execute Procedure 21: Stopping an LSMS backup in progress on both the 1A and 1B servers to verify that no LSMS backups are running and the backup logical volume is not mounted and does not exist.
14 ☐	**E5-APP-B:** Check for the existence of the .ugwrap_pid file	Execute section D.1 on both the 1A and 1B servers to check for the existence and remove the .ugwrap_pid file.
15 ☐	**E5-APP-B:** Check for the existence of the .ugwrap_state file	Execute section D.2 on both the 1A and 1B servers to check for the existence and remove the .ugwrap_state file.
16 ☐	**E5-APP-B**: Check MySQL version if connected with a Query Server	Excute the following command on the the ACTIVE LSMS to determine if a QS is connected: `$ lsmsdb -c queryservers` • If there is QS connected, output similar to the following displays: Queryserv1 (10.25.60.32) Connected On QS Solaris server: Determine whether the Oracle-provided MySQL version is installed on supported release: Enter the following command. # /usr/bin/mysql -V The output should display the running MySQL version is 5.6.18. If the version is other than 5.6.18, contact the Oracle Customer Care Center (1-800-432-8919) and ask for assistance. See Section 3.6 QS Upgrade for additional details. • If there is no QS connected, NO output will display.

Procedure 2: Pre-Upgrade Health Check

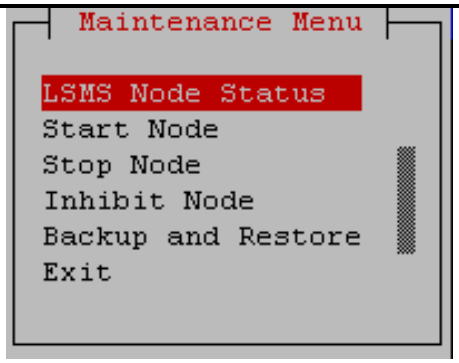
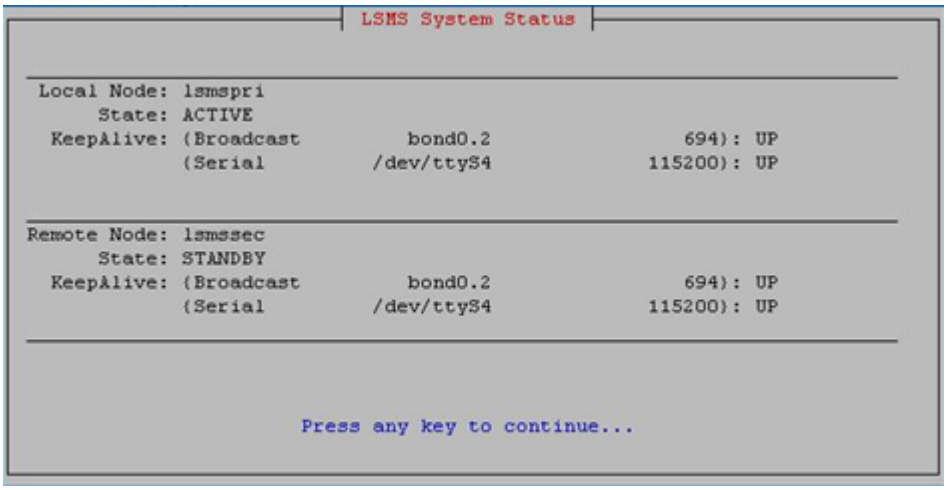
17 ☐	**E5-APP-B:** The Pre-Upgrade Health Check is complete.	This procedure is complete. Return to the Table in Section 3 that directed you to this procedure.

4.2.3 Pre-Upgrade LSMS Node Status

Procedure 3: Determine LSMS Node Status

STEP #		
	This procedure performs a Node Status on any E5-APP-B running the LSMS application. **NOTE:** This procedure verifies that the 1A server is in the ACTIVE state and the 1B server is in the STANDBY state prior to beginning the upgrade. If it is determined that the servers are not in the previously described states, please contact the Oracle Customer Care Center (1-800-432-8919) and ask for assistance in performing a system failover. **WARNING**: If a system failover is to be performed then it ***must*** be verified that replication between the ACTIVE and STANDBY servers is functioning correctly before attempting the failover. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT THE ORACLE CUSTOMER CARE CENTER AND ASK FOR ASSISTANCE.	
1 ☐	Execute the LSMS Node Status on the 1A LSMS server.	Execute all commands in this procedure in the window for the 1A LSMS server.
2 ☐	Start the lsmsmgr utility by logging in as the lsmsmgr user.	[hostname] consolelogin: `lsmsmgr` Password: ***password***
3 ☐	Make selections on the Main Menu of the Platform Configuration Utility.	On the **Main Menu**, select the **Maintenance** submenu, and press **[ENTER]**. Select **LSMS Node Status**, and press **[ENTER]**. 

Procedure 3: Determine LSMS Node Status

		
4 ☐	Examine the output of the LSMS Node Status and verify that the states of the Server 1A and 1B LSMS servers are "ACTIVE" and "STANDBY" respectively.	The LSMS System Status results appear on the screen, the "State:" information ***must*** match exactly with the following example. The following screen shot is an example of acceptable states for continuing an upgrade:  The following are examples of unacceptable states for continuing an upgrade: ACTIVE "lsmssec->TO_STANDBY" STANDBY "lsmssec->TO_STANDBY"
5 ☐	LSMS System Status Successful LSMS System Status Failure	If the LSMS System Status was successful and in Procedure 4 this upgrade was determined to be an incremental upgrade, return to Table 5. If LSMS System Status detected any failures, please contact the Oracle Customer Care Center (1-800-432-8919) and ask for assistance.

5. SOFTWARE INSTALLATION PROCEDURE

Please read the following notes on procedures:

1. The complete procedure should be performed on all machines in a system.
2. All procedure completion times are estimates. Times may vary due to differences in database size, user experience, and user preparation.
3. Output displayed in the procedures response steps is presented. Actual output varies depending on the system.
4. Where possible, command response outputs are shown as accurately as possible. However, exceptions may include the following:
   * Information such as ***time*** and ***date***.
   * ANY information marked with "***XXXX***." Where appropriate, instructions are provided to determine what output should be expected in place of "***XXXX***."
5. After completing each step and **at each point where data is recorded from the screen, *the technician performing the procedure must check each step***. A checkbox has been provided beneath each step number for this purpose.
6. Captured data is required for future support reference if the Oracle Customer Care Center is not present.
7. User Interface menu items displayed in document were correct at the time the document was published but may appear differently at this time.

5.1 Upgrade/Installation Determination and Readiness Assessment

Procedure 4: Determine if the upgrade or initial application installation is required

S T E P #	This procedure provides instructions to determine if this will be an initial installation or an upgrade of existing software. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT THE ORACLE CUSTOMER CARE CENTER AND ASK FOR ASSISTANCE.	
1 ☐	**E5-APP-B:** Log in as the user "root"	**[hostname] consolelogin: root** password: ***password***
2 ☐	**E5-APP-B:** Determine if the application is correctly installed on the server. (E5-APP-B B will be used to determine the current state of the servers. We will assume the state of the A server is the same.)	**Execute an rpm query command and examine the output:** **# rpm –qi TKLClsms**
3	**E5-APP-B:** Observe the output from the rpm query.	**The following is an example of what the output may look like:** `[root@lsmspri ~]# rpm -qi TKLClsms` `Name : TKLClsms Relocations: (not relocatable)` `Version : 13.19.0 Vendor: Tekelec` `Release : 13.1.0_131.3.0 Build Date: Mon 16 Mar 2015 09:22:16 AM EDT` `Install Date: Tue 17 Mar 2015 07:29:31 AM EDT Build Host: diablo-8.tekelec.com` `Group : TKLC/Application Source RPM: TKLClsms-13.19.0-13.1.0_131.3.0.src.rpm` `Size : 278188742 License: © TEKELEC 2004-2015` `Signature : (none)` `Packager : <Open Systems>` `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.`
4 ☐	**E5-APP-B:** Determine the LSMS release currently installed.	**Execute the following command and examine the output** **# cat /usr/TKLC/lsms/bin/LSMSversion; ssh mate "cat /usr/TKLC/lsms/bin/LSMSversion"**
5 ☐	**E5-APP-B:** Observe the output.	**The following is an example of what the output may look like:**

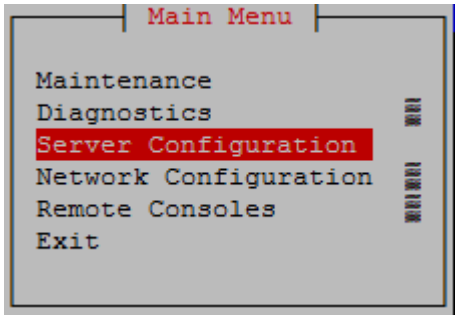
Procedure 4: Determine if the upgrade or initial application installation is required

		[root@lsmspri root]# **cat /usr/TKLC/lsms/bin/LSMSversion; ssh mate "cat /usr/TKLC/lsms/bin/LSMSversion"** 13.1.0_131.3.0 Tekelec build 2015-03-16-09-05 13.1.0_131.3.0 Tekelec build 2015-03-16-09-05
6 ☐	**E5-APP-B:** Logout	**# logout**
7 ☐	**E5-APP-B:** Initiate an installation if the application is not present on the server	If the application is not currently installed, output similar to the examples below will be returned from the **rpm -qi** command in the previous step. If this is the case, then an application installation is required. Proceed to Table 4 for an install . [root@lsmspri root]# **rpm -qi TKLClsms** package TKLClsms is not installed
8 ☐	**E5-APP-B:** Determine which version of the application is present and verify if an incremental upgrade	If the application is currently installed, get the Release number from step 5. If the release number on the E5-APP-B is less than the release number on the upgrade media, then an upgrade is required.
9 ☐	Determine if it is an incremental upgrade with Split-mirror.	If the current release is 13.0.x and target release is 13.1.X (less than the number on the upgrade media), it is an incremental upgrade with split-mirror.
10 ☐	**E5-APP-B:** If this is an incremental upgrade with split mirror, write down the release level before the upgrade	Write down the release level now if this is an incremental upgrade. **Release Level:_____** Proceed to the next step in Table 5. Incremental Upgrade with split-mirror Phases.

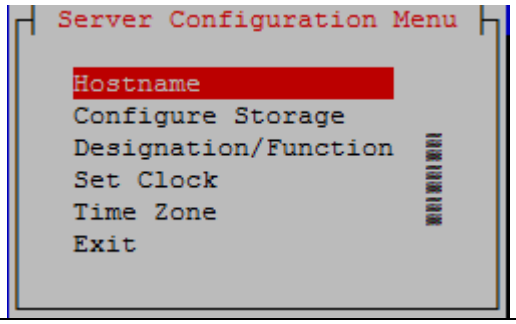
5.2 Set Server Hostname, Designation, and Time

Procedure 5: Set Server Designation and Time

S T E P #	This procedure provides instructions to perform an initial install of the application. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT THE ORACLE CUSTOMER CARE CENTER AND ASK FOR ASSISTANCE.	
1 ☐	**E5-APP-B:** Start platcfg utility by logging in as platcfg user	**[hostname] consolelogin: platcfg** password: ***password***
2 ☐	**E5-APP-B:** Navigate to the Hostname screen.	Select **Server Configuration** and press **[ENTER]**

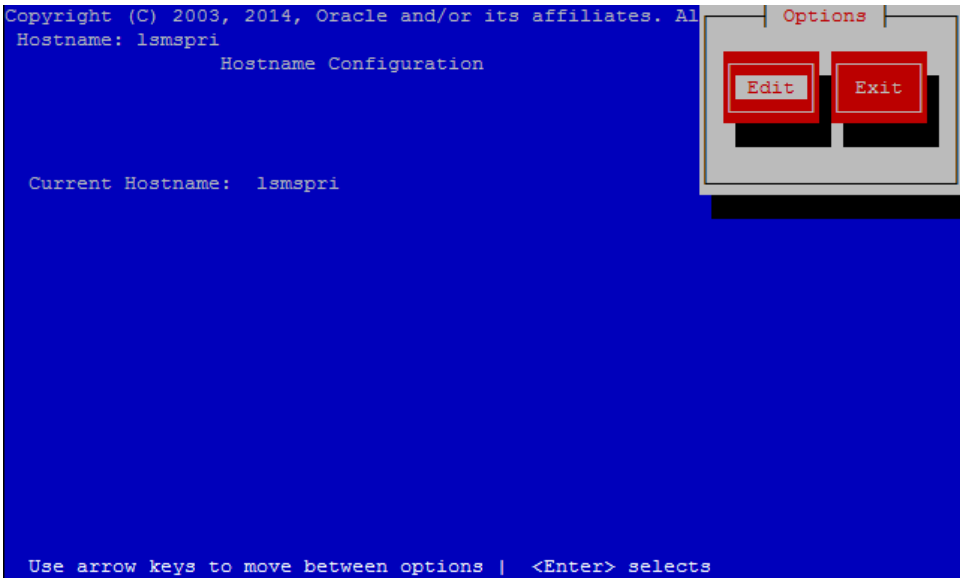


Select **Hostname** and press **[ENTER]**

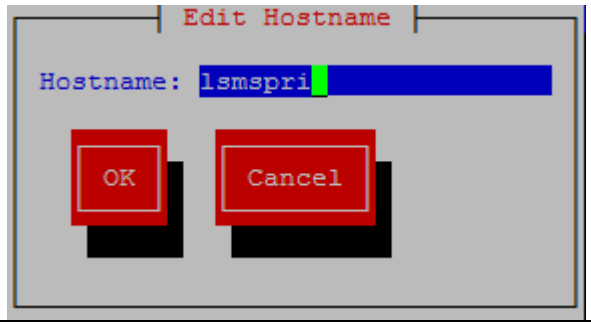


3 **E5-APP-B: Change the host name.**

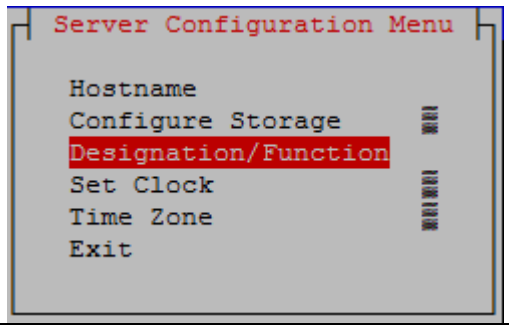
Select **Edit** and press **[ENTER]**



Type in the host name. For example change hostname to **lsmspri** on **A** server and **lsmssec** on **B** server.

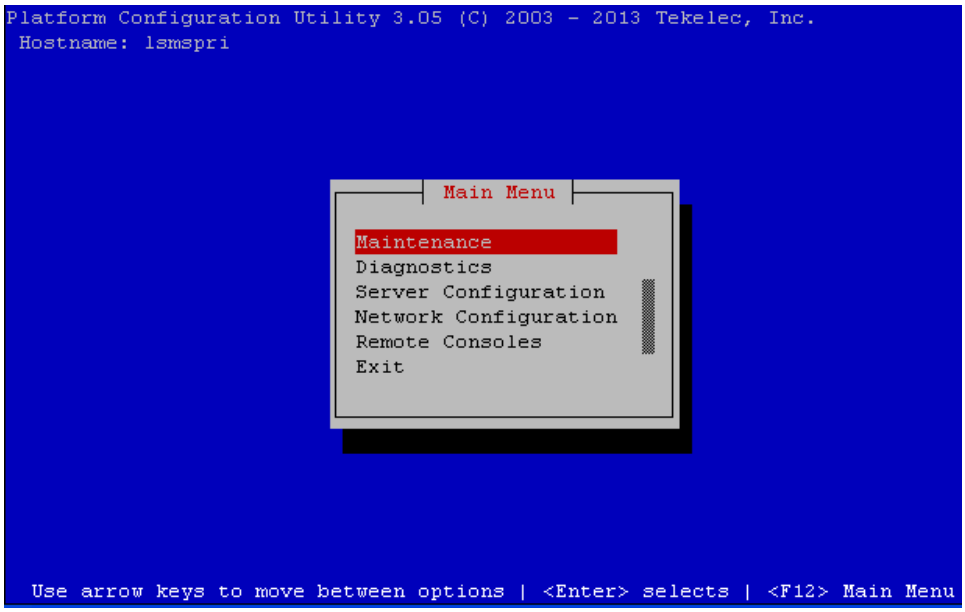


Procedure 5: Set Server Designation and Time

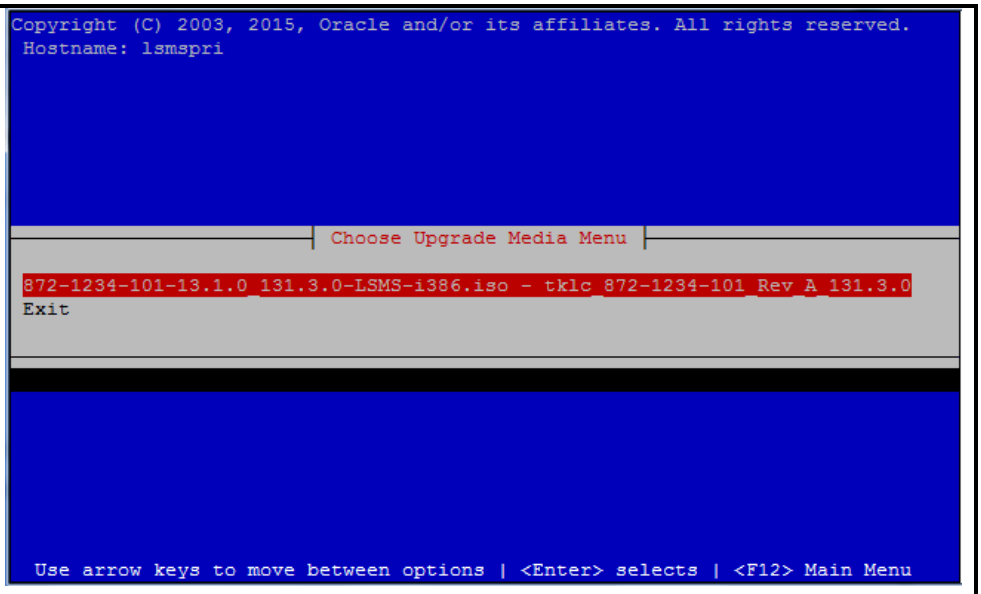
		Select **OK** and press **[ENTER]**.
4 ☐	**E5-APP-B:** Navigate to the Designation Information screen.	Select **Designation/Function** and press **[ENTER]** 
5 ☐	**E5-APP-B:** View the current designation and function.	The screen will show the current designation and function setting. On initial install, these fields are blank. If not blank the values should be as follows. - The designation is "1A" for the A server - The designation is "1B" for the B server - The Function field should be set to "LSMS" If either value is not correct, then select **Edit** and press **[ENTER]**. If both values are correct, select **Exit**, press **[ENTER]** and skip the next step.
6 ☐	**E5-APP-B:** Change the current designation and function.	In the text entry box, delete the current designation and function and type in the desired values. Enter the appriopriate designation in the Designation field (Note: the designation must be capitalized). Select **OK** and press **[ENTER]**. Go back to **step 3**.
7 ☐	**E5-APP-B:** Set time zone.	Select **Time Zone** and press **[ENTER]**. Select **Edit** and press **[ENTER]**. Select appropriate time zone. Use right arrow to get to **OK** and press **[ENTER]**. Select **Exit** and press **[ENTER]**.
8 ☐	**E5-APP-B:** Set clock.	Select **Set Clock** and press **[ENTER]**. Select **Edit** and press **[ENTER]**. Enter correct time. Use right arrow to get to **OK** and press **[ENTER]**. Select **Exit** and press **[ENTER]**.
9 ☐	**E5-APP-B:** Logout.	Select **Exit** and press **[ENTER]** to return to the **Main Menu**. Select **Exit** and press **[ENTER]**. The "platcfg" utility terminates.

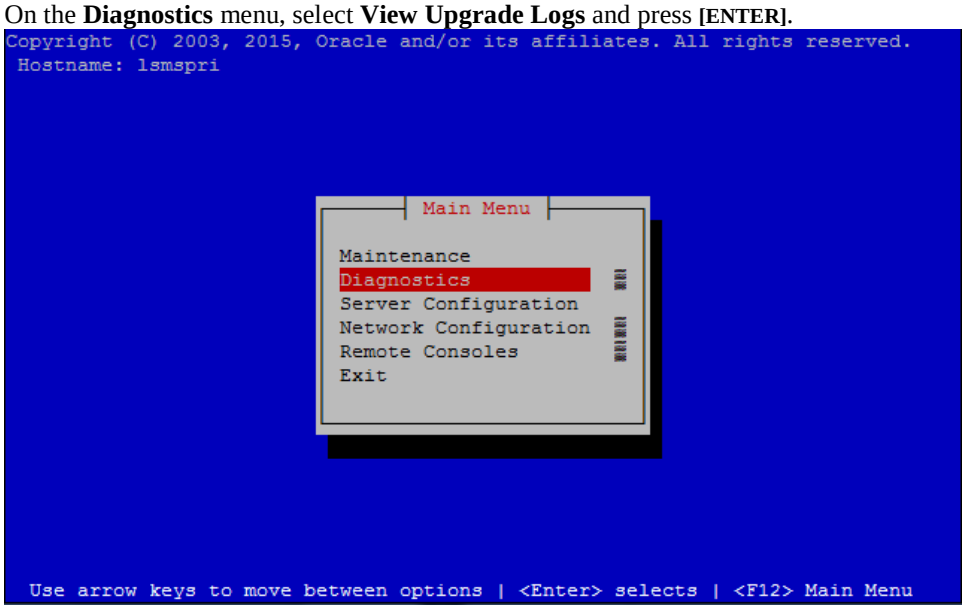
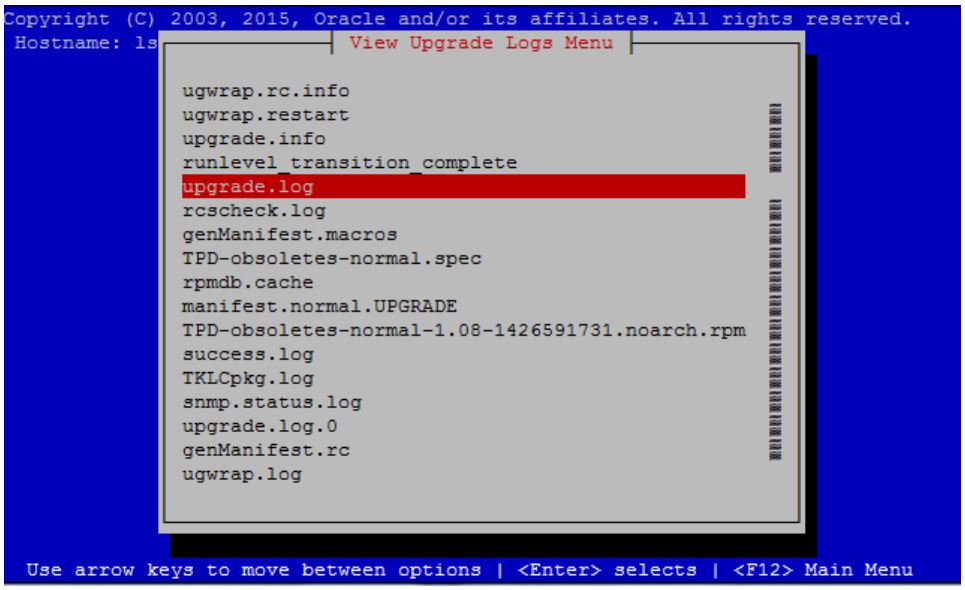
5.3 Install the Application

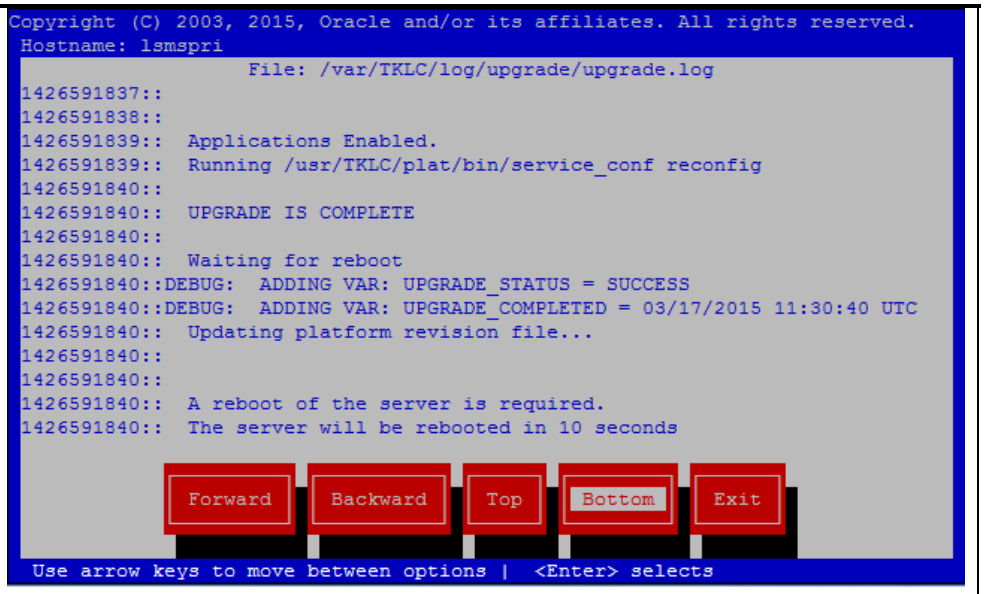
Procedure 6: Install the Application

S T E P #	This procedure installs the application on the server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT THE ORACLE CUSTOMER CARE CENTER AND ASK FOR ASSISTANCE.	
1 ☐	**E5-APP-B:** Install 1A LSMS server	Perform Procedure in 6.2A.2**A.2** or copy LSMS 13.1 ISO to /var/TKLC/upgrade directory.
2 ☐	**E5-APP-B:** Start platcfg utility by logging in as platcfg user	`[hostname] consolelogin: platcfg` password: ***password***
3 ☐	**E5-APP-B:** Validate the upgrade media	Perform procedure 6.2A.3 to validate the media (typically iso image).
4 ☐	**E5-APP-B:** Select the Maintenance submenu	The platcfg **Main Menu** appears. On the **Main Menu**, select **Maintenance** and press **[ENTER]**. 
5 ☐	**E5-APP-B:** Navigate to the Initiate Upgrade menu.	Select the **Upgrade** menu and press **[ENTER]**. Select the **Initiate Upgrade** menu and press **[ENTER]**.
6 ☐	**E5-APP-B:** Select the Upgrade Media	The screen displays a message that it is searching for upgrade media. When the upgrade media is found, an Upgrade Media selection menu appears similar to the example below. Select the desired upgrade media and press **[ENTER]**. There should only be one selection available, as in the example below.

Procedure 6: Install the Application

		
7 ☐	**E5-APP-B:** Upgrade proceeds	The screen displays the following, indicating that the upgrade software is first validating the media, and then proceeding with the upgrade. `Initializing Upgrade Wrapper …` `Validating packages …`
8 ☐	**E5-APP-B:** Upgrade proceeds	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.
9 ☐	**E5-APP-B:** Upgrade completed	After the final reboot, the screen displays the login prompt as in the example below. Starting tpdProvd: [OK] Starting ntdMgr: [OK] Verifying disk configuration for S.M.A.R.T.: [OK] [OK] atd: [OK] Starting TKLCe5appb: [OK] Checking network config files: [OK] Starting LSMS DB Replication Monitor: [OK] Starting smartd: [OK] completeTasks started: Mon Dec 9 13:57:18 2013 LOG FILE: /var/TKLC/log/TaskMgr/completeTasks. CentOS release 5.8 (Final) Kernel 2.6.18-308.11.1.el5prerel5.5.0_75.12.0 on an i686 lsmspri login:
10 ☐	**E5-APP-B:** Start platcfg utility by logging in as platcfg user	`[hostname] consolelogin: platcfg` password: ***password***
11 ☐	**E5-APP-B:** Navigate to the Diagnostics Menu	On the platcfg **Main Menu**, select **Diagnostics** and press **[ENTER]**.

12	**E5-APP-B:** Navigate to the View Upgrade Logs Menu	On the **Diagnostics** menu, select **View Upgrade Logs** and press **[ENTER]**. 
13	**E5-APP-B:** Select the most recent upgrade log.	Select **upgrade.log** (which contains the latest upgrade log) and press **[ENTER]**. 
14	**E5-APP-B:** View the upgrade log	Examine the upgrade log to determine if any **errors/warnings** were reported. Contact the Technical Assistance Center following the instructions on the front page. Scroll down to the bottom of the file, and verify that the upgrade is complete. Once verified, exit the log viewer by selecting **Exit**.



Or execute the following commands from a prompt:

grep "UPGRADE IS COMPLETE" /var/TKLC/log/upgrade/upgrade.log

The expected output is similar to the following:

1389608030:: UPGRADE IS COMPLETE

grep -i error /var/TKLC/log/upgrade/upgrade.log

The following warning are expected:

ERROR: PIDFILE: /var/run/ntdMgr
ERROR: DAEMON PID: 5759
ERROR: Will not start another daemon!

grep -i warning /var/TKLC/log/upgrade/upgrade.log

The following warning are expected:

1389814828::WARNING: TKLClsms-Config-1.3.0-13.0.0_130.1.0: Current hostname "lsmspri" being reset to default.

1389814829::WARNING: Hostname not changed because it is the same.

1389814836::2014-01-15 14:40:36 0 [Warning] TIMESTAMP with implicit DEFAULT value is deprecated. Please use --explicit_defaults_for_timestamp server option (see documentation for more details).

1389814838::2014-01-15 14:40:38 16032 [Warning] InnoDB: New log files created, LSN=45781

1389814838::2014-01-15 14:40:38 16032 [Warning] InnoDB: Creating foreign key constraint system tables.

1389814841::2014-01-15 14:40:41 0 [Warning] TIMESTAMP with implicit DEFAULT value is deprecated. Please use --explicit_defaults_for_timestamp server option (see documentation for more details).

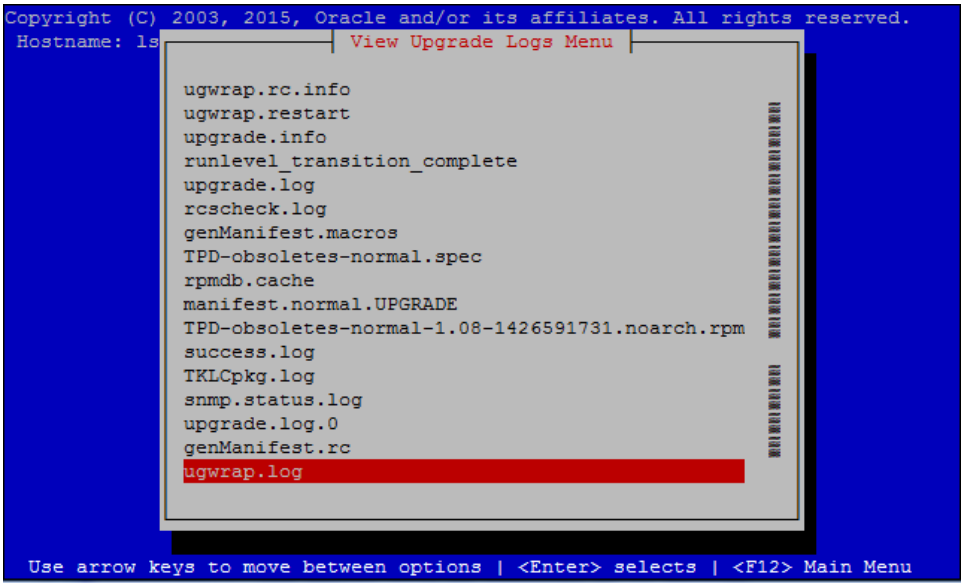
1389814843::WARNING: Default config file /etc/my.cnf exists on the system

1389814870::ntp warning: /etc/ntp.conf saved as /etc/ntp.conf.rpmsave

1389814870::warning: /etc/sysconfig/ntpd created as /etc/sysconfig/ntpd.rpmnew

1389814887::WARNING: Could not write to config file /usr/my-new.cnf: Permission denied

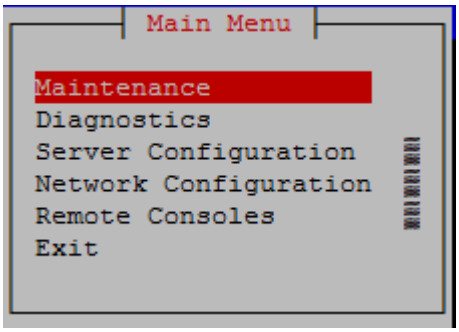
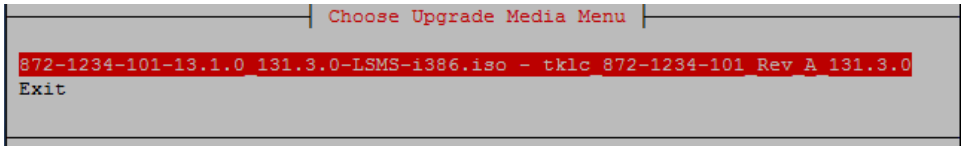
1389814887::Installing MySQL system tables...2014-01-15 14:41:26 18342 [Warning]

		Buffered warning: Could not increase number of max_open_files to more than 1024 (request: 4096) 1389814887::2014-01-15 14:41:26 18342 [Warning] Buffered warning: Changed limits: max_connections: 214 (requested 800) 1389814887::2014-01-15 14:41:26 18342 [Warning] Buffered warning: Changed limits: table_cache: 400 (requested 1024) 1389814887::Filling help tables...2014-01-15 14:41:26 18348 [Warning] Buffered warning: Could not increase number of max_open_files to more than 1024 (request: 4096) 1389814887::2014-01-15 14:41:26 18348 [Warning] Buffered warning: Changed limits: max_connections: 214 (requested 800) 1389814887::2014-01-15 14:41:26 18348 [Warning] Buffered warning: Changed limits: table_cache: 400 (requested 1024) 1389814887::WARNING: Could not copy config file template /usr/share/mysql/my-default.cnf to 1389814887::WARNING: Default config file /etc/my.cnf exists on the system 1389814890::WARNING: A new file was added to xml alarm files...reparsing xml... 1389814891::WARNING: FILE: /usr/TKLC/plat/etc/alarms/lsmsAlarms.xml
15 ☐	**E5-APP-B:** Select the most recent ugwrap log.	Select **ugwrap.log** (which contains the latest ugwrap log) and press **[ENTER]**. 
16 ☐	**E5-APP-B:** View the ugwrap log	Scroll down to the bottom of the file and look for the “ERROR” keyword. Presence of “ERROR” keyword indicates that upgrade might have failed. Note: If the upgrade was ***not*** successful, then contact Oracle Technical Service for further instructions. Once verified, exit the log viewer by selecting **Exit**.

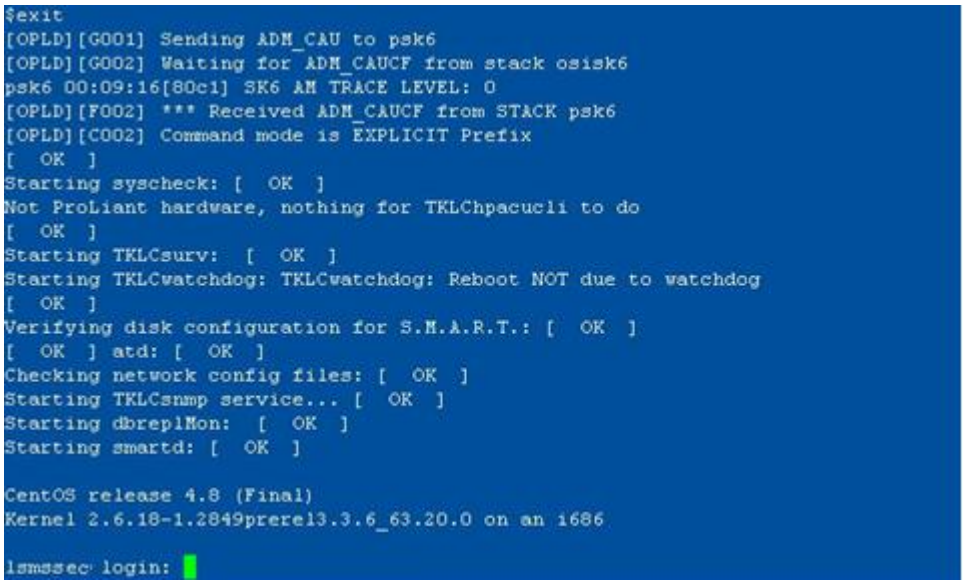
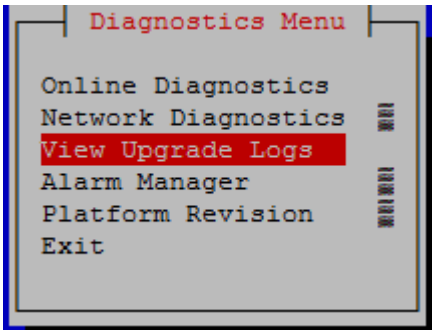
		 **Or Execute the following command to find the "ERROR" keyword:** **#** `grep -i error /var/TKLC/log/upgrade/ugwrap.log` No display of ERROR is expected.
17 ☐	**E5-APP-B:** Exit to the diagnostics submenu.	Select **Exit** to exit the log view menu.
18 ☐	**E5-APP-B:** Logout.	Select **Exit** and press **[ENTER]** to return to the **Main Menu**. Select **Exit** and press **[ENTER]**. The "platcfg" utility terminates.
19 ☐	**E5-APP-B:** Install 1B E5-APP-B server	Complete steps 1 through 17 of this procedure for the 1B E5-APP-B server.

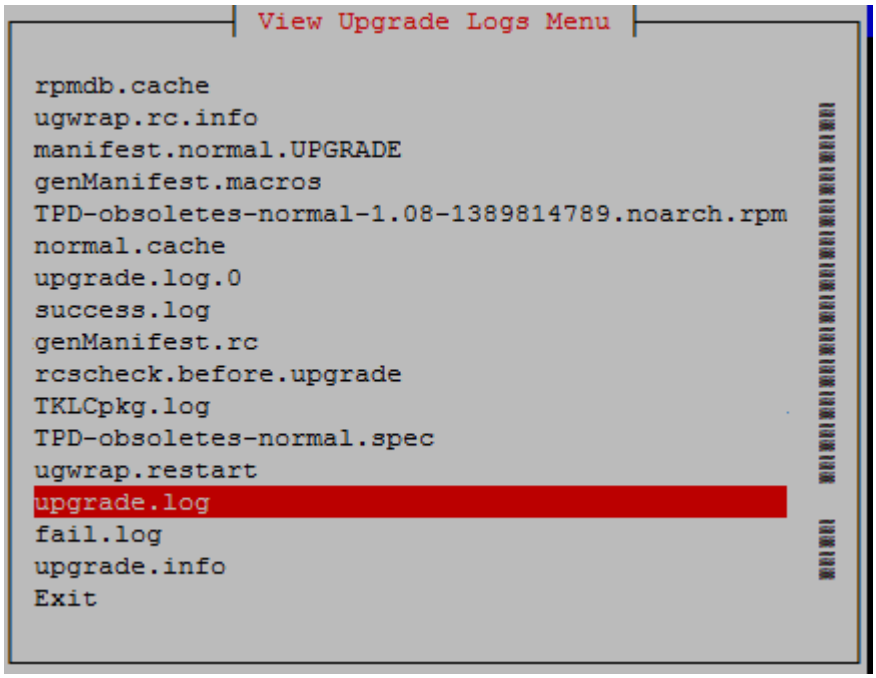
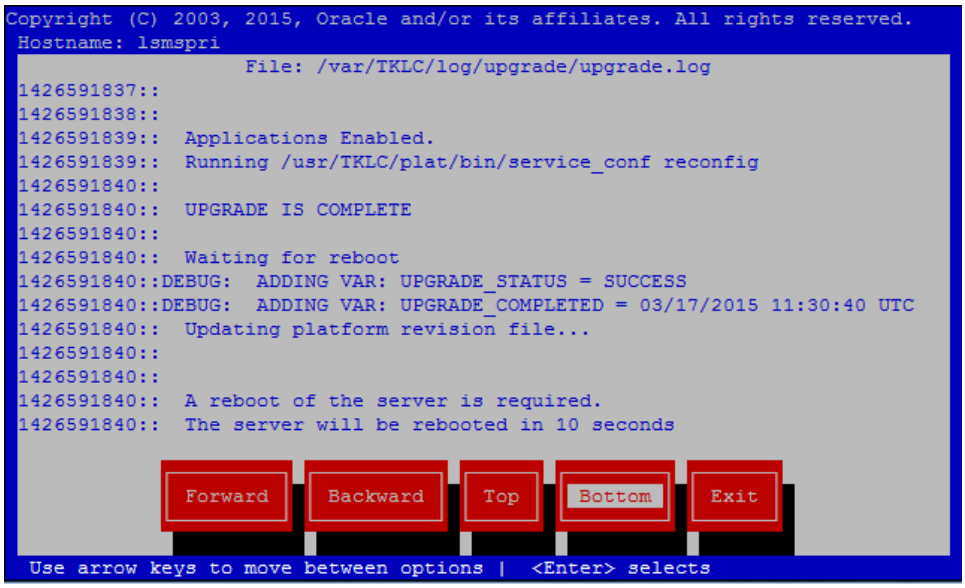
5.4 Upgrading the Application

Procedure 7: Upgrade the Application

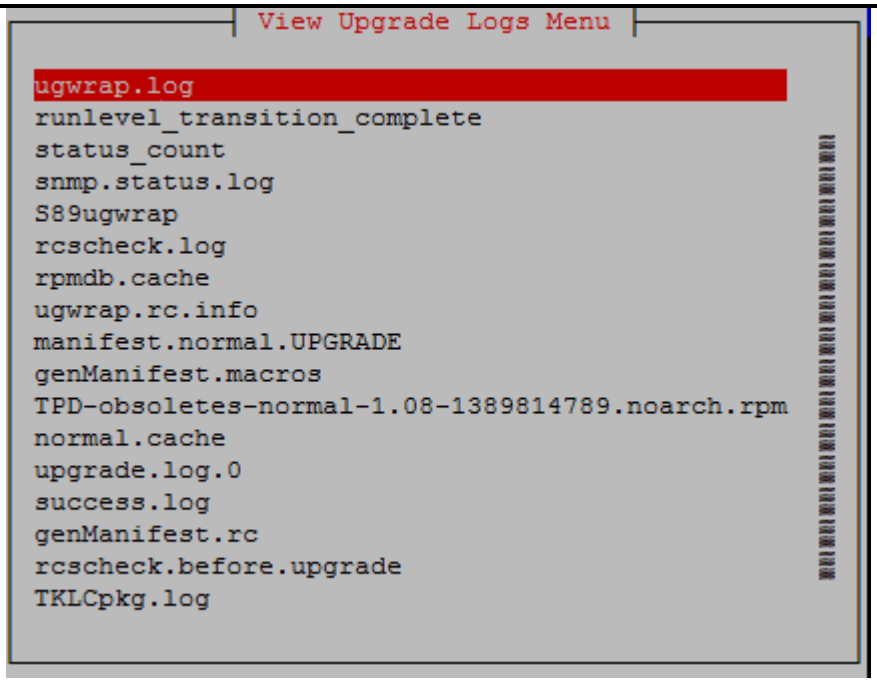
S T E P #	This procedure upgrades the application on the server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT THE ORACLE CUSTOMER CARE CENTER AND ASK FOR ASSISTANCE.	
1 ☐	**E5-APP-B:** Upgrade 1B E5-APP-B server	Perform Procedure in 6.2A.2 or copy LSMS 13.1.x ISO to /var/TKLC/upgrade directory.
2 ☐	**E5-APP-B:** Start platcfg utility by logging in as platcfg user	`[hostname] consolelogin: platcfg` password: ***password***
3 ☐	**E5-APP-B:** Enable SPLIT MIRROR on server	Login to E5-APP- B as root user and execute the following command to enable Split Mirror: # echo "SPLIT_MIRRORS=1" >/usr/TKLC/plat/etc/upgrade/upgrade.conf Check whether the SPLIT MIRROR is enabled using following command: `# cat /usr/TKLC/plat/etc/upgrade/upgrade.conf` Expected Output SPLIT_MIRRORS=1
4 ☐	**E5-APP-B:** Select the Maintenance submenu	The platcfg **Main Menu** appears. On the **Main Menu**, select **Maintenance** and press **[ENTER]**. 
5 ☐	**E5-APP-B:** Navigate to the Initiate Upgrade menu.	Select the **Upgrade** menu and press **[ENTER]**. Select the **Initiate Upgrade** menu and press **[ENTER]**.
6 ☐	**E5-APP-B:** Select the Upgrade Media	The screen displays a message that it is searching for upgrade media. When the upgrade media is found, an Upgrade Media selection menu appears similar to the example below. Select the desired upgrade media and press **[ENTER]**. There should only be one selection available, as in the example below. 

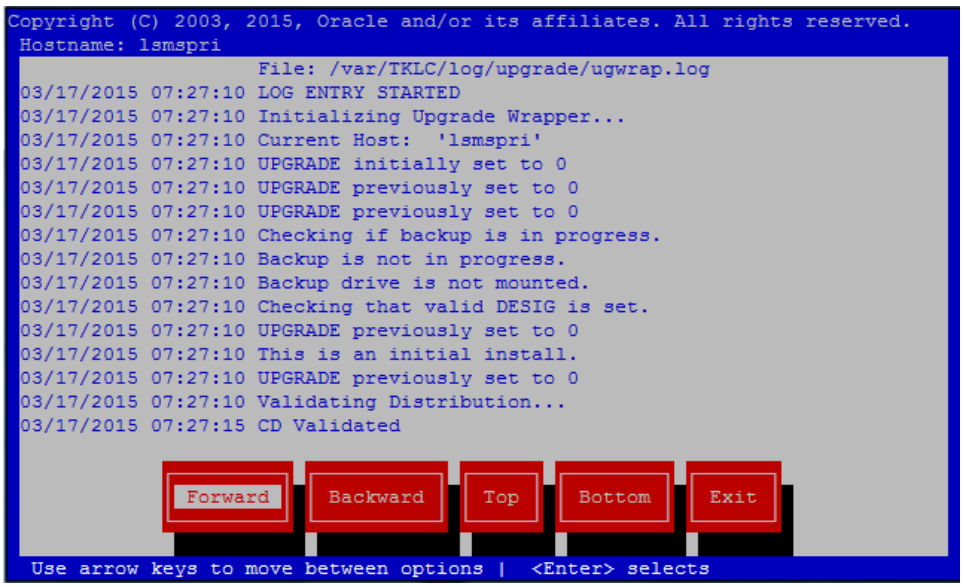
Procedure 7: Upgrade the Application

7 ☐	**E5-APP-B:** Upgrade proceeds	The screen displays the following, indicating that the upgrade software is first validating the media, and then proceeding with the upgrade. `Initializing Upgrade Wrapper …` `Validating packages …`
8 ☐	**E5-APP-B:** Upgrade proceeds	Many informational messages appear on the terminal screen as the upgrade proceeds. The messages are not shown here for clarity sake. When upgrade is complete, the server reboots.
9 ☐	**E5-APP-B:** Upgrade completed	After the final reboot, the screen displays the login prompt as in the example below. 
10 ☐	**E5-APP-B:** Start platcfg utility	Start platcfg utility by logging in as platcfg user: **`[hostname] consolelogin: platcfg`** **`password: password`**
11 ☐	**E5-APP-B:** Navigate to the Diagnostics Menu	On the platcfg **Main Menu**, select **Diagnostics** and press **[ENTER]**.
12 ☐	**E5-APP-B:** Navigate to the View Upgrade Logs Menu	On the **Diagnostics** menu, select **View Upgrade Logs** and press **[ENTER]**. 

13	**E5-APP-B:** Select the most recent upgrade log.	Select **upgrade.log** (which contains the latest upgrade log) and press **[ENTER]**. 
14	**E5-APP-B:** View the upgrade log	Scroll down to the bottom of the file, and verify that the upgrade is complete. Once verified, exit the log viewer by selecting **Exit**.  **Or execute the following commands from a prompt:** `# grep "UPGRADE IS COMPLETE" /var/TKLC/log/upgrade/upgrade.log` The expected output is similar to the following: 1389608030:: UPGRADE IS COMPLETE # `grep -i error /var/TKLC/log/upgrade/upgrade.log` No error should be displayed.

		# `grep -i warning /var/TKLC/log/upgrade/upgrade.log` The following warning are expected: 1390222244::WARNING: Source file does not exist...cannot get diff! 1390222244::WARNING: SOURCE: /usr/lib/jvm/java-1.7.0-openjdk-1.7.0.25/jre/lib/logging.properties 1390222244::WARNING: Source file does not exist...cannot get diff! 1390222244::WARNING: SOURCE: /usr/lib/jvm/java-1.7.0-openjdk-1.7.0.25/jre/lib/security/nss.cfg 1390222244::WARNING: Source file does not exist...cannot get diff! 1390222244::WARNING: SOURCE: /usr/lib/jvm/java-1.7.0-openjdk-1.7.0.25/jre/lib/security/java.security 1390222244::WARNING: Source file does not exist...cannot get diff! 1390222244::WARNING: SOURCE: /usr/lib/jvm/java-1.7.0-openjdk-1.7.0.25/jre/lib/security/java.policy 1390222244::WARNING: Source file does not exist...cannot get diff! 1390222245::WARNING: SOURCE: /var/lib/misc/prelink.force 1390222245::WARNING: Source file does not exist...cannot get diff! 1390222246::WARNING: SOURCE: /etc/ntp/crypto/pw 1390222246::WARNING: Source file does not exist...cannot get diff! 1390222246::WARNING: SOURCE: /etc/sysconfig/ntpdate 1390222246::WARNING: Source file does not exist...cannot get diff! 1390222246::WARNING: SOURCE: /etc/sysconfig/network-scripts/ifcfg-eth03 1390222246::WARNING: Source file does not exist...cannot get diff! 1390222246::WARNING: SOURCE: /etc/sysconfig/network-scripts/ifcfg-eth01.100 1390222246::WARNING: Source file does not exist...cannot get diff! 1390222246::WARNING: SOURCE: /etc/sysconfig/network-scripts/ifcfg-eth02 1390222246::WARNING: Source file does not exist...cannot get diff! 1390222246::WARNING: SOURCE: /etc/sysconfig/network-scripts/ifcfg-eth01 1390222246::WARNING: Source file does not exist...cannot get diff! 1390222246::WARNING: SOURCE: /etc/sysconfig/network-scripts/ifcfg-eth04 1390222431::WARNING::Service RC script (/etc/rc.d/init.d/ntpdate) does not exist 1390222432::WARNING::or is not executable! 1390222432::WARNING::Service RC script (/etc/rc.d/init.d/ntpdate) does not exist 1390222433::WARNING::or is not executable! 1390222433::WARNING::Service RC script (/etc/rc.d/init.d/ntpdate) does not exist 1390222434::WARNING::or is not executable! 1390222434::WARNING::Service RC script (/etc/rc.d/init.d/ntpdate) does not exist 1390222435::WARNING::or is not executable! 1390222435::WARNING::Service RC script (/etc/rc.d/init.d/ntpdate) does not exist 1390222436::WARNING::or is not executable!
15	**E5-APP-B:** Select the most recent ugwrap log.	Select **ugwrap.log** (which contains the latest upgrade log) and press **[ENTER]**.



16	**E5-APP-B:** View the ugwrap log	Scroll down to the bottom of the file and look for the "ERROR" keyword. Presence of "ERROR" keyword indicates that upgrade might have failed. Note: If the upgrade was ***not*** successful, then contact Oracle Technical Service for further instructions. Once verified, exit the log viewer by selecting **Exit**.  **Or Execute the following command to find the "ERROR" keyword:** `# grep -i error /var/TKLC/log/upgrade/ugwrap.log` No display of ERROR is expected.
17	**E5-APP-B:** Exit to the diagnostics	Select **Exit** to exit the log view menu.

☐	submenu.	
18 ☐	**E5-APP-B:** Exit Platcfg	Select **Exit** and press **[ENTER]** to return to the **Main Menu**. Select **Exit** and press **[ENTER]**. The "platcfg" utility terminates.
19 ☐	**E5-APP-B:** verify my.cnf	Complete Procedure 18: Restore Customized my.cnf File.
20 ☐	**E5-APP-B:** Verify upgrade is complete	If using the serial connections, move on to step 21. The upgrade is completed. If the upgrade was done through an SSH connection, we need to verify the upgrade is completed. Enter the following command: **$ ps –ef | grep dbreplMon** If you see the following output, the upgrade is completed. Move on to step 19. `[root@lsmspri root]# ps –ef | grep dbreplMon` `root 6229 1 0 Mar17 ? 00:02:36 /usr/bin/perl /usr/TKLC/lsms/bin/dbreplMon` `root 20001 12377 0 03:51 pts/7 00:00:00 grep dbreplMon` `[root@lsmssec root]#` If you do not see the above text, continue to enter the command until you do see the above output. Then move on to Step 21.
21 ☐	**E5-APP-B:** Upgrade 1A E5-APP-B server	Repeat steps 1-19 on the 1A E5-APP-B.
22 ☐	**1A:** Login to 1A as lsmsmgr	**[hostname]consolelogin: lsmsmgr** Password: ***password***
23 ☐	**1A:** Start Node - will make node active and start application	Select **Maintenance** and press **[Enter]** Select **Start Node** and press **[Enter]** Select **Yes** to confirm node startup press **[Enter]** Select **Exit** and press **[Enter]** to return to Main Menu Select **Exit** and press **[Enter]** to exit the lsmsmgr menu
24 ☐	**1A : Delete upgrade.conf file**	**Enter following command to delete upgrade.conf file:** **$ rm –rf /usr/TKLC/plat/etc/upgrade/upgrade.conf**
25	**1B:** Login to 1B as lsmsmgr	**[hostname]consolelogin: lsmsmgr** Password: *password*

26	**1B:** Start Node - will make node standby and sync databases.	Select **Maintenance** and press **[Enter]** Select **Start Node** and press **[Enter]** Select **Yes** to confirm node startup and press **[Enter]** Select **Exit** and press **[Enter]** to return to Main Menu Select **Exit** and press **[Enter]** to exit the lsmsmgr menu The incremental upgrade is now complete. Return to Table 5.
27	**1B: Delete upgrade.conf file**	**Enter following command to delete upgrade.conf file:** **$ rm -rf /usr/TKLC/plat/etc/upgrade/upgrade.conf**

5.5 TMN Toolkit License Installation

Note: Valid Licenses need to be installed on both A and B LSMS servers.

Note: 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 IPMed but before LSMS installation) or eth0 (interface name after LSMS installation).**

Procedure 8: TMN Toolkit License Installation

S T E P #	This procedure will install the TMN Toolkit License to both A and B LSMS servers. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND **ASK FOR UPGRADE ASSISTANCE.**	
1. ☐	**E5-APP-B X:** Log in to the server as the user "root"	console login: root password: <root_password>
2. ☐	**E5-APP-B X:** Install the license file	Copy the license file to **$D_DIR/etc/license** path following any steps mentioned in **6.2H.1** or **6.2H.2**
3. ☐	**E5-APP-B X:** Reboot the server	Reboot the system to take effect of the installed license # **reboot**
4.	**Procedure complete.**	You have completed this procedure; please return to the procedure that directed you here.

5.6 **Post-Initial Application Processing**

Procedure 9: Application-Specific Processing for Post-Initial Installation

S T E P #	This procedure performs the post-install activity required by the LSMS application. **NOTE:** This procedure should not be completed if this is an upgrade. This procedure is only for initial installations of the application. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT THE ORACLE CUSTOMER CARE CENTER AND ASK FOR ASSISTANCE.	
1 ☐	**1A:** Start lsmsmgr utility by logging in on 1A server as lsmsmgr user	`[hostname] consolelogin: lsmsmgr` password: ***password***
2 ☐	**1A:** Perform first time login configuration	Select **Initial Configuration** and press **[ENTER]** Select yes for Run All Select **OK** and press **[ENTER]** Type in root password when prompted to exchange root SSH keys Select **OK** and press **[ENTER]** Type in lsmsadm password when prompted to exchange lsmsadm SSH keys Select **OK** and press **[ENTER]** Enter the NAS password and accept the default serial port (ttyS2) when prompted for the path to the NAS console device. Select **OK** and press **[ENTER]** 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 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. When message about hiding Initial Configuration menu is displayed, press **[ENTER]** Select **Exit** and press **[ENTER]** repeatedly to exit lsmsmgr
3 ☐	**1B:** Start lsmsmgr utility by logging in on 1A server as lsmsmgr user	`[hostname] consolelogin: lsmsmgr` password: ***password***
4 ☐	**1B:** Perform first time login configuration	Select **Initial Configuration** and press **[ENTER]** Select yes for Run All Select **OK** and press **[ENTER]** A message is displayed indicating the NAS Backup Configuration was successful. When message about hiding Initial Configuration menu is displayed, press **[ENTER]** Select **Exit** and press **[ENTER]** repeatedly to exit lsmsmgr
5 ☐	**1A:** Start lsmsmgr utility by logging in on 1A server as lsmsmgr user	`[hostname] consolelogin: platcfg`
6 ☐	**1A:** Restart the 1A server.	Select **Maintenance** and press **[ENTER]** Select **Restart Server** and press **[ENTER]** Confirm the server restart. Respond to the confirmation question : "Do you wish to

		restart the server". Select "Yes" and press **[ENTER]**. Confirm the server restart again. Respond to the confirmation question: "Are you sure you want to restart the server?". Select "Yes" and press **[ENTER]**.
7 ☐	**1B:** Start lsmsmgr utility by logging in on 1A server as lsmsmgr user	`[hostname] consolelogin: platcfg` password: ***password***
8 ☐	**1B:** Restart the 1B server.	Select **Maintenance** and press **[ENTER]** Select **Restart Server** and press **[ENTER]** Confirm the server restart. Respond to the confirmation question : "Do you wish to restart the server". Select "Yes" and press **[ENTER]**. Confirm the server restart again. Respond to the confirmation question: "Are you sure you want to restart the server?". Select "Yes" and press **[ENTER]**.

5.7 Post-Upgrade Health Check

Procedure 10: Post-Upgrade Health Check

S T E P #	This procedure determines the health of the Server after a upgrade. This procedure will perform a syscheck on each LSMS server, verify that MySQL replication is functioning correctly between the two LSMS servers, and capture command output to be used later. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT THE ORACLE CUSTOMER CARE CENTER AND ASK FOR ASSISTANCE.	
1 ☐	**E5-APP-B:** Verify Health of the Server	Execute Procedure 12 on the 1A and 1B servers to verify the health of the server. **NOTE**: If this upgrade is an initial installation of the LSMS application Some errors will be present until the system is fully configured and installed at the customer site. Only verify that the following syscheck classes pass (the first 3 classes in the output): • `disk` • `hardware` • `net` If this upgrade is an initial installation of the LSMS application please proceed to Step 14 of this procedure, otherwise continue to the next step.
2 ☐	**E5-APP-B:** Login to either LSMS server as the user "root".	`[hostname] consolelogin: root` password: ***password***
3 ☐	**E5-APP-B:** Execute the "hastatus" command to verify the HA state of this server.	Execute the following command to verify that you are on the STANDBY server. # **`hastatus`** If the output from the above command is "`ACTIVE`" then you are on the **`ACTIVE`** server and not the `STANDBY` server. Proceed to the next step of this procedure. If the output from the above command is "`STANDBY`" than you are on the **`STANDBY`** server, please proceed to Step 6 of this procedure.

4	**E5-APP-B:** SSH to the mate server.	Execute the following command to SSH to the mate server in order to verify that it is the STANDBY server. # **ssh mate**
5	**E5-APP-B:** Execute the "hastatus" command to verify the HA state of this server.	Execute the following command to verify that you are on the STANDBY server. # **hastatus** If the output from the above command is "STANDBY" than you are on the **STANDBY** server, please proceed to the next step of this procedure. **WARNING**: If the output from the above command is anything else other than "STANDBY" do not proceed with this upgrade and contact the Oracle Customer Care Center and assistance.
6	**E5-APP-B:** Login as the user "root" on the STANDBY server.	**[hostname] consolelogin: root** password: ***password***
7	**E5-APP-B:** 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. Wed Mar 18 23:42:34 2015 All tests passed on STANDBY Wed Mar 18 23:43:37 2015 All tests passed on STANDBY Wed Mar 18 23:44:40 2015 All tests passed on STANDBY Wed Mar 18 23:45:43 2015 All tests passed on STANDBY Wed Mar 18 23:46:46 2015 All tests passed on STANDBY Wed Mar 18 23:47:49 2015 All tests passed on STANDBY Wed Mar 18 23:48:51 2015 All tests passed on STANDBY Wed Mar 18 23:49:54 2015 All tests passed on STANDBY Wed Mar 18 23:50:56 2015 All tests passed on STANDBY Wed Mar 18 23:51:58 2015 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 the Oracle Customer Care Center for assistance.
8	**E5-APP-B:** Login as the user "lsmsadm" on the ACTIVE server.	**[hostname] consolelogin: lsmsadm** password: ***password***
9	**E5-APP-B:** Capture the output of the "lsmsdb –c counts"	Execute the following command on the ACTIVE LSMS server to display the current LSMS database counts:

	command.	$ **lsmsdb -c counts** **NOTE**: Capture the output from this command and make it available to the Oracle Customer Care Center if required.
10 ☐	**E5-APP-B:** Capture the output of the "lsmsdb –c features" command.	Execute the following command on the ATIVE LSMS server to display the current LSMS feature configuration: $ **lsmsdb -c features** **NOTE**: Capture the output from this command and make it available to the Oracle Customer Care Center if required.
11 ☐	**E5-APP-B:** Capture the output of the "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 the Oracle Customer Care Center and ask for assistance. Capture the output from this command and make it available to the Oracle Customer Care Center if required.
12 ☐	**E5-APP-B:** Capture the output of the "eagle status" command.	Execute the following command on the ACTIVE LSMS to display the current LSMS oracle communication eagle status: $ **eagle status** **NOTE:** Capture the output from this command and compare it to the output captured from the oracle communication eagle status command in Procedure 2: Pre-Upgrade Health Check. For each CLLI that had an ACTIVE State (A_ or B_ is irrelevant) before the upgrade should now have an ACTIVE state post upgrade. Depending on how long after the upgrade this procedure is run the resync may or may not be "COMPLETE". This status should be monitored until the resync is complete. If the resync does not complete contact the Oracle Customer Care Center and ask for assistance. Capture the output from this command and make it available to the Oracle Customer Care Center if required
13 ☐	**E5-APP-B**: Check MySQL version if connected with a Query Server	Excute the following command on the the ACTIVE LSMS to determine if a QS is connected: $ **lsmsdb -c queryservers** • If there is QS connected, output similar to the following displays:

		Queryserv1 (10.25.60.32) Connected On QS Solaris server: Determine whether the Oracle-provided MySQL version is installed on supported release: Enter the following command. # /usr/bin/mysql -V The output should display the running MySQL version is 5.6.18. If the version is other than 5.6.18, contact the Oracle Customer Care Center (1-800-432-8919) and ask for assistance. See Section 3.6 QS Upgrade for additional details. • If there is no QS connected, NO output will display.
14 ☐	**E5-APP-B:** The Post-Upgrade Health Check is complete.	This procedure is complete. Return to the Table in Section 3 that directed you to this procedure.

THIS COMPLETES THE INITIAL CONFIGURATION/ UPGRADE

6. RECOVERY PROCEDURES

Execute this section only if there is a problem and it is desired to revert back to the pre-upgrade version of the software.

Warning: Do not attempt to perform these backout procedures without first contacting the Oracle Customer Care Center at 1-888-FOR-TKLC or 1-888-367-8552; or for international callers 1-919-460-2150.

NOTE: These recovery procedures are provided for the backout of an Upgrade with Split-Mirror ONLY (i.e., from a failed 13.1.x release to the previously installed 13.0.y release). Backout of an initial installation is not supported.

6.1 Backout Setup

The reason to execute a backout has a direct impact on any backout preparation that must be done. Since the reason cannot be known ahead of time, no definitive procedure can be written.

Oracle Customer Support personnel will have to have login access to the affected E5-APP-B, probe the server for the root cause of the problem, and execute whatever setup or cleanup is necessary in order to prepare the E5-APP-B for backout.

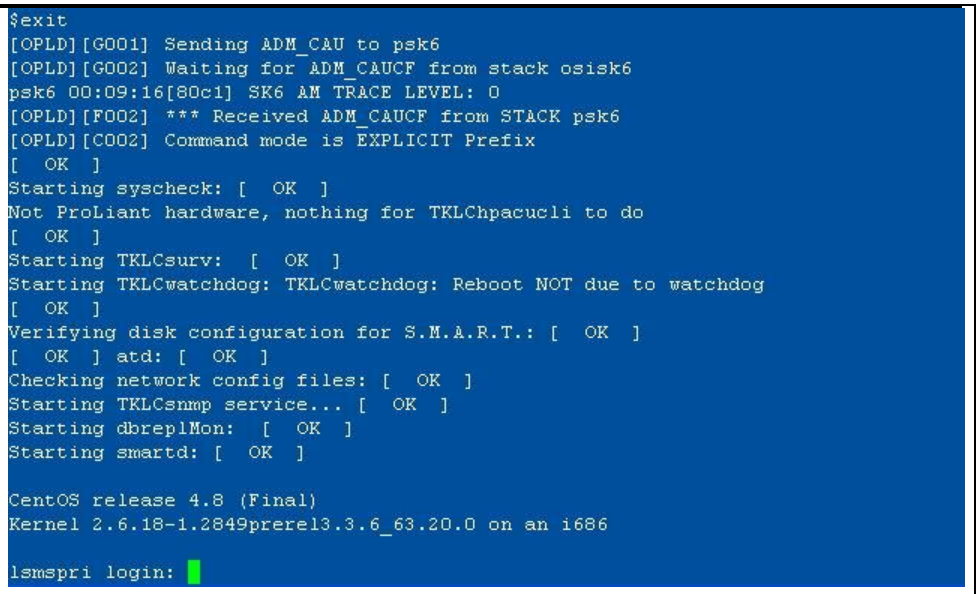
No matter the initial cause of the upgrade problem, once all necessary corrective steps have been taken to prepare for the backout, then the following procedure can be executed to perform a backout. On a backout of a incremental upgrade with split-mirror, the server will remain in runlevel 3 (no applications running) and no disk mirroring will occur. The user will be required to manually reboot the server to bring it back into service and a syscheck can be performed.

6.2 Perform Backout

Procedure 11: E5-APP-B Backout Procedure

S T E P #	This procedure will back out an upgrade of LSMS application software. This procedure can be done if only 1 E5-APP-B needs a backout, or if both need a backout. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.	
1 ☐	**1B:** Login to **1B** as lsmsmgr	**[hostname] consolelogin:** `lsmsmgr` password: ***password***
2 ☐	**1B:** Stop Node - will stop the node and replication	Select **Maintenance** and press **[Enter]** Select **Stop Node** and press **[Enter]** Select **Yes** to confirm node shutdown press **[Enter]** Select **Exit** and press **[Enter]** to return to Main Menu Select **Exit** and press **[Enter]** to exit the lsmsmgr menu
3 ☐	**1A:** Login to 1A as lsmsmgr	**[hostname]consolelogin:** `lsmsmgr` Password: ***password***
4 ☐	**1A:** Stop Node - will stop the node and the LSMS application.	Select **Maintenance** and press **[Enter]** Select **Stop Node** and press **[Enter]**

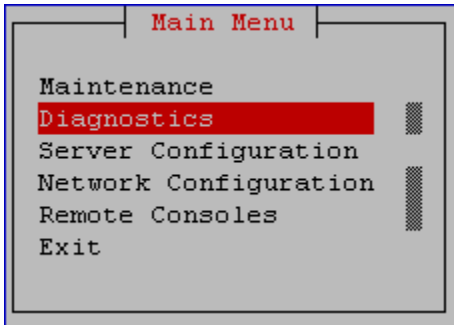
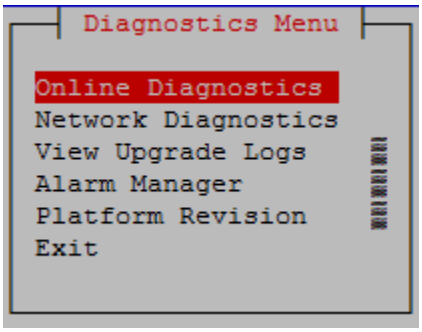
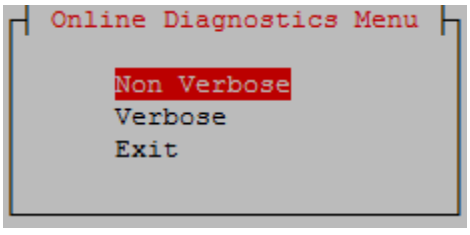
		Select **Yes** to confirm node shutdown and press **[Enter]** Select **Exit** and press **[Enter]** to return to Main Menu Select **Exit** and press **[Enter]** to exit the lsmsmgr menu
5 ☐	**1A:** Log in to the server as user **root**	`[hostname] consolelogin: root` password: ***password***
6 ☐	**1A:** Change directory	Change to the backout directory. `$ cd /var/TKLC/backout`
7 ☐	**1A:** Execute the backout	Execute the backout using the ugwrap script. `$ ./backout_server` **NOTE:** If backout asks if you would like to proceed with upgrade, answer "Y".
8 ☐	**1A**: Backout proceeds	Many informational messages will come across the terminal screen as the backout proceeds. Finally, after backout is complete a message will be displayed stating that a reboot is required. Proceed to the next step of this procedure to verify the backout before rebooting by following the rest of this procedure.
9 ☐	**1A**: Verify the Backout	Examine the upgrade logs in the directory `/var/TKLC/log/upgrade` and verify that no errors were reported. `$ grep -i error /var/TKLC/log/upgrade/upgrade.log` `$ grep -i error /var/TKLC/log/upgrade/ugwrap.log` Examine the output of the above command to determine if any errors were reported .
10 ☐	**1A**: Verify the backout for Incremental Upgrade with Split-Mirror.	If the backout was ***not*** successful and errors were recorded in the logs, then contact Oracle Technical Service for further instructions. If the backout ***was*** successful, then continue with the following steps:
11 ☐	**1A**: Server Reboot	Server will be rebooted after completion of backout process.
12 ☐	**1A**: Reboot completed	After the reboot, the screen will display the login prompt, as shown in the example below.

		
13 ☐	**1B:** Backout mate E5-APP-B	Perform steps 6-12 on the 1B E5-APP-B.
14 ☐	**1A:** Login to 1A as lsmsmgr	**[hostname]consolelogin: lsmsmgr** Password: ***password***
15 ☐	**1A:** Start Node - will make node active and start application	Select **Maintenance** and press **[Enter]** Select **Start Node** and press **[Enter]** Select **Yes** to confirm node startup press **[Enter]** Select **Exit** and press **[Enter]** to return to Main Menu Select **Exit** and press **[Enter]** to exit the lsmsmgr menu
16 ☐	**1B:** Login to 1B as lsmsmgr	**[hostname]consolelogin: lsmsmgr** Password: *password*
17 ☐	**1B:** Start Node - will make node standby and sync databases.	Select **Maintenance** and press **[Enter]** Select **Start Node** and press **[Enter]** Select **Yes** to confirm node startup and press **[Enter]** Select **Exit** and press **[Enter]** to return to Main Menu Select **Exit** and press **[Enter]** to exit the lsmsmgr menu
18 ☐	**E5-APP-B:** Backout is done	The backout procedure is complete .

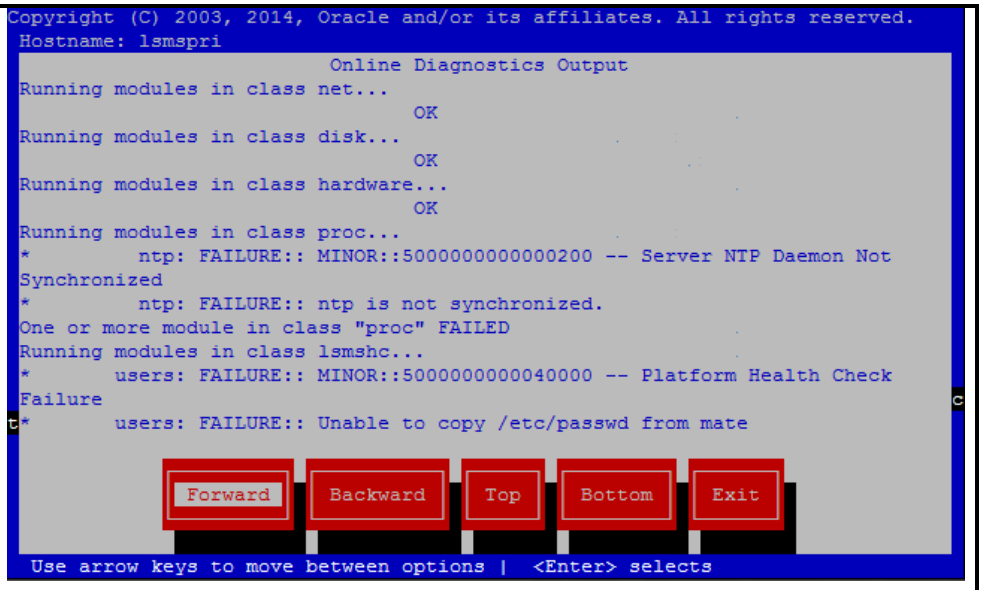
APPENDIX A. GENERIC PROCEDURES

A.1 Perform System Health Check

Procedure 12: Perform System Health Check

S T E P #	This procedure performs a system health check on any E5-APP-B. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT THE ORACLE CUSTOMER CARE CENTER AND ASK FOR ASSISTANCE.	
1 ☐	Start platcfg utility by logging in server as platcfg.	[hostname] consolelogin: **platcfg** Password: ***password***
2 ☐	Make selections on the Main Menu of the Platform Configuration Utility.	On the **Main Menu**, select the **Diagnostics** submenu, and press **[ENTER]**. Select **Online Diagnostics**, and press **[ENTER]**. Select **Non Verbose**, and press **[ENTER]**.   
3 ☐	Examine the output of the Online Diagnostics.	Non-verbose diagnostic results appear on the screen. Actual results differ from this example.

Procedure 12: Perform System Health Check

		
4 ☐	System Check Successful	If the System Check was successful you have completed this procedure, return to the procedure from which you came.
5 ☐	Detection of a survMon alarm in syscheck	If the System Check detects the following error for the "proc" class please proceed to the next step of this procedure for corrective action; `Running modules in class proc...` **`* run: FAILURE:: MINOR::5000000000000002 -- Server Application Process Error`** **`* run: FAILURE:: Only 0 instance(s) of survMon running. 1 instance(s) required!`** `One or more module in class "proc" FAILED` If System Check detected any other failures please proceed to step 9 of this procedure.
6 ☐	Verify contents of survMon last state file.	Execute the following command to verify that the last state/status of the "lsmssurv" process is stop: `[root@lsmspri ~]#` **`cat /usr/TKLC/lsms/config/lsmsSurv.last`** `STOP`
7 ☐	Start Surveillance (survMon).	Execute the following command to "lsmssurv" process, this will start the LSMS survMon: `[root@lsmspri ~]#` **`/usr/TKLC/lsms/bin/lsmssurv start`** **`LSMS Surveillance feature started`**
8 ☐	Verify contents of survMon last state file.	Execute the following command to verify that the last state/status of the "lsmssurv" process is start, this will insure that the crond daemon will restart it upon a failure: `[root@lsmspri ~]#` **`cat /usr/TKLC/lsms/config/lsmsSurv.last`** **`START`**

Procedure 12: Perform System Health Check

		You have successfully completed this procedure, return to the procedure from which you came.
9 ☐	System Check Failure	.If System Check detected any failures, please contact the Oracle Customer Care Center (1-800-432-8919) and ask for assistance. Any errors must be well understood before proceeding with the upgrade, errors concerning core files may be ignored. **Note:** that if no application is installed, the message "No alarm dispatch utility available" is not a failure.

A.2 ISO Image copy from USB Media

Assumption: The USB media contains the desired LSMS ISO.

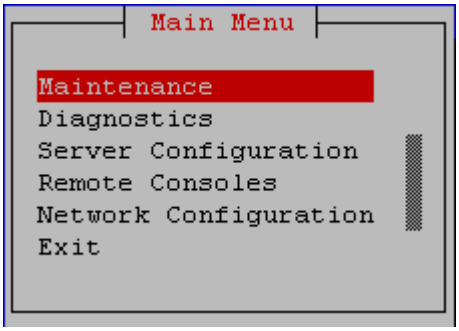
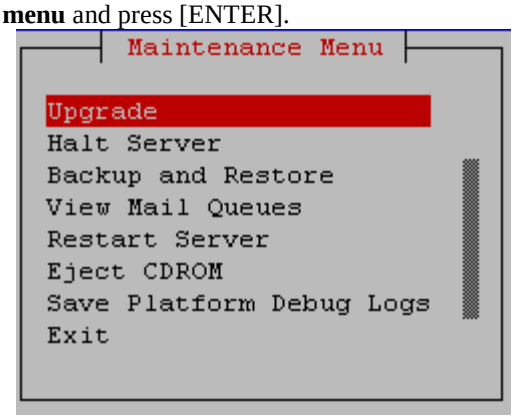
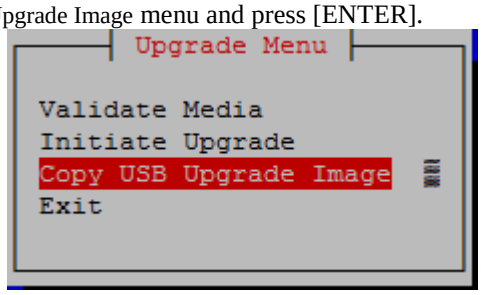
Procedure 13: ISO Image copy from USB media

S T E P #	This procedure provides instructions to copy an ISO image from an USB media. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR UPGRADE ASSISTANCE.	
1. ☐	**E5-APP-B X:** Insert USB.	Insert media in USB drive
2. ☐	**E5-APP-B X:** Log in to the server as the "root" user.	**[hostname] consolelogin: root** **password: password**
3. ☐	**E5-APP-B 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. ☐	**E5-APP-B X:** Verify ISO image doesn't already exist.	Execute the following command to perform directory listing: **# ls -al /var/TKLC/upgrade** The output should look like: `[root@hostname ~]# ls -al /var/TKLC/upgrade` `total 16` `dr-xr-xr-x  2 root root 4096 Oct 22 16:31 .` `dr-xr-xr-x 21 root root 4096 Oct 18 13:40 ..`

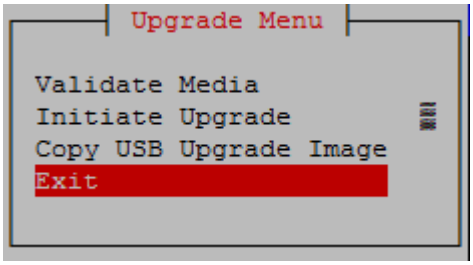
Procedure 13: ISO Image copy from USB media

		If an ISO image exists, remove it by executing the following command: **# rm –f /var/TKLC/upgrade/<ISO image>**
5. ☐	**E5-APP-B 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 16:20 872-2035-02-13.0.0_130.2.0-LSMS-i386.iso` Only one ISO file should be listed, if additional files are listed, execute the following command to remove unwanted ISOs: **# rm –f /mnt/usb/<ISO_NAME>.iso** For e.g., **# rm –f /mnt/usb/872-2035-02-13.0.0_130.1.0-LSMS-i386.iso** Execute the following command to unmount the USB media: **# umount /mnt/usb**
6. ☐	**E5-APP-B 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@hostname ~]# df -h /var/TKLC` `Filesystem Size Used Avail Use% Mounted on` `/dev/md7 3.9G 89M 3.7G 3% /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.	**E5-APP-B X:** Start platcfg utility.	Execute the following command to change the user: **# su – platcfg**

Procedure 13: ISO Image copy from USB media

☐		
8. ☐	**E5-APP-B X:** Select the Maintenance submenu.	On the Main Menu of the Platform Configuration Utility, select **Maintenance** and press **[ENTER]**. 
9. ☐	**E5-APP-B X:** Select the Upgrade submenu.	Select the **Upgrade menu** and press [ENTER]. 
10.	**E5-APP-B X:** Select Copy USB Upgrade Image submenu.	Select the Copy USB Upgrade Image menu and press [ENTER]. 
11. ☐	**E5-APP-B X:** The ISO will be copied from the USB media to /var/TKLC/upgrade. Press any key to return to Upgrade menu.	`Copying /mnt/upgrade/872-2035-02-13.0.0_130.2.0-LSMS-i386.iso...` `PRESS ANY KEY TO RETURN TO THE PLATCFG MENU.`
12. ☐	**E5-APP-B X:** Exit platcfg.	Select Exit and press [ENTER] repeatedly until the “platcfg” utility terminates.

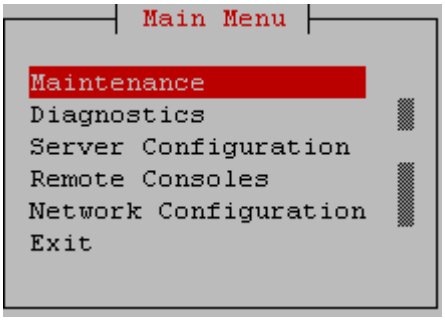
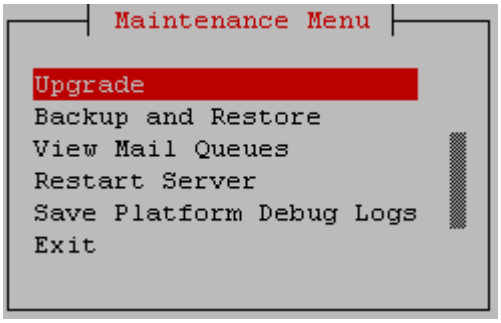
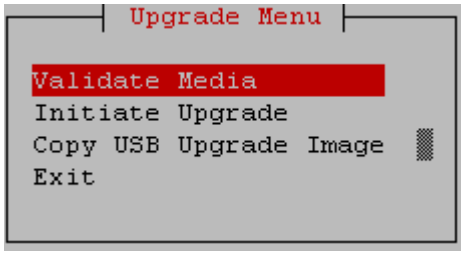
Procedure 13: ISO Image copy from USB media

		
13. ☐	**E5-APP-B X:** Verify ISO image exists.	Execute the following command to perform directory listing: # ls –al /var/TKLC/upgrade The output should look like: `[root@hostname ~]# ls -al /var/TKLC/upgrade` `total 16` `dr-xr-xr-x  2 root root 4096 Oct 22 16:31 .` `dr-xr-xr-x 21 root root 4096 Oct 18 13:40 ..` `-rw-r--r--  1 root root 643852288 Oct 15 15:37 872-2035-02-13.0.0_130.2.0-LSMS-i386.iso` Repeat this procedure from step 5 if LSMS ISO file is not as expected.
14. ☐	**E5-APP-B X:** Logout from server.	Logout from the server by executing the following command: # logout
15. ☐	**E5-APP-B X: Remove USB media.**	Remove media from USB drive.
16. ☐	**E5-APP-B X: Validate ISO file.**	Validate ISO file using procedure A.3.
17. ☐	**Procedure complete.**	This procedure is complete.

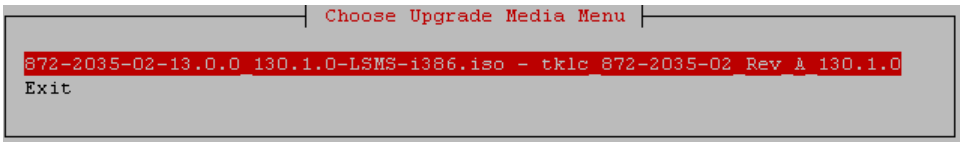
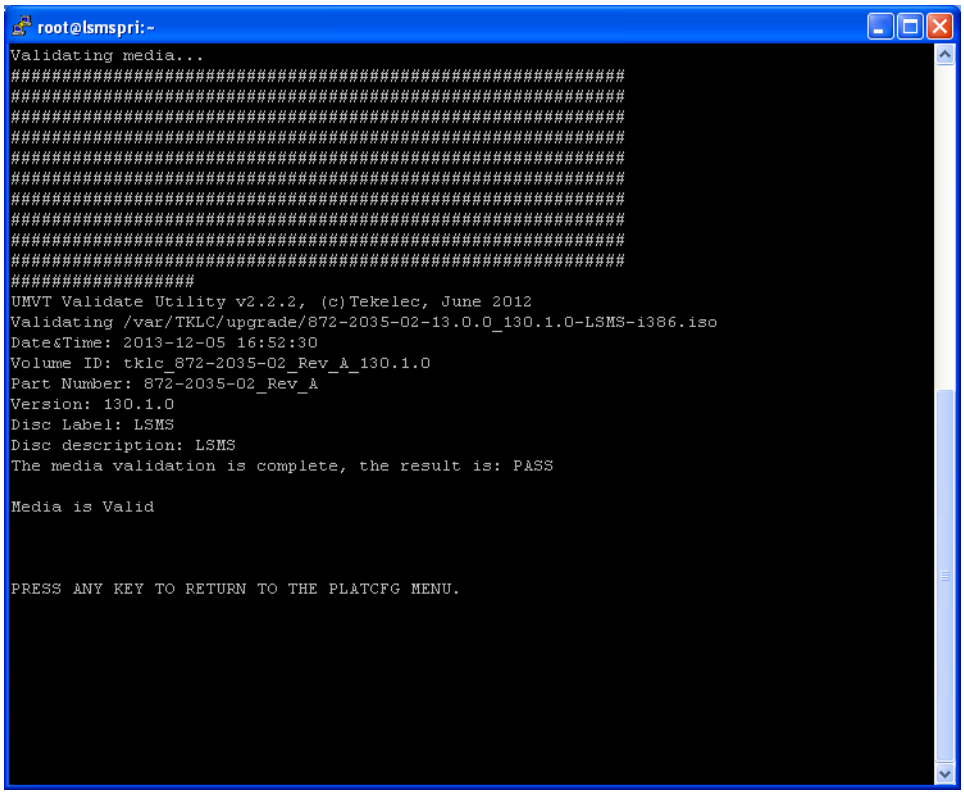
A.3 Validate Upgrade Media

This procedure is used to execute a validation of the Upgrade Media (typically an ISO image) separately from executing an upgrade. The upgrade process automatically validates the upgrade media. However, sometime the user may wish to perform just a validation before proceeding with upgrade, thus the reason for this separate process.

Procedure 14: Validate the Upgrade Media

S T E P #	This procedure provides instructions to perform a validation of the upgrade media on the server. This procedure assumes that the E5-APP-B IPM procedure has been executed and the user has an application Upgrade ISO image available. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT THE ORACLE CUSTOMER CARE CENTER AND ASK FOR ASSISTANCE.	
1 ☐	**E5-APP-B:** Start platcfg utility by logining as platcfg user	**hostname] consolelogin**: `platcfg` Password: ***password***
2 ☐	**E5-APP-B:** Select the Maintenance submenu	On the **Main Menu** of the Platform Configuration Utility, select **Maintenance** and press **[ENTER]**. 
3 ☐	**E5-APP-B:** Navigate to the media validation function.	Select the **Upgrade** menu and press **[ENTER]**.  Select the **Validate Media** menu and press **[ENTER]**. 
4	**E5-APP-B:** Output from the Validate	The screen displays a message that it is searching for upgrade media. Once the upgrade media is found, an Upgrade Media selection menu appears similar to the example below.

Procedure 14: Validate the Upgrade Media

☐	Media selection.	Select the desired upgrade media and press **[ENTER]**. There should only be one selection available, as in the example below. 
5 ☐	**E5-APP-B:** View the Validation results	The results of the validation are displayed, similar to the example below. Press **[ENTER]** to continue. 
6 ☐	**E5-APP-B:** Go to the Upgrade menu.	Select **Exit** and press **[ENTER]** repeatedly until the "platcfg" utility terminates.
7 ☐	**E5-APP-B:** Validation complete.	Media Validation is complete.

A.4 Accepting the Upgrade

This procedure is used to accept the incremental upgrade with split mirror. This procedure will start the re-mirroring of discs.

Procedure 15: Validate the Upgrade Media

S T E P #	This procedure provides instructions to accept an incremental upgrade with split-mirror Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
1 ☐	**MPS X:** Log in to server as the user "root"	<hostname> console login: root password: <password>
2 ☐	**MPS X:** Execute the Upgrade Accept Script	# /var/TKLC/backout/accept The system will reboot and the disk will be synced. It takes between an hour and two to fully sync the disks. To check the status of the sync execute the following command # cat /proc/mdstat Expected Output: Personalities : [raid1] md1 : active raid1 sdb1[1] sda1[0] 264960 blocks [2/2] [UU] md3 : active raid1 sdb2[1] sda2[0] 2048192 blocks [2/2] [UU] md8 : active raid1 sdb5[1] sda5[0] 270389888 blocks [2/2] [UU] md7 : active raid1 sdb6[1] sda6[0] 4192832 blocks [2/2] [UU] md4 : active raid1 sdb7[1] sda7[0] 4192832 blocks [2/2] [UU] md6 : active raid1 sdb8[1] sda8[0] 1052160 blocks [2/2] [UU] md5 : active raid1 sdb9[1] sda9[0] 1052160 blocks [2/2] [UU] md2 : active raid1 sdb3[1] sda3[0] 1052160 blocks [2/2] [UU]
3 ☐	**MPS X:** StartNode	**[hostname]consolelogin: lsmsmgr** Password: *password* Select **Maintenance** and press **[Enter]** Select **Start Node** and press **[Enter]**

Procedure 15: Validate the Upgrade Media

		Select **Yes** to confirm node startup and press **[Enter]** Select **Exit** and press **[Enter]** to return to Main Menu Select **Exit** and press **[Enter]** to exit the lsmsmgr menu
4 ☐	Procedure complete	This procedure is complete.

APPENDIX B. SITE CONFIGURATION

The following procedures describe configuring the E5-APP-B at the customer's site. Since these procedures are to be executed on site, not part of the manufacturing process. The information here is purely informational only.

NOTE: Both Single and Segmented Configuration is supported on E5-APP-B.

B.1 Segmented Configuration

Procedure 16: Segmented Configuration

S T E P #	This procedure configures the system at the customer site. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT THE ORACLE CUSTOMER CARE CENTER AND ASK FOR ASSISTANCE.	
1 ☐	**1A:** Start lsmsmgr utility by login to **1A** as lsmsmgr	`[hostname] consolelogin: lsmsmgr` password: ***password***
2 ☐	**1A:** Verify time zone.	Select **Server Configuration** and press **[ENTER].** Select **Time Zone** and press **[ENTER].** The screen shows the current time zone setting. If this is not correct, select **Edit** and press **[ENTER].** If the time zone is correct, select **Exit**, press **[ENTER]** and skip the next step
3 ☐	**1A:** Change time zone.	Select appropriate time zone. Use right arrow to get to **OK** and press **[ENTER].** Select **Exit** and press **[ENTER].** Select **Exit** and press **[ENTER]** repeatedly to return to the login prompt
4 ☐	**1B:** Start lsmsmgr utility by login in as lsmsmgr	`[hostname] consolelogin: lsmsmgr` password: ***password***
5 ☐	**1B:** Verify time zone.	Select **Server Configuration** and press **[ENTER].** Select **Time Zone** and press **[ENTER].** The screen shows the current time zone setting. If this is not correct, select **Edit** and press **[ENTER].** If the time zone is correct, select **Exit**, press **[ENTER]** and skip the next step
6 ☐	**1B:** Change time zone.	Select appropriate time zone. Use right arrow to get to **OK** and press **[ENTER].** Select **Exit** and press **[ENTER].**

Procedure 16: Segmented Configuration

		Select **Exit** and press **[ENTER]** repeatedly to return to the main menu
7 ☐	**1A:** Start lsmsmgr utility by login as lsmsmgr user	`[hostname] consolelogin: lsmsmgr` password: ***password***
8 ☐	**1A:** Change the network configuration	Select **Network Configuration** and press **[ENTER]**. Select **Network Reconfiguration** and press **[ENTER]**. 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 and select segmented configuration.
9 ☐	**1A:** 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 of the following settings: System Number 1A server hostname 1B server hostname NPAC Pingable Gateway 1A NPAC IP address and netmask 1B NPAC IP address and netmask APP VLAN ID APP Pingable Gateway 1A App IP address and netmask 1B App IP address and netmask Application network VIP address EMS VLAN ID EMS Pingable Gateway 1A EMS IP address and netmask 1B EMS IP address and netmask Default route IP and Interface NTP Server IP address Once the values are entered press the down arrow to select the "Submit" button and press the right arrow to follow the link.
10 ☐	**1A:** 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.

Procedure 16: Segmented Configuration

		The execution could take a few minutes, be patient. The screen will eventually report the status of the completion. If an error occurs, contact ORACLE.
11 ☐	**1A:** Start Node - will make node active and start application	Select **Maintenance** and press **[Enter]** Select **Start Node** and press **[Enter]** Select **Yes** to confirm node startup press **[Enter]** Select **Exit** and press **[Enter]** to return to Main Menu Select **Exit** and press **[Enter]** to exit the lsmsmgr menu
12 ☐	**1B:** Start lsmsmgr utility by log in as lsmsmgr	**[hostname]consolelogin: lsmsmgr** password: ***password***
13 ☐	**1B:** Start Node - will make node standby and sync databases.	Select **Maintenance** and press **[Enter]** Select **Start Node** and press **[Enter]** Select **Yes** to confirm node startup and press **[Enter]** Select **Exit** and press **[Enter]** to return to Main Menu Select **Exit** and press **[Enter]** to exit the lsmsmgr menu

B.2 Single Subnet Configuration

Procedure 17: Single Subnet Configuration

S T E P #	This procedure configures the system at the customer site. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT THE ORACLE CUSTOMER CARE CENTER AND ASK FOR ASSISTANCE.
1 ☐	**1A:** Start lsmsmgr utility by login to **1A** as lsmsmgr	**[hostname] consolelogin: lsmsmgr** password: ***password***
2 ☐	**1A:** Verify time zone.	Select **Server Configuration** and press **[ENTER].** Select **Time Zone** and press **[ENTER].** The screen shows the current time zone setting. If this is not correct, select **Edit** and press **[ENTER].** If the time zone is correct, select **Exit**, press **[ENTER]** and skip the next step
3 ☐	**1A:** Change time zone.	Select appropriate time zone. Use right arrow to get to **OK** and press **[ENTER].** Select **Exit** and press **[ENTER].** Select **Exit** and press **[ENTER]** repeatedly to return to the login prompt
4	**1B:** Start lsmsmgr utility by login in as	**[hostname] consolelogin: lsmsmgr** password: ***password***

Procedure 17: Single Subnet Configuration

☐	lsmsmgr	
5 ☐	**1B:** Verify time zone.	Select **Server Configuration** and press **[ENTER].** Select **Time Zone** and press **[ENTER].** The screen shows the current time zone setting. If this is not correct, select **Edit** and press **[ENTER].** If the time zone is correct, select **Exit**, press **[ENTER]** and skip the next step
6 ☐	**1B:** Change time zone.	Select appropriate time zone. Use right arrow to get to **OK** and press **[ENTER].** Select **Exit** and press **[ENTER].** Select **Exit** and press **[ENTER]** repeatedly to return to the main menu
7 ☐	**1A:** Start lsmsmgr utility by login as lsmsmgr user	`[hostname] consolelogin: lsmsmgr` password: ***password***
8 ☐	**1A:** Change the network configuration	Select **Network Configuration** and press **[ENTER].** Select **Network Reconfiguration** and press **[ENTER].** 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 and select single configuration.
9 ☐	**1A:** 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 of the following settings: System Number 1A server hostname 1B server hostname 1A server App/EMS/NPAC IP address and netmask 1B server App/EMS/NPAC IP address and netmask Network Pingable gateways (optional, comma delimited) Application network VIP address Default route IP and Interface NTP Server IP address Once the values are entered press the down arrow to select the “Submit” button and press the right arrow to follow the link.

10	**1A:** 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 ORACLE.
11	**1A:** Start Node - will make node active and start application	Select **Maintenance** and press **[Enter]** Select **Start Node** and press **[Enter]** Select **Yes** to confirm node startup press **[Enter]** Select **Exit** and press **[Enter]** to return to Main Menu Select **Exit** and press **[Enter]** to exit the lsmsmgr menu
12	**1B:** Start lsmsmgr utility by log in as lsmsmgr	**[hostname]consolelogin: lsmsmgr** password: ***password***
13	**1B:** Start Node - will make node standby and sync databases.	Select **Maintenance** and press **[Enter]** Select **Start Node** and press **[Enter]** Select **Yes** to confirm node startup and press **[Enter]** Select **Exit** and press **[Enter]** to return to Main Menu Select **Exit** and press **[Enter]** to exit the lsmsmgr menu

THIS COMPLETES THE SITE CONFIGURATION

APPENDIX C. RESTORE CUSTOMIZED MY.CNF FILE

Procedure 18: Restore Customized my.cnf File

S T E P #	This procedure restores the my.cnf file at the customer site. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT THE ORACLE CUSTOMER CARE CENTER AND ASK FOR ASSISTANCE.	
1 ☐	**E5-APP-B:** Login as the user "root".	`[hostname] consolelogin: root` password: ***password***
2 ☐	**E5-APP-B:** Verify the my.cnf file.	Execute the following command to determine if the /var/TKLC/log/upgrade/my.cnf file is present `# ls -l /var/TKLC/log/upgrade/my.cnf` If the above file is present and its modified time is the time when the upgrade was running, move on to step 3. Otherwise, move on to step 6.
3 ☐	**E5-APP-B:** Verify the "old-passwords" option	Execute the following command to determine if the my.cnf file needs to be restored. `# grep "old-passwords" /var/TKLC/log/upgrade/my.cnf` If the displayed result is "#old-passwords", move on to step 4. Otherwise, move on to step 6.
4 ☐	**E5-APP-B:** Restore the my.cnf file	Use the rcstool to copy over the my.cnf file. `# rcstool co /etc/my.cnf` `# cp /var/TKLC/log/upgrade/my.cnf /etc/` `# rcstool ci /etc/my.cnf`
5 ☐	**E5-APP-B:** Restart mysql	Execute the following commands to restart MySQL. `# init 3` `# init 4`
6 ☐	**E5-APP-B:** Restore completed	Go back to the Upgrade Procedure.

APPENDIX D. PID FILE AND STATE FILE CHECKS

D.1 Check for .ugwrap_pid file existence

Procedure 19: Check for existence and remove the ugwrap_pid file

S T E P #	This procedure checks for the existence and removes the .ugwrap_pid file on a single server, prior to upgrade this procedure should be run on both servers 1A and 1B. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT THE ORACLE CUSTOMER CARE CENTER AND ASK FOR ASSISTANCE.	
1 ☐	**E5-APP-B:** Login as the user "root".	`[hostname] consolelogin: root` password: ***password***
2 ☐	**E5-APP-B:** Determine the existence of the .ugwrap_pid file.	Execute the following command to check for the existence of the .ugwrap_pid file: # `ls -la /tmp/.ugwrap_pid` If the .upwrap_pid file ***does not*** exist there will be no output from the above command. If the .upwrap_pid file ***does*** exist then the following output will be observed. `-rw-r--r--  1 root  root  4 Jul 24 09:11 .ugwrap_pid` If the file does not exist then you have completed this procedure, please return to the procedure that directed you here. Otherwise, continue to step 3.
3 ☐	**E5-APP-B:** Verify that the ugwrap process is not running.	Execute the following command to determine if the ugwrap process is currently running. # `ps -ef | grep ugwrap | grep -v grep` **<u>WARNING</u>** If there is output to the following command indicating that an ugwrap process is running than an upgrade is in progress and you should cease all command execution and contact Oracle Customer Service immediately. If there is no output to the above command than a ugwrap process is not running, proceed to step 4.
4 ☐	**E5-APP-B:** Remove the .ugwrap_pid file from the server.	Execute the following command to remove the .ugwrap_pid file, type "y" when prompted. # `rm /tmp/.ugwrap_pid` `rm: remove regular empty file `/tmp/.ugwrap_pid'? y`
5 ☐	**E5-APP-B:** Procedure complete.	You have completed this procedure.

D.2 Check for .ugwrap_state file existence

Procedure 20: Check for existence and remove the ugwrap_ state file

S T E P #	This procedure checks for the existence and removes the ugwrap_ state file on a single server, prior to upgrade this procedure should be run on both servers 1A and 1B. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT THE ORACLE CUSTOMER CARE CENTER AND ASK FOR ASSISTANCE.	
1 ☐	**E5-APP-B:** Login as the user "root".	**[hostname] consolelogin: root** password: ***password***
2 ☐	**E5-APP-B:** Determine the existence of the .ugwrap_ state file.	Execute the following command to check for the existence of the .ugwrap_ state file: # **ls -la /var/tmp/.ugwrap_state** If the .ugwrap_state file ***does not*** exist there will be no output from the above command. If the .ugwrap_state file ***does*** exist then the following output will be observed. `-rw-r--r--  1 root  root  4 Jul 24 09:11 .ugwrap_state` If the file does not exist then you have completed this procedure, please return to the procedure that directed you here. Otherwise, continue to step 3.
3 ☐	**E5-APP-B:** Remove the .ugwrap_ state file from the server.	Execute the following command to remove the .ugwrap_state file, type "y" when prompted. # **rm /var/tmp/.ugwrap_state** `rm: remove regular empty file `/var/tmp/.ugwrap_state '? y`
4 ☐	**E5-APP-B:** Procedure complete.	You have completed this procedure.

APPENDIX E. STOPPING AN LSMS BACKUP AND VERIFYING THAT LOGICAL VOLUMES AND MOUNT POINTS ARE REMOVED

Procedure 21: Stopping an LSMS backup in progress

S T E P #		
	This procedure explains how to terminate an LSMS backup if one is running prior to performing an upgrade. The backup cannot be stopped currently via a stop command or specific signal but will have to be manually terminated. If the user reboots the server prior to executing steps 2-6 that will terminate the backup, but then steps 7-17 should be executed immediately after the reboot to ensure things are properly cleaned up. **Note**: The user should perform all of the following commands as the LSMS root user. The snapshot is only mounted during the db portion of the backup but this phase will consume the majority of the time required to perform a backup. The snapshot will not be mounted during the platform and logs portion of the backup but terminating it may leave TOC file and backupserver LOCK file cleanup necessary as described in step11, 13, and 16 below. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT THE ORACLE CUSTOMER CARE CENTER AND ASK FOR ASSISTANCE.	
1 ☐	**E5-APP-B:** Login as the user "root".	**`[hostname] consolelogin: root`** password: ***password***
2 ☐	**E5-APP-B:** Determine the PID of the "lsmsbkp" process.	Execute the following command to determine if the "lsmsbkp" process is actively running: `[root@lsmssec ~]# ps –ef | grep lsmsbkp | grep –v grep` `root 25938 11126 0 15:08 pts/3 00:00:00 /bin/bash /usr/TKLC/lsms/tools/lsmsbkp_wrapper` ***`root 25976 25938 0 15:08 pts/3 00:00:00 /bin/sh /usr/TKLC/lsms/tools/lsmsbkp`*** If a LSMS backup is in progress the output will show two processes running. Record the PID(process id) of the "lsmsbkp" process and proceed to the next step of this procedure. PID: _____ If the above command returns no output then proceed to Step 7 of this procedure to verify that the logical volume does not exist and is not mounted.
3 ☐	**E5-APP-B:** Terminate the "lsmsbkp" process.	Execute the following command to terminate the "lsmsbkp" process: `[root@lsmssec ~]# kill -9 <lsmsbkp PID>`
4 ☐	**E5-APP-B:** Monitor the "lsmsbkp_wrapper" process until it terminates.	After the lsmsbkp process is terminated the lsmsbkp_wrapper should also terminate, Execute the following command to monitor this until no output is displayed. `[root@lsmssec ~]# ps –ef | grep lsmsbkp_wrapper | grep –v grep` If after several minutes the "lsmsbkp_wrapper" process does not terminate then it can be terminated using the method described previously in step 3 this time for the "lsmsbkp_wrapper" process.

Procedure 21: Stopping an LSMS backup in progress

5 ☐	**E5-APP-B:** Check the "netbackup" process	Most likely the backup will be terminated during the database phase of the backup as this is the longest running phase. We need to check for and terminate the netbackup routine which is actually doing the work: Execute the following command to determine if the "netbackup" process is actively running: `[root@lsmssec mnt]# ps -ef | grep netbackup | grep -v grep` `root 14937 13435 5 15:35 pts/3 00:00:00 /usr/bin/perl -T /usr/TKLC/plat/bin/netbackup --config=/usr/TKLC/plat/etc/BackupTK/lsmsdb.xml --repository=db`
6 ☐	**E5-APP-B:** Terminate the "netbackup" process.	Execute the following command to terminate the "netbackup" process: `[root@lsmssec mnt]# kill -9 <netbackup PID>`
7 ☐	**E5-APP-B:** Verify the mount point for the backup snapshot exists.	Execute the following command to verify that the dbbackup logical volume is mounted at the mount point /mnt/backup/var/TKLC/lsms/db : `[root@lsmssec ~]# df -h` `Filesystem Size Used Avail Use% Mounted on` `/dev/md2 494M 171M 298M 37% /` `/dev/md1 251M 18M 221M 8% /boot` `none 4.0G 0 4.0G 0% /dev/shm` `/dev/md6 1012M 34M 927M 4% /tmp` `/dev/md5 4.0G 1.7G 2.2G 43% /usr` `/dev/md7 494M 185M 284M 40% /var` `/dev/md8 4.0G 2.3G 1.5G 61% /var/TKLC` `/dev/md9 494M 11M 458M 3% /var/TKLC/recovery` `/dev/md10 4.0G 41M 3.7G 2% /var/TKLC/recovery/usr` `/dev/md11 15G 70M 15G 1% /var/TKLC/swap` `/dev/mapper/vgroot-lsms--root 4.0G 138M 3.7G 4% /var/TKLC/lsms` `/dev/mapper/vgroot-lsms--db 82G 1.2G 77G 2% /var/TKLC/lsms/db` `/dev/mapper/vgroot-lsms--external 2.0G 68M 1.9G 4% /var/TKLC/lsms/external` `/dev/mapper/vgroot-lsms--free 52G 182M 49G 1% /var/TKLC/lsms/free` `/dev/mapper/vgroot-lsms--logs 36G 196M 34G 1% /var/TKLC/lsms/logs` ***`/dev/mapper/vgroot-dbbackup 82G 1.2G 77G 2% /mnt/backup/var/TKLC/lsms/db`*** If /mnt/backup/var/TKLC/lsms/db is not mounted proceed to Step 9 of this procedure.
8 ☐	**E5-APP-B:** Umount the mount point for the backup snapshot.	Execute the following command to un-mount the mount point for the snapshot: `[root@lsmssec mnt]# umount /mnt/backup/var/TKLC/lsms/db` Execute the following command to verify that the mount point for the snapshot has been unmounted. The commands output will look like the following when mount point for the snapshot has been unmounted: `[root@lsmssec ~]# df -h` `Filesystem Size Used Avail Use% Mounted on` `/dev/md2 494M 171M 298M 37% /` `/dev/md1 251M 18M 221M 8% /boot` `none 4.0G 0 4.0G 0% /dev/shm` `/dev/md6 1012M 34M 927M 4% /tmp` `/dev/md5 4.0G 1.7G 2.2G 43% /usr` `/dev/md7 494M 185M 284M 40% /var` `/dev/md8 4.0G 2.3G 1.5G 61% /var/TKLC`

```
/dev/md9              494M   11M  458M   3% /var/TKLC/recovery
/dev/md10             4.0G   41M  3.7G   2% /var/TKLC/recovery/usr
/dev/md11              15G   70M   15G   1% /var/TKLC/swap
/dev/mapper/vgroot-lsms--root
                      4.0G  138M  3.7G   4% /var/TKLC/lsms
/dev/mapper/vgroot-lsms--db
                       82G  1.2G   77G   2% /var/TKLC/lsms/db
/dev/mapper/vgroot-lsms--external
                      2.0G   68M  1.9G   4% /var/TKLC/lsms/external
/dev/mapper/vgroot-lsms--free
                       52G  182M   49G   1% /var/TKLC/lsms/free
/dev/mapper/vgroot-lsms--logs
                       36G  196M   34G   1% /var/TKLC/lsms/logs
```

9 **E5-APP-B:** Verify that the dbbackup logical volume exists.

Execute the following command to verify that the backup snapshot logical volume exists:

```
[root@lsmssec ~]# lvdisplay
  --- Logical volume ---
  LV Name                /dev/vgroot/lsms-root
      .
  (output omitted)
      .
  --- Logical volume ---
  LV Name                /dev/vgroot/lsms-db
      .
  (output omitted)
      .
  --- Logical volume ---
  LV Name                /dev/vgroot/lsms-external
      .
  (output omitted)
      .
  --- Logical volume ---
  LV Name                /dev/vgroot/lsms-free
      .
  (output omitted)
      .
  --- Logical volume ---
  LV Name                /dev/vgroot/lsms-logs
      .
  (output omitted)
      .
  --- Logical volume ---
  LV Name                /dev/vgroot/dbbackup
  VG Name                vgroot
  LV UUID                DFmRiq-0Osz-o3bZ-M2mB-huaD-EE7M-KH3mOF
  LV Write Access        read/write
  LV snapshot status     active destination for /dev/vgroot/lsms-db
  LV Status              available
  # open                 1
  LV Size                83.00 GB
  Current LE             2656
  COW-table size         8.00 GB
  COW-table LE           256
  Allocated to snapshot  0.00%
  Snapshot chunk size    8.00 KB
  Segments               1
  Allocation             inherit
  Read ahead sectors     0
  Block device           253:5
```

If the logical volume /dev/vgroot/dbbackup does not exist proceed to Step 11 of this procedure.

10 **E5-APP-B:** Remove the dbbackup logical volume using

Execute the following command to remove the /dev/vgroot/dbbackup logical volume:

```
[root@lsmssec mnt]# lvremove /dev/vgroot/dbbackup
```

	lvremove.	Do you really want to remove active logical volume "dbbackup"? [y/n]: **y** Logical volume "dbbackup" successfully removed Execute the following command to verify that the logical volume has been removed. The commands output will look like the following when the snapshot lv have been removed: [root@lsmssec ~]# **lvdisplay** --- Logical volume --- LV Name /dev/vgroot/lsms-root . ***(output omitted)*** . --- Logical volume --- LV Name /dev/vgroot/lsms-db . ***(output omitted)*** . --- Logical volume --- LV Name /dev/vgroot/lsms-external . ***(output omitted)*** . --- Logical volume --- LV Name /dev/vgroot/lsms-free . ***(output omitted)*** . --- Logical volume --- LV Name /dev/vgroot/lsms-logs . ***(output omitted)*** .
11 ☐	**E5-APP-B:** Verify the existence of a TOC file in the "/mnt/backup" directory.	Execute the following command to change directory to "/mnt/backup": [root@lsmssec mnt]# **cd /mnt/backup** Execute the following command to verify the existence of a TOC (Table Of Contents) file exists in "/mnt/backup"; [root@lsmssec backup]# **ls** **TOC** var **Note**: If no TOC file exists proceed to the Step 13 of this procedure.
12 ☐	**E5-APP-B:** Remove the TOC file in the "/mnt/backup" directory.	Execute the following command to remove the TOC file in "/mnt/backup": [root@lsmssec backup]# **rm TOC** rm: remove regular file `TOC'? **y**
13 ☐	**E5-APP-B:** Verify the existence of a TOC file in the "/" directory.	Execute the following command to change directory to "/": [root@lsmssec backup]# **cd /** Execute the following command to verify the existence of a TOC (Table Of Contents) file exists in "/"; [root@lsmssec backup]# **ls** bin etc lib misc proc selinux tftpboot us

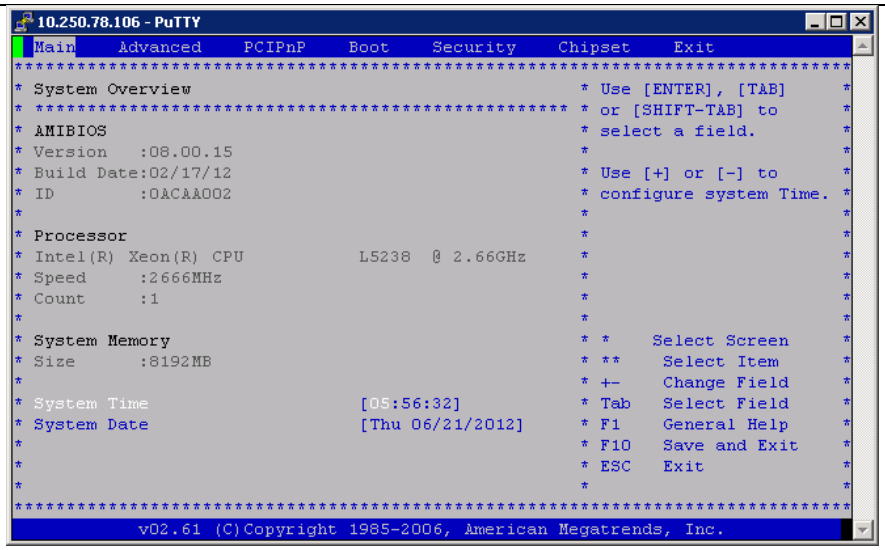
Procedure 21: Stopping an LSMS backup in progress

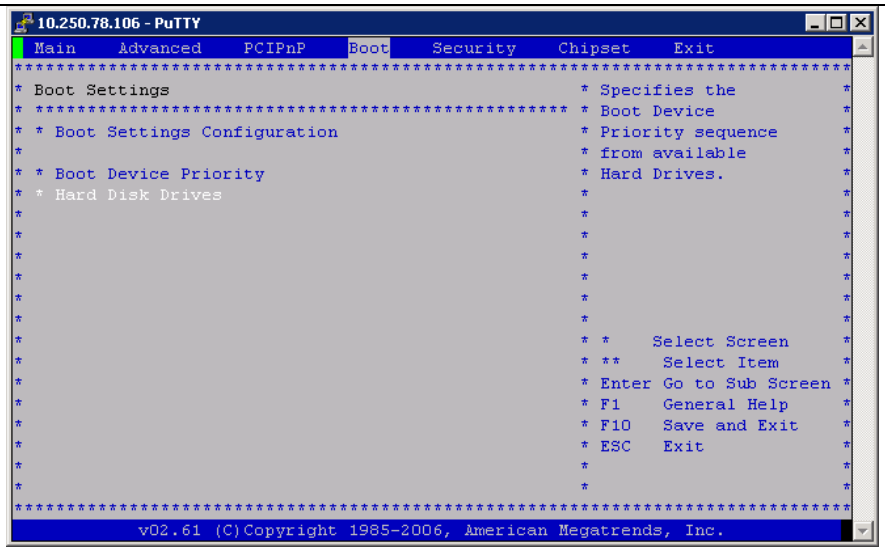
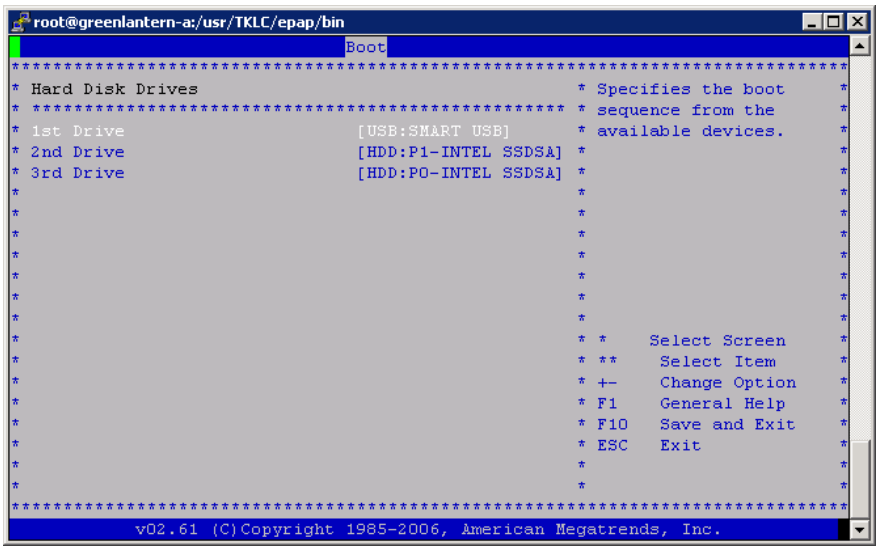
		r boot home lost+found mnt root srv tmp va r dev initrd media opt sbin sys **TOC** **Note**: If no TOC file exists proceed to the Step 15 of this procedure.
14 ☐	**E5-APP-B:** Remove the TOC file in the "/" directory.	Execute the following command to remove the TOC file in "/mnt/backup": `[root@lsmssec backup]# rm TOC` `rm: remove regular file `/TOC'? y`
15 ☐	**E5-APP-B**: SSH to the backup server.	Execute the following command to SSH to the NAS: `[root@lsmssec backup]# ssh backupserver`
16 ☐	**E5-APP-B:** Verify the existence of any LOCK.* files in the "/Volumes/LVstorage " directory on the NAS.	On the NAS execute the following command to change directory to "/Volumes/LVstorage": `[root@CE64CDAE root]# cd /Volumes/LVstorage` Execute the following command to verify the existence of a LOCK file exists in "/Volumes/LVstorage": `[root@CE64CDAE LVstorage]# ls` `db LOCK.db logs_lsmspri logs_lsmssec lsmspri lsmssec` **Note**: In this example a db directory LOCK file exists, but it is possible for a lock file to exist for any of the five directories listed: LOCK.db, LOCK.logs_lsmspri, LOCK.logs_lsmssec, LOCK.lsmspri, and/or LOCK.lsmssec **Note:** If no LOCK file exists proceed to Step 18 of this procedure.
17 ☐	**E5-APP-B:** Remove any LOCK.* files in the "/Volumes/LVstorage " directory on the NAS.	Execute the following command to remove the LOCK.* files in "/Volumes/LVstorage": `[root@CE64CDAE LVstorage]# rm LOCK.db` `rm: remove regular file `LOCK.db'? y` **Note**: In the following example a db directory LOCK file is being removed, it is possible for a lock file to exist for any of the five directories listed.
18 ☐	**E5-APP-B:** Procedure complete.	You have completed this procedure; please return to the procedure that directed you here.

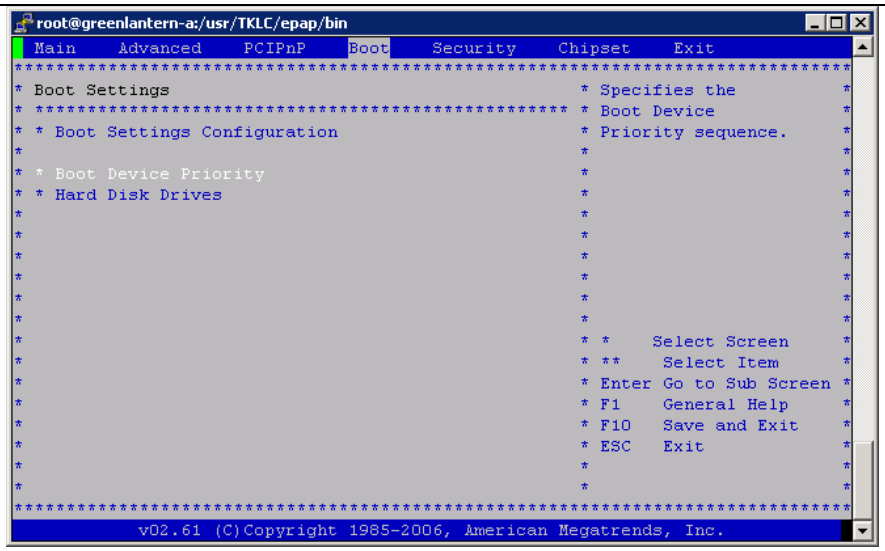
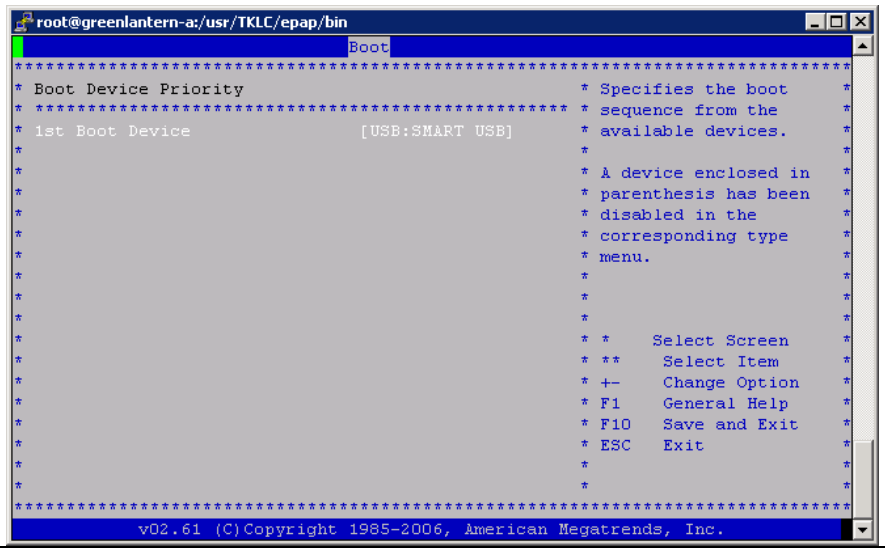
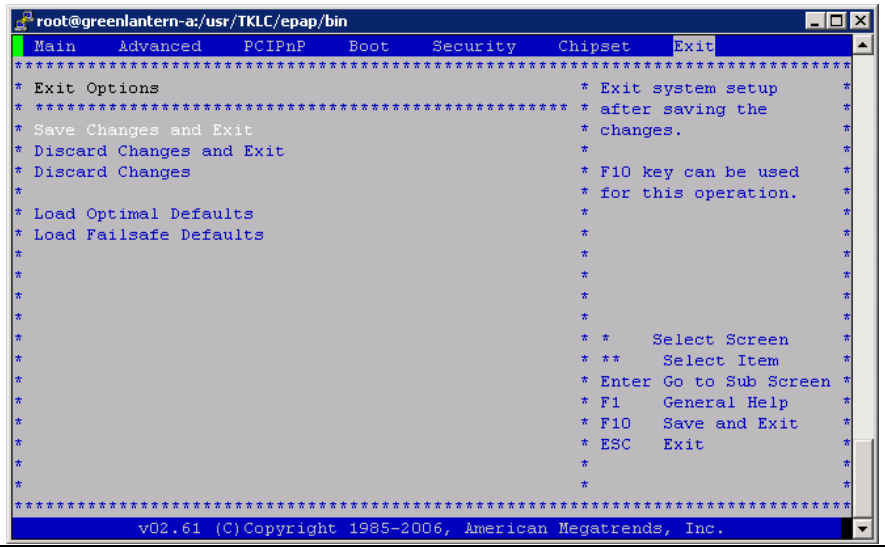
APPENDIX F. IPM E5-APP-B SERVER WITH TPD 5.5.1

Note: Both the NAS and LSMS 1A/1B servers can be IPMed at the same time.
Note: NAS should be IPMed with 64 bit version of TPD 5.5.1 and LSMS should be IPMed with 32 bit version of TPD 5.5.1.

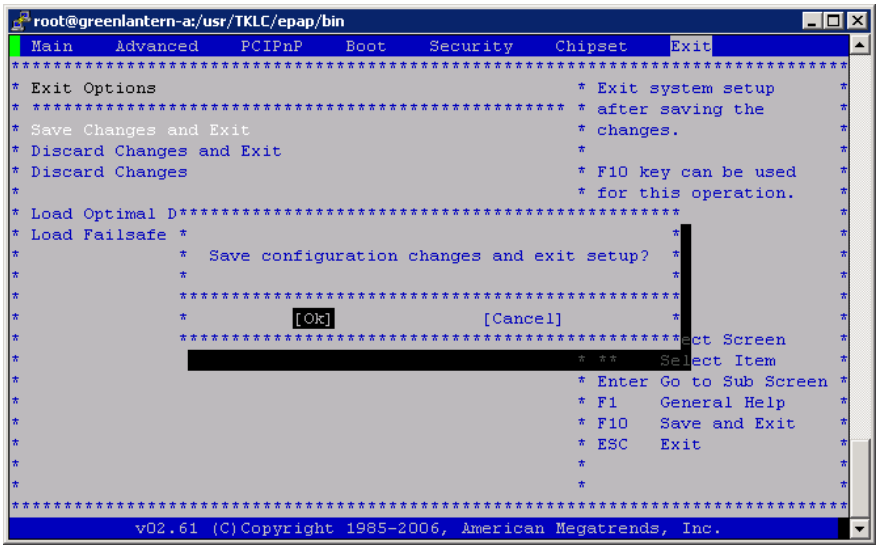
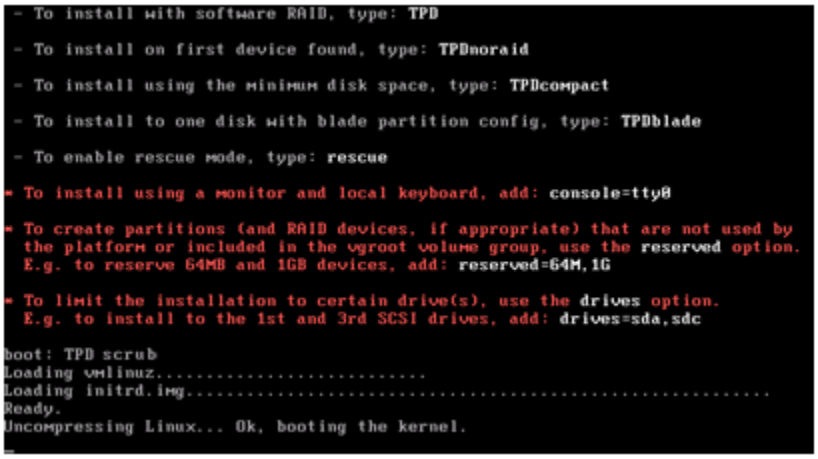
Procedure 22: IPM with TPD 5.5.1

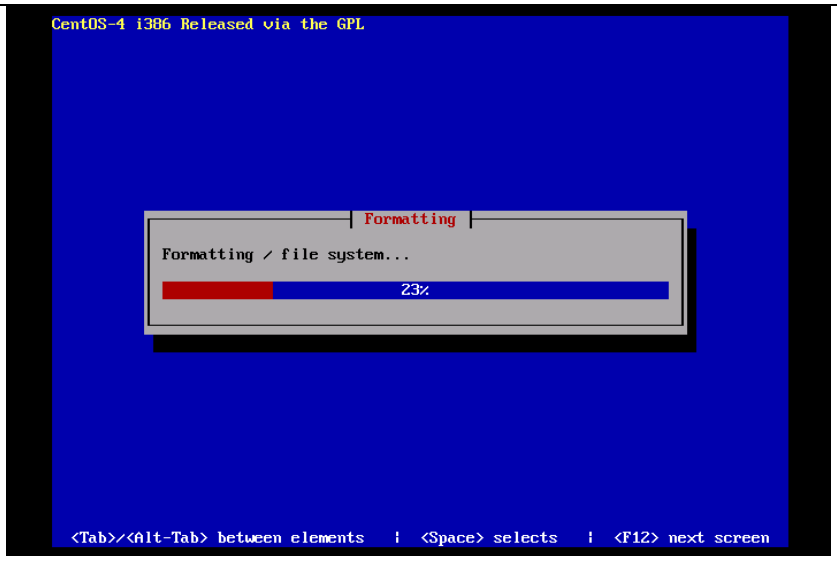
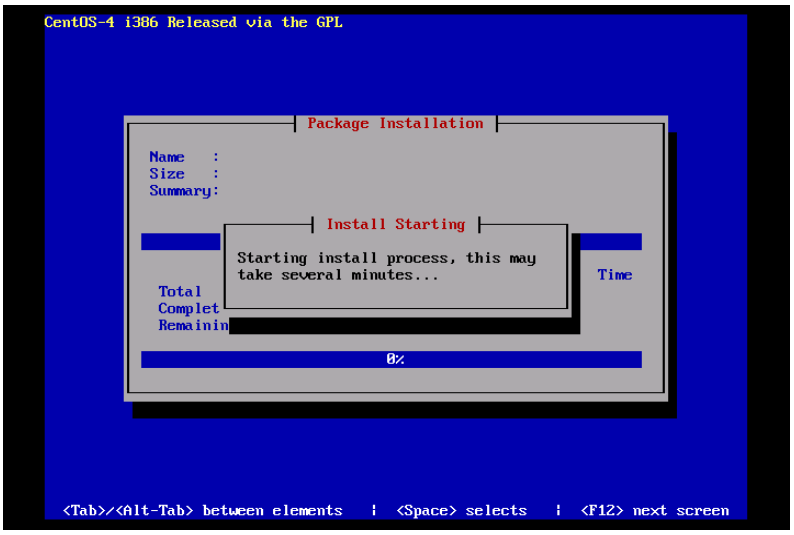
S T E P #	This procedure will remove the LSMS application and all the data from the server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND **ASK FOR UPGRADE ASSISTANCE**.	
1. ☐	**E5-APP-B X:** Insert TPD 5.5.1 USB media into the USB port	IPM LSMS servers with 5.5.1-75.20.0. IPM NAS server with 5.5.1-75.23.0.
2. ☐	**E5-APP-B X:** If necessary, log in to the server as the user "root"	If not already logged in to the E5-APP-B server, then login as user "root". console login: root password: <root_password>
3. ☐	**E5-APP-B X:** Reboot server	# reboot
4. ☐	**E5-APP-B X:** Press 'del' key to enter the BIOS	
5. ☐	**E5-APP-B X:** Set System Time and Date	Set the System Time and Date and time to GMT (Greenwich Mean Time).
6. ☐	**E5-APP-B X:** Select *Boot* → *Hard Disk Drives* option	

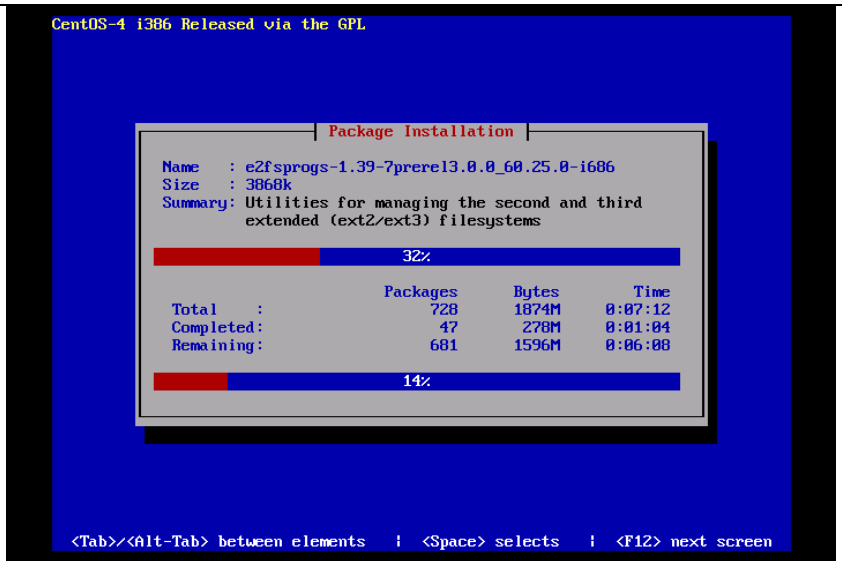
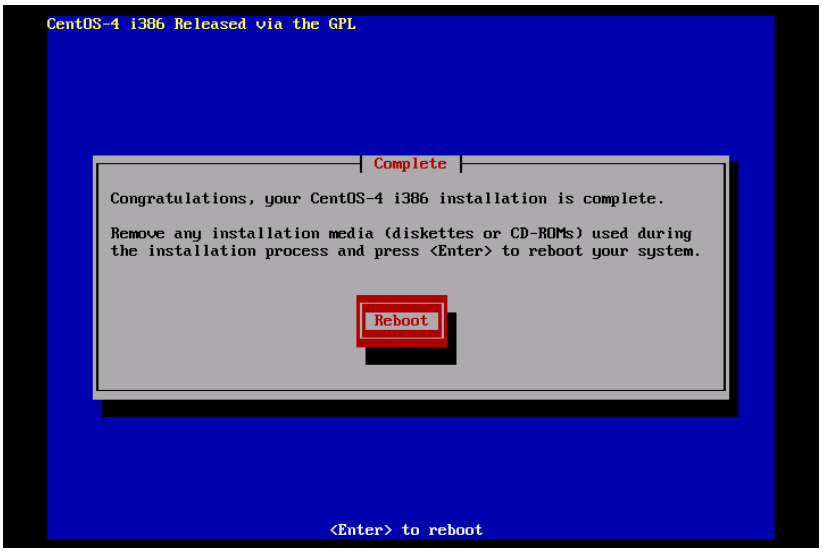
		
7. ☐	**E5-APP-B X:** Press 'Enter' key and select USB as the 1st Drive	
8. ☐	**E5-APP-B X:** Press 'Esc' key and select Boot Device Priority	

		
9. ☐	**E5-APP-B X:** Verify that the 1st Boot Device is set to USB.	
10. ☐	**E5-APP-B X:** Press 'Esc' key and select *Exit* → *Save Changes and Exit* option	

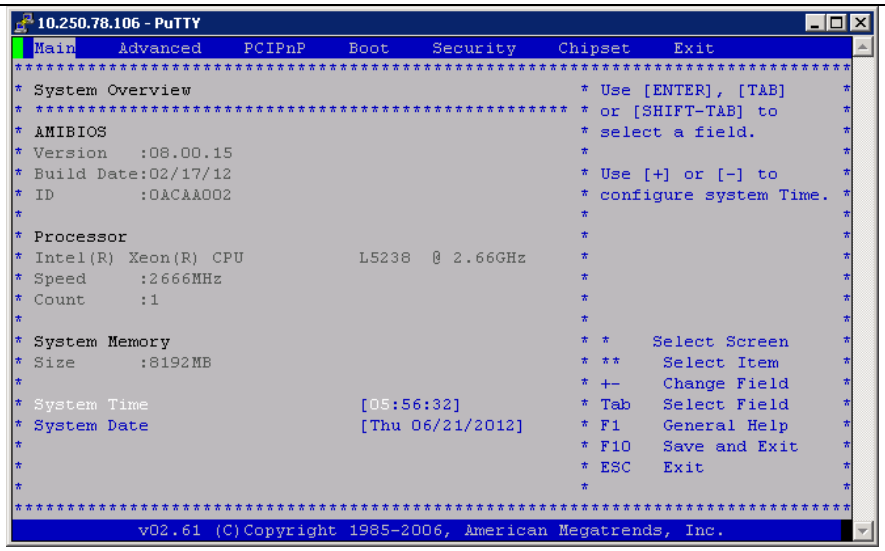
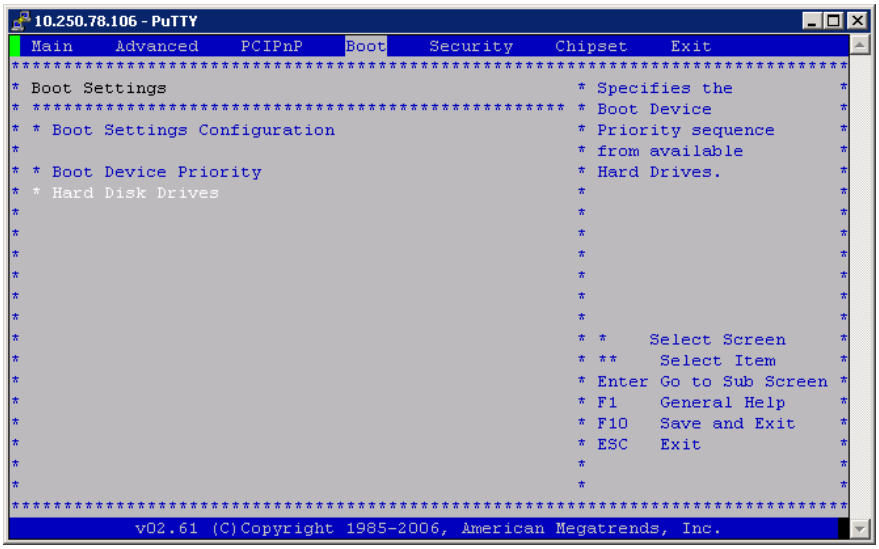
Procedure 22: IPM with TPD 5.5.1

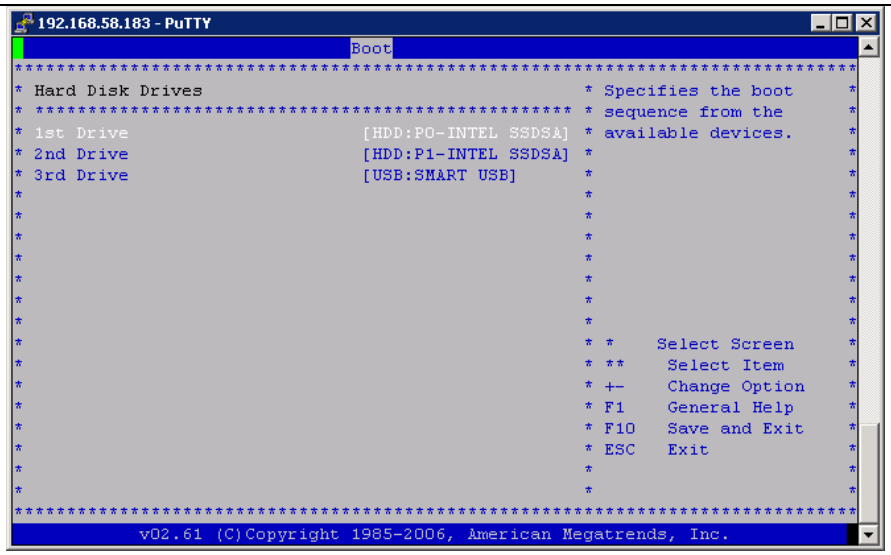
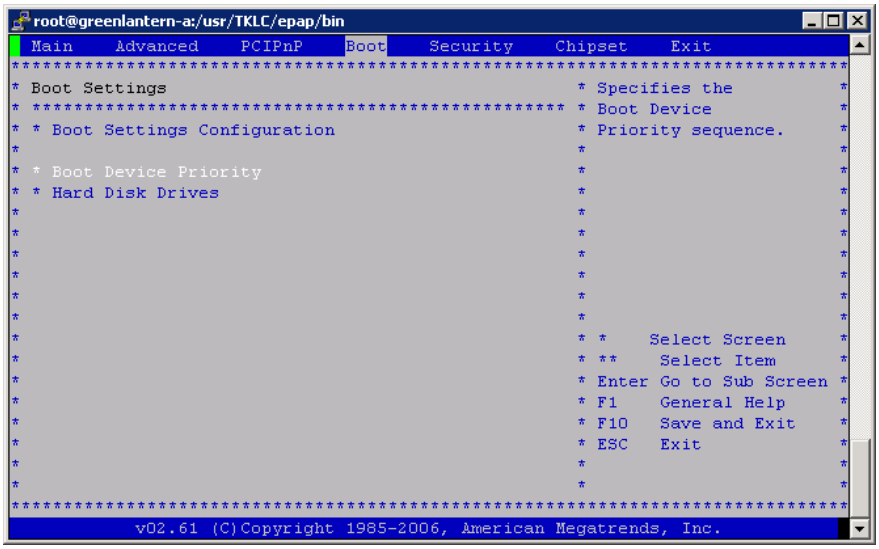
11. ☐	**E5-APP-B X:** Select [OK] to save the configuration changes. The server will reboot and TPD boot prompt will appear.	
12. ☐	**E5-APP-B X:** Start the IPM process by entering the TPD command at the boot prompt.	**boot: TPD scrub**
13. ☐	**E5-APP-B X:** After entering the command to start the installation, the Linux kernel will load, as in the screenshot at right.	
14. ☐	**E5-APP-B 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.	

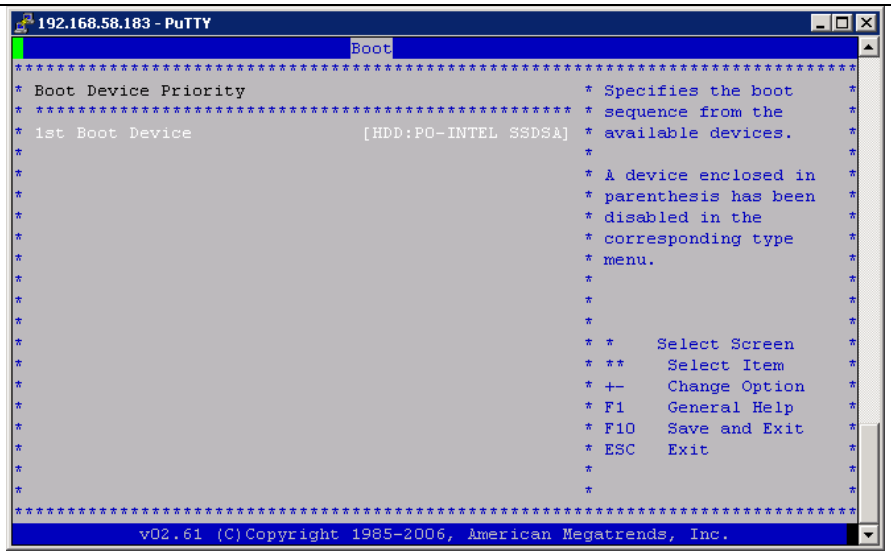
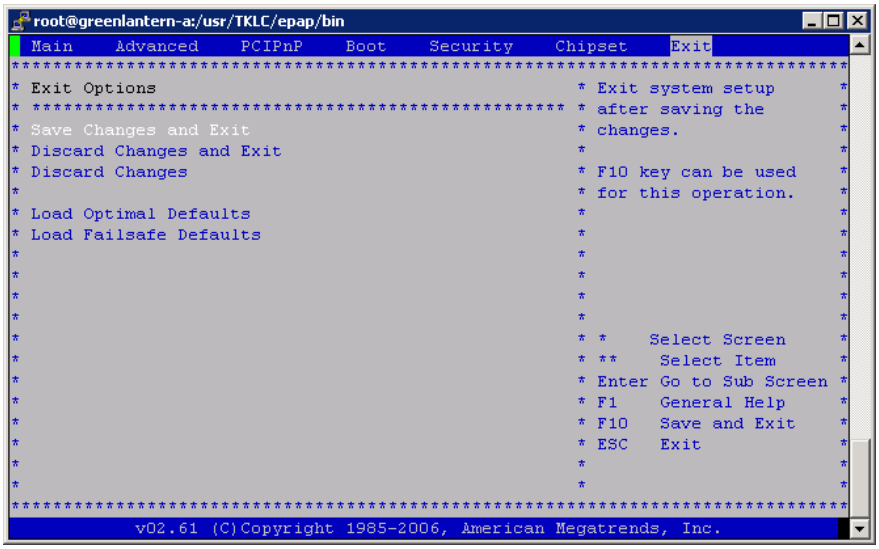
		
15. ☐	**E5-APP-B X:** Once the drive formatting and file system creation steps are complete, the screen at right will appear indicating that the package installation step is about to begin.	
16. ☐	**E5-APP-B X:** After a few minutes, you will see a screen similar to that at right, showing the status of the package installation step. For each package, there will be a status bar at the top indicating how much of the package has been installed, with a cumulative status bar at the bottom indicating how	

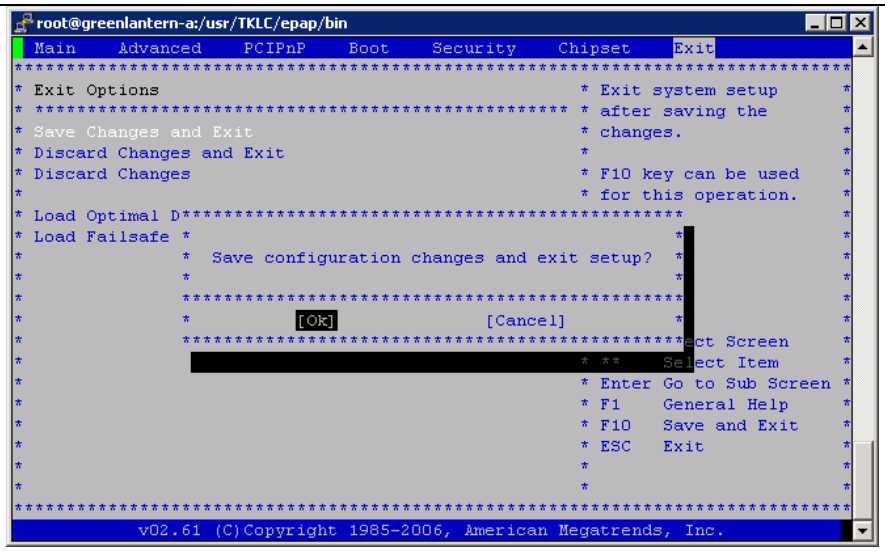
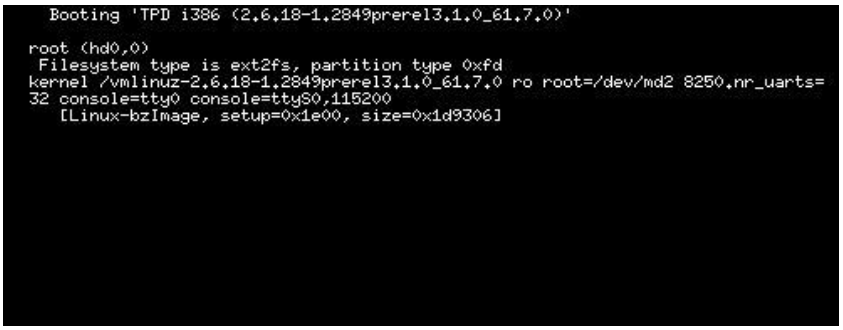
	many packages remain. In the middle, you will see text statistics indicating the total number of packages, the number of packages installed, the number remaining, and current and projected time estimates.	
17. ☐	**E5-APP-B X:** Once all the packages have been successfully installed, the screen at right will appear letting you know the installation process is complete. Press <ENTER> to reboot the system and continue with the next step.	

Procedure 22: IPM with TPD 5.5.1

18. ☐	**E5-APP-B X:** Press 'del' key to enter the BIOS	
19. ☐	**E5-APP-B X:** Select *Boot* → *Hard Disk Drives* option	
20. ☐	**E5-APP-B X:** Press 'Enter' key and select HDD:P0 as the 1st Drive	

		
21. ☐	**E5-APP-B X:** Press 'Esc' key and select Boot Device Priority	
22. ☐	**E5-APP-B X:** Verify that the 1st Boot Device is set to HDD:P0.	

		
23. ☐	**E5-APP-B X:** Press 'Esc' key and select *Exit → Save Changes and Exit* option	
24. ☐	**E5-APP-B X:** Select [OK] to save the configuration changes. The server will reboot. Remove USB media from USB drive.	

		
25. ☐	**E5-APP-B X:** After a few minutes, several messages will appear about each of the Ethernet ports in the system, and message printed by the boot loader, indicating that it is booting the new IPM load.	
26. ☐	**E5-APP-B X:** Log in to the server as the user "root"	console login: root password: <root_password>
27. ☐	**E5-APP-B X:** Verify that the platform revision is same as the ISO used.	# getPlatRev 5.5.1-75.20.0 <LSMS> <or> 5.5.1-75.23.0 <NAS>
28. ☐	**Procedure complete.**	Return to the procedure that you came here from.

APPENDIX G. LOCATE PRODUCT DOCUMENTATION ON THE CUSTOMER SUPPORT SITE

Access to Oracle's Customer Support area is restricted to current Oracle customers only. This section describes how to log into the Oracle Customer Support site and locate a document. Viewing the document requires Adobe Acrobat Reader.

1. Log into the Oracle Customer Support site at http://www.oracle.com/technetwork/indexes/documentation/oracle-comms-tekelec-2136003.html. **Note:** If you have not registered for this site, click the **Register Here** link. Have your customer number available. The response time for registration requests is 24 to 48 hours.
2. Click on the required product and its release.
3. View/Download the required document.

APPENDIX H. COPYING LICENSE FILE ON THE LSMS SERVER

H.1 Copying File Using SCP

Procedure 23: Copying License File Using SCP

S T E P #	This procedure will help copying the license file from a desktop to LSMS server Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND **ASK FOR UPGRADE ASSISTANCE.**	
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/dset/etc/license
3. ☐	**LSMS E5-APP-B:** Check if the license file has been copied correctly	Run command to check for license file : $ cat /usr/local/dset/etc/license Expected Output : Contets of license file should be displayed
4.	**Procedure complete.**	You have completed this procedure; please return to the procedure that directed you here

H.2 Copying File Using USB

Procedure 24: Copying License File From USB

S T E P #	This procedure will help copying the license file from a desktop to LSMS server Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND **ASK FOR UPGRADE ASSISTANCE.**	
1. ☐	**Desktop:** Copy license file from desktop to USB	Connect USB to desktop and copy the license file from desktop to USB.
2. ☐	**LSMS E5-APP-B:** Confirm how the USB is enumerated on LSMS server	Connect the USB to E5-APP-B 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 E5-APP-B:**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

Procedure 24: Copying License File From USB

		This shows that partition name is /dev/sdc1
4. ☐	**LSMS E5-APP-B:** Copy license file from USB to E5-APP-B	Run below command to copy the license file from USB $mkdir –p /tmp/usb $ mount /dev/sdc1 / tmp/usb
5. ☐	**LSMS E5-APP-B**: Copy license file from /tmp directory	$ cp /tmp/usb/<license-file> /usr/local/dset/etc/license
6. ☐	**LSMS E5-APP-B:** Check if the license file has been copied correctly	Run command to check for license file : $ cat /usr/local/dset/etc/license Expected Output : Contets of license file should be displayed
7. ☐	**LSMS E5-APP-B:** Unmount the USB	Unmount the USB using command : $umount /tmp/usb
8.	**Procedure complete.**	You have completed this procedure; please return to the procedure that directed you here.

APPENDIX I. 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 Oracle customer