Oracle® Communications
EAGLE Application Processor

Upgrade/Installation Guide

Release 16.4

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ORACLE®

Oracle Communications EAGLE Application Processor Upgrade/Installation Guide, Release 16.4

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Before beginning this procedure, contact My Oracle Support and inform them of your upgrade plans.
Refer to Appendix F for instructions on accessing My Oracle Support.

TABLE OF CONTENTS

1 INTRODUCTION 8
Purpose and Scope 8
References 8
1.1.1 External 8
1.1.2 Internal (Oracle) 8
Software Release Numbering 8
Acronyms 8
Terminology 9
Recommendations 10
Requirements 11

2 GENERAL DESCRIPTION 12
Upgrading Provisionable mixed EPAP Mated Pairs 13
Backout Provisionable mixed EPAP Mated Pairs 14
Upgrading EPAP Non-Provisionable MPS Servers 15
2.1.1 Upgrading Non-Provisional MPS pairs in Mixed EPAP configuration 15
2.1.2 Upgrading Non-Provisional MPS pairs in dual PDBonly configuration 16
Backout EPAP Non-provisionable MPS servers 16
2.1.3 Backout Non-Provisionable MPS pairs in dual PDBonly configuration 16
2.1.4 Backout Non-Provisionable MPS pairs in mixed EPAP configuration 16

3 UPGRADE OVERVIEW 18
Upgrade Provisioning Rules 18
Required Materials 18
Installation Phases 20
3.1.1 Installation Phases for Mixed and Non-Provisionable EPAP 20
3.1.2 Installation Phases for Standalone PDB 20
Split Mirror Upgrade Phases 21
3.1.3 Split Mirror Upgrade Phases for Mixed and Non-Provisionable EPAP 22
3.1.4 Split Mirror Upgrade Phases for Standalone PDB 25
Incremental Upgrade Phases 26
3.1.5 Incremental Upgrade Phases for Mixed and Non-Provisionable EPAP 26
3.1.6 Incremental Upgrade Phases for Standalone PDB 27
Backout Phases 28
3.1.7 Backout Phases for Mixed and Non-Provisionable EPAP 28
3.1.8 Backout Phases for Standalone PDB 29
Log Files 30

4 DB ARCHITECTURE OVERVIEW 31
Overview of DB architecture change in Customer Network 31
Overview of DB architecture change from Compact to Extreme 32
Change DB Architecture from COMPACT to eXtreme to support EAGLE release 46.7.0.0.0(eXtreme feature) 33
4.1.1 Phases to change DB Architecture to eXtreme (Standalone PDB) 33
4.1.2 Phases to change DB architecture to eXtreme (First Non-Prov site) 33
4.1.3 Phases to change DB architecture to eXtreme (Remaining Non-Prov sites) 34

5 UPGRADE PREPARATION 36
Procedure 1 Setting up the upgrade environment 36
Procedure 2 Determine if upgrade or installation is required 37
Procedure 3 Pre-upgrade requirements 39
Procedure 4 System Health check 40

5. SOFTWARE INSTALLATION PROCEDURES 41

Procedure 5 Pre-Install configuration on server A 41
Procedure 6 Pre-Install configuration on server B 46
Procedure 7 Install Application on server A 50
Procedure 8 Install Application on server B 55
Procedure 9 Switch Configuration 61
Procedure 10 Procedure to Configure Sync Network Redundancy 70
Procedure 11 Configuring the application 75
Procedure 12 Provision data from GUI 94
Procedure 13 Change DB Architecture 98

6 SOFTWARE UPGRADE PROCEDURES 104
Procedure 14 Assess MPS server's readiness for upgrade 104
Procedure 15 Pre and Post Upgrade Backups 106
Procedure 16 Pre-upgrade system time check 107
Procedure 17 Check 9dig counts before moving to eXtreme architecture 108
Procedure 18 Upgrade Server B 109
Procedure 19 Upgrade server A 122
Procedure 20 Run RTDB Converter 134
Procedure 21 Reboot EAGLE Cards 134
Procedure 22 Accept Upgrade 135
Procedure 23 Keys exchange between active and standby PDB 137

6. SOFTWARE RECOVERY PROCEDURES 139
Backout Setup 139
Perform Backout 139
Procedure 24 Server B Backout 139
Procedure 25 Backout both Server A and B 145
Procedure 26 Stop the Pdba software 155
Procedure 27 Restart PDBA Software (Post-Backout and Post-Upgrade) 156

APPENDIX A GENERIC PROCEDURES 159
Procedure A.1 Perform System Health Check 159
Procedure A.2 Validate Upgrade Media 161
Procedure A.3 System Configuration Backup 164
Procedure A.4 Execute parse9Dig script 166
Procedure A.5 Increase rtVolume size for Non-prov 167
Procedure A.6 PDB Backup 170
Procedure A.7 RTDB Backup 172
Procedure A.8 EuiDB Backup 175
Procedure A.9 RTDB Reload from PDBA 177
Procedure A.10 RTDB Restore 179
Procedure A.11 RTDB Reload from Remote 182
Procedure A.12 ISO Image download from Oracle Software Delivery Cloud 184
Procedure A.13 IPM MPS Server with TPD 7.6.2 186
Procedure A.14 Standalone PDB Segmented Configuration 194
Procedure A.15 Password change for EPAP System Users 198
Procedure A.16 E5-APP-B Halt/Shutdown 200
Procedure A.17 Procedure to Configure EPAP switch ports and EAGLE SM cards to support 1G EPAP-to-Eagle RTDB download speed 201
Procedure A.18 Upgrade SSL certificate from SHA-1 to SHA-512 220
Procedure A.19 Disable Epap VIP And Deactivate PDBA Proxy Feature 221
Procedure A.20 Enable EPAP PDBA Proxy and EPAP VIP Optional Features 227
Procedure A.21 Configure DSM Min Mem Size 237
Procedure A.22 Restart Mysql service for PDB on Query Server 237
Procedure A.23 Get parse9Dig file from EPAP 16.3 ISO 238

Procedure A.24 PDB Restore 240
Procedure A.25 Conversion from Prov(mixed EPAP) to Non-Prov 246
Procedure A.26 Conversion from mixed EPAP to StandalonePDB+Non-Prov EPAP 250
Procedure A.27 Procedure to add/edit the /etc/minirc.mate file 251
Procedure A.28 Configure the Auto Backup 253
Procedure A.29 STOP ACTIVE PDBA AND VERIFY REPL LOGS 253
PROCEDURE A.30 Resolve the false accept upgrade alarm situation 255

APPENDIX B INTERCONNECTION DIAGRAM 257

APPENDIX C TELCO TO CISCO SWITCH REPLACEMENT 259
SWITCH REPLACEMENT 259
SWITCH CONFIGURATION 265

APPENDIX D SWOPS SIGN OFF. 275

APPENDIX E CUSTOMER SIGN OFF 276

APPENDIX F MY ORACLE SUPPORT 277

List of Figures

Figure 1: Example of a step that indicates the Server on which it needs to be executed 9
Figure 2: Initial Application Installation Path 13
Figure 3: Split Mirror Upgrade Path – EPAP 16.4.a.0.0-b.b.b 13
Figure 4: Incremental Upgrade Path – EPAP 16.4.a.0.0-b.b.b 13
Figure 5: EPAP Mated Pairs 14
Figure 6: EPAP Mated Pairs with Non-Provisioning MPS Servers 15
Figure 7: Slide the Ejector Switch 201
Figure 8: Release Lever 201
Figure 9: Interconnectivity Diagram for Sync Network Redundancy (Eth04 used for Sync Network) 257
Figure 10: Default Interconnectivity Diagram (Eth04 used for Backup Provisioning Network) 258

List of Tables

Table 1. Acronyms 9
Table 2. Terminology 9
Table 3 Install-Upgrade paths 12
Table 4: System Configuration Information 19
Table 5. User Password Table 19
Table 6. Installation Phases for Mixed EPAP and Non-Provisional EPAP 20
Table 7 Installation Phases for Standalone PDB 21
Table 8 Split Mirror Upgrade Phases for Mixed and Non-Provisionable EPAP 23
Table 9 Split Mirror Upgrade Phases on Standalone PDB 26
Table 10 Incremental Upgrade Phases for Mixed and Non-Provisionable EPAP 27
Table 11 Incremental Upgrade Phases on Standalone PDB 28
Table 12. Backout Phases for Mixed and Non-Provisionable EPAP 29
Table 13. Backout Phases for Standalone PDB 30
Table 14. DB Conversion 31
Table 15 Phases to change DB Architecture to eXtreme (Standalone PDB) 33
Table 16 Phases to change DB Architecture to eXtreme (First Non-prov site) 34
Table 17 Phases to change DB Architecture to eXtreme (Remaining Non-Prov sites) 35

List of Procedures

Procedure 1: Setting up the upgrade environment 36
Procedure 2: Determine if upgrade or installation is required 37
Procedure 3: Verifying Pre-Upgrade Requirements and Capturing Upgrade Data 39
Procedure 4: System Health Check 40
Procedure 5: Pre-Install Configuration on Server A 41
Procedure 6: Pre-Install Configuration on Server B 46
Procedure 7: Install the Application on Server A 50
Procedure 8: Install the Application on Server B 55
Procedure 9: Switch Configuration 61
Procedure 10: Procedure to Configure Sync Network Redundancy 70

Procedure 11: Configuring the Application 75
Procedure 12: Provision data from GUI (Active Provisionable(mixed-EPAP or PDBonly) Site as designated by customer) 94
Procedure 13: Change the DB Architecture 98
Procedure 14: Assess the MPS Server's Readiness for Upgrade 104
Procedure 15: Pre and Post Upgrade Backups 106
Procedure 16: Pre-Upgrade System Time Check 107
Procedure 17: Check 9dig counts before moving to eXtreme architecture 108
Procedure 18: Upgrade Server B 109
Procedure 19: Upgrade Server A 122
Procedure 20: Run RTDB Converter 134
Procedure 21: Reboot EAGLE Cards 134
Procedure 22: Accept upgrade 135
Procedure 23: Keys exchange between active PDB and standby PDB 137
Procedure 24: Server B Backout 139
Procedure 25: Backout both MPS A and B 145
Procedure 26: Stop the PDBA Software 155
Procedure 27: Restart the PDBA Software Post-Backout and Post-Upgrade 156

1 INTRODUCTION

Purpose and Scope

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

a. An initial installation of the EPAP 16.4.1 application software if it is not currently installed on an in-service E5-APP-B system running a release of TPD 7.8.1.0.0_89.9.0
b. A split-mirror upgrade on an in-service E5-APP-B system running an EPAP Release 16.2.x/16.3.x/16.4.x
c. An incremental software upgrade on an in-service E5-APP-B system running an EPAP Release 16.4.x

The audience for this 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 execute any MPS upgrade or installation using an ISO image.

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

Note: In this release, the upgrade sequence is different from the previous releases. In this release, the upgrade for standby and active PDBAs is performed first and it is followed by the non Prov upgrade. For the previous releases, the non Prov upgrade is performed first and it is followed by the active and standby PDBAs.

References

1.1.1 External

[1] *EAGLE Application Processor (EPAP) Administration Guide*, E54368-01, latest revision, Oracle

[2] *EPAP 16.4 Administration Manual, Oracle*

1.1.2 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's personnel.

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

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

[3] *Integrating MPS into the Customer Network,* TR005014, version 3.1, October 2009

[4] *TPD Initial Product Manufacture – TPD 7.6+*, E53017-04, Latest revision

[5] *PFS EPAP 16.4*, Latest revision

[6] *EPAP Administration Manual for EPAP 16.4*, Latest version

[7] EPAP Linkset Based Blocklisting, CGBU_042015

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, GPLs, etc.) that comprise the product's software release.

Acronyms

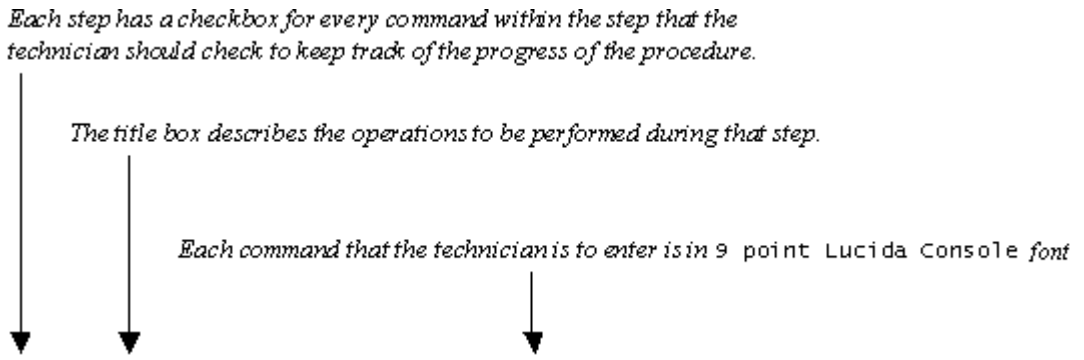
An alphabetized list of acronyms used in the document that are not included in [1]:

Table 1. Acronyms

AS	Application Server
E5-APP-B	E5 Based Application Card
OCEPAP	Oracle Communication EAGLE Provisioning Application Processor
GA	General Availability
IPM	Initial Product Manufacture
LA	Limited Availability
MPS	Multi-Purpose Server
MOS	My Oracle Support
OSDC	Oracle Software Delivery Cloud
SM	Service Module
TPD	Tekelec Platform Distribution

Terminology

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



1 ☐	MPS A: Verify all materials required are present	Materials are listed in Material List (Section 0)

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

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.
Mixed EPAP	An EPAP where both PDB and RTDB databases reside.
Non-provisionable (Non-prov) EPAP	An EPAP server hosting a Real Time DB without any provisioning interfaces to external provisioning applications. Non-Prov servers are connected to a pair of Provisionable EPAP(mixed-EPAP or PDBonly) from where they get their updates.
Provisionable EPAP	An EPAP server hosting PDB with provisioning interfaces to AS. Both Mixed EPAP and Standalone PDB are Provisionable EPAP.
Source release	Software release to upgrade from.

Split Mirror	Systems that use software RAID instead of hardware RAID can use the software RAID mirrors as a backout mechanism. Conceptually in a software RAID1 with two disks there are two sides to the mirror; let them be side A and side B. For a system with multiple software RAID devices, each device will have an A side and a B side. For an upgrade with a BACKOUT_TYPE=SPLIT_MIRROR the upgrade will break the mirrors at the beginning of the upgrade and perform the upgrade on the ***Asides*** of the mirrors. The other sides of the mirrors (***B sides***) are left intact in their pre-upgrade state throughout the duration of the upgrade. When a backout is performed the system is rebooted into the same 'backout environment'. Inside this 'backout environment' the RAID mirrors are rebuilt from the ***B sides*** of the arrays, thus restoring the system to the pre-upgrade state
Standalone PDB	Also known as 'PDB Only', this type of EPAP shall have PDB database only. No RTDB database shall exist on the standalone PDB site.
Target release	Software release to upgrade to.
Upgrade media	USB media or ISO image for E5-APP-B.

Recommendations

This procedure should be followed thoroughly utilizing the steps as written. **When planning to run upgrade on the server, contact My Oracle Support 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 My Oracle Support for assistance.

Please read the following notes on procedures:

1. **While doing upgrade, do not open the epapconfig menu if it is not mentioned in the procedure. Do not run anything in the setup that is not documented in the install/upgrade manual.**
2. Any procedure completion times are estimates. Times may vary due to differences in database size, user experience, and user preparation.
3. The shaded area within response steps must be verified in order to successfully complete that step.
4. Output displayed in the procedures' response steps is presented. Actual output varies depending on system. Output is presented for reference only.
5. 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***."
6. 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.
7. Captured data is required for future support reference if My Oracle Support is not present during the execution of procedures.
8. In procedures that require a command to be executed on a specific MPS, the command is prefaced with MPS A: or MPS B:
9. 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.

Requirements

- Screen logging is required throughout the procedure. These logs should be made available to My Oracle Support in the event their assistance is needed.
- Target-release USB media or ISO image

2 GENERAL DESCRIPTION

This document defines the step-by-step actions performed to execute a software upgrade of an in-service MPS running the EPAP application from the source release to the target release on **E5-APP-B-01/02**.

For the EPAP application, some steps in this procedure refer to the PDB application feature on the MPS A of the MPS pair. The EPAP application makes it optional for a newly installed MPS A node to be configured as a Provisioning (PDB) node (upgrades of MPS A nodes already configured as a provisioning node does not change this configuration).

Also, the conversion from provisionable mixed EPAP to Non-provisionable EPAP is supported in EPAP 16.4.1 without any loss of data. Refer to Procedure A.25 to perform this operation.

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

Table 3 Install-Upgrade paths

TPD Release for IPM	EPAP Initial Installation Release
7.8.1.0.0_89.9.0	16.4.1

		TARGET RELEASE
		16.4.1 (7.8.1)
SOURCE RELEASE	16.2.0 (TPD 7.4)	Split Mirror Upgrade
	16.3.0 (TPD 7.6)	Split Mirror Upgrade
	16.3.1 (TPD 7.6)	Split Mirror Upgrade
	16.4 (TPD 7.6.2)	Split Mirror Upgrade

NOTE: If you are using Eagle Query Server with EPAP, you need to do a fresh installation of Eagle Query Server after upgrading EPAP to Release 16.4. See Eagle Query Server Installation Guide for installing a fresh EAGLE Query Server.

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

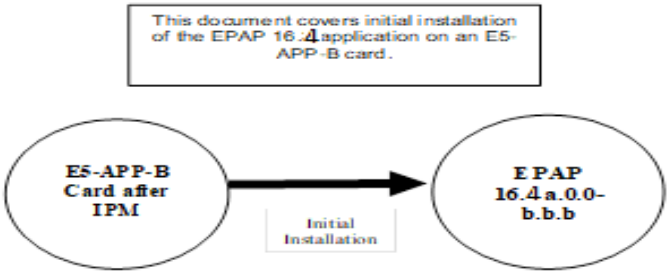


Figure 2: Initial Application Installation Path

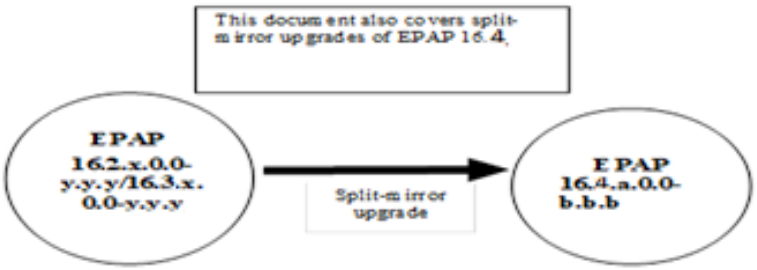


Figure 3: Split Mirror Upgrade Path – EPAP 16.4.a.0.0-b.b.b

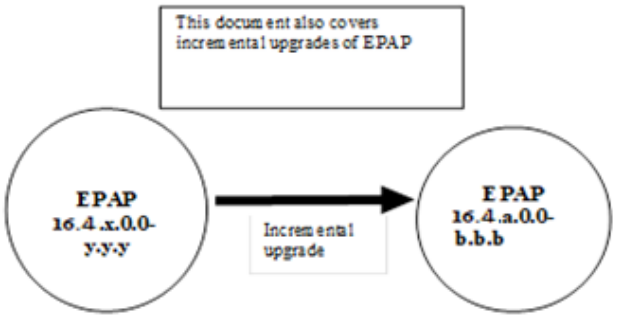


Figure 4: Incremental Upgrade Path – EPAP 16.4.a.0.0-b.b.b

Upgrading Provisionable mixed EPAP Mated Pairs

Current deployments of the EPAP support two geographically separated EPAP systems that are "mated", meaning they communicate and replicate PDB information between the two sites. An EPAP system is a pair of MPS servers (an **A** and a **B** node). So a mated pair of EPAP systems consists of four MPS servers, an **A** and a **B** node for each EPAP system (see Figure 5: EPAP Mated Pairs). EPAP allows more than two EPAP systems in a related configuration (up to 22 Non-Provision able MPS servers).

This document describes upgrade (and, if necessary, backout) of the EPAP software on one system, that system consisting of two MPS servers (A and B). However, for mated pairs of EPAP systems, upgrades (and backouts) must be coordinated between both the local EPAP system and the remote EPAP system and performed during the same maintenance period.

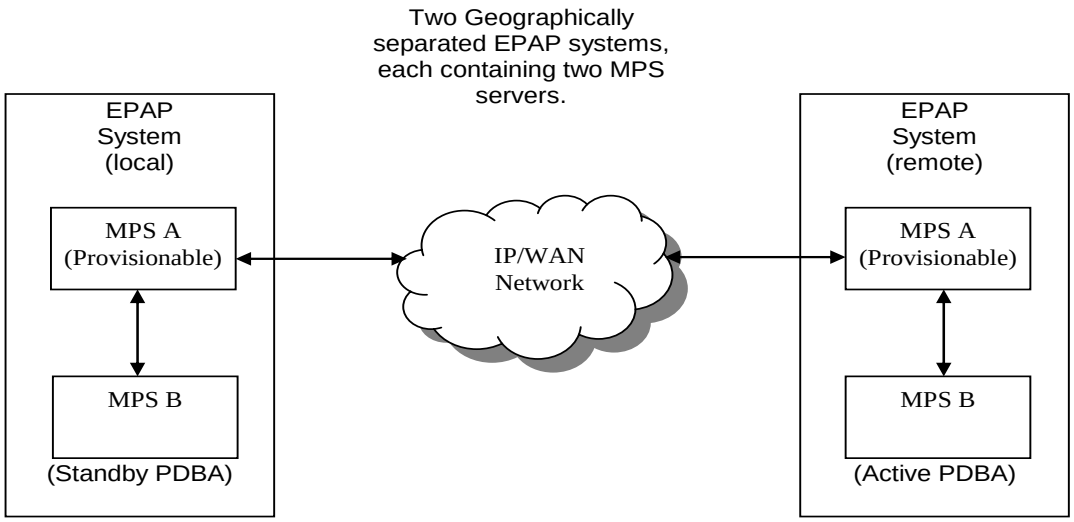


Figure 5: EPAP Mated Pairs

Upgrade of provisionable EPAP(mixed-EPAP) mated pairs must be carried out in the following order:

1. Ensure PDB databases are at the same level. Stop all provisioning to ensure that all PDB databases are in sync before proceeding. Also, ensure that no PDB/RTDB maintenance activity is in progress and clear all scheduled activities.
2. Local MPS-B
3. Local MPS-A (Standby PDBA)
4. Remote MPS-B
5. Remote MPS-A (Active PDBA)

When upgrade is initiated on the local MPS-B, the scripts controlling the upgrade will cause the local MPS-B to communicate using Secure-Shell to both the local MPS-A and the remote MPS-A to stop the PDBA software. The PDBAs should be restarted only after both the local and remote EPAP systems have successfully completed the upgrade.

NOTE: Since the PDBA software is not running immediately after an upgrade, the syscheck utility will alarm the fact that the PDBA is not running on the local and remote EPAP A-servers.

Backout Provisionable mixed EPAP Mated Pairs

Backout of Provisionable EPAP (mixed-EPAP) Mated Pairs should be done in the reverse order that the upgrade was performed:

1. Identify a PDB backup that was made prior to upgrade, on the EPAP release that backout will target. Note that backout always carries the risk of losing data, should a restore from database backup become necessary.
2. Remote MPS-A (Active PDBA)
3. Remote MPS-B
4. Local MPS-A (Standby PDBA)
5. Local MPS-B

On a backout of an upgrade, the server will remain in runlevel 3 (no applications running). The user will be required to manually reboot the server to bring it back into service and a syscheck can be performed.

Upgrading EPAP Non-Provisionable MPS Servers

EPAP Non-Provisional MPS pairs can connect to: Mixed EPAP or Standalone PDB.

2.1.1 Upgrading Non-Provisional MPS pairs in Mixed EPAP configuration

EPAP provides the ability to expand the concept of a mated pair of EPAP systems to have up to 24 EPAP systems (48 MPS servers total) configured such that two of the MPS-A servers will run the PDBA software and RTDB software both and handle provisioning (Provisionable nodes) and the other 22 MPS-B and 22 MPS-A servers will only run the RTDB software, taking their updates from the two Provisionable (mixed-EPAP or PDBonly) MPS-A servers.

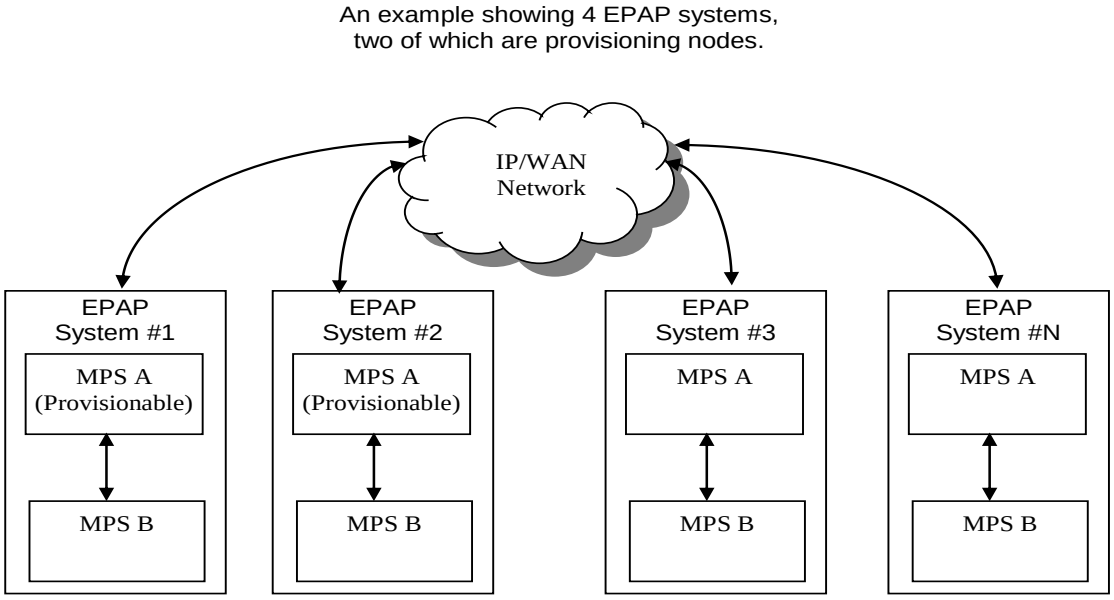


Figure 6: EPAP Mated Pairs with Non-Provisioning MPS Servers

In such configurations, the upgrade for the EPAP system containing the provisionable MPS servers must complete before upgrading any EPAP system containing the non-provisionable MPS servers.
The order of upgrade for such configuration must be as follows:

Mixed EPAP **(with standby PDBA)**

1. Mixed EPAP (MPS B)
2. Mixed EPAP (MPS A

Mixed EPAP **(with active PDBA)**

3. Mixed EPAP (MPS B)
4. Mixed EPAP (MPS A)

Non-provisionable EPAPs (All Non-Provs)

5. Non-Provisionable (MPS B)
6. Non-Provisionable (MPS A)

Note: In this release, the upgrade sequence is different from the previous releases. In this release, the upgrade for standby and active PDBAs is performed first and it is followed by the non Prov upgrade. For the previous releases, the non Prov upgrade is performed first and it is followed by the active and standby PDBAs.

2.1.2 Upgrading Non-Provisional MPS pairs in dual PDBonly configuration

EPAP provides the ability to separate the RTDB from PDB to create the following two architectures:

- Standalone PDB running PDB process only
- Non-Provisionable PDB running RTDB only

Up to 22 Non-Provisional EPAP mated pairs are connected to two Standalone PDBs that are configured as Active/Standby.
In such configurations, the upgrade for the EPAP system containing the provisionable MPS servers must complete before upgrading any EPAP system containing the non-provisionable MPS servers.
The order of upgrade for such configuration must be as follows:

1. Standby PDBonly
2. Active PDBonly
3. Non-Prov (MPS B)
4. Non-Prov (MPS A)

Note: In this release, the upgrade sequence is different from the previous releases. In this release, the upgrade for standby and active PDBAs is performed first and it is followed by the non Prov upgrade. For the previous releases, the non Prov upgrade is performed first and it is followed by the active and standby PDBAs.

Backout EPAP Non-provisionable MPS servers

EPAP Non-Provisional MPS pairs can connect to: Mixed EPAP or Standalone PDB.

2.1.3 Backout Non-Provisionable MPS pairs in dual PDBonly configuration

Backout of Non-Provisionable MPS pairs in Standalone configuration should be done in the reverse order that the upgrade was performed. Please follow the below mentioned steps for backout:

1. Non-Provisionable (MPS A)
2. Non-Provisionable (MPS B)
3. Active PDBonly
4. Standby PDBonly

On a backout of an upgrade, the server will remain in runlevel 3 (no applications running). The user will be required to manually reboot the server to bring it back into service and a syscheck can be performed.

2.1.4 Backout Non-Provisionable MPS pairs in mixed EPAP configuration

Backout of EPAP Non-provisionable MPS pairs in mixed EPAP configuration should be done in the reverse order that the upgrade was performed:

Non-provisionable EPAP

1. Non-Provisionable (MPS A)
2. Non-Provisionable (MPS B)

Mixed EPAP (with active PDBA)

3. Mixed EPAP (MPS A)
4. Mixed EPAP (MPS B)

Mixed EPAP (with standby PDBA)

5. Mixed EPAP (MPS A)

6. Mixed EPAP (MPS B)

3 UPGRADE OVERVIEW

Upgrade Provisioning Rules

When a Provisionable EPAP mated pair is upgraded or backed out, the EPAP upgrade scripts disable provisioning when the upgrade is initiated on the first MPS server. The PDBA software remains disabled until the last server in the MPS in the mated pair has been upgraded or backed out. The user has-to enable the PDBA software, allowing provisioning, after the upgrade/backout is complete on last MPS server in an EPAP mated pair. Provisioning is not disabled during the upgrade of a Non-Provisionable MPS.

Because EPAP MPS pairs are generally located at geographically distinct sites, significant time may elapse between the upgrade of the Provisionable EPAP pair and the upgrade of the Non-Provisionable EPAP pairs. Non-Provisionable EPAP pairs must always be upgraded before any Provisionable EPAP MPS pairs.

The "DB Architecture" will be changed post upgrade to accommodate new "lsblset" parameter introduced in EPAP 16.4 release. Refer Section 4 for more details. Due to this new parameter post upgrade user will have to run converter script to convert the existing RTDB to make it compatible with new architecture.

Required Materials

- For Mixed EPAP or Non-Provisional EPAP: Two (2) target-release USB media or a target-release ISO file. For Standalone PDB: One (1) target-release USB media or a target-release ISO file
- A terminal and null modem cable to establish a serial connection.
- Write down the system configuration information.

Description	Information
PROVISIONABLE (Yes/No)	
PDBA state (Active/Standby)	
Provisioning IP (IPv4)	
Provisioning Mask (IPv4)	
Provisioning Default Router IP (IPv4)	
Provisioning IP (IPv6)	
Provisioning Netmask (IPv6)	
Provisioning Default Router IP (IPv6)	
NTP1 IP (IPv4/IPv6)	
NTP2 IP (IPv4/IPv6)	
NTP3 IP (IPv4/IPv6)	
Local VIP	
Remote VIP	
Local PDBA IP (IPv4)	
Local PDBA IP (IPv6)	
Remote PDBA IP (IPv4/IPv6)	
Remote PDBA B IP (IPv4/IPv6)	
RTDB Homing	
Time Zone	
PDBA Proxy Feature	
Others	

Table 4: System Configuration Information

- Passwords for users on the local system:

EPAP USERS		
login	**MPS A password**	**MPS B password**
epapconfig		
epapdev (needed for backout only)		
root		
epapall (needed for GUI access)		
admusr		

Table 5. User Password Table

Installation Phases

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 6 and Table 7 are to be executed in the order they are listed.

3.1.1 Installation Phases for Mixed and Non-Provisionable EPAP

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	Cum.		
Connectivity setup	15	15	Set up connectivity to the MPS Servers.	**Procedure 1**
Verify install	5	20	Verify this should be an install.	**Procedure 2**
Pre-upgrade check	15	35	Verify requirements for install are met.	**Procedure 3**
Pre-install health check	5	40	Run the syscheck utility to verify that all servers are operationally sound.	**Procedure 4**
Configure Server 1A	5	45	Set hostname, designation, function and time.	**Procedure 5**
Configure Server 1B	5	50	Set hostname, designation, function and time.	**Procedure 6**
Install Servers	30	80	Install software on sides 1A and 1B	**Procedure 7** **Procedure 8**
Configure Switches	30*	110*	Configure the Switches	**Procedure 9**
Post-install application processing	30	140	Perform first time configuration.	**Procedure 11** **Procedure 12**
Post-upgrade health check	5	150	Run the syscheck utility to verify all servers are operationally sound.	**Procedure 4**
Configure Auto Backup **Note: Skip this step if the EPAP is configured as Non-Provisionable.	5	155	Configure Auto Backup from PDB GUI on Provisionable EPAP's, this backup will also get scheduled on attached Non-Prov sites present on the setup.	**Procedure A.28**
Check EPAP-EAGLE connectivity speed	20	190	Configure and verify that EAGLE SM cards are getting auto-negotiated to 1000Mbps/Full Duplex	**Procedure A.17**

Table 6. Installation Phases for Mixed EPAP and Non-Provisional EPAP

***NOTE:** If configuring 4 switches, add 30 minutes to the current setup

****NOTE: Configuring Auto backup is a compulsory step to enable PDB-RTDB translogs pruning.**

3.1.2 Installation Phases for Standalone PDB

Note: In the procedures below, skip the steps which need to be executed on MPS B, since MPS B is not present in the Standalone PDB configuration".

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	Cum.		
Connectivity setup	15	15	Set up connectivity to the MPS Servers.	**Procedure 1**
Verify install	5	20	Verify this should be an install.	**Procedure 2**
Pre-upgrade check	15	35	Verify requirements for install are met.	**Procedure 3**
Pre-install health check	5	40	Run the syscheck utility to verify that all servers are operationally sound.	**Procedure 4**
Configure Server 1A	5	45	Set hostname, designation, function and time.	**Procedure 5**
Install Server	30	75	Install software on sides 1A	**Procedure 7**
Post-install application processing	30	105	Perform first time configuration. Refer to Procedure A.14 to configure the Standalone PDB in segmented network configuration.	**Procedure 11** **Procedure 12**
Post-upgrade health check	5	115	Run the syscheck utility to verify all servers are operationally sound.	**Procedure 4**
Configure Auto Backup. **Note: Perform this step once Non-Provisionable EPAPs are attached to this Standalone PDB	5	120	Configure Auto Backup from PDB GUI on Provisionable EPAP's, this backup will also get scheduled on attached Non-Prov sites present on the setup.	**Procedure A.28**
Restore PDB backup (optional)	*See notes below	*See notes below	Restore EPAP 16.1/16.2 PDB backup if there is any. **Note: This step is required when a mixed EPAP with release 16.1/16.2, is getting converted to PDBonly+Non-PROV in 16.3. Skip this step for initial installation of a PDBonly EPAP 16.3 where there is no dependency on previous release.**	**Procedure A.24**

Table 7 Installation Phases for Standalone PDB

***NOTE:** The time needed to backup application data is dependent on the amount of application data. This procedure cannot specify an exact length of time since different customers have different amounts of application data.

****NOTE: Configuring Auto backup is a compulsory step to enable PDB-RTDB translog pruning.**

Split Mirror Upgrade Phases

The following table illustrates the progression of the Split Mirror upgrade process by procedure with estimated times and may vary due to differences in typing ability and system configuration. The procedures outlined in below

Table 8 are to be executed in the order they are listed.

Note: Before proceeding with the Split Mirror upgrade process, refer to section 0 and **section 0 to get the overview of the EPAP setup and upgrade order.**

3.1.3 Split Mirror Upgrade Phases for Mixed and Non-Provisionable EPAP

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	Cum.		
Connectivity setup	15	15	Set up connectivity to the MPS servers.	**Procedure 1**
Verify Major upgrade	5	20	Verify this should be a Major upgrade.	**Procedure 2**
Pre-upgrade check	15	35	Verify requirements for Major Upgrade are met.	**Procedure 3**
Pre-upgrade health check	5	40	Run the syscheck utility to verify the MPS server is operationally sound.	**Procedure 4**
Assess readiness for upgrade	15	55	Assess the server's readiness for upgrade.	**Procedure 14**
Pre-upgrade Backup	*See notes below	*See notes below	Backup application databases and other pertinent information.	**Procedure 15**
Pre-upgrade system time check	5	60	Pre-upgrade system time check.	**Procedure 16**
Exchange the keys between active and standby PDB	05	65	Pre-upgrade keys exchange between active and standby PDB. **Note:** Execute this procedure only for dual mixed EPAP.	**Procedure 23**
Stop the PDB software.	05	70	Stop the Pdba software before initiating upgrade. **Note:** This Step only necessary for provisionable EPAP(mixed-EPAP or PDBonly).Skip for Non-prov EPAP.	**Procedure 26**
Upgrade MPS B	30	100	Execute the upgrade procedure on MPS B.	**Procedure 18**
Upgrade MPS A	30	130	Execute the upgrade procedure on MPS A. Note: Time taken by this upgrade may vary depending on the DB present on setup. 75 min is valid for mixed EPAP with maximum DB, 528M.	**Procedure 19**
Run RTDB Converter on MPS A	20	150	Run RTDB converter to convert database schema for new field	**Procedure 20**
Reload RTDB from mate	10	160	Reload RTDB from mate on Non-prov MPS B	**RTDB Reload from** Remote
Reboot EAGLE Cards	***See Notes Below	***See Notes Below	Reboot Eagle Cards to reload updated DB	**Procedure 21**
Post-upgrade health check	5	165	Run the syscheck utility to verify the MPS server is operationally sound.	**Procedure 4**
Increase rtVolume size.	10	175	Increase rtVolume size by executing "rtdir" script. **Note:** skip this step for provisionable EPAP(mixed-EPAP and PDBonly).	**Procedure A.5**

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	Cum.		
Start the PDB software.	10	185	Re-activate the PDB on the Provisionable MPS A servers(mixed-EPAP in this case). Note: Step only necessary during upgrade of a Provisionable mated EPAP pair (mixed EPAP + PDBonly).	**Procedure 27**
Configure Switches	30**	215**	Re-configure the switch and verify that EAGLE SM cards are getting auto-negotiated to 1000Mbps/Full Duplex. **Note: Skip this step if speed is already set to 1000Mbps/Full Duplex.**	**Procedure 9**
***Configure Auto Backup **Note: Skip this step if the EPAP is configured as Non-Provisionable.**	5	220	Configure Auto Backup from PDB GUI on Provisionable EPAP's, this backup will get scheduled on attached Non-Prov sites present on the setup.	**Procedure A.28**
Post-upgrade Backups	*See notes below	*See notes below	Backup application databases and other pertinent information.	**Procedure 15**
Accept the upgrade after successful soak period NOTE: If the node is to be converted from Compact to eXtreme DB architecture, delay this step until the conversion is done and sufficient soak time is given. **NOTE: After EPAP upgrade, if EMS is not able to receive alarms from EPAP, delete the EPAP from EMS discovery screen and then rediscover the EPAP on EMS.**	5	This is done in a separate MTC	Accept the upgrade on both MPS-A and MPS-B after sufficient soak period of around 1-7 days (depending upon customer provisioning volume) to see that everything works fine after the upgrade.	Procedure 22

Table 8 Split Mirror Upgrade Phases for Mixed and Non-Provisionable EPAP

***NOTE:** The time needed to backup application data is dependent on the amount of application data. This procedure cannot specify an exact length of time since different customers have different amounts of application data.

****NOTE:** If configuring 4 switches, add 30 minutes to the current setup.

*****NOTE:** The time needed to reload EAGLE cards is dependent on the amount of application data. This procedure cannot specify an exact length of time since different customers have different amounts of application data.

******NOTE:** Configuring Auto backup is a compulsory step to enable PDB-RTDB translog pruning. Ignore this step if auto-backup is already configured.

*****NOTE: If you are using Eagle Query Server with EPAP, you need to do a fresh installation of Eagle Query Server after upgrading EPAP to Release 16.4. See Eagle Query Server Installation Guide for installing a fresh EAGLE Query Server.

3.1.4 Split Mirror Upgrade Phases for Standalone PDB

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	Cum.		
Connectivity setup	15	15	Set up connectivity to the MPS servers.	**Procedure 1**
Verify Major upgrade	5	20	Verify this should be a Major upgrade.	**Procedure 2**
Pre-upgrade check	15	35	Verify requirements for upgrade are met.	**Procedure 3**
Pre-upgrade health check	5	40	Run the syscheck utility to verify the MPS server is operationally sound.	**Procedure 4**
Assess readiness for upgrade	15	55	Assess the server's readiness for upgrade.	**Procedure 14**
Pre-upgrade Backup	*See notes below	*See notes below	Backup application databases and other pertinent information.	**Procedure 15**
Pre-upgrade system time check	5	60	Pre-upgrade system time check.	**Procedure 16**
Stop the PDB software.	05	65	Stop the Pdba software before initiating upgrade. This Step only necessary for provisionable EPAP(mixed-EPAP or PDBonly).Skip for Non-prov EPAP.	**Procedure 26**
Upgrade MPS A	30	95	Execute the upgrade procedure on MPS A. Note: Time taken by this upgrade may vary depending on the DB present on setup. 75 min is valid for maximum DB, 528M.	**Procedure 19**
Post-upgrade health check	5	100	Run the syscheck utility to verify the MPS server is operationally sound.	**Procedure 4**
Start the PDB software.	10	110	Re-activate the PDB on theProvisionable MPS A servers (PDBonly in this case). **Note:** Step only necessary during upgrade of a Provisionable mated EPAP pair (mixed EPAP + PDBonly).	**Procedure 27**
**Configure Auto Backup.	5	115	Configure auto backup to schedule RTDB Auto-Backup on Non-Provisionable EPAP	**Procedure A.28**
Post-upgrade Backups	*See notes below	*See notes below	Backup application databases and other pertinent information.	**Procedure 15**

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	Cum.		
Accept the upgrade after successful soak period NOTE: If the node is to be converted from Compact to eXtreme DB architecture, delay this step until the conversion is done and sufficient soak time is given. **NOTE: After EPAP upgrade, if EMS is not able to receive alarms from EPAP, delete the EPAP from EMS discovery screen and then rediscover the EPAP on EMS.**	5	This is done in a separate MTC	Accept the upgrade on both MPS-A after sufficient soak period of around 1-7 days (depending upon customer provisioning volume) to see that everything works fine after the upgrade.	**Procedure 22**

Table 9 Split Mirror Upgrade Phases on Standalone PDB

***NOTE:** The time needed to backup application data is dependent on the amount of application data. This procedure cannot specify an exact length of time since different customers have different amounts of application data.

****NOTE:** Configuring Auto backup is a compulsory step to enable PDB-RTDB translog pruning. Ignore this step if auto-backup is already configured.

*****NOTE**: If you are using Eagle Query Server with EPAP, you need to do a fresh installation of Eagle Query Server after upgrading EPAP to Release 16.4. See Eagle Query Server Installation Guide for installing a fresh EAGLE Query Server.

Incremental Upgrade Phases

The following table illustrates the progression of the incremental upgrade process by procedure with estimated times and may vary due to differences in typing ability and system configuration. The procedures outlined in below Table 10 are to be executed in the order they are listed.

Note: Before proceeding with the incremental upgrade process, refer to section 0 to get the overview of the EPAP setup and upgrade order.

3.1.5 Incremental Upgrade Phases for Mixed and Non-Provisionable EPAP

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	Cum.		

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	Cum.		
Connectivity setup	15	15	Set up connectivity to the MPS servers.	**Procedure 1**
Verify incremental upgrade	5	20	Verify this should be an incremental upgrade.	**Procedure 2**
Pre-upgrade check	15	35	Verify requirements for upgrade are met.	**Procedure 3**
Pre-upgrade health check	5	55	Run the syscheck utility to verify the MPS server is operationally sound.	**Procedure 4**
Assess readiness for upgrade	15	50	Assess the server's readiness for upgrade.	**Procedure 14**
Pre-upgrade Backup	*See notes below	*See notes below	Backup application databases and other pertinent information.	**Procedure 15**
Pre-upgrade system time check	5	60	Pre-upgrade system time check.	**Procedure 16**
Upgrade MPS B	30	90	Execute the upgrade procedure on MPS B.	**Procedure 18**
Upgrade MPS A	30	120	Execute the upgrade procedure on MPS A.	**Procedure 19**
Post-upgrade health check	5	125	Run the syscheck utility to verify the MPS server is operationally sound.	**Procedure 4**
Start the PDB software.	10	135	Re-activate the PDB on the Provisionable MPS A server(mixed-EPAP in this case). Note: Step only necessary during upgrade of a Provisionable mated EPAP pair (mixed EPAP + PDBonly).	**Procedure 27**
Configure Switches	30**	205**	Re-configure the switch and verify that EAGLE SM cards are getting auto-negotiated to 1000Mbps/Full Duplex. **Note: Skip this step if speed is already set to 1000Mbps/Full Duplex.**	**Procedure 9**
Post-upgrade Backups	*See notes below	*See notes below	Backup application databases and other pertinent information.	**Procedure 15**

Table 10 Incremental Upgrade Phases for Mixed and Non-Provisionable EPAP

***NOTE:** The time needed to backup application data is dependent on the amount of application data. This procedure cannot specify an exact length of time since different customers have different amounts of application data.

3.1.6 Incremental Upgrade Phases for Standalone PDB

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	Cum.		
Connectivity setup	15	15	Set up connectivity to the MPS servers.	**Procedure 1**

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	Cum.		
Verify incremental upgrade	5	20	Verify this should be an incremental upgrade.	**Procedure 2**
Pre-upgrade check	15	35	Verify requirements for upgrade are met.	**Procedure 3**
Pre-upgrade health check	5	55	Run the syscheck utility to verify the MPS server is operationally sound.	**Procedure 4**
Assess readiness for upgrade	15	50	Assess the server's readiness for upgrade.	**Procedure 14**
Pre-upgrade Backup	*See notes below	*See notes below	Backup application databases and other pertinent information.	**Procedure 15**
Pre-upgrade system time check	5	60	Pre-upgrade system time check.	**Procedure 16**
Upgrade MPS A	30	90	Execute the Upgrade procedure on MPS A.	**Procedure 19**
Post-upgrade health check	5	95	Run the syscheck utility to verify the MPS server is operationally sound.	**Procedure 4**
Start the PDB software.	10	105	Re-activate the PDB on the Provisionable MPS A servers (mixed-EPAP in this case). Note: Step only necessary during upgrade of a Provisionable mated EPAP pair (mixed EPAP + PDBonly).	**Procedure 27**
Post-upgrade Backups	*See notes below	*See notes below	Backup application databases and other pertinent information.	**Procedure 15**

Table 11 Incremental Upgrade Phases on Standalone PDB

***NOTE:** The time needed to backup application data is dependent on the amount of application data. This procedure cannot specify an exact length of time since different customers have different amounts of application data.

Backout Phases

Note: Before proceeding with the backout process, refer to sections 0 and 0 to get the overview of the EPAP setup and the backout order.

3.1.7 Backout Phases for Mixed and Non-Provisionable EPAP

Phase	Elapsed Time (Hours or Minutes)		Activity	Impact	Procedure
	This Step	Cum.			

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 MPS 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 My Oracle Support following the instructions on the front page or the instructions on the Appendix F**
Backout MPS B only	30	45-60	If required, backout MPS B. If backout of MPS A and B is required, execute **Procedure 25** . Otherwise, if backout required only on MPS B, then execute **Procedure 24**.		**Procedure 24**
Backout MPS A and B	100	145-160	Backout MPS A and B.		**Procedure 25**
Post-backout health check	10	155-170	Run the syscheck utility to verify the MPS server is operationally sound.	Verify that the backout was successful.	**Procedure 4**
Start the PDBA software	5	160-175	Re-activate the PDB on the Provisionable MPS A servers (mixed-EPAP in this case).**Note: Read the instructions given in Procedure A.1 before executing the procedure.**		**Procedure 27**
Configure Switches	30*	190-205*	Re-configure the switch and verify that EAGLE SM cards are getting auto-negotiated to previous speed. **Note: Skip this step if speed before upgrade was 1000Mbps/Full Duplex.**	Verify that speed of switch is negotiated to previous speed.	**Procedure 9**

Table 12. Backout Phases for Mixed and Non-Provisionable EPAP

***NOTE:** If configuring 4 switches, add 30 minutes to the current setup.

3.1.8 Backout Phases for Standalone PDB

Phase	Elapsed Time (Hours or Minutes)		Activity	Impact	Procedure
	This Step	Cum.			

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 MPS 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 My Oracle Support following the instructions on the front page or the instructions on the Appendix F.**
Backout MPS A	30	45-60	Backout MPS A.		**Procedure 25 step 1 through 14.**
Post-backout health check	10	155-170	Run the syscheck utility to verify the MPS server is operationally sound.	Verify that the backout was successful.	**Procedure 4 step 1.**
Start the PDBA software	5	160-175	Re-activate the PDB on the Provisionable(PDBonly) MPS A servers.		**Procedure 27**

Table 13. Backout Phases for Standalone PDB

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 DB ARCHITECTURE OVERVIEW

A new parameter LSBLSET would be added to DN and DN Block tables. This parameter will be used along with CGPNBLSET parameter on EAGLE that would be configured in the linkset table on EAGLE. If the value of LSBLSET parameter for a DN/DN Block on EPAP is found to match with the CGPNBLSET parameter of linkset table on EAGLE, it will be considered as blocklisted DN/DN Block. IAM message will be released (i.e. send back to originator) from EAGLE for the corresponding DN/DN Block. In all other cases, the existing functionality will continue to hold true.

The existing DN/ DN Block table parameters that are configured in the GUI are stored in multiple SQL tables, the DN table for example has only two parameters dnID and PT(port type) parameters in it.

There are other tables (example dn_bl, dn_asd etc.) which help in storing the other parameters entered in GUI forms for DN and DNBlock.

While entering values write operation, is performed with the help of multiple joins with these supporting tables.

Finally, while displaying these values during retrieve operation the join of all the supporting tables is taken and the values fetched are displayed together.

The new parameter LSBLSET is part of dn_bl table and dnB_bl SQL tables for DN and DN Block respectively. This new parameter will be compatible only with eagle 46.9 release.

From EPAP 16.3 onwanrds different DB architectures are supported i.e. “Compact” and “Extreme”. This was done to support enhanced DB capacity.

EPAP 16.4 also supports both compact and extreme architecture. Post upgrade user will remain on existing architecture and will have to change the architecture from compact to extreme as an optional step if required. In changing the DB Architecture from “Compact” to “eXtreme”, the EPAP software shall restart to support the capacity expansion. Before the change in DB Architecture on EPAP, the connecting EAGLE must upgrade to the new release with SLIC cards. Also, the user has-to enable the EPAPX feature on eagle card to support the eXtreme feature. Refer to section 0 to change DB Architecture from Compact to eXtreme.

NOTE: Section 4.2 and 4.3 are only required if customer setup is on compact architecture and wants to change architecture to extreme. Others i.e. thos who are already on extreme architecture or doesn’t want to change to extreme architecture can skip these sections.

Overview of DB architecture change in Customer Network

Upgrade from EPAP 16.2/16.3 to EPAP 16.4 followed by DB Architecture conversion to support new LSBLSET parameter must be carried out as per the below table after upgrade is completed in same MTC window. Based on the existing DB Architecture either compact to compact converter script will be executed or extreme to extreme converter script will be executed. Follow procedure to identify DB architecture and run conversion script.

Table 14. DB Conversion

Base Release	Target Release	Data Base Architecture	Target Architecture	Converter Required
16.2	16.4	NA	Compact	Compact to Compact converter to accommodate lsblset parameter
16.3	16.4	Compact	Compact	Compact to Compact converter to accommodate lsblset parameter
16.3	16.4	Extreme	Extreme	Extreme to Extreme converter to accommodate lsblset parameter

***Note: Allow soak period of around 1-7 days (depending upon customer provisioning volume) to see that everything works fine after the upgrade. After getting convinced that system is working fine, accept the upgrade.**

Overview of DB architecture change from Compact to Extreme

Upgrade from EPAP 16.2/16.3 to EPAP 16.4 followed by DB Architecture conversion from Compact to Extreme must be carried out in following order with different MTC window:

Note: This step is required only when EPAP 16.4 and Eagle are to run in eXtreme mode. If EPAP and Eagle are to run in COMPACT mode, skip this section.

Phase-1 (Upgrade the EPAPs to EPAP 16.4 release in COMPACT mode):

NOTE: If the network consists of Non-PROVs and Mixed-EPAP, please refer Procedure A.26, after executing A.26, return to Phase-2 (Change the Mode from COMPACT mode to eXtreme mode for one Non-PROV site) otherwise continue with the following steps if the setup consists of StandAlonePDB + Non-PROVS.

1. First all non-PROVs should be upgraded to EPAP 16.4 in COMPACT mode. Refer to section 0 for the upgrade process.
2. Next the Standalone PDBs will be upgraded to EPAP 16.4 in COMPACT mode. Refer to section 0 for the upgrade process.

After this phase all EPAPs in the customer network are in EPAP 16.4 and are working in COMPACT mode.

Phase 2: Change the Mode from COMPACT mode to eXtreme mode for one Non-PROV site:

Execute the procedure in the following sequence.

1. Choose one EPAP-Eagle site from the customer network, which will be converted to eXtreme mode.
2. On the EAGLE, replace all non-SLIC SCCP cards to SLIC 64-bit SCCP cards. Change stpopts:EPAPX ON.
3. On the connecting Non-Prov, change the mode from COMPACT to eXtreme. Refer section 0 to change DB Architecture to eXtreme. The StandalonePDB should remain in COMPACT mode at this stage.
4. Restore RTDB on Non-Prov EPAP-A (refer to Procedure A.10) and after successfully restored RTDB on EPAP-A(refer to Procedure A.11), perform reload from mate on Non-Prov EPAP-B. Reload the Eagle from EPAP. Check that the DB downloads and EPAP-Eagle network work normally. Live provisioning flows all the way to Eagle. Let the node soak for some *time-period.

Phase 3: Change the Mode from COMPACT mode to eXtreme mode for whole network:

At this stage, we have seen that EPAP and Eagle are working fine in eXtreme mode. All the remaining Non-PROVs and StandAlone PDBs will be converted to eXtreme mode now. All the remaining Non-PROVs will be converted to eXtreme mode first. After all Non-PROVs are converted to eXtreme, the StandalonePDBs will be converted to eXtreme. For every site, before converting the EPAPs, connected eagles will have EPAPx feature ON.

1. First on the EAGLE, replace all non-SLIC SCCP cards to SLIC 64-bit SCCP cards. Change stpopts:EPAPX ON.
2. On the connected Non-Prov, change the mode from Compact to eXtreme. Refer section 0Change DB Architecture from COMPACT to eXtreme to support EAGLE release 46.7.0.0.0(eXtreme feature) to change DB Architecture to eXtreme.
3. Reload the RTDB from already converted eXtreme mode RTDB in **phase 1**. Refer Procedure A.11.
4. Reload the Eagle SM cards from the EPAP.
5. Repeat steps 1 to 4 for all remaining Non-PROVs in the Customers network
6. Convert the StandalonePDBs to eXtreme mode.

Change DB Architecture from COMPACT to eXtreme to support EAGLE release 46.7.0.0.0(eXtreme feature)

The following table illustrates the progression of the movement of DB Architecture from COMPACT to eXtreme by procedure with estimated times and may vary due to differences in typing ability and system configuration. The procedures outlined in below **Table 15 Phases to change DB Architecture to eXtreme (Standalone PDB)** are to be executed in the order they are listed.

Before proceeding with the change DB Architecture process, refer to section 4 and section 5 to get the overview of the DB Architecture and upgrade order.

Notes: 1. **Skip this section for mixed EPAP as eXtreme feature not supported on mixed EPAP.**
2. DB Architecture cannot be reverted to COMPACT once moved to eXtreme architecture.

4.1.1 Phases to change DB Architecture to eXtreme (Standalone PDB)

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	Cum.		
Check database before changing DB architecture to eXtreme.	40	40	Check 9dig counts for all DN/IMSI and IMEI before changing DB architecture to eXtreme.	**Procedure 17**
Change DB Architecture to eXtreme	40	80	**Note: Skip this procedure on Mixed EPAP.** Change DB Architecture from COMPACT to eXtreme. Note: If parsing gets failed at this stage then user needs to run it manually. Check Procedure A.4 to execute it manually.	**Procedure 13**
Accept the upgrade after successful soak period	5	This is done in a separate MTC	Accept the upgrade after sufficient soak period of around 1-7 days (depending upon customer provisioning volume) to see that everything works fine after the upgrade.	**Procedure 21**

Table 15 Phases to change DB Architecture to eXtreme (Standalone PDB)

4.1.2 Phases to change DB architecture to eXtreme (First Non-Prov site)

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	Cum.		

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	Cum.		
Check database before changing DB architecture to eXtreme.	*see notes below	*see notes below	**NOTE: Execute this step on attached PDBonly EPAP if not already exececuted.** Check 9dig counts for all DN/IMSI and IMEI before changing DB architecture to eXtreme.	**Procedure 17**
Take backup before moving to eXtreme architecture	**See notes below	**See notes below	Take RTDB backup if not already taken, before moving to eXtreme architecture. **Note: Skip this step for PDBonly.**	**Procedure A.7**
Change DB Architecture to eXtreme	5	5	Change DB Architecture from COMPACT to eXtreme **Note:** EPAPX feature must be "ON" on the connected eagle before procedure 13	**Procedure 13**
Restore RTDB backup on Non-prov.	240	245	Restore RTDB backup on Non-prov MPS A.	**Procedure A.10**
Reload RTDB from mate	10	255	Reload RTDB from mate on Non-prov MPS B.	**Procedure A.11**
Accept the upgrade after successful soak period	5	This is done in a separate MTC	Accept the upgrade on both MPS-A and MPS-B after sufficient soak period of around 1-7 days (depending upon customer provisioning volume) to see that everything works fine after the upgrade.	**Procedure 22**

Table 16 Phases to change DB Architecture to eXtreme (First Non-prov site)

***NOTE:** The time for checking database will be added for attached PDBonly EPAP(Added in section 4.2.1).

****NOTE:** The time needed to backup application data is dependent on the amount of application data. This procedure cannot specify an exact length of time since different customers have different amounts of application data.

4.1.3 Phases to change DB architecture to eXtreme (Remaining Non-Prov sites)

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	Cum.		
Take backup before moving to eXtreme architecture	*See notes below	*See notes below	Take RTDB backup if not already taken, before moving to eXtreme architecture. **Note: Skip this step for PDBonly.**	**Procedure A.7**

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	Cum.		
Change DB Architecture to eXtreme	5	5	Change DB Architecture from COMPACT to eXtreme **Note:** EPAPX feature must be "ON" on the connected eagle before procedure 13	**Procedure 13**
Reload RTDB from remote	10	15	Reload the RTDB from remote(already in eXtreme mode) **Note: Remote Non-Prov EPAP must be in eXtreme mode.** (Which may be the first Non-Prov site converted in table 15 or any other remote EPAP which is already in eXtreme mode)	**Procedure A.11**
Reload RTDB from mate	10	25	Reload RTDB from mate on Non-prov MPS B.	**Procedure A.11**
Accept the upgrade after successful soak period	5	This is done in a separate MTC	Accept the upgrade on both MPS-A and MPS-B after sufficient soak period of around 1-7 days (depending upon customer provisioning volume) to see that everything works fine after the upgrade.	**Procedure 21**

Table 17 Phases to change DB Architecture to eXtreme (Remaining Non-Prov sites)

***NOTE:** The time needed to backup application data is dependent on the amount of application data. This procedure cannot specify an exact length of time since different customers have different amounts of application data.

5 UPGRADE PREPARATION

Procedure 1 Setting up the upgrade environment

Procedure 1: Setting up the upgrade environment

S T E P #	This procedure sets up the upgrade environment. Windows are opened for both MPS servers. **NOTE: Call My Oracle Support 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 MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
1. ☐	**Ensure MPS X:** All the console/PuTTY Sessions.	On all the console/PuTTY sessions, make sure that the logging in enabled and logs are written to a file. For example, on a PuTTY session, do the following. **1.** Right click on the top bar in the PuTTY and choose "change setting". **2.** Click on "Logging". **3.** Select "Printable output". **4.** Click on "Browse" and choose where you want the logs to be written so that you can collect those later, if needed. Put a name which will serve better on a later date to understand, for example, name of the log file can be `<server name>_active_pdba_A_server_puttylog_ddmmyyyy`. **5.** Click on "Save". **6.** Type a text "Putty Logging starts" in the PuTTY session and check that above text is logged in the PuTTY log file. Repeat the above six steps on every console/PuTTY session that will be used to enter commands or execute procedure of this document.
2. ☐	Establish a connection to MPS A.	If access to the MPS servers is not available through an IP network, connect to the E5-APP-B card via the serial port. 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. ☐	On the workstation, open one terminal window in preparation for establishing remote connections to the MPS servers.	Create a terminal window
4. ☐	Create a terminal window for MPS A.	Create a terminal window and give it a title of **"MPS A"**
5. ☐	**MPS 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.
6. ☐	Log into MPS A.	`<hostname> console login: admusr` `password: <password>`
7. ☐	**MPS A**: Start screen Session.	Execute the following command to start screen and establish a console session with MPS A. `$ screen -L`

Procedure 1: Setting up the upgrade environment

		If for Standalone PDB, the procedure is complete. Otherwise, continue with the next step.
8. ☐	Establish a connection to MPS B.	If access to the MPS servers is not available through an IP network, connect to the E5-APP-B card via the serial port. For connecting the E5-APP-B B card, disconnect the console cable from the serial port on the E5-APP-B A card's adapter. The cable should be disconnected at the point where it connects to the serial port labeled 'S1' on the E5-APP-B A card's adapter and use it for serial access. **Cable part numbers - 830-1220-xx**
9. ☐	Create a terminal window for MPS B.	Create a terminal window and give it a title of **"MPS B"**
10. ☐	**MPS 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.
11. ☐	Log into MPS B.	`<hostname> console login:  admusr` `password:  <password>`
12. ☐	**MPS B**: Start screen Session.	Execute the following command to start screen and establish a console session with MPS B. `$ screen -L`
13. ☐	**MPS A and B:** Procedure Complete.	This procedure is complete.
14. ☐	Note down the timestamp in log.	Run the following command: `$ date`

Procedure 2 Determine if upgrade or installation is required

Procedure 2: Determine if upgrade or installation is required

S T E P #	This procedure executes the steps required to determine if an upgrade of the system is required or an initial application installation is required. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	

1. ☐	**MPS A**: Log in to MPS A.	If not already logged-in, login at MPS A as 'admusr'.
		
		`<hostname> console login:  admusr`
		`password:  <password>`
		
		.

2. ☐	**MPS B**: Log in to MPS B.	If not already logged-in, login at MPS B as 'admusr'.
		
		`<hostname> console login:  admusr`
		`password:  <password>`

3. ☐	**MPS B:** Determine if the application is currently installed on	Execute an rpm query command and examine the output: `$ rpm -qi TKLCepap`

Procedure 2: Determine if upgrade or installation is required

	the servers. (MPS B will be used to determine the current state of the servers. We will assume that the state of the A server is the same).	Name : TKLCepap Relocations: (not relocatable) Version : 163.0.8 Vendor: Tekelec Release : 16.3.0.0.0_163.8.0 Build Date: Wed 27 Jun 2018 11:19:33 AM EDT Install Date: Tue 03 Jul 2018 03:41:55 AM EDT Build Host: coach-11.tekelec.com Group : Development/Build Source RPM: TKLCepap-163.0.8-16.3.0.0.0_163.8.0.src.rpm Size : 162888034 License: © TEKELEC 2005-2018 Signature : (none) Packager : <@tekelec.com> URL : http://www.tekelec.com/ Summary : Oracle Communications EPAP Package Description : This is the Oracle Communications EAGLE Application Processor(EPAP) Package. The Package installs EPAP software. EPAP provides Provisioning Database Application (PDBA on A side) and Real Time Database (RTDB).
4. ☐	**MPS B:** Observe the output from the rpm query.	The following is an example of what the output may look like: **$ appRev** Install Time: Tue Jul 3 03:52:57 2018 Product Name: EPAP Product Release: 16.3.0.0.0_163.8.0 Base Distro Product: TPD Base Distro Release: 7.6.0.0.0_88.48.0 Base Distro ISO: TPD.install-7.6.0.0.0_88.48.0-OracleLinux6.9-x86_64.iso ISO name: EPAP-16.3.0.0.0_163.8.0-x86_64.iso OS: OracleLinux 6.9 If the output similar-to the above example is displayed, then skip to step 6. Otherwise, proceed to the next step.

5. ☐	**MPS B:** Installation is required if the application is not present on the server, else upgrade is required.	If the application is not currently installed, output similar-to the example below will be returned from the **rpm -qi** command in step-3. If this is the case, then an application **installation** is required. Refer to section 0 to perform EPAP installation.
		
		`$ rpm –qi TKLCepap`
		`package TKLCepap is not installed`
		
		Skip to step 10.

6. ☐	**MPS B:** Determine which version of the application is present.	Write Down the Release Number: Release Number: _____ If the release number on the MPS is less than the release number on the upgrade media, then an upgrade is required.
7. ☐	Determine if a Split Mirror Upgrade is required.	If the current release is 16.2.x/16.3.x and target release is 16.4.y, it is a **SPLIT MIRROR** UPGRADE.
8. ☐	Determine if an incremental Upgrade is required.	If the current release is 16.4.x.x and target release is 16.4.y.y (x.x is less than the number y.y on the upgrade media), it is an **INCREMENTAL** Upgrade.
9. ☐	**MPS A:** Determine if it is Provisionable (either	Execute the following command to determine if the EPAP is Provisionable(either mixed-EPAP or PDBonly) or Non-Provisionable.

Procedure 2: Determine if upgrade or installation is required

	mixed-EPAP or PDBonly) or Non-Provisionable EPAP setup.	`$ uiEdit | grep "PROVISIONABLE"`
		`"PROVISIONABLE_MPS" is set to "YES"`
		
		If the above output contains "YES", then the EPAP is Provisionable(either mixed-EPAP or PDBonly). Otherwise, the EPAP is Non-Provisionable. Write down this information.
		
		EPAP setup type: _____

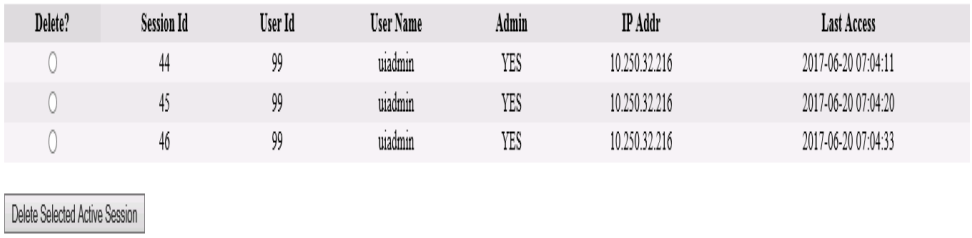
10. ☐	**MPS B:** Determine if the current DB Architecture is compact or extreme.
	
	(MPS B will be used to determine the current state of the servers. We will assume that the state of the A server is the same).
		Execute the following command to determine if the EPAP DB Architecture is Extreme or Compact.
		
		`$ uiEdit | grep "DB_ARCHITECTURE"`
		`"DB_ARCHITECTURE" is set to "COMPACT"`
		
		If the above output contains "COMPACT" or no output is displayed, then the EPAP DB Architecture is Compact.
		
		If the above output contains "EXTREME", then the EPAP DB Architecture is Compact. Write down this information.
		
		EPAP DB Architecture type: _____
		
		Based on this information DB converter will be run.

11. ☐	**MPS A and B:** Procedure Complete.	This procedure is complete.
12. ☐	Note down the timestamp in log.	Run the following command: **`$ date`**

Procedure 3 Pre-upgrade requirements

Procedure 3: Verifying Pre-Upgrade Requirements and Capturing Upgrade Data

S T E P #	This procedure verifies that all pre-upgrade requirements have been met. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORTAND **ASK FOR <u>UPGRADE ASSISTANCE</u>.**	
1. ☐	Verify all required materials are present.	Verify that the materials listed in Upgrade Material List (Section 0) are present.
2. ☐	Verify the availability of passwords for MPS systems.	Refer to Table 5 for the list of users.
3. ☐	Review provisioning rules.	Please review the Provisioning information as defined in Section 0. If you do not understand the information provided in this section, contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F.
4. ☐	Verify and close active GUI Sessions. On the menu, click User Administration->HTTP(s) Support->Terminate UI Sessions	**Skip this step for fresh install.** Login to EPAP GUI as uiadmin user. Terminate all the active GUI sessions from EPAP GUI.

		A Terminate Active UI Sessions  Delete? | Session Id | User Id | User Name | Admin | IP Addr | Last Access ○ 44 99 uiadmin YES 10.250.32.216 2017-06-20 07:04:11 ○ 45 99 uiadmin YES 10.250.32.216 2017-06-20 07:04:20 ○ 46 99 uiadmin YES 10.250.32.216 2017-06-20 07:04:33 Delete Selected Active Session Select all sessions and click on "Delete Selected Active Session" to delete all active sessions.
5. ☐	Procedure Complete.	This procedure is complete.
6. ☐	Note down the timestamp in log.	Run the following command: `$ date`

Procedure 4 System Health check

Procedure 4: System Health Check

S T E P #	This procedure determines the health of the MPS System before beginning an 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 MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
1. ☐	**MPS A**: Verify health of MPS A.	Execute Procedure A.1 on MPS A to verify the health of MPS A.
2. ☐	**MPS B**: Verify health of MPS B.	Execute Procedure A.1 on MPS B to verify the health of MPS B.
3. ☐	Procedure Complete.	This procedure is complete.
4. ☐	Note down the timestamp in log.	Run the following command: `$ date`

5. SOFTWARE INSTALLATION PROCEDURES

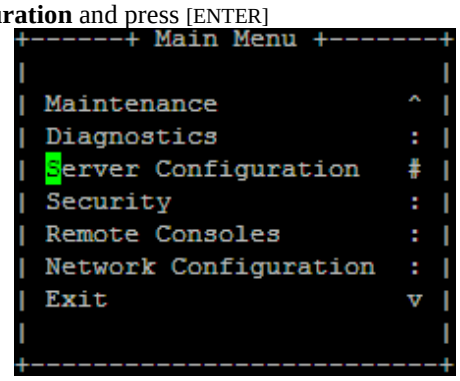
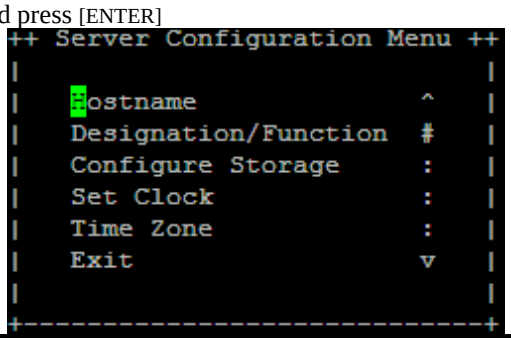
Pre install configuration and initial installation of EPAP can be done on any of the server in the mated pair in any order. These operations can be done simultaneously on both the servers.

Procedure 5 Pre-Install configuration on server A

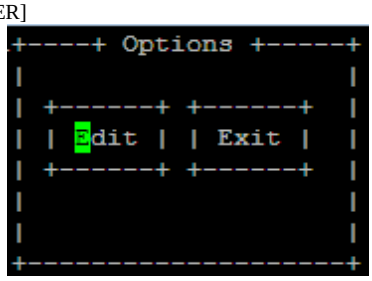
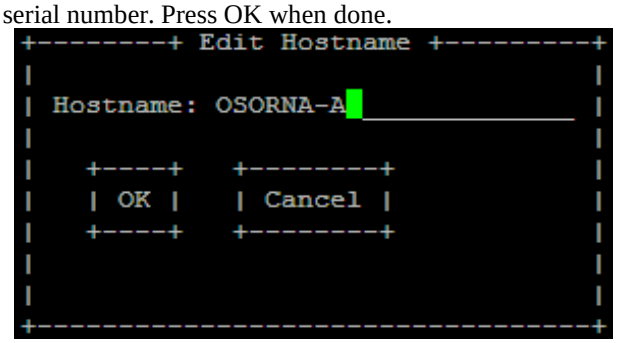
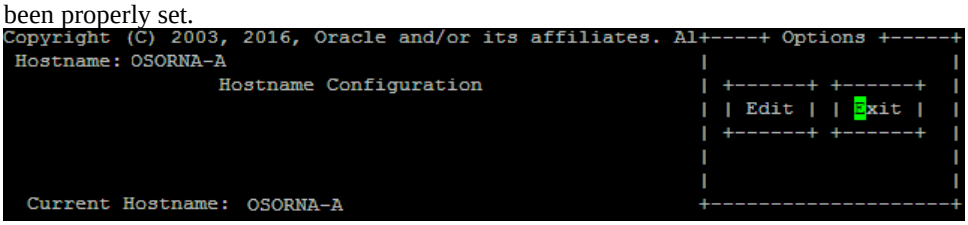
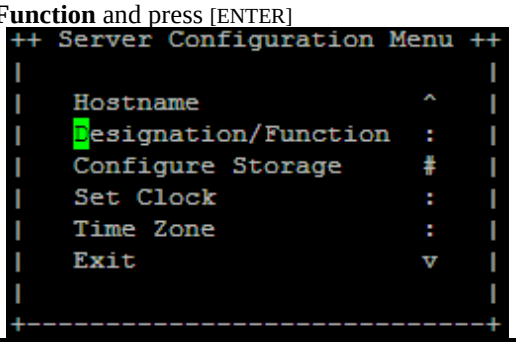
Procedure 5: Pre-Install Configuration on Server A

S T E P #	This procedure provides instructions to perform pre-configuration for 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 MY ORACLE SUPPORTAND ASK FOR ASSISTANCE.	
IMPORTANT: Installation of the Operating System on an Oracle Application Server should be completed before starting installation procedure. Refer to Procedure A.13 or [4] for TPD installation guide.		
1. ☐	Connect to the Server.	If not already connected, connect to the E5-APP-B card via the serial port. 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**

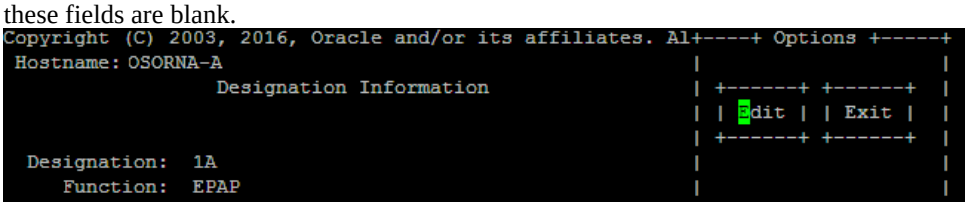
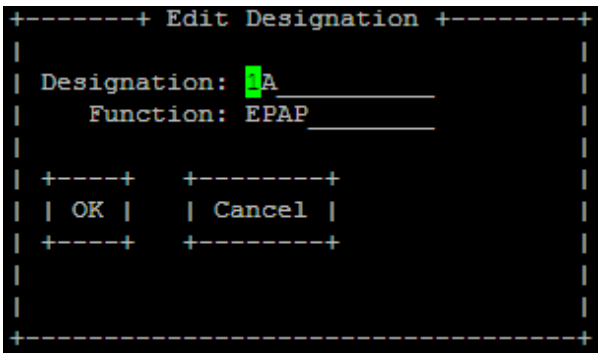
2. ☐	Log in as "admusr" user.	If not already logged in, then login as "admusr":
		`[hostname] consolelogin: admusr`
		`password: *password*`

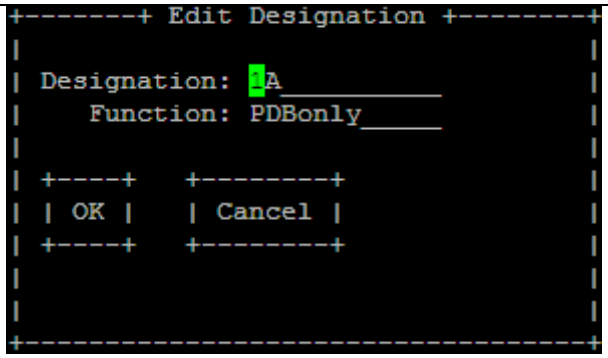
3. ☐	Start platcfg utility.	`$ sudo su - platcfg`
4. ☐	Navigate to the **Server Configuration** screen.	Select **Server Configuration** and press [ENTER] 
5. ☐	Navigate to the **Hostname** screen.	Select **Hostname** and press [ENTER] 

Procedure 5: Pre-Install Configuration on Server A

6. ☐	Select **Edit** to edit the hostname.	Select **Edit** and press [ENTER] 
7. ☐	Enter the hostname and press ok.	Delete the default entry and enter the Hostname as mps-xxxx-a where xxxx is the last 4 digits of server serial number. Press OK when done.  While connected to the serial console, some console output might come when the user is using the serial console to configure the EPAP. Those serial output are harmless and can be ignored.
8. ☐	Exit Back to the Server Configuration Menu.	Select EXIT to exit back to the Server Configuration Menu. Verify that the hostname has been properly set. 
9. ☐	Navigate to the **Designation/Function** menu option.	Select **Designation/Function** and press [ENTER] 

Procedure 5: Pre-Install Configuration on Server A

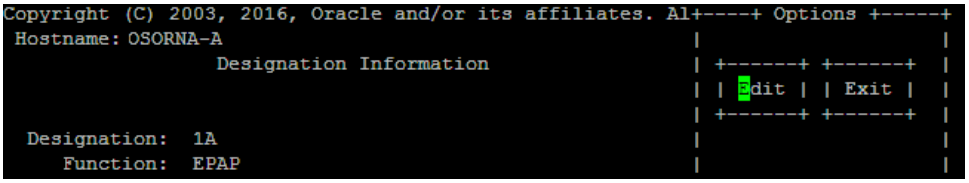
10. ☐	View the current designation and function.	The screen will show the current designation and function setting. On initial install, these fields are blank.  If not blank, the values should be as follows for Mixed EPAP and Non-Provisional EPAP: 1. The Designation is "1A" for the A server 2. The Function field should be set to EPAP. If not blank, the values should be as follows for Standalone PDB. 1. The Designation is "1A" for the A server 2. The Function field should be set to PDBonly. If both the fields are blank or 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.
11. ☐	View the current designation and function.	Skip to Step 13 if Exit was selected in the previous step, otherwise if Edit was selected, delete the current designation and function if already set, 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]. For Mixed EPAP or Non-Provisional EPAP, the following is a correct example:  For Standalone PDB, the following is a correct example:



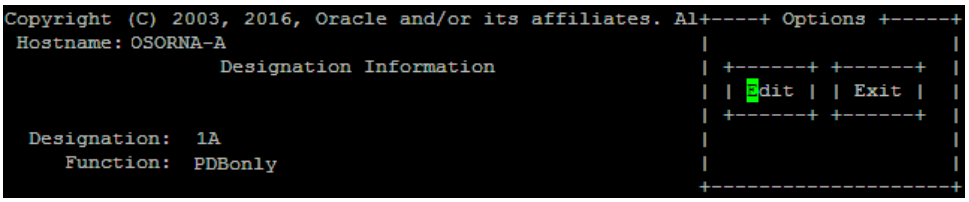
12. ☐

Verify that the Designation and Function information is correct then select and press "Exit".

For Mixed EPAP or Non-Provisional EPAP, the following is a correct example:

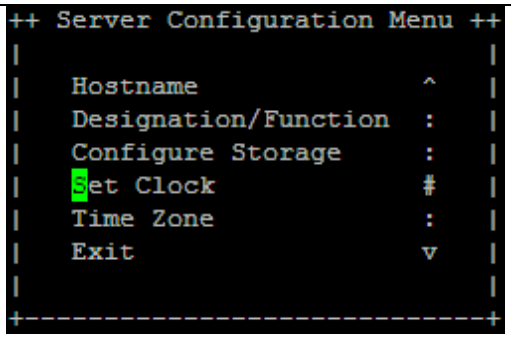


For Standalone PDB, the following is a correct example:



13. ☐

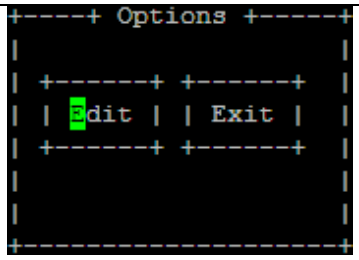
Select "Set Clock" Menu.



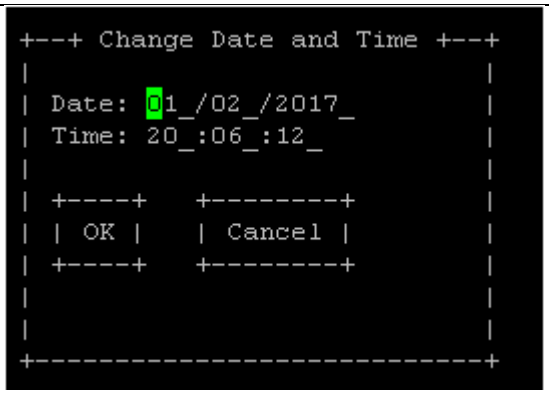
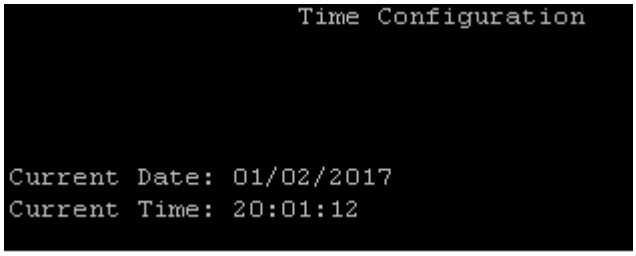
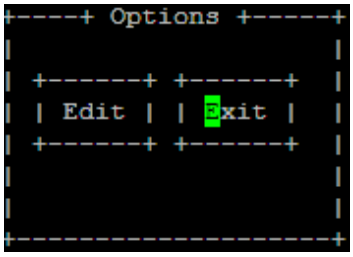
14. ☐

1) Select "Edit" from the options dialogue box.

2) Using an NTP source, set the Date/Time to be correct for the Eastern Time zone (GMT -5) and press "OK".



Procedure 5: Pre-Install Configuration on Server A

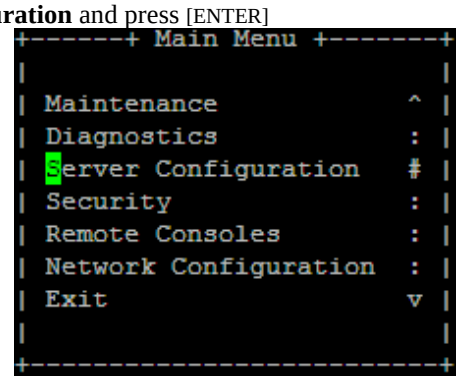
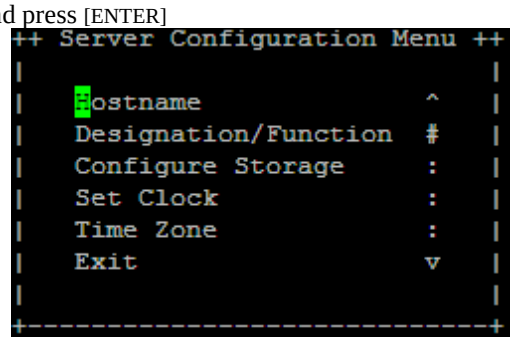
	NOTE: All systems default to Eastern time post IPM. It is important to set the time for the Eastern Time zone at this time.	
15. ☐	Verify that the Date and Time is correct then select and press "Exit".	 
16. ☐	Exit from platcfg menu.	Select **EXIT** until the platcfg menu is closed and the command line is displayed.
17. ☐	Reboot the Server.	`$ sudo reboot`
18. ☐	Procedure complete.	Procedure is complete.
19. ☐	Note down the timestamp in log.	Run the following command: `$ date`

Procedure 6 Pre-Install configuration on server B

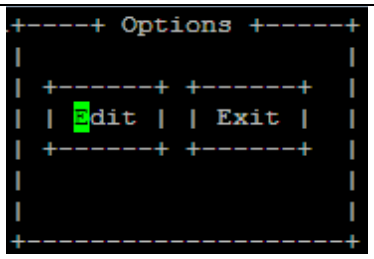
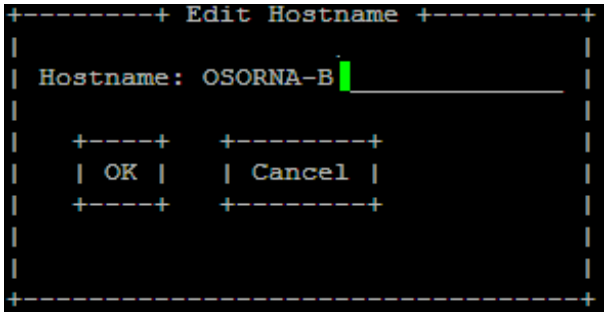
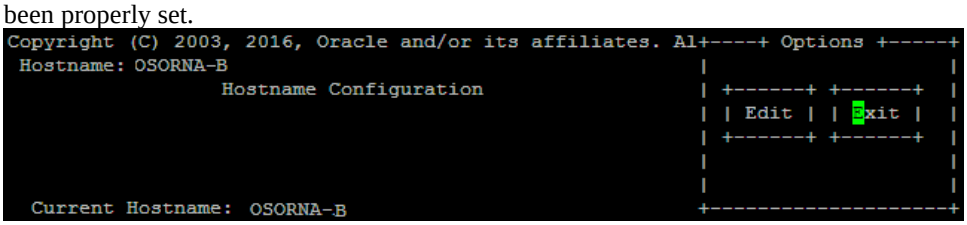
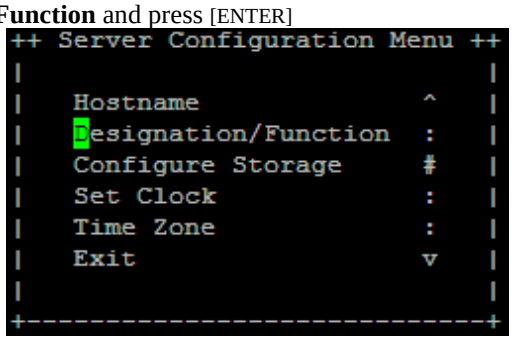
Procedure 6: Pre-Install Configuration on Server B

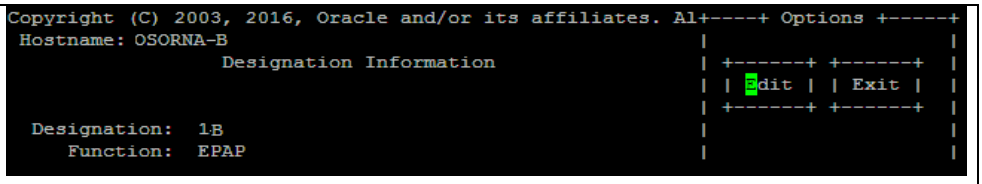
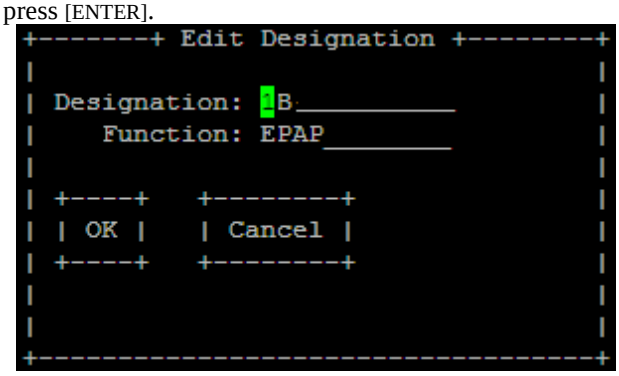
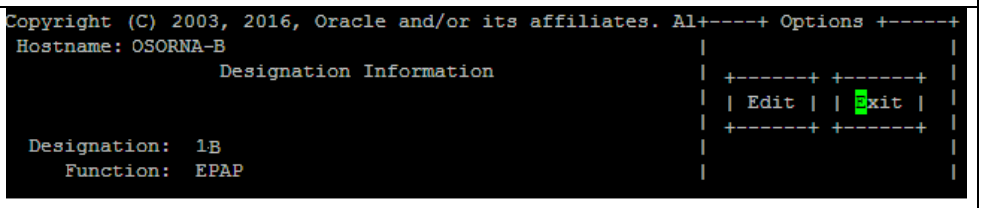
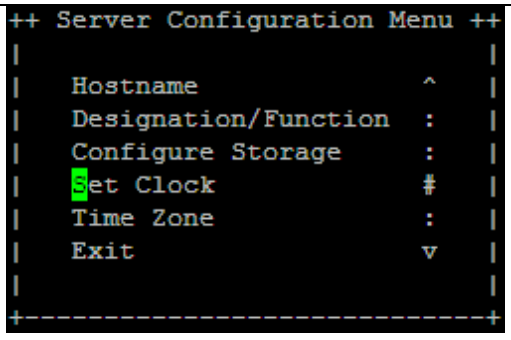
S T E P #	This procedure provides instructions to perform pre configuration for an initial install of the application. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORTAND ASK FOR ASSISTANCE.	
IMPORTANT: Installation of the Operating System on an Oracle Application Server should be completed before starting installation procedure. Refer to Procedure A.13 or [4] for TPD installation.		
1. ☐	Connect to the Server.	If not already connected, connect to the E5-APP-B card via the serial port. For connecting the E5-APP-B B card, disconnect the console cable from the serial port on the E5-APP-B A card's adapter. The cable should be disconnected at the point where it connects to the serial port labeled 'S1' on the E5-APP-B A cards' adapter and use it for serial access. **Cable part numbers - 830-1220-xx**

2. ☐	Log in as "admusr" user.	If not already logged in, then login as 'admusr':
		`[hostname] consolelogin: admusr`
		`password: password`

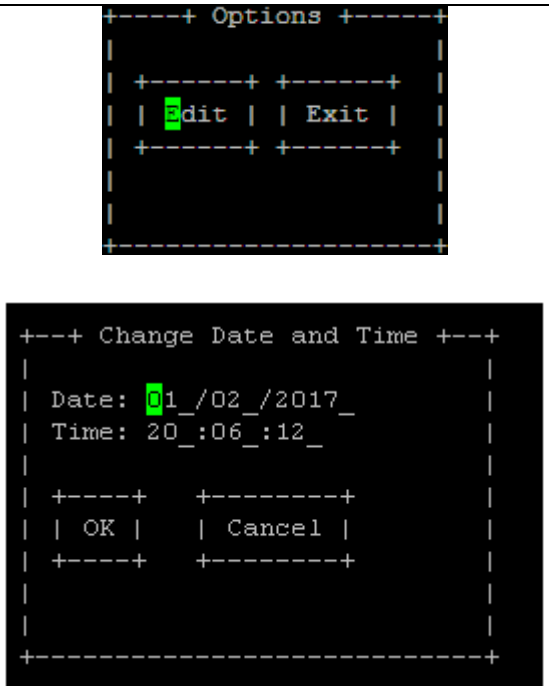
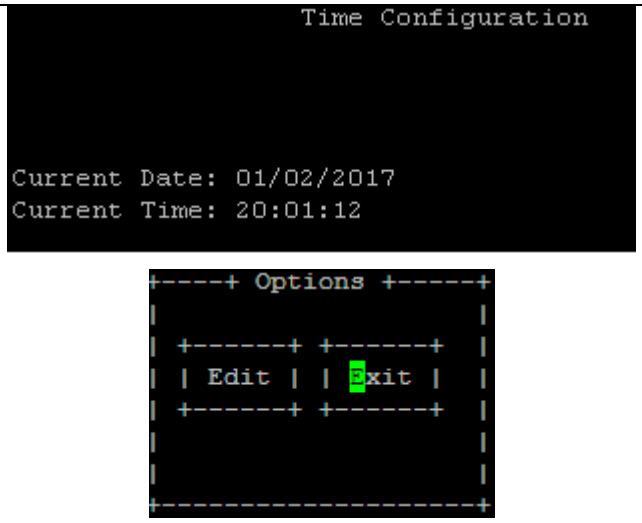
3. ☐	Start platcfg utility.	`$ sudo su - platcfg`
4. ☐	Navigate to the **Server Configuration** screen.	Select **Server Configuration** and press [ENTER] 
5. ☐	Navigate to the **Hostname** screen.	Select **Hostname** and press [ENTER] 
6. ☐	Select **Edit** to edit the hostname.	Select **Edit** and press [ENTER]

Procedure 6: Pre-Install Configuration on Server B

		
7. ☐	Enter the hostname and press ok.	Delete the default entry and enter the Hostname as mps-xxxx-b where xxxx is the last 4 digits of server serial number. Press OK when done.  While connected to the serial console, some console output might come when the user is using the serial console to configure the EPAP. Those serial output are harmless and can be ignored.
8. ☐	Exit Back to the Server Configuration Menu.	Select EXIT to exit back to the Server Configuration Menu. Verify that the hostname has been properly set. 
9. ☐	Navigate to the **Designation/Function** menu option.	Select **Designation/Function** and press [ENTER] 
10. ☐	View the current designation and	The screen will show the current designation and function setting. On initial install, these fields are blank.

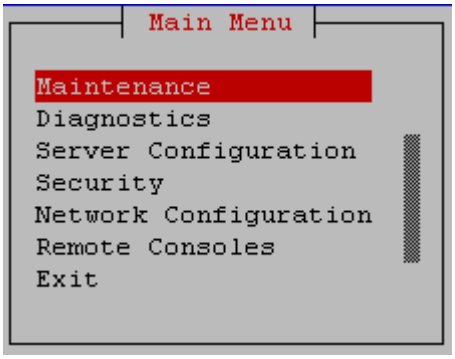
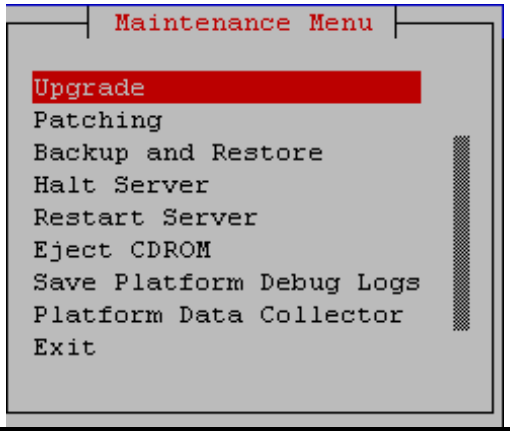
	function.	 If not blank the values should be as follows for Mixed EPAP and Non-Provisional EPAP: 1. The Designation is "1B" for the B server 2. The Function field should be set to EPAP. If either value is not correct, then select **Edit** and press [ENTER]. If both values are correct, select **Exit**, press [ENTER] and skip the next step.
11. ☐	View the current designation and function.	Skip to Step 13 if Exit was selected in the previous step, otherwise if Edit was selected, delete the current designation and function if already set, 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]. 
12. ☐	Verify that the Designation and Function information is correct then select and press "Exit".	
13. ☐	Select "Set Clock" Menu.	

Procedure 6: Pre-Install Configuration on Server B

14. ☐	1) Select “Edit” from the options dialogue box. 2) Using an NTP source, set the Date/Time to be correct for the Eastern Time zone (GMT -5) and press “OK”. NOTE: All systems default to Eastern time post IPM. It is important to set the time for the Eastern Time zone at this time.	
15. ☐	Verify that the Date and Time is correct then select and press “Exit”.	
16. ☐	Exit from platcfg menu.	Select **EXIT** until the platcfg menu is closed and the command line is displayed.
17. ☐	Reboot the Server.	`$ sudo reboot`
18. ☐	Procedure complete.	Procedure is complete.
19. ☐	Note down the timestamp in log.	Run the following command: `$ date`

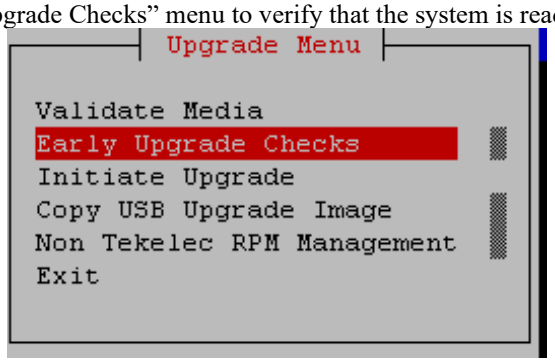
Procedure 7 Install Application on server A

Procedure 7: Install the Application on Server A

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 MY ORACLE SUPPORTAND ASK FOR ASSISTANCE.	
1. ☐	**MPS A:** Install EPAP on 1A.	Perform Procedure in Procedure A.12 or copy EPAP 16.4 ISO to /var/TKLC/upgrade directory.
2. ☐	Create a terminal window and log into MPS A.	If not already connected, connect to the E5-APP-B card via the serial Port. 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. ☐	**MPS A**: Login prompt is displayed.	`<hostname> console login:` Note: Hit enter if no login prompt is displayed.
4. ☐	**MPS A:** log in as "admusr" user.	**`[hostname] consolelogin: admusr`** **`password: password`**
5. ☐	**MPS A:** Start platcfg utility.	**`$ sudo su - platcfg`**
6. ☐	**MPS A:** Navigate to the Upgrade menu.	The platcfg **Main Menu** appears. On the **Main Menu**, select **Maintenance** and press **[ENTER]**.  Select the **Upgrade** menu and press **[ENTER]**. 

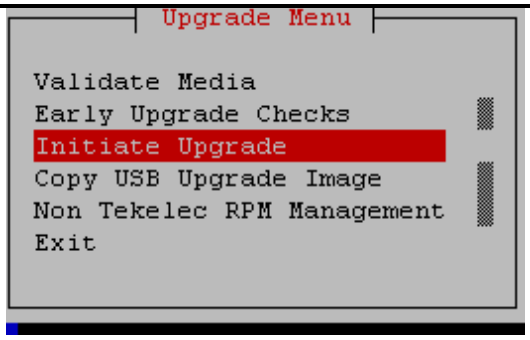
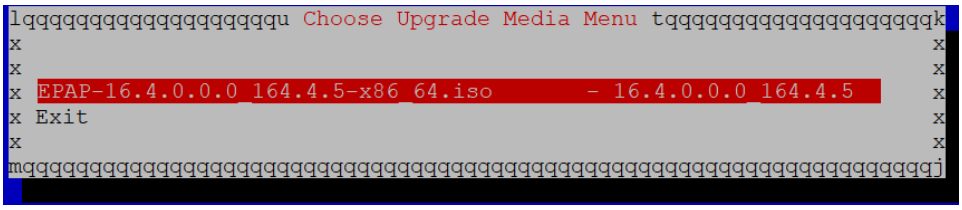
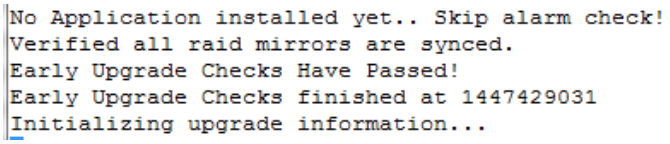
Procedure 7: Install the Application on Server A

7. ☐	**MPS X:** Validate ISO file.	Validate ISO file using **Procedure A.2**.

8. ☐	**MPS A**: Select Early Upgrade Checks	Select the "Early Upgrade Checks" menu to verify that the system is ready for upgrade.
		 
		
		If the Early Upgrade Checks fail due to the ongoing syncing of raid mirrors, then wait until the resync is completed and run the "Early Upgrade Checks" again.
		`Early Checks failed for the next upgrade`
		`Look at earlyChecks.log for more info`
		`tarting Early Upgrade Checks at 1011413059`
		`Running earlyUpgradeChecks() for Upgrade::EarlyPolicy::TPDEarlyChecks upgrade policy...`
		`Verified server is not pending accept of previous upgrade`
		`ERROR: Raid mirrors are syncing!`
		`ERROR: md2 is syncing!`
		`ERROR: earlyUpgradeChecks() code failed for Upgrade::EarlyPolicy::TPDEarlyChecks`
		`ERROR: Failed running earlyUpgradeChecks() code`
		`Hardware architectures match`
		`Install products match.`
		`No Application installed yet.. Skip alarm check!`
		`ERROR: Early Upgrade Checks Failed!`
		`User has requested just to run early checks.`
		`No upgrade will be performed...`
		`Early Upgrade Checks finished at 1011413059`
		`[admusr@epappri ~]$ cat /proc/mdstat`
		`Personalities : [raid1]`
		`md1 : active raid1 sdb2[1] sda2[0]`
		`262080 blocks super 1.0 [2/2] [UU]`
		`md2 : active raid1 sda1[0] sdb1[1]`
		`468447232 blocks super 1.1 [2/2] [UU]`
		`[=====>.....] resync = 29.7% (139377920/468447232) finish=73.0min speed=75060K/sec`
		`bitmap: 4/4 pages [16KB], 65536KB chunk`
		`unused devices: <none>`
		Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F if the early upgrade checks fail due to any other reason

9. ☐	**MPS A:** Navigate to the Initiate Upgrade menu	Select the **Initiate Upgrade** menu and press **[ENTER]**.

Procedure 7: Install the Application on Server A

		
10. ☐	**MPS A:** Select the Upgrade Media.	The screen displays a message that it is searching for upgrade media. When the upgrade media is found, an Upgrade Media selection menu appears similar-to the example below. Select the desired upgrade media and press **[ENTER]**. 
11. ☐	**MPS A:** Upgrade proceeds.	The screen displays the output like following, indicating that the upgrade software is first running the upgrade checks, and then proceeding with the upgrade. 
12. ☐	**MPS A:** 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.
13. ☐	**MPS A:** Upgrade completed.	After the final reboot, the screen displays the login prompt as in the example below. Starting atd: [OK] ~~ /etc/rc4.d/S98ExQueue start ~~ ExQueue started. Starting TKLCe5appb: [OK] Checking network config files: [OK] Daemon is not running... AlarmMgr daemon is not running, delaying by 1 minute ~~ /etc/rc4.d/S99Epap start ~~ EPAP configuration data not found. Exiting... ~~ /etc/rc4.d/S99Pdba start ~~ EPAP configuration data not found. Exiting... Starting smartd: [OK] Daemon is not running... AlarmMgr daemon is not running, delaying by 1 minute TPDhpDiskStatus stop/pre-start, process 5527 TKLChwmgmtcli stop/pre-start, process 5508 Oracle Linux Server release 6.9 Kernel 2.6.32-642.6.2.el6prerel7.4.0.0.0_88.32.0.x86_64 on an x86_64
14.	**MPS A:** log in as	**[hostname] consolelogin: epapdev** **password:** ***password***

Procedure 7: Install the Application on Server A

☐	"epapdev" user.	

15. ☐	**MPS A:** Check the Upgrade log.	Examine the upgrade logs in the directory /var/TKLC/log/upgrade and verify that no errors and warnings were reported.
		
		`$ grep -i error /var/TKLC/log/upgrade/upgrade.log`
		
		Check the output of the upgrade log, Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F, if the output contains any errors beside the following:
		`1528826597::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/alarmInfo.MYI'`
		`1528826597::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/alarmInfo.MYI'`
		`1528826597::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/bannerinfo.MYI'`
		`1528826597::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/bannerinfo.MYI'`
		.
		.
		1487820277::2017-02-23T03:24:40.278652Z 0 [Warning] 'NO_ZERO_DATE', 'NO_ZERO_IN_DATE' and 'ERROR_FOR_DIVISION_BY_ZERO' sql modes should be used with strict mode. They will be merged with strict mode in a future release.
		
		Following statement for missing binary file shall be observed in upgrade.log:
		`1530885808::/bin/df: `/mnt/ugchroot/sys': No such file or directory`
		
		All those messages are expected, and therefore aren't considered errors.
		Also note that sometime a carriage return is inserted in the log file causing some of the error messages to appear truncated, for example in "1252687151::myisamchk: error: File '" case, "1252687169::myisa" might show up on one line while the rest "mchk: error: File '/" might show up on the next line. This is acceptable and should be ignored.
		
		`$ grep -i warning /var/TKLC/log/upgrade/upgrade.log`
		
		Examine the output of the above command to determine if any warnings were reported. Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F, if the output contains any warnings beside the following:
		`[1487820277::2017-02-23T03:24:40.278652Z 0 [Warning] 'NO_ZERO_DATE', 'NO_ZERO_IN_DATE' and 'ERROR_FOR_DIVISION_BY_ZERO' sql modes should be used with strict mode. They will be merged with strict mode in a future release.`
		`[root@hvar-A ~]# grep -i warning /var/TKLC/log/upgrade/upgrade.log`
		`1487820160::WARNING: /usr/TKLC/plat/etc/alarms/alarms.xml has been updated...reparsing xml...`
		`1487820270::*  write: WARNING:: Could not find configured path "/var/TKLC/epap/rt".`
		`1487820270::*  write: WARNING:: Could not find configured path "/var/TKLC/epap/db".`
		`1487820270::*  write: WARNING:: Could not find configured path "/var/TKLC/epap/logs".`
		`1487820270::*  write: WARNING:: Could not find configured path "/var/TKLC/epap/free".`
		`1487820270::*  write: WARNING:: Could not find configured path "/var/TKLC/epap/rt".`
		`1487820270::*  write: WARNING:: Could not find configured path "/var/TKLC/epap/db".`
		`1487820270::*  write: WARNING:: Could not find configured path "/var/TKLC/epap/logs".`
		`1487820270::*  write: WARNING:: Could not find configured path "/var/TKLC/epap/free".`
		`1487820272::useradd: warning: the home directory already exists.`
		`1487820277::2017-02-23T03:24:40.278652Z 0 [Warning] 'NO_ZERO_DATE', 'NO_ZERO_IN_DATE' and 'ERROR_FOR_DIVISION_BY_ZERO' sql modes should be used with strict mode. They will be merged with strict mode in a future release.`
		`1487820280::2017-02-23T03:24:40.278694Z 0 [Warning] 'NO_AUTO_CREATE_USER' sql`

Procedure 7: Install the Application on Server A

		mode was not set. 1487820709::2017-02-23T03:31:55.022227Z 0 [Warning] InnoDB: New log files created, LSN=45792 1487820715::2017-02-23T03:31:55.116112Z 0 [Warning] InnoDB: Creating foreign key constraint system tables. 1487820715::2017-02-23T03:31:55.187777Z 0 [Warning] No existing UUID has been found, so we assume that this is the first time that this server has been started. Generating a new UUID: 9fafedc2-f978-11e6-a8a8-0010e0850417. 1487820715::2017-02-23T03:31:55.190473Z 0 [Warning] Gtid table is not ready to be used. Table 'mysql.gtid_executed' cannot be opened. 1487820715::2017-02-23T03:31:56.233157Z 0 [Warning] CA certificate ca.pem is self signed. 1487820716::2017-02-23T03:31:56.702769Z 1 [Warning] root@localhost is created with an empty password ! Please consider switching off the --initialize-insecure option. 1487820720::2017-02-23T03:32:03.451408Z 0 [Warning] TIMESTAMP with implicit DEFAULT value is deprecated. Please use --explicit_defaults_for_timestamp server option (see documentation for more details). 1487820723::2017-02-23T03:32:04.023504Z 0 [Warning] InnoDB: New log files created, LSN=45790 1487820724::2017-02-23T03:32:04.116918Z 0 [Warning] InnoDB: Creating foreign key constraint system tables. 1487820724::2017-02-23T03:32:04.178096Z 0 [Warning] No existing UUID has been found, so we assume that this is the first time that this server has been started. Generating a new UUID: a50bbe8f-f978-11e6-bcbc-0010e0850417. 1487820724::2017-02-23T03:32:04.178895Z 0 [Warning] Gtid table is not ready to be used. Table 'mysql.gtid_executed' cannot be opened. 1487820724::2017-02-23T03:32:05.957583Z 0 [Warning] CA certificate ca.pem is self signed. 1487820726::2017-02-23T03:32:06.165059Z 1 [Warning] root@localhost is created with an empty password ! Please consider switching off the --initialize-insecure option. 1487820753::WARNING: A new file was added to xml alarm files...reparsing xml... 1487820754::WARNING: FILE: /usr/TKLC/plat/etc/alarms/alarms_mps.xml 1487820761::TKLCepap-HA ##################################warning: group root} does not exist - using root Refer to section 0 to know more about logging.
16. ☐	**MPS A:** Check that the upgrade completed successfully.	**$ grep "Upgrade returned success" /var/TKLC/log/upgrade/upgrade.log**
17. ☐	**MPS A:** Check that the upgrade completed successfully.	Verify that the message "Upgrade returned success!" is displayed. If it is not, contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F. 1399367207:: Upgrade returned success!
18. ☐	**MPS B:** Update ssh_config to disable MD5 and MAC algorithm for security	Perform following steps to disable unsecure algorithm for ssh: **1. $ grep "MACs hmac-md5,hmac-md5-96," /etc/ssh/ssh_config** If output contains "MACs hmac-md5,hmac-md5-96", execute the below steps 2 and 3. Else go to step 4. **2. $ sudo rcstool co /etc/ssh/ssh_config** **3. $ sudo sed -i -e '/MACs hmac-md5,hmac-md5-96,hmac-sha1-96/d' /etc/ssh/ssh_config** **4.$ sudo rcstool ci /etc/ssh/ssh_config** **4. $ grep "MACs hmac-sha2-256,hmac-sha2-512" /etc/ssh/sshd_config** If no output is displayed for above command continue to next command in step 5 and 6 else skip these steps **5. $ sudo rcstool co /etc/ssh/sshd_config** **6. $ sudo sed -i '$ a \\tMACs hmac-sha2-256,hmac-sha2-512' /etc/ssh/sshd_config**

Procedure 7: Install the Application on Server A

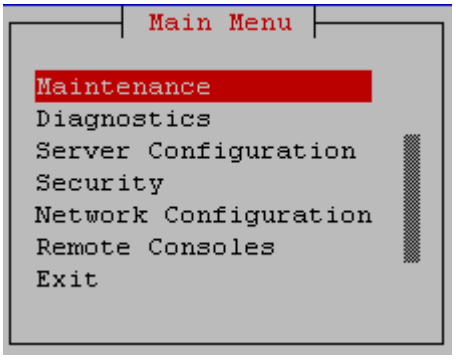
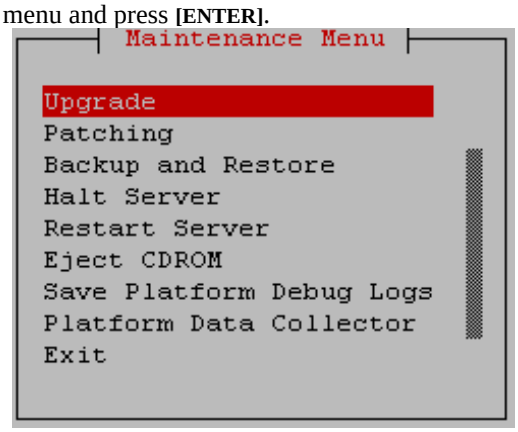
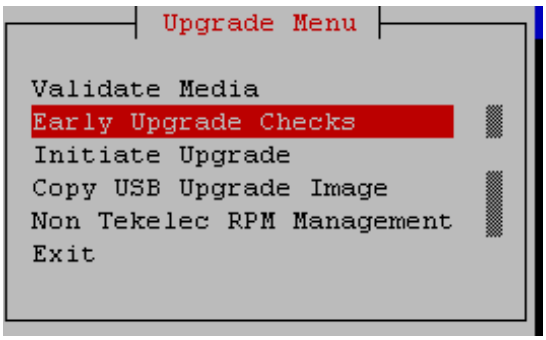
		7. $ sudo rcstool ci /etc/ssh/sshd_config 8. $ sudo service sshd restart
19. ☐	Update the httpd.conf file to disable the Cache control no-store policy	Perform the following steps to disable Cache control no-store policy: 1. $ grep "Header set Cache-Control no-store" /etc/httpd/conf/httpd.conf If the output contains "Header set Cache-Control no-store", Execute the below steps. If no output is displayed for the above command, skip the steps mentioned below. 2. $ sudo sed -i '/Cache-Control no-store/c\#Header set Cache-Control no-store' /etc/httpd/conf/httpd.conf 3. $ grep "Header set Cache-Control no-store" /etc/httpd/conf/httpd.conf The output should be "#Header set Cache-Control no-store" showing that the line has been commented. 4. $ sudo service httpd restart
20. ☐	**MPS A:** Install Complete.	Install Procedure is complete.
21. ☐	Note down the timestamp in log.	Run the following command: $ date

Procedure 8 Install Application on server B

Procedure 8: Install the Application on Server B

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 MY ORACLE SUPPORTAND ASK FOR ASSISTANCE.	
1. ☐	**MPS B:** Install 1B.	Perform Procedure in Procedure A.12 or copy EPAP 16.3 ISO to /var/TKLC/upgrade directory.
2. ☐	Create a terminal window log into MPS B.	If not already connected, connect to the E5-APP-B card via the serial port. For connecting the E5-APP-B B card, disconnect the console cable from the serial port on the E5-APP-B A card's adapter. The cable should be disconnected at the point where it connects to the serial port labeled 'S1' on the E5-APP-B A card's adapter and use it for serial access. **Cable part numbers - 830-1220-xx**
3. ☐	**MPS B**: Login prompt is displayed.	<hostname> console login: Note: Hit enter if no login prompt is displayed.
4. ☐	**MPS B:** log in as "admusr" user.	[hostname] consolelogin: admusr password: password

Procedure 8: Install the Application on Server B

5. ☐	**MPS B:** Start platcfg utility.	`$ sudo su - platcfg`
6. ☐	**MPS B:** Navigate to the Upgrade menu.	The platcfg **Main Menu** appears. On the **Main Menu**, select **Maintenance** and press **[ENTER]**.  Select the **Upgrade** menu and press **[ENTER]**. 
7. ☐	**MPS X:** Validate ISO file.	Validate ISO file using **Procedure A.2**.
8. ☐	**MPS A**: Select Early Upgrade Checks	Select the "Early Upgrade Checks" menu to verify that the system is ready for upgrade. 

Procedure 8: Install the Application on Server B

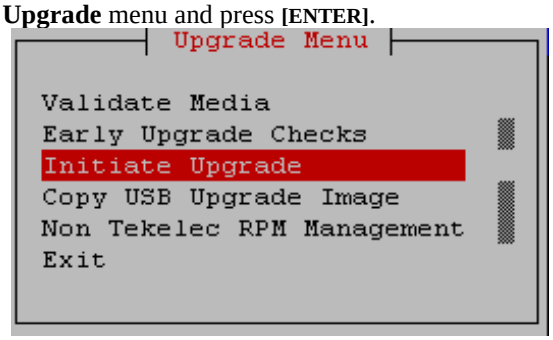
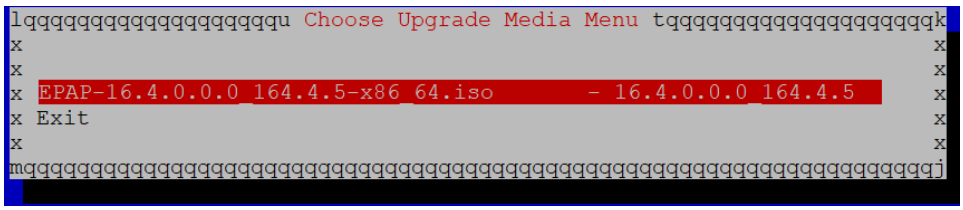
<table>
<tr><td></td><td></td><td>If the Early Upgrade Checks fail due to the ongoing syncing of raid mirrors, then wait until the resync is completed and run the “Early Upgrade Checks” again.

<pre>
Early Checks failed for the next upgrade
Look at earlyChecks.log for more info
tarting Early Upgrade Checks at 1011413059
Running earlyUpgradeChecks() for Upgrade::EarlyPolicy::TPDEarlyChecks upgrade policy...
Verified server is not pending accept of previous upgrade
ERROR: Raid mirrors are syncing!
ERROR: md2 is syncing!
ERROR: earlyUpgradeChecks() code failed for Upgrade::EarlyPolicy::TPDEarlyChecks
ERROR: Failed running earlyUpgradeChecks() code
Hardware architectures match
Install products match.
No Application installed yet.. Skip alarm check!
ERROR: Early Upgrade Checks Failed!
User has requested just to run early checks.
No upgrade will be performed...
Early Upgrade Checks finished at 1011413059
</pre>

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

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

unused devices: <none>
</pre>

Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F, if the early upgrade checks fail due to any other reason.</td></tr>
<tr><td>9.
☐</td><td>MPS A: Navigate to the Initiate Upgrade menu</td><td>Select the Initiate Upgrade menu and press [ENTER].
 
</td></tr>
<tr><td>10.
☐</td><td>MPS B: Select the Upgrade Media.</td><td>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].
 
</td></tr>
<tr><td>11.
☐</td><td>MPS B: Upgrade proceeds.</td><td>The screen displays the following, indicating that the upgrade software is first validating the media, and then proceeding with the upgrade.</td></tr>
</table>

Procedure 8: Install the Application on Server B

		No Application installed yet.. Skip alarm check! Verified all raid mirrors are synced. Early Upgrade Checks Have Passed! Early Upgrade Checks finished at 1447429031 Initializing upgrade information...
12. ☐	**MPS 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.
13. ☐	**MPS B:** Upgrade completed.	After the final reboot, the screen displays the login prompt as in the example below. Starting atd: [OK] ~~ /etc/rc4.d/S98ExQueue start ~~ ExQueue started. Starting TKLCe5appb: [OK] Checking network config files: [OK] Daemon is not running... AlarmMgr daemon is not running, delaying by 1 minute ~~ /etc/rc4.d/S99Epap start ~~ EPAP configuration data not found. Exiting... ~~ /etc/rc4.d/S99Pdba start ~~ EPAP configuration data not found. Exiting... Starting smartd: [OK] Daemon is not running... AlarmMgr daemon is not running, delaying by 1 minute TPDhpDiskStatus stop/pre-start, process 5527 TKLChwmgmtcli stop/pre-start, process 5508 Oracle Linux Server release 6.9 Kernel 2.6.32-642.6.2.el6prerel7.4.0.0.0_88.32.0.x86_64 on an x86_64
14. ☐	**MPS B:** log in as "epapdev" user.	**[hostname] consolelogin: epapdev** **password: password**
15. ☐	**MPS B:** Check the Upgrade log.	Examine the upgrade logs in the directory /var/TKLC/log/upgrade and verify that no errors and warnings were reported. **$ grep -i error /var/TKLC/log/upgrade/upgrade.log** Check the output of the upgrade log, Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F, if the output contains any error except the following: 1528826597::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/alarmInfo.MYI' 1528826597::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/alarmInfo.MYI' 1528826597::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/bannerinfo.MYI' 1528826597::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/bannerinfo.MYI' . . 1487896226:: 2017-02-24T00:30:28.652213Z 0 [Warning] 'NO_ZERO_DATE', 'NO_ZERO_IN_DATE' and 'ERROR_FOR_DIVISION_BY_ZERO' sql modes should be used with strict mode. They will be merged with strict mode in a future release.

Following statement for missing binary file shall be observed in upgrade.log:

```
1530885808::/bin/df: `/mnt/ugchroot/sys': No such file or directory
```

All those messages are expected, and therefore aren't considered errors.
Also note that sometime a carriage return is inserted in the log file causing some of the error messages to appear truncated. This is acceptable and should be ignored.

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

Examine the output of the above command to determine if any warnings were reported. Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F, if the output contains any warnings beside the following:

```
1487896226::2017-02-24T00:30:28.652213Z 0 [Warning] 'NO_ZERO_DATE',
'NO_ZERO_IN_DATE' and 'ERROR_FOR_DIVISION_BY_ZERO' sql modes should be used
with strict mode. They will be merged with strict mode in a future release.
[epapdev@hvar-b ~]$ grep -i warning /var/TKLC/log/upgrade/upgrade.log
1487896106::WARNING: /usr/TKLC/plat/etc/alarms/alarms.xml has been
updated...reparsing xml...
1487896218::*       write: WARNING:: Could not find configured path
"/var/TKLC/epap/rt".
1487896219::*       write: WARNING:: Could not find configured path
"/var/TKLC/epap/db".
1487896219::*       write: WARNING:: Could not find configured path
"/var/TKLC/epap/logs".
1487896219::*       write: WARNING:: Could not find configured path
"/var/TKLC/epap/free".
1487896219::*       write: WARNING:: Could not find configured path
"/var/TKLC/epap/rt".
1487896219::*       write: WARNING:: Could not find configured path
"/var/TKLC/epap/db".
1487896219::*       write: WARNING:: Could not find configured path
"/var/TKLC/epap/logs".
1487896219::*       write: WARNING:: Could not find configured path
"/var/TKLC/epap/free".
1487896220::useradd: warning: the home directory already exists.
1487896226::2017-02-24T00:30:28.652213Z 0 [Warning] 'NO_ZERO_DATE',
'NO_ZERO_IN_DATE' and 'ERROR_FOR_DIVISION_BY_ZERO' sql modes should be used
with strict mode. They will be merged with strict mode in a future release.
1487896229::2017-02-24T00:30:28.652254Z 0 [Warning] 'NO_AUTO_CREATE_USER' sql
mode was not set.
1487896242::2017-02-24T00:30:46.762649Z 0 [Warning] InnoDB: New log files
created, LSN=45791
1487896247::2017-02-24T00:30:46.856447Z 0 [Warning] InnoDB: Creating foreign
key constraint system tables.
1487896247::2017-02-24T00:30:46.918223Z 0 [Warning] No existing UUID has been
found, so we assume that this is the first time that this server has been
started. Generating a new UUID: 7c1b5ac5-fa28-11e6-ac40-0010e08503fb.
1487896247::2017-02-24T00:30:46.919104Z 0 [Warning] Gtid table is not ready to
be used. Table 'mysql.gtid_executed' cannot be opened.
1487896247::2017-02-24T00:30:48.561021Z 0 [Warning] CA certificate ca.pem is
self signed.
1487896249::2017-02-24T00:30:49.018012Z 1 [Warning] root@localhost is created
with an empty password ! Please consider switching off the --initialize-
insecure option.
1487896252::2017-02-24T00:30:55.321537Z 0 [Warning] TIMESTAMP with implicit
DEFAULT value is deprecated. Please use --explicit_defaults_for_timestamp
server option (see documentation for more details).
1487896255::2017-02-24T00:30:55.888792Z 0 [Warning] InnoDB: New log files
created, LSN=45790
1487896256::2017-02-24T00:30:55.977153Z 0 [Warning] InnoDB: Creating foreign
key constraint system tables.
1487896256::2017-02-24T00:30:56.040240Z 0 [Warning] No existing UUID has been
found, so we assume that this is the first time that this server has been
started. Generating a new UUID: 818b4391-fa28-11e6-946c-0010e08503fb.
1487896256::2017-02-24T00:30:56.041013Z 0 [Warning] Gtid table is not ready to
be used. Table 'mysql.gtid_executed' cannot be opened.
1487896256::2017-02-24T00:30:56.765311Z 0 [Warning] CA certificate ca.pem is
self signed.
1487896257::2017-02-24T00:30:57.213158Z 1 [Warning] root@localhost is created
with an empty password ! Please consider switching off the --initialize-
insecure option.
1487896284::WARNING: A new file was added to xml alarm files...reparsing xml...
1487896285::WARNING: FILE: /usr/TKLC/plat/etc/alarms/alarms_mps.xml
1487896292::TKLCepap-HA
##################################warning: group root} does not exist - using
root
```

Procedure 8: Install the Application on Server B

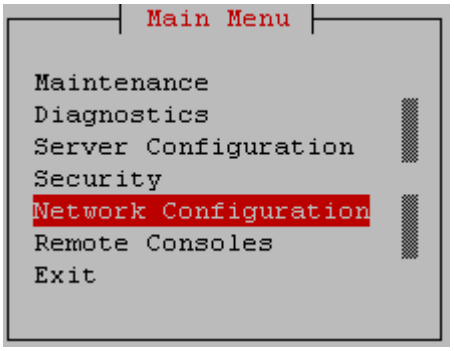
16. ☐	**MPS B:** Check that the upgrade completed successfully.	**$ grep "Upgrade returned success" /var/TKLC/log/upgrade/upgrade.log**
17. ☐	**MPS B:** Check that the upgrade completed successfully.	Verify that the message "Upgrade returned success!" is displayed. If it is not, contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F. 1399367207:: Upgrade returned success!
18. ☐	**MPS B:** Update ssh_config to disable MD5 and MAC algorithm for security	Perform following steps to disable unsecure algorithm for ssh: **1. $ grep "MACs hmac-md5,hmac-md5-96," /etc/ssh/ssh_config** If output contains "MACs hmac-md5,hmac-md5-96", execute the below steps 2 and 3. Else go to step 4. **2. $ sudo rcstool co /etc/ssh/ssh_config** **3. $ sudo sed -i -e '/MACs hmac-md5,hmac-md5-96,hmac-sha1-96/d' /etc/ssh/ssh_config** **4.$ sudo rcstool ci /etc/ssh/ssh_config** **4. $ grep "MACs hmac-sha2-256,hmac-sha2-512" /etc/ssh/sshd_config** If no output is displayed for above command continue to next command in step 5 and 6 else skip these steps **5. $ sudo rcstool co /etc/ssh/sshd_config** **6. $ sudo sed -i '$ a \\tMACs hmac-sha2-256,hmac-sha2-512' /etc/ssh/sshd_config** **7. $ sudo rcstool ci /etc/ssh/sshd_config** **8. $ sudo service sshd restart**
19. ☐	Update the httpd.conf file to disable the Cache control no-store policy.	Perform the following steps to disable Cache control no-store policy: **1. $ grep "Header set Cache-Control no-store" /etc/httpd/conf/httpd.conf** If the output contains "Header set Cache-Control no-store", Execute the below steps. If no output is displayed for the above command, skip the steps mentioned below. **2. $ sudo sed -i '/Cache-Control no-store/c\#Header set Cache-Control no-store' /etc/httpd/conf/httpd.conf** **3. $ grep "Header set Cache-Control no-store" /etc/httpd/conf/httpd.conf** The output should be "#Header set Cache-Control no-store" showing that the line has been commented. **4. $ sudo service httpd restart**
20. ☐	**MPS B:** Install Complete.	Install Procedure is complete.

Procedure 8: Install the Application on Server B

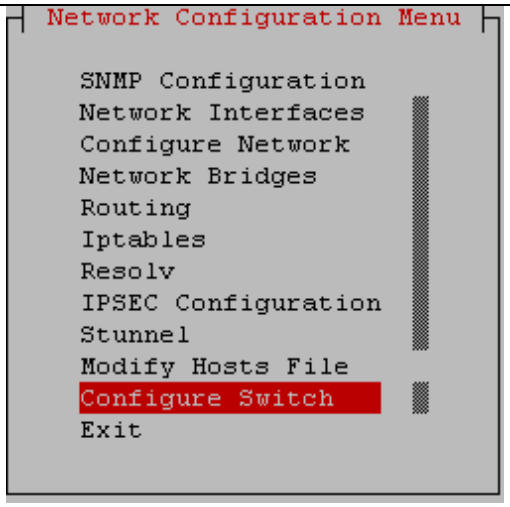
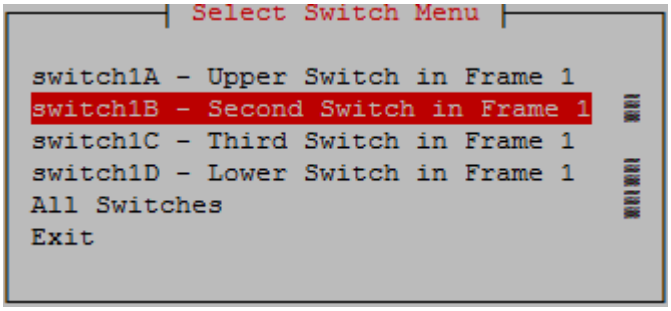
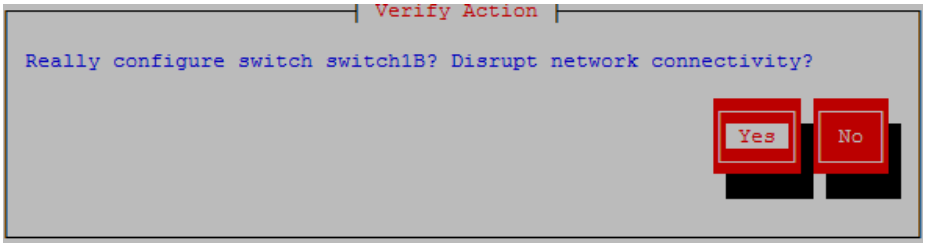
21. ☐	Note down the timestamp in log.	Run the following command: `$ date`

Procedure 9 Switch Configuration

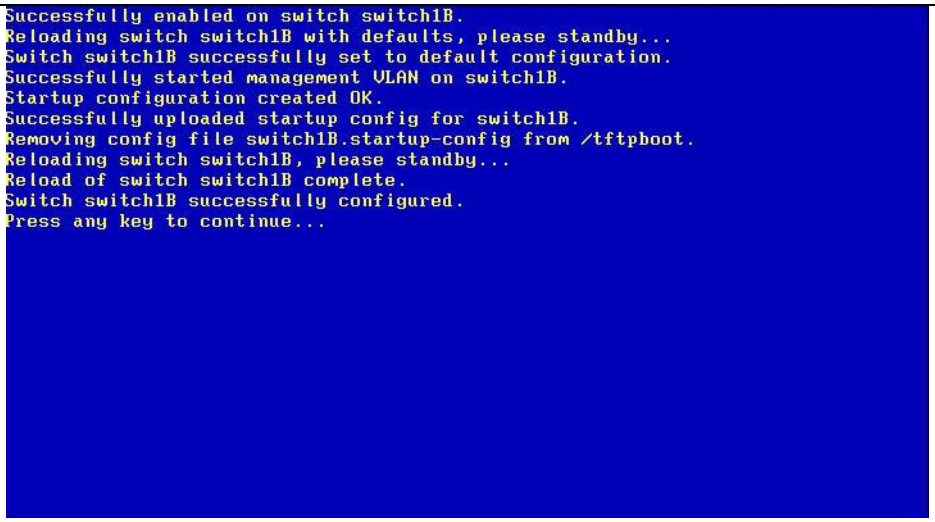
Procedure 9: Switch Configuration

S T E P #	This procedure Configures the Switches of a new Installed E5-APP-B EPAP Server Pair. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORTAND ASK FOR ASSISTANCE.	
1. ☐	Make the cross-over cable connections.	**NOTE: THIS IS IMPORTANT** CONNECT the cross-over cable from **Port 1** of **Switch1A** to **Port 1** of **Switch1B**. DISCONNECT the cross-over cable from **Port** 2 of **Switch1A** to **Port 2** of **Switch1B.** Please make a note that the switch configuration should only be attempted by a skilled technician and not all. All uplinks should be removed while switch configuration. There should not be any loop in the switches during their configuration.
2. ☐	**MPS B:** log in as "admusr" user.	`[hostname] consolelogin: admusr` `password: password`
3. ☐	**MPS B:** Set Telco Switch with non-default speed.	Note: The default speed to be set on the switch is 1000Mbps. However, the recommended setting can be changed to 'auto', '1000/full' or '100/full'. At the EAGLE end, the operator can set the IP LINK to 'auto'.
4. ☐	**MPS B:** Start platcfg utility.	`$ sudo su - platcfg`
5. ☐	**MPS B:** Navigate to the Network Configuration Menu.	On the platcfg **Main Menu**, select **Network Configuration** and press [**ENTER**]. 
6. ☐	**MPS B:** Navigate to the Configure Switch Menu.	On the Network Configuration menu, select **Configure Switch** and press [**ENTER**].

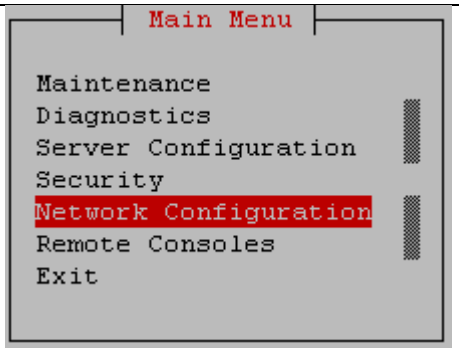
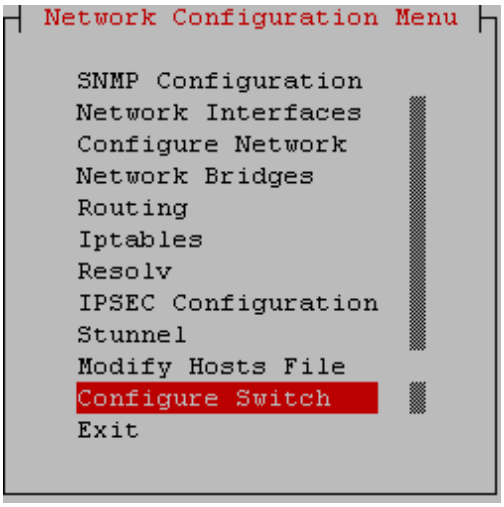
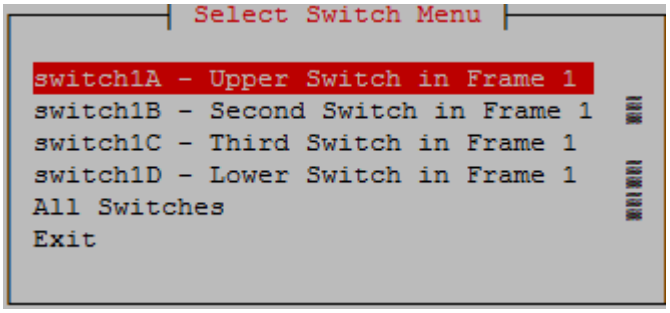
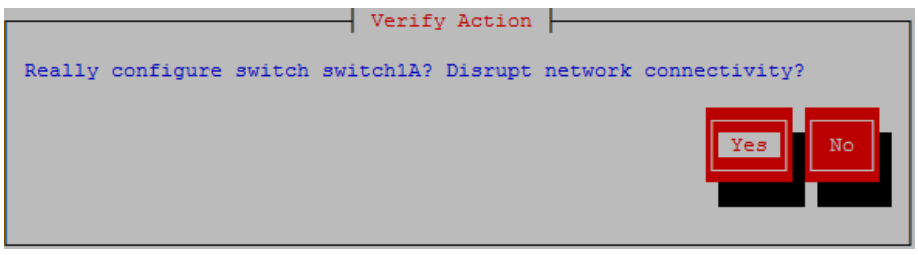
Procedure 9: Switch Configuration

		
7. ☐	**MPS B:** Select Switch1B.	On the Select Switch Menu, select **Switch1B – Second Switch in Frame 1** and press [**ENTER**]. 
8. ☐	**MPS B:** Confirm Switch 1B Configuration.	Select **Yes** and press **[ENTER]** to configure Switch 1B. 
9. ☐	**MPS B:** Switch Configuration Screen.	Configuring the switch takes about 10 minutes, once complete press **[ENTER]** to continue.

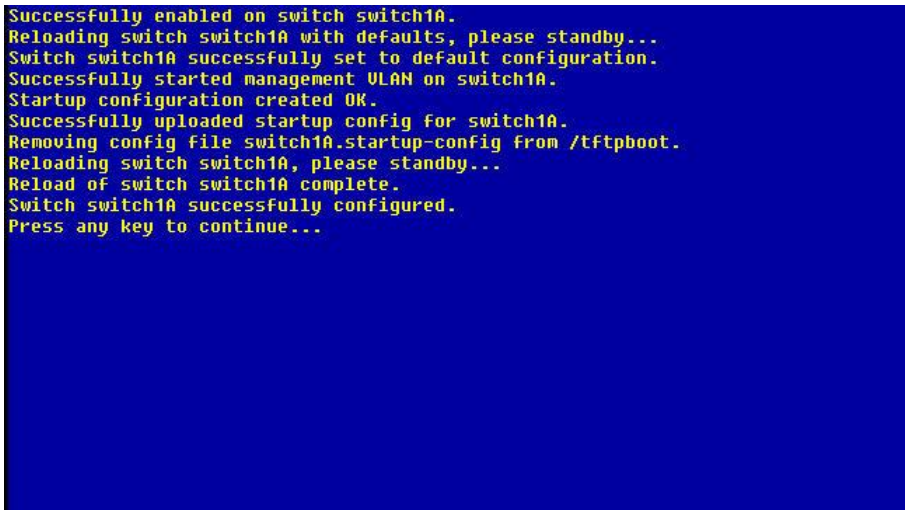
Procedure 9: Switch Configuration

		
10. ☐	**MPS B:** Exit out of platcfg.	Select Exit and press [**ENTER**] to return to the Network Configuration Menu. Select Exit and press [**ENTER**] to return to the Main Menu. Select Exit and press [**ENTER**] to exit out of platcfg.
11. ☐	**MPS A:** Connect to Server 1A.	Now that Switch 1B is configured, we need to configure switch 1A. Connect to server 1A to configure switch 1A **[hostname] consolelogin: admusr** **password: *password***
12. ☐	**MPS A:** Set Telco Switch with non-default speed.	Note: The default speed to be set on the switch is 1000Mbps. However, the recommended setting can be changed to 'auto', '1000/full' or '100/full'. At the EAGLE end, the operator can set the IP LINK to 'auto'. Otherwise proceed to step 13.
13. ☐	**MPS A:** Start platcfg. utility	**$ sudo su - platcfg**
14. ☐	**MPS A:** Navigate to the Network Configuration Menu.	On the platcfg **Main Menu**, select **Network Configuration** and press [**ENTER**].

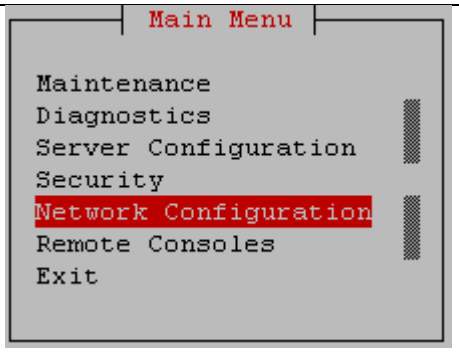
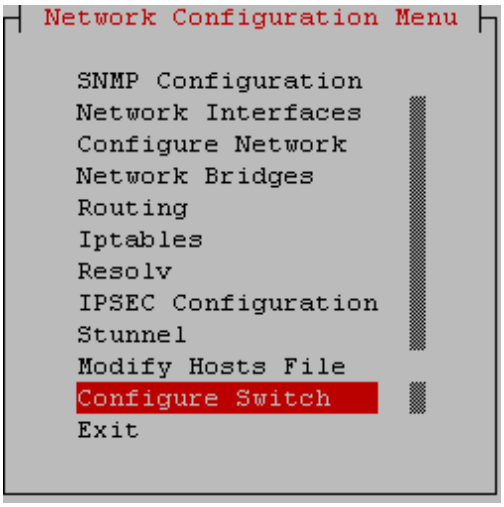
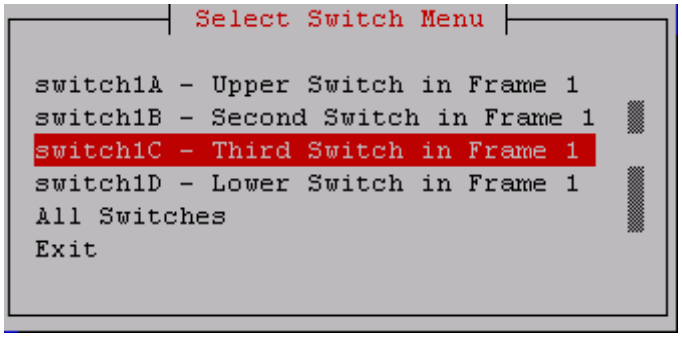
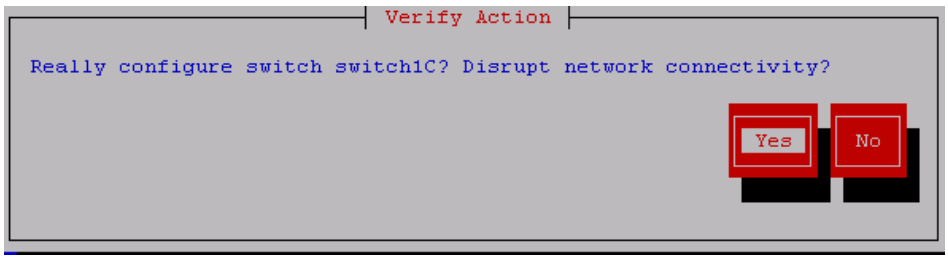
Procedure 9: Switch Configuration

		
15. ☐	**MPS A:** Navigate to the Configure Switch Menu.	On the Network Configuration menu, select **Configure Switch** and press [**ENTER**]. 
16. ☐	**MPS A:** Select Switch1A.	On the Select Switch Menu, select **Switch1A – Upper Switch in Frame 1** and press [**ENTER**]. 
17. ☐	**MPS A:** Confirm Switch 1A Configuration.	Select **Yes** and press **[ENTER]** to configure Switch 1A. 
18. ☐	**MPS A:** Navigate to the Configure Switch	Configuring the switch takes about 10 minutes, once complete press **[ENTER]** to continue.

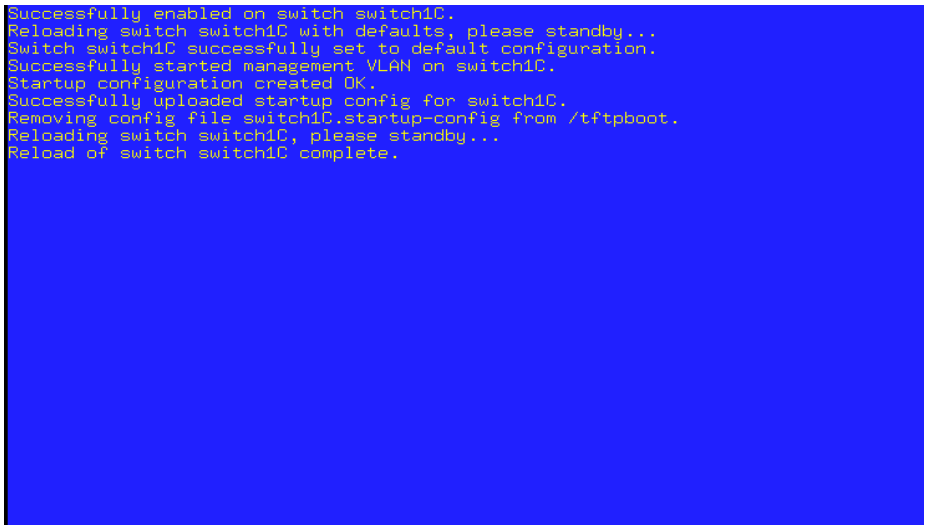
Procedure 9: Switch Configuration

	Menu.	
19. ☐	**MPS A:** Exit out of platcfg.	Select Exit and press [**ENTER**] to return to the Network Configuration Menu. Select Exit and press [**ENTER**] to return to the Main Menu. Select Exit and press [**ENTER**] to exit out of platcfg.
20. ☐	**MPS A:** Optional Configuration of Switch 1C.	If the system is installed with 4 switches, proceed with the next step, otherwise skip to step 37.
21. ☐	Move Serial Cables.	On the front of switches 1A and 1B, unplug the serial cables connected to Console port and plug them in switches 1C and 1D Console port respectively.
22. ☐	**MPS A:** Start platcfg utility.	`$ sudo su - platcfg`
23. ☐	**MPS A:** Navigate to the Network Configuration Menu.	On the platcfg **Main Menu**, select **Network Configuration** and press [**ENTER**].

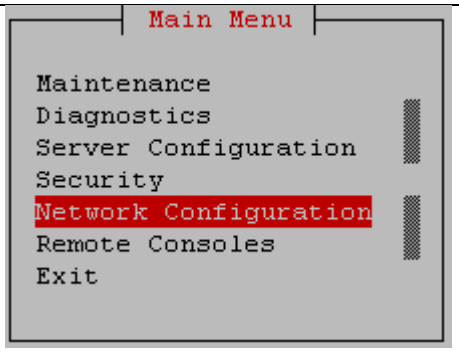
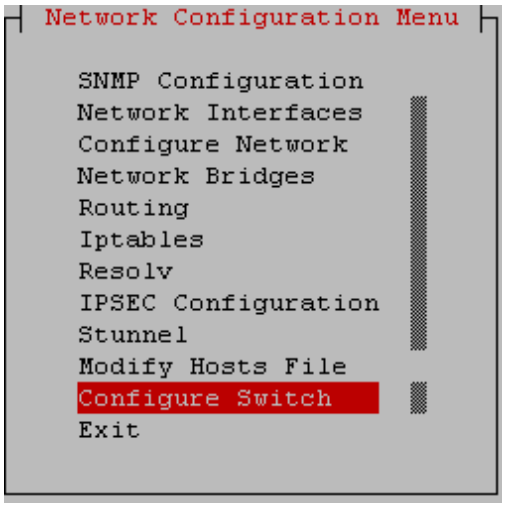
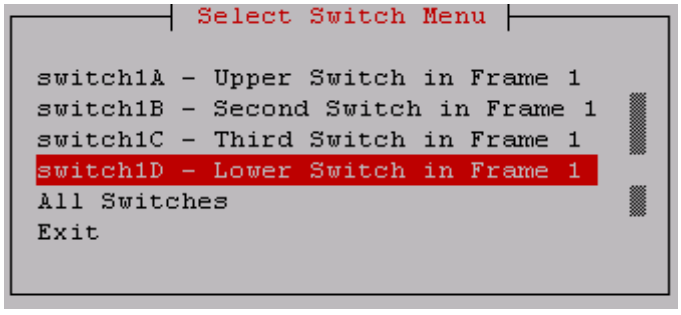
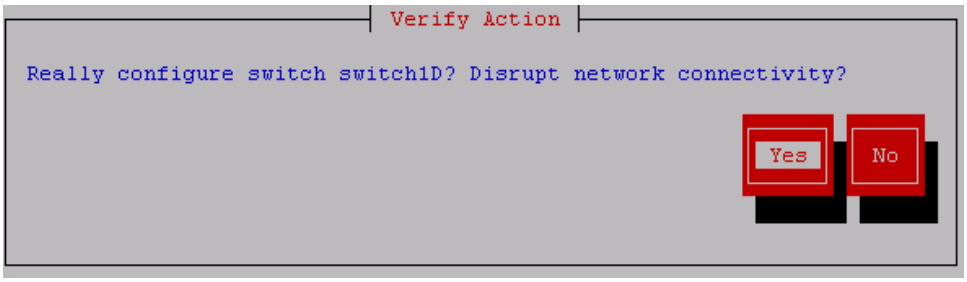
Procedure 9: Switch Configuration

		
24. ☐	**MPS A:** Navigate to the Configure Switch Menu.	On the Network Configuration menu, select **Configure Switch** and press [**ENTER**]. 
25. ☐	**MPS A:** Select Switch1C.	On the Select Switch Menu, select **Switch1C – Third Switch in Frame 1** and press [**ENTER**]. 
26. ☐	**MPS A:** Confirm Switch 1C Configuration.	Select **Yes** and press **[ENTER]** to configure Switch 1C 

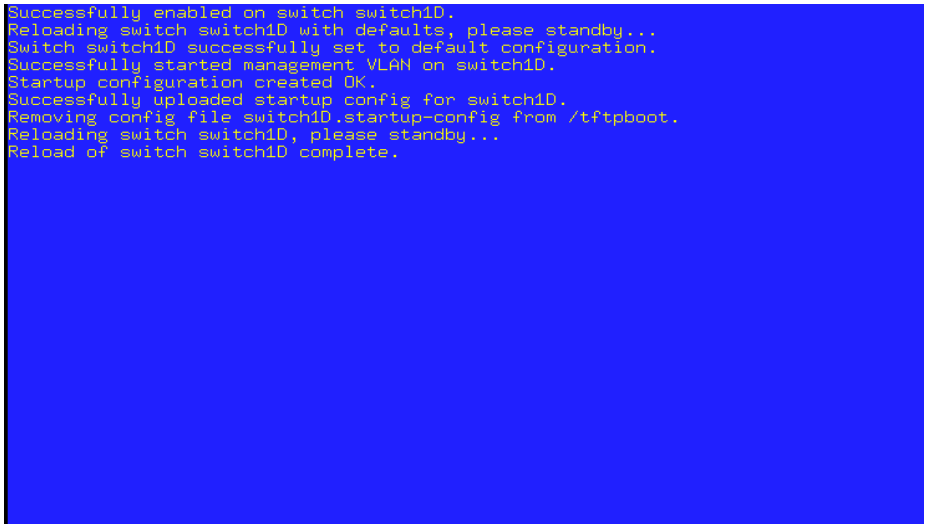
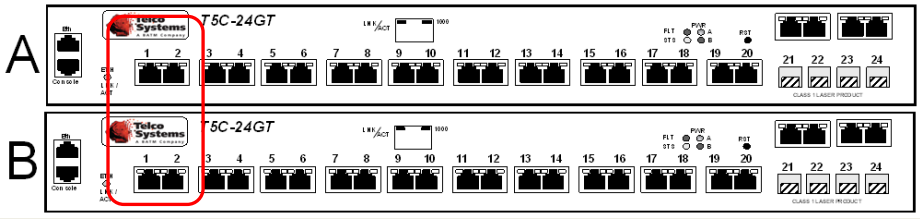
Procedure 9: Switch Configuration

27. ☐	**MPS A:** Navigate to the Configure Switch Menu.	Configuring the switch takes about 10 minutes, once complete press **[ENTER]** to continue.  .
28. ☐	**MPS A:** Exit out of platcfg.	Select Exit and press [**ENTER**] to return to the Network Configuration Menu. Select Exit and press [**ENTER**] to return to the Main Menu. Select Exit and press [**ENTER**] to exit out of platcfg.
29. ☐	**MPS B:** Connect to Server 1B.	`[hostname] consolelogin: admusr` `password: password`
30. ☐	**MPS B:** Start platcfg utility.	`$ sudo su - platcfg`
31. ☐	**MPS B:** Navigate to the Network Configuration Menu.	On the platcfg **Main Menu**, select **Network Configuration** and press [**ENTER**].

Procedure 9: Switch Configuration

		
32. ☐	**MPS B:** Navigate to the Configure Switch Menu.	On the Network Configuration menu, select **Configure Switch** and press [**ENTER**].  .
33. ☐	**MPS B:** Select Switch1D.	On the Select Switch Menu, select **Switch1D – Lower Switch in Frame 1** and press [**ENTER**]. 
34. ☐	**MPS B:** Confirm Switch 1D Configuration.	Select **Yes** and press **[ENTER]** to configure Switch 1D. 

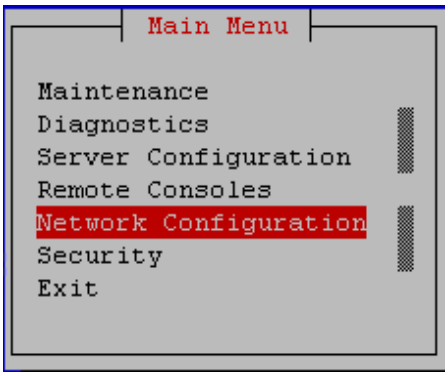
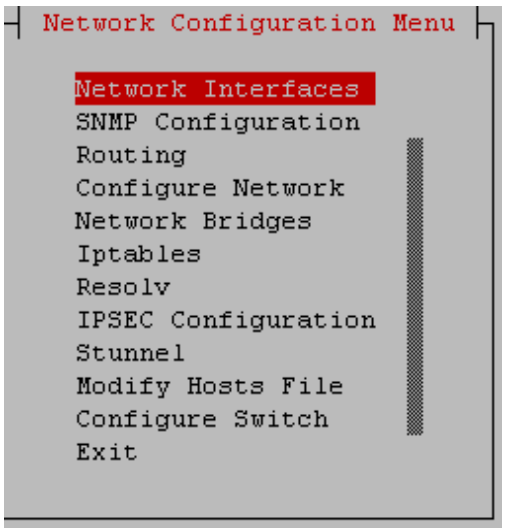
Procedure 9: Switch Configuration

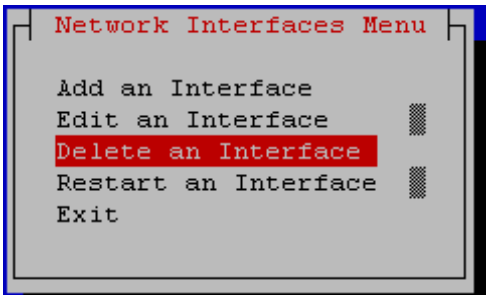
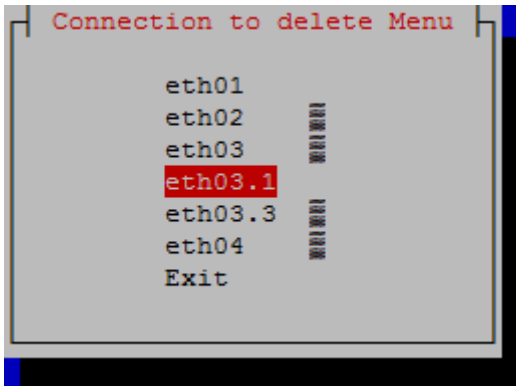
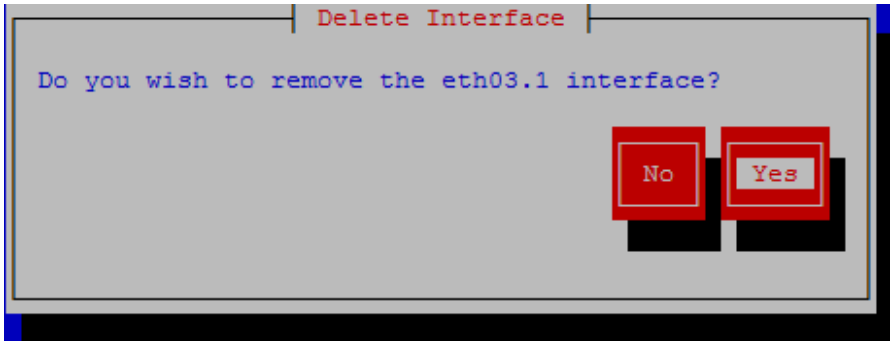
35. ☐	**MPS B:** Switch Configuration Screen.	Configuring the switch takes about 10 minutes, once complete press **[ENTER]** to continue.  .
36. ☐	**MPS B:** Exit out of platcfg.	Select Exit and press [**ENTER**] to return to the Network Configuration Menu. Select Exit and press [**ENTER**] to return to the Main Menu. Select Exit and press [**ENTER**] to exit out of platcfg.
37. ☐	Connect the cross-over cable from **Port 2** of **Switch1A** to **Port 2** of **Switch1B**.	
38. ☐	Procedure complete.	Procedure is complete.
39. ☐	Note down the timestamp in log.	Run the following command: `$ date`

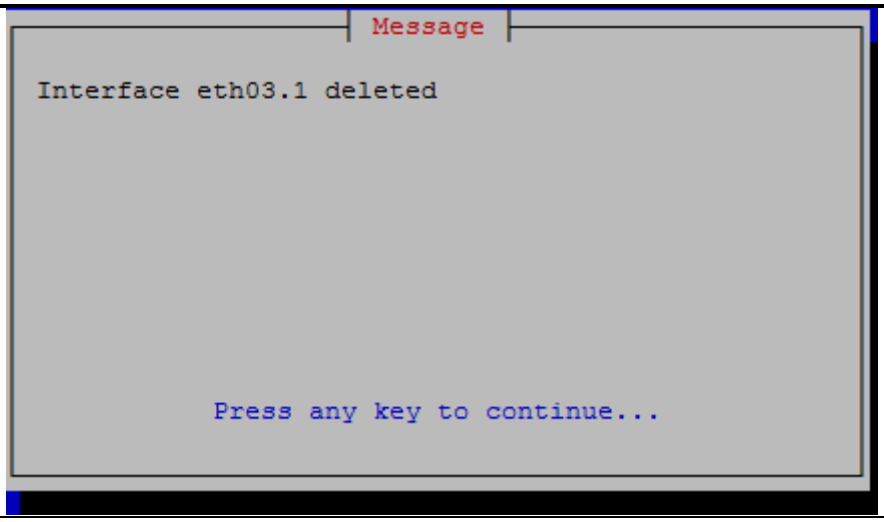
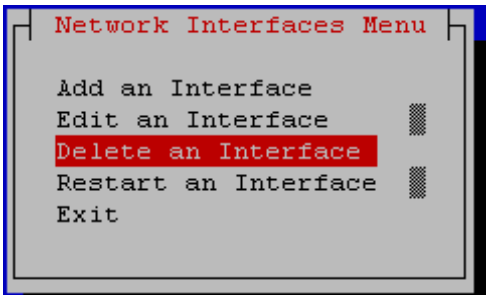
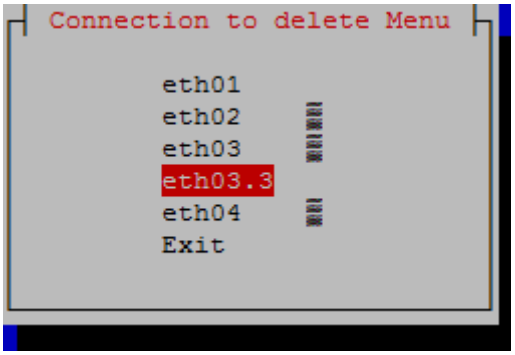
Procedure 10 Procedure to Configure Sync Network Redundancy

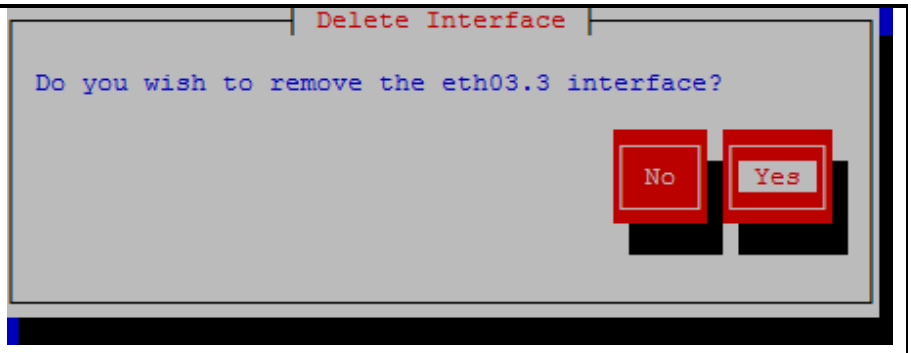
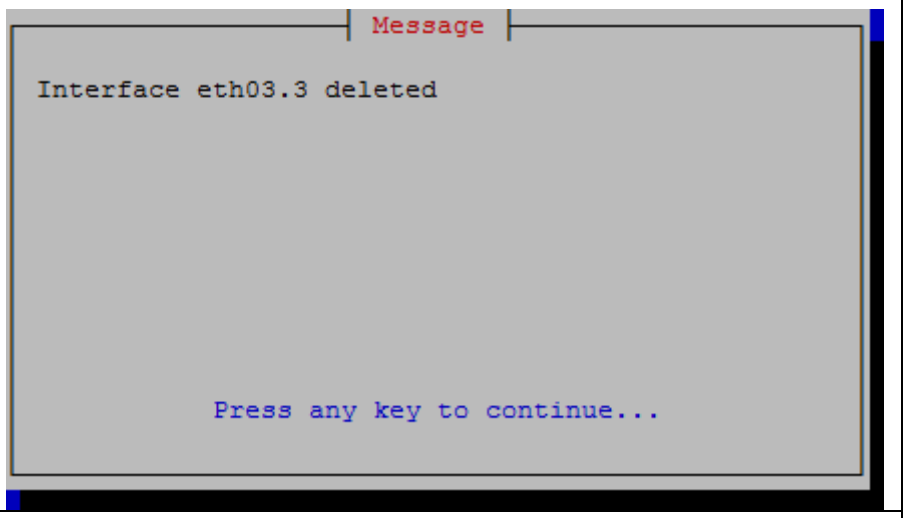
Note: This procedure will configure the E5-APP-B EPAP cards with the Sync Network Redundancy feature. This will use the Backup Provisioning Network ports, therefor the Backup Provisioning Network feature cannot be used.

Procedure 10: Procedure to Configure Sync Network Redundancy

S T E P #	This procedure will sync network redundancy in place of backup provisioning network. Note: Estimated time of completion is 90 minutes.	
1. ☐	**MPS A:** Log in as "admusr" user to the serial console of E5-APP-B card.	`[hostname] consolelogin: admusr` `password: *password*`
2. ☐	**MPS A:** Start platcfg utility.	`$ sudo su - platcfg`
3. ☐	**MPS A:** Navigate to the Network Configuration Menu.	On the platcfg **Main Menu**, select **Network Configuration** and press [**ENTER**]. 
4. ☐	**MPS A:** Navigate to the Network Interfaces Menu.	On the Network Configuration menu, select **Network Interfaces** and press [**ENTER**]. 

5. ☐	**MPS A:** Navigate to the Delete an Interface Menu.	On the Network Interfaces Menu, select **Delete an Interface** and press [**ENTER**]. 
6. ☐	**MPS A:** Select to delete eth03.1 and press Enter.	On the Connection to delete Menu, select **eth03.1** and press [**ENTER**]. 
7. ☐	**MPS A:** Confirm eth03.1 interface deletion.	Select **Yes** and press **[ENTER]** to delete the eth03.1 interface. 

		
8. ☐	**MPS A:** Press any key to continue. Navigate to the Delete an Interface Menu.	On the Network Interfaces Menu, select **Delete an Interface** and press [**ENTER**]. 
9. ☐	**MPS A:** Select to delete eth03.3 and press Enter.	On the Connection to delete Menu, select **eth03.3** and press [**ENTER**]. 
10. ☐	**MPS A:** Confirm eth03.3 interface deletion.	Select **Yes** and press **[ENTER]** to delete the eth03.3 interface.

		 
11. ☐	**MPS A:** Press any key to continue and exit out of platcfg.	Select Exit and press [**ENTER**] to return to the Network Configuration Menu. Select Exit and press [**ENTER**] to return to the Main Menu. Select Exit and press [**ENTER**] to exit out of platcfg.
12. ☐	**MPS A:** Verify that eth03.1 and eth03.3 are deleted.	`$ sudo netAdm show` eth01 eth02 eth03 eth04 The interfaces eth03.1 and eth03.3 should not be listed.
13. ☐	**MPS A:** Take the backup of original net.conf.	`$ sudo cp /usr/TKLC/plat/etc/net.conf /usr/TKLC/plat/etc/net.conf_orig`
14. ☐	**MPS A:** Replace the network configuration file for sync network redundancy.	`$ sudo cp /usr/TKLC/plat/etc/net.sync.conf /usr/TKLC/plat/etc/net.conf` cp: overwrite `/usr/TKLC/plat/etc/net.conf'? y
15. ☐	**MPS A A:** Take the backup of original vlan.conf.	`$ sudo cp /usr/TKLC/plat/etc/vlan.conf /usr/TKLC/plat/etc/vlan.conf_orig`
16. ☐	**MPS A:** Replace the vlan configuration file for sync network redundancy.	E5-APP-B Card: Single Pair of Switch(18 SM Cards): **vlan.sync.single_pair_switch.e5appb.conf**

		(Ports 7 to 24 on switch 1A and ports 5 to 24 on switch 1B can be used for SM card connectivity) Two Pair of switches (40 SM Cards): **vlan.sync.e5appb.conf** (Ports 7 to 22 on switch 1A and ports 5 to 22 on switch 1B can be used for SM card connectivity, no change for switch 1C and 1D) For e.g., on T1200 server for Single pair of switches: `$ sudo cp /usr/TKLC/plat/etc/vlan.sync.single_pair_switch.t1200.conf /usr/TKLC/plat/etc/vlan.conf` cp: overwrite `/usr/TKLC/plat/etc/vlan.conf'? y
17. ☐	**MPS A:** Reconfigure the network interfaces.	`$ sudo netAdm init` Interface bond0 added Interface eth01 added Interface eth02 added Interface bond0.3 added Interface eth03 added Interface eth04 added Interface bond0.1 added Successfully configured network
18. ☐	**MPS A:** Restart network service.	`$ sudo service network restart`
19. ☐	**MPS B**	Repeat all the above steps on the MPS B.
20. ☐	**Network Connectivity**	Connect eth04 on MPS A to port 5 on Switch 1A and connect eth04 on MPS B to port 6 on Switch 1A.
21. ☐	Configure Switch 1B first and then Switch 1A using Procedure 9.	Perform **Procedure 9** – Switch1B and Switch1A Configuration to configure Switch1B and then Switch1A.
22. ☐	**MPS A:** Verify that ping mate is working. Also ensure that the sync redundancy is working fine by turning off one switch and running ping mate.	`$ ping -c 4 mate` PING mate (192.168.2.100) 56(84) bytes of data. 64 bytes from mate (192.168.2.100): icmp_seq=1 ttl=64 time=0.189 ms 64 bytes from mate (192.168.2.100): icmp_seq=2 ttl=64 time=0.188 ms 64 bytes from mate (192.168.2.100): icmp_seq=3 ttl=64 time=0.166 ms 64 bytes from mate (192.168.2.100): icmp_seq=4 ttl=64 time=0.143 ms --- mate ping statistics --- 4 packets transmitted, 4 received, 0% packet loss, time 3001ms rtt min/avg/max/mdev = 0.143/0.171/0.189/0.022 ms

23. ☐	**MPS A:** Reconfigure EPAP using epapconfig menu if the configuration was done before configuring sync network redundancy.	`$ su - epapconfig` Please follow the instructions written in Procedure 11.
24. ☐	Procedure complete.	Procedure is complete.
25. ☐	Note down the timestamp in log.	Run the following command: `$ date`

Procedure 11 Configuring the application

Procedure 11: Configuring the Application

S T E P #	This procedure configures 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 MY ORACLE SUPPORTAND ASK FOR ASSISTANCE.	
NOTE: This procedure configures the application in the IPv4 configuration. To configure the application in the IPv6 configuration, refer to [6].		
1. ☐	**MPS A:** Log on Server A.	`[hostname] consolelogin: admusr` `password: *password*`
2. ☐	**MPS A**: Switch user to epapconfig.	`$ sudo su - epapconfig`

3. ☐	**MPS A**: A note of caution appears. Evaluate the conditions listed. When all the conditions are satisfied, press Return to continue.	`Caution: This is the first login of the text user interface.`
		`Please review the following checklist before continuing.`
		`Failure to enter complete and accurate information at this time will have unpredictable results.`
		
		`1. The mate MPS servers (MPS A and MPS B) must be powered on.`
		`2. "Initial Platform Manufacture" for the mate MPS servers must be complete.`
		`3. The sync network between the mate MPS servers must be operational.`
		`4. You must have the correct password for the epapdev user on the mate MPS server.`
		`5. You must be prepared to designate this MPS as provisionable or non-provisionable.`
		
		`Press return to continue…`

4. ☐	**MPS A**: Upon pressing Return you can now abort or proceed with the initial configuration. To continue with the configuration, enter Y.	`Are you sure you wish to continue? [N]: Y`

Procedure 11: Configuring the Application

5. ☐	**MPS A:** **For Mixed EPAP or Non-Provisionable EPAP:** You are prompted for the **epapdev, root and admusr** user password on the mate MPS server in order to confirm the secure shell keys are successfully exchanged. The example shows the output generated when the correct password is entered, the secure shell keys are successfully exchanged, and the UI database is set up on **MPS A and MPS B** at this site. Type **Y if this site is Provisionable**(either mixed-EPAP or PDBonly)**, otherwise Type N.** **For Standalone PDB:** You are prompted for the **System Number** and **Network Configuration Type.**	Password of epapdev: ssh is working correctly. Password of root: ssh is working correctly. Password of admusr: ssh is working correctly. Password of root: ssh is working correctly. Building the initial database on side A. Stopping local slave Stopping remote slave EuiDB already exists. FIPS integrity verification test failed. Starting local slave Starting remote slave The provisioning architecture of the EPAP software allows for exactly 2 customer provisionable sites. Additional sites that are to receive the data provisioned to the provisionable sites should answer 'N' here. If there are only 2 mated sites, it is safe to answer `Y' here. Is this site provisionable? [Y]: Y Caution: This is the first login of the text user interface. Press return to continue... Are you sure you wish to continue? [N]: Y Building the initial database on side A. Stopping local slave No preexisting EuiDB database was detected. Set EPAP System Number: ES12345678 Enter the Network Configuration Type [1 for Single, 2 for Segmented]: 2
6. ☐	**MPS A:** The EPAP Configuration Menu is displayed. Select choice 2, Configure Network Interfaces Menu.	EPAP Configuration Menu for standalone PDB:

Procedure 11: Configuring the Application

		/-----EPAP Configuration Menu----------\ /--\ | 1 | Display Configuration | |----|----------------------------------| | 2 | Configure Network Interfaces Menu | |----|----------------------------------| | 3 | Set Time Zone | |----|----------------------------------| | 4 | Exchange Secure Shell Keys | |----|----------------------------------| | 5 | Change Password | |----|----------------------------------| | 6 | Platform Menu | |----|----------------------------------| | 7 | Configure NTP Server | |----|----------------------------------| | 8 | PDB Configuration Menu | |----|----------------------------------| | 9 | Security | |----|----------------------------------| | 10 | SNMP Configuration | |----|----------------------------------| | 11 | Configure Alarm Feed | |----|----------------------------------| | 12 | Configure Query Server | |----|----------------------------------| | 13 | Configure Query Server Alarm Feed | |----|----------------------------------| | 14 | Configure SNMP Agent Community | |----|----------------------------------| | 15 | DB Architecture Menu | |----|----------------------------------| | e | Exit | \--/ EPAP Configuration Menu for NON-Prov EPAP:

Procedure 11: Configuring the Application

		/-----EPAP Configuration Menu----------\ /--\ | 1 | Display Configuration | |----|----------------------------------| | 2 | Configure Network Interfaces Menu | |----|----------------------------------| | 3 | Set Time Zone | |----|----------------------------------| | 4 | Exchange Secure Shell Keys | |----|----------------------------------| | 5 | Change Password | |----|----------------------------------| | 6 | Platform Menu | |----|----------------------------------| | 7 | Configure NTP Server | |----|----------------------------------| | 8 | PDB Configuration Menu | |----|----------------------------------| | 9 | Security | |----|----------------------------------| | 10 | SNMP Configuration | |----|----------------------------------| | 11 | Configure Alarm Feed | |----|----------------------------------| | 12 | Configure SNMP Agent Community | |----|----------------------------------| | 13 | Mate Disaster Recovery | |----|----------------------------------| | 14 | DB Architecture Menu | |----|----------------------------------| | e | Exit | \--/ Enter Choice: **2**
7. ☐	**MPS A:** The Configure Network Interfaces Menu is displayed. Select choice 1, Configure Provisioning Network.	**Configuration Menu for Mixed EPAP and Non-Provisionable EPAP:** /-----Configure Network Interfaces Menu----\ /--\ | 1 | Configure Provisioning Network | |----|----------------------------------| | 2 | Configure Sync Network | |----|----------------------------------| | 3 | Configure DSM Network | |----|----------------------------------| | 4 | Configure Backup Provisioning Network | |----|----------------------------------| | 5 | Configure Static NAT Addresses | |----|----------------------------------| | 6 | Configure Provisioning VIP Addresses | |----|----------------------------------| | e | Exit | \--/ Enter Choice: 1 **Configuration Menu for Standalone PDB:**

Procedure 11: Configuring the Application

		/-----Configure Network Interfaces Menu----\ /---\ | 1 | Configure Provisioning Network | |----|-----------------------------------| | 2 | Configure Backup Provisioning Network | |----|-----------------------------------| | 3 | Configure Static NAT Addresses | |----|-----------------------------------| | e | Exit | \---/ Enter Choice: 1
8. ☐	**MPS A:** The submenu for configuring communications networks and other information is displayed. Note: Enter choice "1" for IPv4 configuration. Otherwise, enter choice "2" for IPv6 configuration.	/-----Configure Provisiong Network Menu-\ /-----------------------------------\ | 1 | IPv4 Configuration | |----|-----------------------------------| | 2 | IPv6 Configuration | |----|-----------------------------------| | e | Exit | \-----------------------------------/ Enter Choice: Example output for Mixed EPAP and Non-Provisionable EPAP in IPv4 configuration: Enter Choice: 1 Verifying connectivity with mate... EPAP A provisioning network IP Address: 10.75.141.47 EPAP B provisioning network IP Address: 10.75.141.48 EPAP provisioning network netmask: 255.255.255.128 EPAP provisioning network default router: 10.75.141.1 Example output Standalone PDB in IPv4 configuration: EPAP A provisioning network IP Address:10.75.141.47 EPAP provisioning network netmask:255.255.255.128 EPAP provisioning network default router:10.75.141.1
9. ☐	**MPS A:** The Configure Network Interfaces menu is displayed. Select choice e, Exit.	Configuration Menu for Mixed EPAP and Non-Provisionable EPAP: /-----Configure Network Interfaces Menu----\ /---\ | 1 | Configure Provisioning Network | |----|-----------------------------------| | 2 | Configure Sync Network | |----|-----------------------------------| | 3 | Configure DSM Network | |----|-----------------------------------| | 4 | Configure Backup Provisioning Network | |----|-----------------------------------| | 5 | Configure Static NAT Addresses | |----|-----------------------------------| | 6 | Configure Provisioning VIP Addresses | |----|-----------------------------------| | e | Exit | \---/ Enter Choice: e Configuration Menu for Standalone PDB: /-----Configure Network Interfaces Menu----\

Procedure 11: Configuring the Application

		/---\ | 1 | Configure Provisioning Network | |----|-----------------------------------| | 2 | Configure Backup Provisioning Network | |----|-----------------------------------| | 3 | Configure Static NAT Addresses | |----|-----------------------------------| | e | Exit | \---/ Enter Choice: e
10. ☐	**MPS A**: The EPAP Configuration Menu is displayed. Select choice 3, Set Time Zone.	**EPAP Configuration Menu for Non-prov EPAP:** /-----EPAP Configuration Menu----------\ /-----------------------------------\ | 1 | Display Configuration | |----|-----------------------------| | 2 | Configure Network Interfaces Menu | |----|-----------------------------| | 3 | Set Time Zone | |----|-----------------------------| | 4 | Exchange Secure Shell Keys | |----|-----------------------------| | 5 | Change Password | |----|-----------------------------| | 6 | Platform Menu | |----|-----------------------------| | 7 | Configure NTP Server | |----|-----------------------------| | 8 | PDB Configuration Menu | |----|-----------------------------| | 9 | Security | |----|-----------------------------| | 10 | SNMP Configuration | |----|-----------------------------| | 11 | Configure Alarm Feed | |----|-----------------------------| | 12 | Configure SNMP Agent Community | |----|-----------------------------| | 13 | Mate Disaster Recovery | |----|-----------------------------| | 14 | DB Architecture Menu | |----|-----------------------------| | e | Exit | \-----------------------------------/ Enter Choice: 3
11. ☐	**MPS A**: An important Caution statement is displayed. After noting the caution, press Return to continue. You are prompted for confirmation on setting the time zone for the MPS A and MPS B at this site for Mixed	Caution: This action requires a reboot of the affected MPS servers to activate the change. Operation of the EPAP software before the MPS servers are rebooted may have unpredictable consequences. Press return to continue...<return> Are you sure you wish to change the timezone for MPS A and B? [N]: Y

	EPAP or Non-provisionable EPAP. For Standalone PDB, time zone for MPS A is prompted only. Enter y to confirm the change. (Pressing Return accepts the default of 'N' (no), cancels the action and you are returned to the EPAP Configuration Menu). Type **Y** to set the time zone.	
12. ☐	**MPS A**: The following prompt is displayed. If the time zone is known, it can be entered at the prompt. If the exact time zone value is not known, press Return, and a list of the valid names is displayed.	Enter a time zone:
13. ☐	If an incorrect time zone is entered or if only the Return key is pressed, a list of all available time zone values is displayed. Note: The time zone change does not take effect until the next time the MPS is rebooted.	Valid time zone files are: Australia/Broken_Hill Australia/LHI Australia/NSW Australia/North Australia/Queensland Australia/South Australia/Tasmania Australia/Victoria Australia/West Australia/Yancowinna Australia/ACT Brazil/Acre Brazil/DeNoronha Brazil/East Brazil/West Canada/Atlantic Canada/Central Canada/East-Saskatchewan Canada/Eastern Canada/Mountain Canada/Newfoundland Canada/Pacific Canada/Yukon Chile/Continental Chile/EasterIsland Etc/GMT Etc/GMT+1 --------Sample Output continues--------- ---------------End of output below---------------- MST MST7MDT NZ NZ-CHAT PRC PST8PDT Poland Portugal ROC ROK Singapore Turkey W-SU WET africa asia australasia backward etcetera europe factory northamerica pacificnew solar87 solar88 solar89 southamerica GB-Eire GMT GMT+0 GMT+1 GMT+10 GMT+11 GMT+12 GMT+13 GMT+2 GMT+3 GMT+4 GMT+5 GMT+6 GMT+7 GMT+8 GMT+9 GMT-0 GMT-1 GMT-10 GMT-11 GMT-12 GMT-2 GMT-3 GMT-4 GMT-5 GMT-6 GMT-7 GMT-8 GMT-9 Greenwich Jamaica Navajo UCT UTC Universal Zulu Enter a time zone file (relative to /usr/share/lib/zoneinfo): **US/Eastern**
14.	**SERVER A: Enter**	**EPAP Configuration Menu for Non-prov EPAP:**

Procedure 11: Configuring the Application

☐	**choice 7, Configure NTP Server Menu.** **NOTE: If an NTP server does not need to be added at this time, you can skip all steps related to option 7 Configure NTP Server Menu, and proceed to the PDB Configuration Menu at step 20.**	/-----EPAP Configuration Menu----------\ /----------\ | 1 | Display Configuration | |----|----------| | 2 | Configure Network Interfaces Menu | |----|----------| | 3 | Set Time Zone | |----|----------| | 4 | Exchange Secure Shell Keys | |----|----------| | 5 | Change Password | |----|----------| | 6 | Platform Menu | |----|----------| | 7 | Configure NTP Server | |----|----------| | 8 | PDB Configuration Menu | |----|----------| | 9 | Security | |----|----------| | 10 | SNMP Configuration | |----|----------| | 11 | Configure Alarm Feed | |----|----------| | 12 | Configure SNMP Agent Community | |----|----------| | 13 | Mate Disaster Recovery | |----|----------| | 14 | DB Architecture Menu | |----|----------| | e | Exit | \----------/ Enter Choice: 7
15. ☐	**MPS A**: The EPAP Configure NTP Server Menu is displayed. Enter choice 2, Add External NTP Server. Note: Enter choice "1" to configure IPv4 NTP server.	/-----EPAP Configure NTP Server Menu-\ /----------\ | 1 | Display External NTP Server | |----|----------| | 2 | Add External NTP Server | |----|----------| | 3 | Remove External NTP Server | |----|----------| | e | Exit | \----------/ Enter Choice: 2 /-----Add External NTP Server Menu-\ /----------\ | 1 | IPv4 Configuration | |----|----------| | 2 | IPv6 Configuration | |----|----------| | e | Exit | \----------/ Enter Choice:

Procedure 11: Configuring the Application

	Otherwise, enter choice "2" to configure IPv6 NTP server.	

16. ☐	**MPS A:** You are prompted to confirm the action of adding a new NTP Server. (Pressing Return would accept the default of '**N**' or 'no', and would cancel the action to add an external NTP server.) Type **Y** and press return.
	NOTE: All NTP Server IP addresses shown are only examples.
		`Are you sure you wish to add new NTP Server? [N]: Y`
		`Enter the EPAP NTP Server IP Address: <NTP_server_IP_Addr>`
		
		`External NTP Server [<NTP_server_IP_Addr>] has been added.`
		
		`Press return to continue...<return>`

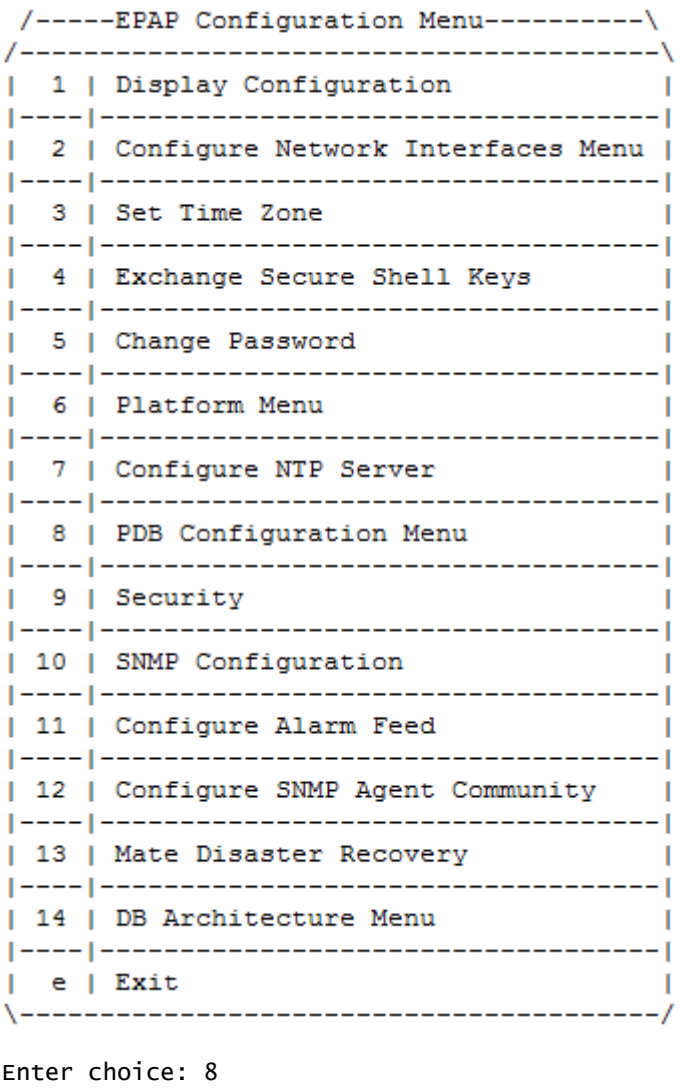
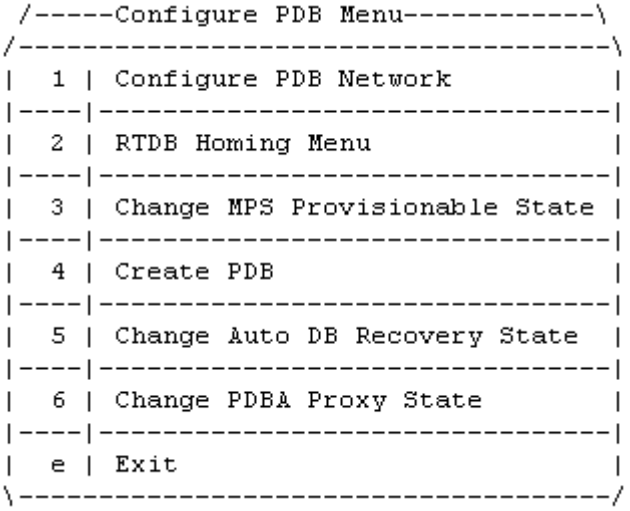
17. ☐	**MPS A:** The EPAP Configure NTP Server Menu is displayed.
	Enter choice 1, Display External NTP Server.
		`/-----EPAP Configure NTP Server Menu-\`
		`/--------------------------------------\`
		`| 1 | Display External NTP Server |`
		`|----|--------------------------------|`
		`| 2 | Add External NTP Server |`
		`|----|--------------------------------|`
		`| 3 | Remove External NTP Server |`
		`|----|--------------------------------|`
		`| e | Exit |`
		`\--------------------------------------/`
		
		`Enter Choice: 1`

18. ☐	**MPS A:** Verify the External NTP Server IP address is correct and press Return.
	NOTE: All NTP Server IP addresses shown are only examples.
		`ntpserver1 <Ipaddress>`
		
		`Press return to continue...<return>`

19. ☐	**MPS A:** The EPAP Configure NTP Server Menu is displayed. Select choice e, Exit.	`/-----EPAP Configure NTP Server Menu-\`
		`/--------------------------------------\`
		`| 1 | Display External NTP Server |`
		`|----|--------------------------------|`
		`| 2 | Add External NTP Server |`
		`|----|--------------------------------|`
		`| 3 | Remove External NTP Server |`
		`|----|--------------------------------|`
		`| e | Exit |`
		`\--------------------------------------/`
		
		`Enter Choice: e`

20.	**MPS A:** The EPAP	**PDB Configuration Menu for Non-prov EPAP:**

Procedure 11: Configuring the Application

☐	Configuration Menu is displayed. Select choice 8, PDB Configuration Menu. **Note: Execute the step to do PDB Configuration Menu (except step 27) even if the EPAP is to be configured as Non-Provisionable.**	
21. ☐	**MPS A**: The Configure PDB Menu is displayed. Select choice 1.	**PDB Configuration Menu for Mixed EPAP:**  **PDB Configuration menu for Non-Provisionable EPAP:**

Procedure 11: Configuring the Application

	Note: Configure the PDB network in the same format as that of the provisioning network format.	/-----Configure PDB Menu-----------\ /-----------------------------------\ | 1 | Configure PDB Network | |----|-----------------------------| | 2 | RTDB Homing Menu | |----|-----------------------------| | 3 | Change Auto DB Recovery State | |----|-----------------------------| | e | Exit | \-----------------------------------/ Enter Choice: 1 **PDB Configuration Menu for Standalone PDB (for default DB Architecture: COMPACT):** /-----Configure PDB Menu-----------\ /-----------------------------------\ | 1 | Configure PDB Network | |----|-----------------------------| | 2 | Create PDB | |----|-----------------------------| | 3 | Change Auto DB Recovery State | |----|-----------------------------| | e | Exit | \-----------------------------------/ Enter Choice: 1
22. ☐	**MPS A:** The PDB Network Configuration Menu is displayed. Select choice 1.	**PDB Network Configuration menu:** /-----PDB Network Configuration Menu-\ /-------------------------------------\ | 1 | IPv4 Configuration | |----|-----------------------------| | 2 | IPv6 Configuration | |----|-----------------------------| | e | Exit | \-------------------------------------/ Enter Choice: 1
23. ☐	**MPS A:** Provide the IP address of the MPS A on EAGLE A and the IP address for the MPS A on EAGLE B where the remote PDBA database is to reside. Enter the password for MPS A on EAGLE B. If configuration of the PDB network is successful, the output confirms the secure shell keys are	Following is the output on Mixed EPAP. Verifying connectivity with mate... This MPS is configured to be provisionable. The EPAP local PDBA IPv4 address is currently set to <IP>. The EPAP local PDBA IPv6 address is currently not configured. The EPAP local PDBA IPv4 Address is <IP>. EPAP remote PDBA IP Address [0.0.0.0]: <A IP Address> EPAP remote PDBA B machine IP Address [0.0.0.0]: <B IP Address> The server does not know of <A IP Address> Will just exchange host keys for the name given! Password of epapdev: <epapdev password>

	successfully exchanged, as shown in the output for Provisionable(mixed-EPAP and PDBonly) MPSs
	Note: If the default values shown are correct press return to accept them. Otherwise, enter the values and press Return.
	
	In case of Non-Provisionable EPAP provide the IP address of Active and Standby PDBA.
	
	In case of Standalone PDB, provide remote PDBA IP address.
		Following is the output on Non-Provisionable EPAP.
		
		`Verifying connectivity with mate...`
		`This MPS is configured to be non-provisionable. You will be prompted for both of the remote PDBA addresses. Order does not matter.`
		
		`Enter one of the two PDBA IP addresses [0.0.0.0]: <IP Address>`
		`Enter the other of the two PDBA IP addresses [0.0.0.0]: <IP Address>`
		
		Following is the output on Standalone PDB.
		`This MPS is configured to be provisionable. The EPAP local PDBA IPv4 address is currently set to <IP>`
		`The EPAP local PDBA IPv6 address is currently not set.`
		`The EPAP local PDBA IPv4 Address is <IP>.`
		`EPAP remote PDBA IP Address [0.0.0.0]:`

24. ☐	**MPS A**: Press Return to return to the Configure PDB Menu.
	Enter choice 2, RTDB Homing Menu.
		Skip this step if EPAP configured as Standalone PDB.
		
		`/-----Configure PDB Menu-----\`
		`/-------------------------------------\`
		`| 1 | Configure PDB Network |`
		`|---|---------------------------|`
		`| 2 | RTDB Homing Menu |`
		`|---|---------------------------|`
		`| 3 | Change MPS Provisionable State |`
		`|---|---------------------------|`
		`| 4 | Create PDB |`
		`|---|---------------------------|`
		`| 5 | Change Auto DB Recovery State |`
		`|---|---------------------------|`
		`| 6 | Change PDBA Proxy State |`
		`|---|---------------------------|`
		`| e | Exit |`
		`\-------------------------------------/`
		
		`Enter Choice: 2`

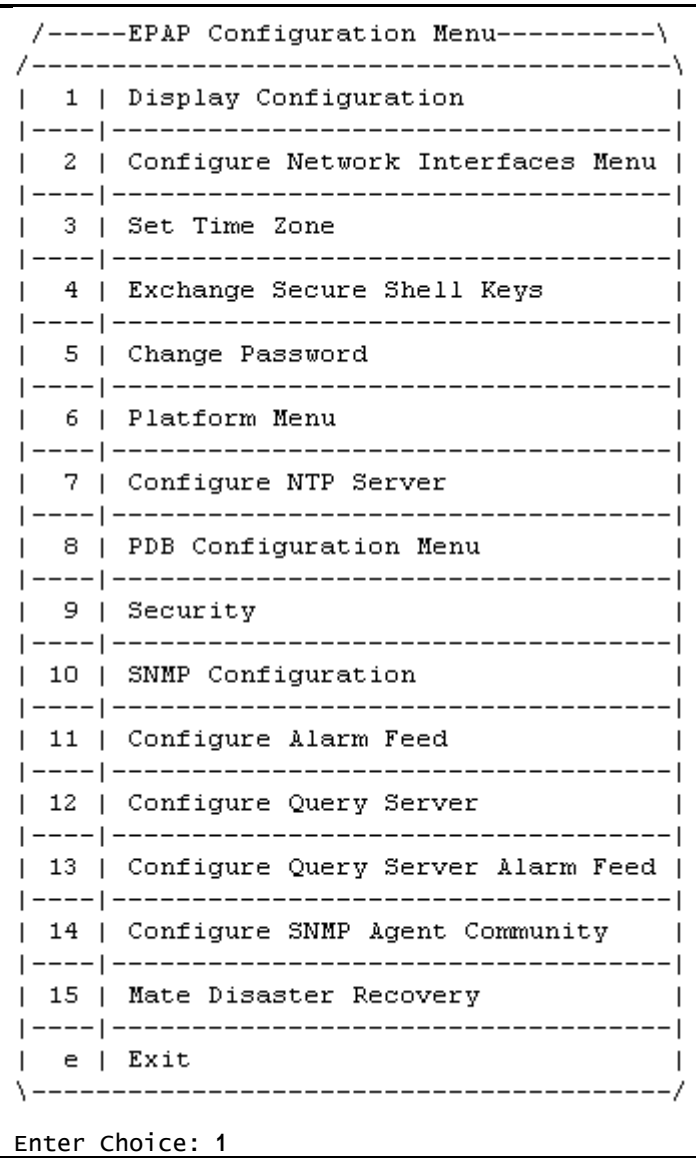
25. ☐	**MPS A**: The RTDB Homing Menu is displayed. Enter choice 3, Configure Standby RTDB Homing.	Skip this step for Standalone PDB.
		
		`/-------RTDB Homing Menu-----------\`
		`/-------------------------------------\`
		`| 1 | Configure Specific RTDB Homing |`
		`|---|---------------------------|`
		`| 2 | Configure Active RTDB Homing |`
		`|---|---------------------------|`
		`| 3 | Configure Standby RTDB Homing |`
		`|---|---------------------------|`
		`| e | Exit |`
		`\-------------------------------------/`
		
		`Enter Choice: 3`
		
		`In the event that the Standby PDB is unavailable, should updates be allowed to the RTDBs from the Active MPS? [Y]: Y`

Procedure 11: Configuring the Application

		The RTDBs will home to the Standby and will allow updates from the Active PDB. Press return to continue...**<return>**
26. ☐	**MPS A:** The RTDB Homing Menu is displayed. Enter **e** to exit.	Skip this step for Standalone PDB. /-------RTDB Homing Menu------------\ /-------------------------------------\ | 1 | Configure Specific RTDB Homing | |----|-------------------------------| | 2 | Configure Active RTDB Homing | |----|-------------------------------| | 3 | Configure Standby RTDB Homing | |----|-------------------------------| | e | Exit | \-------------------------------------/ Enter Choice: **e**
27. ☐	**MPS A:** Enter choice 4, Create PDB. **Note:** Stop the EPAP software by answering 'Y', If you get the message to stop it. **Note:** While creating PDB database using the Create PDB option of the EPAP Configuration Menu, ensure that the value for remote PBD IP is set to 0.0.0.0.	**Note: Perform this step only for the Provisionable EPAP (Mixed EPAP or Standalone PDB). Skip this step if the EPAP is configured as Non-Provisionable.** The Menu for Mixed EPAP. /-----Configure PDB Menu------------\ /-------------------------------------\ | 1 | Configure PDB Network | |----|-------------------------------| | 2 | RTDB Homing Menu | |----|-------------------------------| | 3 | Change MPS Provisionable State | |----|-------------------------------| | 4 | Create PDB | |----|-------------------------------| | 5 | Change Auto DB Recovery State | |----|-------------------------------| | 6 | Change PDBA Proxy State | |----|-------------------------------| | e | Exit | \-------------------------------------/ Enter Choice: **4** **The Menu for Standalone PDB(for default DB Architecture: COMPACT):** /-----Configure PDB Menu-----------\ /-------------------------------------\ | 1 | Configure PDB Network | |----|-------------------------------| | 2 | Create PDB | |----|-------------------------------| | 3 | Change Auto DB Recovery State | |----|-------------------------------| | e | Exit | \-------------------------------------/ Enter Choice: **2**

		localIp = 10.75.141.47 localName=Natal-47A remoteIp = 0.0.0.0 There is no remote PDB remoteBIp = 0.0.0.0 There is no remote B PDB mysqld is alive Local PDB database does not exist. Creating the local database ~~ /etc/init.d/Pdba stop ~~ PDBA process is already stopped. Removing local pdba status file. Creating the remote database
28. ☐	NOTE: The example output to the right has been truncated for brevity.	TRUNCATED OUTPUT MyISAM file: /var/TKLC/epap/db/pdb/stats/pdbaStats.MYI is already checked Waiting for mysqlpdb to start done Removing local pdba status file. Removing remote pdba status file.
29. ☐	**MPS A**: The Configure PDB Menu is displayed. Enter choice **e**, Exit. The Configure PDB Menu is displayed. Enter choice **e**, Exit.	The Configure PDB Menu for Mixed EPAP: /-----Configure PDB Menu-----------\ /-----------------------------------\ | 1 | Configure PDB Network | |----|-----------------------------| | 2 | RTDB Homing Menu | |----|-----------------------------| | 3 | Change MPS Provisionable State | |----|-----------------------------| | 4 | Create PDB | |----|-----------------------------| | 5 | Change Auto DB Recovery State | |----|-----------------------------| | 6 | Change PDBA Proxy State | |----|-----------------------------| | e | Exit | \-----------------------------------/ Enter Choice: e The Configure PDB Menu for Standalone PDB: /-----Configure PDB Menu-----------\ /-----------------------------------\ | 1 | Configure PDB Network | |----|-----------------------------| | 2 | Create PDB | |----|-----------------------------| | 3 | Change Auto DB Recovery State | |----|-----------------------------| | e | Exit | \-----------------------------------/ Enter Choice: e
30. ☐	**MPS A**: The EPAP Configuration Menu is displayed. Enter choice **1**, Display Configuration.	

Procedure 11: Configuring the Application

		
31. ☐	**MPS A**: The configuration information is displayed. Verify that the configuration data displayed is correct.	**For Mixed EPAP and Non-Provisionable EPAP configured in IPv4 configuration, the configuration data shall look like:** EPAP A Provisioning Network IP Address = 10.75.141.55 EPAP A Provisioning Network IP Address v6 = Not configured EPAP B Provisioning Network IP Address = 10.75.141.56 EPAP B Provisioning Network IP Address v6 = Not configured Provisioning Network Netmask = 255.255.255.128 Provisioning Network Prefix = Not configured Provisioning Network Default Router = 10.75.141.1 Provisioning Network Default Router v6 = Not configured EPAP A Backup Prov Network IP Address = Not configured EPAP A Backup Prov Network IP Address v6 = Not configured EPAP B Backup Prov Network IP Address = Not configured EPAP B Backup Prov Network IP Address v6 = Not configured Backup Prov Network Netmask = Not configured Backup Prov Network Prefix v6 = Not configured Backup Prov Network Default Router = Not configured Backup Prov Network Default Router v6 = Not configured EPAP A Sync Network Address = 192.168.2.100 EPAP B Sync Network Address = 192.168.2.200 EPAP A Main DSM Network Address = 192.168.120.100 EPAP B Main DSM Network Address = 192.168.120.200 EPAP A Backup DSM Network Address = 192.168.121.100 EPAP B Backup DSM Network Address = 192.168.121.200

		EPAP IP Version = IPv4 EPAP A HTTP Port = 80 EPAP B HTTP Port = 80 EPAP A HTTP SuExec Port = 8001 EPAP B HTTP SuExec Port = 8001 EPAP A Banner Connection Port = 8473 EPAP B Banner Connection Port = 8473 EPAP A Static NAT Address = Not configured EPAP B Static NAT Address = Not configured PDBI Port = 5873 Remote MPS A Static NAT Address = Not configured Remote MPS A HTTP Port = 80 Local Provisioning VIP = Not configured Remote Provisioning VIP = Not configured Local PDBA Address = 10.75.141.55 Local PDBA Address v6 = 0000:0000:0000:0000:0000:0000:0000:0000 Remote PDBA Address = 0.0.0.0 Remote PDBA B Address = 0.0.0.0 Time Zone = America/New_York PDB Database = Exists Preferred PDB = 10.75.141.55 Allow updates from alternate PDB = Yes Auto DB Recovery Enabled = No PDBA Proxy Enabled = No Press return to continue...<return> **For Standalone PDB, the configuration data shall look like:** EPAP A Provisioning Network IP Address = 10.250.51.130 EPAP B Provisioning Network IP Address = Not configured Provisioning Network Netmask = 255.255.255.128 Provisioning Network Prefix = Not configured Provisioning Network Default Router = 10.250.51.1 Provisioning Network Default Router v6 = Not configured EPAP A Backup Prov Network IP Address = Not configured EPAP A Backup Prov Network IP Address v6 = Not configured Backup Prov Network Netmask = Not configured Backup Prov Network Prefix v6 = Not configured Backup Prov Network Default Router = Not configured Backup Prov Network Default Router v6 = Not configured Network Configuration Type = SINGLE EPAP IP Version = IPv4 EPAP A HTTP Port = 80 EPAP A HTTP SuExec Port = 8001 EPAP A Banner Connection Port = 8473 EPAP A Static NAT Address = Not configured PDBI Port = 5873 Remote MPS A Static NAT Address = Not configured Remote MPS A HTTP Port = Not configured Local PDBA Address = 10.250.51.130 Local PDBA Address v6 = Not configured Remote PDBA Address = 0.0.0.0 Time Zone = US/Eastern PDB Database = Exists Auto DB Recovery Enabled = No Press return to continue... <return>
32. ☐	**MPS A**: The EPAP Configuration Menu is displayed. Enter choice **e**, Exit. **Note: Skip this step for provisionable EPAP (mixed EPAP or**	EPAP Configuration Menu for Non-Provisional EPAP:

Procedure 11: Configuring the Application

	standalone PDB) and directly move to step 33.	/-----EPAP Configuration Menu----------\ /----------\ | 1 | Display Configuration | |----|----------| | 2 | Configure Network Interfaces Menu | |----|----------| | 3 | Set Time Zone | |----|----------| | 4 | Exchange Secure Shell Keys | |----|----------| | 5 | Change Password | |----|----------| | 6 | Platform Menu | |----|----------| | 7 | Configure NTP Server | |----|----------| | 8 | PDB Configuration Menu | |----|----------| | 9 | Security | |----|----------| | 10 | SNMP Configuration | |----|----------| | 11 | Configure Alarm Feed | |----|----------| | 12 | Configure SNMP Agent Community | |----|----------| | 13 | Mate Disaster Recovery | |----|----------| | 14 | DB Architecture Menu | |----|----------| | e | Exit | \----------/ Enter Choice: **e** For Non-Provisionable EPAP, the following is displayed. INFO: Increasing rt volume size for Non-provisionable EPAP. Please wait... INFO: db space increased on 'A'. INFO: Stopping Epap, mysqlapp and mysqlpdb services... Done. INFO: Starting Epap, mysqlapp and mysqlpdb services... Done. INFO: Successfully configured Non-provisionable EPAP.
33. ☐	**MPS A:** The EPAP Configuration Menu is displayed. Select choice **6**, Platform Menu.	**EPAP Configuration Menu for mixed EPAP:**

Procedure 11: Configuring the Application

		/-----EPAP Configuration Menu----------\ /--\ | 1 | Display Configuration | |----|----------------------------------| | 2 | Configure Network Interfaces Menu | |----|----------------------------------| | 3 | Set Time Zone | |----|----------------------------------| | 4 | Exchange Secure Shell Keys | |----|----------------------------------| | 5 | Change Password | |----|----------------------------------| | 6 | Platform Menu | |----|----------------------------------| | 7 | Configure NTP Server | |----|----------------------------------| | 8 | PDB Configuration Menu | |----|----------------------------------| | 9 | Security | |----|----------------------------------| | 10 | SNMP Configuration | |----|----------------------------------| | 11 | Configure Alarm Feed | |----|----------------------------------| | 12 | Configure Query Server | |----|----------------------------------| | 13 | Configure Query Server Alarm Feed | |----|----------------------------------| | 14 | Configure SNMP Agent Community | |----|----------------------------------| | 15 | Mate Disaster Recovery | |----|----------------------------------| | e | Exit | \--/ Enter Choice: **6**
34. ☐	**MPS A**: The Platform Menu is displayed. Enter Choice 2, Reboot MPS.	Menu for Mixed EPAP and Non-Provisionable EPAP: /-----EPAP Platform Menu-\ /-------------------------\ | 1 | Initiate Upgrade | |----|--------------------| | 2 | Reboot MPS | |----|--------------------| | 3 | MySQL Backup | |----|--------------------| | 4 | RTDB Backup | |----|--------------------| | 5 | PDB Backup | |----|--------------------| | e | Exit | \-------------------------/ Enter Choice: **2** CAUTION: Rebooting this MPS will stop all EPAP processes will prevent updating of the RTDB until the EPAP software is automatically re-started when the system comes back up. Are you sure you want to reboot the MPS? [N]: Menu for Standalone PDB:

Procedure 11: Configuring the Application

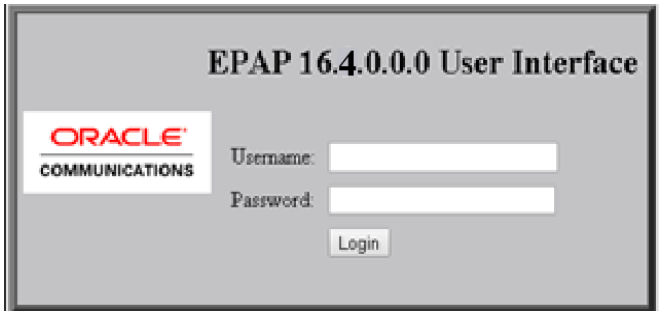
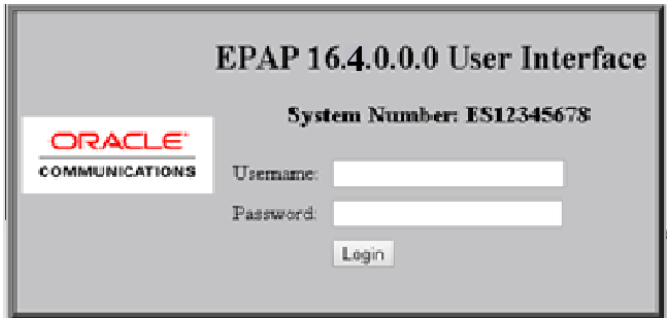
		/-----EPAP Platform Menu-\ /--------------------------\ | 1 | Initiate Upgrade | |----|----------------------| | 2 | Reboot MPS | |----|----------------------| | 3 | MySQL Backup | |----|----------------------| | 4 | PDB Backup | |----|----------------------| | e | Exit | \--------------------------/ Enter Choice: **2** CAUTION: Rebooting this MPS will stop all EPAP processes will prevent updating of the RTDB until the EPAP software is automatically re-started when the system comes back up.
35. ☐	**MPS A:** For Mixed EPAP and Non-Provisionable EPAP you are prompted whether MPS A, MPS B or BOTH sides are to be rebooted. Select the default value of **BOTH** by pressing Return. **In case of the Standalone PDB, no prompt is given and the server goes down for a reboot.**	For Mixed EPAP and Non-Provisionable EPAP, a prompt is displayed: Reboot MPS A, MPS B or [BOTH]: **<return>** For Standalone PDB, the following is displayed. Reboot local MPS... Broadcast message from root (pts/1) (Thu May 29 16:13:51 2014): The system is going down for reboot NOW!
36. ☐	**MPS A:** Determine the mysqld multi log file permissions are correct.	Refer to Procedure 14, step 4 and 5 .
37. ☐	**MPS A:** The console logon appears at the system prompt signifying the EPAP initial configuration is completed.	**<hostname> login: admusr** **Password:** Note: The console logon will be preceded by many lines of reboot output.
38. ☐	**MPS A:** Accept Upgrade	**Refer to Procedure 21 to accept the upgrade.**
39. ☐	**MPS B:** Determine the mysqld multi log file permissions are correct.	Refer to Procedure 14, step 4 and 5 .
40. ☐	**MPS B:** Accept Upgrade	Repeat Procedure 21 on MPS B to accept upgrade.
41. ☐	**Connected PDBonly:** Configure DSM Min Mem Size	Execute Procedure A.21 only if the Non-Prov EPAP is installed and is connected to Standalone PDB server. Otherwise, skip this step if – a. This is Mixed EPAP b. This is non-prov EPAP and connected to mixed EPAP.
42.	Reconnect console	On E5-APP-B card, reconnect the console cable between the serial port labeled 'S0' on

Procedure 11: Configuring the Application

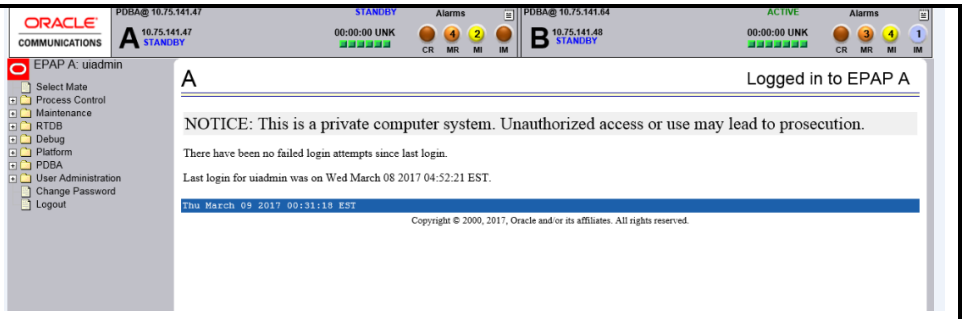
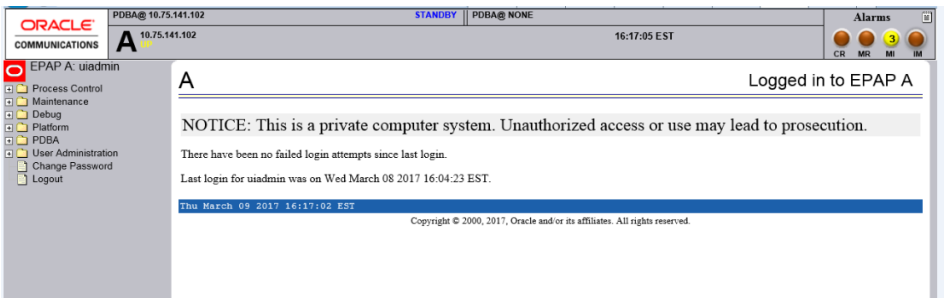
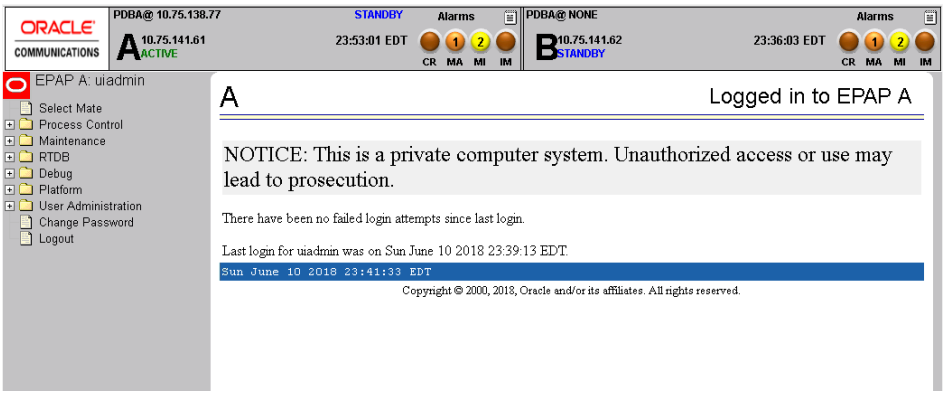
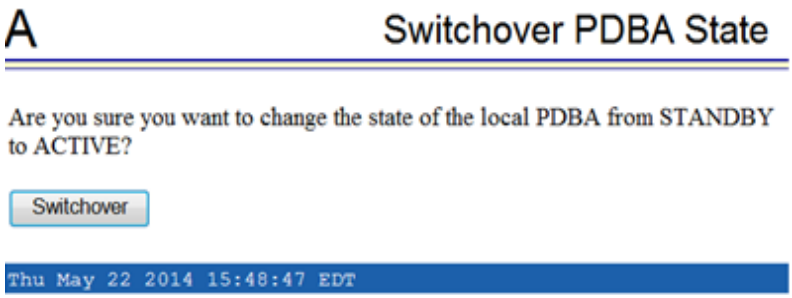
☐	cables.	E5-APP-B B card's adapter and the serial port labeled ‘S1’ on the E5-APP-B A card’s adapter and the console cable between the serial port labeled 'S0' on E5-APP-B A card's adapter and the serial port labeled ‘S1’ on the E5-APP-B B card’s adapter. **Cable part numbers - 830-1220-xx**
43. ☐	Procedure complete.	Procedure is complete.
44. ☐	Note down the timestamp in log.	Run the following command: `$ date`

Procedure 12 Provision data from GUI

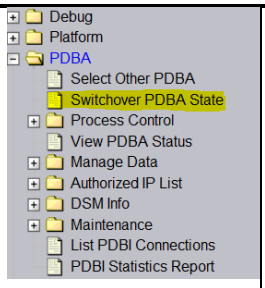
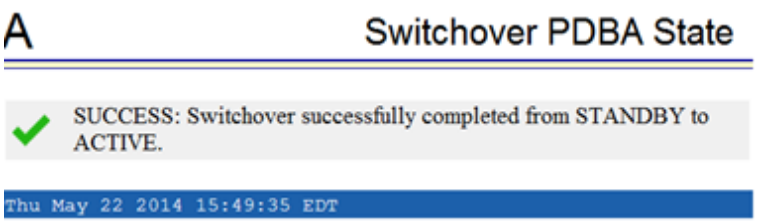
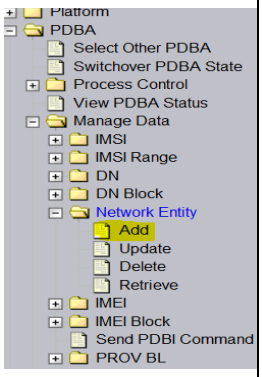
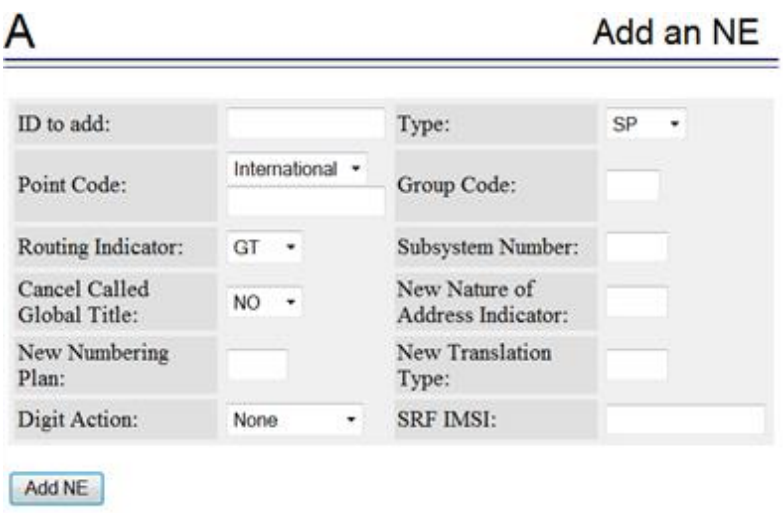
Procedure 12: Provision data from GUI (Active Provisionable(mixed-EPAP or PDBonly) Site as designated by customer)

S T E P #	This procedure provision 1 NE and 1 DN from GUI on Active 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 MY ORACLE SUPPORTAND ASK FOR ASSISTANCE.	
1. ☐	Access the EPAP GUI by opening a web browser (Preferably IE) via HTTPS and providing the IP address of Server A. The EPAP LOGIN screen should appear.	The GUI screen on Mixed EPAP should look like:  The GUI screen on Standalone PDB should look like: 
2. ☐	Login as uiadmin.	The GUI screen on Mixed EPAP should look like:

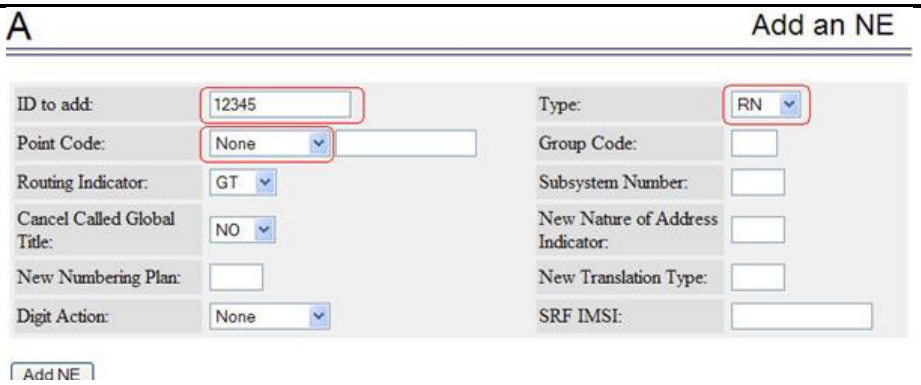
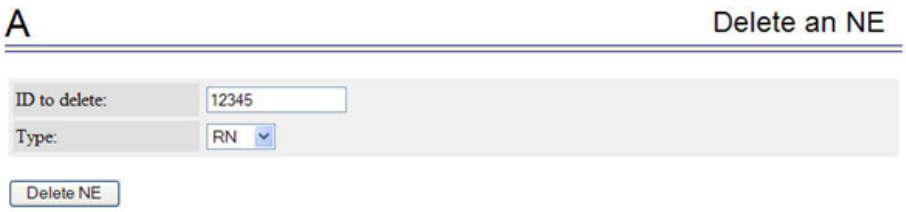
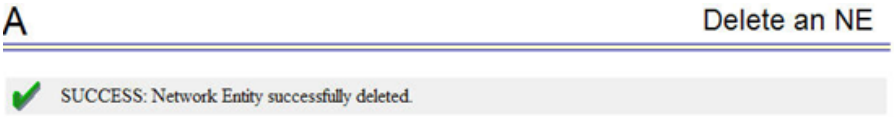
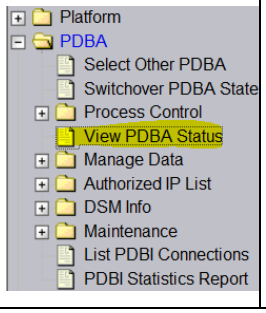
Procedure 12: Provision data from GUI (Active Provisionable(mixed-EPAP or PDBonly) Site as designated by customer)

		 The GUI screen on Standalone PDB should look like:  The GUI screen on Non-Prov EPAP should look like: 
3. ☐	On the Site designated by the customer Active PDB GUI select "Switchover PDBA State" to make the PDBA Active.	The screen should look like: 

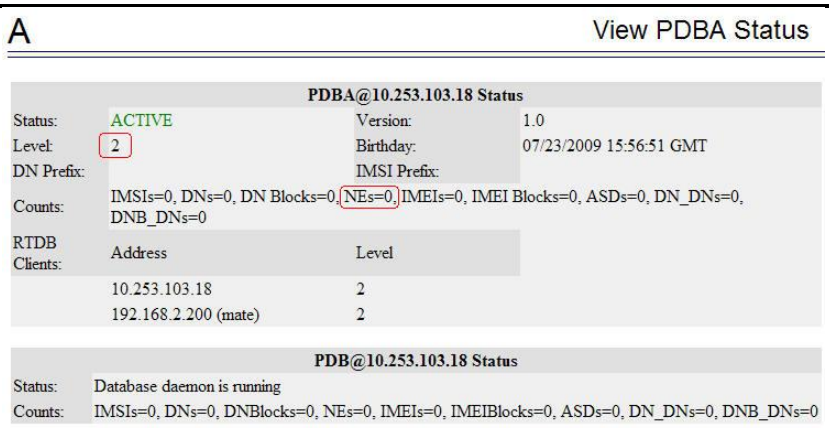
Procedure 12: Provision data from GUI (Active Provisionable(mixed-EPAP or PDBonly) Site as designated by customer)

		
4. ☐	Click on the "Switchover" button.	The screen should look like: 
5. ☐	PDBA should become ACTIVE.	The screen should look like:
6. ☐	On the ACTIVE PDBA site, select PDBA→Manage Data→Network Entity→Add 	The screen should look like: 
7. ☐	Enter ID as "12345", select Type "RN" and select Point Code as "None".	The screen should look like:

Procedure 12: Provision data from GUI (Active Provisionable(mixed-EPAP or PDBonly) Site as designated by customer)

		
8. ☐	Click on the "Add NE" button. Network Entity should be successfully added.	The screen should look like:
9. ☐	Select PDBA→Manage Data→Network Entity→Delete	The screen should look like:
10. ☐	Enter ID as "12345" and select Type "RN".	The screen should look like: 
11. ☐	Click on the "Delete NE" button. Network Entity should be successfully deleted.	The screen should look like: 
12. ☐	View PDBA Status 	The screen should look like:

Procedure 12: Provision data from GUI (Active Provisionable(mixed-EPAP or PDBonly) Site as designated by customer)

		
13. ☐	Procedure complete	Procedure is complete.
14. ☐	Note down the timestamp in log.	Run the following command: `$ date`

Procedure 13 Change DB Architecture

Procedure 13: Change the DB Architecture

NOTE: Skip this procedure in following three cases:
1. EPAP 16.4 is a Mixed EPAP.
2. Extreme architecture is not required
3. The Eagle connected to EPAP has release 47.0.0.0.0 or earlier release.

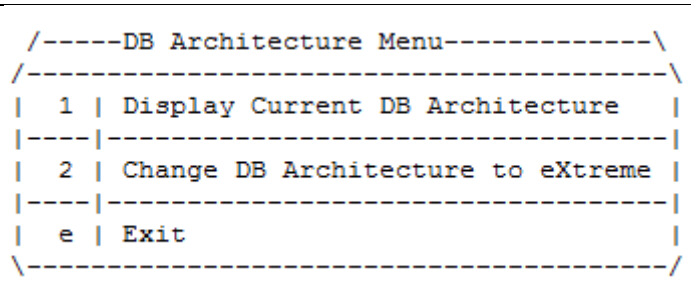
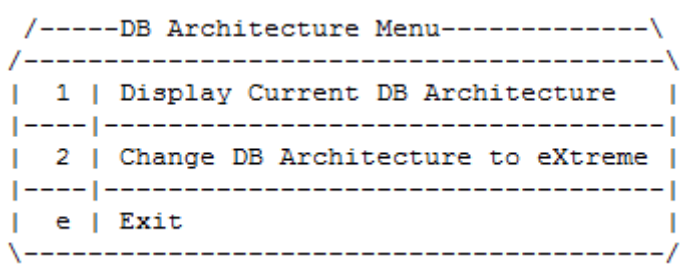
S T E P #	This procedure change the DB Architecture from COMPACT to eXtreme. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORTAND ASK FOR ASSISTANCE.	
1.	**MPS A:** Log in as epapdev user.	`[hostname] consolelogin: epapdev` `password: password`
2.	**MPS A:** Log into epapconfig.	`$ sudo su - epapconfig`
3.	**MPS A**: The EPAP Configuration Menu is displayed. Select choice 14 or 15, DB Architecture Menu **Note: Select choice 14 on Non-provisionable EPAP and 15 on PDBonly.**	`Note: Start Pdba software before executing this operation.` **EPAP Configuration Menu for Non-Provisionable:**

```
 /-----EPAP Configuration Menu----------\
/----------------------------------------\
|  1 | Display Configuration             |
|----|-----------------------------------|
|  2 | Configure Network Interfaces Menu |
|----|-----------------------------------|
|  3 | Set Time Zone                     |
|----|-----------------------------------|
|  4 | Exchange Secure Shell Keys        |
|----|-----------------------------------|
|  5 | Change Password                   |
|----|-----------------------------------|
|  6 | Platform Menu                     |
|----|-----------------------------------|
|  7 | Configure NTP Server              |
|----|-----------------------------------|
|  8 | PDB Configuration Menu            |
|----|-----------------------------------|
|  9 | Security                          |
|----|-----------------------------------|
| 10 | SNMP Configuration                |
|----|-----------------------------------|
| 11 | Configure Alarm Feed              |
|----|-----------------------------------|
| 12 | Configure SNMP Agent Community    |
|----|-----------------------------------|
| 13 | Mate Disaster Recovery            |
|----|-----------------------------------|
| 14 | DB Architecture Menu              |
|----|-----------------------------------|
|  e | Exit                              |
\----------------------------------------/

Enter choice: 14
```

EPAP Configuration Menu for standalone PDB:

		/-----EPAP Configuration Menu----------\ /--\ | 1 | Display Configuration | |----|----------------------------------| | 2 | Configure Network Interfaces Menu | |----|----------------------------------| | 3 | Set Time Zone | |----|----------------------------------| | 4 | Exchange Secure Shell Keys | |----|----------------------------------| | 5 | Change Password | |----|----------------------------------| | 6 | Platform Menu | |----|----------------------------------| | 7 | Configure NTP Server | |----|----------------------------------| | 8 | PDB Configuration Menu | |----|----------------------------------| | 9 | Security | |----|----------------------------------| | 10 | SNMP Configuration | |----|----------------------------------| | 11 | Configure Alarm Feed | |----|----------------------------------| | 12 | Configure Query Server | |----|----------------------------------| | 13 | Configure Query Server Alarm Feed | |----|----------------------------------| | 14 | Configure SNMP Agent Community | |----|----------------------------------| | 15 | DB Architecture Menu | |----|----------------------------------| | e | Exit | \--/ Enter choice: 15
4.	**MPS A:** The DB Architecture Menu is displayed. Select choice 1, Display current DB Architecture Note: Default DB Architecture is displayed.	/-----DB Architecture Menu-------------\ /--\ | 1 | Display Current DB Architecture | |----|----------------------------------| | 2 | Change DB Architecture to eXtreme | |----|----------------------------------| | e | Exit | \--/ Enter Choice: 1 DB Architecture: COMPACT
5.	**MPS A:** The DB Architecture Menu is displayed. Select choice 2, Change DB Architecture to	Skip this step if DB Architecture already set to eXtreme.

	eXtreme **NOTE:** It may be asked to stop the EPAP software if it is running. Stop it by answering 'Y'.	 Enter Choice: 2 **Example output Non-Provisionable EPAP:** Caution: If this option is selected, the DB Architecture shall be changed from Compact to eXtreme and this architecture cannot be reverted. WARNING: In order to complete this change in DB Architecture, you must perform RTDB conversion. Are you sure you want to change the DB Architecture from Compact to eXtreme? [N]: y EPAP software is running. Stop it? [N]: y EPAP software is running on mate MPS. Stop it? [N]: y INFO: DB ARCHITECTURE changed to eXtreme. **Example output Standalone PDB:** Caution: If this option is selected, the DB Architecture shall be changed from Compact to eXtreme and this architecture cannot be reverted. Please verify that all connected Non-Provisional Sites are running on eXtreme Architecture. It will take 30 minutes or more to populate the PDB 9Dig tables. Are you sure you want to change the DB Architecture from Compact to eXtreme? [N]: Y EPAP software is running. Stop it? [N]: Y PDBA software is running. Stop it? [N]: Y INFO: Populating the DN 9 Digit tables... INFO: Populating the IMSI 9 Digit tables... INFO: Populating the IMEI 9 Digit tables... INFO: DB ARCHITECTURE changed to eXtreme. Press return to continue...
6.	**MPS A:** The DB Architecture Menu is displayed. Select choice e, Exit	

		Enter Choice: e
7.	**MPS A:** EPAP Configuration Menu is displayed. Select choice e, Exit	/-----EPAP Configuration Menu----------\ /----------\ | 1 | Display Configuration | |----|----------| | 2 | Configure Network Interfaces Menu | |----|----------| | 3 | Set Time Zone | |----|----------| | 4 | Exchange Secure Shell Keys | |----|----------| | 5 | Change Password | |----|----------| | 6 | Platform Menu | |----|----------| | 7 | Configure NTP Server | |----|----------| | 8 | PDB Configuration Menu | |----|----------| | 9 | Security | |----|----------| | 10 | SNMP Configuration | |----|----------| | 11 | Configure Alarm Feed | |----|----------| | 12 | Configure Query Server | |----|----------| | 13 | Configure Query Server Alarm Feed | |----|----------| | 14 | Configure SNMP Agent Community | |----|----------| | 15 | DB Architecture Menu | |----|----------| | e | Exit | \----------/ Enter Choice: e
8.	**MPS A:** Start Epap and Pdba software. **Note: Move to step 11 if it is configured as PDBonly. Otherwise continue to next step.**	Start Epap and Pdba software to reflect the changes. Use the following command to start Epap: **$ service Epap start** ~~ /etc/init.d/Epap start ~~ "EPAP_RELEASE" is set to "0.617" EPAP application start Successful. **$ service Pdba start** ~~ /etc/init.d/Pdba start ~~ PDBA application start Successful.
9.	**MPS B:** Log on Server B.	**[hostname] consolelogin: epapdev** **password: *password***
10.	**MPS B:** Start Epap software.	Start Epap software to reflect the changes. Use the following command to start Epap:

		$ service Epap start ~~ /etc/init.d/Epap start ~~ "EPAP_RELEASE" is set to "0.617" EPAP application start Successful.
11.	Procedure complete.	Procedure is complete.
12.	Note down the timestamp in log.	Run the following command: **$ date**

6 SOFTWARE UPGRADE PROCEDURES

Procedure 14 Assess MPS server's readiness for upgrade

Procedure 14: Assess the MPS Server's Readiness for Upgrade

S T E P #	This procedure executes the steps required to assess the readiness of a system to be upgraded. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
1. ☐	**MPS B**: Log in as the user "admusr".	If not already logged-in, then log in. **<hostname> console login: admusr** **password: <password>**
2. ☐	**MPS B:** Display the /etc/hosts configuration for the pdb entities.	If upgrading the first MPS B of a Provisionable mated pair, execute the following command to display the configuration of pdb entries: **$ grep pdb /etc/hosts** Otherwise, skip to step 4.
3. ☐	**MPS B:** Verify the correct configuration for pdb entities in the /etc/hosts file.	Below is an example of the output of the grep command: 192.168.55.176 host1-a pdba 192.168.61.76 host2-a prova-ip pdbb If the command output contains 2 entries (pdba and pdbb are both configured), continue to the next step. If the command output does not contain unique entries for pdba and pdbb, contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F.
4. ☐	**MPS B:** Determine the mysqld multi log file permissions are correct.	Execute the following command to display the file properties of the mysqld_multi log file: **$ ls -l /var/TKLC/epap/db/mysqld_multi.log** -rw-rw-r-- 1 mysql mysql 5460 Jun 21 05:37 /var/TKLC/epap/db/mysqld_multi.log If permissions are as displayed above skip next step.
5. ☐	**MPS B:** Verify the file permissions.	Ownerships and permissions of mysqld_multi.log should be set as mysql:mysql and 644 respectively. If it is not same as illustrated in above step 4 then change it using following command: Execute the following command to change the ownership: **$ sudo chown mysql:mysql /var/TKLC/epap/db/mysqld_multi.log** Execute the following command to change the file permission: **$ sudo chmod 644 /var/TKLC/epap/db/mysqld_multi.log** Repeat above step 4 to verify ownerships and permissions of mysqld_multi.log .
6. ☐	**MPS B:** Display the contents of the /var/TKLC/upgrade	Execute the following command to display the presence of EPAP software ISO images: **$ ls -la /var/TKLC/upgrade**

Procedure 14: Assess the MPS Server's Readiness for Upgrade

	directory.	**Note:** The file permissions and ownership may vary due to the different methods used to transfer the file.
		
		Below is an example of the output of the 'ls -la' command for EPAP16.2:
		`[root@Natal-A upgrade]# ls -la`
		`total 1785996`
		`drwxrwxr-x. 3 root admgrp 4096 Jun 23 01:19 .`
		`dr-xr-xr-x. 21 root root 4096 Jun 23 00:00 ..`
		`-r--r----- 1 root root 904644608 Jun 23 01:19 EPAP-16.2.0.0.1_162.26.0-x86_64.iso`

7. ☐	**MPS B:** Delete old ISO images.	Remove any ISO images that are not the target software ISO image using the following command: `# sudo rm -f /var/TKLC/upgrade/<filename>` Refer to step 6 to display the content of /var/TKLC/upgrade directory. Removed ISO should not be displayed.

8. ☐	**MPS B:** Determine when last reboot occurred.
	For any server up longer than 180 days would be a candidate for reboot during a maintenance window.
		`$ uptime`
		
		`15:19:34 up 23 days, 3:05, 2 users, load average: 0.10, 0.13, 0.09`

9. ☐	**MPS B:** Disk Integrity step: Executing self-test on the disk.	Execute the following command:
		`$ sudo smartctl -t short /dev/sda`
		
		The output on E5-APP-B card would be like:
		
		`smartctl 5.43 2012-06-30 r3573 [x86_64-linux-2.6.32-642.6.2.el6prerel7.4.0.0.0_88.32.0.x86_64] (local build)`
		`Copyright (C)2002-12 by Bruce Allen,`
		`http://smartmontools.sourceforge.net`
		
		`=== START OF OFFLINE IMMEDIATE AND SELF-TEST SECTION ===`
		`Sending command: "Execute SMART Short self-test routine immediately in off-line mode".`
		`Drive command "Execute SMART Short self-test routine immediately in off-line mode" successful.`
		`Testing has begun.`
		`Please wait 1 minutes for test to complete.`
		`Test will complete after Sat Feb 25 22:08:20 2017`
		
		`Use smartctl -X to abort test.`
		Note: Please wait for 5 minutes for the test to complete.

10. ☐	**MPS B:** Disk Integrity step.
	
	Contact My Oracle Support if the output shows any error/failure.
		Execute the following command:
		`$ sudo smartctl -l selftest /dev/sda`
		
		The output on E5-APP-B card would be like:
		
		`smartctl 5.43 2012-06-30 r3573 [x86_64-linux-2.6.32-642.6.2.el6prerel7.4.0.0.0_88.32.0.x86_64] (local build)`
		`Copyright (C) 2002-12 by Bruce Allen,`
		`http://smartmontools.sourceforge.net`
		
		`=== START OF READ SMART DATA SECTION ===`
		`SMART Self-test log structure revision number 1`
		`Num Test_Description Status Remaining LifeTime(hours) LBA_of_first_error`
		`# 1 Short offline Completed without error 00% 12435`

Procedure 14: Assess the MPS Server's Readiness for Upgrade

11. ☐	**MPS B:** Disk Integrity step Contact My Oracle Support if any output shows **"Completed: read failure"** or **"Error: UNC xxx sectors".**	Execute the following command: **$ sudo smartctl -a /dev/sda | grep -i LBA** The output would be like: 241 Total_LBAs_Written 0x0032 100 100 000 Old_age Always - 340851 242 Total_LBAs_Read 0x0032 100 100 000 Old_age Always - 1689714 Num Test_Description Status Remaining LifeTime(hours) LBA_of_first_error SPAN MIN_LBA MAX_LBA CURRENT_TEST_STATUS
12. ☐	**MPS B:** Disk Integrity Test.	Repeat steps 9 to 11 for the /dev/sdb disk drive on E5-APP-B card:
13. ☐	**MPS B:** Logout from "admusr".	Logout from the "admusr" user by executing the following command: **$ exit**
14. ☐	**MPS A:** Repeat checks on Server A.	Repeat steps-1 to 13 on MPS A.
15. ☐	Procedure Complete.	This procedure is complete.
16. ☐	Note down the timestamp in log.	Run the following command: **$ date**

Procedure 15 Pre and Post Upgrade Backups

Procedure 15: Pre and Post Upgrade Backups

S T E P #	This procedure performs the pre and post upgrade backups. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
1. ☐	**MPS A:** Backup system configuration on MPS A.	Execute Procedure A.3 to backup the system configuration on MPS A.
2. ☐	**MPS B:** Backup system configuration on MPS B.	Execute Procedure A.3 to backup the system configuration on MPS B.
3. ☐	**MPS B:** Backup RTDB database.	Execute Procedure A.7 to backup the RTDB database on MPS B.
4. ☐	**MPS A:** Backup PDB database.	Execute Procedure A.6 to backup the PDB on MPS A of the Active PDBA. **NOTE: Only execute this step if the MPS-A is configured as a Provisionable node. Check the output of Procedure 2, step 9 to verify if MPS A is Provisionable or not.**
5. ☐	**MPS A:** Backup EuiDB database.	Execute Procedure A.8 to backup the EuiDB database on MPS A.
6. ☐	Procedure Complete.	This procedure is complete.
7. ☐	Note down the timestamp in log.	Run the following command: **$ date**

Procedure 16 Pre-upgrade system time check

Procedure 16: Pre-Upgrade System Time Check

S T E P #	This procedure performs the pre-upgrade system time check. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
The MPS servers make use of NTP to keep time synchronized between servers. Under some circumstances, either at initial installation in the customer's network or due to power interruption and battery failure, it is possible for an MPS server to have a system date/time value too large for NTP to correct. If the system time is 20 minutes or more off from the real time, NTP cannot correct it. **Check the date/time on *both* MPS-A and MPS-B servers, and correct the system time on any server off by more than 15 minutes from the real time.**		
1. ☐	**MPS A:** Login as the user "epapdev".	If not already logged-in, then login at MPS A: **<hostname> console login: epapdev** **password: <password>**
2. ☐	**MPS A:** Execute the "date" command.	Execute the "date" command and examine the result. **$ date** Sat Feb 25 22:09:58 EDT 2018
3. ☐	**MPS B:** Login as the user "epapdev".	If not already logged-in, then login at MPS B: **<hostname> console login: epapdev** **password: <password>**
4. ☐	**MPS B:** Execute the "date" command.	Execute the "date" command and examine the result. **$ date** Sat Feb 25 22:09:58 EDT 2018
5. ☐	Compare result to the real time.	Compare the result from the "date" command in the previous step to the real time. If the difference is 15 minutes or less, then this procedure is complete, otherwise if the difference exceeds 15 minutes, contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F.
6. ☐	Procedure Complete.	This procedure is complete.
7. ☐	Note down the timestamp in log.	Run the following command: **$ date**

Procedure 17 Check 9dig counts before moving to eXtreme architecture

Procedure 17: Check 9dig counts before moving to eXtreme architecture

Note: This step is only required before converting DB architecture from Compact to Extreme

S T E P #	This procedurechecks the 9dig counts for all DN/IMSI and IMEI. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
Verify the PDB data are within 9dig limitation Maximum 9dig limit for DN: 65K Maximum 9dig limit for IMSI: 65K Maximum 9dig limit for IMEI: 250K		
1. ☐	**MPS A:** Login as the user "epapdev" on standalone PDB.	If not already logged-in, then login at MPS A: **<hostname> console login: epapdev** **password: <password>**

2. ☐	**MPS A:** Execute the "parse9Dig" script on standalone PDB.	Execute the "parse9Dig" script and examine the result.
		
		Note: Stop the Pdba software before executing this script.
		
		$ /usr/TKLC/epap/config/parse9Dig all c
		
		Get reference from the following snapshot:
		`[epapdev@Osorna-1B-PDBonly config]$ /usr/TKLC/epap/config/parse9Dig all c`
		
		`This utility will retrieve all digits for DB and parse them into 9Dig entries.`
		
		`**************************************************`
		`Utility Start Time: 06/13/18-20:51:48`
		
		`Parsing DN digits into 9digits...`
		
		`INFO: DN 9dig count 2.`
		
		`Parsing IMSI digits into 9digits...`
		
		`INFO: IMSI 9dig count: 9.`
		
		`Parsing IMEI digits into 9digits...`
		
		`INFO: IMEI 9dig count: 1.`
		
		`Utility End Time: 06/13/18-20:51:48`
		`[epapdev@Osorna-1B-PDBonly config]$`
		
		If any of the data type from DN/IMSI and IMEI exeeds the 9Dig limit, then DB Architecture cannot be changed to eXtreme.

3. ☐	**MPS A:** Start Pdba software.	**$ service Pdba start** ~~ /etc/init.d/Pdba start ~~ PDBA application start Successful.
4. ☐	**MPS A:** Procedure is complete.	This procedure is complete.
5. ☐	Note down the timestamp in log.	Run the following command: $ date

Procedure 18 Upgrade Server B

Procedure 18: Upgrade Server B

S T E P #	This procedure upgrades MPS B 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 MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE**.	
1. ☐	Notify the potential users not to start the PDBA software during the duration of the upgrade. The Prov servers (Mixed EPAP or PDBonly) upgrade must complete before the Non-Provisionable EPAP. For more details, see Upgrading EPAP Non-Provisionable MPS Servers.	
2. ☐	Establish a connection to MPS B.	If access to the MPS servers is not available through an IP network, connect to the E5-APP-B card via the serial port. For connecting the E5-APP-B B card, disconnect the console cable from the serial port on the E5-APP-B A card's adapter. The cable should be disconnected at the point where it connects to the serial port labeled 'S1' on the E5-APP-B A card's adapter and use it for serial access. **Cable part numbers - 830-1220-xx** Skip to step 7, if connected through serial console.

3. ☐	Create a terminal window and establish a connection by logging into MPS A.
	
	Log in to MPS A.
		In a newly created terminal window labeled "MPS B – from MPS A", connect directly into MPS A.
		
		`# ssh admusr@<MPS A>`
		`Password: <password>`

4. ☐	**MPS A**: Start screen session.
	
	MPS A: Connect to the console of MPS B.
		Execute the following commands to start screen and establish a console session to MPS B.
		
		`$ screen -L`
		
		Execute the following command on E5-APP-B:
		
		`$ sudo minicom mate`
		If above command fails then refer to Procedure A.27.

5. ☐	**MPS B**: Login prompt is displayed.	`<hostname> console login:` Note: Hit enter if no login prompt is displayed.
6. ☐	**MPS B:** Log in to the server as the user "epapdev".	`<hostname> console login: epapdev` `password: <password>`
7. ☐	**MPS B**: Determine media available for upgrade.	Perform Procedure A.12 or use an EPAP ISO image to perform upgrade.
8. ☐	**MPS B:** Verify that it is an Incremental Upgrade or a Major upgrade	Check Procedure 2, Step 7 and 8. If the upgrade type is a split mirror upgrade, proceed with the following step. If it's Incremental, proceed to step 11

Procedure 18: Upgrade Server B

9. ☐	**MPS B**: Disable syscheck fs module.	Execute the following command to disable the syscheck fs module. **$ su - root** **Password:** **# syscheckAdm --disable disk fs**
10. ☐	**MPS B:** Create upgrade.conf for splitting mirrors.	Create a file (if not already created) and add the line "BACKOUT_TYPE=SPLIT_MIRROR" (to trigger the split mirror upgrade) by executing the following steps: 1. # vi /usr/TKLC/plat/etc/upgrade/upgrade.conf 2.If file already contains some allow listed alarms then append bellow line at the end of the file, otherwise add it to first line: **BACKOUT_TYPE=SPLIT_MIRROR** NOTE: Not performing this step will prevent any successful backout. Execute the following command to verify that the above command has been executed successfully: **# cat /usr/TKLC/plat/etc/upgrade/upgrade.conf** The output should be: [root@MPS-B ~]# cat /usr/TKLC/plat/etc/upgrade/upgrade.conf BACKOUT_TYPE=SPLIT_MIRROR **# su - admusr**
11. ☐	**MPS A:** Log in to the server as the user "admusr".	login to MPS A: **<hostname> console login: admusr** **password: <password>**
12. ☐	**MPS A:** Check if eagle_alarm_feed variable is present in EuiDB	Run below command to check if uiEdit variable is present or not. $ uiEdit | grep "EAGLE_ALARM_FEED" "EAGLE_ALARM_FEED" is set to "ON" Note: If no output is displayed after above command is run, then run next step else skip next step.
13. ☐	**MPS A:** Insert EAGLE_ALARM_FEED variable in EuiDB	NOTE: Skipping this step if EAGLE_ALARM_FEED variable is not present in EuiDB will cause upgrade to fail Run below command to insert missing variable in EuiDB. $ /usr/bin/mysql -uroot –p<password> -B EuiDB -e "insert into econfig values ('EAGLE_ALARM_FEED','ON')" Check if above command was successful. Output should be as displayed below: $ echo $? 0 Repet Step 12 to check if value is inserted successfully in DB. Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F, if this step fails.
14.	**MPS A:** Verify that	**# sudo su - epapconfig**

☐	the state of PDBA Proxy Feature is No. **Note:** Skip this step for Non-Prov and PDBonly EPAP.	/-----EPAP Configuration Menu----------\ /----------\ | 1 | Display Configuration | |----|----------| | 2 | Configure Network Interfaces Menu | |----|----------| | 3 | Set Time Zone | |----|----------| | 4 | Exchange Secure Shell Keys | |----|----------| | 5 | Change Password | |----|----------| | 6 | Platform Menu | |----|----------| | 7 | Configure NTP Server | |----|----------| | 8 | PDB Configuration Menu | |----|----------| | 9 | Security | |----|----------| | 10 | SNMP Configuration | |----|----------| | 11 | Configure Alarm Feed | |----|----------| | 12 | Configure Query Server | |----|----------| | 13 | Configure Query Server Alarm Feed | |----|----------| | 14 | Configure SNMP Agent Community | |----|----------| | 15 | Mate Disaster Recovery | |----|----------| | e | Exit | \----------/ Enter Choice: 1 EPAP A Provisioning Network IP Address = 192.168.61.115 EPAP B Provisioning Network IP Address = 192.168.61.116 Provisioning Network Netmask = 255.255.255.0 Provisioning Network Default Router = 192.168.61.1 EPAP A Backup Prov Network IP Address = Not configured EPAP B Backup Prov Network IP Address = Not configured Backup Prov Network Netmask = Not configured Backup Prov Network Default Router = Not configured EPAP A Sync Network Address = 192.168.2.100 EPAP B Sync Network Address = 192.168.2.200 EPAP A Main DSM Network Address = 192.168.120.100 EPAP B Main DSM Network Address = 192.168.120.200 EPAP A Backup DSM Network Address = 192.168.121.100 EPAP B Backup DSM Network Address = 192.168.121.200 EPAP A HTTP Port = 80 EPAP B HTTP Port = 80 EPAP A HTTP SuExec Port = 8001 EPAP B HTTP SuExec Port = 8001 EPAP A Banner Connection Port = 8473 EPAP B Banner Connection Port = 8473 EPAP A Static NAT Address = Not configured EPAP B Static NAT Address = Not configured PDBI Port = 5873 Remote MPS A Static NAT Address = Not configured

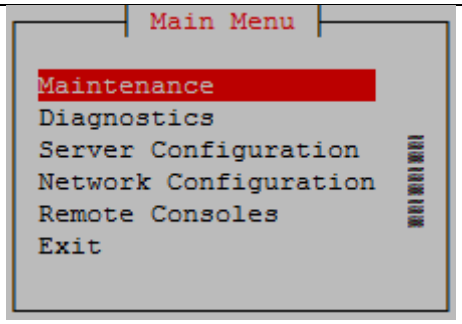
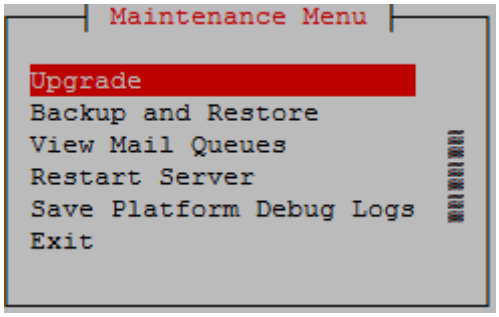
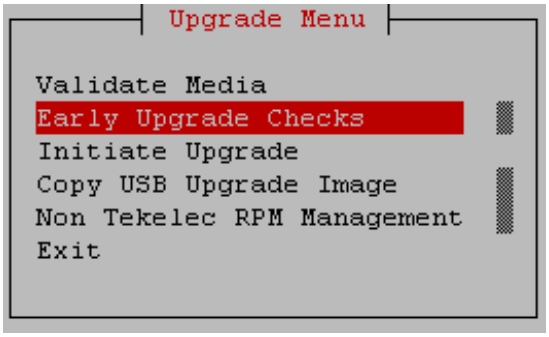
Procedure 18: Upgrade Server B

		Remote MPS A HTTP Port = 80 Local Provisioning VIP = 192.168.15.152 Remote Provisioning VIP = 192.168.15.172 Local PDBA Address = 192.168.15.115 Remote PDBA Address = 192.168.16.115 Remote PDBA B Address = 192.168.16.116 Time Zone = America/New_York PDB Database = Exists Preferred PDB = Standby Allow updates from alternate PDB = Yes Auto DB Recovery Enabled = Yes PDBA Proxy Enabled = **Yes** If `PDBA Proxy Enabled = Yes then` **Execute Procedure A.19 on both PDBA Active and Standby for dual PDBA setup to disable EPAP VIP and PDBA proxy features.** Otherwise, if PDBA Proxy Enabled = No, then skip this step.
15. ☐	**MPS A**: Clear PDB replication logs	If `PDBA Proxy Enabled = Yes then` Execute Procedure A.29 to clear replication logs Otherwise, if PDBA Proxy Enabled = No, then skip this step.
16. ☐	**MPS A**: Choose "e" to exit.	`MPS Side A:`

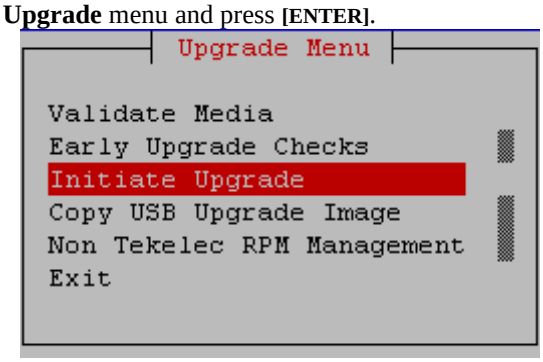
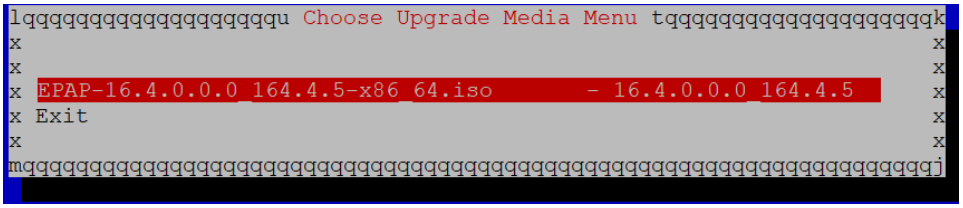
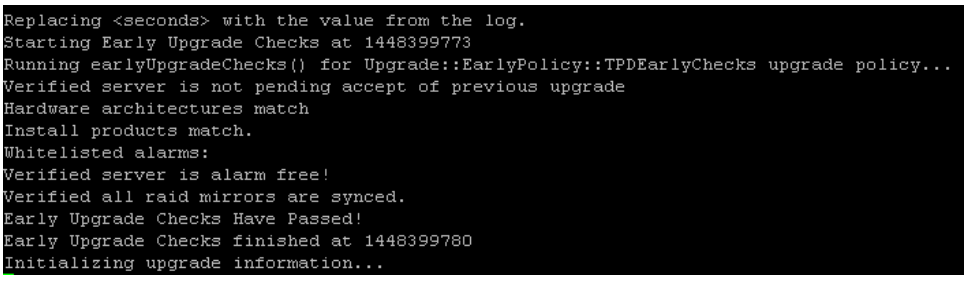
Procedure 18: Upgrade Server B

		/-----EPAP Configuration Menu----------\ /--\ | 1 | Display Configuration | |----|----------------------------------| | 2 | Configure Network Interfaces Menu | |----|----------------------------------| | 3 | Set Time Zone | |----|----------------------------------| | 4 | Exchange Secure Shell Keys | |----|----------------------------------| | 5 | Change Password | |----|----------------------------------| | 6 | Platform Menu | |----|----------------------------------| | 7 | Configure NTP Server | |----|----------------------------------| | 8 | PDB Configuration Menu | |----|----------------------------------| | 9 | Security | |----|----------------------------------| | 10 | SNMP Configuration | |----|----------------------------------| | 11 | Configure Alarm Feed | |----|----------------------------------| | 12 | Configure Query Server | |----|----------------------------------| | 13 | Configure Query Server Alarm Feed | |----|----------------------------------| | 14 | Configure SNMP Agent Community | |----|----------------------------------| | 15 | Mate Disaster Recovery | |----|----------------------------------| | e | Exit | \--/ Enter Choice: e
17. ☐	**MPS B:** Log in to the server as the user "admusr".	login to MPS B if not already logged in: <hostname> console login: admusr password: <password>
18. ☐	**MPS B:** Execute the platcfg menu.	$ sudo su - platcfg
19. ☐	**MPS B**: Select the Maintenance submenu.	The platcfg **Main Menu** appears. On the **Main Menu**, select **Maintenance** and press **[ENTER]**.

Procedure 18: Upgrade Server B

		
20. ☐	**MPS B**: Select the Upgrade submenu.	Select the **Upgrade** menu and press **[ENTER]**. 
21. ☐	**MPS B**: Select Early Upgrade Checks	Select the "Early Upgrade Checks" menu to verify that the system is ready for upgrade.  If the Early Upgrade Checks fail due to the NTP related alarms, then execute step 22. Otherwise, skip to step 23. Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F, if the early upgrade checks fail due to any other reason.
22. ☐	**MPS B:** Allow List NTP Alarms	1) If the Early Upgrade Checks fail due to the NTP related alarms, then ignore the NTP alarms using the following commands: a. Exit the platcfg menu b. Change to root user using the "su –" command. c. vim /usr/TKLC/plat/etc/upgrade/upgrade.conf d. Edit the following line to include the NTP related alarms. EARLY_CHECK_ALARM_WHITELIST=TKSPLATMI2 For example – To allowlist the NTP alarm "tpdNTPDaemonNotSynchronizedWarning" which has the alarm code TKLCPLATMI10, the above mentioned line should be edited as EARLY_CHECK_ALARM_WHITELIST=TKSPLATMI2,TKSPLATMI10 Note: There should not be any space between two alarms i.e. between TKSPLATMI2 and TKSPLATMI10

Procedure 18: Upgrade Server B

		2) If the Early Upgrade Checks fail due to "Server Default Route Network Error", then this alarm shall be allowlisted in upgrade.conf file. To allowlist this alarm which has the alarm code TKSPLATMA14, the above mentioned line should be edited as EARLY_CHECK_ALARM_WHITELIST=TKSPLATMI2,TKSPLATMI10, TKSPLATMA14
23. ☐	**MPS B**: Select Initiate Upgrade.	Select the **Initiate Upgrade** menu and press **[ENTER]**. 
24. ☐	**MPS B**: Select the Upgrade Media.	The screen will display a message that it is searching for upgrade media. Once the upgrade media is found, an Upgrade Media selection menu will be displayed similar to the example shown below. Select the upgrade media on ISO image. There should only be one selection available, as shown in the example below. If there is more than one selection available, contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F. 
25. ☐	**MPS B**: Upgrade proceeds.	The screen displays the following, indicating that the upgrade software is first running the early upgrade checks, and then proceeding with the upgrade. 
26. ☐	**MPS B**: Upgrade proceeds.	Many informational messages will come across the terminal screen as the upgrade proceeds. Finally, after upgrade is complete, the server will reboot.
27. ☐	**MPS B**: Upgrade completed.	After the final reboot, Press Enter the screen will display the login prompt, as shown in the example below.

Procedure 18: Upgrade Server B

		Starting smartd: [OK] Daemon is not running... AlarmMgr daemon is not running, delaying by 1 minute TKLChwmgmtcli stop/pre-start, process 9750 TPDhpDiskStatus stop/pre-start, proces s 9782 Oracle Linux Server release 6.9 Kernel 2.6.32-696.20.1.el6prerel7.6.0.0.0_88.47.0.x86_64 on an x86_64 Arica-A login:
28. ☐	**MPS B**: Log in to the server as the user "epapdev".	**After upgrade, exit from the console and open new console using EPAP IP and login by epapdev user.** **<hostname> console login: epapdev** **password: <password>** Note: The SSH login for root shall get enabled after the upgrade.
29. ☐	**MPS B**: Verify the Upgrade.	Examine the upgrade logs in the directory /var/TKLC/log/upgrade and verify that no errors and warnings were reported. Check Procedure 2, Steps 7 and 8 to determine whether it is incremental or major upgrade. If it is major upgrade, then consider following error and warning. **$ grep -i error /var/TKLC/log/upgrade/upgrade.log** Following errors shall be observed: 1530712922::ERROR: Config file is currently checked out! 1530712922::ERROR: LOCKED BY: platcfg 1530712922::ERROR: CONFIG: /usr/TKLC/plat/etc/vlan.conf 1530712922::ERROR: ELEMENT: /var/TKLC/rcs/usr/TKLC/plat/etc/vlan.conf,v . . . 1530669414::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/columns_priv.MYI' 1530669414::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/columns_priv.MYI' 1530669414:: 1530669414::--------- 1530669414:: 1530669414::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/db.MYI' 1530669414::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/db.MYI' 1530669414:: 1530669414::--------- 1530669414:: 1530669414::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/event.MYI' 1530669414::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/event.MYI' . . . 1528826597::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/alarmInfo.MYI' 1528826597::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/alarmInfo.MYI' 1528826597::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/bannerinfo.MYI' 1528826597::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/bannerinfo.MYI' . . . 1533053832::Sorry, user root is not allowed to execute '/bin/chown epapdev:epap /var/TKLC/epap/logs/queryServer.log' as root on epap136.

```
1533053832::Sorry, user root is not allowed to execute '/bin/chown
epapdev:epap /var/TKLC/epap/logs/queryServer.log' as root on epap136.

.

.

530094474::libsemanage.semanage_reload_policy: load_policy returned error code
2

1530094474::libsemanage.semanage_reload_policy: load_policy returned error code
2.

.

1494304768::ERROR: Config file is currently checked out!
1494304781::ERROR: LOCKED BY: platcfg
1494304781::ERROR:    CONFIG: /usr/TKLC/plat/etc/vlan.conf
1494304781::ERROR:   ELEMENT: /var/TKLC/rcs/usr/TKLC/plat/etc/vlan.conf,v
1496215832::Error    : Table 'mysql.innodb_index_stats' doesn't exist
1496215832::Error    : Table 'mysql.innodb_table_stats' doesn't exist
1496215832::Error    : Table 'mysql.slave_master_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_relay_log_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_worker_info' doesn't exist
1496215832::Error    : Table 'mysql.innodb_index_stats' doesn't exist
1496215832::Error    : Table 'mysql.innodb_table_stats' doesn't exist
1496215832::Error    : Table 'mysql.slave_master_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_relay_log_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_worker_info' doesn't exist
1496215832::Error    : Table 'mysql.innodb_index_stats' doesn't exist
1496215832::Error    : Table 'mysql.innodb_table_stats' doesn't exist
1496215832::Error    : Table 'mysql.slave_master_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_relay_log_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_worker_info' doesn't exist
```

Following statement for missing binary file shall be observed in upgrade.log:

```
1530885808::/bin/df: `/mnt/ugchroot/sys': No such file or directory
1542631084::./upgrade_mysql: line 46: /usr/TKLC/epap/bin/pass_fetch: No such
file or directory
```

[NOTE: It is observed only when MySQL upgraded from earlier version than 5.6.18 to version 5.7]

Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F, if the output contains any error other than the above mentioned errors.
Also note that sometime a carriage return is inserted in the log file causing some of the error messages to appear truncated. This is acceptable and should be ignored.

```
$  grep –i warning /var/TKLC/log/upgrade/upgrade.log
```

Examine the output of the above command to determine if any warnings were reported. Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F, if the output contains any warnings beside the following:

```
1488951825::warning:  CAPABILITY: service_hp-asrd_disabled
1488951825::WARNING: /usr/TKLC/plat/etc/alarms/alarms.xml has been
updated...reparsing xml...
1530712185::WARNING: This capability is not defined in the default
capabilities.
1530712186::WARNING: Nor is it defined in the current hardware ID's
capabilities.
1530712186::WARNING:  CAPABILITY: service__disabled
1530712186::WARNING: HARDWARE ID: E5APPB
1488951890::warning:    erase unlink of /lib/modules/2.6.32-
573.18.1.el6prerel7.
0.3.0.0_86.44.0.x86_64/weak-updates failed: No such file or directory
1488951902::warning:    erase unlink of /lib/modules/2.6.32-
573.18.1.el6prerel7.
0.3.0.0_86.44.0.x86_64/modules.softdep failed: No such file or directory
1488951902::warning:    erase unlink of /lib/modules/2.6.32-
573.18.1.el6prerel7.
0.3.0.0_86.44.0.x86_64/modules.order failed: No such file or directory
1488951902::warning:    erase unlink of /lib/modules/2.6.32-
573.18.1.el6prerel7.
0.3.0.0_86.44.0.x86_64/modules.networking failed: No such file or directory
1488951902::warning:    erase unlink of /lib/modules/2.6.32-
573.18.1.el6prerel7.
0.3.0.0_86.44.0.x86_64/modules.modesetting failed: No such file or directory
```

Procedure 18: Upgrade Server B

```
1488951902::warning:    erase unlink of /lib/modules/2.6.32-
573.18.1.el6prerel7.
0.3.0.0_86.44.0.x86_64/modules.drm failed: No such file or directory
1488951902::warning:    erase unlink of /lib/modules/2.6.32-
573.18.1.el6prerel7.
0.3.0.0_86.44.0.x86_64/modules.block failed: No such file or directory
1488951903::kexec-tools                 #warning: /etc/kdump.conf created as
/et
c/kdump.conf.rpmnew
1488952115::ca-certificates             ################warning:
/etc/pki/tls/ce
rts/ca-bundle.crt created as /etc/pki/tls/certs/ca-bundle.crt.rpmnew
1488952136::samhain                     warning: /etc/samhainrc created as
/etc/
samhainrc.rpmnew
1488952138::php-common                  #warning: /etc/php.ini created as
/etc/p
hp.ini.rpmnew
1488952209::initscripts                 ##warning: /etc/sysctl.conf created as
/
etc/sysctl.conf.rpmnew
1488952260::mysql-commercial-server     warning: /etc/my.cnf created as
/etc/my.
cnf.rpmnew
1488952291::ntp                         warning: /etc/ntp.conf created as
/etc/n
tp.conf.rpmnew
1488952302::TKLCplat                    ################warning:
/usr/TKLC/plat/
etc/pid_conf created as /usr/TKLC/plat/etc/pid_conf.rpmnew
1488952302::#warning: /usr/TKLC/plat/etc/service_conf created as
/usr/TKLC/plat/
etc/service_conf.rpmnew
1488952320::TKLCalarms                  ###warning:
/usr/TKLC/plat/etc/alarms/al
arms.xml saved as /usr/TKLC/plat/etc/alarms/alarms.xml.rpmsave
1488952328::alarmMgr                    ###warning:
/usr/TKLC/plat/etc/alarmMgr/
alarmMgr.conf created as /usr/TKLC/plat/etc/alarmMgr/alarmMgr.conf.rpmnew
1488952471::WARNING: This capability is not defined in the default
capabilities.
1488952471::WARNING: Nor is it defined in the current hardware ID's
capabilities
.
1488952471::WARNING:  CAPABILITY: service__disabled
1488952471::WARNING: HARDWARE ID: E5APPB
1488952602::sudo                        warning: /etc/sudoers created as
/etc/su
doers.rpmnew
1488952709::WARNING: /usr/TKLC/plat/etc/alarms/alarms_mps.xml has been
updated..
.reparsing xml...
1488952718::TKLCepap-HA
################################warnin
g: group root} does not exist - using root
1488952942::warning:    erase unlink of /usr/TKLC/epap/bin/dbMigration failed:
N                                                                          o
such file or directory
1488952949::WARNING: Module variable EXPECTED_CPUS is deprecated!
1488952951::WARNING: CONFIG:
/usr/TKLC/plat/lib/Syscheck/modules/system/cpu/conf
ig
1488952951::WARNING: Module variable EXPECTED_CPU_ALM is deprecated!
1488952951::WARNING: CONFIG:
/usr/TKLC/plat/lib/Syscheck/modules/system/cpu/conf
ig
```

If it is an incremental upgrade, then consider following error and warning

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

Following errors shall be observed:

```
1530712922::ERROR: Config file is currently checked out!
1530712922::ERROR: LOCKED BY: platcfg
1530712922::ERROR:    CONFIG: /usr/TKLC/plat/etc/vlan.conf
1530712922::ERROR:   ELEMENT: /var/TKLC/rcs/usr/TKLC/plat/etc/vlan.conf,v
.
.
.
1530669414::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/pdb/mysql/columns_priv.MYI'
1530669414::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/pdb/mysql/columns_priv.MYI'
1530669414::
```

```
1530669414::---------
1530669414::
1530669414::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/pdb/mysql/db.MYI'
1530669414::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/pdb/mysql/db.MYI'
1530669414::
1530669414::---------
1530669414::
1530669414::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/pdb/mysql/event.MYI'
1530669414::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/pdb/mysql/event.MYI'
.
.
.

1528826597::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/appconfig/EuiDB/alarmInfo.MYI'

1528826597::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/appconfig/EuiDB/alarmInfo.MYI'

1528826597::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/appconfig/EuiDB/bannerinfo.MYI'

1528826597::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/appconfig/EuiDB/bannerinfo.MYI'..

.

.

.

1533053832::Sorry, user root is not allowed to execute '/bin/chown
epapdev:epap /var/TKLC/epap/logs/queryServer.log' as root on epap136.
1533053832::Sorry, user root is not allowed to execute '/bin/chown
epapdev:epap /var/TKLC/epap/logs/queryServer.log' as root on epap136.

.

.

530094474::libsemanage.semanage_reload_policy: load_policy returned error code
2

1530094474::libsemanage.semanage_reload_policy: load_policy returned error code
2.

.

.1494304768::ERROR: Config file is currently checked out!
1494304781::ERROR: LOCKED BY: platcfg
1494304781::ERROR:    CONFIG: /usr/TKLC/plat/etc/vlan.conf
1494304781::ERROR:   ELEMENT: /var/TKLC/rcs/usr/TKLC/plat/etc/vlan.conf,v
1496215832::Error    : Table 'mysql.innodb_index_stats' doesn't exist
1496215832::Error    : Table 'mysql.innodb_table_stats' doesn't exist
1496215832::Error    : Table 'mysql.slave_master_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_relay_log_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_worker_info' doesn't exist
1496215832::Error    : Table 'mysql.innodb_index_stats' doesn't exist
1496215832::Error    : Table 'mysql.innodb_table_stats' doesn't exist
1496215832::Error    : Table 'mysql.slave_master_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_relay_log_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_worker_info' doesn't exist
1496215832::Error    : Table 'mysql.innodb_index_stats' doesn't exist
1496215832::Error    : Table 'mysql.innodb_table_stats' doesn't exist
1496215832::Error    : Table 'mysql.slave_master_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_relay_log_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_worker_info' doesn't exist
```

Following statement for missing binary file shall be observed in upgrade.log:

```
1530885808::/bin/df: `/mnt/ugchroot/sys': No such file or directory
1542631084::./upgrade_mysql: line 46: /usr/TKLC/epap/bin/pass_fetch: No such
file or directory
```

[NOTE: It is observed only when MySQL upgraded from earlier version than 5.6.18 to version 5.7]

Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F, if the output contains any error other than the above mentioned errors.
Also note that sometime a carriage return is inserted in the log file causing some of the error messages to appear truncated. This is acceptable and should be ignored.

Procedure 18: Upgrade Server B

		$ grep –i warning /var/TKLC/log/upgrade/upgrade.log Examine the output of the above command to determine if any warnings were reported. Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F, if the output contains any warnings beside the following: 1489042076::WARNING: /usr/TKLC/plat/etc/alarms/alarms.xml has been updated...rep arsing xml... 1489042124::warning: erase unlink of /lib/modules/2.6.32-642.6.2.el6prerel7.4 .0.0.0_88.32.0.x86_64/weak-updates failed: No such file or directory 1489042136::warning: erase unlink of /lib/modules/2.6.32-642.6.2.el6prerel7.4 .0.0.0_88.32.0.x86_64/modules.order failed: No such file or directory 1489042136::warning: erase unlink of /lib/modules/2.6.32-642.6.2.el6prerel7.4 .0.0.0_88.32.0.x86_64/modules.networking failed: No such file or directory 1489042136::warning: erase unlink of /lib/modules/2.6.32-642.6.2.el6prerel7.4 .0.0.0_88.32.0.x86_64/modules.modesetting failed: No such file or directory 1489042136::warning: erase unlink of /lib/modules/2.6.32-642.6.2.el6prerel7.4 .0.0.0_88.32.0.x86_64/modules.drm failed: No such file or directory 1489042136::warning: erase unlink of /lib/modules/2.6.32-642.6.2.el6prerel7.4 .0.0.0_88.32.0.x86_64/modules.block failed: No such file or directory 1489042197::WARNING: /usr/TKLC/plat/etc/alarms/alarms_mps.xml has been updated.. .reparsing xml... Refer to section 0 to know more about logging. **NOTE:** provRMTP core might be observed on EPAP after upgrade, if the EPAP is connected to EAGLE. The core should be ignored, it has no impact on traffic running from EPAP to EAGLE.
30. ☐	**MPS B**: Verify the Upgrade.	**$ grep "Upgrade returned success" /var/TKLC/log/upgrade/upgrade.log** Verify that the message "Upgrade returned success!" is displayed. If it is not, contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F. 1400786220:: Upgrade returned success!
31.		After upgrade check for PDB_SUB_CAPACITY uiEdit variable value by below command: **$ uiEdit| grep -i PDB_SUB_CAPACITY** "PDB_SUB_CAPACITY" is set to "528000000" If it is not 528000000 on compact DB architecture, set it to 528000000 using below command. **$ uiEdit "PDB_SUB_CAPACITY" "528000000"** "PDB_SUB_CAPACITY" is set to "528000000"
32. ☐	**MPS B:** Verify that it is an Incremental Upgrade or Major upgrade	Check Procedure 2, Steps 7 and 8. If the upgrade type is a Major upgrade, proceed with the following step. If it's Incremental, proceed to step 34.
33. ☐	**MPS B**: Enable syscheck fs module.	Execute the following command to enable the syscheck fs module. **$ sudo syscheckAdm --enable disk fs**
34.	**MPS B**: Upgrade is	Execute Procedure A.1 on MPS B to verify the health of MPS B.

Procedure 18: Upgrade Server B

☐	complete. Verify Health of MPS B	If this is a Major Upgrade, the syscheck utility will report the "3000000000000002 – Server Internal Disk Error" alarm as the disk mirroring is in progress. The alarm will be cleared after the completion of disk mirroring. Also, the syscheck utility will report the "5000000000000002 - Server Application Process Error" alarm as the Epap processes are not running after the upgrade. Verify that no unexpected alarms are noted. Note: Disk mirroring does not start until the upgrade is accepted. If it is major upgrade Proceed with Procedure A.18 to upgrade SSL certificate.
35. ☐	**MPS B:** Verify that if alarm to accept upgrade is present.	To verify alarm to accept upgrade execute following command: **$ alarmMgr --alarmStatus | grep tpdServerUpgradePendingAccept** Following output shall be observed: `SEQ: 5 UPTIME: 112 BIRTH: 1498203542 TYPE: SET ALARM: TKSPLATMI33|tpdServerUpgradePendingAccept|1.3.6.1.4.1.323.5.3.18.3.1.3.33|32532 |Processing Error|Configuration Error` Note: Disk mirroring does not start until the upgrade is accepted.

36. ☐	**MPS B:**
	Update ssh_config to disable MD5 and MAC algorithm for security
		Perform following steps to disable unsecure algorithm for ssh:
		
		`1. $ grep "MACs hmac-md5,hmac-md5-96," /etc/ssh/ssh_config`
		`If output contains "MACs hmac-md5,hmac-md5-96", execute the below steps 2 and 3. Else go to step 4.`
		`2. $ sudo rcstool co /etc/ssh/ssh_config`
		
		`3. $ sudo sed -i -e '/MACs hmac-md5,hmac-md5-96,hmac-sha1-96/d' /etc/ssh/ssh_config`
		
		`4.$ sudo rcstool ci /etc/ssh/ssh_config`
		
		`4. $  grep "MACs hmac-sha2-256,hmac-sha2-512" /etc/ssh/sshd_config`
		`If no output is displayed for above command continue to next command in step 5 and 6 else skip these steps`
		
		`5. $ sudo rcstool co /etc/ssh/sshd_config`
		
		`6. $ sudo sed -i '$ a \\tMACs hmac-sha2-256,hmac-sha2-512' /etc/ssh/sshd_config`
		
		`7. $ sudo rcstool ci /etc/ssh/sshd_config`
		
		`8. $ sudo service sshd restart`

37. ☐	Update the httpd.conf file to disable the Cache control no-store policy.	Perform the following steps to disable Cache control no-store policy: `1. $ grep "Header set Cache-Control no-store" /etc/httpd/conf/httpd.conf`

Procedure 18: Upgrade Server B

		If the output contains "Header set Cache-Control no-store", Execute the below steps. If no output is displayed for the above command, skip the steps mentioned below. **2. $ sudo sed -i '/Cache-Control no-store/c\#Header set Cache-Control no-store' /etc/httpd/conf/httpd.conf** **3. $ grep "Header set Cache-Control no-store" /etc/httpd/conf/httpd.conf** The output should be "#Header set Cache-Control no-store" showing that the line has been commented. **4. $ sudo service httpd restart**
38. ☐	Reconnect console cable.	On E5-APP-B card, reconnect the console cable between the serial port labeled 'S0' on E5-APP-B B card's adapter and the serial port labeled 'S1' on the E5-APP-B A card's adapter. **Cable part numbers - 830-1220-xx**
39. ☐	Procedure complete.	Procedure is complete.
40. ☐	Note down the timestamp in log.	Run the following command: **$ date**

Procedure 19 Upgrade server A

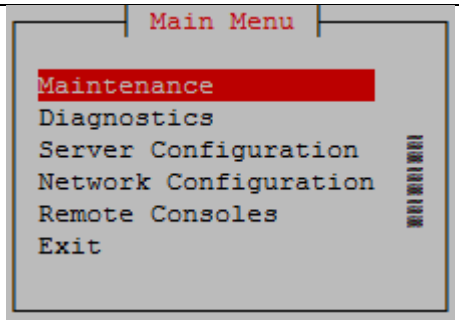
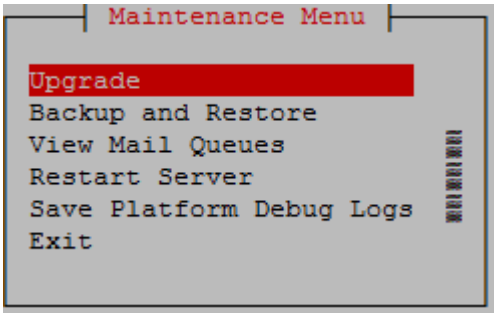
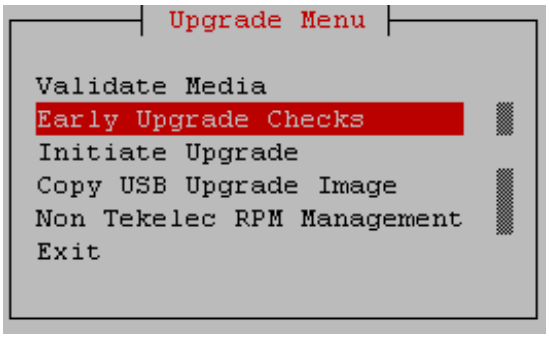
Procedure 19: Upgrade Server A

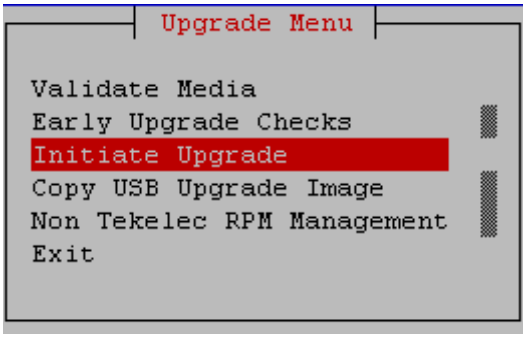
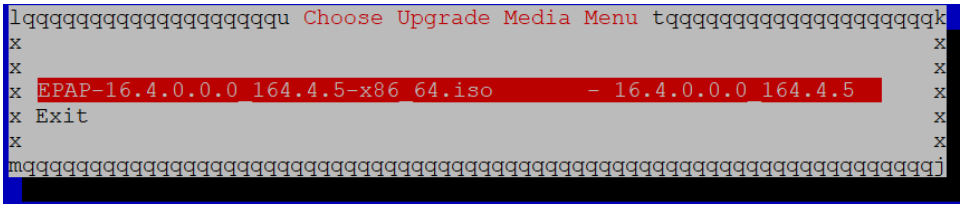
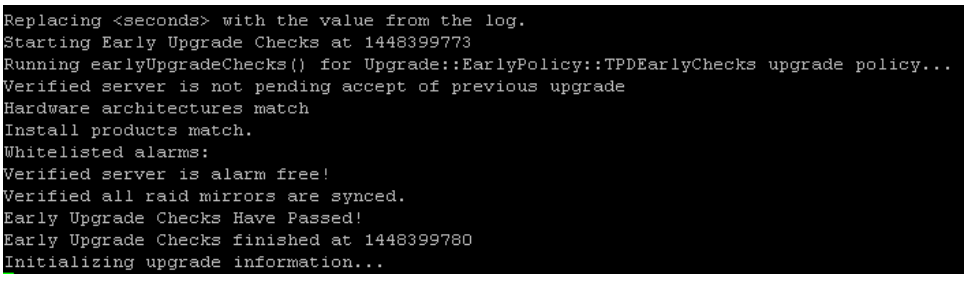
S T E P #	This procedure upgrades the MPS-A server in the EPAP System. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND ASK FOR UPGRADE ASSISTANCE.	
1. ☐	**MPS A**: Determine media available for upgrade.	Perform Procedure A.12 or use an EPAP ISO image to perform upgrade.
2. ☐	Establish a connection to MPS A.	If access to the MPS servers is not available through an IP network, connect to the E5-APP-B card via the serial port. 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** Skip to step 6, if connected through serial console.
3. ☐	Create a terminal window and establish a connection by logging into MPS B. Log in to MPS B.	In a newly created terminal window labeled "MPS B", connect directly into MPS B. **# ssh epapdev@<MPS B>** **Password: <password>**
4. ☐	**MPS B**: Start screen session.	Execute the following commands to start screen and establish a console session to MPS A. **#su - root** **Password**:

Procedure 19: Upgrade Server A

	MPS B: Connect to the console of MPS A.	**$ screen -L** Execute the following command on E5-APP-B: **$ sudo minicom mate** If above command fails then refer to Procedure A.27.
5. ☐	**MPS A**: Login prompt is displayed.	**<hostname> console login:** Note: Hit enter if no login prompt is displayed.
6. ☐	**MPS A:** Log in to the server as the user "epapdev".	**<hostname> console login: epapdev** **password: <password>**
7. ☐	**MPS A:** Verify that it is an Incremental Upgrade. or a Major Upgrade	Check Procedure 2, Steps 7 and 8. If the upgrade type is Major upgrade, proceed with the following step. If it's Incremental, proceed to step 10.
8. ☐	**MPS A**: Disable syscheck fs module.	**$ su - root** **Password:** Execute the following command to disable the syscheck fs module. **# syscheckAdm --disable disk fs**
9. ☐	**MPS A:** Create upgrade.conf for splitting mirrors if this is a Major upgrade.	Create a file (if not already created) and add the line "BACKOUT_TYPE=SPLIT_MIRROR" (to trigger the split mirror upgrade) by executing the following steps: 1. # vi /usr/TKLC/plat/etc/upgrade/upgrade.conf 2.If file already contains some allow listed alarms then append bellow line at the end of the file, otherwise add it to first line: **BACKOUT_TYPE=SPLIT_MIRROR** NOTE: Not performing this step will prevent any successful backout. Execute the following command to verify that the above command has been executed successfully: **# cat /usr/TKLC/plat/etc/upgrade/upgrade.conf** The output should be: [root@MPS-B ~]# cat /usr/TKLC/plat/etc/upgrade/upgrade.conf BACKOUT_TYPE=SPLIT_MIRROR
10. ☐	**MPS A:** Execute the platcfg menu.	**$ su - platcfg**
11. ☐	**MPS A**: Select the Maintenance submenu.	The platcfg **Main Menu** appears. On the **Main Menu**, select **Maintenance** and press **[ENTER]**.

Procedure 19: Upgrade Server A

		
12. ☐	**MPS A**: Select the Upgrade submenu.	Select the **Upgrade** menu and press **[ENTER]**. 
13. ☐	**MPS A**: Select the Early Upgrade Checks submenu.	Select the "Early Upgrade Checks" menu to verify that the system is ready for upgrade.  If the Early Upgrade Checks fail due to the NTP related alarms, then execute step 15. Otherwise, skip to step 16. Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F, if the early upgrade checks fail, due to any other reason.
14. ☐	**MPS A:** Allow List NTP Alarms	1) If the Early Upgrade Checks fail due to the NTP related alarms, then ignore the NTP alarms using the following commands: e. Exit the platcfg menu f. Change to root user using the "su –" command. g. vim /usr/TKLC/plat/etc/upgrade/upgrade.conf h. Edit the following line to include the NTP related alarms. EARLY_CHECK_ALARM_WHITELIST=TKSPLATMI2 For example – To allowlist the NTP alarm "tpdNTPDaemonNotSynchronizedWarning" which has the alarm code TKLCPLATMI10, the above mentioned line should be edited as EARLY_CHECK_ALARM_WHITELIST=TKSPLATMI2,TKSPLATMI10 Note: There should not be any space between two alarms i.e. between TKSPLATMI2 and TKSPLATMI10

		2) If the Early Upgrade Checks fail due to "Server Default Route Network Error", then this alarm shall be allowlisted in upgrade.conf file. To allowlist this alarm which has the alarm code TKSPLATMA14, the above mentioned line should be edited as EARLY_CHECK_ALARM_WHITELIST=TKSPLATMI2,TKSPLATMI10, TKSPLATMA14
15. ☐	**MPS A**: Select Initiate Upgrade.	Select the **Initiate Upgrade** menu and press **[ENTER]**. 
16. ☐	**MPS A**: Select the Upgrade Media.	The screen will display a message that it is searching for upgrade media. Once the upgrade media is found, an Upgrade Media selection menu will be displayed similar to the example shown below. Select the upgrade media on ISO image. There should only be one selection available, as shown in the example below. If there is more than one selection available, contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F. 
17. ☐	**MPS A**: Upgrade proceeds.	The screen displays the following, indicating that the upgrade software is first running the early upgrade checks, and then proceeding with the upgrade. 
18. ☐	**MPS A**: Upgrade proceeds.	Many informational messages will come across the terminal screen as the upgrade proceeds. Finally, after upgrade is complete, the server will reboot.

Procedure 19: Upgrade Server A

19. ☐	**MPS A**: Upgrade completed.	After the final reboot, Press Enter , the screen will display the login prompt, as shown in the example below. Starting smartd: [OK] Daemon is not running... AlarmMgr daemon is not running, delaying by 1 minute TKLChwmgmtcli stop/pre-start, process 9750 TPDhpDiskStatus stop/pre-start, process 9782 Oracle Linux Server release 6.9 Kernel 2.6.32-696.20.1.el6prerel7.6.0.0.0_88.47.0.x86_64 on an x86_64 Arica-A login:
20. ☐	**MPS A**: Log in to the server as the user "epapdev".	**<hostname> console login: epapdev** **password: <password>** Note: The SSH login for root shall get enabled after the upgrade.
21. ☐	**MPS A**: Verify the Upgrade.	Examine the upgrade logs in the directory /var/TKLC/log/upgrade and verify that no errors and warnings were reported. Check Procedure 2, Steps 7 and 8 to determine whether it is incremental or major upgrade. If it is major upgrade then consider following **$ grep -i error /var/TKLC/log/upgrade/upgrade.log** **Following errors shall be observed:** 1530712922::ERROR: Config file is currently checked out! 1530712922::ERROR: LOCKED BY: platcfg 1530712922::ERROR: CONFIG: /usr/TKLC/plat/etc/vlan.conf 1530712922::ERROR: ELEMENT: /var/TKLC/rcs/usr/TKLC/plat/etc/vlan.conf,v . . 1530669414::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/columns_priv.MYI' 1530669414::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/columns_priv.MYI' 1530669414:: 1530669414::--------- 1530669414:: 1530669414::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/db.MYI' 1530669414::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/db.MYI' 1530669414:: 1530669414::--------- 1530669414:: 1530669414::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/event.MYI' 1530669414::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/event.MYI' . . 1528826597::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/alarmInfo.MYI' 1528826597::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/alarmInfo.MYI' 1528826597::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/bannerinfo.MYI' 1528826597::myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/bannerinfo.MYI' . . 1533053832::Sorry, user root is not allowed to execute '/bin/chown epapdev:epap /var/TKLC/epap/logs/queryServer.log' as root on epap136. 1533053832::Sorry, user root is not allowed to execute '/bin/chown

```
epapdev:epap /var/TKLC/epap/logs/queryServer.log' as root on epap136.

.

.

530094474::libsemanage.semanage_reload_policy: load_policy returned error code
2

1530094474::libsemanage.semanage_reload_policy: load_policy returned error code
2.

.

.
1496215832::Error    : Table 'mysql.innodb_index_stats' doesn't exist
1496215832::Error    : Table 'mysql.innodb_table_stats' doesn't exist
1496215832::Error    : Table 'mysql.slave_master_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_relay_log_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_worker_info' doesn't exist
1496215832::Error    : Table 'mysql.innodb_index_stats' doesn't exist
1496215832::Error    : Table 'mysql.innodb_table_stats' doesn't exist
1496215832::Error    : Table 'mysql.slave_master_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_relay_log_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_worker_info' doesn't exist
1496215832::Error    : Table 'mysql.innodb_index_stats' doesn't exist
1496215832::Error    : Table 'mysql.innodb_table_stats' doesn't exist
1496215832::Error    : Table 'mysql.slave_master_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_relay_log_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_worker_info' doesn't exist
```

Following errors shall be observed if upgrade is performed on a setup which was converted from Prov to Non Prov:

```
1529314607::Error    : Table 'pdb.LicenseInfo' doesn't exist
1529314607::status   : Operation failed
1529314607::pdb.asd
1529314607::Error    : Table 'pdb.asd' doesn't exist
1529314607::status   : Operation failed
1529314607::pdb.bucketContent
1529314607::Error    : Table 'pdb.bucketContent' doesn't exist
1529314607::status   : Operation failed
1529314607::pdb.bucketMap
1529314607::Error    : Table 'pdb.bucketMap' doesn't exist
1529314607::status   : Operation failed
1529314607::pdb.commands
1529314607::Error    : Table 'pdb.commands' doesn't exist
1529314607::status   : Operation failed
1529314607::pdb.dn
1529314607::Error    : Table 'pdb.dn' doesn't exist
1529314607::status   : Operation failed
1529314607::pdb.dn9dig
1529314607::Error    : Table 'pdb.dn9dig' doesn't exist
1529314607::status   : Operation failed
1529314607::pdb.dnB_asd
```

Following statement for missing binary file shall be observed in upgrade.log:

```
1530885808::/bin/df: `/mnt/ugchroot/sys': No such file or directory
1542631084::./upgrade_mysql: line 46: /usr/TKLC/epap/bin/pass_fetch: No such
file or directory
```

[NOTE: It is observed only when MySQL upgraded from earlier version than 5.6.18 to version 5.7]

Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F, if the output contains any error other than the above mentioned errors.
Also note that sometime a carriage return is inserted in the log file causing some of the error messages to appear truncated. This is acceptable and should be ignored.

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

Examine the output of the above command to determine if any warnings were reported. Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F, if the output contains any warnings beside the following:

```
1488951825::WARNING: /usr/TKLC/plat/etc/alarms/alarms.xml has been
```

```
updated...reparsing xml...
1530712185::WARNING: This capability is not defined in the default
capabilities.
1530712186::WARNING: Nor is it defined in the current hardware ID's
capabilities.
1530712186::WARNING:  CAPABILITY: service__disabled
1530712186::WARNING: HARDWARE ID: E5APPB
1530856895::mysql: [Warning] Using a password on the command line interface can
be insecure.
1530857005::mysql: [Warning] Using a password on the command line interface can
be insecure.
1488951890::warning:    erase unlink of /lib/modules/2.6.32-
573.18.1.el6prerel7.
0.3.0.0_86.44.0.x86_64/weak-updates failed: No such file or directory
1488951902::warning:    erase unlink of /lib/modules/2.6.32-
573.18.1.el6prerel7.
0.3.0.0_86.44.0.x86_64/modules.softdep failed: No such file or directory
1488951902::warning:    erase unlink of /lib/modules/2.6.32-
573.18.1.el6prerel7.
0.3.0.0_86.44.0.x86_64/modules.order failed: No such file or directory
1488951902::warning:    erase unlink of /lib/modules/2.6.32-
573.18.1.el6prerel7.
0.3.0.0_86.44.0.x86_64/modules.networking failed: No such file or directory
1488951902::warning:    erase unlink of /lib/modules/2.6.32-
573.18.1.el6prerel7.
0.3.0.0_86.44.0.x86_64/modules.modesetting failed: No such file or directory
1488951902::warning:    erase unlink of /lib/modules/2.6.32-
573.18.1.el6prerel7.
0.3.0.0_86.44.0.x86_64/modules.drm failed: No such file or directory
1488951902::warning:    erase unlink of /lib/modules/2.6.32-
573.18.1.el6prerel7.
0.3.0.0_86.44.0.x86_64/modules.block failed: No such file or directory
1488951903::kexec-tools                 #warning: /etc/kdump.conf created as
/et
c/kdump.conf.rpmnew
1488952115::ca-certificates             ################warning:
/etc/pki/tls/ce
rts/ca-bundle.crt created as /etc/pki/tls/certs/ca-bundle.crt.rpmnew
1488952136::samhain                     warning: /etc/samhainrc created as
/etc/
samhainrc.rpmnew
1488952138::php-common                  #warning: /etc/php.ini created as
/etc/p
hp.ini.rpmnew
1488952209::initscripts                 ##warning: /etc/sysctl.conf created as
/
etc/sysctl.conf.rpmnew
1488952260::mysql-commercial-server     warning: /etc/my.cnf created as
/etc/my.
cnf.rpmnew
1488952291::ntp                         warning: /etc/ntp.conf created as
/etc/n
tp.conf.rpmnew
1488952302::TKLCplat                    ################warning:
/usr/TKLC/plat/
etc/pid_conf created as /usr/TKLC/plat/etc/pid_conf.rpmnew
1488952302::#warning: /usr/TKLC/plat/etc/service_conf created as
/usr/TKLC/plat/
etc/service_conf.rpmnew
1488952320::TKLCalarms                  ###warning:
/usr/TKLC/plat/etc/alarms/al
arms.xml saved as /usr/TKLC/plat/etc/alarms/alarms.xml.rpmsave
1488952328::alarmMgr                    ###warning:
/usr/TKLC/plat/etc/alarmMgr/
alarmMgr.conf created as /usr/TKLC/plat/etc/alarmMgr/alarmMgr.conf.rpmnew
1488952471::WARNING: This capability is not defined in the default
capabilities.
1488952471::WARNING: Nor is it defined in the current hardware ID's
capabilities
.
1488952471::WARNING:  CAPABILITY: service__disabled
1488952471::WARNING: HARDWARE ID: E5APPB
1488952602::sudo                        warning: /etc/sudoers created as
/etc/su
doers.rpmnew
1488952709::WARNING: /usr/TKLC/plat/etc/alarms/alarms_mps.xml has been
updated..
.reparsing xml...
1488952718::TKLCepap-HA
##################################warnin
g: group root} does not exist - using root
1488952942::warning:    erase unlink of /usr/TKLC/epap/bin/dbMigration failed
No such file or directory
1488952949::WARNING: Module variable EXPECTED_CPUS is deprecated!
1488952951::WARNING: CONFIG:
/usr/TKLC/plat/lib/Syscheck/modules/system/cpu/conf
ig
1488952951::WARNING: Module variable EXPECTED_CPU_ALM is deprecated!
1488952951::WARNING: CONFIG:
```

```
/usr/TKLC/plat/lib/Syscheck/modules/system/cpu/conf
ig
```

If it is an incremental upgrade then consider following

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

Following errors shall be observed:

```
1530712922::ERROR: Config file is currently checked out!
1530712922::ERROR: LOCKED BY: platcfg
1530712922::ERROR:    CONFIG: /usr/TKLC/plat/etc/vlan.conf
1530712922::ERROR:   ELEMENT: /var/TKLC/rcs/usr/TKLC/plat/etc/vlan.conf,v
.
.
1530669414::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/pdb/mysql/columns_priv.MYI'
1530669414::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/pdb/mysql/columns_priv.MYI'
1530669414::
1530669414::---------
1530669414::
1530669414::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/pdb/mysql/db.MYI'
1530669414::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/pdb/mysql/db.MYI'
1530669414::
1530669414::---------
1530669414::
1530669414::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/pdb/mysql/event.MYI'
1530669414::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/pdb/mysql/event.MYI'
.
.

1528826597::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/appconfig/EuiDB/alarmInfo.MYI'

1528826597::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/appconfig/EuiDB/alarmInfo.MYI'

1528826597::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/appconfig/EuiDB/bannerinfo.MYI'

1528826597::myisamchk: error: 140 when opening MyISAM-table
'/var/TKLC/epap/db/appconfig/EuiDB/bannerinfo.MYI'

.

.

1533053832::Sorry, user root is not allowed to execute '/bin/chown
epapdev:epap /var/TKLC/epap/logs/queryServer.log' as root on epap136.
1533053832::Sorry, user root is not allowed to execute '/bin/chown
epapdev:epap /var/TKLC/epap/logs/queryServer.log' as root on epap136.

.

.

530094474::libsemanage.semanage_reload_policy: load_policy returned error code
2

1530094474::libsemanage.semanage_reload_policy: load_policy returned error code
2.

.

.
1494304768::ERROR: Config file is currently checked out!
1494304781::ERROR: LOCKED BY: platcfg
1494304781::ERROR:    CONFIG: /usr/TKLC/plat/etc/vlan.conf
1494304781::ERROR:   ELEMENT: /var/TKLC/rcs/usr/TKLC/plat/etc/vlan.conf,v
1496215832::Error    : Table 'mysql.innodb_index_stats' doesn't exist
1496215832::Error    : Table 'mysql.innodb_table_stats' doesn't exist
1496215832::Error    : Table 'mysql.slave_master_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_relay_log_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_worker_info' doesn't exist
1496215832::Error    : Table 'mysql.innodb_index_stats' doesn't exist
1496215832::Error    : Table 'mysql.innodb_table_stats' doesn't exist
1496215832::Error    : Table 'mysql.slave_master_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_relay_log_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_worker_info' doesn't exist
1496215832::Error    : Table 'mysql.innodb_index_stats' doesn't exist
1496215832::Error    : Table 'mysql.innodb_table_stats' doesn't exist
1496215832::Error    : Table 'mysql.slave_master_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_relay_log_info' doesn't exist
1496215832::Error    : Table 'mysql.slave_worker_info' doesn't exist
```

Following errors shall be observed if upgrade is performed on a setup which was converted from Prov to Non Prov:

```
1529314607::Error    : Table 'pdb.LicenseInfo' doesn't exist
1529314607::status   : Operation failed
1529314607::pdb.asd
1529314607::Error    : Table 'pdb.asd' doesn't exist
1529314607::status   : Operation failed
1529314607::pdb.bucketContent
1529314607::Error    : Table 'pdb.bucketContent' doesn't exist
1529314607::status   : Operation failed
1529314607::pdb.bucketMap
1529314607::Error    : Table 'pdb.bucketMap' doesn't exist
1529314607::status   : Operation failed
1529314607::pdb.commands
1529314607::Error    : Table 'pdb.commands' doesn't exist
1529314607::status   : Operation failed
1529314607::pdb.dn
1529314607::Error    : Table 'pdb.dn' doesn't exist
1529314607::status   : Operation failed
1529314607::pdb.dn9dig
1529314607::Error    : Table 'pdb.dn9dig' doesn't exist
1529314607::status   : Operation failed
1529314607::pdb.dnB_asd
```

Following statement for missing binary file shall be observed in upgrade.log:

```
1530885808::/bin/df: `/mnt/ugchroot/sys': No such file or directory
1542631084::./upgrade_mysql: line 46: /usr/TKLC/epap/bin/pass_fetch: No such
file or directory
```

[NOTE: It is observed only when MySQL upgraded from earlier version than 5.6.18 to version 5.7]

Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F, if the output contains any error other than the above-mentioned errors.
Also note that sometime a carriage return is inserted in the log file causing some of the error messages to appear truncated. This is acceptable and should be ignored.

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

Examine the output of the above command to determine if any warnings were reported. Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F, if the output contains any warnings beside the following:

```
1489042076::WARNING: /usr/TKLC/plat/etc/alarms/alarms.xml has been
updated...rep
arsing xml...
1489042124::warning:    erase unlink of /lib/modules/2.6.32-
642.6.2.el6prerel7.4
.0.0.0_88.32.0.x86_64/weak-updates failed: No such file or directory
1489042136::warning:    erase unlink of /lib/modules/2.6.32-
642.6.2.el6prerel7.4
.0.0.0_88.32.0.x86_64/modules.order failed: No such file or directory
1489042136::warning:    erase unlink of /lib/modules/2.6.32-
642.6.2.el6prerel7.4
.0.0.0_88.32.0.x86_64/modules.networking failed: No such file or directory
1489042136::warning:    erase unlink of /lib/modules/2.6.32-
642.6.2.el6prerel7.4
.0.0.0_88.32.0.x86_64/modules.modesetting failed: No such file or directory
1489042136::warning:    erase unlink of /lib/modules/2.6.32-
642.6.2.el6prerel7.4
.0.0.0_88.32.0.x86_64/modules.drm failed: No such file or directory
1489042136::warning:    erase unlink of /lib/modules/2.6.32-
642.6.2.el6prerel7.4
.0.0.0_88.32.0.x86_64/modules.block failed: No such file or directory
1489042197::WARNING: /usr/TKLC/plat/etc/alarms/alarms_mps.xml has been
updated..
.reparsing xml...
```

Refer to section 0 to know more about logging.

Procedure 19: Upgrade Server A

		NOTE: provRMTP core might be observed on EPAP after upgrade, if the EPAP is connected to EAGLE. The core should be ignored, it has no impact on traffic running from EPAP to EAGLE.

22. ☐	**MPS A:** Verify the Upgrade.	`$ grep "Upgrade returned success" /var/TKLC/log/upgrade/upgrade.log`
		
		Verify that the message "Upgrade returned success!" is displayed. If it is not, contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F.
		
		`1400793814::  Upgrade returned success!`

23.		After upgrade check for PDB_SUB_CAPACITY uiEdit variable value by below command:
		
		`$ uiEdit| grep -i PDB_SUB_CAPACITY`
		"PDB_SUB_CAPACITY" is set to "528000000"
		
		If it is not 528000000 on compact DB architecture, set it to 528000000 using below command.
		
		`$ uiEdit "PDB_SUB_CAPACITY" "528000000"`
		"PDB_SUB_CAPACITY" is set to "528000000"

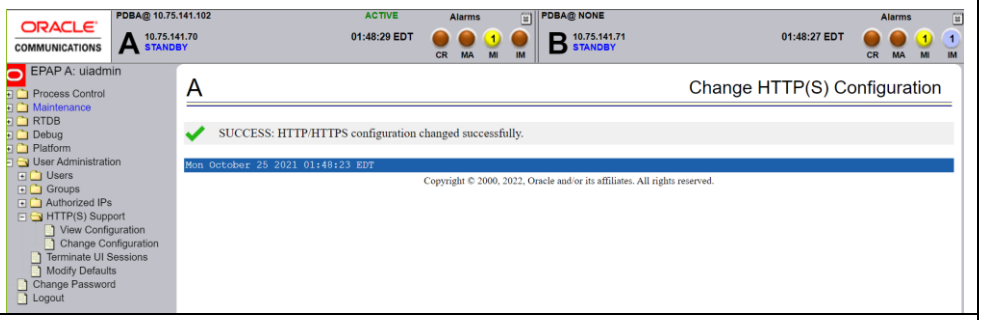
24. ☐	**MPS A:** Verify that it is an Incremental Upgrade. or Major Upgrade	Check Procedure 2, Steps 7 and 8. If the upgrade type is Major upgrade, proceed with the following step. If it's Incremental, proceed to step 26.

25. ☐	**MPS A:** Enable syscheck fs module.	`$ su - root`
		`Password:`
		
		Execute the following command to enable the syscheck fs module.
		# syscheckAdm --enable disk fs

26. ☐	**MPS A**: Upgrade is complete. Verify Health of MPS A	Execute Procedure A.1 on MPS A to verify the health of MPS A. On a Provisionable(mixed-EPAP or PDBonly) MPS, expect that the syscheck utility will alarm the fact that the PDBA software is not running. This will appear as a "5000000000000002 – Server Application Process Error" alarm. If this is a Major Upgrade, the syscheck utility will report the "3000000000000002 – Server Internal Disk Error" alarm as the disk mirroring is in progress. The alarm will be cleared after the completion of disk mirroring. Verify that no unexpected alarms are noted. If it is major upgrade, Proceed with Procedure A.18 to upgrade SSL certificate.
27. ☐	**MPS A:** Verify that if alarm to accept upgrade is present.	To verify alarm to accept upgrade execute following command: **$ alarmMgr --alarmStatus | grep tpdServerUpgradePendingAccept** Following output shall be observed: `SEQ: 5 UPTIME: 112 BIRTH: 1498203542 TYPE: SET ALARM: TKSPLATMI33|tpdServerUpgradePendingAccept|1.3.6.1.4.1.323.5.3.18.3.1.3.33|32532 |Processing Error|Configuration Error` Note: Disk mirroring does not start until the upgrade is accepted.

Procedure 19: Upgrade Server A

28. ☐	**MPS B:** Loginn as epapdev user.	**<hostname> console login: epapdev** **password: <password>**
29. ☐	**MPS B:** Reboot MPS B server.	Reboot MPS-B to disable the root login. Switch to root user. **$ su – root** **Password:** Reboot the server: **$ reboot** Wait til the reboot gets completed.
30. ☐	**MPS A:** Enable PDBA proxy and VIP features.	If PDBA Proxy Enabled = Yes, in the step 14 of Procedure 18, then execute Procedure A.20 to enable Epap PDBA Proxy and VIP Features. Otherwise, skip this step.
31. ☐	**MPS A:** Check services for query server.	**$ epapdb -c queryservers** If query server is not configured i.e. INFO: No Query Server Configured, then skip this step otherwise Execute 6 to restart MYSQL service for PDB on query server.
32. ☐	**MPS A:** Update ssh_config to disable MD5 and MAC algorithm for security	Perform following steps to disable unsecure algorithm for ssh: **1. $ grep "MACs hmac-md5,hmac-md5-96," /etc/ssh/ssh_config** If output contains "MACs hmac-md5,hmac-md5-96", execute the below steps 2 and 3. Else go to step 4. **2. $ sudo rcstool co /etc/ssh/ssh_config** **3. $ sudo sed -i -e '/MACs hmac-md5,hmac-md5-96,hmac-sha1-96/d' /etc/ssh/ssh_config** **4.$ sudo rcstool ci /etc/ssh/ssh_config** **4. $ grep "MACs hmac-sha2-256,hmac-sha2-512" /etc/ssh/sshd_config** If no output is displayed for above command continue to next command in step 5 and 6 else skip these steps **5. $ sudo rcstool co /etc/ssh/sshd_config** **6. $ sudo sed -i '$ a \\tMACs hmac-sha2-256,hmac-sha2-512' /etc/ssh/sshd_config** **7. $ sudo rcstool ci /etc/ssh/sshd_config** **8. $ sudo service sshd restart**
33.	Update the httpd.conf file to disable the Cache control no-store policy.	Perform the following steps to disable Cache control no-store policy: **1. $ grep "Header set Cache-Control no-store" /etc/httpd/conf/httpd.conf** If the output contains "Header set Cache-Control no-store", Execute the below steps. If no output is displayed for the above command, skip the steps mentioned below.

		2. $ sudo sed -i '/Cache-Control no-store/c\#Header set Cache-Control no-store' /etc/httpd/conf/httpd.conf **3. $ grep "Header set Cache-Control no-store" /etc/httpd/conf/httpd.conf** The output should be "#Header set Cache-Control no-store" showing that the line has been commented. **4. $ sudo service httpd restart**
34. ☐	**MPS A:** If HTTP was enabled for EPAP GUI before upgrade, follow this step otherwise skip it.	If HTTP was enabled before upgrade, follow below mentioned steps. • Open EPAP GUI in HTTPS mode. • Navigate to User Administration tab on GUI -> HTTP(S) support -> Change Configuration. • Disable HTTP mode, if it shows HTTP mode as enabled. • Enable the HTTP mode again as shown in image below. The HTTP mode should get enabled successfully. Now you can open the EPAP GUI in HTTP mode. 
35. ☐	Reconnect console cable.	On E5-APP-B card, reconnect the console cable between the serial port labeled 'S0' on E5-APP-B A card's adapter and the serial port labeled 'S1' on the E5-APP-B B card's adapter. **Cable part numbers - 830-1220-xx**
36. ☐	Procedure is complete.	Procedure is complete. **Note: If upgrading an EPAP Provisionable mated pair and you have just completed this procedure for the Local MPS A and MPS B. Repeat the same procedures to upgrade the Remote Pair. See Section 0 for more information.**
37. ☐	Note down the timestamp in log.	Run the following command: `$ date`

Procedure 20 Run RTDB Converter

Procedure 20: Run RTDB Converter

S T E P #	This procedure runs RTDB converter to update rtdb database as per new schema. This procedure should not be run on PDBonly setup. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.** **Note: This step can be run on MPS A	
1. ☐	**MPS A:** Log in to the server as the user "epapdev".	`<hostname> console login: epapdev` `password: <password>`
2. ☐	**MPS A:** Run RTDB converter script	`$ cd /usr/TKLC/epap/bin` If system is in compact architecture as noted in step 10 of Procedure 2 run below command: **$ ./ rtdbEpap164CompactToCompactConvertTool** If system is in extreme as noted in step 10 of Procedure 2 architecture run below command: **$ ./ rtdbEpap164ExtremeToExtremeConvertTool** **Many informational Messages will be displayed on screen. If this script fails contact My Oracle Support.**
3. ☐	Reboot Eagle cards.	Execute **Procedure 21** on the Eagle STP connected to the EPAP servers to reload SM cards.
4. ☐	Procedure is complete	Procedure is complete.
5. ☐	Note down the timestamp in log.	Run the following command: `$ date`

Procedure 21 Reboot EAGLE Cards

Procedure 21: Reboot EAGLE Cards

This procedure reboots EAGLE cards to reload new RTDB. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
EAGLE: reboot all SM cards to reload new RTDB.	Note: Before rebooting EAGLE cards, check whether the EPAP software is running or not. If EPAP software is not running then start it manually by below commands. Execute the below steps on EPAP: $ **service Epap status** Start the EPAP software, if the above command shows that software is not running. If service EPAP shows that software is running, there is no need to run next command.

Procedure 21: Reboot EAGLE Cards

	$ **service Epap start** ~~ /etc/init.d/Epap start ~~ EPAP application started. Login onto the connected EAGLE. Reboot 1 SM card on the EAGLE and verify that it comes back to an IS-NR/Active state. Then boot the rest of the EAGLE SM cards over 4 batches (booting 1/4 of the cards at a single time).
Procedure is complete	Procedure is complete.
Note down the timestamp in log.	Run the following command: **$ date**

Procedure 22 Accept Upgrade

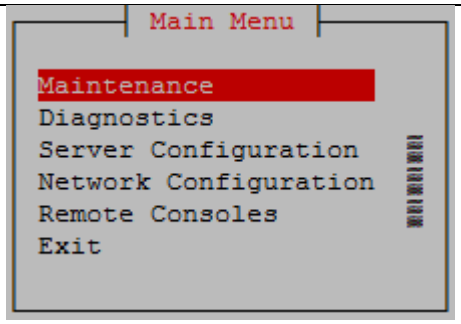
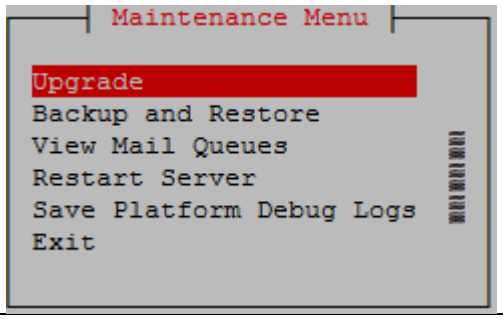
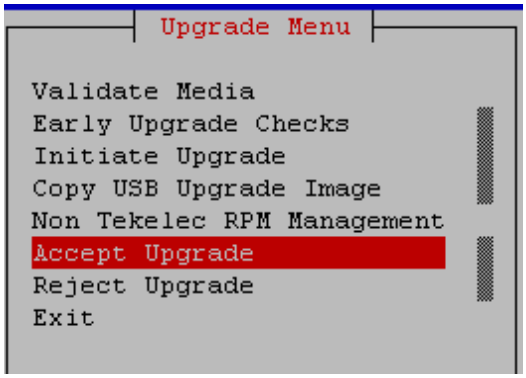
Note: If the upgrade is accepted, Backout cannot be performed.

Procedure 22: Accept upgrade

S T E P #	This procedure accept the upgrade to perform the upgrade process. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
6. ☐	**MPS:** Login as admusr.	Login as admusr if not already loged in. **<hostname> login: admusr** **Password:** Note: The console logon may preced by many lines of reboot output.
7. ☐	**MPS:** Verify if alarmMgr process running.	**$ sudo ls /var/run/alarmMgr** If the file exists, proceed to the next step. If the file does not exist, contact Oracle Customer Service.
8. ☐	**MPS:** Execute the platcfg menu.	**$ sudo su – platcfg**
9. ☐	**MPS:** Select the Maintenance submenu.	The platcfg **Main Menu** appears. On the **Main Menu**, select **Maintenance** and press **[ENTER]**.

Note: If the upgrade is accepted, Backout cannot be performed.

Procedure 22: Accept upgrade

		
10. ☐	**MPS**: Select the Upgrade submenu.	Select the **Upgrade** menu and press **[ENTER]**. 
11. ☐	**MPS**: Select the Upgrade submenu.	If you have not already accepted the upgrade, do so now, otherwise skip this step.  **Note**: If you still observe the accept upgrade message even after the disks get mirrored properly after accepting the upgrade for the first time, follow the steps mentioned in

Note: If the upgrade is accepted, Backout cannot be performed.

Procedure 22: Accept upgrade

		APPENDIX A.30 to remove the false accept upgrade alarm from the system.
12. ☐	Procedure is complete	Procedure is complete.
13. ☐	Note down the timestamp in log.	Run the following command: `$ date`

Procedure 23 Keys exchange between active and standby PDB

Procedure 23: Keys exchange between active PDB and standby PDB

S T E P #	This procedure Exchange the keys between active and remote PDB. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	

1.	**MPS A:** Login to Active PDB EPAP as the user "epapdev".	If not already logged-in, then login at MPS A of active PDB EPAP:
		`<hostname> console login: epapdev`
		`password: <password>`

2. ☐	**MPS A**: Verify that PDB entry are present in known_hosts file.	Execute following command to verify that pdb entry present in known_hosts file: **$ cat .ssh/known_hosts** If entry is present skip next step

3. ☐	**MPS A:** Exchange the keys from **Active PDB**	Execute the following command on Active PDB:
		$ ssh epapdev@<remote PDB IP>
		Are you sure you want to continue connecting (yes/no)? <yes>
		Password:
		`Snapshot for reference:`
		`[epapdev@Recife-A ~]$ ssh epapdev@10.75.141.104`
		`FIPS integrity verification test failed.`
		`The authenticity of host '10.75.141.104 (10.75.141.104)' can't be established.`
		`RSA key fingerprint is d4:d5:94:c6:57:1a:30:25:bc:b0:67:f9:f7:07:c6:68.`
		`Are you sure you want to continue connecting (yes/no)? yes`
		`Warning: Permanently added '10.75.141.104' (RSA) to the list of known hosts.`
		`epapdev@10.75.141.104's password:`

4.	**MPS A:** Login to Standby PDB EPAP as the user "epapdev".	If not already logged-in, then login at MPS A of standby PDB EPAP:
		`<hostname> console login: epapdev`
		`password: <password>`

5. ☐	**MPS:** Exchange the keys from **Standby PDB**	Repeat the step 2 and step3 to exchange the keys from standby PDB as well.
6. ☐	Procedure is complete	Procedure is complete.
7.	Note down the	Run the following command:

Procedure 23: Keys exchange between active PDB and standby PDB

☐	timestamp in log.	`$ date`

THIS COMPLETES THE UPGRADE

6. SOFTWARE 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 My Oracle Support, following the instructions on the front page or the instructions on the Appendix F.

NOTE: These recovery procedures are provided for the backout of an Upgrade ONLY (i.e., from a failed 16.3.y release to the previously installed 16.3.x release). Backout of an initial installation is not supported.

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.

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

Perform 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. Refer to section 0 and section 0for the Backout process overview.

Procedure 24 Server B Backout

Procedure 24: Server B Backout

S T E P #	This procedure provides instructions to perform backout on MPS B server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. **Note: Execute this procedure if only MPS B has been upgraded successfully and MPS A is still at the pre-upgrade release.** **Note: If the upgrade has been accepted, this procedure cannot be executed.**	
1. ☐	Terminate all previous connections (ssh).	If not already connected, connect to the E5-APP-B card via the serial port. For connecting the E5-APP-B B card, disconnect the console cable from the serial port on the E5-APP-B A card's adapter. The cable should be disconnected at the point where it connects to the serial port labeled 'S1' on the E5-APP-B A cards adapter and use it for serial access. **Cable part numbers - 830-1220-xx**

Procedure 24: Server B Backout

		Skip to step 5, if connected through serial console.

2. ☐	Create a terminal window and establish a connection by logging into MPS A.
	
	Log in to MPS A.
		In a newly created terminal window labeled "MPS B – from MPS A", connect directly into MPS A.
		
		`# ssh admusr@<MPS A>`
		`Password: <password>`

3. ☐	**MPS A:** Verify that the state of PDBA Proxy Feature is No.
	
	Note: Skip this step for Non-Prov and PDBonly EPAP.
		`# sudo su - epapconfig`
		
		`/-----EPAP Configuration Menu----------\`
		`/----------------------------------------\`
		`|  1 | Display Configuration  |`
		`|----|----------------------------|`
		`|  2 | Configure Network Interfaces Menu |`
		`|----|----------------------------|`
		`|  3 | Set Time Zone  |`
		`|----|----------------------------|`
		`|  4 | Exchange Secure Shell Keys  |`
		`|----|----------------------------|`
		`|  5 | Change Password  |`
		`|----|----------------------------|`
		`|  6 | Platform Menu  |`
		`|----|----------------------------|`
		`|  7 | Configure NTP Server  |`
		`|----|----------------------------|`
		`|  8 | PDB Configuration Menu  |`
		`|----|----------------------------|`
		`|  9 | Security  |`
		`|----|----------------------------|`
		`| 10 | SNMP Configuration  |`
		`|----|----------------------------|`
		`| 11 | Configure Alarm Feed  |`
		`|----|----------------------------|`
		`| 12 | Configure Query Server  |`
		`|----|----------------------------|`
		`| 13 | Configure Query Server Alarm Feed |`
		`|----|----------------------------|`
		`| 14 | Configure SNMP Agent Community  |`
		`|----|----------------------------|`
		`| 15 | Mate Disaster Recovery  |`
		`|----|----------------------------|`
		`|  e | Exit  |`
		`\----------------------------------------/`
		
		`Enter Choice: 1`
		`EPAP A Provisioning Network IP Address = 192.168.61.115`
		`EPAP B Provisioning Network IP Address = 192.168.61.116`
		`Provisioning Network Netmask  = 255.255.255.0`
		`Provisioning Network Default Router  = 192.168.61.1`
		`EPAP A Backup Prov Network IP Address  = Not configured`
		`EPAP B Backup Prov Network IP Address  = Not configured`
		`Backup Prov Network Netmask  = Not configured`
		`Backup Prov Network Default Router  = Not configured`
		`EPAP A Sync Network Address  = 192.168.2.100`
		`EPAP B Sync Network Address  = 192.168.2.200`
		`EPAP A Main DSM Network Address  = 192.168.120.100`

		EPAP B Main DSM Network Address = 192.168.120.200 EPAP A Backup DSM Network Address = 192.168.121.100 EPAP B Backup DSM Network Address = 192.168.121.200 EPAP A HTTP Port = 80 EPAP B HTTP Port = 80 EPAP A HTTP SuExec Port = 8001 EPAP B HTTP SuExec Port = 8001 EPAP A Banner Connection Port = 8473 EPAP B Banner Connection Port = 8473 EPAP A Static NAT Address = Not configured EPAP B Static NAT Address = Not configured PDBI Port = 5873 Remote MPS A Static NAT Address = Not configured Remote MPS A HTTP Port = 80 Local Provisioning VIP = 192.168.15.152 Remote Provisioning VIP = 192.168.15.172 Local PDBA Address = 192.168.15.115 Remote PDBA Address = 192.168.16.115 Remote PDBA B Address = 192.168.16.116 Time Zone = America/New_York PDB Database = Exists Preferred PDB = Standby Allow updates from alternate PDB = Yes Auto DB Recovery Enabled = Yes PDBA Proxy Enabled = **Yes** If `PDBA Proxy Enabled = Yes` then **Execute Procedure A.19 on both PDBA Active and Standby for dual PDBA setup to disable EPAP VIP and PDBA proxy features.** Otherwise, if PDBA Proxy Enabled = No, then proceed with the next step.
4. ☐	**MPS A**: Clear PDB replication logs	If `PDBA Proxy Enabled = Yes` then Execute Procedure A.29 to clear replication logs Otherwise, if PDBA Proxy Enabled = No, then skip this step.

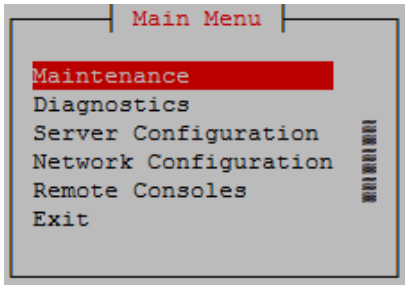
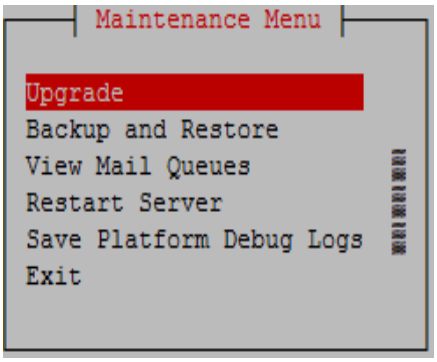
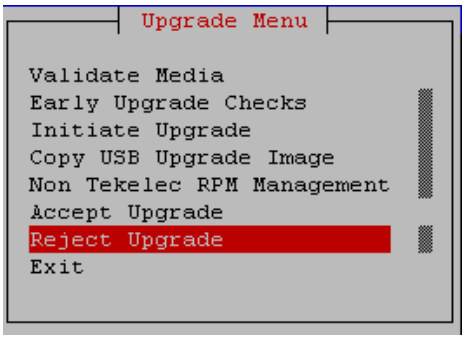
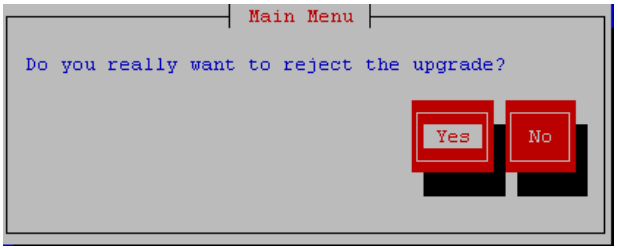
5. ☐	**MPS A**: Start screen session
	
	MPS A: Connect to the console of MPS B.
		Execute the following commands to start screen and establish a console session to MPS B.
		
		`$ screen -L`
		
		Execute the following command on E5-APP-B:
		
		`$ sudo minicom mate`
		If above command fails then refer to Procedure A.27.

6. ☐	**MPS B**: Login prompt is displayed.	`<hostname> console login:` Note: Hit enter if no login prompt is displayed.

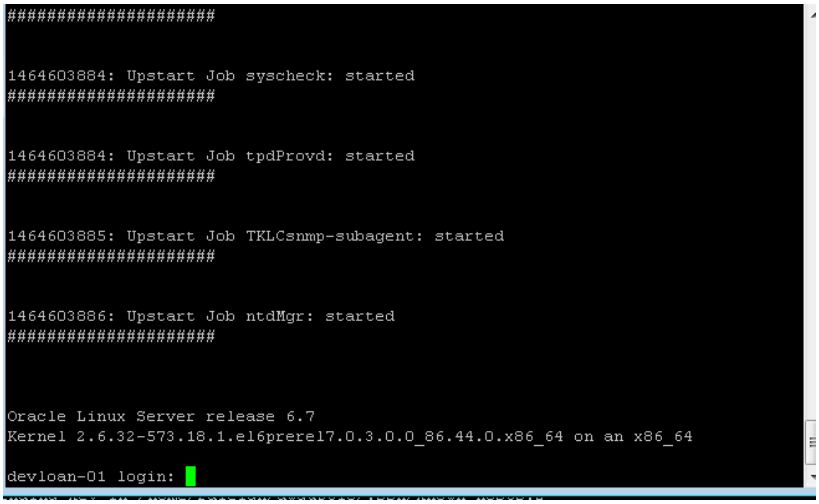
7. ☐	**MPS B**: Log in to the server as user "admusr".	If not already logged-in, then log in.
		
		`<hostname> console login: admusr`
		`Password: <password>`

8. ☐	**MPS B:** Execute the platcfg menu	`$ sudo su - platcfg`
9.	**MPS B:** Select the	The platcfg **Main Menu** appears.

Procedure 24: Server B Backout

☐	Maintenance / Upgrade submenu	On the **Main Menu**, select **Maintenance** and press **[ENTER]**. Then select **Upgrade** menu and press **[ENTER]**.  
10. ☐	**MPS B:** Reject Upgrade	Select the "Reject Upgrade" menu and press [ENTER].   **NOTE:** USB should be removed before initiating the backout on the server otherwise the system will not recover properly and will indicate a drive failure during backout.
11. ☐	**MPS B**: 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.

Procedure 24: Server B Backout

		The server will be at runlevel 3 and no applications are running. Proceed to the next step to verify the backout and manually reboot the server.
12. ☐	**MPS B**: 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` Examine the output of the above commands to determine if any errors were reported. Refer to section 0 to know more about logging.
13. ☐	**MPS B**: Verify the Backout.	If the backout was ***not*** successful and errors were recorded in the logs, then contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F for further instructions. If the backout ***was*** successful, then continue with the following step.
14. ☐	**MPS B**: Reboot the MPS.	Perform the following commands to reboot the MPS: `# sudo init 6`
15. ☐	**MPS B**: Reboot completed.	After the reboot, the screen will display the login prompt, as shown in the example below. 
16. ☐	**MPS B**: Verify Health of MPS B.	Execute Procedure A.1 on MPS B to verify the health of MPS B.

17. ☐	**MPS B:** Sync the time on both MPS A and MPS B.	Sync the time on both MPS A and B if it is different.
		
		Login to MPS A:
		`<hostname> console login: epapdev`
		`Password: <password>`
		
		Check date time on MPS A using following command:
		$ date
		Sat Jul 7 01:35:18 EDT 2018
		
		Login to MPS B:
		`<hostname> console login: epapdev`
		`Password: <password>`

		Check date time on MPS B using following command:
		$ date
		Sat Jul 7 01:35:18 EDT 2018
		
		If both are not same then set the date time value on MPS B same as of MPS A. Use following command:
		
		First switch user to root:
		$ su – root
		Password:
		
		Execute command to set date on MPS B as bellow:
		
		# date -s <data-time of MPS A>
		
		`[root@Natal-B ~]# date -s "Sat Jul 7 02:05:41 EDT 2018"`
		`Sat Jul 7 02:05:41 EDT 2018`
		`[root@Natal-B ~]#`
		
		Done.

18. ☐	**MPS B**: Clear MySQL replication error banner message, if any	Execute the following command to check for MySQL replication error:
		`$ manageBannerInfo -l`
		
		Examine the output of the above command to determine if any errors were reported related to MySQL replication such as:
		
		MySQL data replication error detected; Attempting to restart
		Attempt to restart MySQL replication failed
		
		Execute the following command to copy the EuiDB database from B server to A server to clear any of the above observed MySQL replication error.
		
		Note: This utility should be executed only with epapdev user.
		
		`$ /usr/TKLC/epap/config/resetReplication`
		`Resetting MySql Replication`
		`This script will fix EuiDB replication by copying the database from`
		`one side of the pair to the other side and then resetting the MySql`
		`replication pointers.`
		`Are you sure you want to reset replication? (y/n) y`
		`Which side do you want to copy FROM? (A/B) [B]: B`
		`Copy the EuiDB from B to A? (y/n) y`
		`Removing the index and info files from EPAP A`
		`Replication files successfully removed from the mate server.`
		`Connecting to local DB`
		`Connecting to mate DB`
		`Copying EuiDB to mate`
		`Stopping local slave`
		`Stopping mate slave`
		`Resetting local master`
		`Resetting mate master`
		`Resetting local slave`
		`Resetting mate slave`
		`Starting local slave`

Procedure 24: Server B Backout

		Starting mate slave Resetting MySql Replication Completed If there is a failure in resetReplication, execute following commands: **$ mysql -uroot -peLapRoot -e "GRANT ALL ON EuiDB.* to elapdev@localhost IDENTIFIED by '<password>'"** **$ mysql -uroot -peLapRoot -e "GRANT ALL ON EuiDB.* to elapdev@mate IDENTIFIED by '<password>'"** Execute the following command to verify that the banner messages related to the replication error are cleared after some time. **# manageBannerInfo -l**
19. ☐	**MPS B**: Verify Health of MPS B	Execute Procedure A.1 on MPS B to verify the health of MPS B. If backout of major upgrade was performed, the syscheck utility will report the "3000000000000002 – Server Internal Disk Error" alarm as the disk mirroring is in progress. The alarm will be cleared after the completion of disk mirroring.
20. ☐	Reconnect console cable.	On E5-APP-B card, reconnect the console cable between the serial port labeled 'S0' on E5-APP-B B card's adapter and the serial port labeled 'S1' on the E5-APP-B A card's adapter. **Cable part numbers - 830-1220-xx**
21. ☐	Procedure complete.	This procedure is complete.
22. ☐	Note down the timestamp in log.	Run the following command: **$ date**

The application should now be running at the original software release level

Procedure 25 Backout both Server A and B

Procedure 25: Backout both MPS A and B

S T E P #	This procedure provides instructions to perform backout on both MPS A and MPS B servers. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. **Note: Execute this procedure only if both MPS A and MPS B have been upgraded or partially upgraded and you wish to backout both servers to the previous version.** **Note: If the upgrade has been accepted, this procedure cannot be performed.** **Note: Database changes post upgrade and before backout might be lost after performing backout procedure**	
1. ☐	Terminate all previous connections (ssh).	If not already connected, connect to the E5-APP-B card via the serial port. 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

Procedure 25: Backout both MPS A and B

		serial access. **Cable part numbers - 830-1220-xx** Skip to step 6, if connected through serial console.

2. ☐	Create a terminal window and establish a connection by logging into MPS B.
	
	Log into MPS B.
		In a newly created terminal window labeled "**MPS A – from MPS B**", connect directly into MPS B.
		
		`# ssh admusr@<MPS B>`
		`Password: <password>`

3. ☐	**MPS B**: Start screen session.
	
	MPS B: Connect to the console of MPS A.
		Execute the following commands to start screen and establish a console session to MPS A.
		
		`$ screen -L`
		
		Execute the following command on E5-APP-B:
		
		`$ sudo minicom mate`
		If above command fails then refer to Procedure A.27.

4. ☐	**MPS A**: Login prompt is displayed.	`<hostname> console login:` Note: Hit enter if no login prompt is displayed.

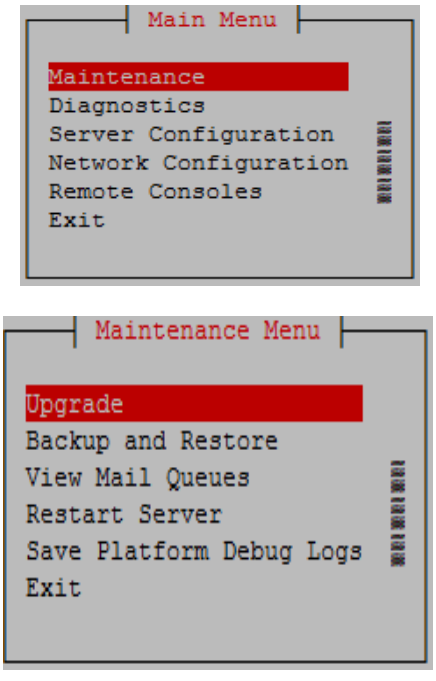
5. ☐	**MPS A:** Log in to the server as user "admusr".	Log in as 'admusr'
		`<hostname> console login: admusr`
		`Password: <password>`

6. ☐	**MPS A:** Verify that the state of PDBA Proxy Feature is No. **Note:** Skip this step for Non-Prov and PDBonly EPAP.	`# sudo su – epapconfig`

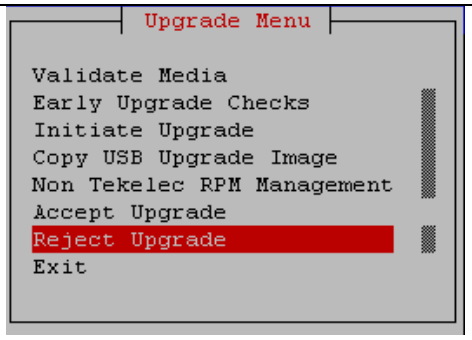
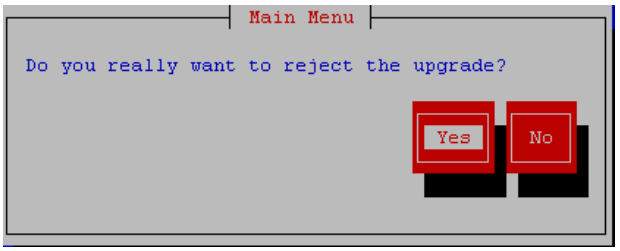
```
 /-----EPAP Configuration Menu----------\
/----------------------------------------\
|  1 | Display Configuration             |
|----|-----------------------------------|
|  2 | Configure Network Interfaces Menu |
|----|-----------------------------------|
|  3 | Set Time Zone                     |
|----|-----------------------------------|
|  4 | Exchange Secure Shell Keys        |
|----|-----------------------------------|
|  5 | Change Password                   |
|----|-----------------------------------|
|  6 | Platform Menu                     |
|----|-----------------------------------|
|  7 | Configure NTP Server              |
|----|-----------------------------------|
|  8 | PDB Configuration Menu            |
|----|-----------------------------------|
|  9 | Security                          |
|----|-----------------------------------|
| 10 | SNMP Configuration                |
|----|-----------------------------------|
| 11 | Configure Alarm Feed              |
|----|-----------------------------------|
| 12 | Configure Query Server            |
|----|-----------------------------------|
| 13 | Configure Query Server Alarm Feed |
|----|-----------------------------------|
| 14 | Configure SNMP Agent Community    |
|----|-----------------------------------|
| 15 | Mate Disaster Recovery            |
|----|-----------------------------------|
|  e | Exit                              |
\----------------------------------------/

Enter Choice: 1
EPAP A Provisioning Network IP Address = 192.168.61.115
EPAP B Provisioning Network IP Address = 192.168.61.116
Provisioning Network Netmask           = 255.255.255.0
Provisioning Network Default Router    = 192.168.61.1
EPAP A Backup Prov Network IP Address  = Not configured
EPAP B Backup Prov Network IP Address  = Not configured
Backup Prov Network Netmask            = Not configured
Backup Prov Network Default Router     = Not configured
EPAP A Sync Network Address            = 192.168.2.100
EPAP B Sync Network Address            = 192.168.2.200
EPAP A Main DSM Network Address        = 192.168.120.100
EPAP B Main DSM Network Address        = 192.168.120.200
EPAP A Backup DSM Network Address      = 192.168.121.100
EPAP B Backup DSM Network Address      = 192.168.121.200
EPAP A HTTP Port                       = 80
EPAP B HTTP Port                       = 80
EPAP A HTTP SuExec Port                = 8001
EPAP B HTTP SuExec Port                = 8001
EPAP A Banner Connection Port          = 8473
EPAP B Banner Connection Port          = 8473
EPAP A Static NAT Address              = Not configured
EPAP B Static NAT Address              = Not configured
PDBI Port                              = 5873
Remote MPS A Static NAT Address        = Not configured
Remote MPS A HTTP Port                 = 80
Local Provisioning VIP                 = 192.168.15.152
Remote Provisioning VIP                = 192.168.15.172
```

Procedure 25: Backout both MPS A and B

		Local PDBA Address = 192.168.15.115 Remote PDBA Address = 192.168.16.115 Remote PDBA B Address = 192.168.16.116 Time Zone = America/New_York PDB Database = Exists Preferred PDB = Standby Allow updates from alternate PDB = Yes Auto DB Recovery Enabled = Yes PDBA Proxy Enabled = **Yes** If `PDBA Proxy Enabled = Yes` then **Execute Procedure A.19 on both PDBA Active and Standby for dual PDBA setup to disable EPAP VIP and PDBA proxy features.** Otherwise, if PDBA Proxy Enabled = No, then proceed with the next step.
7. ☐	**MPS A**: Clear PDB replication logs	If `PDBA Proxy Enabled = Yes` then Execute Procedure A.29 to clear replication logs Otherwise, if PDBA Proxy Enabled = No, then skip this step.
8. ☐	**MPS A:** Execute the platcfg menu	`$ sudo su - platcfg`
9. ☐	**MPS A:** Select the Maintenance / Upgrade submenu	The platcfg **Main Menu** appears. On the **Main Menu**, select **Maintenance** and press **[ENTER]**. Then select **Upgrade** menu and press **[ENTER]**. 
10. ☐	**MPS A:** Reject Upgrade	Select the "Reject Upgrade" menu and press [ENTER].

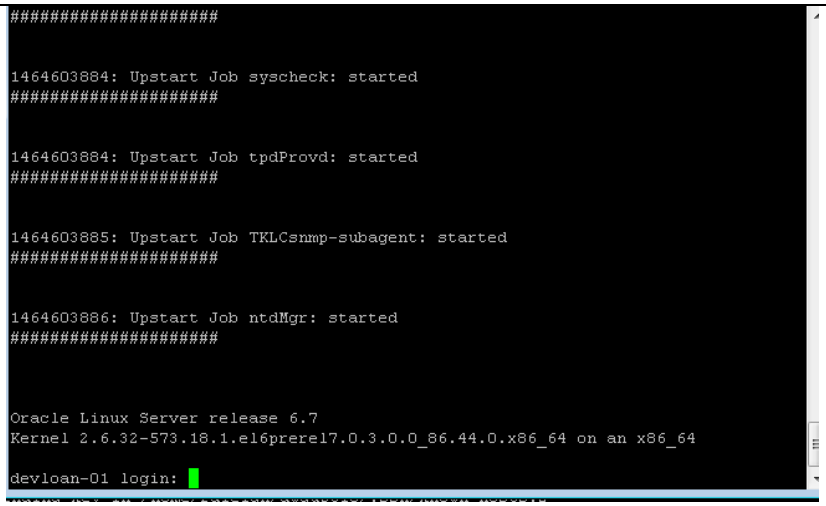
Procedure 25: Backout both MPS A and B

		  **NOTE:** USB should be removed before initiating the backout on the server otherwise the system will not recover properly and will indicate a drive failure during backout.
11. ☐	**MPS A**: 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. The server will be at runlevel 3 and no applications are running. Proceed to the next step to verify the backout and manually reboot the server.

12. ☐	**MPS A**: 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 commands to determine if any errors were reported.
		
		Refer to section 0 to know more about logging.

13. ☐	**MPS A**: Verify the Backout.	If the backout was ***not*** successful and errors were recorded in the logs, then contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F for further instructions. If the backout ***was*** successful, then enter continue with the following steps:
14. ☐	**MPS A**: Reboot the MPS.	**Perform this step only on a backout of an incremental upgrade.** Perform the following commands to reboot the MPS: `# init 6`
15. ☐	**MPS A**: Backout completed.	After the reboot, the screen will display the login prompt, as shown in the example below.

Procedure 25: Backout both MPS A and B

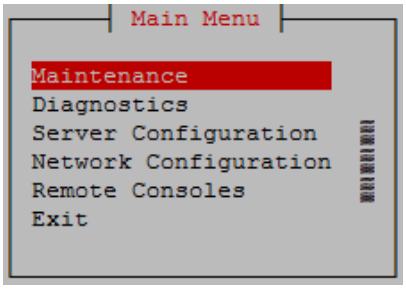
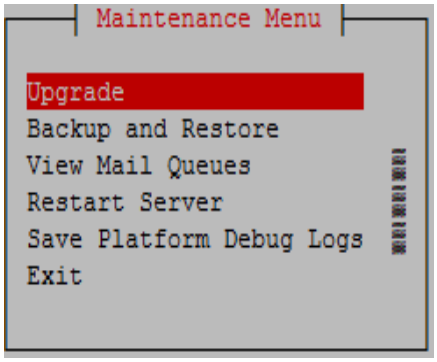
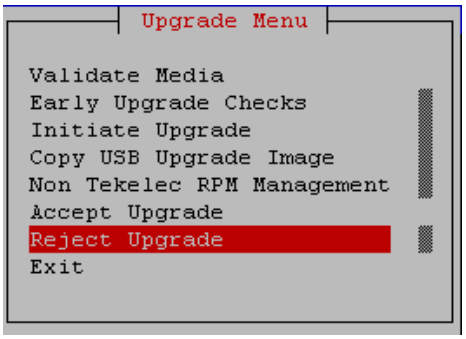
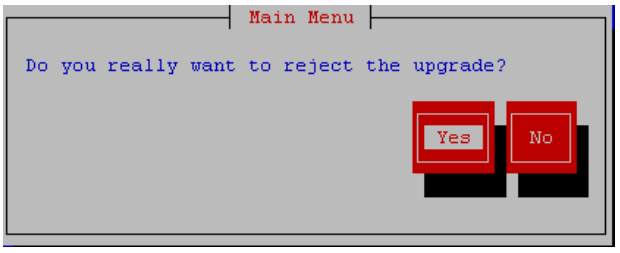
		
16. ☐	**MPS A**: Verify Health of MPS A.	Execute Procedure A.1 on MPS A to verify the health of MPS A The syscheck utility may report the "5000000000000002 - Server Application Process Error" for PDBA, if the pdba software is not running.
17. ☐	Terminate all previous connections (ssh).	If not already connected, connect to the E5-APP-B card via the serial port. For connecting the E5-APP-B B card, disconnect the console cable from the serial port on the E5-APP-B A card's adapter. The cable should be disconnected at the point where it connects to the serial port labeled 'S1' on the E5-APP-B A cards adapter and use it for serial access. Skip to step 21, if connected through serial console.

18. ☐	Create a terminal window and establish a connection by logging into MPS A.
	
	Log into MPS A.
		In a newly created terminal window labeled "**MPS B – from MPS A**", connect directly into MPS A.
		
		`# ssh epapdev@<MPS A>`
		`Password: <password>`

19. ☐	**MPS A**: Start screen session.
	
	MPS A: Connect to the console of MPS B.
		Execute the following commands to start screen and establish a console session to MPS B.
		
		`$ screen -L`
		
		Execute the following command on E5-APP-B:
		
		`$ sudo minicom mate`
		If above command fails then refer to Procedure A.27.

20. ☐	**MPS B**: Login prompt is displayed.	`<hostname> console login:` Note: Hit enter if no login prompt is displayed.
21. ☐	**MPS B:** Log in to the server as user "epapdev".	`<hostname> console login: admusr` `Password: <password>`
22. ☐	**MPS B:** Execute the platcfg menu	`$ sudo su - platcfg`

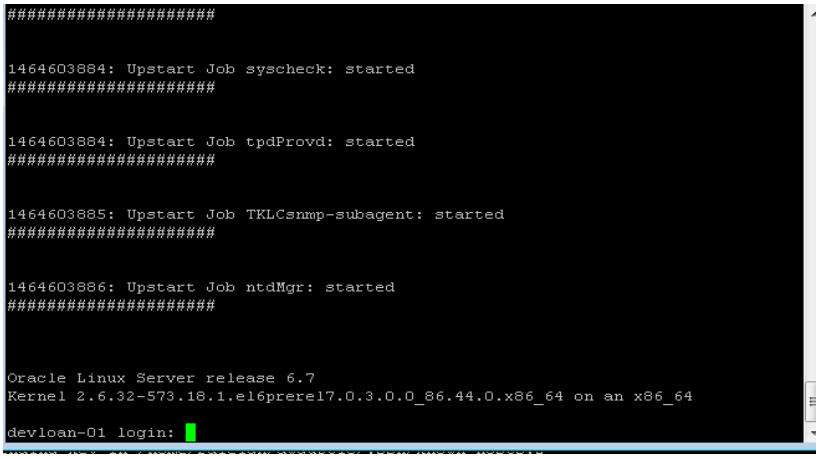
Procedure 25: Backout both MPS A and B

23. ☐	**MPS B:** Select the Maintenance / Upgrade submenu	The platcfg **Main Menu** appears. On the **Main Menu**, select **Maintenance** and press **[ENTER]**. Then select **Upgrade** menu and press **[ENTER]**.  
24. ☐	**MPS B:** Reject Upgrade	Select the "Reject Upgrade" menu and press [ENTER].   **NOTE:** USB should be removed before initiating the backout on the server otherwise the system will not recover properly and will indicate a drive failure during backout.
25. ☐	**MPS B**: 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

Procedure 25: Backout both MPS A and B

		required. The server will be at runlevel 3 and no applications are running. Proceed to the next step to verify the backout and manually reboot the server.

26. ☐	**MPS B**: 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 commands to determine if any errors were reported.
		
		Refer to section 0 to know more about logging.

27. ☐	**MPS B**: Verify the Backout.	If the backout was ***not*** successful and errors were recorded in the logs, then contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F for further instructions. If the backout ***was*** successful, then enter continue with the following steps:
28. ☐	**MPS B**: Reboot the MPS.	Perform the following commands to reboot the MPS: `$ init 6`
29. ☐	**MPS B**: Login to MPS B.	After the reboot, the screen will display the login prompt, as shown in the example below. 

30. ☐	Create a terminal window and establish a connection by logging into MPS A.
	
	Log into MPS A
		In a newly created terminal window labeled "MPS B – from MPS A", connect directly into MPS A.
		
		`# ssh epapdev@<MPS A>`
		`Password: <password>`

31. ☐	**MPS A**: Rejoin previous screen session on MPS B	Execute the following command to disconnect and then rejoin previous screen session: `$ screen -dr`
32. ☐	**MPS B:** Sync the time on both MPS A and MPS B.	Sync the time on both MPS A and B if it is different. Login to MPS A:

Procedure 25: Backout both MPS A and B

		<hostname> console login: epapdev **Password: <password>** Check date time on MPS A using following command: $ date Sat Jul 7 01:35:18 EDT 2018 Login to MPS B: **<hostname> console login: epapdev** **Password: <password>** Check date time on MPS B using following command: $ date Sat Jul 7 01:35:18 EDT 2018 If both are not same then set the date time value on MPS B same as of MPS A. Use following command: First switch user to root: **$ su – root** **Password:** Execute command to set date on MPS B as bellow: # date -s <data-time of MPS A> [root@Natal-B ~]# date -s "Sat Jul 7 02:05:41 EDT 2018" Sat Jul 7 02:05:41 EDT 2018 [root@Natal-B ~]# Done.
33. ☐	**MPS B:** Log in to the server as user "epapdev".	**<hostname> console login: epapdev** **Password: <password>**
34. ☐	**MPS B**: Clear MySQL replication error banner message, if any	Execute the following command to check for MySQL replication error: **$ manageBannerInfo -l** Examine the output of the above command to determine if any errors were reported related to MySQL replication such as: MySQL data replication error detected; Attempting to restart Attempt to restart MySQL replication failed Execute the following command to copy the EuiDB database from B server to A server to clear any of the above observed MySQL replication error. Note: This utility should be executed only with epapdev user **$ /usr/TKLC/epap/config/resetReplication** Resetting MySql Replication This script will fix EuiDB replication by copying the database from one side of the pair to the other side and then resetting the MySql replication pointers. Are you sure you want to reset replication? (y/n) y Which side do you want to copy FROM? (A/B) [B]: B Copy the EuiDB from B to A? (y/n) y Removing the index and info files from EPAP A Replication files successfully removed from the mate server. Connecting to local DB Connecting to mate DB

		Copying EuiDB to mate Stopping local slave Stopping mate slave Resetting local master Resetting mate master Resetting local slave Resetting mate slave Starting local slave Starting mate slave Resetting MySql Replication Completed If there is a failure in resetReplication, execute following commands: **$ mysql -uroot -peLapRoot -e "GRANT ALL ON EuiDB.* to elapdev@localhost IDENTIFIED by '<password>'"** **$ mysql -uroot -peLapRoot -e "GRANT ALL ON EuiDB.* to elapdev@mate IDENTIFIED by '<password>'"** Execute the following command to verify that the banner messages related to the replication error are cleared after some time. **$ manageBannerInfo -l**
35. ☐	**MPS B**: Verify Health of MPS B	Execute Procedure A.1 on MPS B to verify the health of MPS B.
36. ☐	**MPS A:** Check if RTDB and PDBA databases are synchronized. - update this **Note: Skip this step for PDBonly setup.**	Execute the following command to check the RTDB and PDB database levels: **$ sudo dbstattool** The outlook may look like: DBSTATTOOL Platform=EPAP ------------------------ pdb_birthdate = 1399621904 (Fri May 9 03:51:44 2014) pdb_level = 1 rtdb_pdb_birthdate = 1399621904 (Fri May 9 03:51:44 2014) rtdb_begin_dsm_level = 1 rtdb_end_dsm_level = 1 rtdb_dsm_birthdate = 1400784912 (Thu May 22 14:55:12 2014) rtdb_dsm_status = 1 rtdb_load_state = 0 EAGLE_fmt_pdb_birthdate = 2152386348 (EAGLE format - be careful!) EAGLE_fmt_rtdb_pdb_birthdate = 1981720860 (EAGLE format - be careful!) EAGLE_fmt_rtdb_dsm_birthdate = 4003650604 (EAGLE format - be careful!) pdba_last_upd_ipaddr = 0 pdba_last_upd_timestamp = 0 (Wed Dec 31 19:00:00 1969) dbstattool_pad1 = 0 dbstattool_pad2 = 0 dbstattool_pad3 = 0 dbstattool_pad4 = 0 dbstattool_timestamp = 0 (Wed Dec 31 19:00:00 1969) rtdb_version = 4 Note down the RTDB and PDBA database levels. If they are not the same prior to backout, an RTDB reload from PDBA must be performed after backout!
37. ☐	Reboot EAGLE Cards.	If the DB levels on EPAP and EAGLE matches and there is no alarm on EAGLE related to "RTDB reload is required", go to step 37. Reboot 1 SM card on the EAGLE and verify that it comes back to an IS-NR/Active state. If this is a Non-Provisionable EPAP, boot the rest of the EAGLE SM cards over 4 batches (booting 1/4 of the cards at a single time). If this is a Provisionable(mixed EPAP or PDBonly) EPAP, and the second MPS A on which backout has been executed, reboot the rest of the cards on both local and remote

Procedure 25: Backout both MPS A and B

		sides over 4 batches (booting 1/4 of the cards at a single time).
38. ☐	Procedure is complete.	This procedure is complete.
39. ☐	Note down the timestamp in log.	Run the following command: `$ date`

The application should now be running at the original software release level

Procedure 26 Stop the Pdba software

Procedure 26: Stop the PDBA Software

STEP #	This procedure stop the PDBA software before major 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 MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
If backout has been performed, then execute this procedure ONLY after backout on all MPS servers in the entire set of EP. Otherwise, skip this procedure until all MPS servers have been backed out.		
1. ☐	**MPS A:** Log in to the server as user "epapdev".	`<hostname> console login: epapdev` `Password: <password>`
2. ☐	**MPS A**: Verify Health of MPS A.	If not done already, execute Procedure A.1 on MPS A to verify the health of MPS A. Expect that the syscheck utility will report the 'Server Application Process Error' alarm for the fact software is not running. Besides the PDBA not running alarm, verify that no other abnormalities are
3. ☐	**MPS A:** Verify that Pdba software running or not.	Execute the command below to find if the pdba is running or not: `$ ps –aef | grep pdba | grep –v "grep"` If the output contains an entry for the pdba, as shown below, then move to the next step. [epapdev@MPS A ~]$ ps -eaf | grep "pdba" | grep -v "grep" epapdev 14165 11068 0 02:59 ? 00:00:07 /opt/TKLCappl/bin/pdba Otherwise, skip the next step as Pdba software already stopped.
4. ☐	**MPS A**: Turn off the **PDBA_REMOTE_PDBI_ALLOWED** flag to stop provisioning during upgrade. **Note: This step must be performed in case of upgrade and PDBA software**	Execute the command below to find the current status of PDBA_REMOTE_PDBI_ALLOWED flag **[epapdev@Natal-A ~]$ uiEdit | grep -i PDBA_REMOTE_PDBI_ALLOWED** Skip this step if output of the above command is "PDBA_REMOTE_PDBI_ALLOWED" is set to " Turn off the PDBA_REMOTE_PDBI_ALLOWED flag by running below command if output of pre command is blank or not set to "OFF" **[epapdev@Natal-A ~]$ uiEdit PDBA_REMOTE_PDBI_ALLOWED OFF**

Procedure 26: Stop the PDBA Software

	needs to be restarted, for this change to take effect.	"PDBA_REMOTE_PDBI_ALLOWED" is set to "OFF"
5. ☐	**MPS A**: Stop the Pdba software.	Run the following command: **[epapdev@Natal-A ~]$ service Pdba stop** ~~ /etc/init.d/Pdba stop ~~ PDBA application stopped.
6. ☐	**MPS A:** Verify that Pdba software running or not	**Repeat** above step 3.
7. ☐	Procedure complete.	This procedure is complete.
8. ☐	Note down the timestamp in log.	Run the following command: **$ date**

Procedure 27 Restart PDBA Software (Post-Backout and Post-Upgrade)

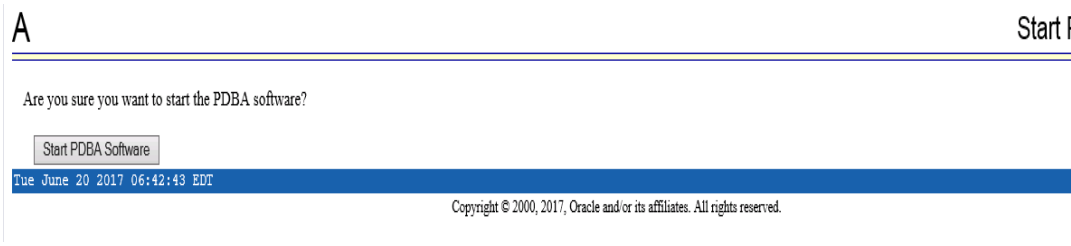
When upgrade is initiated on the first MPS-B, the PDBA software process is stopped on the MPS-A servers configured as **Provisionable**(mixed-EPAP or PDBonly). The PDBA software is intentionally left stopped, and so the operator performing the upgrade must restart the PDBA software after all MPS servers in a set of EPAP systems have been upgraded.

WARNING: If a backout of the MPS A and B units is conducted sometime after an upgrade has successfully completed and after Provisioning has been re-enabled, then the only method of PDB restoration is from backup file. In this case, any new data provisioned since the successful completion of the upgrade will be lost and will need to be re-provisioned.

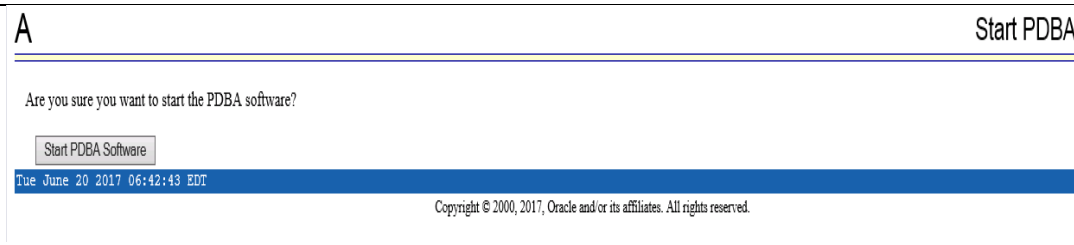
Procedure 27: Restart the PDBA Software Post-Backout and Post-Upgrade

S T E P #	This procedure restarts the PDBA software after upgrade of all associated MPS systems has been completed. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
If backout has been performed, then execute this procedure ONLY after backout on all MPS servers in the entire set of EP Otherwise, skip this procedure until all MPS servers have been backed out.		
1. ☐	**Local MPS A:** Log in to the server as user "epapdev".	**<hostname> console login: epapdev** **Password: <password>**
2. ☐	**Local MPS A**: Verify Health of MPS A.	If not done already, execute Procedure A.1 on MPS A to verify the health of MPS A. Expect that the syscheck utility will report the 'Server Application Process Error' alarm for the fact software is not running. Besides the PDBA not running alarm, verify that no other abnormalities are
3. ☐	**MPS A**: Turn on the **PDBA_REMOTE_PDBI_ALLOWED** flag to enable PDB to accept updates from remote PDBI.	Execute the command below to find the current status of PDBA_REMOTE_PDBI_ALLOWED flag **[epapdev@Natal-A ~]$ uiEdit | grep -i PDBA_REMOTE_PDBI_ALLOWED** Turn on the PDBA_REMOTE_PDBI_ALLOWED flag. Skip this step if output of the above comma "PDBA_REMOTE_PDBI_ALLOWED" is set to "ON" or no output is displayed

Procedure 27: Restart the PDBA Software Post-Backout and Post-Upgrade

	Note: This step must be performed in case of upgrade and PDBA software needs to be restarted, for this change to take effect.	**[epapdev@Natal-A ~]$ uiEdit PDBA_REMOTE_PDBI_ALLOWED ON** "PDBA_REMOTE_PDBI_ALLOWED" is set to "ON"
4. ☐	**Local MPS A:** Restart the PDBA software. On the menu, click PDBA->Process Control->Start PDBA software	Execute the command below to find if the pdba is running or not: `$ ps -aef | grep pdba | grep -v "grep"` If the output contains an entry for the pdba, as shown below, then skip to the next step. [epapdev@MPS A ~]$ ps -aef | grep pdba |grep -v "grep" epapdev 23890 10248 0 Apr07 ? 00:01:18 /opt/TKLCappl/bin/pdba Otherwise, Login to EPAP GUI by uiadmin user and start PDBA software. 
5. ☐	**Local MPS A**: Verify PDBA is running.	Execute Procedure A.1 on MPS A to verify the health of MPS A Verify that sycheck does ***not*** show PDBA is ***not*** running.
6. ☐	**Remote MPS A:** Log in to the server as user "epapdev".	`<hostname> console login:  epapdev` `Password: <password>`
7. ☐	**Remote MPS A**: Verify Health of MPS A.	Execute Procedure A.1 on MPS A to verify the health of MPS A. Expect that the sycheck utility will alarm the fact that the PDBA software is not running. This will "5000000000000002 -- Server Application Process Error" alarm. Besides the PDBA not runn verify that no other abnormalities are noted.
8. ☐	**Remote MPS A:** Restart the PDBA software. On the menu, click PDBA->Process Control->Start PDBA software	Execute the command below to find if the pdba is running or not: `$ ps -aef | grep pdba | grep -v "grep"` If the output contains an entry for the pdba, as shown below, then skip to the next step. epapdev 23890 10248 0 Apr07 ? 00:01:18 /opt/TKLCappl/bin/pdba Otherwise, Login to EPAP GUI by uiadmin user and start PDBA software.

Procedure 27: Restart the PDBA Software Post-Backout and Post-Upgrade

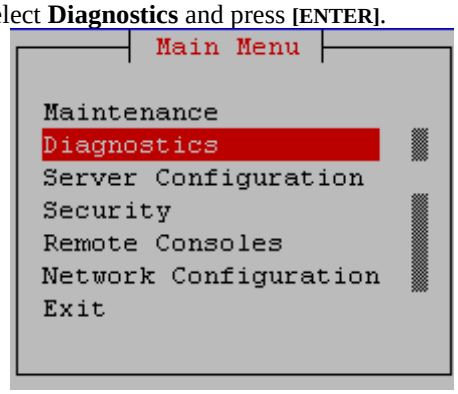
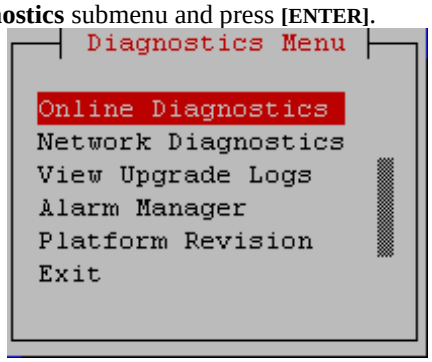
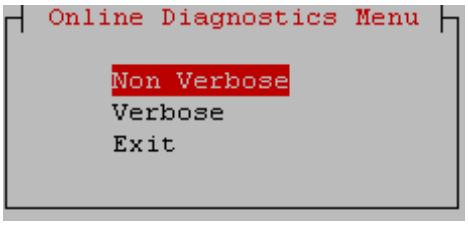
		
9. ☐	**Remote MPS A**: Verify PDBA is running.	Execute Procedure A.1 on MPS A to verify the health of MPS A. Verify that syscheck does *not* sho PDBA is *not* running.
10. ☐	Procedure complete.	This procedure is complete.
11. ☐	Note down the timestamp in log.	Run the following command: `$ date`

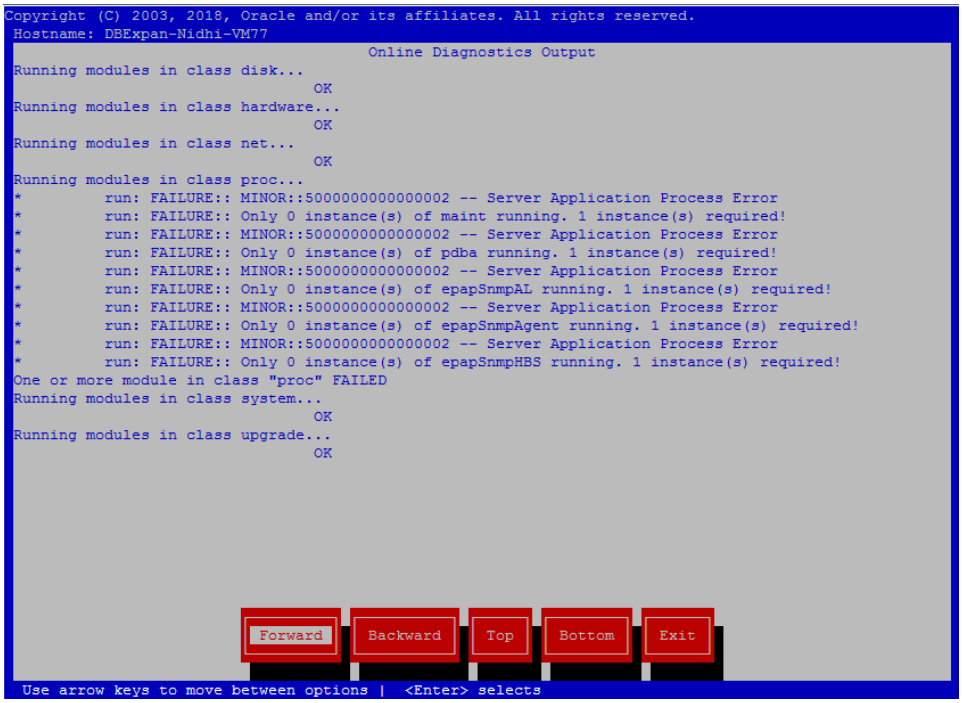
THIS COMPLETES THE BACKOUT

APPENDIX A GENERIC PROCEDURES

Procedure A.1 Perform System Health Check

Appendix A.1 Perform System Health Check

S T E P #	This procedure performs a system health check on any MPS 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 MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
1. ☐	Log in as the admusr user.	`<hostname> console login: admusr` `Password: <password>`
2. ☐	Execute the platcfg menu.	`$ sudo su - platcfg`
3. ☐	Select the Diagnostics submenu.	The platcfg **Main Menu** appears. On the **Main Menu**, select **Diagnostics** and press **[ENTER]**. 
4. ☐	Select the Online Diagnostics submenu.	Select the **Online Diagnostics** submenu and press **[ENTER]**. 
5. ☐	Select the Non-Verbose option.	Select the **Non-Verbose** option and press **[ENTER]**. 
6.	Examine the output of the Online Diagnostics.	Example output shown below. Examine the actual output of the Online Diagnostics.

☐		
7. ☐	System Check Successful. System Check Failure.	Exit from the above menu. If the System Check was successful, return to the procedure that you came here from. If the “Server Disk Space Shortage Error” was there in the output, proceed to step 8 to clean up the ‘/’ directory. If any other failures were detected by System Check, contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F.

8. ☐	Server clean-up to create space.	Execute the following command:
		$ df -h /var/TKLC
		
		The output may look like:
		
		`[admusr@hostname ~]$ df -h /var/TKLC`
		`Filesystem Size Used Avail Use% Mounted on`
		`/dev/mapper/vgroot-plat_var_tklc`
		`3.9G 2.2G 1.5G 60% /var/TKLC`
		Verify that there is at least 600M 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.
		
		Also, execute the following command to check space in ‘/lib/module’ directory.
		$ df -h /lib/modules
		
		`[admusr@hostname ~]$ df -h /lib/modules`
		`Filesystem Size Used Avail Use% Mounted on`

Appendix A.1 Perform System Health Check

		`/dev/mapper/vgroot-plat_root`
		`976M 397M 529M 43% /`
		Verify that the Use% column does not exceed the value 80%.

9. ☐	Procedure complete.	Return to the procedure that you came here from.
10. ☐	Note down the timestamp in log.	Run the following command: `$ date`

Procedure A.2 Validate Upgrade Media

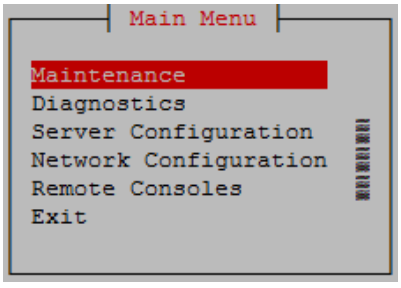
This procedure is used to execute a validation of the Upgrade Media (typically an ISO image) separately from executing an upgrade. The upgrade process automatically validates the upgrade media. However, sometime the user may wish to perform just a validation before proceeding with upgrade, thus the reason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

Validation could be performed on MPS A or B, however, this procedure specifies MPS X for simplicity.

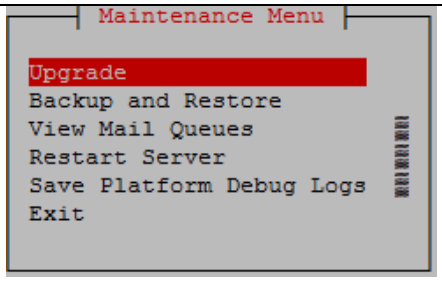
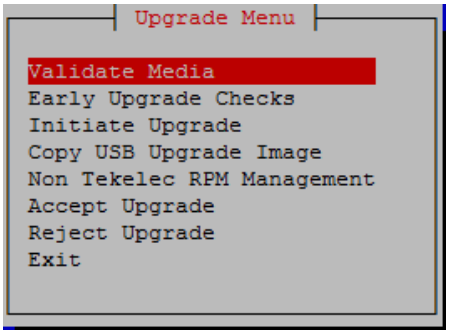
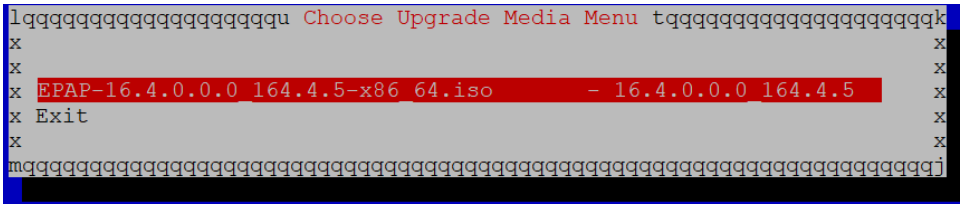
Appendix A.2 Validate the Upgrade Media

STEP #	This procedure provides instructions to perform a validation of the upgrade media on the MPS X server. This procedure assumes that the E5-APP-B card IPM procedure has been executed and the user has an EPAP 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 MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	

1. ☐	**MPS X:** If necessary, log in to the server as the user "admusr".	If not already logged in to the MPS server, then login as user "admusr".
		
		`<hostname> console login: admusr`
		`password: <password>`

2. ☐	**MPS X:** Execute the platcfg menu.	`$ sudo su - platcfg`
3. ☐	**MPS X**: Select the Maintenance submenu.	The platcfg **Main Menu** appears. On the **Main Menu**, select **Maintenance** and press **[ENTER]**. 
4. ☐	**MPS X**: Select the Upgrade submenu.	Select the **Upgrade** menu and press **[ENTER]**.

Appendix A.2 Validate the Upgrade Media

		
5. ☐	**MPS X:** Select the Validate Media selection.	Select the **Validate Media** menu and press **[ENTER]**. 
6. ☐	**MPS X**: Output from the Validate Media selection.	The screen will display a message that it is searching for upgrade media. Once the upgrade media is found, an Upgrade Media selection menu will be displayed similar to the example shown below. If the upgrade media is not found, follow **Procedure A.12** to copy the upgrade ISO. Select the upgrade media or ISO image. There should only be one selection available, as shown in the example below. If there is more than one selection available, contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F 

Appendix A.2 Validate the Upgrade Media

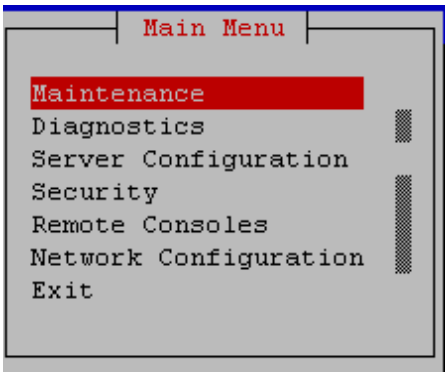
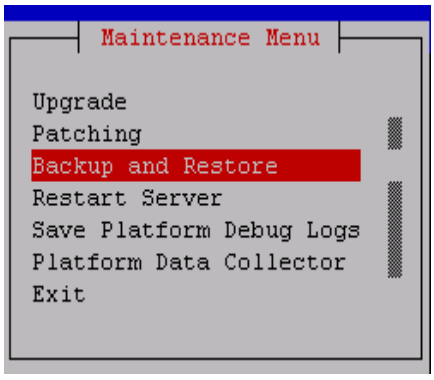
7. ☐	**MPS X**: View the Validation results.	The results of the validation will be displayed, similar to the example below. Press the "enter" key to continue. Validating cdrom... ## ## ## ## ## ## ## ## ## ## ## ## ########################## UMVT Validate Utility v2.3.4, (c)Tekelec, May 2020 Validating /var/TKLC/upgrade/EPAP-16.4.0.0.0_163.4.0-x86_64.iso Date&Time: 2020-04-13 05:33:26 Volume ID: 16.4.0.0.0_163.4.0 Part Number: N/A Version: 16.4.0.0.0_163.4.0 Disc Label: EPAP Disc description: EPAP The media validation is complete, the result is: PASS CDROM is Valid PRESS ANY KEY TO RETURN TO THE PLATCFG MENU.
8. ☐	**MPS X**: Select the Exit option.	Select the **Exit** option, and keep selecting the Exit option, until you reach the command line prompt or you return to another menu that you wish to use. lqqqqqqqqqqqqqqqqqqqu Choose Upgrade Media Menu tqqqqqqqqqqqqqqqqqqqqk x x x x x EPAP-16.4.0.0.0_164.4.5-x86_64.iso - 16.4.0.0.0_164.4.5 x x Exit x x x mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj
9. ☐	**MPS X**: Procedure complete.	Media Validation is complete. Return to the procedure that you came here from.
10. ☐	Note down the timestamp in log.	Run the following command: **$ date**

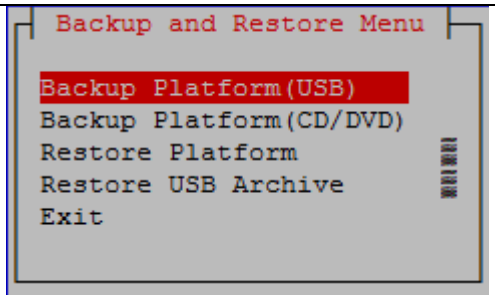
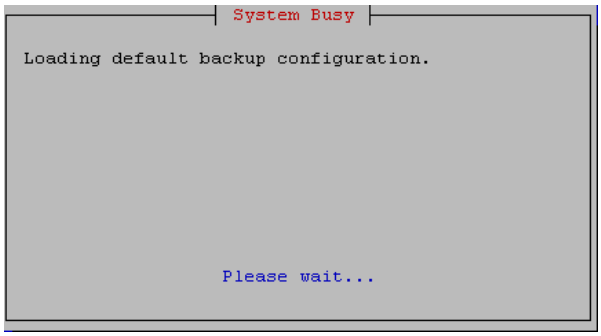
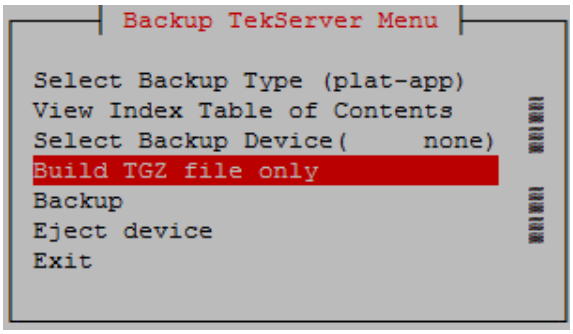
Procedure A.3 System Configuration Backup

Appendix A.3 System Configuration Backup

STEP #	This procedure performs configuration backup on an MPS 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 MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	

1. ☐	**MPS X:** If necessary, log in to the server as the user "epapdev".	If not already logged in to the MPS server, then login as user "admusr".
		
		`<hostname> console login: admusr`
		`password: <password>`

2. ☐	**MPS X:** Execute the platcfg menu.	`$ sudo su - platcfg`
3. ☐	**MPS X**: Select the Maintenance submenu.	The platcfg **Main Menu** appears. On the **Main Menu**, select **Maintenance** and press **[ENTER]**. 
4. ☐	**MPS X**: Select the Backup Platform submenu.	Select the **Backup and Restore** menu and press **[ENTER]**. . 
5. ☐	**MPS X**: Select the Backup Platform submenu.	Select the **Backup Platform (USB)** submenu and press **[ENTER]**.

		
6. ☐	**MPS X**: Backup continues.	The backup continues. The following busy screen may appear. 
7. ☐	**MPS X**: Select the Build TGZ file only selection.	Select the **Build TGZ file only** selection and press **[ENTER]**. 
8. ☐	**MPS X**: Backup complete – select exit.	Once the TGZ has been created, the "**Backup TekServer Menu**" will be displayed again. Select the Exit option, and keep selecting the Exit option, until you reach the command line prompt.

9. ☐	**MPS X**: Transfer the backup file.	The backup file is in the `/var/TKLC/bkp` directory and will have a name like `<hostname>-plat-app-[date][time].tgz`
		
		Execute the following command to view the backup file:
		`$ ls -l /var/TKLC/bkp`
		`[admusr@Recife-a bkp]$ ls -l /var/TKLC/bkp/`
		`total 5836`
		`-rw-rw---- 1 root sys 5972128 Sep 11 09:04 Recife-a-plat-app-201809110904.tgz`

10. ☐	**MPS X:** Transfer file to remote machine.	Using SFTP (secure-FTP), transfer the ISO to a remote, customer-provided computer. Enter "yes" when prompted if you want to continue to connect.
		
		`$ cd /var/TKLC/bkp`
		
		`$ sftp <IP address of remote computer>`
		`Connecting to <IP address of remote computer>...`
		`The authenticity of host '<IP address of remote computer>' can't be established.`

Appendix A.3 System Configuration Backup

		DSA key fingerprint is 58:a5:7e:1b:ca:fd:1d:fa:99:f2:01:16:79:d8:b4:24. Are you sure you want to continue connecting (yes/no)? **yes** Warning: Permanently added <IP address of remote computer>' (DSA) to the list of known hosts. root@**<IP address of remote computer>**'s password: sftp> cd <target directory> sftp> put **<hostname>-plat-app-[date][time].tgz** Uploading <hostname>-plat-app-[date][time].tgz to <hostname>-plat-app-[date][time].tgz sftp> bye If no customer provided remote computer for backups exist, transfer the backup file to the mate using the following command: **$ sudo chmod 667 /var/TKLC/bkp/<TGZ file>** **$ su - epapdev** **$ scp /var/TKLC/bkp/<TGZ file> epapdev@mate:/var/TKLC/epap/free/**
11. ☐	Procedure complete.	Return to the procedure that you came here from.
12. ☐	Note down the timestamp in log.	Run the following command: **$ date**

Procedure A.4 Execute parse9Dig script

Appendix A.4 Execute parse9Dig script

S T E P #	This procedure performs the Execution of parse9Dig script. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
1. ☐	**MPS A:** Login as the user "epapdev" on standalone PDB.	If not already logged-in, then login at MPS A: **<hostname> console login: epapdev** **password: <password>**
2.	**MPS A:** Check if "parse9Dig" script is present on setup.	Check whether "parse9Dig" script is present on setup or not. Execute following command: **$ ls -lrt /usr/TKLC/epap/config/parse9Dig** [epapdev@Natal-a-PDBonly ~]$ ls -lrt /usr/TKLC/epap/config/parse9Dig -rwxr-xr-x 1 epapdev epap 12162 Oct 10 16:23 /usr/TKLC/epap/config/parse9Dig If output is same as above then proceed to step 4 otherwise proceed with following step.
3. ☐	**MPS A:** Execute the "parse9Dig" script on standalone PDB.	Note: Stop the Pdba software before executing this script. Execute the "parse9Dig" script and examine the result.

		$/usr/TKLC/epap/config/parse9Dig all u
		`[epapdev@Osorna-1B-PDBonly config]$ /usr/TKLC/epap/config/parse9Dig all u`
		
		`This utility will retrieve all digits for DB and parse them into 9Dig entries.`
		
		`**************************************************`
		`Utility Start Time: 06/13/18-21:24:31`
		
		`Parsing DN digits into 9digits...`
		
		`INFO: DN 9dig count  2.`
		
		`REPLACE INTO dn9dig VALUES (UNHEX("05000000000"),1),(UNHEX("06000000000"),1);`
		
		`Parsing IMSI digits into 9digits...`
		
		`INFO: IMSI 9dig count:  9.`
		
		`REPLACE INTO imsi9dig VALUES (UNHEX("0D001234567"),3),(UNHEX("060000000000"),1),(UNHEX("07000000009"),1),(UNHEX("08000000044"),1),(UNHEX("08000000023"),2),(UNHEX("05000000000"),1),(UNHEX("08000000077"),1),(UNHEX("08000000099"),1),(UNHEX("08000000088"),1);`
		
		`Parsing IMEI digits into 9digits...`
		
		`INFO: IMEI 9dig count:  1.`
		
		`REPLACE INTO imei9dig VALUES (UNHEX("0E012345678"),2);`
		
		`Utility End Time: 06/13/18-21:24:31`

4. ☐	**MPS A:** Procedure is complete.	`This procedure is complete.`
5. ☐	Note down the timestamp in log.	Run the following command: `$ date`

Procedure A.5 Increase rtVolume size for Non-prov

Appendix A.5 Increase rtVolume size for Non-prov

S T E P #	This procedure increase rtVolume size for Non-prov. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
Note: Skip this procedure for mixed EPAP and standalone EPAP.		
1. ☐	**MPS A:** Log in to the server.	If not already logged-in, then login at MPS A: **`<hostname> console login:  epapdev`** **`Password: <password>`**
2. ☐	**MPS A:** Execute "rtdir_300gb" script for E5-APP-B cards with 300GB drive modules.	If EPAP is running on an E5-APP-B card with 300GB drive modules, execute this step. If instead, EPAP is running on an E5-APP-B card with 480GB drive modules, skip this step and go to step 3. Download the rtdir_300gb script zip file from My Oracle Support(MOS) (https://support.oracle.com). The zip file is available on MOS under Oracle Communications EAGLE Application Processor 16.3.0.0.0. Place the zip file in the /tmp directory. Unzip the file: **`$ unzip <zip file name from MOS>`** **`$ cat Readme.txt`** Follow the directions in the Readme.txt file. Execute the following script: **`$ sudo /usr/TKLC/epap/bin/rtdir_300gb`**

		Warning: This utility would increase rtVolume for non-prov setup and this action is irreversible. Are you sure you want to continue?[Yes/No]: Yes INFO: Increasing rt volume size for Non-provisionable EPAP. Please wait... INFO: db space increased on 'A'. INFO: Stopping Epap, mysqlapp and mysqlpdb services... Done. INFO: Starting Epap, mysqlapp and mysqlpdb services... Done. INFO: Successfully configured Non-provisionable EPAP. **Following error related to MyISAM table shall be observed on CLI while executing rtdir script:** myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/columns_priv.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/columns_priv.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/db.MYI' e2fsck 1.43-WIP (20-Jun-2013) File descriptor 7 (socket:[102707]) leaked on lvreduce invocation. Parent PID 25006: sh resize2fs 1.43-WIP (20-Jun-2013) File descriptor 7 (socket:[102707]) leaked on vgdisplay invocation. Parent PID 25350: sh File descriptor 7 (socket:[102707]) leaked on lvextend invocation. Parent PID 25359: sh resize2fs 1.43-WIP (20-Jun-2013) File descriptor 7 (socket:[102707]) leaked on vgdisplay invocation. Parent PID 25410: sh File descriptor 7 (socket:[102707]) leaked on lvextend invocation. Parent PID 25416: sh myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/alarmInfo.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/alarmInfo.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/bannerinfo.MYI' . . FIPS integrity verification test failed. FIPS integrity verification test failed. . .WARNING: Reducing active logical volume to 8.00 GiB. THIS MAY DESTROY YOUR DATA (filesystem etc.). Skip step 3 and continue with step 4.
3. ☐	**MPS A:** Execute "rtdir" script for E5-APP-B cards with 480GB drive modules.	If EPAP is running on an E5-APP-B card with 300GB drive modules, do not execute this step. Instead, execute step 2. If EPAP is running on an E5-APP-B card with 480GB drive modules, execute this step. Execute the following script: **$ sudo /usr/TKLC/epap/bin/rtdir** Warning: This utility would increase rtVolume for non-prov setup and this action is irreversible. Are you sure you want to continue?[Yes/No]: Yes INFO: Increasing rt volume size for Non-provisionable EPAP. Please wait... INFO: db space increased on 'A'. INFO: Stopping Epap, mysqlapp and mysqlpdb services... Done. INFO: Starting Epap, mysqlapp and mysqlpdb services... Done.

		INFO: Successfully configured Non-provisionable EPAP. **Following error related to MyISAM table shall be observed on CLI while executing rtdir script:** myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/columns_priv.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/columns_priv.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/db.MYI' e2fsck 1.43-WIP (20-Jun-2013) File descriptor 7 (socket:[102707]) leaked on lvreduce invocation. Parent PID 25006: sh resize2fs 1.43-WIP (20-Jun-2013) File descriptor 7 (socket:[102707]) leaked on vgdisplay invocation. Parent PID 25350: sh File descriptor 7 (socket:[102707]) leaked on lvextend invocation. Parent PID 25359: sh resize2fs 1.43-WIP (20-Jun-2013) File descriptor 7 (socket:[102707]) leaked on vgdisplay invocation. Parent PID 25410: sh File descriptor 7 (socket:[102707]) leaked on lvextend invocation. Parent PID 25416: sh myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/alarmInfo.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/alarmInfo.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/bannerinfo.MYI' . . FIPS integrity verification test failed. FIPS integrity verification test failed. . .WARNING: Reducing active logical volume to 8.00 GiB. THIS MAY DESTROY YOUR DATA (filesystem etc.).
4. ☐	**MPS A**: Verify rtVolume size using command “df -h”.	[epapdev@Arica-1A ~]$ df -h Filesystem Size Used Avail Use% Mounted on /dev/mapper/vgroot-plat_root 976M 288M 637M 32% / tmpfs 3.9G 0 3.9G 0% /dev/shm /dev/md1 244M 40M 192M 18% /boot /dev/mapper/vgroot-plat_tmp 976M 2.0M 923M 1% /tmp /dev/mapper/vgroot-plat_usr 3.9G 2.5G 1.2G 68% /usr /dev/mapper/vgroot-plat_var 976M 206M 720M 23% /var /dev/mapper/vgroot-plat_var_tklc 3.9G 1.8G 1.9G 49% /var/TKLC /dev/mapper/vgroot-db 5.8G 4.3G 1.2G 79% /var/TKLC/epap/db /dev/mapper/vgroot-free 320G 5.3G 298G 2% /var/TKLC/epap/free /dev/mapper/vgroot-logs 20G 89M 19G 1% /var/TKLC/epap/logs /dev/mapper/vgroot-rt 82G 3.3G 75G 5% /var/TKLC/epap/rt [epapdev@Arica-1A ~]$ **Vgroot-rt size should be greater than 80G.**
5. ☐	MPS B: Execute "rtdir" or “rtdir_300gb” script.	After successfully converted rtVolume size on MPS A, repeat steps 2, 3, and 4 on MPS B.

6. ☐	MPS B: Procedure completed.	This procedure is completed.
7. ☐	Note down the timestamp in log.	Run the following command: `$ date`

Procedure A.6 PDB Backup

Appendix A.6 PDB Backup

S T E P #	This procedure performs a PDB backup on the EPAP server configured as a Provisionable (mixed-EPAP or PDBonly) node. This procedure should only be performed on the active PDBA. **Note: Only one PDB Backup is allowed, to be stored. In case another backup is required, workaround is to setup the remote transfer of the existing pdb backup and then delete it.** Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	

1. ☐	**MPS A:** Log in to the server.	If not already logged-in, then login at MPS A:
		`<hostname> console login: epapdev`
		`Password: <password>`

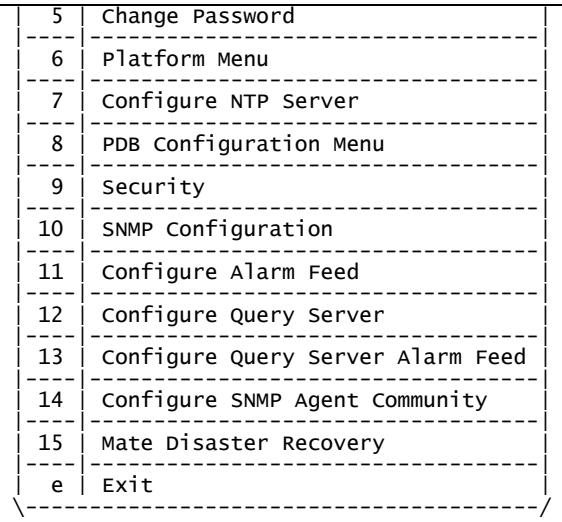
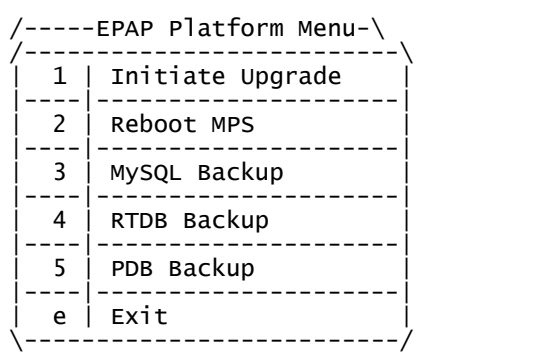
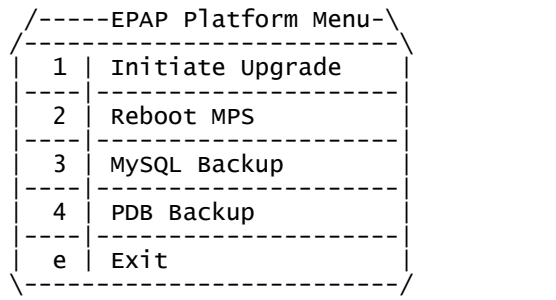
2. ☐	Run syscheck.	Execute the following Command: `$ syscheck`

3. ☐	Verify the System Check executed successfully.
	
	In particular, verify that the PDBA process is running by noting that syscheck does not generate an alarm against the PDBA process.
		`Running modules in class disk...`
		`OK`
		`Running modules in class net...`
		`OK`
		`Running modules in class proc...`
		`OK`
		`Running modules in class system...`
		`OK`
		`Running modules in class hardware...`
		`OK`
		
		`The log is available at:`
		`-->/var/TKLC/log/syscheck/fail_log`
		
		If the syscheck utility reports the "5000000000000002 – Server Application Process Error" alarm, restart the PDBA and execute syscheck again. The above alarm should be removed. If the above alarm is not removed, contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F.

4. ☐	System Check Verifies that PDBA is running.	If the syscheck does not report any errors, proceed to the next step. Otherwise, if any other failures were detected by System Check, contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F.
5. ☐	Log into epapconfig.	`$ su - admusr` `$ sudo su - epapconfig`

6. ☐	Main menu is displayed. Select Platform Menu.	`Menu for mixed-EPAP:`
		
		`/-----EPAP Configuration Menu----------\`
		`/-------------------------------------\`
		`| 1 | Display Configuration |`
		`|---|---------------------------------|`
		`| 2 | Configure Network Interfaces Menu |`
		`|---|---------------------------------|`
		`| 3 | Set Time Zone |`
		`|---|---------------------------------|`
		`| 4 | Exchange Secure Shell Keys |`
		`|---|---------------------------------|`

Appendix A.6 PDB Backup

		 Enter Choice: 6
7. ☐	Platform menu is displayed. Select PDB Backup.	Menu for standard EPAP designation:  Enter Choice: 5 Menu for PDB-only designation:  Enter Choice: 4
8. ☐	Menu will prompt for a "yes" to continue. Enter a **Y**.	Are you sure you want to backup the PDB to /var/TKLC/epap/free/pdbBackup_DBExpPdbOnly_20180613055813_DBBirthdate_20180613072847GMT_DBLevel_6507_v7.50.bkp.tar.gz? [N]:
9. ☐	While the backup is begin performed, the following output will be displayed to the screen. Note: Only one PDB Backup is allowed, to be stored.	Successfully started backup of PDB. Status will be displayed on the GUI banner. Press return to continue... **Note: If following error is displayed instead of success, then you need to delete all pdbBackup from free directory in order to schedule new pdbBackup.**

		E1058: An internal error in the EPAP occurred: pdbBackup already exists in free directory. Press return to continue...
10. ☐	Exit this menu and return to the login prompt.	Enter Choice: e Note: If this menu is not exited properly, then the SSH login with root shall remain enabled.
11. ☐	Monitor GUI banner.	Monitor the GUI banner. When the backup has completed successfully, continue to the next step.
12. ☐	Use SFTP to transfer the backup file to a remote customer provided computer.	Using SFTP (secure-FTP), transfer the PDB backup file to a remote, customer-provided computer. Enter "yes" when prompted if you want to continue to connect. **$ cd /var/TKLC/epap/free** **$ sftp <IP address of remote computer>** Connecting to <IP address of remote computer>... The authenticity of host '<IP address of remote computer>' can't be established. DSA key fingerprint is 58:a5:7e:1b:ca:fd:1d:fa:99:f2:01:16:79:d8:b4:24. Are you sure you want to continue connecting (yes/no)? **yes** Warning: Permanently added <IP address of remote computer>' (DSA) to the list of known hosts. root@**<IP address of remote computer>**'s password: sftp> cd <target directory> sftp> put pdbBackup_<hostname>_20140530151806_DBBirthdate_20140530144717GMT_DBLevel_<DBLevel>.bkp.tar.gz Uploading pdbBackup_<hostname>_20140530151806_DBBirthdate_20140530144717GMT_DBLevel_<DBLevel>.bkp.tar.gz to pdbBackup_<hostname>_20140530151806_DBBirthdate_20140530144717GMT_DBLevel_<DBLevel>.bkp.tar.gz sftp> bye If no customer provided remote computer for backups exist, transfer the backup file to the mate using the following command **$ su - epapdev** **$ scp /var/TKLC/epap/free/<pdb backup file> epapdev@mate:/var/TKLC/epap/free/**
13. ☐	Procedure complete.	Return to the procedure that you came here from.
14. ☐	Note down the timestamp in log.	Run the following command: **$ date**

Procedure A.7 RTDB Backup

Note: Skip this procedure for PDBonly setup.

Appendix A.7 RTDB Backup

S T E P #	This procedure performs an RTDB backup on the EPAP 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 MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
1. ☐	**MPS :** Log in to the server.	If not already logged-in, then login to the MPS server. **<hostname> console login: admusr** **Password: <password>**
2. ☐	Enter the epapconfig menu.	Execute the following command: **$ sudo su - epapconfig**
3. ☐	Main menu is displayed. Select Platform Menu.	/-----EPAP Configuration Menu----------\ /----------\ | 1 | Display Configuration | |----|----------| | 2 | Configure Network Interfaces Menu | |----|----------| | 3 | Set Time Zone | |----|----------| | 4 | Exchange Secure Shell Keys | |----|----------| | 5 | Change Password | |----|----------| | 6 | Platform Menu | |----|----------| | 7 | Configure NTP Server | |----|----------| | 8 | Security | |----|----------| | 9 | SNMP Configuration | |----|----------| | 10 | Configure Alarm Feed | |----|----------| | 11 | Configure SNMP Agent Community | |----|----------| | 12 | Mate Disaster Recovery | |----|----------| | e | Exit | \----------/ Enter Choice: 6
4. ☐	Platform menu is displayed. Select RTDB Backup.	/-----EPAP Platform Menu-\ /----------\ | 1 | Initiate Upgrade | |----|----------| | 2 | Reboot MPS | |----|----------| | 3 | MySQL Backup | |----|----------| | 4 | RTDB Backup | |----|----------| | 5 | PDB Backup | |----|----------| | e | Exit | \----------/ Enter Choice: 4
5.	The Application software must be	If the EPAP application software is running, you will be prompted to stop the software

Appendix A.7 RTDB Backup

☐	stopped.	for the RTDB backup. Select with a "Y". `EPAP software is running. Stop it? [N]: Y`
6. ☐	Menu will prompt for a "yes" to continue. Enter a **Y**.	`Are you sure you want to backup the PDB to /var/TKLC/epap/free/ rtdbBackup_Recife-A_20140530151806.tar.gz? [N]:`

7. ☐	While the backup is begin performed, the following output will be displayed to the screen.	`Successfully started backup of RTDB.`
		`Status will be displayed on the GUI banner.`
		
		`Press return to continue...`

8. ☐	Exit this menu and return to the login prompt. Continue exiting until you get to the login prompt.	`Enter Choice: e` `Enter Choice: e` Note: If this menu is not exited properly, then the SSH login with root shall remain enabled.
9. ☐	Monitor GUI banner.	Monitor the GUI banner. When the backup has completed successfully, continue to the next step.
10. ☐	Restart the EPAP Software.	Restart the EPAP application software. **$ sudo /etc/init.d/Epap start**

11. ☐	Use SFTP to transfer the backup file to a remote customer provided computer.	Using SFTP (secure-FTP), transfer the RTDB backup file to a remote, customer-provided computer. Enter "yes" when prompted if you want to continue to connect.
		
		$ cd /var/TKLC/epap/free
		
		$ sftp <IP address of remote computer>
		`Connecting to <IP address of remote computer>...`
		`The authenticity of host '<IP address of remote computer>' can't be established.`
		`DSA key fingerprint is 58:a5:7e:1b:ca:fd:1d:fa:99:f2:01:16:79:d8:b4:24.`
		`Are you sure you want to continue connecting (yes/no)? yes`
		`Warning: Permanently added '<IP address of remote computer>' (DSA) to the list of known hosts.`
		`root@<IP address of remote computer>'s password:`
		`sftp> cd <target directory>`
		`sftp> put rtdbBackup_<hostname>_20140530151806.tar.gz`
		`Uploading rtdbBackup_<hostname>_20140530151806.tar.gz to rtdbBackup_<hostname>_20140530151806.tar.gz`
		`sftp> bye`
		
		If no customer provided remote computer for backups exist, transfer the backup file to the mate using the following command
		$ su – epapdev
		
		$ scp /var/TKLC/epap/free/<rtdb backup file> epapdev@mate:/var/TKLC/epap/free

12. ☐	Procedure complete.	Return to the procedure that you came here from.
13. ☐	Note down the timestamp in log.	Run the following command: **$ date**

Procedure A.8 EuiDB Backup

Appendix A.8 EuiDB Backup

S T E P #	This procedure performs a backup of the User database on the MPS 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 MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
1. ☐	**MPS A:** Log in to the server as user "admusr".	**<hostname> console login: admusr** **Password: <password>**
2. ☐	Enter the epapconfig menu.	Execute the following Command: **$ sudo su - epapconfig**
3. ☐	Master menu is displayed. Select Platform Menu.	/-----EPAP Configuration Menu----------\ /----------\ | 1 | Display Configuration | |----|----------| | 2 | Configure Network Interfaces Menu | |----|----------| | 3 | Set Time Zone | |----|----------| | 4 | Exchange Secure Shell Keys | |----|----------| | 5 | Change Password | |----|----------| | 6 | Platform Menu | |----|----------| | 7 | Configure NTP Server | |----|----------| | 8 | PDB Configuration Menu | |----|----------| | 9 | Security | |----|----------| | 10 | SNMP Configuration | |----|----------| | 11 | Configure Alarm Feed | |----|----------| | 12 | Configure Query Server | |----|----------| | 13 | Configure Query Server Alarm Feed | |----|----------| | 14 | Configure SNMP Agent Community | |----|----------| | 15 | Mate Disaster Recovery | |----|----------| | e | Exit | \----------/ Enter Choice: 6
4. ☐	Platform menu is displayed. Select MySQL Backup.	/-----EPAP Platform Menu-\ /----------\ | 1 | Initiate Upgrade | |----|----------| | 2 | Reboot MPS | |----|----------| | 3 | MySQL Backup | |----|----------| | 4 | RTDB Backup | |----|----------| | 5 | PDB Backup | |----|----------|

Appendix A.8 EuiDB Backup

		`| e | Exit |`
		`\----------/`
		
		`Enter Choice: 3`

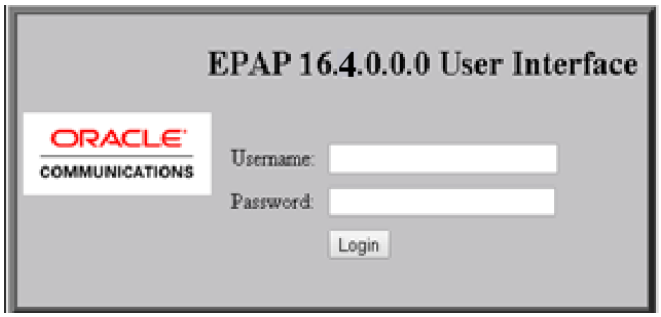
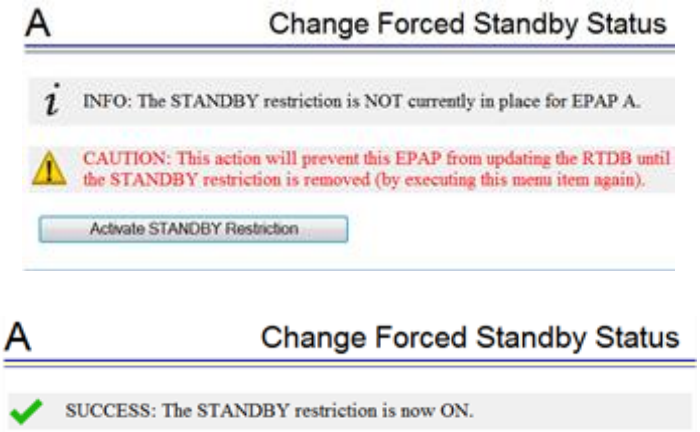
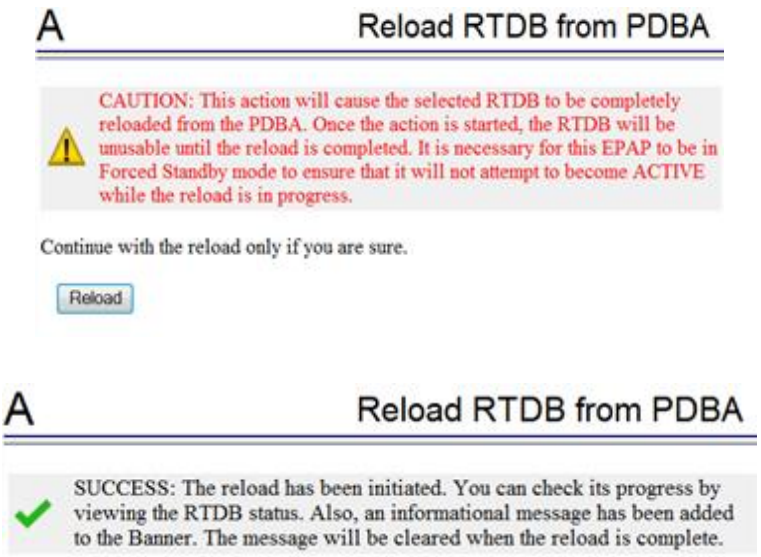
5. ☐	You will then be prompted to verify that you want to backup the MySQL Database.	`Are you sure you want to backup the MySQL database on MPS A? [N]:`
6. ☐	Type "Y" and press enter.	`Press Y`
7. ☐	While the backup is begin performed, the following output will be displayed to the screen.	`NPDB Backed up Successfully to /var/TKLC/appl/free/<file name>`
8. ☐	Exit this menu and return to the Unix login prompt. Continue exiting until you get to the Unix login prompt.	`Enter Choice: e` Note: If this menu is not exited properly, then the SSH login with root shall remain enabled.

9. ☐	Use SFTP to transfer the backup file to a remote customer provided computer.	Using SFTP (secure-FTP), transfer the NPDB backup file to a remote, customer-provided computer. Enter "yes" when prompted if you want to continue to connect.
		
		$ cd /var/TKLC/epap/free
		
		$ sftp <IP address of remote computer>
		`Connecting to <IP address of remote computer>...`
		`The authenticity of host '<IP address of remote computer>' can't be established.`
		`DSA key fingerprint is 58:a5:7e:1b:ca:fd:1d:fa:99:f2:01:16:79:d8:b4:24.`
		`Are you sure you want to continue connecting (yes/no)? yes`
		`Warning: Permanently added '<IP address of remote computer>' (DSA) to the list of known hosts.`
		`root@<IP address of remote computer>'s password:`
		`sftp> cd <target directory>`
		`sftp> put npdbBackup_<hostname>_20140530151806.sql.gz`
		`Uploading npdbBackup_<hostname>_20140530151806.sql.gz to npdbBackup_<hostname>_20140530151806.sql.gz`
		`sftp> bye`
		
		If no customer provided remote computer for backups exist, transfer the backup file to the mate using the following command
		$ su - epapdev
		
		$ scp /var/TKLC/epap/free/<npdb backup file> epapdev @mate:/var/TKLC/epap/free

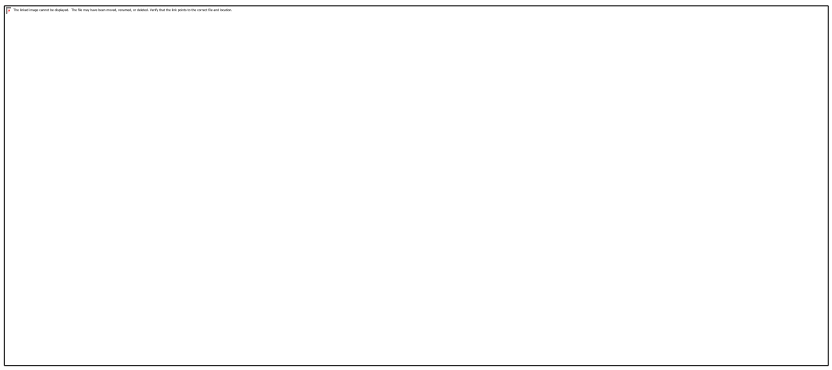
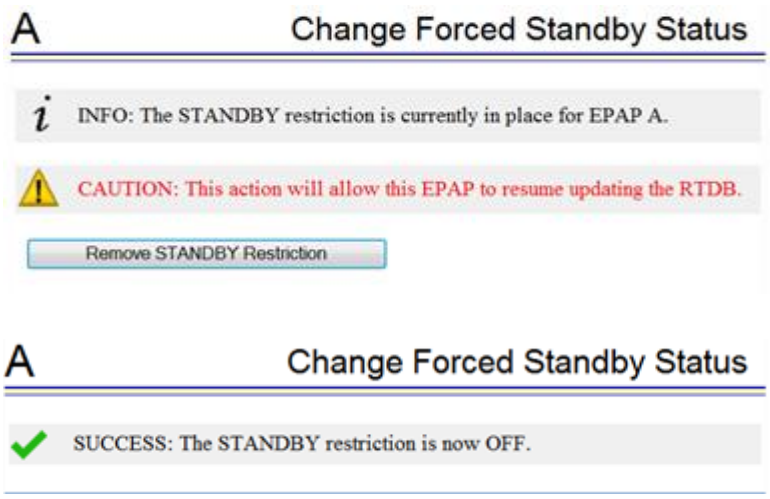
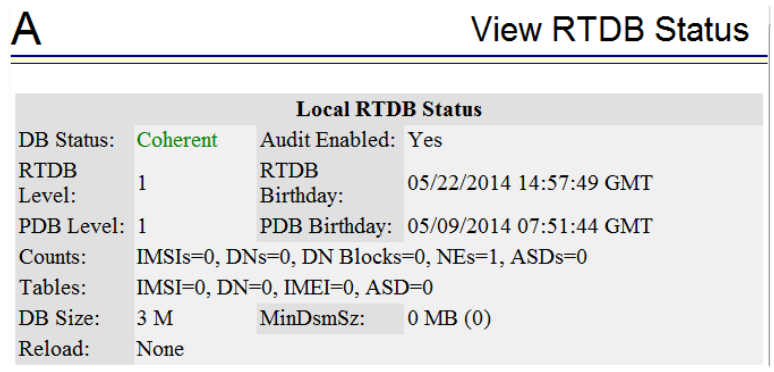
10. ☐	Procedure complete.	Return to the procedure that you came here from.
11. ☐	Note down the timestamp in log.	Run the following command: **$ date**

Procedure A.9 RTDB Reload from PDBA

Appendix A.9 RTDB Reload from PDBA

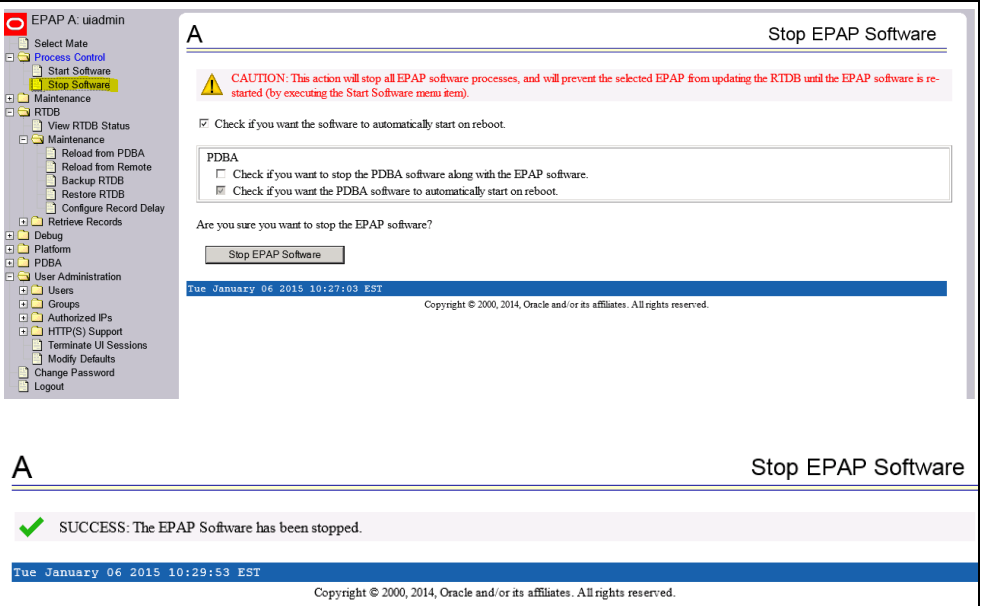
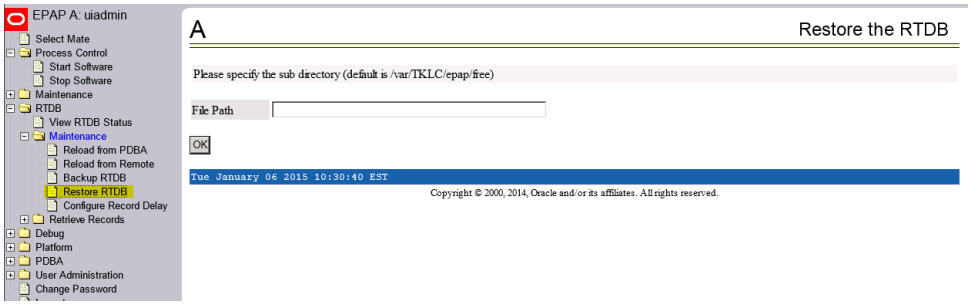
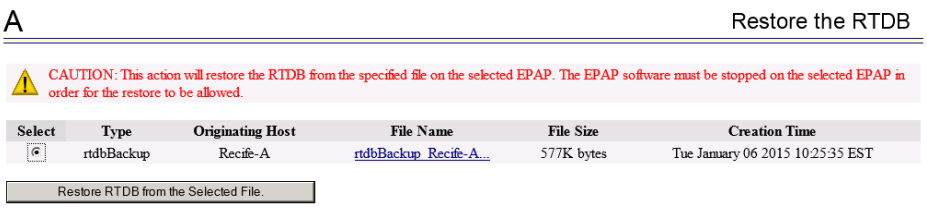
STEP #	This procedure provides instructions to reload RTDB from PDBA. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND ASK FOR ASSISTANCE.	
1. ☐	**EPAP A:** Log in to the web GUI as user "uiadmin".	
2. ☐	**EPAP A:** Put EPAP in Force Standby Mode. Expand the "Maintenance" Folder. Expand the "Force Standby" Folder. Select the "Change Status" link. Click on "Activate STANDBY Restriction" Button.	
3. ☐	**EPAP A:** Reload RTDB from PDBA. Expand the "RTDB" Folder. Expand the "Maintenance" Folder. Select the "Reload from PDBA" link. Click on the "Reload" Button. Observe the "SUCCESS" Status.	

Appendix A.9 RTDB Reload from PDBA

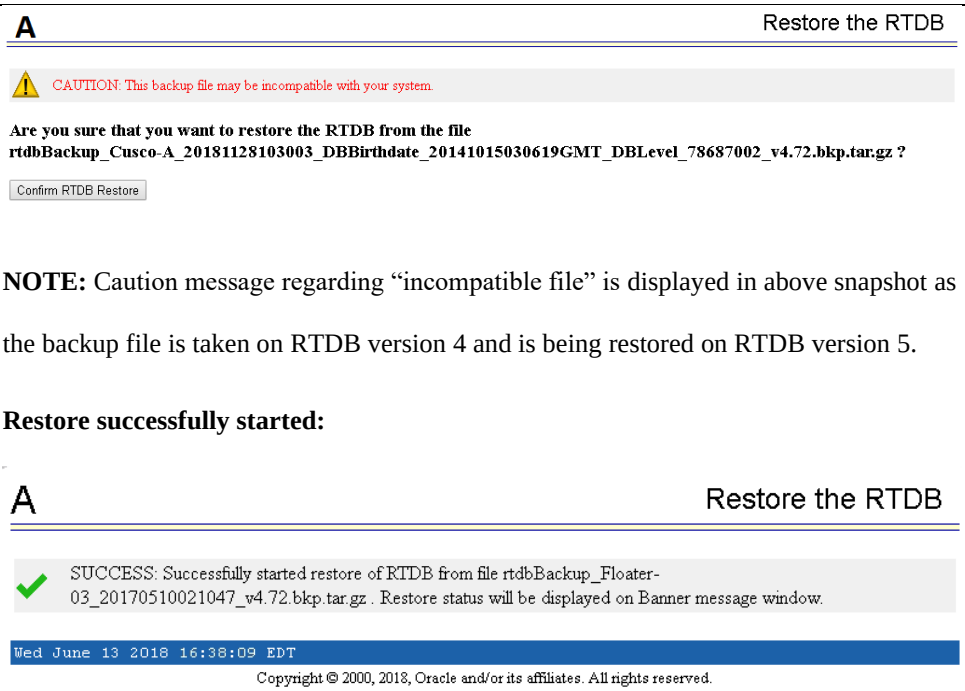
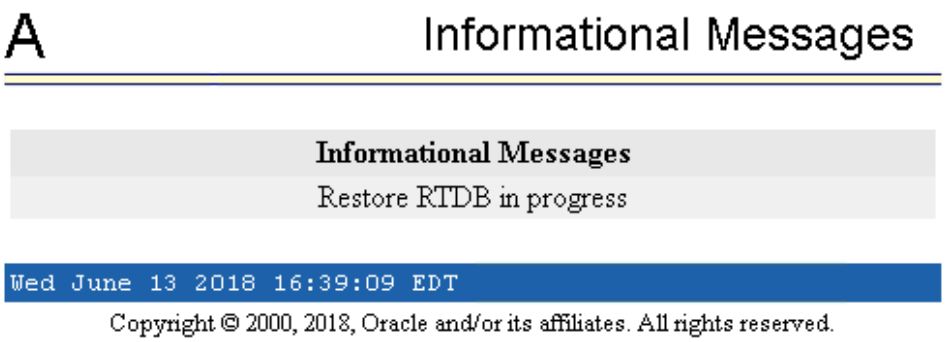
4. ☐	**EPAP A:** Wait for completion. Observe the GUI informational message and wait for the RTDB Reload completion message before proceeding.	
5. ☐	**EPAP A:** Remove EPAP from Force Standby Mode. Expand the "Maintenance" Folder. Expand the "Force Standby" Folder. Select the "Change Status" link. Click on "Remove STANDBY Restriction" Button.	
6. ☐	**EPAP A:** Verify RTDB status. Expand the "RTDB" Folder. Select the "View RTDB Status" link.	 The RTDB Status must be Coherent.
7. ☐	Procedure complete.	Return to the procedure that you came here from.
8. ☐	Note down the timestamp in log.	Run the following command: `$ date`

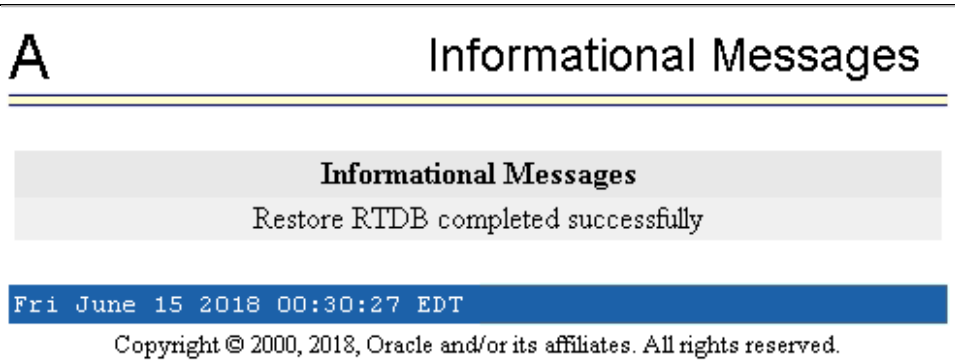
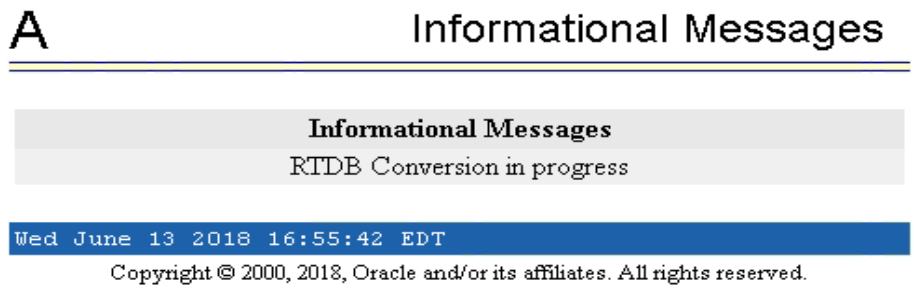
Procedure A.10 RTDB Restore

Appendix A.10 RTDB Restore

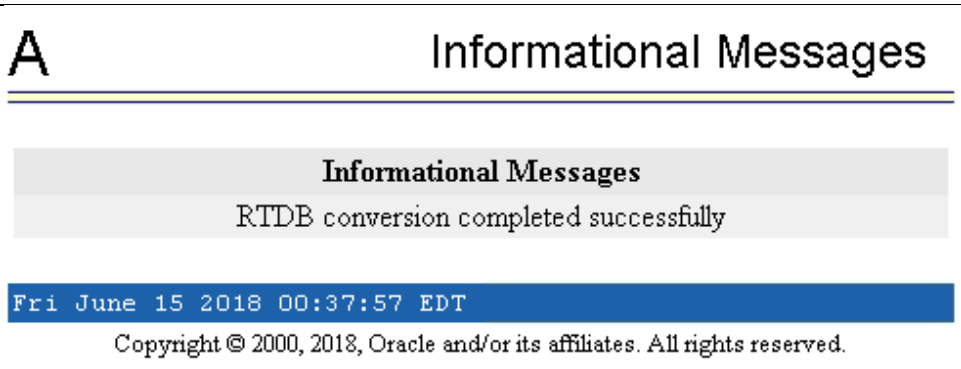
STEP #		
	This procedure provides instructions to restore RTDB from a backup file. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND ASK FOR ASSISTANCE.	
1. ☐	**EPAP A:** Log in to the web GUI as user "uiadmin".	
2. ☐	**EPAP A:** Stop Software. On the menu, click Process Control->Stop Software. Click "Stop EPAP Software" Button	
3. ☐	**EPAP A:** Restore RTDB. On the menu, click RTDB->Maintenance->Restore RTDB Select the backup file, then click "Restore RTDB from the Selected File" Button Click "Confirm RTDB Restore" Button	 

Appendix A.10 RTDB Restore

		 **NOTE:** Caution message regarding "incompatible file" is displayed in above snapshot as the backup file is taken on RTDB version 4 and is being restored on RTDB version 5. **Restore successfully started:**
4. ☐	**EPAP A:** Make EPAP down. An IM alarm should be observed with informational message on EPAP GUI confirming that restore RTDB is in progress. An IM alarm should be observed with informational message on EPAP GUI confirming that restore RTDB completed successfully. Click "Confirm RTDB Restore" Button	Conferming that Restore RTDB in progress:  Conferming that Restore RTDB is completed successfully:

		
5. ☐	**EPAP A:** RTDB converter is started. An IM alarm should be observed with informational message on EPAP GUI confirming that RTDB Conversion in progress. An IM alarm should be observed with informational message on EPAP GUI confirming that RTDB Conversion completed successfully.	This step is performed only to support EAGLE release 46.7.0.0.0 (On the setup where DB Architecture is eXtreme): 

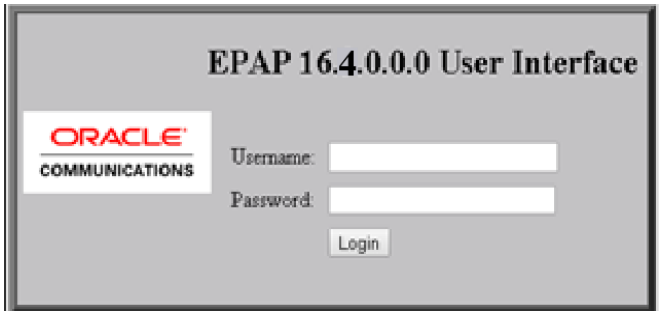
Appendix A.10 RTDB Restore

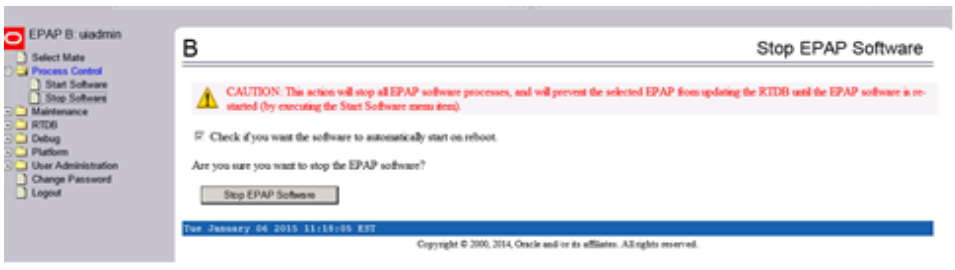
		
6. ☐	Procedure complete.	Return to the procedure that you came here from.
7. ☐	Note down the timestamp in log.	Run the following command: `$ date`

Procedure A.11 RTDB Reload from Remote

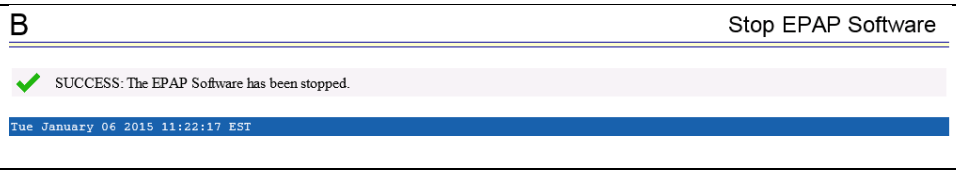
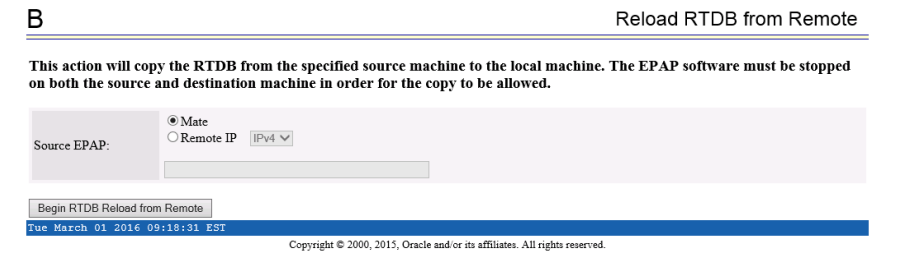
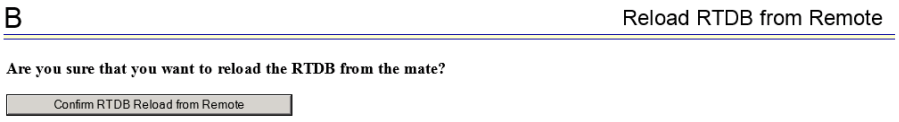
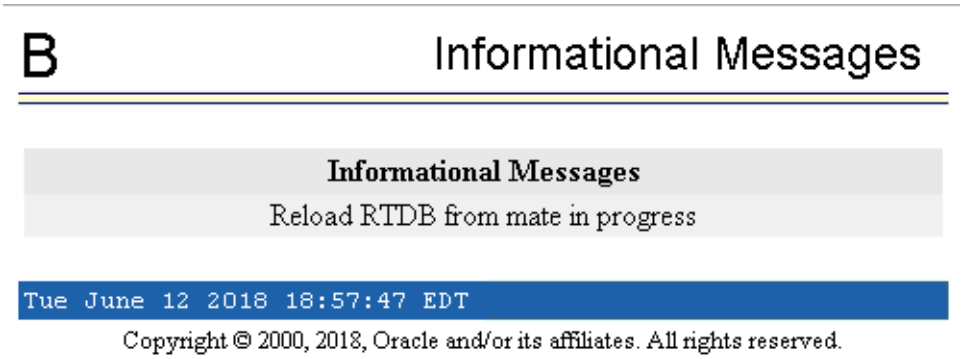
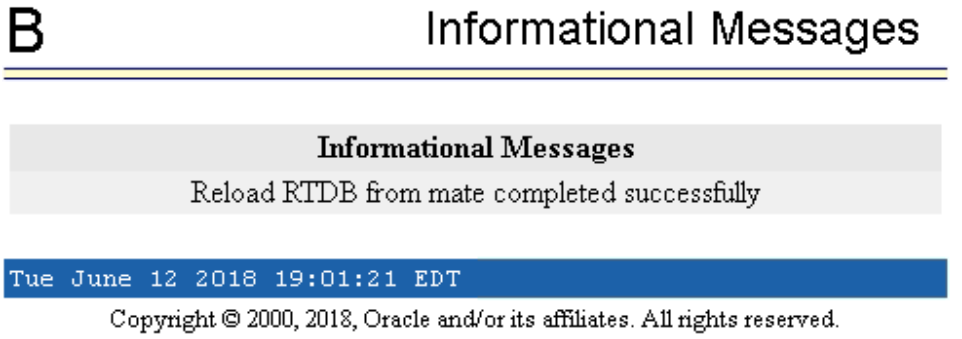
Appendix A.11 RTDB Reload from Remote

STEP #	This procedure provides instructions to restore RTDB from a backup file. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND ASK FOR ASSISTANCE.
1. ☐	**EPAP B:** Log in to the web GUI as user "uiadmin".
2. ☐	**EPAP B:** Stop Software. On the menu, click Process Control->Stop Software. Click "Stop EPAP Software" Button





Appendix A.11 RTDB Reload from Remote

		
3. ☐	**EPAP B:** Reload RTDB from Remote. On the menu, click RTDB->Maintenance->Reload from Remote Select Mate. Click "Begin RTDB Reload from Remote" Button Click "Confirm RTDB Reload from Remote" Button	**NOTE: If reload is attempted from a remote Non-Prov site, kindly exchange the keys between this Non-Prov and the Non-Prov from where reload is being attempted. If reload is from mate, no need to do anything.**  
4. ☐	**EPAP B:** Reload RTDB from Mate An IM alarm should be observed with informational message on EPAP GUI confirming the start of the reload process An informational alarm should be displayed with informational message when the reload is complete	 

Appendix A.11 RTDB Reload from Remote

5. ☐	MPS A and B: Restart the GUI Server process.	**Login to EPAP cli as epapdev user:** Login: **epapdev** Password: **<epapdev_password>** Run following commands to restart GUI server process **$ pkill gs** **$ ssh mate pkill gs**
6. ☐	**MPS B:** Start the Epap software on EPAP A and B.	**$ ssh mate /etc/init.d/Epap start** ~~ /etc/init.d/Epap start ~~ EPAP application started. **$ service Epap start** ~~ /etc/init.d/Epap start ~~ EPAP application started.
7. ☐	**MPS B:** Checking the RTDB Status Log onto the GUI of the B server and select RTDB, View RTDB Status**.** **Verify that the DB status for the local and the mate is Coherent**	**$ pkill gs** B View RTDB Status **Local RTDB Status** DB Status: Coherent Audit Enabled: Yes RTDB Level: 8 RTDB Birthday: 12/31/2014 15:01:20 GMT PDB Level: 8 PDB Birthday: 12/31/2014 15:02:16 GMT Counts: IMSIs=0, DNs=7, DN Blocks=0, NEs=1, ASDs=0 Tables: IMSI=0, DN=1, IMEI=0, ASD=0 DB Size: 403 M MinDsmSz: 14336 MB (1105 on epap240m) Reload: Unknown **Mate RTDB Status** DB Status: Coherent Audit Enabled: Yes RTDB Level: 8 RTDB Birthday: 12/31/2014 15:01:20 GMT PDB Level: 8 PDB Birthday: 12/31/2014 15:02:16 GMT Counts: IMSIs=0, DNs=7, DN Blocks=0, NEs=1, ASDs=0 Tables: IMSI=0, DN=1, IMEI=0, ASD=0 DB Size: 403 M MinDsmSz: 14336 MB (1105 on epap240m) Reload: Unknown
8. ☐	Procedure complete.	Procedure Complete.
9. ☐	Note down the timestamp in log.	Run the following command: **$ date**

Procedure A.12 ISO Image download from Oracle Software Delivery Cloud

This procedure defines the step to download the ISO from OSDC and copy to the test server at specific path.

Appendix A.12 ISO Image download from OSDC

S T E P #	This procedure provides instructions to download an ISO image from OSDC and copy to the required 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 MY ORACLE SUPPORT AND ASK FOR UPGRADE ASSISTANCE.	
1.	**MPS X:** Log in to the server as the "admusr" user.	**[hostname] consolelogin: admusr** **password: <admusr_password>**

Appendix A.12 ISO Image download from OSDC

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

3.	**MPS X:** Verify ISO image doesn't already exist.	Execute the following command to perform directory listing:
		$ ls –alrt /var/TKLC/upgrade
		
		The output should look like as follows (There is no ISO is present in following example):
		
		`[admusr@Osorna-B-PDBonly ~]$ ls -alrt /var/TKLC/upgrade/`
		`total 12`
		`drwxrwxr-x. 3 root admgrp 4096 Feb 19 21:43 .`
		`dr-xr-xr-x. 22 root root 4096 Jun 15 2018 ..`
		
		If an ISO image exists, remove it by executing the following command:
		
		$ rm –f /var/TKLC/upgrade/<ISO image>

4. ☐	Download the ISO image from OSDC.	Download the ISO image from OSDC(Oracle Software Delivery Cloud).
5. ☐	Copy the ISO from source path to destination path.	**NOTE: Skip this step if same ISO is already present on destination folder.** Copy the ISO image from source path to destination path using scp/ftp command. Execute the following command on destination server: **$ sudo scp <source_username>@<source_server_IP>:/<source_path>/xyz.iso /var/TKLC/upgrade** Password: <enter source userpassword> OR, Execute the following command on source server: **$ scp /<source_path>/<xyz.iso> admusr@<destination_server_IP>:/var/TKLC/upgrade** Password: <Enter admusr password>

Appendix A.12 ISO Image download from OSDC

6. ☐	**MPS X:** Verify ISO image copied on destination path.	Execute the following command to perform directory listing:
		$ ls -alrt /var/TKLC/upgrade
		
		The output should look like:
		`[admusr@hostname ~]$ ls -alrt /var/TKLC/upgrade`
		`total 1599016`
		`-r--r-----  1 root root  925388800 Aug 23 02:15 EPAP-16.3.0.0.0_163.12.0-x86_64.iso`
		`dr-xr-xr-x. 22 root root  4096 Aug 23 02:31 ..`
		`drwxrwxr-x.  3 root admgrp  4096 Sep 11 04:38 .`
		
		Repeat this procedure from step 1 if EPAP ISO file is not as expected.

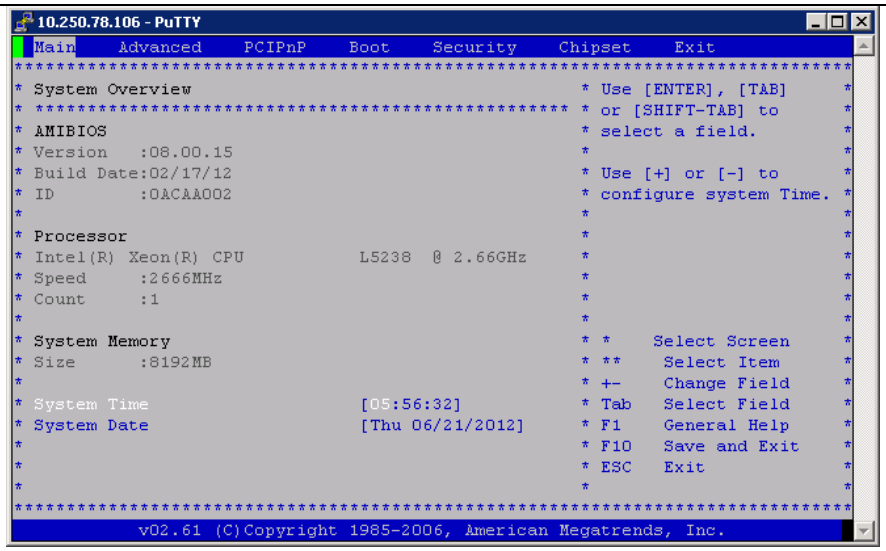
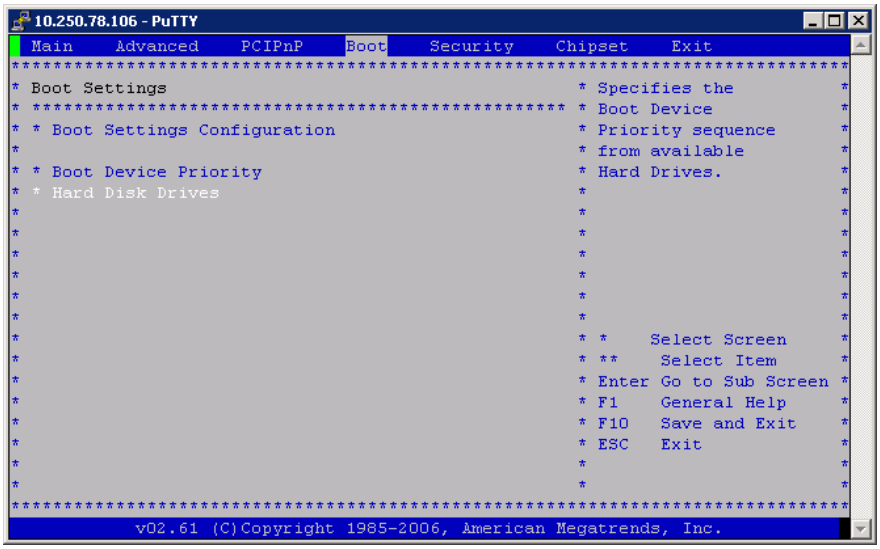
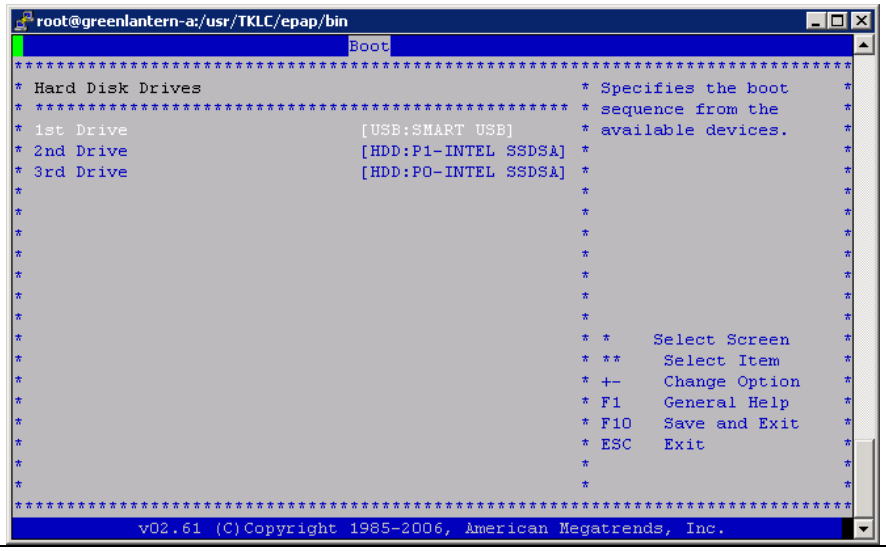
7.	**MPS X:** Validate ISO file.	Validate ISO file using Procedure A.2.
8.	**Procedure complete.**	This procedure is complete.
9.	Note down the timestamp in log.	Run the following command: **$ date**

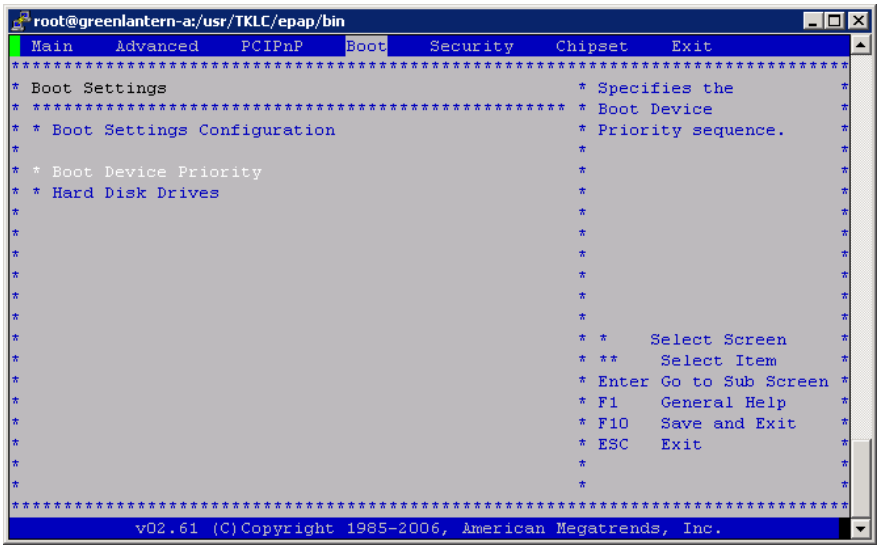
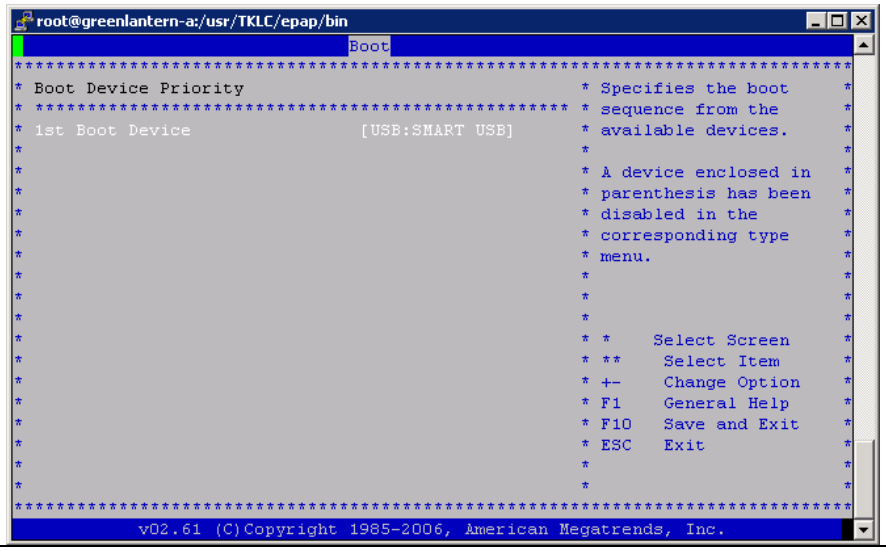
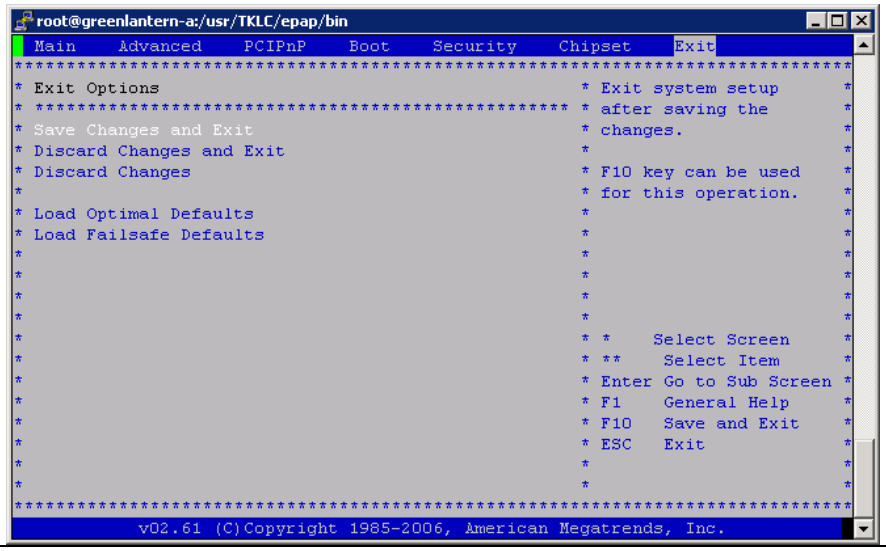
Procedure A.13 IPM MPS Server with TPD 7.6.2

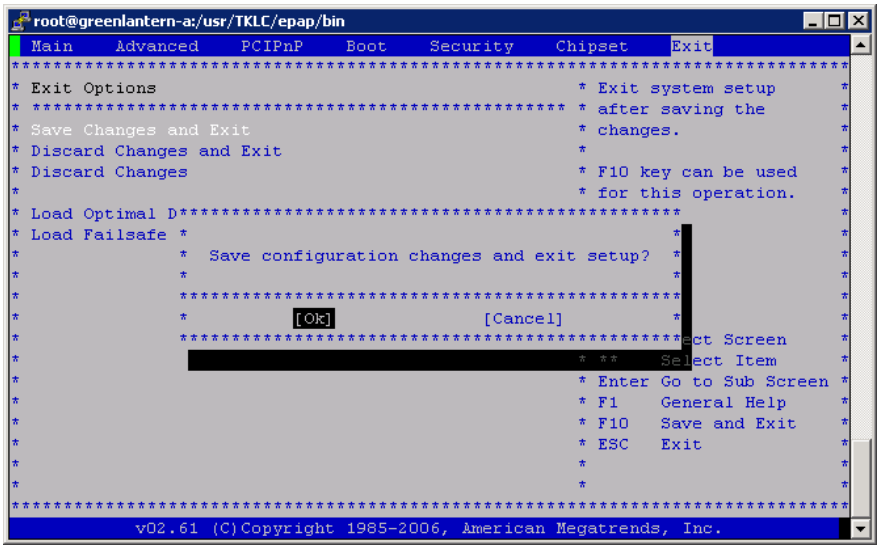
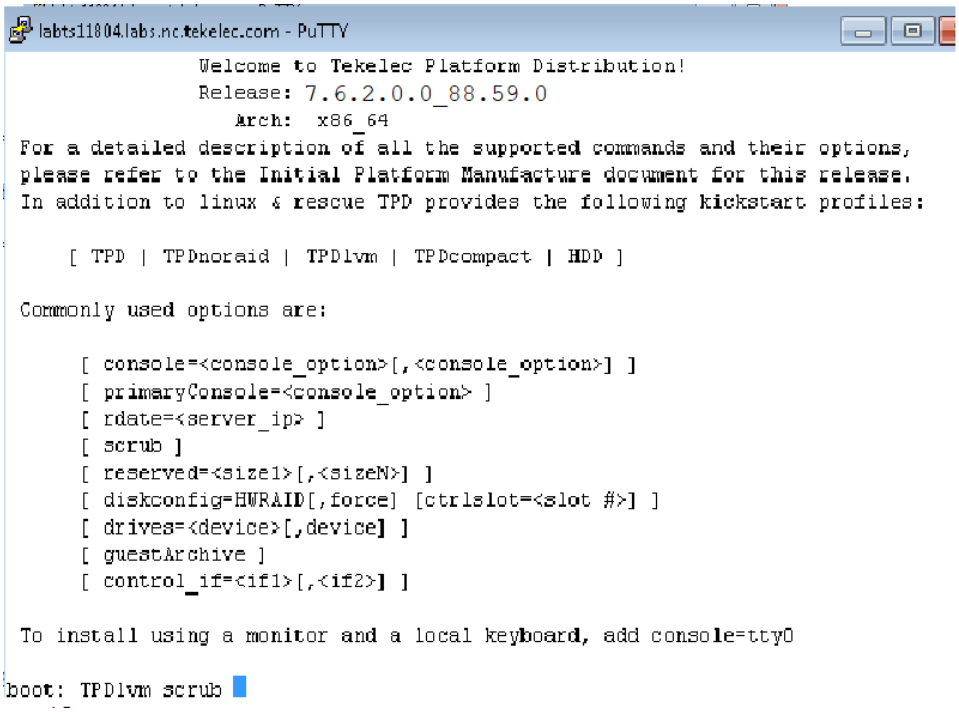
Note: Both the MPS-A and MPS-B servers can be IPM'ed at the same time.

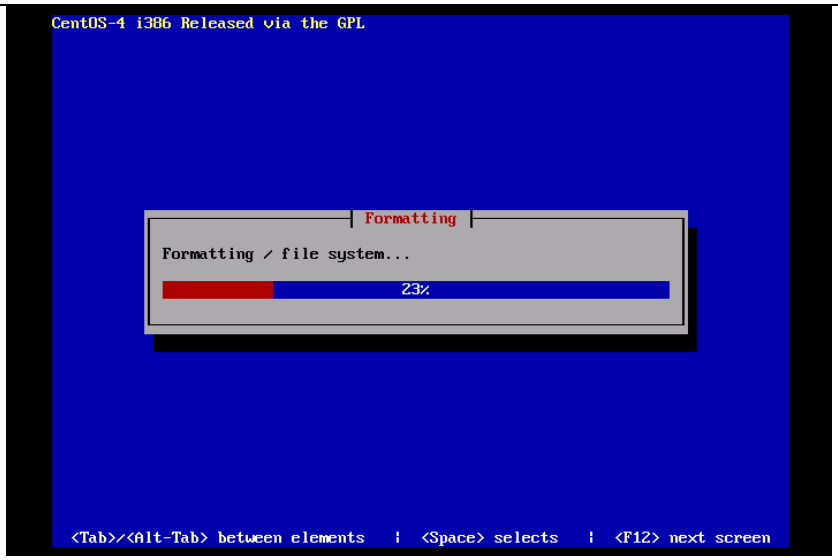
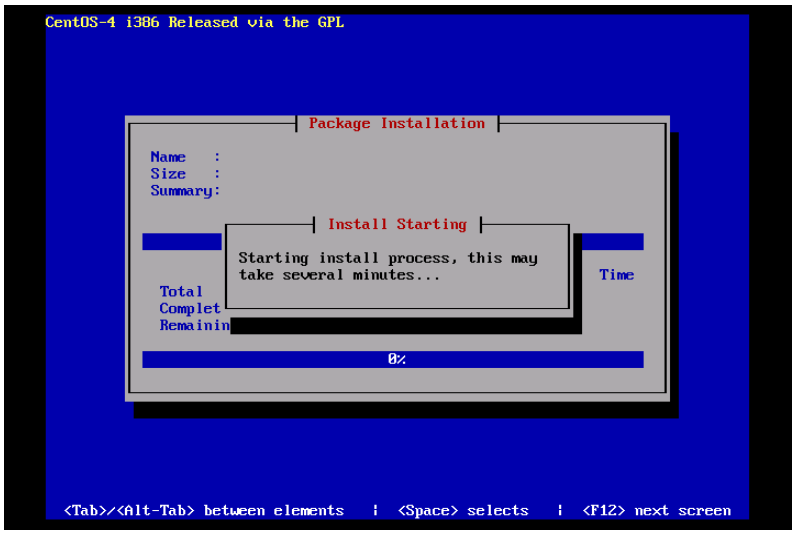
Appendix A.13 IPM with TPD 7.6.2

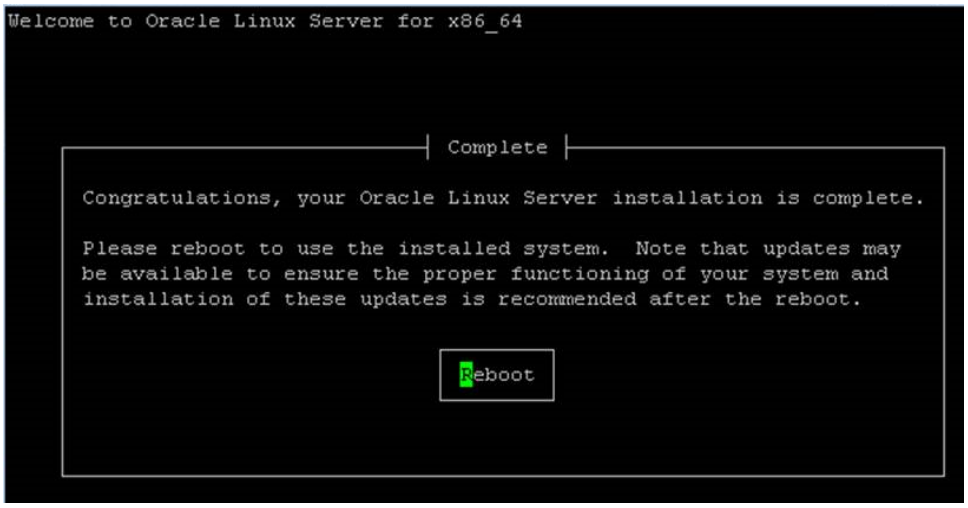
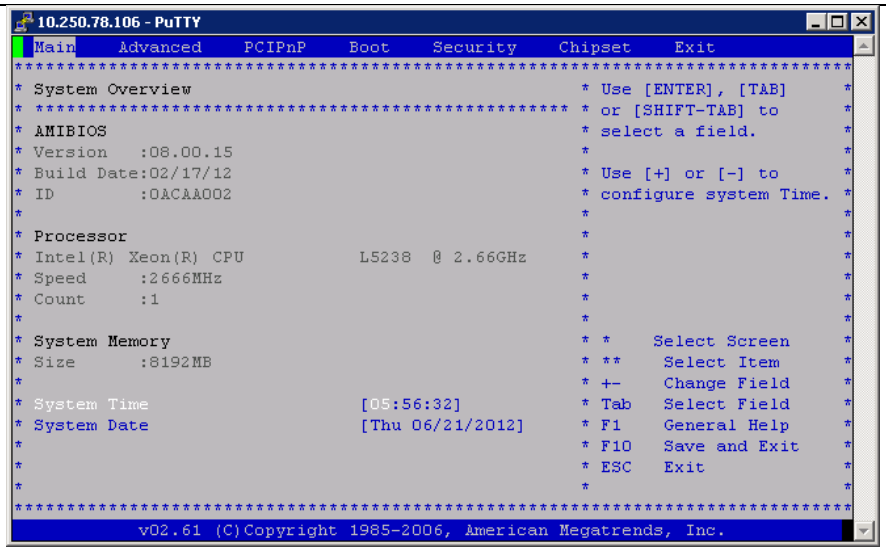
S T E P #	This procedure will IPM the E5-APP-B Server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
1. ☐	**MPS X:** Insert TPD 7.6.2 USB media into the USB port (E5-APP-B)	Reboot server **# reboot**

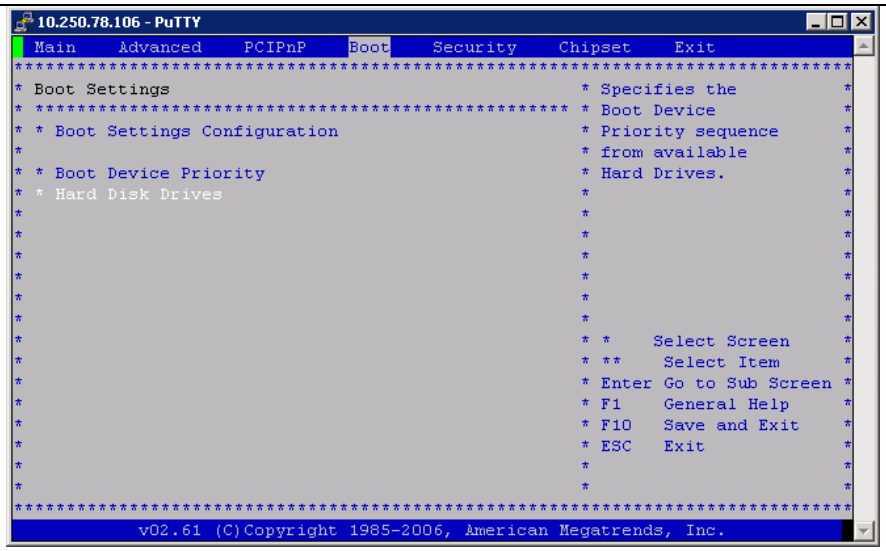
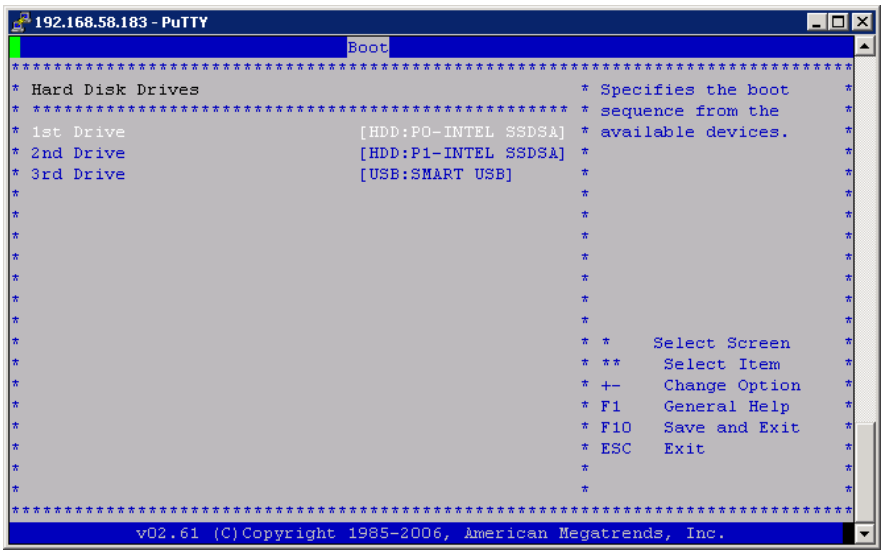
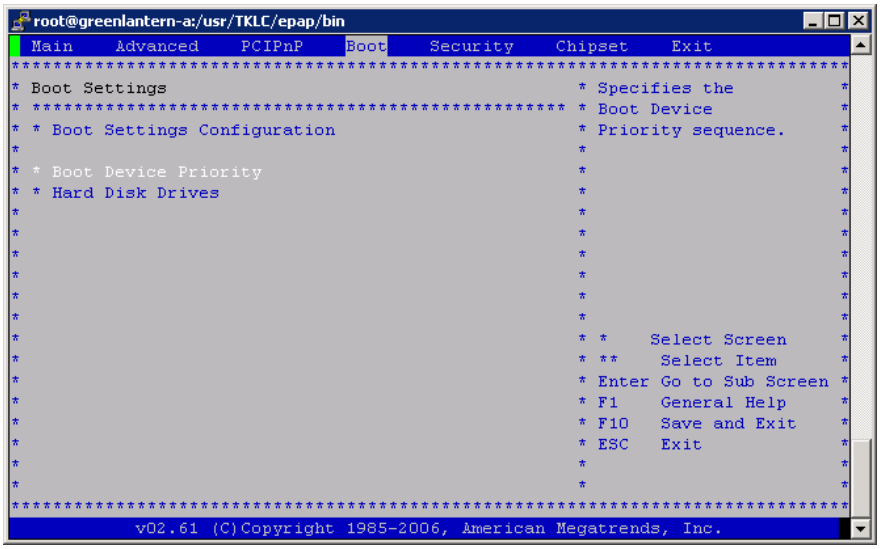
2. ☐	**MPS X:** Press 'del' key to enter the BIOS, set System Time to GMT time, and System Date.	
3. ☐	**MPS X:** Select *Boot* → *Hard Disk Drives* option	
4. ☐	**MPS X:** Press 'Enter' key and select USB as the 1st Drive	

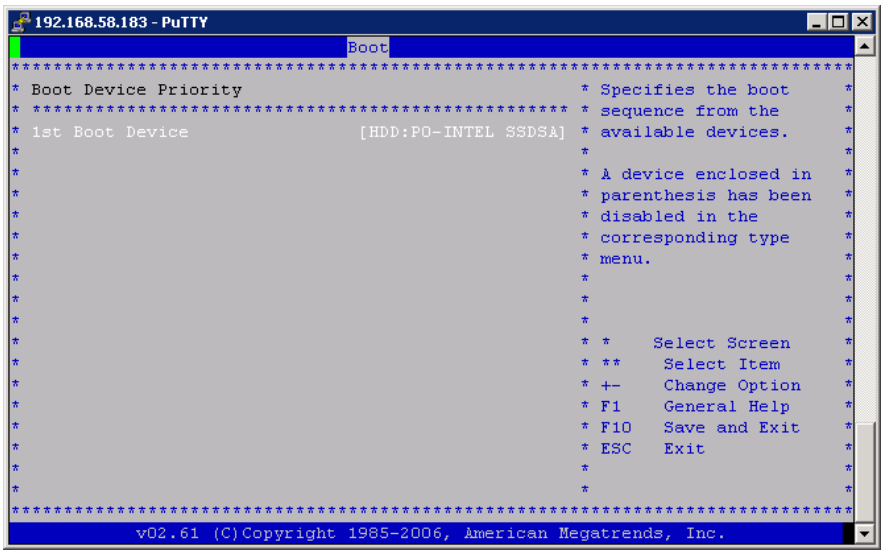
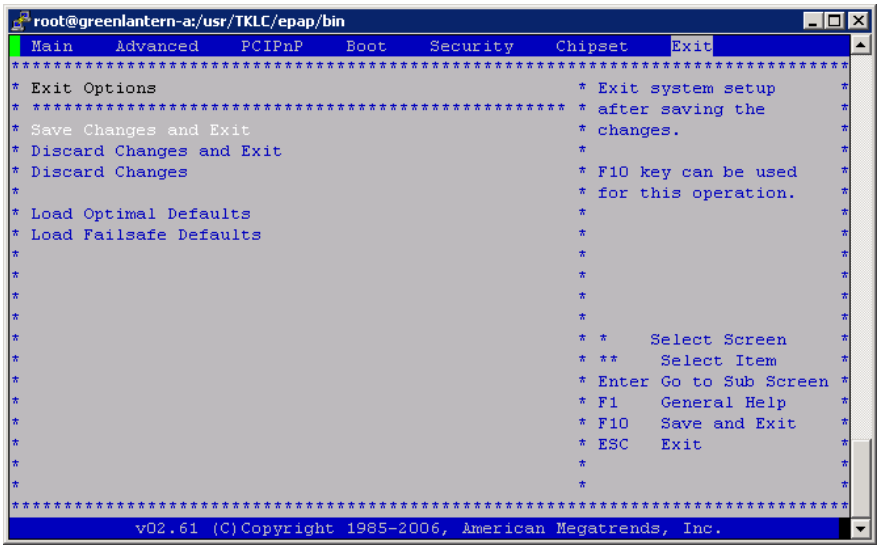
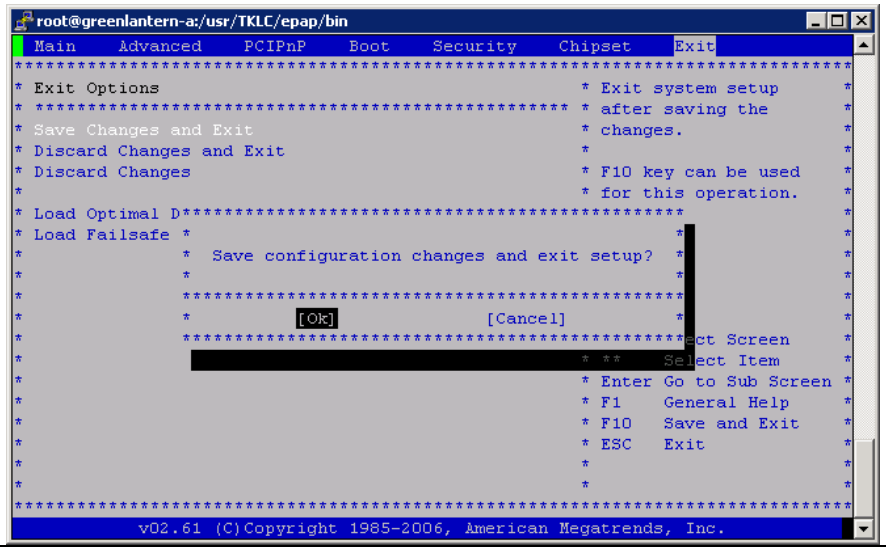
5. ☐	**MPS X:** Press 'Esc' key and select Boot Device Priority	
6. ☐	**MPS X:** Verify that the 1st Boot Device is set to USB.	
7. ☐	**MPS X:** Press 'Esc' key and select *Exit → Save Changes and Exit* option	

8. ☐	**MPS X:** Select [OK] to save the configuration changes. The server will reboot and TPD boot prompt will appear.	
9. ☐	**MPS X:** Start the IPM process by entering the TPDlvm command at the boot prompt.	
10. ☐	**MPS X:** After a few seconds, additional messages will begin scrolling by on the screen as the Linux kernel boots, and then the drive formatting and file system creation steps will begin.	

		
11. ☐	**MPS X:** Once the drive formatting and file system creation steps are complete, the screen at right will appear indicating that the package installation step is about to begin.	
12. ☐	**MPS 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.	
13. ☐	**MPS X:** Once all the packages have been successfully installed, the screen at right will appear letting you know the installation process is complete. **On E5-APP-B server remove the installation media (USB) and press <ENTER> to reboot the system and continue with the next step.**	
14. ☐	**MPS X:** Press 'del' key to enter the BIOS, set correct System Time in GMT and System Date.	
15. ☐	**MPS X:** Select *Boot* → *Hard Disk Drives* option	

		
16. ☐	**MPS X:** Press 'Enter' key and select HDD:P0 as the 1st Drive	
17. ☐	**MPS X:** Press 'Esc' key and select Boot Device Priority	

18. ☐	**MPS X:** Verify that the 1st Boot Device is set to HDD:P0.	
19. ☐	**MPS X:** Press 'Esc' key and select *Exit* → *Save Changes and Exit* option	
20. ☐	**MPS X:** Select [OK] to save the configuration changes. The server will reboot. Remove USB media from USB drive.	

Appendix A.13 IPM with TPD 7.6.2

		When the message "Upstart Job ntdMgr: started", is displayed, press the Enter Key to get the Login prompt.
21. ☐	**MPS X:** Log in to the server as the user "admusr"	**console login: admusr** **password: <admusr_password>**
22. ☐	**MPS X:** Verify that the platform revision is same as the TPD DVD or ISO used.	`$ getPlatRev` `7.6.2.0.0-y.z.0`
23. ☐	**MPS X:** Verify the system date.	`$ date -u` Wed Mar 21 11:04:54 UTC 2018 Verify that the output time matches the time set in step 14. If mismatch is found, then Refer to Appendix F for instructions on accessing My Oracle Support.
24. ☐	**Procedure complete.**	Return to the procedure that you came here from.
25. ☐	Note down the timestamp in log.	Run the following command: `$ date`

Procedure A.14 Standalone PDB Segmented Configuration

Note: All the networks (Prov, GUI and OAM) should be in different subnets. The networks can be a mix of IPv4 and IPv6 IPs.

Appendix A.14 Standalone PDB Segmented Configuration

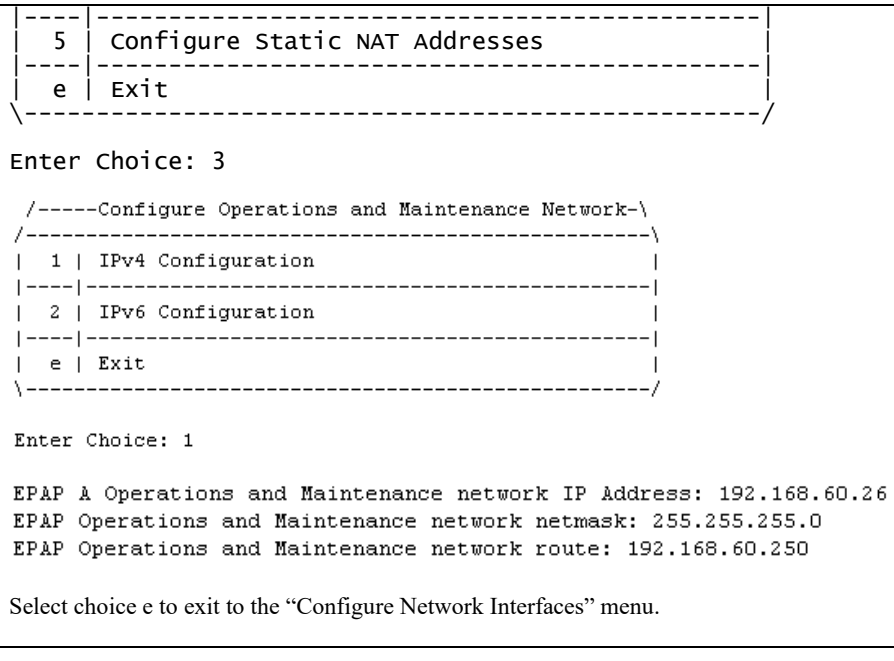
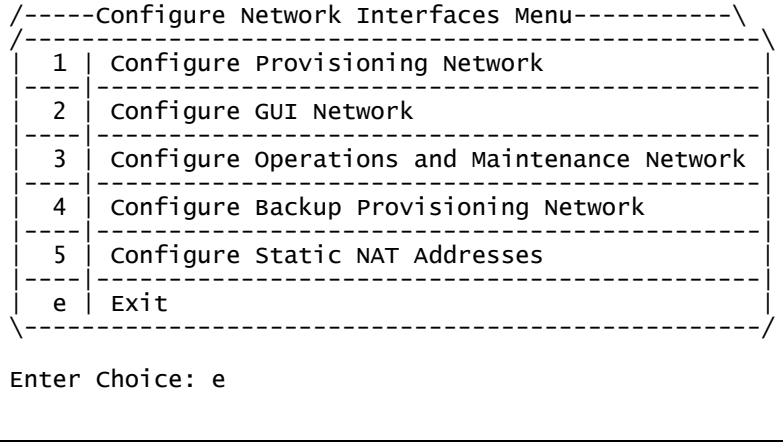
S T E P #	This procedure will configure the standalone PDB in segmented configuration. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
1. ☐	**MPS A:** Log on Server A.	`[hostname] consolelogin: admusr` `password: password`
2. ☐	**MPS A:** Switch user to epapconfig.	`$ sudo su - epapconfig`
3. ☐	**MPS A:** A note of caution appears. Press Return to continue.	`Caution: This is the first login of the text user interface.` `Press return to continue...`
4. ☐	**MPS A:** Upon pressing Return you can now abort or proceed with the initial configuration. To continue with the configuration, enter Y.	`Are you sure you wish to continue? [N]: Y`
5.	**MPS A:** Enter the	`Building the initial database on side A.`

Appendix A.14 Standalone PDB Segmented Configuration

☐	System Number and Network Configuration Type as “Segmented”.	Stopping local slave No preexisting EuiDB database was detected. Set EPAP System Number: **<Enter the System Number here>** Enter the Network Configuration Type (1 for Single, 2 for Segmented): **2**
6. ☐	**MPS A:** The EPAP Configuration Menu is displayed. Select choice 2, Configure Network Interfaces Menu.	/-----EPAP Configuration Menu----------\ /----------\ | 1 | Display Configuration | | 2 | Configure Network Interfaces Menu | | 3 | Set Time Zone | | 4 | Exchange Secure Shell Keys | | 5 | Change Password | | 6 | Platform Menu | | 7 | Configure NTP Server | | 8 | PDB Configuration Menu | | 9 | Security | | 10 | SNMP Configuration | | 11 | Configure Alarm Feed | | 12 | Configure Query Server | | 13 | Configure Query Server Alarm Feed | | 14 | Configure SNMP Agent Community | | 15 | DB Architecture Menu | | e | Exit | \----------/ Enter Choice: 2
7. ☐	**MPS A:** The Configure Network Interfaces Menu is displayed. Select choice 1, Configure Provisioning Network.	/-----Configure Network Interfaces Menu----------\ /----------\ | 1 | Configure Provisioning Network | | 2 | Configure GUI Network | | 3 | Configure Operations and Maintenance Network | | 4 | Configure Backup Provisioning Network | | 5 | Configure Static NAT Addresses | | e | Exit | \----------/ Enter Choice: 1

Appendix A.14 Standalone PDB Segmented Configuration

	Note: Enter choice "1" for IPv4 configuration. Otherwise, enter choice "2" for IPv6 configuration.	/-----Configure Provisiong Network Menu-\ /----------\ | 1 | IPv4 Configuration | |----|----------| | 2 | IPv6 Configuration | |----|----------| | e | Exit | \----------/ Enter Choice: Example output Standalone PDB in IPv4 configuration: EPAP A provisioning network IP Address: 192.168.61.35 EPAP provisioning network netmask: 255.255.255.0 EPAP provisioning network default router: 192.168.61.250 Select choice e to exit to the "Configure Network Interfaces" menu.
8. ☐	**MPS A:** The Configure Network Interfaces Menu is displayed. Select choice 2, Configure GUI Network. Note: Enter choice "1" for IPv4 configuration. Otherwise, enter choice "2" for IPv6 configuration.	/-----Configure Network Interfaces Menu----------\ /----------\ | 1 | Configure Provisioning Network | |----|----------| | 2 | Configure GUI Network | |----|----------| | 3 | Configure Operations and Maintenance Network | |----|----------| | 4 | Configure Backup Provisioning Network | |----|----------| | 5 | Configure Static NAT Addresses | |----|----------| | e | Exit | \----------/ Enter Choice: 2 /-----Configure GUI Network-\ /----------\ | 1 | IPv4 Configuration | |----|----------| | 2 | IPv6 Configuration | |----|----------| | e | Exit | \----------/ Enter Choice: 1 Example output Standalone PDB in IPv4 configuration: EPAP A GUI network IP Address: 192.168.59.27 EPAP GUI network netmask: 255.255.255.0 EPAP GUI network route: 192.168.59.250 Select choice e to exit to the "Configure Network Interfaces" menu.
9. ☐	**MPS A:** The Configure Network Interfaces Menu is displayed. Select choice 3, Configure Operations and Maintenance Network.	/-----Configure Network Interfaces Menu----------\ /----------\ | 1 | Configure Provisioning Network | |----|----------| | 2 | Configure GUI Network | |----|----------| | 3 | Configure Operations and Maintenance Network | |----|----------| | 4 | Configure Backup Provisioning Network |

	Note: Enter choice "1" for IPv4 configuration. Otherwise, enter choice "2" for IPv6 configuration.	 Select choice e to exit to the "Configure Network Interfaces" menu.
10. ☐	**MPS A:** Select choice e to exit from the epapconfig menu.	

Appendix A.14 Standalone PDB Segmented Configuration

		/-----EPAP Configuration Menu----------\ /----------\ | 1 | Display Configuration | |----|----------| | 2 | Configure Network Interfaces Menu | |----|----------| | 3 | Set Time Zone | |----|----------| | 4 | Exchange Secure Shell Keys | |----|----------| | 5 | Change Password | |----|----------| | 6 | Platform Menu | |----|----------| | 7 | Configure NTP Server | |----|----------| | 8 | PDB Configuration Menu | |----|----------| | 9 | Security | |----|----------| | 10 | SNMP Configuration | |----|----------| | 11 | Configure Alarm Feed | |----|----------| | 12 | Configure Query Server | |----|----------| | 13 | Configure Query Server Alarm Feed | |----|----------| | 14 | Configure SNMP Agent Community | |----|----------| | 15 | DB Architecture Menu | |----|----------| | e | Exit | \----------/ Enter Choice: 2 Enter Choice: e Note: If this menu is not exited properly, then the SSH login with root shall remain enabled.
11. ☐	**MPS A:** Procedure is complete.	Procedure is complete.
12. ☐	Note down the timestamp in log.	Run the following command: **$ date**

Procedure A.15 Password change for EPAP System Users

Appendix A.15 Password change for EPAP System Users

S T E P	This procedure will change the password for the EPAP System User(s). Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE**.

Appendix A.15 Password change for EPAP System Users

#		
1. ☐	**MPS A:** Log on Server A with the EPAP System User for which the password is to be changed.	`[hostname]: <EPAP System User>` `password: <epapdev` *`password`*`>`

2. ☐	**MPS A:** Change Password for an EPAP system user	Execute the command to change to password of an existing EPAP user.
		`$ passwd`
		Changing password for user <EPAP System User>.
		Changing password for <EPAP System User>.
		(current) UNIX password: **<Enter the current password here>**
		New password: **<Enter the new password here>**
		Retype new password: **<Retype the new password here>**
		passwd: all authentication tokens updated successfully.
		
		Note: The Linux "passwd" command used to change the password of Linux users, follows the Linux PAM rules. Refer to the Linux manual for the PAM rules.
		`# man pam_cracklib`

3. ☐	**MPS B:** Change Password	Repeat steps 1and 2 on MPS B also. Note: The new password on MPS A and B should be same.
4. ☐	**MPS A: Procedure Complete**	This procedure is complete.
5. ☐	Note down the timestamp in log.	Run the following command: `$ date`

Procedure A.16 E5-APP-B Halt/Shutdown

Appendix A.16 E5-APP-B Halt/Shutdown

S T E P #	This procedure will halt the E5-APP-B hardrware. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
1. ☐	**E5APPB Card:** Slide the ejector switch	On the APP-B card, slide the Ejector switch (4) up to the UNLOCKED position. Refer to Figure 7. Caution: If the Ejector switch goes from locked to unlocked and the E5-APP-B card is in service, the card will halt.
2. ☐	**E5APPB Card:** Monitor the Eject Status LED	WAIT for the E5-APP-B Eject Status LED to go from blinking red to a steady red.
3. ☐	**E5APPB Card:** Lever Release	Grasp the upper and lower card Inject/Eject (I/E) lever release (3) just underneath the I/E lever, and press it to meet the I/E lever. This is the mechanical interlock for the card. Refer to Figure 8.
4. ☐	**E5APPB Card:** Pull out the levers	While holding the I/E interlock and lever, pull the levers (2) away from the shelf until they are parallel to the floor. Refer to Figure 8.
5. ☐	**E5APPB Card:** Slide the ejector switch	Remove the E5-APP-B card from the EAGLE shelf.
6. ☐	**MPS A: Procedure Complete**	This procedure is complete.
7. ☐	Note down the timestamp in log.	Run the following command: `$ date`

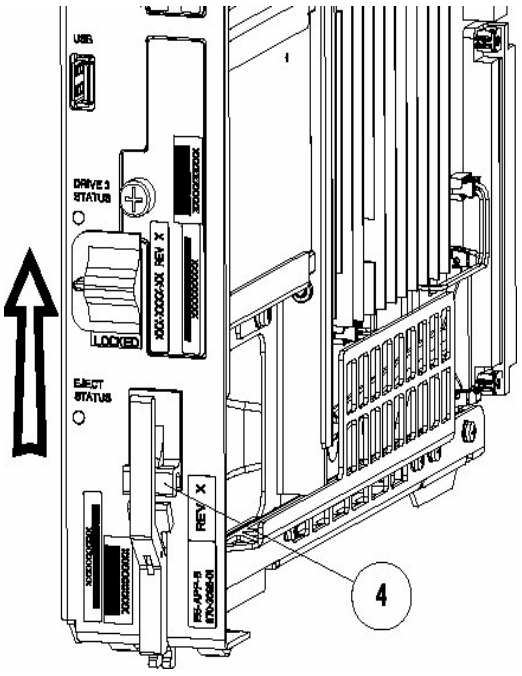


Figure 7: Slide the Ejector Switch

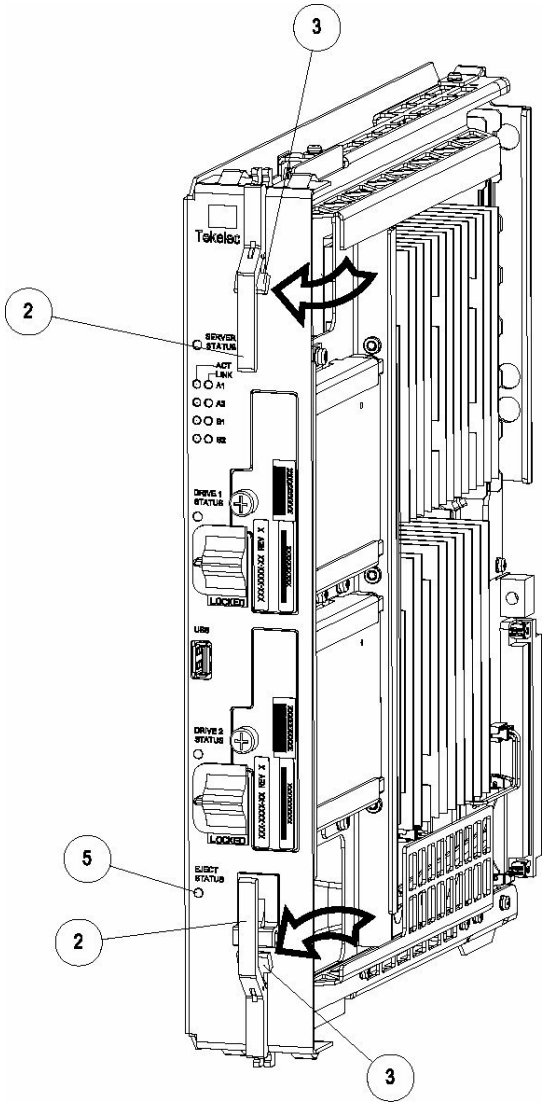


Figure 8: Release Lever

Procedure A.17 Procedure to Configure EPAP switch ports and EAGLE SM cards to support 1G EPAP-to-Eagle RTDB download speed

Note: This needs to be done in coordination with the EAGLE team.

Appendix A.17 Procedure to Configure EPAP switch ports and EAGLE SM cards to support 1G EPAP-to-Eagle RTDB download speed

S T E P #	This procedure will configure EPAP Switch ports and Eagle SM cards to support 1G EPAP-to-EAGLE download speed. Note: Estimated time of completion is 20 minutes.	
1. ☐	**E5-APP-B A/B:** Configure the SM ports on EPAP switch to	Follow Procedure 9 to Configure the SM ports on EPAP switch to 1000 Mbps

	1000 Mbps.	
2. ☐	**EAGLE:** Configure Ethernet port on EAGLE SM cards that connects to EPAP to Auto-negotiate.	Eagle Command to configure an Ethernet port on EAGLE SM cards that connects to EPAP: CHG-IP-LNK:LOC=<SM card location>:PORT=<Port>:IPADDR=<IP Address>:SUBMASK=<Subnet Mask>:MCAST=YES:AUTO=YES
3. ☐	**EAGLE:** Verify the auto negotiation status of the Ethernet ports on EAGLE SM cards that connects to EPAP. Make sure the ports are getting auto-negotiated to 1000Mbps/Full Duplex.	Eagle Command to verify auto negotiation status of an Ethernet port on EAGLE SM cards that connects to EPAP: PASS: LOC=<SM card location>:CMD="NETSTAT -I" Please go through the "Identifying the Ethernet port status on SM cards using "NETSTAT -I" display" section below. If ports on SM cards are getting auto-negotiated to 1000Mbps/Full Duplex correctly, then stop here. Otherwise continue with next step.
4. ☐	**E5-APP-B A/B:** Configure the SM ports on EPAP switch to auto-negotiate.	Follow Procedure 9 to Configure the SM ports on EPAP switch to 'auto'.
5. ☐	**EAGLE:** Verify the auto negotiation status of a Ethernet port on EAGLE SM cards that connects to EPAP. Make sure the ports are getting auto-negotiated to 1000Mbps/Full Duplex.	Eagle Command to verify auto negotiation status of an Ethernet port on EAGLE SM cards that connects to EPAP: PASS: LOC=<SM card location>:CMD="NETSTAT -I" Please go through the "Identifying the Ethernet port status on SM cards using "NETSTAT -I" display" section below
6. ☐	Note down the timestamp in log.	Run the following command: **$ date**

Identifying the Ethernet port status on SM cards using "NETSTAT -I" display:

SM8G-B card running SCCPHC:

```
gei (unit number 2) = ExAP Port A
gei (unit number 3) = ExAP Port B
```

SM8G-B card running SCCPHC:

```
gei (unit number 2) = ExAP Port A
gei (unit number 3) = ExAP Port B
```

```
> rept-stat-card:mode=full:loc=1307

    eagle1 17-05-04 16:43:49 MST  EAGLE 46.5.0.0.0-70.29.0
    CARD   VERSION      TYPE      GPL        PST            SST        AST
    1307   140-029-000  DSM       SCCPHC     IS-ANR         MPS Unavl  -----
      ALARM STATUS        = No Alarms.
      BLMCAP  GPL version = 140-029-000
      IMT BUS A           = Conn
      IMT BUS B           = Disc
      CLOCK A             = Fault
      CLOCK B             = Active
      CLOCK I             = Idle
      MBD BIP STATUS      = Valid
      MOTHER BOARD ID     = SMXG B
      DBD STATUS          = Valid
      DBD TYPE            = None
```

```
      DBD MEMORY SIZE     = 8192M
      HW VERIFICATION CODE= ----
      FPGA VERSION        = 9
      BIOS VERSION        = 0ABSV01
      PSOC VERSION        = 0.1
      CURRENT TEMPERATURE =  34C ( 94F)
      PEAK TEMPERATURE:   =  34C ( 94F)     [17-05-04 15:49]
      SCCP % OCCUP        = 0%
      SCCP SM DATA TYPE   = DN
      APPLICATION SERVICING
                                      MFC          MFC
          SNM     REQ STATUS =   24 hr: ---, 5 min: ---
          INM     REQ STATUS =   24 hr: ---, 5 min: ---
          MTP3    REQ STATUS =   24 hr: ---, 5 min: ---
          SFLOG   REQ STATUS =   24 hr: ---, 5 min: ---
      IPLNK STATUS
          IPLNK  IPADDR             STATUS     PST
          A      192.168.120.21     DOWN       OOS-MT
          B      192.168.121.21     DOWN       OOS-MT
      DSM IP CONNECTION
          PORT   PST             SST
          A      OOS-MT          Unavail
          B      OOS-MT          Unavail

    Command Completed.
;

> pass:loc=1307:cmd="netstat -i"


    eagle1 17-05-04 16:44:26 MST  EAGLE 46.5.0.0.0-70.29.0
    SDS Shell Output

    -> tklc_ifShow
    lo (unit number 0):
         Flags: (0x48049) UP LOOPBACK MULTICAST TRAILERS ARP RUNNING INET_UP
         Type: SOFTWARE_LOOPBACK
         inet: 127.0.0.1
         Netmask 0xff000000 Subnetmask 0xff000000
         Metric is 0
         Maximum Transfer Unit size is 1536
         0 packets received; 1 packets sent
         0 multicast packets received
         0 multicast packets sent
         0 input errors; 0 output errors
         0 collisions; 0 dropped
         0 output queue drops
    DPLend (unit number 0):
         Flags: (0x20043) UP BROADCAST ARP RUNNING
         Type: ETHERNET_CSMACD
         Ethernet address is 00:00:00:00:00:00
         Metric is 0
         Maximum Transfer Unit size is 485
         0 octets received
         0 octets sent
         0 unicast packets received
         0 unicast packets sent
         0 non-unicast packets received
         0 non-unicast packets sent
         0 incoming packets discarded
         0 outgoing packets discarded
         0 incoming errors
         0 outgoing errors
         0 unknown protos
         0 collisions; 0 dropped
         0 output queue drops
    gei (unit number 2):
         Flags: (0x78043) UP BROADCAST MULTICAST ARP RUNNING INET_UP
```

```
          PHY Flags: (0x12114) AUTONEG 1000MB FDX DIX
          Type: ETHERNET_CSMACD
          inet: 192.168.120.21
          Broadcast address: 192.168.120.255
          Netmask 0xffffff00 Subnetmask 0xffffff00
          Ethernet address is 00:00:17:0e:b7:d2
          Metric is 0
          Maximum Transfer Unit size is 1500
          250214 octets received
          122200 octets sent
          0 unicast packets received
          0 unicast packets sent
          0 multicast packets received
          0 multicast packets sent
          2075 broadcast packets received
          940 broadcast packets sent
          0 incoming packets discarded
          0 outgoing packets discarded
          0 incoming errors
          0 outgoing errors
          0 unknown protos
          0 collisions; 0 dropped
          0 output queue drops
     gei (unit number 3):
          Flags: (0x78043) UP BROADCAST MULTICAST ARP RUNNING INET_UP
          PHY Flags: (0x12114) AUTONEG 1000MB FDX DIX
          Type: ETHERNET_CSMACD
          inet: 192.168.121.21
          Broadcast address: 192.168.121.255
          Netmask 0xffffff00 Subnetmask 0xffffff00
          Ethernet address is 00:00:17:0e:b7:d3
          Metric is 0
          Maximum Transfer Unit size is 1500
          248920 octets received
          121290 octets sent
          0 unicast packets received
          0 unicast packets sent
          0 multicast packets received
          0 multicast packets sent
          2062 broadcast packets received
          933 broadcast packets sent
          0 incoming packets discarded
          0 outgoing packets discarded
          0 incoming errors
          0 outgoing errors
          0 unknown protos
          0 collisions; 0 dropped
          0 output queue drops
     value = 26 = 0x1a

;


     eagle1 17-05-04 16:44:36 MST  EAGLE 46.5.0.0.0-70.29.0

     NETSTAT command complete

;
```

SM8G-B card running SCCP64:

```
gei (unit number 4) = ExAP Port A
gei (unit number 5) = ExAP Port B


> rept-stat-card:mode=full:loc=1307
```

```
    eagle1 17-05-04 17:00:01 MST  EAGLE 46.5.0.0.0-70.29.0
    CARD   VERSION      TYPE      GPL        PST            SST        AST
    1307   140-029-000  DSM       SCCP64     IS-ANR         MPS Unavl  -----
      ALARM STATUS        = No Alarms.
      BLDC64  GPL version = 140-029-000
      IMT BUS A           = Conn
      IMT BUS B           = Disc
      CLOCK A             = Fault
      CLOCK B             = Active
      CLOCK I             = Idle
      MBD BIP STATUS      = Valid
      MOTHER BOARD ID     = SMXG B
      DBD STATUS          = Valid
      DBD TYPE            = None
      DBD MEMORY SIZE     = 8192M
      HW VERIFICATION CODE= ----
      FPGA VERSION        = 9
      BIOS VERSION        = 0ABSV01
      PSOC VERSION        = 0.1
      CURRENT TEMPERATURE =  34C ( 94F)
      PEAK TEMPERATURE:   =  34C ( 94F)     [17-05-04 15:49]
      SCCP % OCCUP        = 0%
      SCCP SM DATA TYPE   = DN
      APPLICATION SERVICING
                                        MFC          MFC
          SNM     REQ STATUS =   24 hr: ---, 5 min: ---
          INM     REQ STATUS =   24 hr: ---, 5 min: ---
          MTP3    REQ STATUS =   24 hr: ---, 5 min: ---
          SFLOG   REQ STATUS =   24 hr: ---, 5 min: ---
      IPLNK STATUS
          IPLNK  IPADDR             STATUS     PST
          A      192.168.120.21     DOWN       OOS-MT
          B      192.168.121.21     DOWN       OOS-MT
      DSM IP CONNECTION
          PORT   PST             SST
          A      OOS-MT          Unavail
          B      OOS-MT          Unavail

    Command Completed.
;



> pass:loc=1307:cmd="netstat -i"

    eagle1 17-05-04 17:00:14 MST  EAGLE 46.5.0.0.0-70.29.0
    SDS Shell Output

    shellLib: unknown LED mode vi.
    -> tklc_ifShow
    lo0 Link type:Local loopback  Queue:none
        inet 127.0.0.1  mask 255.255.255.255
        inet6 unicast fe80::1%lo0  prefixlen 64  automatic
        inet6 unicast ::1  prefixlen 128
        UP RUNNING LOOPBACK MULTICAST NOARP ALLMULTI
        MTU:1500  metric:1  VR:0  ifindex:1
        RX packets:761 mcast:3 errors:0 dropped:0
        TX packets:761 mcast:3 errors:0
        collisions:0 unsupported proto:0
        RX bytes:85k  TX bytes:85k

    gei4        Link type:Ethernet  HWaddr 00:00:17:0e:b7:d2  Queue:none
        capabilities: TXCSUM TX6CSUM
        inet 192.168.120.21  mask 255.255.255.0  broadcast 192.168.120.255
        inet6 unicast fe80::200:17ff:fe0e:b7d2%gei4  prefixlen 64  automatic
        UP RUNNING SIMPLEX BROADCAST MULTICAST
        MTU:1500  metric:1  VR:0  ifindex:2
        RX packets:791 mcast:0 errors:0 dropped:0
```

```
        TX packets:386 mcast:6 errors:0
        collisions:0 unsupported proto:0
        RX bytes:92k  TX bytes:48k

    gei5        Link type:Ethernet  HWaddr 00:00:17:0e:b7:d3  Queue:none
        capabilities: TXCSUM TX6CSUM
        inet 192.168.121.21  mask 255.255.255.0  broadcast 192.168.121.255
        inet6 unicast fe80::200:17ff:fe0e:b7d3%gei5  prefixlen 64  automatic
        UP RUNNING SIMPLEX BROADCAST MULTICAST
        MTU:1500  metric:1  VR:0  ifindex:3
        RX packets:783 mcast:0 errors:0 dropped:0
        TX packets:386 mcast:6 errors:0
        collisions:0 unsupported proto:0
        RX bytes:91k  TX bytes:48k

    gei (unit number 4):
         PHY Flags: (0x12114) AUTONEG 1000MB FDX DIX
    gei (unit number 5):
         PHY Flags: (0x12114) AUTONEG 1000MB FDX DIX
    value = 1 = 0x1

;
```

SM8G-B card running ENUMHC/DEIRHC/SIPHC:

```
gei (unit number 2) = ExAP Port
gei (unit number 3) = Signaling Port

> rept-stat-card:mode=full:loc=1317

    eagle1 17-05-04 15:46:06 MST  EAGLE 46.5.0.0.0-70.29.0
    CARD   VERSION      TYPE      GPL        PST            SST        AST
    1317   140-029-000  DSM       ENUMHC     IS-ANR         MPS Unavl  -----
      ALARM STATUS        = No Alarms.
      BLMCAP  GPL version = 140-029-000
      IMT BUS A           = Conn
      IMT BUS B           = Disc
      CLOCK A             = Fault
      CLOCK B             = Active
      CLOCK I             = Idle
      MBD BIP STATUS      = Valid
      MOTHER BOARD ID     = SMXG B
      DBD STATUS          = Valid
      DBD TYPE            = None
      DBD MEMORY SIZE     = 8192M
      HW VERIFICATION CODE= ----
      FPGA VERSION        = 9
      BIOS VERSION        = 0ABSV01
      PSOC VERSION        = 0.1
      CURRENT TEMPERATURE =  34C ( 94F)
      PEAK TEMPERATURE:   =  34C ( 94F)     [17-05-02 09:31]
      ENUM SM DATA TYPE   = DN
      IPLNK STATUS
          IPLNK  IPADDR             STATUS     PST
          A      192.168.120.13     UP         IS-NR
          B      10.75.49.21        UP         IS-NR
          C      ---------------    ----       ----
          D      ---------------    ----       ----
      DSM IP CONNECTION
          PORT   PST             SST
          A      OOS-MT          Unavail
          D      OOS-MA          Ueq
      ENUM CONNECTION STATUS
         CNAME                PROT      STATUS

    Command Completed.
;
```

```
> pass:loc=1317:cmd="netstat -i"

Command Accepted - Processing

    eagle1 17-05-04 15:46:46 MST  EAGLE 46.5.0.0.0-70.29.0
    pass:loc=1317:cmd="netstat -i"
    Command entered at terminal #13.
;

    eagle1 17-05-04 15:46:46 MST  EAGLE 46.5.0.0.0-70.29.0
    PASS: Command sent to card
;

    eagle1 17-05-04 15:46:46 MST  EAGLE 46.5.0.0.0-70.29.0
    SDS Shell Output

    -> tklc_ifShow
    lo (unit number 0):
         Flags: (0x48049) UP LOOPBACK MULTICAST TRAILERS ARP RUNNING INET_UP
         Type: SOFTWARE_LOOPBACK
         inet: 127.0.0.1
         Netmask 0xff000000 Subnetmask 0xff000000
         Metric is 0
         Maximum Transfer Unit size is 1536
         0 packets received; 1 packets sent
         0 multicast packets received
         0 multicast packets sent
         0 input errors; 0 output errors
         0 collisions; 0 dropped
         0 output queue drops
    DPLend (unit number 0):
         Flags: (0x20043) UP BROADCAST ARP RUNNING
         Type: ETHERNET_CSMACD
         Ethernet address is 00:00:00:00:00:00
         Metric is 0
         Maximum Transfer Unit size is 485
         0 octets received
         0 octets sent
         0 unicast packets received
         0 unicast packets sent
         0 non-unicast packets received
         0 non-unicast packets sent
         0 incoming packets discarded
         0 outgoing packets discarded
         0 incoming errors
         0 outgoing errors
         0 unknown protos
         0 collisions; 0 dropped
         0 output queue drops
    gei (unit number 2):
         Flags: (0x78043) UP BROADCAST MULTICAST ARP RUNNING INET_UP
         PHY Flags: (0x12114) AUTONEG 1000MB FDX DIX
         Type: ETHERNET_CSMACD
         inet: 192.168.120.13
         Broadcast address: 192.168.120.255
         Netmask 0xffffff00 Subnetmask 0xffffff00
         Ethernet address is 00:00:17:0e:b7:d2
         Metric is 0
         Maximum Transfer Unit size is 1500
         16128 octets received
         102048 octets sent
         0 unicast packets received
         0 unicast packets sent
         0 multicast packets received
         0 multicast packets sent
         252 broadcast packets received
         786 broadcast packets sent
         0 incoming packets discarded
```

```
          0 outgoing packets discarded
          0 incoming errors
          0 outgoing errors
          0 unknown protos
          0 collisions; 0 dropped
          0 output queue drops
     gei (unit number 3):
          Flags: (0x70043) UP BROADCAST ARP RUNNING INET_UP
          PHY Flags: (0x12012) AUTONEG 1000MB FDX DIX
          Type: ETHERNET_CSMACD
          inet: 10.75.49.21
          Broadcast address: 10.75.49.255
          Netmask 0xff000000 Subnetmask 0xffffff00
          Ethernet address is 00:00:17:0e:b7:d3
          Metric is 0
          Maximum Transfer Unit size is 1500
          0 octets received
          128 octets sent
          0 unicast packets received
          0 unicast packets sent
          0 multicast packets received
          0 multicast packets sent
          0 broadcast packets received
          2 broadcast packets sent
          0 incoming packets discarded
          0 outgoing packets discarded
          0 incoming errors
          0 outgoing errors
          0 unknown protos
          0 collisions; 0 dropped
          0 output queue drops
     value = 26 = 0x1a

;

     eagle1 17-05-04 15:46:56 MST  EAGLE 46.5.0.0.0-70.29.0

;

     eagle1 17-05-04 15:46:56 MST  EAGLE 46.5.0.0.0-70.29.0

     NETSTAT command complete

;
```

SM8G-B card running ENUM64/DEIR64/SIP64:

```
gei (unit number 4) = ExAP Port
gei (unit number 5) = Signaling Port


> rept-stat-card:mode=full:loc=1317


     eagle1 17-05-04 15:23:31 MST  EAGLE 46.5.0.0.0-70.29.0
     CARD   VERSION      TYPE      GPL        PST            SST        AST
     1317   140-029-000  DSM       ENUM64     IS-ANR         MPS Unavl  -----
       ALARM STATUS        = **  0080 Shelf FAN bit is OFF
       BLDC64  GPL version = 140-029-000
       IMT BUS A           = Conn
       IMT BUS B           = Disc
       CLOCK A             = Fault
       CLOCK B             = Active
       CLOCK I             = Idle
       MBD BIP STATUS      = Valid
       MOTHER BOARD ID     = SMXG B
       DBD STATUS          = Valid
       DBD TYPE            = None
```

```
      DBD MEMORY SIZE     = 8192M
      HW VERIFICATION CODE= ----
      FPGA VERSION        = 9
      BIOS VERSION        = 0ABSV01
      PSOC VERSION        = 0.1
      CURRENT TEMPERATURE =  34C ( 94F)
      PEAK TEMPERATURE:   =  34C ( 94F)     [17-05-02 09:31]
      ENUM SM DATA TYPE   = DN
      IPLNK STATUS
          IPLNK  IPADDR             STATUS     PST
          A      192.168.120.13     UP         IS-NR
          B      10.75.49.21        UP         IS-NR
          C      ---------------    ----       ----
          D      ---------------    ----       ----
      DSM IP CONNECTION
          PORT   PST             SST
          A      OOS-MT          Unavail
          D      OOS-MA          Ueq
      ENUM CONNECTION STATUS
         CNAME                PROT      STATUS

    Command Completed.
;


> pass:loc=1317:cmd="netstat -i"

    eagle1 17-05-04 15:23:59 MST  EAGLE 46.5.0.0.0-70.29.0
    SDS Shell Output

    shellLib: unknown LED mode vi.
    -> tklc_ifShow
    lo0 Link type:Local loopback  Queue:none
        inet 127.0.0.1  mask 255.255.255.255
        inet6 unicast fe80::1%lo0  prefixlen 64  automatic
        inet6 unicast ::1  prefixlen 128
        UP RUNNING LOOPBACK MULTICAST NOARP ALLMULTI
        MTU:1500  metric:1  VR:0  ifindex:1
        RX packets:885990 mcast:3 errors:0 dropped:0
        TX packets:885990 mcast:3 errors:0
        collisions:0 unsupported proto:0
        RX bytes:99M  TX bytes:99M

    gei4        Link type:Ethernet  HWaddr 00:00:17:0e:b7:d2  Queue:none
        capabilities: TXCSUM TX6CSUM
        inet 192.168.120.13  mask 255.255.255.0  broadcast 192.168.120.255
        inet6 unicast fe80::200:17ff:fe0e:b7d2%gei4  prefixlen 64  automatic
        UP RUNNING SIMPLEX BROADCAST MULTICAST
        MTU:1500  metric:1  VR:0  ifindex:2
        RX packets:35807 mcast:0 errors:0 dropped:0
        TX packets:877952 mcast:12 errors:0
        collisions:0 unsupported proto:0
        RX bytes:2148k  TX bytes:110M

    gei5        Link type:Ethernet  HWaddr 00:00:17:0e:b7:d3  Queue:none
        capabilities: TXCSUM TX6CSUM
        inet 10.75.49.21  mask 255.255.255.0  broadcast 10.75.49.255
        inet6 unicast fe80::200:17ff:fe0e:b7d3%gei5  prefixlen 64  automatic
        UP RUNNING SIMPLEX BROADCAST MULTICAST
        MTU:1500  metric:1  VR:0  ifindex:3
        RX packets:526 mcast:0 errors:0 dropped:0
        TX packets:7 mcast:6 errors:0
        collisions:0 unsupported proto:0
        RX bytes:57k  TX bytes:510

    gei (unit number 4):
         PHY Flags: (0x12114) AUTONEG 1000MB FDX DIX
    gei (unit number 5):
```

```
          PHY Flags: (0x12012) AUTONEG 1000MB FDX DIX
    value = 1 = 0x1

;

    eagle1 17-05-04 15:24:09 MST  EAGLE 46.5.0.0.0-70.29.0

;

    eagle1 17-05-04 15:24:09 MST  EAGLE 46.5.0.0.0-70.29.0

    NETSTAT command complete

;
```

SLIC card running SCCPHC:

```
gei (unit number 2) is ExAP Port A
gei (unit number 0) is ExAP Port B

> REPT-STAT-CARD:MODE=FULL:LOC=1307


    eagle1 17-05-04 15:10:21 MST  EAGLE 46.5.0.0.0-70.29.0
    CARD   VERSION      TYPE      GPL        PST            SST        AST
    1307   140-029-000  SLIC      SCCPHC     IS-ANR         Standby     98%
      ALARM STATUS        = **  0080 Shelf FAN bit is OFF
      BLSLC32 GPL version = 140-029-000
      IMT BUS A           = Conn
      IMT BUS B           = Disc
      CLOCK A             = Fault
      CLOCK B             = Active
      CLOCK I             = Idle
      MBD BIP STATUS      = Valid
      MOTHER BOARD ID     = SLIC
      DBD STATUS          = Valid
      DBD TYPE            = None
      DBD MEMORY SIZE     = 16384M
      HW VERIFICATION CODE= ----
      FPGA VERSION        = 9400036
      BIOS VERSION        = 0ACFP00
      PSOC VERSION        = 1.0
      CURRENT TEMPERATURE =  40C (104F)
      PEAK TEMPERATURE:   =  40C (104F)     [17-05-04 15:05]
      SCCP % OCCUP        = 0%
      SCCP SM DATA TYPE   = DN
      APPLICATION SERVICING
                                      MFC          MFC
          SNM     REQ STATUS =   24 hr: ---, 5 min: ---
          INM     REQ STATUS =   24 hr: ---, 5 min: ---
          MTP3    REQ STATUS =   24 hr: ---, 5 min: ---
          SFLOG   REQ STATUS =   24 hr: ---, 5 min: ---
      IPLNK STATUS
          IPLNK  IPADDR             STATUS     PST
          A      192.168.120.21     DOWN       OOS-MT
          B      192.168.121.21     DOWN       OOS-MT
      DSM IP CONNECTION
          PORT   PST             SST
          A      OOS-MT          Unavail
          B      OOS-MT          Unavail

    Command Completed.
;

> PASS:LOC=1307:CMD="NETSTAT -I"


    eagle1 17-05-04 15:10:27 MST  EAGLE 46.5.0.0.0-70.29.0
```

SDS Shell Output

```
-> tklc_ifShow
lo (unit number 0):
     Flags: (0x48049) UP LOOPBACK MULTICAST TRAILERS ARP RUNNING INET_UP
     Type: SOFTWARE_LOOPBACK
     inet: 127.0.0.1
     Netmask 0xff000000 Subnetmask 0xff000000
     Metric is 0
     Maximum Transfer Unit size is 1536
     0 packets received; 1 packets sent
     0 multicast packets received
     0 multicast packets sent
     0 input errors; 0 output errors
     0 collisions; 0 dropped
     0 output queue drops
DPLend (unit number 0):
     Flags: (0x20043) UP BROADCAST ARP RUNNING
     Type: ETHERNET_CSMACD
     Ethernet address is 00:00:00:00:00:00
     Metric is 0
     Maximum Transfer Unit size is 485
     0 octets received
     0 octets sent
     0 unicast packets received
     0 unicast packets sent
     0 non-unicast packets received
     0 non-unicast packets sent
     0 incoming packets discarded
     0 outgoing packets discarded
     0 incoming errors
     0 outgoing errors
     0 unknown protos
     0 collisions; 0 dropped
     0 output queue drops
gei (unit number 2):
     Flags: (0x78043) UP BROADCAST MULTICAST ARP RUNNING INET_UP
     PHY Flags: (0x12114) AUTONEG 1000MB FDX DIX
     Type: ETHERNET_CSMACD
     inet: 192.168.120.21
     Broadcast address: 192.168.120.255
     Netmask 0xffffff00 Subnetmask 0xffffff00
     Ethernet address is 00:10:e0:bb:26:d2
     Metric is 0
     Maximum Transfer Unit size is 1500
     0 octets received
     2014 octets sent
     0 unicast packets received
     0 unicast packets sent
     0 multicast packets received
     0 multicast packets sent
     0 broadcast packets received
     16 broadcast packets sent
     0 incoming packets discarded
     0 outgoing packets discarded
     0 incoming errors
     0 outgoing errors
     0 unknown protos
     0 collisions; 0 dropped
     0 output queue drops
gei (unit number 0):
     Flags: (0x78043) UP BROADCAST MULTICAST ARP RUNNING INET_UP
     PHY Flags: (0x12114) AUTONEG 1000MB FDX DIX
     Type: ETHERNET_CSMACD
     inet: 192.168.121.21
     Broadcast address: 192.168.121.255
     Netmask 0xffffff00 Subnetmask 0xffffff00
     Ethernet address is 00:10:e0:bb:26:d0
```

```
        Metric is 0
        Maximum Transfer Unit size is 1500
        0 octets received
        1884 octets sent
        0 unicast packets received
        0 unicast packets sent
        0 multicast packets received
        0 multicast packets sent
        0 broadcast packets received
        15 broadcast packets sent
        0 incoming packets discarded
        0 outgoing packets discarded
        0 incoming errors
        0 outgoing errors
        0 unknown protos
        0 collisions; 0 dropped
        0 output queue drops
    value = 26 = 0x1a

;

    eagle1 17-05-04 15:10:37 MST  EAGLE 46.5.0.0.0-70.29.0

    NETSTAT command complete

;
```

SLIC card running SCCP64:

```
gei (unit number 0) = ExAP Port A
gei (unit number 2) = ExAP Port B

> REPT-STAT-CARD:MODE=FULL:LOC=1307

    eagle1 17-05-04 14:55:03 MST  EAGLE 46.5.0.0.0-70.29.0
    CARD   VERSION      TYPE      GPL        PST            SST        AST
    1307   140-029-000  SLIC      SCCP64     IS-ANR         MPS Unavl  -----
      ALARM STATUS        = **  0080 Shelf FAN bit is OFF
      BLSLC64 GPL version = 140-029-000
      IMT BUS A           = Conn
      IMT BUS B           = Disc
      CLOCK A             = Fault
      CLOCK B             = Active
      CLOCK I             = Idle
      MBD BIP STATUS      = Valid
      MOTHER BOARD ID     = SLIC
      DBD STATUS          = Valid
      DBD TYPE            = None
      DBD MEMORY SIZE     = 16384M
      HW VERIFICATION CODE= ----
      FPGA VERSION        = 9400036
      BIOS VERSION        = 0ACFP00
      PSOC VERSION        = 1.0
      CURRENT TEMPERATURE =  36C ( 97F)
      PEAK TEMPERATURE:   =  38C (101F)     [17-05-04 14:47]
      SCCP % OCCUP        = 0%
      SCCP SM DATA TYPE   = DN
      APPLICATION SERVICING
                                        MFC          MFC
          SNM     REQ STATUS =   24 hr: ---, 5 min: ---
          INM     REQ STATUS =   24 hr: ---, 5 min: ---
          MTP3    REQ STATUS =   24 hr: ---, 5 min: ---
          SFLOG   REQ STATUS =   24 hr: ---, 5 min: ---
      IPLNK STATUS
          IPLNK  IPADDR             STATUS     PST
          A      192.168.120.21     DOWN       OOS-MT
          B      192.168.121.21     DOWN       OOS-MT
```

```
      DSM IP CONNECTION
          PORT   PST            SST
          A      OOS-MT         Unavail
          B      OOS-MT         Unavail

    Command Completed.
;

> PASS:LOC=1307:CMD="NETSTAT -I"

Command Accepted - Processing

    eagle1 17-05-04 14:56:03 MST  EAGLE 46.5.0.0.0-70.29.0
    PASS:LOC=1307:CMD="NETSTAT -I"
    Command entered at terminal #11.
;

    eagle1 17-05-04 14:56:03 MST  EAGLE 46.5.0.0.0-70.29.0
    PASS: Command sent to card
;

    eagle1 17-05-04 14:56:03 MST  EAGLE 46.5.0.0.0-70.29.0
    SDS Shell Output

    shellLib: unknown LED mode vi.
    -> tklc_ifShow
    lo0 Link type:Local loopback  Queue:none
        inet 127.0.0.1  mask 255.255.255.255
        inet6 unicast fe80::1%lo0  prefixlen 64  automatic
        inet6 unicast ::1  prefixlen 128
        UP RUNNING LOOPBACK MULTICAST NOARP ALLMULTI
        MTU:1500  metric:1  VR:0  ifindex:1
        RX packets:2213 mcast:3 errors:0 dropped:0
        TX packets:2213 mcast:3 errors:0
        collisions:0 unsupported proto:0
        RX bytes:247k  TX bytes:247k

    gei0        Link type:Ethernet  HWaddr 00:10:e0:bb:26:d0  Queue:none
        capabilities: TXCSUM TX6CSUM VLAN_MTU VLAN_TXHWTAG VLAN_RXHWTAG
        inet 192.168.120.21  mask 255.255.255.0  broadcast 192.168.120.255
        inet6 unicast fe80::210:e0ff:febb:26d0%gei0  prefixlen 64  automatic
        UP RUNNING SIMPLEX BROADCAST MULTICAST
        MTU:1500  metric:1  VR:0  ifindex:2
        RX packets:695 mcast:0 errors:0 dropped:0
        TX packets:634 mcast:12 errors:0
        collisions:0 unsupported proto:0
        RX bytes:74k  TX bytes:79k

    gei2        Link type:Ethernet  HWaddr 00:10:e0:bb:26:d2  Queue:none
        capabilities: TXCSUM TX6CSUM VLAN_MTU VLAN_TXHWTAG VLAN_RXHWTAG
        inet 192.168.121.21  mask 255.255.255.0  broadcast 192.168.121.255
        inet6 unicast fe80::210:e0ff:febb:26d2%gei2  prefixlen 64  automatic
        UP RUNNING SIMPLEX BROADCAST MULTICAST
        MTU:1500  metric:1  VR:0  ifindex:3
        RX packets:702 mcast:0 errors:0 dropped:0
        TX packets:639 mcast:6 errors:0
        collisions:0 unsupported proto:0
        RX bytes:75k  TX bytes:80k

    gei (unit number 0):
         PHY Flags: (0x12114) AUTONEG 1000MB FDX DIX
    gei (unit number 2):
         PHY Flags: (0x12114) AUTONEG 1000MB FDX DIX
    value = 1 = 0x1

;
    eagle1 17-05-04 14:56:13 MST  EAGLE 46.5.0.0.0-70.29.0
```

```
    NETSTAT command complete

;


SLIC card running ENUMHC/DEIRHC/SIPHC:
gei (unit number 2) = ExAP Port A
gei (unit number 0) = Signaling Port #1
gei (unit number 3) = Signaling Port #2
gei (unit number 1) = ExAP Port B


> rept-stat-card:mode=full:loc=1317


    eagle1 17-05-04 17:34:35 MST  EAGLE 46.5.0.0.0-70.29.0
    CARD   VERSION      TYPE      GPL        PST            SST        AST
    1317   140-029-000  SLIC      ENUMHC     IS-ANR         MPS Unavl  -----
      ALARM STATUS        = No Alarms.
      BLSLC32 GPL version = 140-029-000
      IMT BUS A           = Conn
      IMT BUS B           = Disc
      CLOCK A             = Fault
      CLOCK B             = Active
      CLOCK I             = Idle
      MBD BIP STATUS      = Valid
      MOTHER BOARD ID     = SLIC
      DBD STATUS          = Valid
      DBD TYPE            = None
      DBD MEMORY SIZE     = 16384M
      HW VERIFICATION CODE= ----
      FPGA VERSION        = 9400036
      BIOS VERSION        = 0ACFP00
      PSOC VERSION        = 1.0
      CURRENT TEMPERATURE =  43C (110F)
      PEAK TEMPERATURE:   =  43C (110F)     [17-05-04 17:27]
      ENUM SM DATA TYPE   = DN
      IPLNK STATUS
          IPLNK  IPADDR             STATUS     PST
          A      192.168.120.13     UP         IS-NR
          B      10.75.49.21        DOWN       OOS-MT
          C      10.75.50.21        UP         IS-NR
          D      192.168.121.13     UP         IS-NR
      DSM IP CONNECTION
          PORT   PST            SST
          A      OOS-MT         Unavail
          D      OOS-MT         Unavail

    Command Completed.
;


> pass:loc=1317:cmd="netstat -i"

Command Accepted - Processing

    eagle1 17-05-04 17:34:52 MST  EAGLE 46.5.0.0.0-70.29.0
    pass:loc=1317:cmd="netstat -i"
    Command entered at terminal #13.
;

    eagle1 17-05-04 17:34:52 MST  EAGLE 46.5.0.0.0-70.29.0
    PASS: Command sent to card
;

    eagle1 17-05-04 17:34:52 MST  EAGLE 46.5.0.0.0-70.29.0
    SDS Shell Output
```

```
-> tklc_ifShow
lo (unit number 0):
     Flags: (0x48049) UP LOOPBACK MULTICAST TRAILERS ARP RUNNING INET_UP
     Type: SOFTWARE_LOOPBACK
     inet: 127.0.0.1
     Netmask 0xff000000 Subnetmask 0xff000000
     Metric is 0
     Maximum Transfer Unit size is 1536
     0 packets received; 1 packets sent
     0 multicast packets received
     0 multicast packets sent
     0 input errors; 0 output errors
     0 collisions; 0 dropped
     0 output queue drops
DPLend (unit number 0):
     Flags: (0x20043) UP BROADCAST ARP RUNNING
     Type: ETHERNET_CSMACD
     Ethernet address is 00:00:00:00:00:00
     Metric is 0
     Maximum Transfer Unit size is 485
     0 octets received
     0 octets sent
     0 unicast packets received
     0 unicast packets sent
     0 non-unicast packets received
     0 non-unicast packets sent
     0 incoming packets discarded
     0 outgoing packets discarded
     0 incoming errors
     0 outgoing errors
     0 unknown protos
     0 collisions; 0 dropped
     0 output queue drops
gei (unit number 2):
     Flags: (0x78043) UP BROADCAST MULTICAST ARP RUNNING INET_UP
     PHY Flags: (0x12114) AUTONEG 1000MB FDX DIX
     Type: ETHERNET_CSMACD
     inet: 192.168.120.13
     Broadcast address: 192.168.120.255
     Netmask 0xffffff00 Subnetmask 0xffffff00
     Ethernet address is 00:10:e0:bb:26:d2
     Metric is 0
     Maximum Transfer Unit size is 1500
     13736 octets received
     16118 octets sent
     0 unicast packets received
     0 unicast packets sent
     0 multicast packets received
     0 multicast packets sent
     128 broadcast packets received
     125 broadcast packets sent
     0 incoming packets discarded
     0 outgoing packets discarded
     0 incoming errors
     0 outgoing errors
     0 unknown protos
     0 collisions; 0 dropped
     0 output queue drops
gei (unit number 0):
     Flags: (0x70043) UP BROADCAST ARP RUNNING INET_UP
     PHY Flags: (0x2012) DIX
     Type: ETHERNET_CSMACD
     inet: 10.75.49.21
     Broadcast address: 10.75.49.255
     Netmask 0xff000000 Subnetmask 0xffffff00
     Ethernet address is 00:10:e0:bb:26:d0
     Metric is 0
     Maximum Transfer Unit size is 1500
```

```
        0 octets received
        0 octets sent
        0 unicast packets received
        0 unicast packets sent
        0 multicast packets received
        0 multicast packets sent
        0 broadcast packets received
        0 broadcast packets sent
        0 incoming packets discarded
        0 outgoing packets discarded
        0 incoming errors
        0 outgoing errors
        0 unknown protos
        0 collisions; 0 dropped
        0 output queue drops
    gei (unit number 3):
        Flags: (0x70043) UP BROADCAST ARP RUNNING INET_UP
        PHY Flags: (0x12012) 100MB FDX DIX
        Type: ETHERNET_CSMACD
        inet: 10.75.50.21
        Broadcast address: 10.75.50.255
        Netmask 0xff000000 Subnetmask 0xffffff00
        Ethernet address is 00:10:e0:bb:26:d3
        Metric is 0
        Maximum Transfer Unit size is 1500
        25708 octets received
        128 octets sent
        0 unicast packets received
        0 unicast packets sent
        0 multicast packets received
        0 multicast packets sent
        214 broadcast packets received
        2 broadcast packets sent
        0 incoming packets discarded
        0 outgoing packets discarded
        0 incoming errors
        0 outgoing errors
        0 unknown protos
        0 collisions; 0 dropped
        0 output queue drops
    gei (unit number 1):
        Flags: (0x78043) UP BROADCAST MULTICAST ARP RUNNING INET_UP
        PHY Flags: (0x12114) AUTONEG 1000MB FDX DIX
        Type: ETHERNET_CSMACD
        inet: 192.168.121.13
        Broadcast address: 192.168.121.255
        Netmask 0xffffff00 Subnetmask 0xffffff00
        Ethernet address is 00:10:e0:bb:26:d1
        Metric is 0
        Maximum Transfer Unit size is 1500
        13544 octets received
        16118 octets sent
        0 unicast packets received
        0 unicast packets sent
        0 multicast packets received
        0 multicast packets sent
        125 broadcast packets received
        125 broadcast packets sent
        0 incoming packets discarded
        0 outgoing packets discarded
        0 incoming errors
        0 outgoing errors
        0 unknown protos
        0 collisions; 0 dropped
        0 output queue drops
    value = 26 = 0x1a

;
```

```
    eagle1 17-05-04 17:35:02 MST  EAGLE 46.5.0.0.0-70.29.0

;

    eagle1 17-05-04 17:35:02 MST  EAGLE 46.5.0.0.0-70.29.0

    NETSTAT command complete

;
```

SLIC card running DEIR64/ENUM64/SIP64:

```
gei (unit number 0) = ExAP Port A
gei (unit number 2) = Signaling Port #1
gei (unit number 1) = Signaling Port #2
gei (unit number 3) = ExAP Port B


> rept-stat-card:mode=full:loc=1317

Command Accepted - Processing

    eagle1 17-05-04 16:20:40 MST  EAGLE 46.5.0.0.0-70.29.0
    rept-stat-card:mode=full:loc=1317
    Command entered at terminal #13.
;

    eagle1 17-05-04 16:20:40 MST  EAGLE 46.5.0.0.0-70.29.0
    CARD   VERSION      TYPE      GPL        PST            SST        AST
    1317   140-029-000  SLIC      ENUM64     IS-ANR         MPS Unavl  -----
      ALARM STATUS        = No Alarms.
      BLSLC64 GPL version = 140-029-000
      IMT BUS A           = Conn
      IMT BUS B           = Disc
      CLOCK A             = Fault
      CLOCK B             = Active
      CLOCK I             = Idle
      MBD BIP STATUS      = Valid
      MOTHER BOARD ID     = SLIC
      DBD STATUS          = Valid
      DBD TYPE            = None
      DBD MEMORY SIZE     = 16384M
      HW VERIFICATION CODE= ----
      FPGA VERSION        = 9400036
      BIOS VERSION        = 0ACFP00
      PSOC VERSION        = 1.0
      CURRENT TEMPERATURE =  40C (104F)
      PEAK TEMPERATURE:   =  42C (108F)     [17-05-04 15:51]
      ENUM SM DATA TYPE   = DN
      IPLNK STATUS
          IPLNK  IPADDR             STATUS     PST
          A      192.168.120.13     UP         IS-NR
          B      10.75.49.21        DOWN       OOS-MT
          C      10.75.50.21        DOWN       OOS-MT
          D      192.168.121.13     UP         IS-NR
      DSM IP CONNECTION
          PORT   PST             SST
          A      OOS-MT          Unavail
          D      OOS-MT          Unavail

    Command Completed.
;

> pass:loc=1317:cmd="netstat -i"

Command Accepted - Processing
```

```
    eagle1 17-05-04 16:25:06 MST  EAGLE 46.5.0.0.0-70.29.0
    pass:loc=1317:cmd="netstat -i"
    Command entered at terminal #13.
;

    eagle1 17-05-04 16:25:06 MST  EAGLE 46.5.0.0.0-70.29.0
    PASS: Command sent to card
;

    eagle1 17-05-04 16:25:06 MST  EAGLE 46.5.0.0.0-70.29.0
    SDS Shell Output

    shellLib: unknown LED mode vi.
    -> tklc_ifShow
    lo0 Link type:Local loopback  Queue:none
        inet 127.0.0.1  mask 255.255.255.255
        inet6 unicast fe80::1%lo0  prefixlen 64  automatic
        inet6 unicast ::1  prefixlen 128
        UP RUNNING LOOPBACK MULTICAST NOARP ALLMULTI
        MTU:1500  metric:1  VR:0  ifindex:1
        RX packets:1487 mcast:3 errors:0 dropped:0
        TX packets:1487 mcast:3 errors:0
        collisions:0 unsupported proto:0
        RX bytes:165k  TX bytes:165k

    gei0        Link type:Ethernet  HWaddr 00:10:e0:bb:26:d0  Queue:none
        capabilities: TXCSUM TX6CSUM VLAN_MTU VLAN_TXHWTAG VLAN_RXHWTAG
        inet 192.168.120.13  mask 255.255.255.0  broadcast 192.168.120.255
        inet6 unicast fe80::210:e0ff:febb:26d0%gei0  prefixlen 64  automatic
        UP RUNNING SIMPLEX BROADCAST MULTICAST
        MTU:1500  metric:1  VR:0  ifindex:2
        RX packets:929 mcast:0 errors:0 dropped:0
        TX packets:745 mcast:6 errors:0
        collisions:0 unsupported proto:0
        RX bytes:101k  TX bytes:93k

    gei2        Link type:Ethernet  HWaddr 00:10:e0:bb:26:d2  Queue:none
        capabilities: TXCSUM TX6CSUM VLAN_MTU VLAN_TXHWTAG VLAN_RXHWTAG
        inet 10.75.49.21  mask 255.255.255.0  broadcast 10.75.49.255
        inet6 unicast fe80::210:e0ff:febb:26d2%gei2  prefixlen 64  automatic
        UP RUNNING SIMPLEX BROADCAST MULTICAST
        MTU:1500  metric:1  VR:0  ifindex:3
        RX packets:37 mcast:0 errors:0 dropped:0
        TX packets:7 mcast:6 errors:0
        collisions:0 unsupported proto:0
        RX bytes:4596  TX bytes:510

    gei1        Link type:Ethernet  HWaddr 00:10:e0:bb:26:d1  Queue:none
        capabilities: TXCSUM TX6CSUM VLAN_MTU VLAN_TXHWTAG VLAN_RXHWTAG
        inet 10.75.50.21  mask 255.255.255.0  broadcast 10.75.50.255
        inet6 unicast fe80::210:e0ff:febb:26d1%gei1  prefixlen 64  tentative  automatic
        UP SIMPLEX BROADCAST MULTICAST
        MTU:1500  metric:1  VR:0  ifindex:4
        RX packets:0 mcast:0 errors:0 dropped:0
        TX packets:0 mcast:0 errors:0
        collisions:0 unsupported proto:0
        RX bytes:0  TX bytes:0

    gei3        Link type:Ethernet  HWaddr 00:10:e0:bb:26:d3  Queue:none
        capabilities: TXCSUM TX6CSUM VLAN_MTU VLAN_TXHWTAG VLAN_RXHWTAG
        inet 192.168.121.13  mask 255.255.255.0  broadcast 192.168.121.255
        inet6 unicast fe80::210:e0ff:febb:26d3%gei3  prefixlen 64  automatic
        UP RUNNING SIMPLEX BROADCAST MULTICAST
        MTU:1500  metric:1  VR:0  ifindex:5
        RX packets:921 mcast:0 errors:0 dropped:0
        TX packets:745 mcast:6 errors:0
        collisions:0 unsupported proto:0
        RX bytes:101k  TX bytes:93k
```

```
    gei (unit number 0):
         PHY Flags: (0x12114) AUTONEG 1000MB FDX DIX
    gei (unit number 2):
         PHY Flags: (0x12012) 100MB FDX DIX
    gei (unit number 1):
         PHY Flags: (0x2012) DIX
    gei (unit number 3):
         PHY Flags: (0x12114) AUTONEG 1000MB FDX DIX
    value = 1 = 0x1

;

    eagle1 17-05-04 16:25:16 MST  EAGLE 46.5.0.0.0-70.29.0

    NETSTAT command complete

;
```

Procedure A.18 Upgrade SSL certificate from SHA-1 to SHA-512

Appendix A.18 Upgrade SSL certificate from SHA-1 to SHA-512

S T E P #	This procedure upgrade SSL certificate from SHA-1 to SHA-512. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
1. ☐	**MPS :** Log in to the server.	If not already logged-in, then login at MPS : **<hostname> console login: epapdev** **Password: <password>** Change to root user. $ su – root
2. ☐	Verify SSL certificate	To verify SSL certificate execute the following command: **# /usr/bin/openssl x509 -in /usr/TKLC/plat/etc/ssl/server.crt -text -noout	grep "Signature Algorithm"** Signature Algorithm: **sha512**WithRSAEncryption Signature Algorithm: **sha512**WithRSAEncryption If signature algorithm is SHA 512 skip this procedure,otherwise proceed with the following step.
3. ☐	Find the IP for which the certificate has been generated in server.crt	**# openssl verify /usr/TKLC/plat/etc/ssl/server.crt** /usr/TKLC/plat/etc/ssl/server.crt: CN = **10.248.11.14** error 18 at 0 depth lookup:self signed certificate OK
4. ☐	Upgrade to SHA-512 in server.crt	Note: The IP Address to be used in the below command is the IP displayed in the output of step 3. To upgrade SHA-1 to SHA-512 execute the following command: **# /usr/bin/openssl req -x509 -sha512 -nodes -days 4015 -subj "/CN=<IP Addr>" -newkey rsa:2048 -keyout /usr/TKLC/plat/etc/ssl/server.key -out /usr/TKLC/plat/etc/ssl/server.crt** Generating a 2048 bit RSA private key .....+++ .....+++ writing new private key to '/usr/TKLC/plat/etc/ssl/server.key'
5. ☐	Find the IP for which the certificate has been generated in server_dual.crt	**# openssl verify /usr/TKLC/plat/etc/ssl/server_dual.crt** /usr/TKLC/plat/etc/ssl/server_dual.crt: CN = **10.248.11.14** error 18 at 0 depth lookup:self signed certificate **OK**
6. ☐	Upgrade to SHA-512 in server_dual.crt	Note: The IP Address to be used in the below command is the IP displayed in the output of step 5. To upgrade SHA-1 to SHA-512 execute the following command: **# /usr/bin/openssl req -x509 -sha512 -nodes -days 4015 -subj "/CN=<IP Addr>" -newkey rsa:2048 -keyout /usr/TKLC/plat/etc/ssl/server_dual.key -out /usr/TKLC/plat/etc/ssl/server_dual.crt** Generating a 2048 bit RSA private key .....+++ .....+++ writing new private key to '/usr/TKLC/plat/etc/ssl/server_dual.key'

7. ☐	Restart httpd service	Restart httpd service to reflect IP correctly. Use following command to restart httpd service: **$ service httpd restart** [root@Natal-A ~]# service httpd restart Stopping httpd: [OK] Starting httpd: [Fri Jul 06 23:26:09 2018] [warn] _default_ VirtualHost overlap on port 8002, the first has precedence [Fri Jul 06 23:26:09 2018] [warn] _default_ VirtualHost overlap on port 443, the first has precedence [OK]
8. ☐	Exit from root user	Exit from root user. Use following command: **$ exit**
9. ☐	Procedure Complete.	Return to the procedure that you came here from.
10. ☐	Note down the timestamp in log.	Run the following command: **$ date**

Procedure A.19 Disable Epap VIP And Deactivate PDBA Proxy Feature

If PDBA Proxy feature is NOT enabled and VIP is NOT configured, this procedure can be skipped.

Ensure the provisioning activity has been halted before proceeding!!!

Appendix A.19 Disable Epap VIP And Deactivate PDBA Proxy Feature

STEP #	This procedure outlines the steps to disable the PDBA proxy feature. Estimated time: 5 minutes	
1. ☐	**MPS A**: Choose option "8" to display "PDB Configuration Menu.	MPS Side A: /-----EPAP Configuration Menu----------\ /----------\ | 1 | Display Configuration | |----|----------| | 2 | Configure Network Interfaces Menu | |----|----------| | 3 | Set Time Zone | |----|----------| | 4 | Exchange Secure Shell Keys | |----|----------| | 5 | Change Password | |----|----------| | 6 | Platform Menu | |----|----------| | 7 | Configure NTP Server | |----|----------| | 8 | PDB Configuration Menu | |----|----------| | 9 | Security | |----|----------| | 10 | SNMP Configuration | |----|----------| | 11 | Configure Alarm Feed | |----|----------| | 12 | Configure Query Server | |----|----------| | 13 | Configure Query Server Alarm Feed | |----|----------| | 14 | Configure SNMP Agent Community | |----|----------| | 15 | Mate Disaster Recovery | |----|----------| | e | Exit | \----------/ Enter Choice: 8
2.	**MPS A**:	MPS Side A:

☐	Choose option “6” to “Change PDBA Proxy State”.	/-----Configure PDB Menu----------\ /-------------------------------------\ | 1 | Configure PDB Network | |----|-------------------------------| | 2 | RTDB Homing Menu | |----|-------------------------------| | 3 | Change MPS Provisionable State | |----|-------------------------------| | 4 | Create PDB | |----|-------------------------------| | 5 | Change Auto DB Recovery State | |----|-------------------------------| | 6 | Change PDBA Proxy State | |----|-------------------------------| | e | Exit | \-------------------------------------/ Enter Choice: 6
3. ☐	**MPS A**: Enter “Y” to stop PDBA / EPAP software and disable PDBA Proxy.	PDBA PROXY is currently ENABLED. Do you want to DISABLE PDBA Proxy? [N]: **Y**
4. ☐	**MPS A**: Enter “1” to “Display Configuration”	MPS Side A: /-----EPAP Configuration Menu----------\ /---\ | 1 | Display Configuration | |----|-------------------------------------| | 2 | Configure Network Interfaces Menu | |----|-------------------------------------| | 3 | Set Time Zone | |----|-------------------------------------| | 4 | Exchange Secure Shell Keys | |----|-------------------------------------| | 5 | Change Password | |----|-------------------------------------| | 6 | Platform Menu | |----|-------------------------------------| | 7 | Configure NTP Server | |----|-------------------------------------| | 8 | PDB Configuration Menu | |----|-------------------------------------| | 9 | Security | |----|-------------------------------------| | 10 | SNMP Configuration | |----|-------------------------------------| | 11 | Configure Alarm Feed | |----|-------------------------------------| | 12 | Configure Query Server | |----|-------------------------------------| | 13 | Configure Query Server Alarm Feed | |----|-------------------------------------| | 14 | Configure SNMP Agent Community | |----|-------------------------------------| | 15 | Mate Disaster Recovery | |----|-------------------------------------| | e | Exit | \---/ Enter Choice: 1
5. ☐	**MPS A**: Verify that the state of PDBA Proxy Feature is No.	MPS Side A: EPAP A Provisioning Network IP Address = 192.168.61.115 EPAP B Provisioning Network IP Address = 192.168.61.116 Provisioning Network Netmask = 255.255.255.0 Provisioning Network Default Router = 192.168.61.1 EPAP A Backup Prov Network IP Address = Not configured EPAP B Backup Prov Network IP Address = Not configured Backup Prov Network Netmask = Not

		configured Backup Prov Network Default Router = Not configured EPAP A Sync Network Address = 192.168.2.100 EPAP B Sync Network Address = 192.168.2.200 EPAP A Main DSM Network Address = 192.168.120.100 EPAP B Main DSM Network Address = 192.168.120.200 EPAP A Backup DSM Network Address = 192.168.121.100 EPAP B Backup DSM Network Address = 192.168.121.200 EPAP A HTTP Port = 80 EPAP B HTTP Port = 80 EPAP A HTTP SuExec Port = 8001 EPAP B HTTP SuExec Port = 8001 EPAP A Banner Connection Port = 8473 EPAP B Banner Connection Port = 8473 EPAP A Static NAT Address = Not configured EPAP B Static NAT Address = Not configured PDBI Port = 5873 Remote MPS A Static NAT Address = Not configured Remote MPS A HTTP Port = 80 Local Provisioning VIP = 192.168.15.152 Remote Provisioning VIP = 192.168.15.172 Local PDBA Address = 192.168.15.115 Remote PDBA Address = 192.168.16.115 Remote PDBA B Address = 192.168.16.116 Time Zone = America/New_York PDB Database = Exists Preferred PDB = Standby Allow updates from alternate PDB = Yes Auto DB Recovery Enabled = Yes PDBA Proxy Enabled = **No** Press return to continue...
6. ☐	**MPS A**: Choose option "2" to enter the "Configure Network Interfaces Menu".	MPS Side A:

		/-----EPAP Configuration Menu----------\ /--\ | 1 | Display Configuration | |----|----------------------------------| | 2 | Configure Network Interfaces Menu | |----|----------------------------------| | 3 | Set Time Zone | |----|----------------------------------| | 4 | Exchange Secure Shell Keys | |----|----------------------------------| | 5 | Change Password | |----|----------------------------------| | 6 | Platform Menu | |----|----------------------------------| | 7 | Configure NTP Server | |----|----------------------------------| | 8 | PDB Configuration Menu | |----|----------------------------------| | 9 | Security | |----|----------------------------------| | 10 | SNMP Configuration | |----|----------------------------------| | 11 | Configure Alarm Feed | |----|----------------------------------| | 12 | Configure Query Server | |----|----------------------------------| | 13 | Configure Query Server Alarm Feed | |----|----------------------------------| | 14 | Configure SNMP Agent Community | |----|----------------------------------| | 15 | Mate Disaster Recovery | |----|----------------------------------| | e | Exit | \--/ Enter Choice: 2
7. ☐	**MPS A**: Choose option “7” to enter the “Configure Provisioning VIP Addresses Menu”.	MPS Side A: /-----Configure Network Interfaces Menu----\ /--\ | 1 | Configure Provisioning Network | |----|----------------------------------| | 2 | Configure Sync Network | |----|----------------------------------| | 3 | Configure DSM Network | |----|----------------------------------| | 4 | Configure Backup Provisioning Network | |----|----------------------------------| | 5 | Configure Forwarded Ports | |----|----------------------------------| | 6 | Configure Static NAT Addresses | |----|----------------------------------| | 7 | Configure Provisioning VIP Addresses | |----|----------------------------------| | e | Exit | \--/ Enter Choice: 7
8. ☐	**MPS A**: Remove the local provisioning VIP and remote provisioning VIP, by entering 0.0.0.0.	Verifying root connectivity with mate... EPAP local provisioning Virtual IP Address [192.168.15.152]: **0.0.0.0** EPAP remote provisioning Virtual IP Address [192.168.15.172]: **0.0.0.0**

9. ☐	**MPS A**: Choose option “e” to exit.	MPS Side A: /-----Configure Network Interfaces Menu----\ /---\ | 1 | Configure Provisioning Network | |----|-----------------------------------| | 2 | Configure Sync Network | |----|-----------------------------------| | 3 | Configure DSM Network | |----|-----------------------------------| | 4 | Configure Backup Provisioning Network | |----|-----------------------------------| | 5 | Configure Forwarded Ports | |----|-----------------------------------| | 6 | Configure Static NAT Addresses | |----|-----------------------------------| | 7 | Configure Provisioning VIP Addresses | |----|-----------------------------------| | e | Exit | \---/ Enter Choice: e
10. ☐	**MPS A**: Choose option “1” to “Display Configuration.	MPS Side A: /-----EPAP Configuration Menu----------\ /-----------------------------------\ | 1 | Display Configuration | |----|-----------------------------| | 2 | Configure Network Interfaces Menu | |----|-----------------------------| | 3 | Set Time Zone | |----|-----------------------------| | 4 | Exchange Secure Shell Keys | |----|-----------------------------| | 5 | Change Password | |----|-----------------------------| | 6 | Platform Menu | |----|-----------------------------| | 7 | Configure NTP Server | |----|-----------------------------| | 8 | PDB Configuration Menu | |----|-----------------------------| | 9 | Security | |----|-----------------------------| | 10 | SNMP Configuration | |----|-----------------------------| | 11 | Configure Alarm Feed | |----|-----------------------------| | 12 | Configure Query Server | |----|-----------------------------| | 13 | Configure Query Server Alarm Feed | |----|-----------------------------| | 14 | Configure SNMP Agent Community | |----|-----------------------------| | 15 | Mate Disaster Recovery | |----|-----------------------------| | e | Exit | \-----------------------------------/ Enter Choice: 1
11. ☐	**MPS A**: Verify VIP addresses are set to **0.0.0.0.**	MPS Side A: EPAP A Provisioning Network IP Address = 192.168.61.115 EPAP B Provisioning Network IP Address = 192.168.61.116 Provisioning Network Netmask = 255.255.255.0 Provisioning Network Default Router = 192.168.61.1 EPAP A Backup Prov Network IP Address = Not configured EPAP B Backup Prov Network IP Address = Not configured Backup Prov Network Netmask = Not configured Backup Prov Network Default Router = Not configured EPAP A Sync Network Address = 192.168.2.100 EPAP B Sync Network Address = 192.168.2.200 EPAP A Main DSM Network Address = 192.168.120.100 EPAP B Main DSM Network Address = 192.168.120.200

		EPAP A Backup DSM Network Address = 192.168.121.100 EPAP B Backup DSM Network Address = 192.168.121.200 EPAP A HTTP Port = 80 EPAP B HTTP Port = 80 EPAP A HTTP SuExec Port = 8001 EPAP B HTTP SuExec Port = 8001 EPAP A Banner Connection Port = 8473 EPAP B Banner Connection Port = 8473 EPAP A Static NAT Address = Not configured EPAP B Static NAT Address = Not configured PDBI Port = 5873 Remote MPS A Static NAT Address = Not configured Remote MPS A HTTP Port = 80 Local Provisioning VIP = **0.0.0.0** Remote Provisioning VIP = **0.0.0.0** Local PDBA Address = 192.168.15.115 Remote PDBA Address = 192.168.16.115 Remote PDBA B Address = 192.168.16.116 Time Zone = America/New_York PDB Database = Exists Preferred PDB = Standby Allow updates from alternate PDB = Yes Auto DB Recovery Enabled = Yes PDBA Proxy Enabled = No Press return to continue...
12. ☐	**MPS A**: Choose “e” to exit.	MPS Side A:

		/-----EPAP Configuration Menu----------\ /--\ | 1 | Display Configuration | |----|----------------------------------| | 2 | Configure Network Interfaces Menu | |----|----------------------------------| | 3 | Set Time Zone | |----|----------------------------------| | 4 | Exchange Secure Shell Keys | |----|----------------------------------| | 5 | Change Password | |----|----------------------------------| | 6 | Platform Menu | |----|----------------------------------| | 7 | Configure NTP Server | |----|----------------------------------| | 8 | PDB Configuration Menu | |----|----------------------------------| | 9 | Security | |----|----------------------------------| | 10 | SNMP Configuration | |----|----------------------------------| | 11 | Configure Alarm Feed | |----|----------------------------------| | 12 | Configure Query Server | |----|----------------------------------| | 13 | Configure Query Server Alarm Feed | |----|----------------------------------| | 14 | Configure SNMP Agent Community | |----|----------------------------------| | 15 | Mate Disaster Recovery | |----|----------------------------------| | e | Exit | \--/ Enter Choice: e
13. ☐	Return to the procedure that you came here from.	
14. ☐	Note down the timestamp in log.	Run the following command: **$ date**

Procedure A.20 Enable EPAP PDBA Proxy and EPAP VIP Optional Features

Ensure the provisioning activity has been halted before proceeding!!!

Appendix A.20 Enable EPAP PDBA Proxy and EPAP VIP Optional Feature

S T E P #	This procedure outlines the steps for provisioning the PDBA proxy VIP. Estimated time: 10 minutes	
1.	**MPS A**: Login as epapdev	Login: **epapdev** Password: **<epapdev_password>**

	to 1A server.	
2.	**MPS A**: Perform "syscheck" on the 1A server.	**$ syscheck** Running modules in class hardware... OK Running modules in class proc... OK Running modules in class net... OK Running modules in class disk... OK Running modules in class services... OK Running modules in class system... OK LOG LOCATION: /var/TKLC/log/syscheck/fail_log #
3.	**MPS A**: SSH to EPAP 1B.	**$ssh mate**
4.	**MPS B**: Perform "syscheck" on the 1B.	**$ syscheck** Running modules in class hardware... OK Running modules in class proc... OK Running modules in class net... OK Running modules in class disk... OK Running modules in class services... OK Running modules in class system... OK LOG LOCATION: /var/TKLC/log/syscheck/fail_log #
5.	**MPS B**: Exit back to the 1A server	**$ exit**
6.	**MPS A**: Log into epapconfig	$**su - epapconfig** **Password:**
7.	**MPS A**: Choose option "1" to display Configuration.	MPS Side A: /-----EPAP Configuration Menu----------\ /-----------------------------------\ | 1 | Display Configuration | |----|----------| | 2 | Configure Network Interfaces Menu | |----|----------| | 3 | Set Time Zone | |----|----------| | 4 | Exchange Secure Shell Keys | |----|----------| | 5 | Change Password | |----|----------| | 6 | Platform Menu | |----|----------| | 7 | Configure NTP Server | |----|----------| | 8 | PDB Configuration Menu | |----|----------| | 9 | Security | |----|----------| | 10 | SNMP Configuration | |----|----------| | 11 | Configure Alarm Feed | |----|----------| | 12 | Configure Query Server | |----|----------| | 13 | Configure Query Server Alarm Feed | |----|----------| | 14 | Configure SNMP Agent Community |

		|----|----------------------------------| | 15 | Mate Disaster Recovery |
----	----------------------------------	 | e | Exit | \-----------------------------------/ Enter Choice: 1
8.	**MPS A**: Verify that the VIP is not configured.	MPS Side A: EPAP A Provisioning Network IP Address = 192.168.61.115 EPAP B Provisioning Network IP Address = 192.168.61.116 Provisioning Network Netmask = 255.255.255.0 Provisioning Network Default Router = 192.168.61.1 EPAP A Backup Prov Network IP Address = Not configured EPAP B Backup Prov Network IP Address = Not configured Backup Prov Network Netmask = Not configured Backup Prov Network Default Router = Not configured EPAP A Sync Network Address = 192.168.2.100 EPAP B Sync Network Address = 192.168.2.200 EPAP A Main DSM Network Address = 192.168.120.100 EPAP B Main DSM Network Address = 192.168.120.200 EPAP A Backup DSM Network Address = 192.168.121.100 EPAP B Backup DSM Network Address = 192.168.121.200 EPAP A HTTP Port = 80 EPAP B HTTP Port = 80 EPAP A HTTP SuExec Port = 8001 EPAP B HTTP SuExec Port = 8001 EPAP A Banner Connection Port = 8473 EPAP B Banner Connection Port = 8473 EPAP A Static NAT Address = Not configured EPAP B Static NAT Address = Not configured PDBI Port = 5873 Remote MPS A Static NAT Address = Not configured Remote MPS A HTTP Port = 80 **Local Provisioning VIP = Not configured** **Remote Provisioning VIP = Not configured** Local PDBA Address = 192.168.61.115 Remote PDBA Address = 192.168.61.181 Remote PDBA B Address = 192.168.61.182 Time Zone = America/New_York PDB Database = Exists Preferred PDB = Standby Allow updates from alternate PDB = Yes Auto DB Recovery Enabled = Yes PDBA Proxy Enabled = No Press return to continue...
9.	**MPS A**: Choose option "2" to enter the "Configure Network Interfaces Menu".	MPS Side A: /-----EPAP Configuration Menu----------\ /--\ | 1 | Display Configuration | |----|----------------------------------| | 2 | Configure Network Interfaces Menu | |----|----------------------------------| | 3 | Set Time Zone | |----|----------------------------------| | 4 | Exchange Secure Shell Keys | |----|----------------------------------| | 5 | Change Password | |----|----------------------------------| | 6 | Platform Menu | |----|----------------------------------| | 7 | Configure NTP Server | |----|----------------------------------| | 8 | PDB Configuration Menu | |----|----------------------------------| | 9 | Security | |----|----------------------------------| | 10 | SNMP Configuration | |----|----------------------------------| | 11 | Configure Alarm Feed | |----|----------------------------------

		| 12 | Configure Query Server | |----|----------| | 13 | Configure Query Server Alarm Feed | |----|----------| | 14 | Configure SNMP Agent Community | |----|----------| | 15 | Mate Disaster Recovery | |----|----------| | e | Exit | \\----|----------/ Enter Choice: 2
10.	**MPS A**: Choose option "6" to enter the "Configure Provisioning VIP Addresses Menu".	MPS Side A: /-----Configure Network Interfaces Menu----\ /----------| | 1 | Configure Provisioning Network | |----|----------| | 2 | Configure Sync Network | |----|----------| | 3 | Configure DSM Network | |----|----------| | 4 | Configure Backup Provisioning Network | |----|----------| | 5 | Configure Static NAT Addresses | |----|----------| | 6 | Configure Provisioning VIP Addresses | |----|----------| | e | Exit | \\----|----------/ Enter Choice: 6
11.	**MPS A**: Enter "Y" to stop PDBA / EPAP software then enter VIP address for the local and remote PDBA sites.	Verifying root connectivity with mate... EPAP software and PDBA are running. Stop them? [N]: **Y** EPAP software is running on mate MPS. Stop it? [N]: **Y** EPAP local provisioning Virtual IP Address [0.0.0.0]: **192.168.15.152** EPAP remote provisioning Virtual IP Address [0.0.0.0]: **192.168.15.172**
12.	**MPS A**: Choose option "e" to exit.	MPS Side A: /-----Configure Network Interfaces Menu----\ /----------| | 1 | Configure Provisioning Network | |----|----------| | 2 | Configure Sync Network | |----|----------| | 3 | Configure DSM Network | |----|----------| | 4 | Configure Backup Provisioning Network | |----|----------| | 5 | Configure Static NAT Addresses | |----|----------| | 6 | Configure Provisioning VIP Addresses | |----|----------| | e | Exit | \\----|----------/ Enter Choice: e
13.	**MPS A**: Choose option "1" to "Display Configuration.	MPS Side A: /-----EPAP Configuration Menu----------\ /----------| | 1 | Display Configuration | |----|----------| | 2 | Configure Network Interfaces Menu | |----|----------| | 3 | Set Time Zone | |----|----------| | 4 | Exchange Secure Shell Keys |

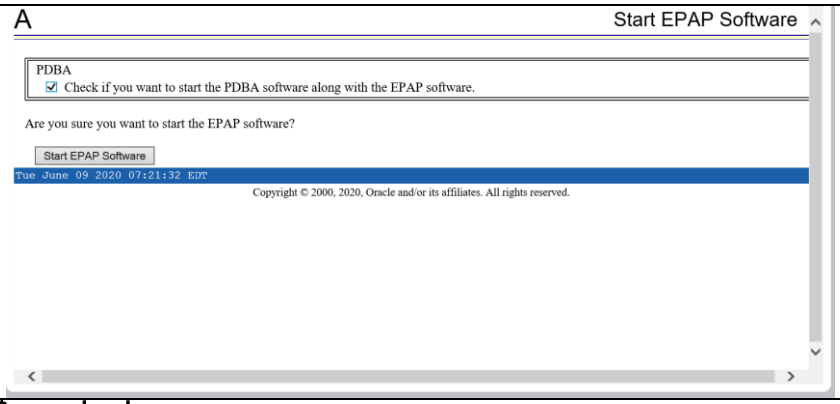
		|----|----------| | 5 | Change Password | |----|----------| | 6 | Platform Menu | |----|----------| | 7 | Configure NTP Server | |----|----------| | 8 | PDB Configuration Menu | |----|----------| | 9 | Security | |----|----------| | 10 | SNMP Configuration | |----|----------| | 11 | Configure Alarm Feed | |----|----------| | 12 | Configure Query Server | |----|----------| | 13 | Configure Query Server Alarm Feed | |----|----------| | 14 | Configure SNMP Agent Community | |----|----------| | 15 | Mate Disaster Recovery | |----|----------| | e | Exit | \\----------/ Enter Choice: 1
14.	**MPS A**: Verify VIP addresses	MPS Side A: EPAP A Provisioning Network IP Address = 192.168.61.115 EPAP B Provisioning Network IP Address = 192.168.61.116 Provisioning Network Netmask = 255.255.255.0 Provisioning Network Default Router = 192.168.61.1 EPAP A Backup Prov Network IP Address = Not configured EPAP B Backup Prov Network IP Address = Not configured Backup Prov Network Netmask = Not configured Backup Prov Network Default Router = Not configured EPAP A Sync Network Address = 192.168.2.100 EPAP B Sync Network Address = 192.168.2.200 EPAP A Main DSM Network Address = 192.168.120.100 EPAP B Main DSM Network Address = 192.168.120.200 EPAP A Backup DSM Network Address = 192.168.121.100 EPAP B Backup DSM Network Address = 192.168.121.200 EPAP A HTTP Port = 80 EPAP B HTTP Port = 80 EPAP A HTTP SuExec Port = 8001 EPAP B HTTP SuExec Port = 8001 EPAP A Banner Connection Port = 8473 EPAP B Banner Connection Port = 8473 EPAP A Static NAT Address = Not configured EPAP B Static NAT Address = Not configured PDBI Port = 5873 Remote MPS A Static NAT Address = Not configured Remote MPS A HTTP Port = 80 **Local Provisioning VIP = 192.168.15.152** **Remote Provisioning VIP = 192.168.15.172** Local PDBA Address = 192.168.15.115 Remote PDBA Address = 192.168.16.115 Remote PDBA B Address = 192.168.16.116 Time Zone = America/New_York PDB Database = Exists Preferred PDB = Standby Allow updates from alternate PDB = Yes Auto DB Recovery Enabled = Yes PDBA Proxy Enabled = No Press return to continue...
15.	**MPS A**: Choose “e” to exit	/-----EPAP Configuration Menu----------\ /----------\ | 1 | Display Configuration | |----|----------| | 2 | Configure Network Interfaces Menu | |----|----------| | 3 | Set Time Zone |

		|----|----------| | 4 | Exchange Secure Shell Keys | |----|----------| | 5 | Change Password | |----|----------| | 6 | Platform Menu | |----|----------| | 7 | Configure NTP Server | |----|----------| | 8 | PDB Configuration Menu | |----|----------| | 9 | Security | |----|----------| | 10 | SNMP Configuration | |----|----------| | 11 | Configure Alarm Feed | |----|----------| | 12 | Configure Query Server | |----|----------| | 13 | Configure Query Server Alarm Feed | |----|----------| | 14 | Configure SNMP Agent Community | |----|----------| | 15 | Mate Disaster Recovery | |----|----------| | e | Exit | \----------/ Enter Choice: e
16.	**MPS A**: Verify that you can ping both VIP addresses.	$ **ping <local VIP>** **$ ping <remote VIP>**
17.	**MPS A**: Log into epapconfig	$ **su - epapconfig**
18.	**MPS A**: Enter "1" to "Display Configuration"	/-----EPAP Configuration Menu----------\ /----------\ | 1 | Display Configuration | |----|----------| | 2 | Configure Network Interfaces Menu | |----|----------| | 3 | Set Time Zone | |----|----------| | 4 | Exchange Secure Shell Keys | |----|----------| | 5 | Change Password | |----|----------| | 6 | Platform Menu | |----|----------| | 7 | Configure NTP Server | |----|----------| | 8 | PDB Configuration Menu | |----|----------| | 9 | Security | |----|----------| | 10 | SNMP Configuration | |----|----------| | 11 | Configure Alarm Feed | |----|----------| | 12 | Configure Query Server | |----|----------| | 13 | Configure Query Server Alarm Feed | |----|----------| | 14 | Configure SNMP Agent Community | |----|----------| | 15 | Mate Disaster Recovery | |----|----------| | e | Exit |

		\----------/ Enter Choice: 1
19.	**MPS A**: Verify that the state of PDBA Proxy Feature is No.	MPS Side A: EPAP A Provisioning Network IP Address = 192.168.61.115 EPAP B Provisioning Network IP Address = 192.168.61.116 Provisioning Network Netmask = 255.255.255.0 Provisioning Network Default Router = 192.168.61.1 EPAP A Backup Prov Network IP Address = Not configured EPAP B Backup Prov Network IP Address = Not configured Backup Prov Network Netmask = Not configured Backup Prov Network Default Router = Not configured EPAP A Sync Network Address = 192.168.2.100 EPAP B Sync Network Address = 192.168.2.200 EPAP A Main DSM Network Address = 192.168.120.100 EPAP B Main DSM Network Address = 192.168.120.200 EPAP A Backup DSM Network Address = 192.168.121.100 EPAP B Backup DSM Network Address = 192.168.121.200 EPAP A HTTP Port = 80 EPAP B HTTP Port = 80 EPAP A HTTP SuExec Port = 8001 EPAP B HTTP SuExec Port = 8001 EPAP A Banner Connection Port = 8473 EPAP B Banner Connection Port = 8473 EPAP A Static NAT Address = Not configured EPAP B Static NAT Address = Not configured PDBI Port = 5873 Remote MPS A Static NAT Address = Not configured Remote MPS A HTTP Port = 80 Local Provisioning VIP = Not configured Remote Provisioning VIP = Not configured Local PDBA Address = 192.168.61.115 Remote PDBA Address = 192.168.61.181 Remote PDBA B Address = 192.168.61.182 Time Zone = America/New_York PDB Database = Exists Preferred PDB = Standby Allow updates from alternate PDB = Yes Auto DB Recovery Enabled = Yes PDBA Proxy Enabled = **No** Press return to continue...
20.	**MPS A**: Choose option "8" to display "PDB Configuration Menu	MPS Side A: /-----EPAP Configuration Menu----------\ /----------\ | 1 | Display Configuration | |----|----------| | 2 | Configure Network Interfaces Menu | |----|----------| | 3 | Set Time Zone | |----|----------| | 4 | Exchange Secure Shell Keys | |----|----------| | 5 | Change Password | |----|----------| | 6 | Platform Menu | |----|----------| | 7 | Configure NTP Server | |----|----------| | 8 | PDB Configuration Menu | |----|----------| | 9 | Security | |----|----------| | 10 | SNMP Configuration | |----|----------| | 11 | Configure Alarm Feed | |----|----------| | 12 | Configure Query Server | |----|----------| | 13 | Configure Query Server Alarm Feed | |----|----------| | 14 | Configure SNMP Agent Community |

		|----|----------| | 15 | Mate Disaster Recovery | |----|----------| | e | Exit | \\----------/ Enter Choice: 8
21.	**MPS A**: Choose option "6" to "Change PDBA Proxy State".	MPS Side A: /-----Configure PDB Menu----------\ /----------\ | 1 | Configure PDB Network | |----|----------| | 2 | RTDB Homing Menu | |----|----------| | 3 | Change MPS Provisionable State | |----|----------| | 4 | Create PDB | |----|----------| | 5 | Change Auto DB Recovery State | |----|----------| | 6 | Change PDBA Proxy State | |----|----------| | e | Exit | \\----------/ Enter Choice: 6
22.	**MPS A**: Enter **"Y"** to stop PDBA / EPAP software and enable PDBA Proxy.	EPAP software and PDBA are running. Stop them? [N]: **Y** EPAP software is running on mate MPS. Stop it? [N]: **Y** PDBA PROXY is currently DISABLED. Do you want to ENABLE PDBA Proxy? [N]: **Y**
23.	**MPS A**: Enter "e" to exit	MPS Side A: /-----Configure PDB Menu----------\ /----------\ | 1 | Configure PDB Network | |----|----------| | 2 | RTDB Homing Menu | |----|----------| | 3 | Change MPS Provisionable State | |----|----------| | 4 | Create PDB | |----|----------| | 5 | Change Auto DB Recovery State | |----|----------| | 6 | Change PDBA Proxy State | |----|----------| | e | Exit | \\----------/ Enter Choice: e
24.	**MPS A**: Enter "1" to "Display Configuration"	
25.	**MPS A**: Verify that the state of PDBA Proxy Feature is Yes.	MPS Side A EPAP A Provisioning Network IP Address = 192.168.61.115 EPAP B Provisioning Network IP Address = 192.168.61.116 Provisioning Network Netmask = 255.255.255.0 Provisioning Network Default Router = 192.168.61.1 EPAP A Backup Prov Network IP Address = Not configured EPAP B Backup Prov Network IP Address = Not configured Backup Prov Network Netmask = Not configured Backup Prov Network Default Router = Not configured EPAP A Sync Network Address = 192.168.2.100 EPAP B Sync Network Address = 192.168.2.200 EPAP A Main DSM Network Address = 192.168.120.100 EPAP B Main DSM Network Address = 192.168.120.200 EPAP A Backup DSM Network Address = 192.168.121.100

		EPAP B Backup DSM Network Address = 192.168.121.200 EPAP A HTTP Port = 80 EPAP B HTTP Port = 80 EPAP A HTTP SuExec Port = 8001 EPAP B HTTP SuExec Port = 8001 EPAP A Banner Connection Port = 8473 EPAP B Banner Connection Port = 8473 EPAP A Static NAT Address = Not configured EPAP B Static NAT Address = Not configured PDBI Port = 5873 Remote MPS A Static NAT Address = Not configured Remote MPS A HTTP Port = 80 Local Provisioning VIP = 192.168.15.152 Remote Provisioning VIP = 192.168.15.172 Local PDBA Address = 192.168.15.115 Remote PDBA Address = 192.168.16.115 Remote PDBA B Address = 192.168.16.116 Time Zone = America/New_York PDB Database = Exists Preferred PDB = Standby Allow updates from alternate PDB = Yes Auto DB Recovery Enabled = Yes **PDBA Proxy Enabled = Yes**
26.	**MPS A**: Enter “e” to exit	MPS Side A: /-----EPAP Configuration Menu----------\ /----------\ | 1 | Display Configuration | |----|----------| | 2 | Configure Network Interfaces Menu | |----|----------| | 3 | Set Time Zone | |----|----------| | 4 | Exchange Secure Shell Keys | |----|----------| | 5 | Change Password | |----|----------| | 6 | Platform Menu | |----|----------| | 7 | Configure NTP Server | |----|----------| | 8 | PDB Configuration Menu | |----|----------| | 9 | Security | |----|----------| | 10 | SNMP Configuration | |----|----------| | 11 | Configure Alarm Feed | |----|----------| | 12 | Configure Query Server | |----|----------| | 13 | Configure Query Server Alarm Feed | |----|----------| | 14 | Configure SNMP Agent Community | |----|----------| | 15 | Mate Disaster Recovery | |----|----------| | e | Exit | \----------/ Enter Choice: e
27.	**MPS A**: **EPAP A:** Log in to the web GUI as user “uiadmin”.	**User name:** ***uiadmin*** **Password:**

28.	**MPS A:** Start EPAP and PDBA Software. On the menu, click Process Control->Stap Software. Click “Stap EPAP Software” Button	
29.	**MPS A**: Perform “syscheck” on MPS-A.	**$ syscheck** Running modules in class hardware... OK Running modules in class proc... OK Running modules in class net... OK Running modules in class disk... OK Running modules in class services... OK Running modules in class system... OK LOG LOCATION: /var/TKLC/log/syscheck/fail_log
30.	**MPS A**: SSH to MPS 1B.	**$ ssh mate**
31.	**MPS B**: Start Epap software on MPS 1B.	**$ service Epap start** ~~ /etc/init.d/Epap start ~~ "EPAP_RELEASE" is set to "0.613" EPAP application start Successful
32.	**MPS B**: Perform “syscheck” on MPS 1B.	**$ syscheck** Running modules in class hardware... OK Running modules in class proc... OK Running modules in class net... OK Running modules in class disk... OK Running modules in class services... OK Running modules in class system... OK LOG LOCATION: /var/TKLC/log/syscheck/fail_log
33.	Return to the procedure that you came here from.	
34.	Note down the timestamp in log.	Run the following command: **$ date**

Procedure A.21 Configure DSM Min Mem Size

Appendix A.21 Configure DSM Min Mem Size

S T E P #	This procedure configures DSM Min Mem Size on standalone PDB 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 MY ORACLE SUPPORTAND **ASK FOR INSTALL ASSISTANCE.**	
1. ☐	Standalone PDB : Login as epapdev to standalone PDB server.	Login: epapdev Password: <epapdev_password>
2. ☐	Execute getDsmMinMemSize.pl	Go to the bin directory to execute the getDsmMinMemSize.pl perl script $ cd /usr/TKLC/epap/bin Execute getDsmMinMemSize.pl script $ ./ getDsmMinMemSize.pl

3. ☐	Restart the pdb Software.	$ service Pdba stop
		~~ /etc/init.d/Pdba stop ~~
		PDBA application stopped.
		$ service Pdba start
		~~ /etc/init.d/Pdba start ~~
		PDBA application started.
		$ service Pdba status
		~~ /etc/init.d/Pdba status ~~
		PDBA application is running.

4. ☐	Verify that the uiEdit "DSM_MIN_MEM_SIZE" variable is added and updated correctly.	$ uiEdit | grep DSM_MIN_MEM_SIZE "DSM_MIN_MEM_SIZE" is set to "12046"
5. ☐	Procedure Complete	Procedure is complete.
6. ☐	Note down the timestamp in log.	Run the following command: $ date

Procedure A.22 Restart Mysql service for PDB on Query Server

Appendix A.22 Restart MySQL service for PDB on Query Server

NOTE: The MySQL services should be started as non-root admin user only.

This procedure restarts the MySQL service for PDB on Query Server. Check off (√)each step as it is completed. Boxes have been provided for this purpose under each step number.

Appendix A.22 Restart MySQL service for PDB on Query Server

NOTE: The MySQL services should be started as non-root admin user only.

IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORTAND **ASK FOR INSTALL ASSISTANCE.**	
Login to EAGLE QS as QS admin.	login: **<admin_user>** Password: **<admin_password>**
Start the mysqlpdb service.	**$ sudo service mysqlpdb stop** . . . Waiting for mysqlpdb to stop
Verify that mysqlpdb service is running.	**$ sudo service mysqlpdb start** Waiting for mysqlpdb to start done
Start the mysqlpdb service.	**$sudo service mysqlpdb status** PID:8841 mysqlpdb is running.
Procedure Complete	Procedure is complete.
Note down the timestamp in log.	Run the following command: **$ date**

Procedure A.23 Get parse9Dig file from EPAP 16.3 ISO

Appendix A.23 Get parse9Dig file from EPAP 16.3 ISO

S T E P #	This procedure extract parse9Dig script file from EPAP 16.3 ISO. Check off (√)each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORTAND **ASK FOR INSTALL ASSISTANCE.**	
1. ☐	**MPS A:** Login as admusr.	login: **<admin_user>** Password: **<admin_password>**
2. ☐	**MPS A:** Copy ISO on MPS A.	Perform Procedure in Procedure A.12 or copy EPAP 16.3 ISO to /var/TKLC/upgrade directory.
3. ☐	**MPS A:** Switch to root user.	Switch to root user. **$ su – root** **Password:**
4. ☐	**MPS A:** Create directory using mkdir.	Create /mnt/iso directory using following command: **# mkdir /mnt/iso**
5. ☐	**MPS A:** Mount ISO on above path	Mount ISO on above created path. # mount -o loop <16.3.a.0.0-b.b.b ISO with full path which is copied in step 2> <full path of directory created in step 4> As follows:

Appendix A.23 Get parse9Dig file from EPAP 16.3 ISO

		# mount -o loop /var/TKLC/upgrade/EPAP-16.3.0.0.0_163.8.0-x86_64.iso /mnt/iso/
6. ☐	**MPS A:** Extract TKLCepap rpm from the ISO.	Copy TKLCepap rpm at /tmp directory. # cp <directory created in step 4>/Packages/<TKLCepap rpm, the same version which is copied in step 2> /tmp As follows: **# cp /mnt/iso/Packages/TKLCepap-163.0.8-16.3.0.0.0_163.8.0.x86_64.rpm /tmp/**
7. ☐	**MPS A:** Change directory to /tmp.	Change directory to /tmp using following command: **# cd /tmp**

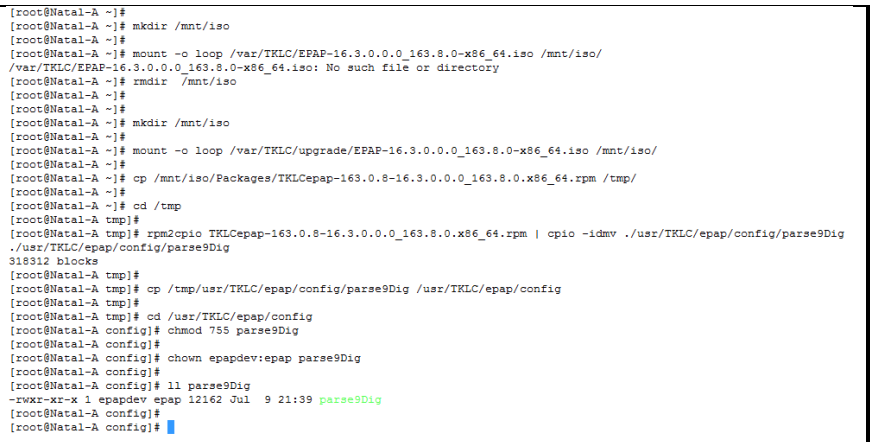
8. ☐	**MPS A:** Extract parse9Dig script file from rpm.	Extract desired file parse9Dig from rpm:
		
		# rpm2cpio <TKLCepap rpm extracted in step 6> | cpio -idmv <parse9Dig>
		
		As follows:
		# rpm2cpio TKLCepap-163.0.8-16.3.0.0.0_163.8.0.x86_64.rpm | cpio -idmv ./usr/TKLC/epap/config/parse9Dig
		
		`[root@Natal-A tmp]# rpm2cpio TKLCepap-163.0.8-16.3.0.0.0_163.8.0.x86_64.rpm | cpio -idmv ./usr/TKLC/epap/config/parse9Dig`
		`./usr/TKLC/epap/config/parse9Dig`
		`318312 blocks`

9. ☐	**MPS A:** Copy extracted parse9Dig at desired path.	Copy extracted parse9Dig file at path: **/usr/TKLC/epap/config** Use following path: **# cp /tmp/usr/TKLC/epap/config/parse9Dig /usr/TKLC/epap/config**

10. ☐	**MPS A:** Change the permission of parse9Dig file as required.	Change mode of file parse9Dig to 755 and ownership to epapdev:epap.
		Use following command:
		
		# cd /usr/TKLC/epap/config
		# chmod 755 parse9Dig
		# chown epapdev:epap parse9Dig
		
		List the file and check the permissions. It should be same as follows:
		# ll parse9Dig
		
		`[root@Natal-A config]# ll parse9Dig`
		`-rwxr-xr-x 1 epapdev epap 12162 Jul  9 21:39 parse9Dig`

11. ☐	**MPS A:** Snapshot of all above executed commands to extract parse9Dig file.	Verify that all steps executed successfully as follows:

Appendix A.23 Get parse9Dig file from EPAP 16.3 ISO

		
12.	**MPS A:** Remove all temporary files from /tmp directory.	Remove parse9Dig file and TKLCepap rpm from /tmp directory. Execute following command on CLI: **# rm -f /tmp/usr/TKLC/epap/config/parse9Dig** **# rm -f /tmp/TKLCepap-163.0.12-16.3.0.0.0_163.12.0.x86_64.rpm**
13.	**MPS A:** Umount the mounted ISO.	Umount the ISO which was mounted in step 5. Execute below command: **# umount /mnt/iso/**
14.	**MPS A:** Remove ISO directory.	Remove directory /mnt/iso. Execute below command: **# rmdir /mnt/iso/**
15. ☐	Procedure Complete	Procedure is complete.
16. ☐	Note down the timestamp in log.	Run the following command: **$ date**

Procedure A.24 PDB Restore

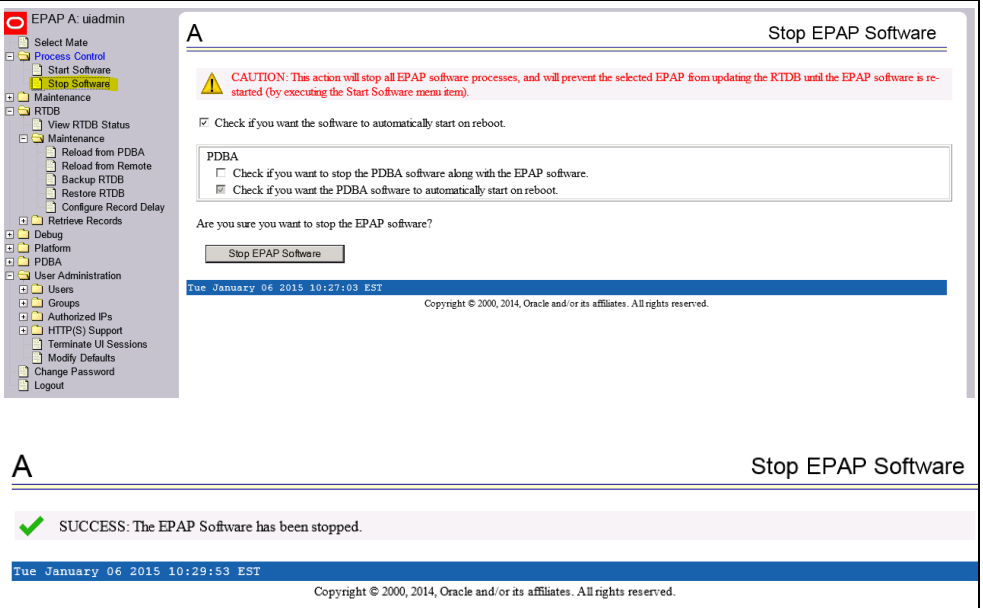
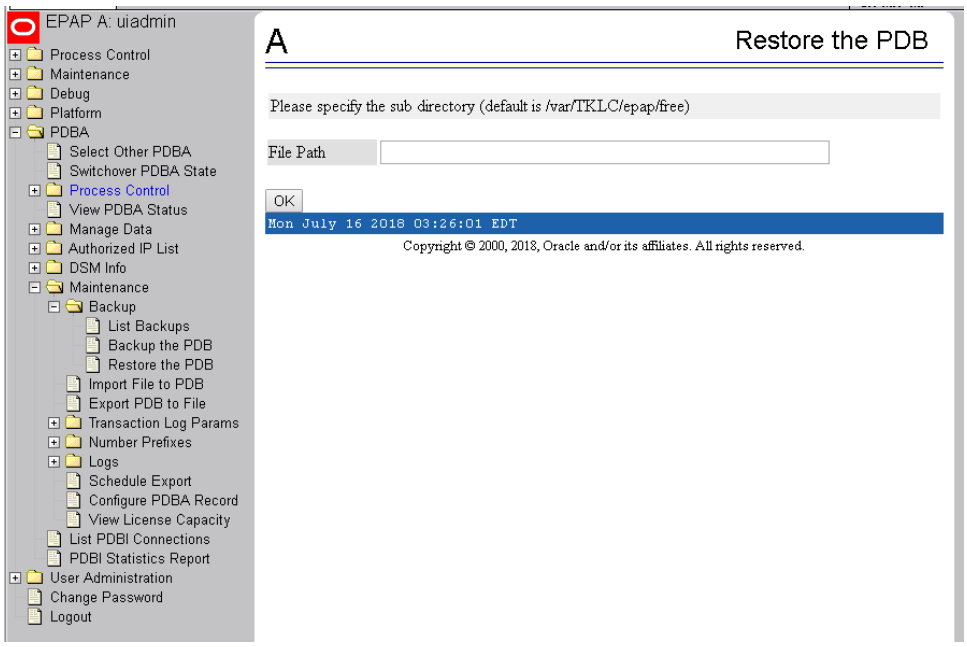
Appendix A.24 PDB Restore

S T E P #	This procedure provides instructions to restore PDB from a backup file. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND ASK FOR ASSISTANCE.	
1.	**EPAP A:** Log in to the CLI as user "admusr".	If not already logged in, then login as 'admusr': **[hostname] consolelogin: admusr** **password:** ***password***
2.	**EPAP A:** Switch to epapdev user.	$ sudo su - epapdev
3.	**EPAP A:** Backup file should be readable for epapdev user	Check mode and ownership of PDB backup tar file. It should be as follows: `[epapdev@DBExp-VM77 free]$ ll pdbBackup_Natal-a_20180713022216_DBBirthdate_20180713055242GMT_DBLevel_18_v`

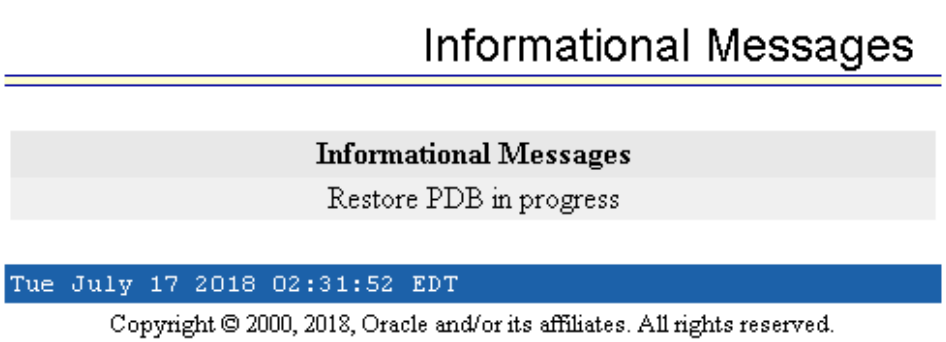
		7.50.bkp.tar.gz -rw-rw-rw- 1 epapdev epap 1182165 Jul 16 03:32 pdbBackup_Natal-a_20180713022216_DBBirthdate_20180713055242GMT_DBLevel_18_v7.50.bkp.tar.gz If permission and ownership of tar file is not same as above then use following command: Change mode of tar file: $ chmod 666 <PDB backup tar file>
4.	**EPAP A:** Start restore from CLI.	**Note: Skip this step if the PDB backup is taken on EPAP 16.3 release.** If backup is taken on EPAP 16.1, then use following command to start restore process: $ /usr/TKLC/epap/config/restore_pdb –force7 If backup is taken on EPAP 16.2, then use following command to start restore process: $ /usr/TKLC/epap/config/restore_pdb –force Screenshot after initiating PDB restore from CLI as below (NOTE: Provided the user input accordingly): [epapdev@DBExp-VM77 free]$ /usr/TKLC/epap/config/restore_pdb --force Mon Jul 16 07:24:57 EDT 2018 This script will replace the existing PDB with one provided from a backup and co Are you sure you want to do continue? (y/n) **Y** Enter the name of the backup tar.gz file. **/var/TKLC/epap/free/pdbBackup_Natal-a_20180713022216_DBBirthdate_20180713055242GMT_DBLevel_18_v7.50.bkp.tar.gz** localIp = 10.75.138.77 localName=DBExp-VM77 remoteIp = 0.0.0.0 No remote site WARNING : If this backup is from EPAP 16.1 or earlier release please use option Are you sure this backup is taken on EPAP 16.2 release? (y/n)Y Do you want to restore Stats database? (y/n) **Y** Running with force option! Skip disk space check.. remoteBIp = There is no remote B PDB Unzipping backup file. This may take a while.. Running with force option! Skip compatibility check.. Stopping local PDBA ~~ /etc/init.d/Pdba stop ~~ PDBA process is already stopped. Stopping local PDB mysql daemon Waiting for mysqlpdb to stop.. done No need to create backup directory.. Running ibbackup tool to restore DB /bin/chown: changing ownership of `/usr/TKLC/epap/logs/queryServer.log': Operation not

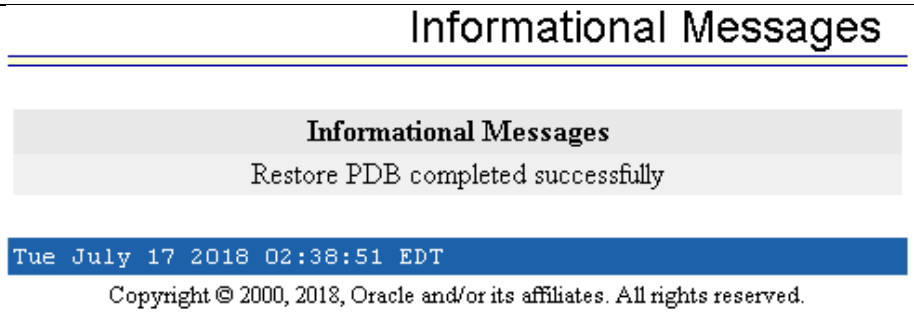
		permitted Starting restore backup/ backup/meta/ backup/meta/backup_content.xml backup/meta/backup_create.xml . . . Starting mysqlpdb Waiting for mysqlpdb to start done Removing local pdba status file. PDB_RTDB_SYNC Param updated successfully **Restore completed successfully.** Mon Jul 16 07:45:33 EDT 2018 "Restore completed successfully" message displayed on CLI after completed restore. **Following error shall be observed on CLI during restore:** myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/columns_priv.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/columns_priv.MYI' --------- myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/db.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/db.MYI' --------- myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/event.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/event.MYI' . . . myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/columns_priv.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/columns_priv.MYI' --------- myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/db.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/db.MYI' --------- myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/event.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/event.MYI' Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F, if the output contains any error other than the above mentioned errors.
5. ☐	**EPAP A:** Log in to the web GUI as user "uiadmin".	**User name:** ***uiadmin*** **Password:**

Appendix A.24 PDB Restore

	Note: Move to step 9 if the PDB backup is taken on EPAP 16.2 or earlier release.	
6. ☐	**EPAP A:** Stop Software. On the menu, click Process Control->Stop Software. Click "Stop EPAP Software" Button	
7. ☐	**EPAP A:** Restore PDB. On the menu, click PDBA->Maintenance->Backup->Restore the PDB Select the backup file, then click "Restore PDB from the Selected File" Button Click "Confirm PDB Restore" Button	

Appendix A.24 PDB Restore

8. ☐	**EPAP A:** An IM alarm should be observed with informational message on EPAP GUI confirming that restore PDB is in progress. An IM alarm should be observed with informational message on EPAP GUI confirming that restore PDB completed successfully.	Confirming that Restore PDB in progress:  Confirming that Restore PDB is completed successfully:



Similar logs as mentioned below, shall be observed in restore PDB logs, which should be ignored:

Error : Table 'mysql.innodb_index_stats' doesn't exist

status : Operation failed

mysql.innodb_table_stats

Error : Table 'mysql.innodb_table_stats' doesn't exist

status : Operation failed.

.

.

mysql.slave_worker_info

Error : Table 'mysql.slave_worker_info' doesn't exist

status : Operation failed

.

Repairing tables

mysql.engine_cost

Error : Table 'mysql.engine_cost' doesn't exist

status : Operation failed

.

.

mysql.slave_worker_info

Error : Table 'mysql.slave_worker_info' doesn't exist

status : Operation failed

Found outdated sys schema version 1.5.1.

Upgrading the sys schema.

Checking databases.

9. ☐	Procedure complete.	Return to the procedure that you came here from.
10. ☐	Note down the timestamp in log.	Run the following command: `$ date`

Procedure A.25 Conversion from Prov(mixed EPAP) to Non-Prov

Appendix A.25 Conversion from Prov(mixed EPAP) to Non-prov

S T E P #	This procedure convert provisionable mixed EPAP to Non-provisionable EPAP . Check off (√)each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORTAND **ASK FOR INSTALL ASSISTANCE.**	
1. ☐	**MPS A:** Login as admusr.	login: **<admin_user>** Password: **<admin_password>**
2.	**MPS A:** Perform PDB backup on MPS A.	Note: Skip this step if PDB backup is already taken. Check Procedure A.6 to perform PDB backup.
3.	**MPS A:** Perform RTDB backup on MPS A.	Note: Skip this step if RTDB backup is already taken. Check Procedure A.7 to perform RTDB backup.
4. ☐	**MPS A:** Switch user to epapconfig.	$ sudo su - epapconfig
5. ☐	**MPS A:** The EPAP Configuration Menu is displayed. Select choice 8, PDB Configuration Menu.	`EPAP Configuration Menu for mixed EPAP:`

Appendix A.25 Conversion from Prov(mixed EPAP) to Non-prov

		/-----EPAP Configuration Menu----------\ /--\ | 1 | Display Configuration | |----|----------------------------------| | 2 | Configure Network Interfaces Menu | |----|----------------------------------| | 3 | Set Time Zone | |----|----------------------------------| | 4 | Exchange Secure Shell Keys | |----|----------------------------------| | 5 | Change Password | |----|----------------------------------| | 6 | Platform Menu | |----|----------------------------------| | 7 | Configure NTP Server | |----|----------------------------------| | 8 | PDB Configuration Menu | |----|----------------------------------| | 9 | Security | |----|----------------------------------| | 10 | SNMP Configuration | |----|----------------------------------| | 11 | Configure Alarm Feed | |----|----------------------------------| | 12 | Configure Query Server | |----|----------------------------------| | 13 | Configure Query Server Alarm Feed | |----|----------------------------------| | 14 | Configure SNMP Agent Community | |----|----------------------------------| | 15 | Mate Disaster Recovery | |----|----------------------------------| | e | Exit | \--/ Enter Choice: 8
6. ☐	**MPS A:** The PDB Configuration Menu is displayed. Select choice 3, Change MPS Provisionable State **Note: You may need to stop PDBA software.**	Configure PDB Menu displayed:

Appendix A.25 Conversion from Prov(mixed EPAP) to Non-prov

```
 /-----Configure PDB Menu-----------\
/-----------------------------------\
|  1 | Configure PDB Network        |
|----|------------------------------|
|  2 | RTDB Homing Menu             |
|----|------------------------------|
|  3 | Change MPS Provisionable State |
|----|------------------------------|
|  4 | Create PDB                   |
|----|------------------------------|
|  5 | Change Auto DB Recovery State  |
|----|------------------------------|
|  6 | Change PDBA Proxy State      |
|----|------------------------------|
|  e | Exit                         |
\-----------------------------------/

Enter Choice: 3

PDBA software is running.  Stop it? [N]: Y

The provisioning architecture of the EPAP software
allows for
exactly 2 customer provisionable sites.  Additional
sites that
are to receive the data provisioned to the
provisionable sites
should answer 'N' here.

If there are only 2 mated sites, it is safe to
answer `Y' here.

Choosing 'N' here shall make this MPS Non-
Provisionable and this action is irreversible.

Is this site provisionable? [Y]:N
INFO: Increasing rt volume size for Non-
provisionable EPAP. Please wait...
INFO: db space increased on 'A'.
INFO: Stopping Epap, mysqlapp and mysqlpdb
services...
Done.
INFO: Starting Epap, mysqlapp and mysqlpdb
services...
Done.
INFO: Stopping Epap, mysqlapp and mysqlpdb
services...
Done.
INFO: Starting Epap, mysqlapp and mysqlpdb
services...
Done.
INFO: Successfully configured Non-provisionable
EPAP.
```

Following error shall be observed in cgi.dbg log file:

		myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/alarmInfo.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/alarmInfo.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/bannerinfo.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/bannerinfo.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/appconfig/EuiDB/econfig.MYI' . . . myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/columns_priv.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/columns_priv.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/db.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/db.MYI' myisamchk: error: 140 when opening MyISAM-table '/var/TKLC/epap/db/pdb/mysql/event.MYI' Contact My Oracle Support following the instructions on the front page or the instructions on the Appendix F, if the output contains any errors beside the above.
7. ☐	**MPS A**: Verify rtVolume size using command "df -h".	[epapdev@Arica-1A ~]$ df -h Filesystem Size Used Avail Use% Mounted on /dev/mapper/vgroot-plat_root 976M 288M 637M 32% / tmpfs 3.9G 0 3.9G 0% /dev/shm /dev/md1 244M 40M 192M 18% /boot /dev/mapper/vgroot-plat_tmp 976M 2.0M 923M 1% /tmp /dev/mapper/vgroot-plat_usr 3.9G 2.5G 1.2G 68% /usr /dev/mapper/vgroot-plat_var 976M 206M 720M 23% /var /dev/mapper/vgroot-plat_var_tklc 3.9G 1.8G 1.9G 49% /var/TKLC /dev/mapper/vgroot-db 5.8G 4.3G 1.2G 79% /var/TKLC/epap /dev/mapper/vgroot-free 320G 5.3G 298G 2% /var/TKLC/epap /dev/mapper/vgroot-logs 20G 89M 19G 1% /var/TKLC/epap /dev/mapper/vgroot-rt 82G 3.3G 75G 5% /var/TKLC/epap [epapdev@Arica-1A ~]$ **Vgroot-rt size should be greater than 80G.**
8.	**MPS A:** Presence of PDB folder after converting from Prov to Non-Prov	Pdb directory shall be present after converting from Prov to Non Prov. **/var/TKLC/epap/db/pdb/pdb**
9.	**MPS B:** Login as admusr.	login: <**admin_user**> Password: <**admin_password**>
10. ☐	**MPS B**: Verify rtVolume size using command "df -h".	Repeat step 7 on MPS B to verify rtVolume size. **Vgroot-rt size should be greater than 80G.**

Appendix A.25 Conversion from Prov(mixed EPAP) to Non-prov

11.	**MPS A:** Restore RTDB backup.	**Note: Restore RTDB backup taken in step 3.** Check Procedure A.10 to perform RTDB Restore.
12.	**MPS B:** Perform reload from mate on MPS B.	Check Procedure A.11 to perform reloade from mate.
13. ☐	MPS B: Procedure completed.	This procedure is completed.
14. ☐	Note down the timestamp in log.	Run the following command: `$ date`

Procedure A.26 Conversion from mixed EPAP to StandalonePDB+Non-Prov EPAP

Appendix A.26 Conversion from mixed EPAP to StandalonePDB+Non-Prov EPAP

Note: A new card would be needed for this conversion. The conversion can be done through various way where one of them is described below.

Assuming, there is a mixed EPAP on 16.2/16.3 release.

Execurte the below mentioned steps to perform this conversion:

On Mixed EPAP:

1. Take PDB backup. Refer to Procedure A.6 to perform PDB backup.
2. Take RTDB backup. Refer to Procedure A.7 to perform RTDB backup.
3. Perform upgrade from existing release EPAP 16.2 or 16.3 to target release of EPAP 16.4. Refer to section 3.1.3 to perform upgrade on mixed EPAP.
4. Convert Prov (mixed EPAP) to Non-Prov EPAP. Refer to Procedure A.25 to perform this conversion.

On PDBonly (fresh installation on new card)

5. Install EPAP 16.4 ISO on new card. Refer to section 3.1.2 to perform installation.
6. Attach this PDBonly with Non-Prov EPAP (converted in step 4) and any Non-Prov EPAP connected with Mixed setup (converted in step 4).
7. Restore PDB backup (taken in step 1) on PDBonly setup. Refer to Procedure A.24 to restore the PDB backup.

On Non-Prov setup:

8. Restore RTDB backup (taken in step 2) on Non-Prov MPS-A. Refer to Procedure A.10 to restore RTDB backup.
9. Perform reload from mate on Non-Prov MPS-B. Refer to Procedure A.11 to perform reload from mate.
10. Restart Epap and Pdba services once restores are done.

Note: While changing the PDB IP on old Non-Provs if Mysql replication error is observed on either MPS-A/B then execute Procedure 25, step 34 to step 36 to reset the replication on MPS servers and do health check and replication status.

So far, all three setups are in COMPACT mode. Refer to section 4 to change the DB Architecture from COMPACT to eXtreme.

Procedure A.27 Procedure to add/edit the /etc/minirc.mate file

NOTE: This procedure is needed in following cases:

1. **If "minicom mate" fails due to data curroption or some body deleted the file /etc/minirc.mate. Or,**
2. **If ttyS1 is not working, then edit the file /etc/minirc.mate to use ttyS3 or ttyS4.**

Appendix A.27 Procedure to add/edit the /etc/minirc.mate file

S T E P #	This procedure will add/edit the file /etc/minirc.mate. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND **ASK FOR UPGRADE ASSISTANCE.**	
1. ☐	**MPS:** Log on Server.	`[hostname] consolelogin: admusr` `password: password`
2. ☐	**MPS:** Switch user to root.	`$ su - root` `Password:`

3.	**MPS:** Verify that the file present on server.	Verify that the file /etc/minirc.mate is present on server:
		Execute the following command:
		
		`$ ls -l /etc/minirc.mate`
		`[root@Recife-a ~]# ls -l /etc/minirc.mate`
		`-rw-r----- 1 root root 658 Sep 7 03:35 /etc/minirc.mate`
		
		Move to step 5 if output is same as above otherwise continue to next step.

4. ☐	**MPS:** Cretae the file using vi editor.	Create the file /etc/minirc.mate using vi editor as follows:
		$ vi /etc/minirc.mate
		
		Add following lines in file /etc/minirc.mate and save the file:
		
		`#`
		`# minirc file generated by remoteConsole Mon Sep 10 09:53:54 2018`
		`pr port /dev/ttyS1`
		`pu baudrate 115200`
		`pu bits 8`
		`pu parity N`
		`pu stopbits 1`
		`pu rtscts No`
		`pu xonxoff No`
		`pu minit`
		`pu mreset`
		`pu mhangup`
		`pu pname1 YUNYY`
		`pu pname2 YUNYY`
		`pu pname3 YUNYN`
		`pu pname4 NDNYY`
		`pu pname5 NDNYY`
		`pu pname6 YDNYN`
		`pu pname7 YUYNN`
		`pu pname8 NDYNN`
		`pu pname9 YUNYN`
		`pu zauto`
		`pu fselw No`
		`pu askdndir No`

5. ☐	**MPS:** Edit the file /etc/minirc.mate	**If ttS1 is not working then edit the file /etc/minirc.mate and update ttyS1 to ttyS2 or ttyS1 to ttyS3 and change the serial cable connectivity accordingly.** In following example, we have updated the file /etc/minirc.mate and changed the port

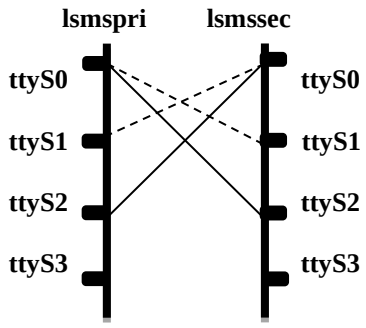
value from ttyS1 to ttyS2.

$ vi /etc/minirc.mate

```
#
# minirc file generated by remoteConsole Mon Sep 10 09:53:54 2018
pr port         /dev/ttyS2
pu baudrate     115200
pu bits         8
pu parity       N
pu stopbits     1
pu rtscts       No
pu xonxoff      No
pu minit
pu mreset
pu mhangup
pu pname1           YUNYY
pu pname2           YUNYY
pu pname3           YUNYN
pu pname4           NDNYY
pu pname5           NDNYY
pu pname6           YDNYN
pu pname7           YUYNN
pu pname8           NDYNN
pu pname9           YUNYN
pu zauto
pu fselw            No
pu askdndir         No
```

NOTE: In order to make this changes working we must need to change the serial cable connectivity with lsmspri and lsmssec.

In following figure we have changed the serial connectivity from
ttyS0(lsmspri) <–> ttyS1(lsmssec) to ttyS0(lsmspri) <–> ttyS2(lsmssec)
and
ttyS0(lsmssec) <–> ttyS1(lsmspri) to ttyS0(lsmssec) <–> ttyS2(lsmspri)



Here, broken line showing the old connectivity and bold line for the new connecrtivity.

6.	**MPS:** Run “minicom mate” on the server.	Run the following command: **$minicom mate** It should be successfully switched to mate server.
7. ☐	**MPS:** Procedure completed	This procedure is complete.
8.	Note down the	Run the following command:

Appendix A.27 Procedure to add/edit the /etc/minirc.mate file

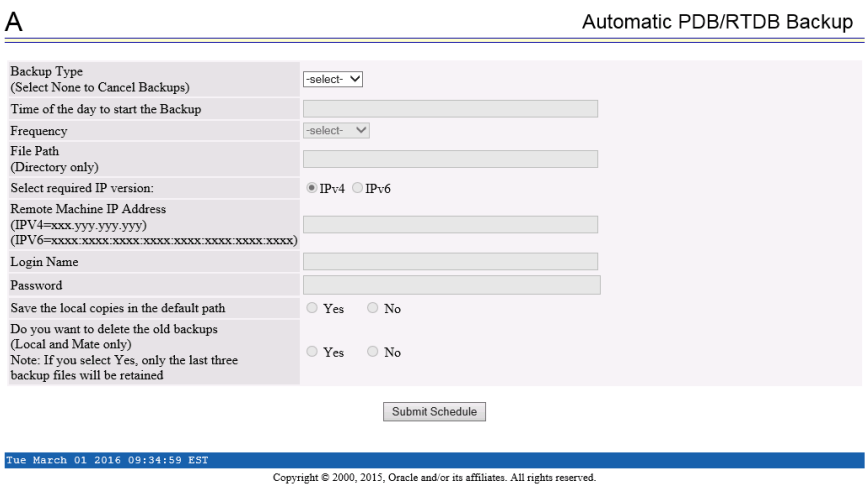
☐	timestamp in log.	`$ date`

Procedure A.28 Configure the Auto Backup

This procedure configures auto backup for PDB and RTDB on all the Non-PROVs that are homed to the PDBA.

EPAP software on all Non-PROVs homed to the PDBA should be running for successful auto RTDB backup on the Non-PROVs.

Appendix A.28 Configure the Auto Backup

STEP #			
	1A	This procedure enables the auto backup feature for the Provisioning Database. Estimated time: 5 minutes	
1.	☐	**MPS 1A:** Navigate to the main Maintenance menu selection and select "Automatic PDB/RTDB Backup". Specify the required fields and press the Submit Schedule button.	 **Note**: Kindly note that the passwords having certain special characters like $, @, # are not allowed while configuring passwords for automatic backup transfer to remote server.
2.	☐	Note down the timestamp in log.	Run the following command: `$ date`

This procedure is complete!

Procedure A.29 STOP ACTIVE PDBA AND VERIFY REPL LOGS

This procedure shall be executed on Active PDBA (2A). If REPL log in not empty, part of the procedure will be executed in Standby PDBA (1A) as well.

Appendix A.29 Procedure to add/edit the /etc/minirc.mate file

STEP	
	This procedure stops the PDBA software. Estimated time: 5 minutes.

Appendix A.29 Procedure to add/edit the /etc/minirc.mate file

#		
1. ☐	**MPS 2A:** Stop the Customer provisioning in to the active PDB.	NOTE: Contact customer provisioning and verify provisioning has been deactivated.
2. ☐	**MPS 2A:** Log on Server.	`[hostname] consolelogin: admusr` `password: password`
3. ☐	**MPS 2A:** Switch user to root.	`$ su - root` `Password:`
4. ☐	**MPS 2A:** Stop the PDBA process	**# service Pdba stop** ~~ /etc/init.d/Pdba stop ~~ PDBA application stopped.
5. ☐	**MPS 2A:** Stop the EPAP process	**# service Epap stop** ~~ /etc/init.d/Epap stop ~~ EPAP application stopped.
6. ☐	**MPS 2A:** Clear the REPL logs	**$ mysql -u root -p -S/var/TKLC/epap/db/pdb/mysql.sock < /usr/TKLC/epap/config/pdb_repl.sql** Enter password: **<MySQL_root_password>**
7. ☐	**MPS 2A:** Login to the mysql database and verify that there are no updates to be sent to the standby PDB. If any REPL log exists, follow steps 8 to 12. Otherwise jump to step 13	**$ mysql -u root -p -S/var/TKLC/epap/db/pdb/mysql.sock pdb** Enter password: **<MySQL_root_password>** On the MySQL prompt, execute the following commands: **mysql> select * from replLog;** Empty set (0.00 sec) **mysql> select * from requests;** Empty set (0.00 sec) **mysql> quit** Bye
8. ☐	**MPS 1A:** Start the PDBA and EPAP at the Standby site (1A)	**# service Pdba start** ~~ /etc/init.d/Pdba start ~~ PDBA application started. **# service Epap start** ~~ /etc/init.d/Epap start ~~ EPAP application started. Note : Skip the following step on Standalone PDB **# ssh mate "service Epap start"** ~~ /etc/init.d/Epap start ~~ EPAP application started.
9. ☐	**MPS 2A:** Start the PDBA at the Active site (2A)	**# service Pdba start** ~~ /etc/init.d/Pdba start ~~ PDBA application started. **# service Epap start** ~~ /etc/init.d/Epap start ~~ EPAP application started. Note : Skip the following step on Standalone PDB **# ssh mate "service Epap start"** ~~ /etc/init.d/Epap start ~~ EPAP application started.
10. ☐	**MPS 2A:** Wait a minute for the updates to sync	**$ mysql -u root -p -S/var/TKLC/epap/db/pdb/mysql.sock pdb** **Enter password: <MySQL_root_password>** On the MySQL prompt, execute the following commands: **mysql> select * from replLog;**

	between Active and Standby PDBA. Check in intervals of 1 minute till all updates are sent from Active PDBA to Standby PDBA. Move to next stepONLY after checking that output of replLog and requests tables shows "Empty set".	Empty set (0.00 sec) **mysql> select * from requests;** Empty set (0.00 sec) **mysql> quit** Bye
11. ☐	**MPS 2A:** Stop the PDBA and EPAP processes.	**# service Pdba stop** ~~ /etc/init.d/Pdba stop ~~ PDBA application stopped. **# service Epap stop** ~~ /etc/init.d/Epap stop ~~ EPAP application stopped.
12. ☐	**MPS 1A:** Stop the PDBA and EPAP processes.	**# service Pdba stop** ~~ /etc/init.d/Pdba stop ~~ PDBA application stopped. **# service Epap stop** ~~ /etc/init.d/Epap stop ~~ EPAP application stopped.
13. ☐	**MPS 2A:** Exit as root user	**$ exit**
14. ☐	Note down the timestamp in log.	Run the following command: **$ date**

PROCEDURE A.30 Resolve the false accept upgrade alarm situation

This procedure is used to resolve the false accept upgrade alarm situation from the system. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND ASK FOR ASSISTANCE.	
1. Blankout the /etc/motd file	> /etc/motd
2.Add an entry "export POST_UPGRADE_ACTION=ACCEPT" in the upgrade info file.	echo "export POST_UPGRADE_ACTION=ACCEPT" >> /var/TKLC/log/upgrade/upgrade.info
3.Clear the false alarm "TKSPLATMI33"	You will see the following alarm in alarmStatus. a. alarmMgr --alarmStatus [One output example below:] SEQ: 7 UPTIME: 356 BIRTH: 1524100682 TYPE: SET ALARM: TKSPLATMI33|tpdServerUpgradePendingAccept|1.3.6.1.4.1.323.5.3.18.3.1.3.33|3253 2|Processing Error|Configuration Error b. To clear the alarm, run the following command: alarmMgr --clear TKSPLATMI33

APPENDIX B INTERCONNECTION DIAGRAM

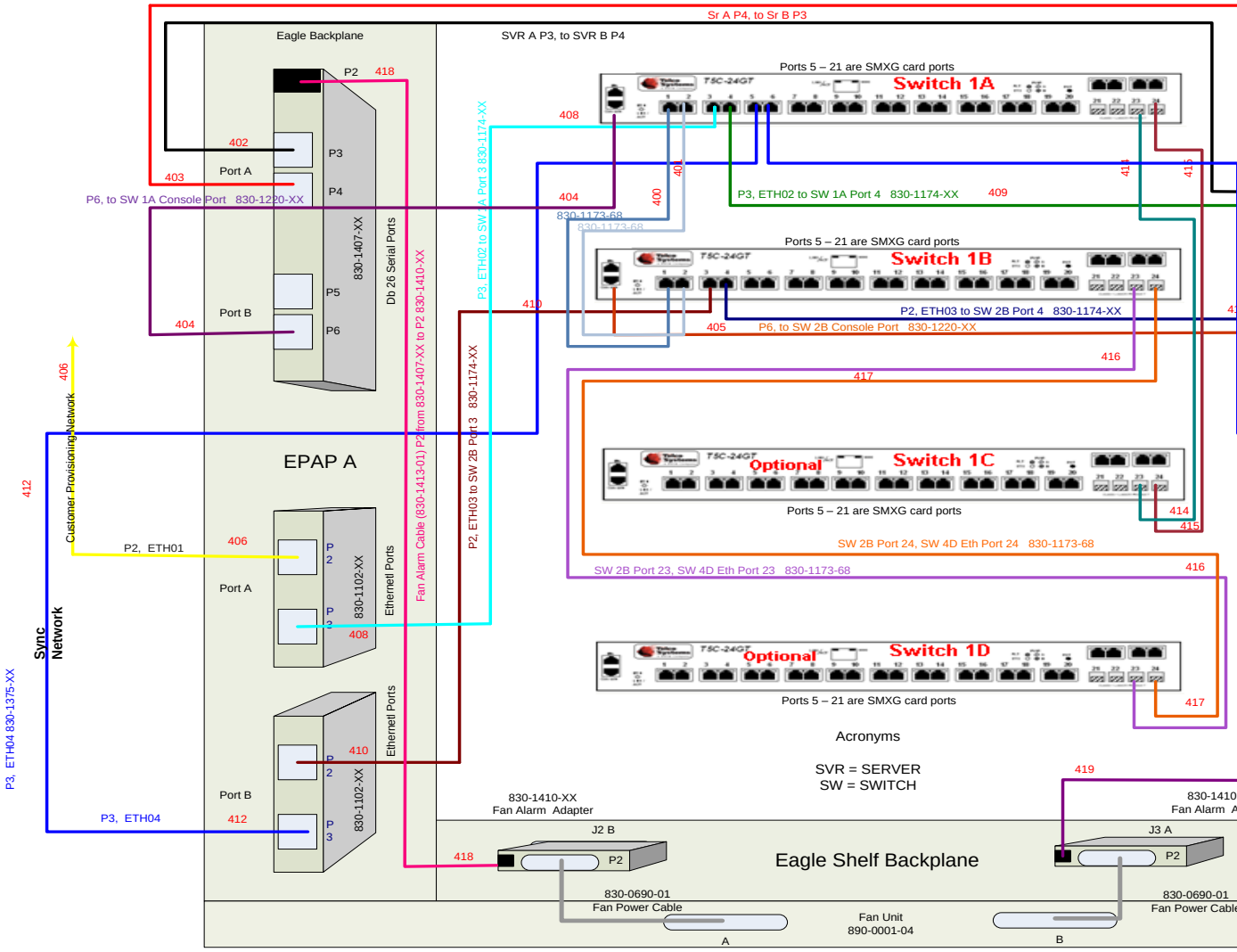


Figure 9: Interconnectivity Diagram for Sync Network Redundancy (Eth04 used for Sync Network)

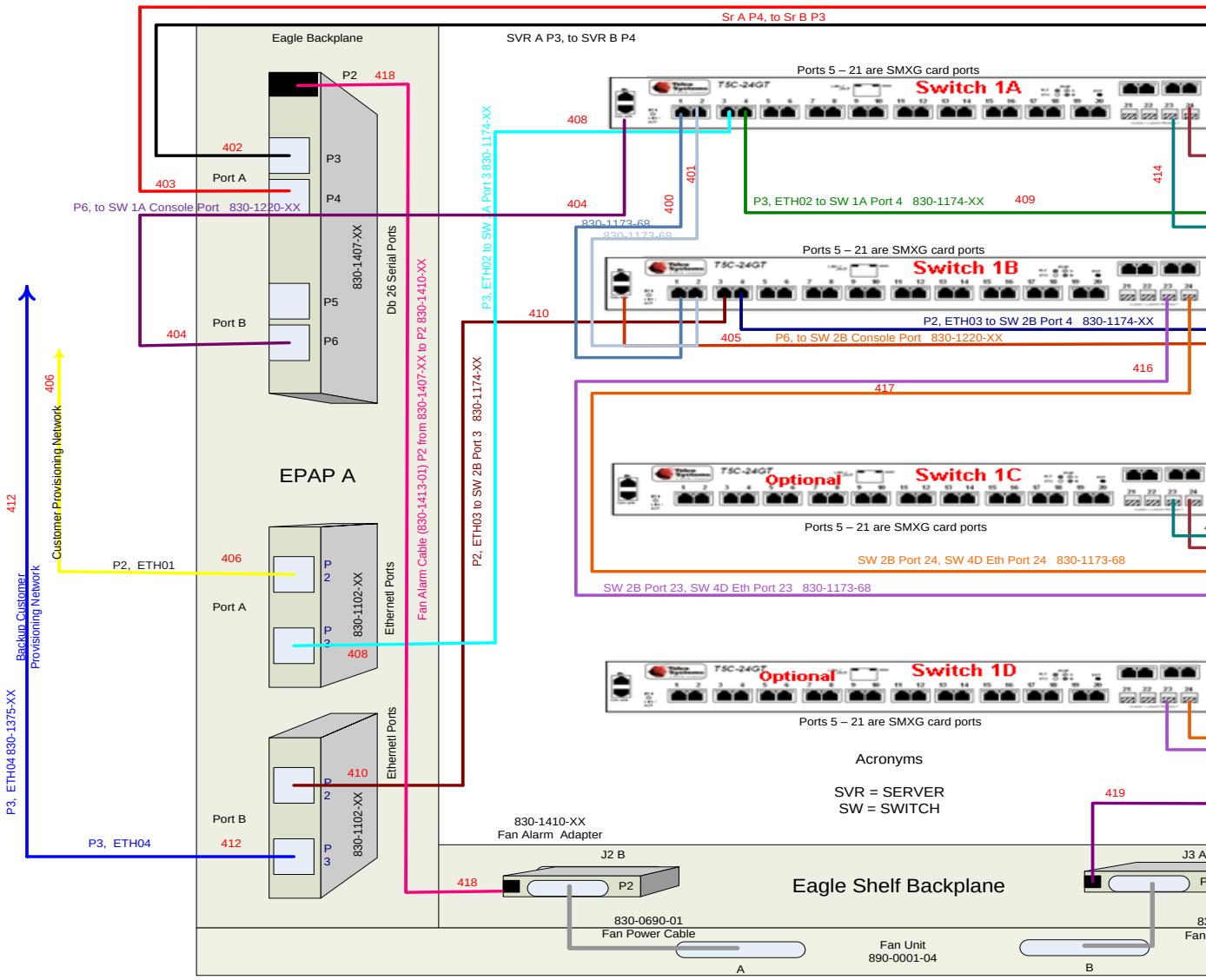


Figure 10: Default Interconnectivity Diagram (Eth04 used for Backup Provisioning Network)

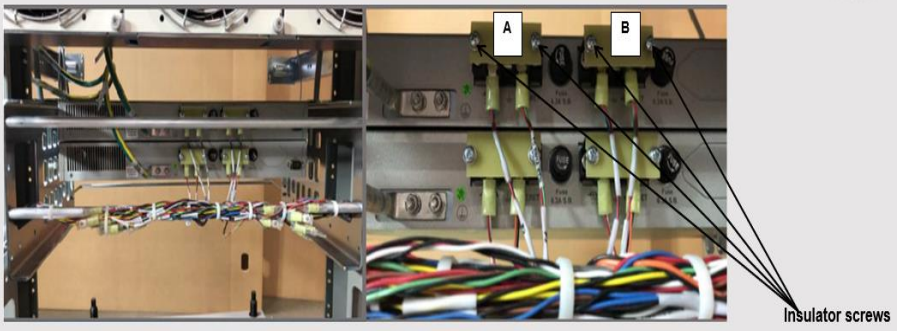
APPENDIX C TELCO TO CISCO SWITCH REPLACEMENT

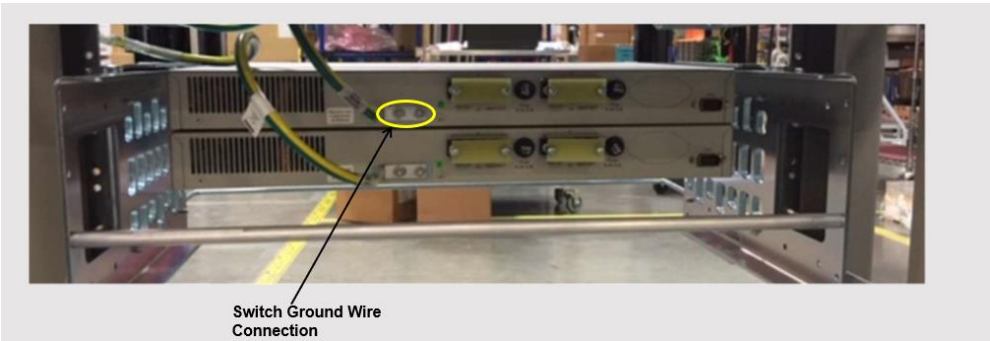
SWITCH REPLACEMENT

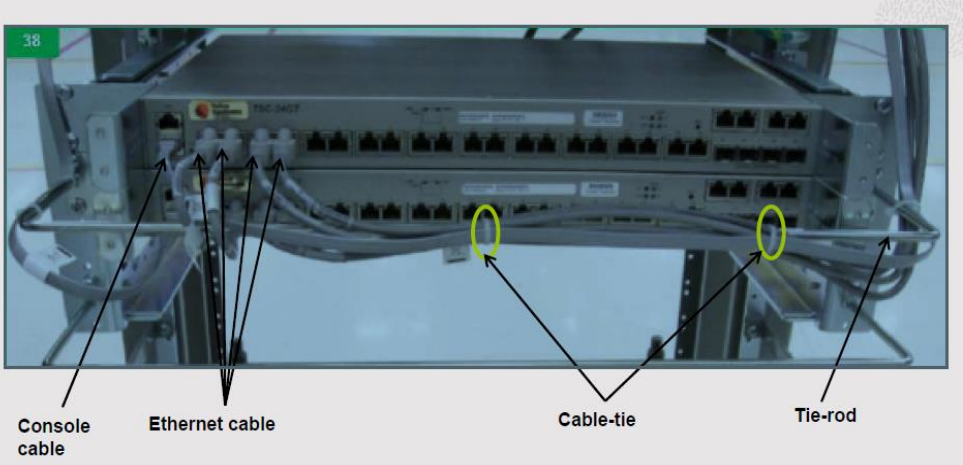
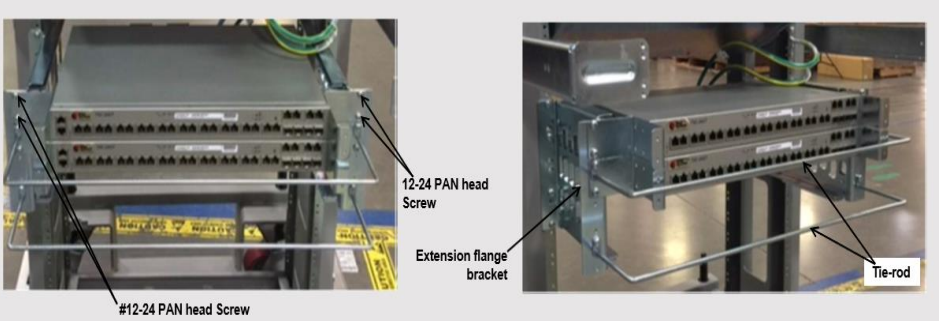
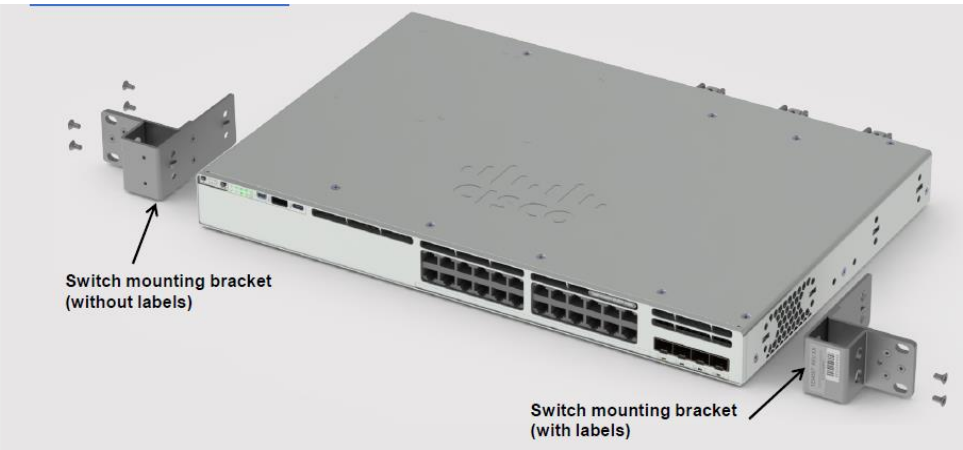
S T E P #	This procedure is for replacing the Telco switch with the Cisco switch. Check off (√)each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORTAND ASK FOR ASSISTANCE.

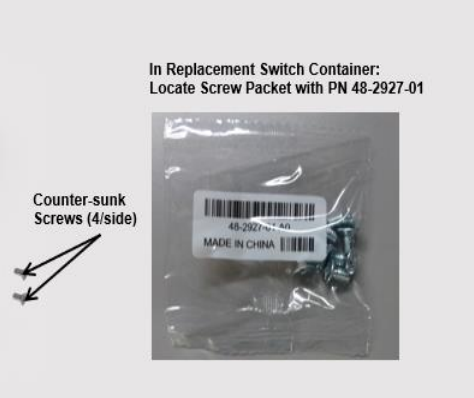
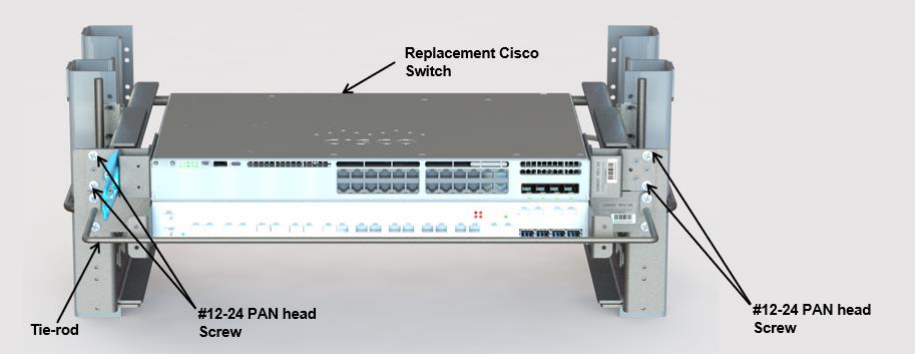
The following tools are required to perform this procedure:

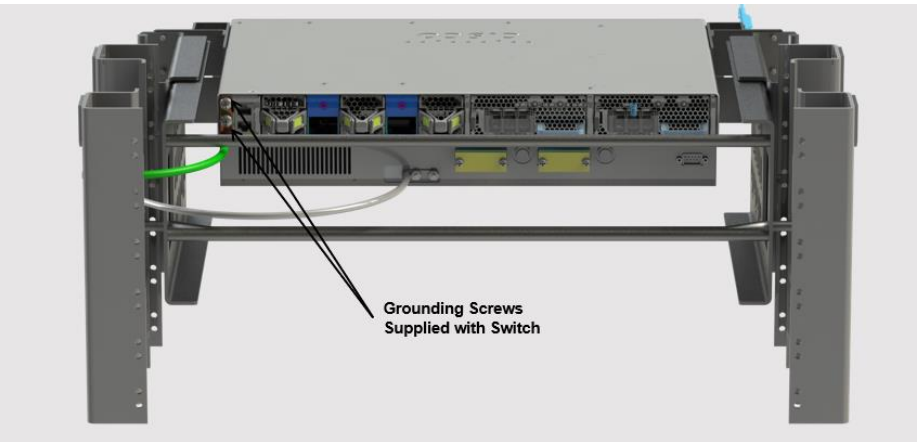
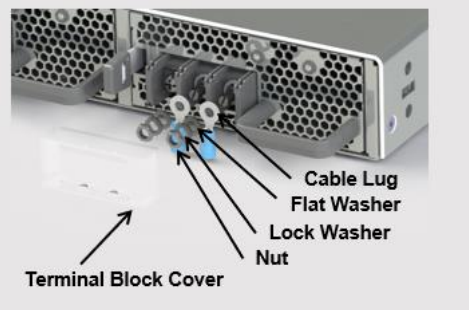
- Ground Strap (Wrist or Heel)
- #2 Phillips Screwdriver
- #3 Phillips Screwdriver
- 1/4" Nut Driver or Socket
- 5/16" Nut Driver or Socket
- Diagonal Wire Cutter (to cut Tie-wraps)
- Multi Meter
- Tie Wraps
- Electrical Tape
- Cable Tags/Marker (to label all cables)

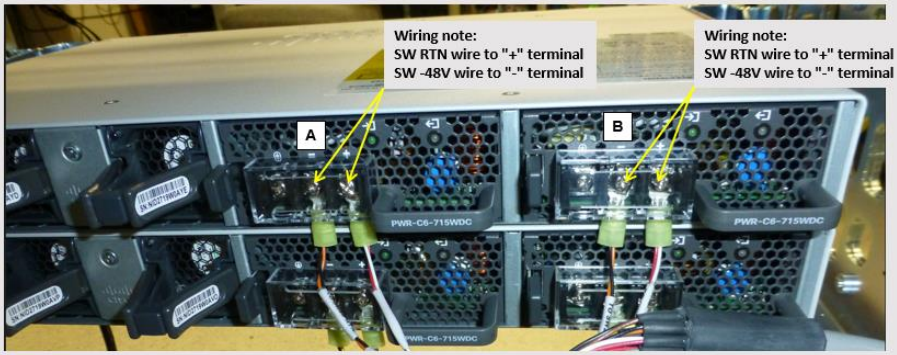
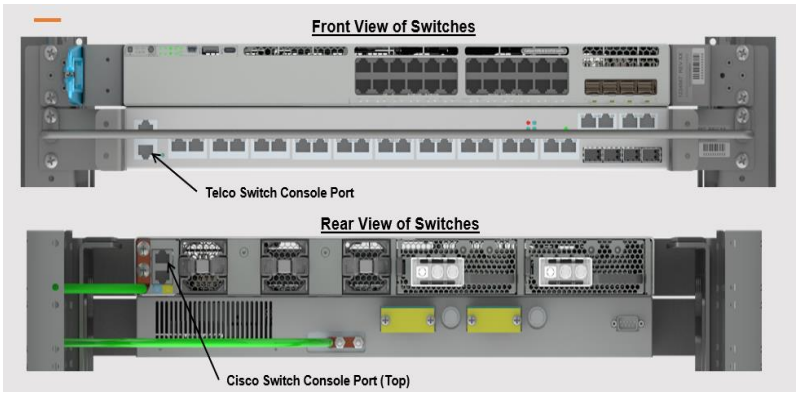
1. ☐	Disable and disconnect switch power	**Tools required**: Ground Strap, #2 Phillips Screwdriver, Multi Meter, and Diagonal Wire Cutter a. At the fuse panel, locate the fuse positions for the switch being removed. To power down the Switch, remove the fuses for both A and B feeds. b. Once the switch is off, unscrew and remove the terminal-block insulator covers from both terminals blocks A and B. c. With covers removed, using a Multi Meter, ensure that there is no power. d. Ensure that the power leads are marked -48V & RTN. e. With the cables marked, one at a time, remove the power cable and tape the terminal ring. Repeat these steps until all power connections are removed.  Note: This procedure will reference replacing the Switch #1 location (top). Same procedure is applicable for other switch locations.

		  Note: For the replacement switch, if required, more cable slack/length can be added if the cable-ties are cut from the Tie-rod. See Step 8.
2. ☐	Disconnect ground cable from switch	**Tools required**: Ground Strap and 5/16" Nut Driver or Socket a. Remove the Switch Ground Wire from the grounding point, by loosening and removing Hex nut, Flat washer, and External tooth washer. b. Leave Ground Wire dangling. Do not disconnect ground wire attached to cabinet/frame. Note: Hardware removed, nut, and washers are NOT required on the replacement switch. 
3. ☐	Disconnect Front ENET and Console Cables	**Tools required**: Diagonal Wire Cutters Note: This procedure will reference replacing the Switch #1 location (Top). The same procedure used for other switch locations. a. Make sure that all the cables are labeled and are in the correct position that they are terminated at. If not, ensure to mark or label before starting any removal. b. Disconnect the Console and Ethernet cables from Telco switch being replaced. Leave the cables dangling. c. (Optional) If cable management tie-rod is mounted to the switch being replaced, it may be necessary to cut or remove the cable-ties, holding the cables from the Tie-rod.

		
4. ☐	Remove the Switch being replaced	**Tools required**: Ground Strap and #3 Phillips Screwdriver a. Remove the four (4) PAN head screws (Two (2) on either side of the switch). If there is no support under the switch, take care to support the switch while removing the screws. b. Remove the Switch from the Eagle rack. c. Keep the screws safely set aside. Required for mounting the new switch. Note: If Tie-rod is attached via the screws being removed, then the Tie-rod needs to be set aside for reattachment when the replacement Switch is installed. 
5. ☐	Assemble the replacement Cisco Switch	**Tools required**: Ground Straps and #2 Phillips Screwdriver Attach the mounting brackets with Cisco switch assembly. a. Locate the supplied mounting brackets and screws from the Switch package. 

		b. Align the mounting bracket to the switch using four mounting holes. Note: Bracket with labels to be mounted on the right side of the switch. c. Insert four screws, supplied with each switch, and tighten.  d. Repeat the steps b and c for the other side of the switch. e. Attach optional Cable Manager. I. Locate Cable Manager and Screw from replacement Switch packaging. II. Attach the Cable Manager to the rack mounting bracket using the supplied screw.
6. ☐	Install replacement Cisco Switch	**Tools required**: Ground Straps and #3 Phillips Screwdriver a. Align Replacement Cisco Switch in the slot where the original switch was removed.  b. Using screws removed from step 4, insert the four (4) PAN head screws (Two (2) on either side of the switch) and tighten.

		Note: If Tie-rod was removed in step 4, reattach at this time.
7. ☐	Reattach the ground cable	**Tools required**: Ground Straps and #2 Phillips Screwdriver Reattach the chassis ground wire (from Step 3) to switch where shown. Use Screws provided with replacement Cisco Switch.  In Replacement Switch Container, locate grounding screw packet with PN 48-2381-01.
8. ☐	Connect power to the replacement Cisco Switch	**Tools required**: Ground Strap and 1/4" Nut Driver a. Remove terminal block cover.  b. Remove Nuts and Washers from studs on A feed terminal block. c. Install the lugs from the power cable (A) to switch terminal block A. d. Secure the nuts after inserting flat washer and lock washer on top of the cable lug. e. Ensure connections to terminal block are as follows: SW RTN wire to "+" terminal, SW -48V wire to "-" terminal.

		 f. Reattach protective cover. g. Repeat the above steps for the B feed connection.
9. ☐	Reattach Console Cable and Ethernet Cables	**Tools required**: Ground Strap a. Plug-in the console port cable to the Replacement Switch.  Note: The Console port on the New Cisco Switch is on the rear side where the power is applied. b. Plug-in the Ethernet cables to Replacement Cisco Switch. Note: The Switch locations are marked on cable from Step 3.
10. ☐	Reapply power	a. Double check all the connections are in their proper place and are secure. b. Reinstall the A and B feed power fuses (removed in Step 1) one at a time. c. Check the switch power supply LED to ensure power is up. Then, install the other fuse and again check power supply LED. The replacement switch is now ready to be set up and configured.
11.	Configure	Refer to the following procedure "Switch Configuration" to configure the new Cisco Switch.

☐	the new Cisco Switch	

SWITCH CONFIGURATION

STEP #	This procedure Configures the Cisco Switches on an Installed E5-APP-B EPAP Server Pair. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORTAND ASK FOR ASSISTANCE.	
1. ☐	Make the cross-over cable connections.	**NOTE: THIS IS IMPORTANT.** a. CONNECT the cross-over cable from **Port 1** of **Switch1A** to **Port 1** of **Switch1B**. b. DISCONNECT the cross-over cable from **Port** 2 of **Switch1A** to **Port 2** of **Switch1B.** Similarly, while Configuring Switch1C and Switch1D, disconnect the cable from port 24 and connect back post configuration is done**.** Note: • Switch configuration should only be attempted by a skilled technician and not by all. • All uplinks should be removed while switch configuration. • There should not be any loop in the switches during their configuration. • Switch1B must be configured first.
2	Do minicom to enter the Cisco switch console. Command – "minicom switch1A" for the console cable connected to MPS-A and for console cable connected to MPS-B use "minicom switch1B".	**[root@Donut-B epapall]#** **[root@Donut-B epapall]# minicom switch1B**

3 ☐	**MPS X:** Do not enter in the initial config dialog in the freshly connected Cisco switch.	`Autoinstall will terminate if any input is detected on console`
		
		`--- System Configuration Dialog ---`
		
		Would you like to enter the initial configuration dialog? [yes/no]:no

4 ☐	**MPS X:** Enter an Enable secret key :- "OracleSwitchC1"	The enable secret is a password used to protect access to privileged EXEC and configuration modes. This password, after entered, becomes encrypted in the configuration. --- The secret should be of minimum 10 characters and maximum 32 characters with

		at least 1 upper case, 1 lower case, 1 digit, and should not contain [cisco]. --- **Enter enable secret:OracleSwitchC1** **Confirm enable secret: OracleSwitchC1**

5 ☐	**MPS X:** Press 2 and enter	`The following configuration command script was created:`
		
		`enable secret 9 $9$TsBinkhqCyICKE$.kVHrY3IJTaqJEb.T9yJjjjmzcRSu426mSirX4U3a1k`
		`!`
		`end`
		
		`[0] Go to the IOS command prompt without saving this config.`
		`[1] Return back to the setup without saving this config.`
		[2] Save this configuration to nvram and exit.
		Enter your selection [2]: 2

6 ☐	**MPS X:** Initial configuration building is done	Building configuration... [OK] Use the enabled mode 'configure' command to modify this configuration. Press RETURN to get started!
7 ☐	**MPS X:** Write "enable" and password set in step 3, which is "OracleSwitchC1"	Switch>enable Password:
8 ☐	**MPS X:** Once the switch is enabled to take configuration > sign changes to the # sign	Switch>enable Password: Password: Switch#
9 ☐	**MPS X:** Write command – "Configure terminal"	switch# configure terminal Enter configuration commands, one per line. End with CNTL/Z. switch(config)#
10 ☐	**MPS X:** Here are the attached configs to be used for Eth04 used for Backup Provisioning Network	 CiscoSwitch1C.txt CiscoSwitch1B.txt CiscoSwitch1A.txt CiscoSwitch1D.txt

11	**MPS X:** Here are the attached configs to be used for EPAP Sync Network Redundancy (Eth04 used for Sync Network).	CiscoSwitch1C.sync.txt CiscoSwitch1B.sync.txt CiscoSwitch1A.sync.txt CiscoSwitch1D.sync.txt
12 ☐	**MPS X:** Open the attached config in notepad for the switch we want to configure.	Open in notepad and press Ctrl+A and then Ctrl+C.
13 ☐	**MPS X:** Paste all the copied config to the switch. Shown example for Switch1A.	Switch# configure terminal Enter configuration commands, one per line. End with CNTL/Z. Switch(config)#hostname switch1A switch1A(config)#enable secret EnAbLe switch1A(config)# switch1A(config)#$estamps log datetime msec localtime show-timezone switch1A(config)#no service pad switch1A(config)#service timestamps debug uptime switch1A(config)#service timestamps log uptime switch1A(config)#service password-encryption switch1A(config)#no logging console switch1A(config)#logging on switch1A(config)#logging trap errors switch1A(config)#logging facility local6 switch1A(config)#line console 0 switch1A(config-line)#length 0 switch1A(config-line)#exit switch1A(config)# switch1A(config)#clock timezone gmt-5 -5 00 switch1A(config)# switch1A(config)# switch1A(config)#vlan 1 switch1A(config-vlan)# name default switch1A(config-vlan)# exit switch1A(config)# switch1A(config)#vlan 2 switch1A(config-vlan)# name dsm-a switch1A(config-vlan)# exit switch1A(config)#interface vlan 1 switch1A(config-if)#ip address 192.168.2.1 255.255.255.0 switch1A(config-if)#no shutdown switch1A(config-if)#exit switch1A(config)#

```
switch1A(config)#interface gigabitEthernet1/0/1
switch1A(config-if)# switchport mode trunk
switch1A(config-if)#switchport trunk allowed vlan add 1
switch1A(config-if)#switchport trunk allowed vlan add 2
switch1A(config-if)# channel-group 1 mode on
Creating a port-channel interface Port-channel 1

switch1A(config-if)# description Link_to_Switch B
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/2
switch1A(config-if)# switchport mode trunk
switch1A(config-if)#switchport trunk allowed vlan add 1
switch1A(config-if)#switchport trunk allowed vlan add 2
switch1A(config-if)# channel-group 1 mode on
switch1A(config-if)# description Link_to_Switch B
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/3
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EPAP_A DSM A
switch1A(config-if)# flowcontrol receive on
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/4
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EPAP_B DSM A
switch1A(config-if)# flowcontrol receive on
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/5
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EAGLE_A_port
switch1A(config-if)# duplex full
switch1A(config-if)#speed 1000
switch1A(config-if)#shutdown
```

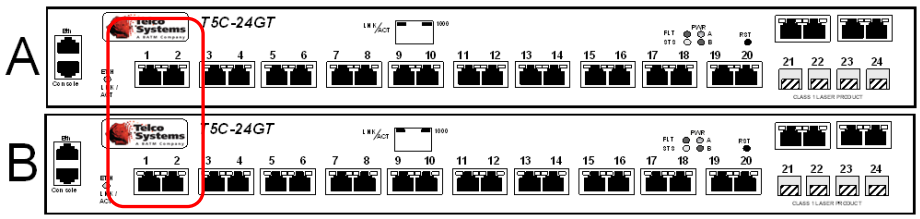
```
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/6
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EAGLE_A_port
switch1A(config-if)# duplex full
switch1A(config-if)#speed 1000
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/7
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EAGLE_A_port
switch1A(config-if)# duplex full
switch1A(config-if)#speed 1000
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/8
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EAGLE_A_port
switch1A(config-if)# duplex full
switch1A(config-if)#speed 1000
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/9
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EAGLE_A_port
switch1A(config-if)# duplex full
switch1A(config-if)#speed 1000
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/10
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EAGLE_A_port
switch1A(config-if)# duplex full
```

```
switch1A(config-if)#speed 1000
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/11
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EAGLE_A_port
switch1A(config-if)# duplex full
switch1A(config-if)#speed 1000
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/12
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EAGLE_A_port
switch1A(config-if)# duplex full
switch1A(config-if)#speed 1000
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/13
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EAGLE_A_port
switch1A(config-if)# duplex full
switch1A(config-if)#speed 1000
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/14
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EAGLE_A_port
switch1A(config-if)# duplex full
switch1A(config-if)#speed 1000
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/15
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
```

```
switch1A(config-if)# description EAGLE_A_port
switch1A(config-if)# duplex full
switch1A(config-if)#speed 1000
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/16
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EAGLE_A_port
switch1A(config-if)# duplex full
switch1A(config-if)#speed 1000
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/17
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EAGLE_A_port
switch1A(config-if)# duplex full
switch1A(config-if)#speed 1000
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/18
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EAGLE_A_port
switch1A(config-if)# duplex full
switch1A(config-if)#speed 1000
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/19
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EAGLE_A_port
switch1A(config-if)# duplex full
switch1A(config-if)#speed 1000
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/20
```

```
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EAGLE_A_port
switch1A(config-if)# duplex full
switch1A(config-if)#speed 1000
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/21
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EAGLE_A_port
switch1A(config-if)# duplex full
switch1A(config-if)#speed 1000
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/22
switch1A(config-if)# switchport mode access
switch1A(config-if)# switchport access vlan 2
switch1A(config-if)# description EAGLE_A_port
switch1A(config-if)# duplex full
switch1A(config-if)#speed 1000
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/23
switch1A(config-if)# switchport mode trunk
switch1A(config-if)#switchport trunk allowed vlan add 1
switch1A(config-if)#switchport trunk allowed vlan add 2
switch1A(config-if)# channel-group 2 mode on
Creating a port-channel interface Port-channel 2

switch1A(config-if)# description Link_to_Switch C
switch1A(config-if)#shutdown
switch1A(config-if)#no shutdown
switch1A(config-if)#
switch1A(config-if)#interface gigabitEthernet1/0/24
switch1A(config-if)# switchport mode trunk
switch1A(config-if)#switchport trunk allowed vlan add 1
switch1A(config-if)#switchport trunk allowed vlan add 2
switch1A(config-if)# channel-group 2 mode on
switch1A(config-if)# description Link_to_Switch C
```

		switch1A(config-if)#shutdown switch1A(config-if)#no shutdown switch1A(config-if)# switch1A(config-if)# switch1A(config-if)#no ip http server switch1A(config)# switch1A(config)#no cdp run switch1A(config)# switch1A(config)#line con 0 switch1A(config-line)# password CoNsOlE switch1A(config-line)# login switch1A(config-line)#line vty 0 4 switch1A(config-line)#transport input telnet ssh switch1A(config-line)#password CoNsOlE switch1A(config-line)# login switch1A(config-line)#line vty 5 15 switch1A(config-line)#transport input telnet ssh switch1A(config-line)#password CoNsOlE switch1A(config-line)# login switch1A(config-line)# switch1A(config-line)# switch1A(config-line)#ntp server 192.168.2.100 switch1A(config)# switch1A(config)#logging host 192.168.2.100 switch1A(config)# switch1A(config)#end switch1A#
14 ☐	**MPS X**: Similarly, the user needs to configure all other connected cisco switches.	Use the config attached in step 10 and repeat steps 2 to 12. Ensure to select the exact same config from the step 10 as per the switch location.
15 ☐	Connect the cross-over cable from **Port 2** of **Switch1A** to **Port 2** of **Switch1B**.	
16	Ping to Confirm connectivity. Note: Ip address 192.168.2.1 associated with Switch1A , ip address 192.168.2.2 associated with	Ping from all the newly connected switches to the mentioned IP address (192.168.2.1, 192.168.2.2, 192.168.2.3, 192.168.2.4, 192.168.2.100, 192.168.2.200), till you see an 100% success rate. switch1D#ping 192.168.2.1 Sending 5, 100-byte ICMP Echoes to 192.168.2.1, timeout 2 sec, delay 0 sec: Press Esc for break !!!!! Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms

	Switch1B , ip address 192.168.2.3 with Switch1C and ip address 192.168.2.4 with Switch1D.	switch1D#ping 192.168.2.2 Sending 5, 100-byte ICMP Echoes to 192.168.2.2, timeout 2 sec, delay 0 sec: Press Esc for break !!!!! Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms switch1D#ping 192.168.2.3 Sending 5, 100-byte ICMP Echoes to 192.168.2.3, timeout 2 sec, delay 0 sec: Press Esc for break !!!!! Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms switch1D#ping 192.168.2.4 Sending 5, 100-byte ICMP Echoes to 192.168.2.4, timeout 2 sec, delay 0 sec: Press Esc for break !!!!! Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms switch1D#ping 192.168.2.100 Sending 5, 100-byte ICMP Echoes to 192.168.2.100, timeout 2 sec, delay 0 sec: Press Esc for break !!!!! Success rate is 100 percent (5/5), round-trip min/avg/max = 0/1/5 ms switch1D#ping 192.168.2.200 Sending 5, 100-byte ICMP Echoes to 192.168.2.200, timeout 2 sec, delay 0 sec: Press Esc for break !!!!! Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms switch1D#
17 ☐	Procedure complete	Procedure is complete.

APPENDIX D SWOPS SIGN OFF.

Discrepancy List

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

APPENDIX E CUSTOMER SIGN OFF

Sign-Off Record

*** **Please review this entire document**. ***
This is to certify that all steps required for the upgrade successfully completed without failure.

Sign your name, showing approval of this procedure, and email this page and the above completed Table to Oracle, email: upgrades@tekelec.com.

Customer: Company Name:_____ Date: _____

Site: Location:_____

Customer :(Print)_____ Phone:_____

Fax: _____

Start Date: _____ Completion Date: _____

This procedure has been approved by the undersigned. Any deviations from this procedure must be approved by both Oracle and the customer representative. A copy of this page should be given to the customer for their records. The SWOPS supervisor will also maintain a signed copy of this completion for future reference.

Oracle Signature: _____ Date: _____

Customer Signature: _____ Date: _____

APPENDIX F MY ORACLE SUPPORT

My Oracle Support (https://support.oracle.com) is your initial point of contact for all product support and training needs. A representative at Customer Access Support can assist you with My Oracle Support registration.

Call the Customer Access Support main number at 1-800-223-1711 (toll-free in the US), or call the Oracle Support hotline for your local country from the list at http://www.oracle.com/us/support/contact/index.html. When calling, make the selections in the sequence shown below on the Support telephone menu:

- For Technical issues such as creating a new Service Request (SR), select **1**.
- For Non-technical issues such as registration or assistance with My Oracle Support, select **2**.
- For Hardware, Networking and Solaris Operating System Support, select **3**.

You are connected to a live agent who can assist you with My Oracle Support registration and opening a support ticket.

My Oracle Support is available 24 hours a day, 7 days a week, 365 days a year.