Oracle® Communications

Platform Management and Configuration, Release 6.6

Incremental Guide

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Oracle Communications PMAC Incremental Upgrade Guide, Release 6.6

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CAUTION: Use only the procedures included in this upgrade kit.

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 (CAS) can assist you with MOS registration.

Call the CAS 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 https://www.oracle.com/us/support/contact/index.html.

See more information on MOS in the Appendix L.

Important Notice

CAUTION: Use only the procedure downloaded from the Oracle Help Center (OHC) site (See My Oracle Support (MOS)). Before beginning this procedure, contact Oracle Support to inform them of your upgrade plans.

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1. Introduction

PMAC is an application that provides platform-level (as opposed to application-level) management functionality for various hardware platforms and virtual environments. PMAC provides the capability to manage and provision platform components to enable the system to host applications and appropriately provision platform components for specific solution configurations.

This document describes methods utilized and procedures executed to perform a software upgrade on an in-service PMAC application to a 6.6 software release, from software releases identified in section 1.6.

1.1 Software Release Numbering

Refer to the Product Release Notes or other appropriate document with the most recent build numbers.

1.2 Acronyms and Terminology

This section lists acronyms and terms specific to this document.

Table 1. Acronyms and Terms

Acronym/Term	Definition
DHCP	Dynamic Host Configuration Protocol
OSDC	Oracle Software Delivery Cloud
External Media	USB containing a software image
HP c-Class	HP blade server offering
IPM	Initial Product Manufacturing
RMS	Rack Mount Server
Management Server	An HP RMS or Oracle RMS that has physical connectivity required to configure switches and may host the PMAC application or serve other configuration purposes.
NetBackup Feature	Feature that provides support of the Symantec NetBackup client utility on an application server.
Redundant Management Server	A Management Server but is not initialized. Ensures a decrease in outage for PMAC Disaster Recovery.
OS	Operating System (for example, TPD or TVOE)
PMAC	Platform Management and Configuration application, resides on a guest
PMAC guest	The virtual machine hosting the PMAC application.
PMAC TVOE host	The TVOE host that contains the PMAC guest
Redundant PMAC	A secondary PMAC guest that is not initialized. Ensures a decreased outage for PMAC Disaster Recovery
TPD	Tekelec Platform Distribution
TVOE	Tekelec Virtual Operating Environment

Acronym/Term	Definition
TVOE Host	The host (physical machine) capable of hosting virtual machines (guests such as PMAC).
Accept	This process formally accepts the upgrade. This action removes the ability to back out to the previous release.
Reject (Back out)	The process to take a system back to a Source Release before completion of upgrade to Target release.
Incremental upgrade	An upgrade that takes a target system from any given release to another release but not necessarily from the shipping baseline to the target release.
Non-preserving upgrade	An upgrade that does not adhere to the standard goals of software upgrade methodology. The outcome of the execution is the system is running on the target release; however the source release database is not preserved.
Downgrade	The process to take a system from a Target Release back to a Source Release including preservation of databases and system configuration.
Source release	Software release to upgrade from.
Target release	Software release to upgrade to.
Software Centric	A term used to differentiate between customers buying both hardware and software from Oracle, and customers buying only software.
NUMA	Non-Uniform Memory Access

1.3 How to Use this Document

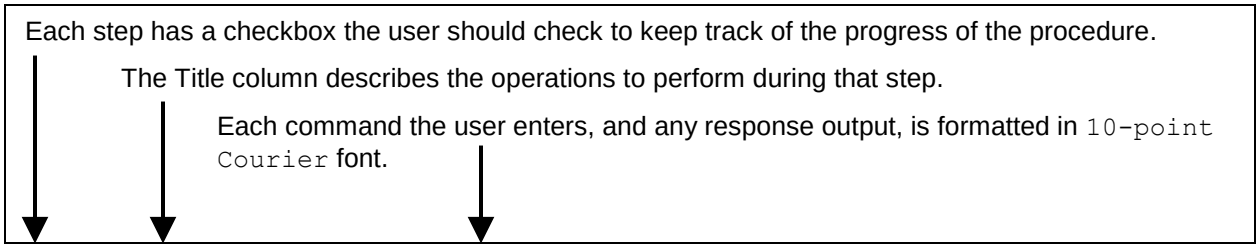
Although this document is primarily to be used as an initial installation guide, its secondary purpose is as a reference for disaster recovery procedures. When executing this document for either purpose, there are a few points to help ensure the user understands the document's intent. These points are as follows:

- Before beginning a procedure, completely read the instructional text (it displays immediately after the section heading for each procedure) and all associated procedural WARNINGS or NOTES.
- Before execution of a STEP within a procedure, completely read the left and right columns including any STEP specific WARNINGS or NOTES.

If a procedural step fails to execute successfully, stop and contact Oracle's Help Center for assistance before attempting to continue. See Appendix L for information on contacting My Oracle Support (MOS).

Figure 1 shows an example of a procedural step used in this document.

- Any sub-steps within a step are referred to as step X.Y. The example in Figure 1 shows steps 1 through 3, and step 3.1.
- GUI menu items, action links, and buttons to be clicked on are in bold Arial font.
- GUI fields and values to take note of during a step are in bold Arial font.
- Where it is necessary to identify the server explicitly on which a particular step is to be taken, the server name is given in the title box for the step (for example, ServerX in step 2 Figure 1).



	Title	Directive/Result Step
1. ☐	Change directory	Change to the back out directory. $ cd /var/TKLC/back out
2. ☐	**ServerX**: Connect to the console of the server	Establish a connection to the server using cu on the terminal server/console. $ cu –l /dev/ttyS7
3. ☐	Verify Network Element data	View the Network Elements configuration data; verify the data; save and print report. Select **Configuration > Network Elements** to view Network Elements Configuration screen.

Figure 1. Example of a Procedure Step Used in This Document

1.4 Recommendations

Never attempt an upgrade of the PMAC application when the server on which it is running is unhealthy. Follow the pre-upgrade procedures for testing system health, and do not proceed with upgrade if any non-normal conditions are shown.

Upgrade of the PMAC application should be done before an upgrade of any other application, with the exception of the TVOE hosting the PMAC guest. The application release notes should indicate which release of PMAC (and TVOE) is required.

Before upgrading the PMAC TVOE host and PMAC guest, the Management Server should have its firmware upgraded using the HP Firmware Upgrade Pack (HP FUP) or Oracle Firmware Upgrade Pack (Oracle FUP) specified by the application being upgraded. Otherwise, if the PMAC is being upgraded by itself outside of a larger application upgrade, ensure the Management Server has been upgraded to the minimum HP FUP or Oracle FUP or newer for the platform the PMAC release is based on. For PMAC 6.6, the minimums are HP FUP 2.2.10 and Oracle FUP 3.1.6. Use the Upgrade Procedures and Release Notes documents contained in the Firmware Upgrade Packs to assess whether a firmware upgrade is necessary.

1.5 Supported Browsers and Versions

Table 2. Supported Internet Browsers and Versions

Product Release	Supported Browsers	Versions
PMAC 6.3 release	Microsoft® Internet Explorer	9.0, 10.0, or 11.0
PMAC 6.4 release	Microsoft® Internet Explorer	9.0, 10.0, or 11.0
PMAC 6.5 release	Microsoft® Internet Explorer	9.0, 10.0, or 11.0
PMAC 6.6 release	Microsoft® Internet Explorer	11.0

1.6 PMAC Release Upgrade Paths

The upgrade to PMAC release 6.6 is supported from the following releases:

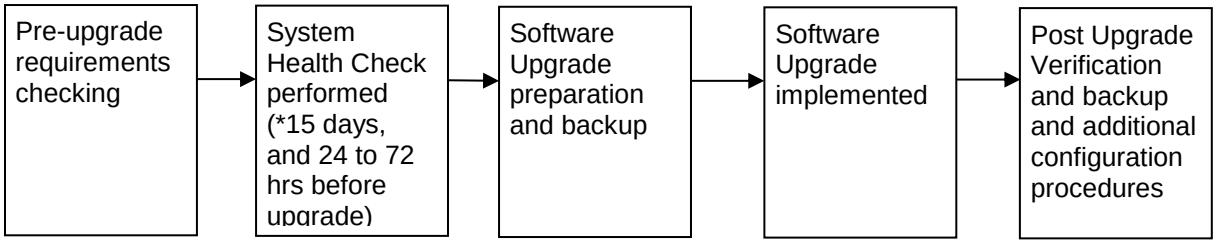
- PMAC 6.3
- PMAC 6.4
- PMAC 6.5
- PMAC 6.6

2. General Description

This document defines the step-by-step actions performed to execute a software upgrade of an in-service PMAC application from the source release to the target release.

The figure below shows the general steps for all processes of performing a software upgrade, from hardware inventory to final upgrade health check of the primary PMAC application. If the system is configured with a Redundant Management Server, and Redundant PMAC guest, the process is modified to perform pre-upgrade steps to verify requirements. Additionally, the redundant PMAC guest is upgraded subsequent to the primary PMAC guest.

Figure 2. Upgrade Process



3. Upgrade Overview

This section provides a brief overview of the recommended method for upgrading the PMAC Source Release software that is installed and running on a server to the Target Release PMAC software. The basic upgrade process and approximate time required is outlined in Table 4, Table 5 and Table 6, with the Reject procedure shown in Table 7.

It is assumed the upgrade is coordinated to ensure all work is performed within the four-hour maintenance window. Note that several variables affect the upgrade times shown in the tables – the elapsed time values shown are lab environment estimates and vary on live systems.

Please note, this document contains several references to a redundant Management Server and/or redundant PMAC. The procedures and steps associated with the redundant PMAC are only applicable if the site has a redundant PMAC deployed. These procedures and steps can be safely skipped if redundant PMAC is not deployed.

Also note that after the successful completion of the upgrade, all active GUI Session are automatically forced out if they remained active during the upgrade. Users are required to log back in with proper credentials as necessary.

****** WARNING ******

Call My Oracle Support (MOS) before executing this upgrade to ensure the proper media are available for use.

Before upgrade, users must complete section 4.2 Software Upgrade Preparations to ensure the system to be upgraded is in an upgrade-ready state. Performing the system health check determines which alarms are present in the system and if upgrade can proceed with alarms.

Please read the following notes on upgrade procedures:

- Procedure completion times shown here are estimates. Times may vary due to differences in database size, user experience, and user preparation.
- Where possible, EXACT command response outputs are shown. EXCEPTIONS are as follows:
  - Banner information is displayed in a format form only.
  - System-specific configuration information such as hostname, filenames, and IP addresses.
  - ANY information marked with “XXXX” or “YYYY” where appropriate, instructions are provided to determine what output should be expected in place of “XXXX or YYYY”
- After completing each step and at each point where data is recorded from the screen, the technician performing the upgrade must initial each step. A checkbox should be provided.
- Captured data is required for future support reference if Oracle Technical Services is not present during the upgrade.

3.1 References and Materials Required

[1] Information gathered and captured in Table 3. Software Upgrade Required Data

[2] The media for the version of PMAC you are upgrading from

[3] The media for the version of PMAC you are upgrading to

[4] The media and documentation for the version of TVOE you are upgrading from

[5] The media and documentation for the version of TVOE you are upgrading to

[6] HP Solutions Firmware Upgrade Pack (HP FUP version specified by the application, otherwise HP FUP 2.2.12 is the minimum and the current version is recommended)

[7] Platform 7.6 Configuration Guide, E93270-01, Current Version

[8] Platform 7.5 Configuration Guide, E91175-01, Current Version

[9] Platform 7.4 Configuration Guide, E81293, Current Version

[10] Platform 7.3 Configuration Guide, E80301, Current Version

[11] Platform 7.2 Configuration Guide, E64363, Current Version

[12] TVOE 3.6 Software Upgrade, E93258-01, Current Version

[13] TVOE 3.5 Software Upgrade, E90680-01, Current Version

[14] TVOE 3.4 Software Upgrade, E80324, Current Version

[15] TVOE 3.3 Software Upgrade, E80323, Current Version

[16] Oracle Firmware Upgrade Pack, Release Notes (Oracle FUP version specified by the application, otherwise Oracle FUP 3.1.5 is the minimum and the current version is recommended)

[17] Oracle Firmware Upgrade Pack, Upgrade Guide (Oracle FUP version specified by the application, otherwise Oracle FUP 3.1.8 is the minimum and the current version is recommended)

[18] HP Solutions Firmware Upgrade Pack, Software Centric Release Notes (HP FUP version specified by the application, otherwise HP FUP 2.2.12 is the minimum and the current version is recommended)

[19] Application Release Notes

[20] Network access to the PMAC TVOE host iLO/ILOM

[21] Capability to log into the PMAC guest using a network connection to allow remote access for My Oracle Support (MOS) personnel

[22] Capability to log into the PMAC's web UI via supported web browsers

[23] Terminal device or equivalent interface

3.2 Logins, Passwords, and Server IP Addresses

Obtain all the information in the following table. This ensures the necessary administration information is available before an upgrade.

Consider the sensitivity of the information recorded in this table. While all of the information in the table may be required to complete the upgrade, there may be security policies in place that prevent the actual recording of this information in hard-copy form.

Table 3. Software Upgrade Required Data

Subject/Attribute	Value
PMAC TVOE host User IDs/password (root user)	
PMAC TVOE host Network addresses (TVOE IP address)	
PMAC Guest Name	
PMAC User IDs/password (root user)	
PMAC Network addresses (PMAC IP address)	
PMAC GUI administrator account login credentials	
Platform User IDs/password (admusr)	
OA administrator account login credentials	
iLO/ILOM login credentials	

Note: Upon completion of the upgrade to PMAC 6.2 or later, the GUI administrative user formerly known as **pmacadmin** will become **guiadmin**. This is only a renaming of the standard administrative account, not a different account; the account access privileges are retained from the pmacadmin account.

3.3 Application ISO Image File/Media

The Target Release ISO image file must already be at the customer site; either via OSDC or delivered on physical media.

This file is necessary to perform the upgrade.

- The PMAC application ISO image file for PMAC 6.6 is in the following format:

  PMAC-6.6..0.0.0.x_64.y.z-x86_64.iso

Note: Before the execution of this upgrade procedure it is assumed the PMAC application ISO image file has already been delivered to the customer's premises and any user performing the upgrade must have access to the ISO image file. Alternatively, if the user performing the upgrade is at a remote location, it is assumed the ISO file is already available to them before starting the upgrade procedure. The distribution of the PMAC application software load is outside the scope of this procedure.

3.4 Pre-Upgrade Overview

The pre-upgrade procedures shown in Table 4 may be executed outside of the maintenance window.

Pre-upgrade health check should be run 24 to 72 hours before the scheduled upgrade. If the system fails the health check, then the failure conditions must be corrected and upgrade rescheduled for a later date.

In addition to the running the system health check 24 to 72 hours before the scheduled upgrade, the system health check should also be executed immediately before the upgrade, to ensure the system has no error or failure conditions that would interfere with a successful upgrade.

Note: If a Redundant Management server is configured in this system, the pre-upgrade health check should be run on the PMAC application running on the Redundant Management system. The PMAC application running on the Redundant Management server is not initialized and does not require database backups.

Table 4. Pre-Upgrade Procedure

Elapsed Time (Hrs:Min)		Downtime (Hrs:Min)			
This Step	Cum.	This Step	Cum.	Activity	Impact
10	10	-	-	Perform System Health check (Refer to section 4).	Do not proceed with upgrade if system health check shows any problems with PMAC system.
15	25			Backup PMAC provision and configuration databases.	PMAC provision and configuration databases are backed up.

3.5 Upgrade Execution Overview

The procedures shown in Table 5 are executed in the maintenance window.

Table 5. Upgrade Execution Overview

Elapsed Time (Hrs:Min)		Downtime (Hrs:Min)			
This Step	Cum.	This Step	Cum.	Activity	Impact
40	65	40	40	Execute the upgrade on PMAC.	PMAC Software is upgraded.

3.6 Post Upgrade Overview

The procedures shown in Table 6 are executed in the maintenance window.

Table 6. Post-Upgrade Overview

Elapsed Time (Hrs:Min)		Downtime (Hrs:Min)			
This Step	Cum.	This Step	Cum.	Activity	Impact
10	75	10	50	Perform System Health check.	Notify My Oracle Support (MOS) if system health check shows any problems with PMAC system. Back out may be necessary.
10	85			Configuration of netConfig Repository (execution is conditional).	The elapsed time assumes one switch pair. This step can take an additional 10 min per switch pair.
15	100	15	65	Configuration of larger PMAC ISO Image Repository area (optional).	Ensures the PMAC ISO Image Repository is the appropriate size.
15	115	15	80	Enlarging PMAC ISO temporary import area may be recommended by application (optional).	The PMAC ISO temporary import area supports large images.
15	130			Backup PMAC provision and configuration databases.	PMAC provision and configuration databases are backed up post-upgrade.
10	140			Accept the upgrade.	Upgrade is accepted and back out is no longer available.

Note: Upgrading firmware is not included in the maintenance window.

3.7 Back Out (Reject) Procedure Overview

The procedures shown in Table 7 are executed in the maintenance window.

Table 7. Back Out Procedure Overview

Elapsed Time (Hrs:Min)		Downtime (Hrs:Min)			
This Step	Cum.	This Step	Cum.	Activity	Impact
-	-	-	-	Contact My Oracle Support (MOS)	Apprise Oracle of the situation and get guidance on proceeding.
30	170	30	110	If not triggered automatically, execute the back out (reject) of the target release	Upgrade is rejected and server is backed out to the prior installed release.

3.8 Log Files

All commands executed during an upgrade or installation are logged in `/var/TKLC/log/upgrade/upgrade.log`. 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 `/var/TKLC/log/upgrade/ugwrap.log`. 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. Upgrade Preparation

This section provides detailed procedures to prepare a system for upgrade execution. These procedures may be executed outside a maintenance window.

Perform pre-upgrade system health checks to establish the system is fit to upgrade.

Backup PMAC provision and configuration databases and transfer the backups to customer defined network storage.

4.1 Hardware Upgrade Preparation

Hardware upgrade is not in the scope of this document.

4.2 Software Upgrade Preparations

The PMAC health check procedure below should be executed:

- 15 days before upgrade (optional),
- 72 to 24 hours before the scheduled upgrade, and
- Immediately before executing the upgrade.

If any error or failure conditions are discovered, then **do not proceed with the upgrade**. Contact My Oracle Support (MOS) for assistance in resolving the failure conditions. Upgrade has to be rescheduled at a later date.

Procedure 1. Verify Pre-Upgrade Requirements and Capture Upgrade Data

S T E P #	This procedure verifies 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 Support (MOS) and ask for assistance.	
1. ☐	Verify all materials required are present	Materials are listed in section 3.1 References and Materials Required.
2. ☐	Verify passwords for PMAC systems are available	Refer to Table 3. Software Upgrade Required Data for a list of users. Fill in the username and password information in the table for later reference.
3. ☐	Determine the current PMAC version	Execute Appendix F Determine the Current PMAC Version.
4. ☐	Contact My Oracle Support (MOS)	Contact My Oracle Support (MOS) and inform them of your plans to upgrade this system.

Procedure 1. Verify Pre-Upgrade Requirements and Capture Upgrade Data

5. ☐	Verify the PMAC guest TVOE host is at the appropriate release	***Note:*** Upgrade of the TVOE host may require its own maintenance window. Execute Appendix G Determine If PMAC TVOE Host Requires Upgrade.
6. ☐	Verify the redundant PMAC guest TVOE host is at the appropriate release	***Note:*** This step is optional and applies only if this system is configured with a redundant PMAC. ***Note:*** Upgrade of the TVOE host may require its own maintenance window. Execute Appendix G Determine If PMAC TVOE Host Requires Upgrade using the IP address of redundant PMAC TVOE host.
7. ☐	Whitelist any necessary alarms that may keep the upgrade early checks from succeeding	***Note:*** Execute Appendix J Whitelist Special Alarms Procedure 39 Whitelist listed alarms.

Procedure 2. Execute the Health Check Procedure on the Primary PMAC

STEP #		
	This procedure executes a health check on the PMAC system. ***Note:*** The PMAC Health check procedure should be executed. • 72 to 24 hours before the scheduled upgrade, and • Immediately before executing the upgrade If any error or failure conditions are discovered then do not proceed with upgrade. Contact My Oracle Support (MOS) for assistance in resolving the failure conditions. Upgrade has to be rescheduled at a later date. 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 (MOS) and ask for assistance.	
1. ☐	Execute the system health check	Execute Appendix C PMAC System Health Check. If any error or failure conditions are discovered then do not proceed with upgrade. Contact My Oracle Support (MOS) to work to resolve the failure conditions. Upgrade has to be rescheduled at a later date.

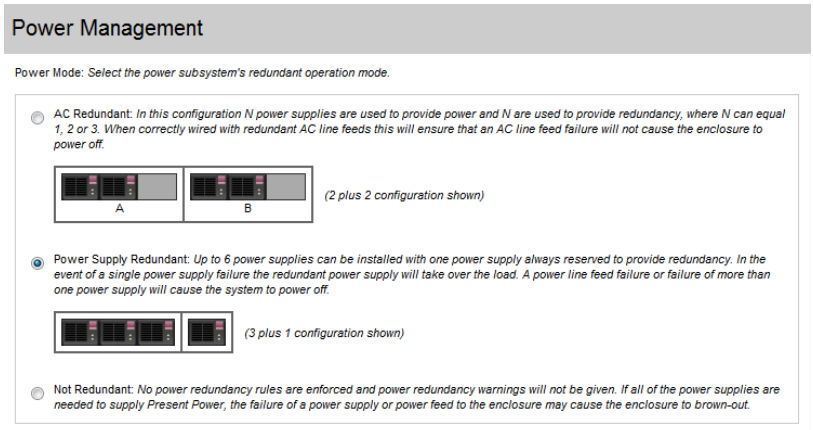
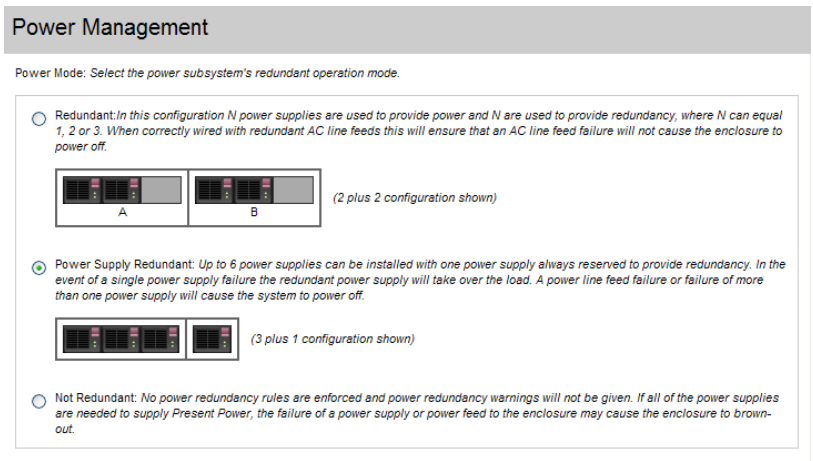
Procedure 3. Prepare the Primary PMAC for a Remote Upgrade (Optional)

STEP #		
	This procedure prepares the PMAC for a remote 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 (MOS) and ask for assistance.	
1. ☐	If this upgrade is to be performed remotely, get the ISO image onto the system	Obtain a copy of the target release PMAC ISO image file and use SCP to place that copy into the `/var/TKLC/upgrade` directory of the PMAC guest. Use platform **admusr** credentials listed in Table 3. Software Upgrade Required Data.

Procedure 4. Check/Modify OA Power Supply Redundancy

S T E P #	This procedure configures the enclosure power supply redundancy in the HP onboard administrator. 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 (MOS) and ask for assistance.	
1. ☐	**PMAC GUI**: Login	If necessary, open a web browser and enter: `https://<PMAC Management Network IP>` Login with administrator credentials listed in Table 3. Software Upgrade Required Data.
2. ☐	Obtain a list of the enclosures managed by this PMAC	Navigate to **Hardware > System Configuration > Provisioned Enclosures table** showing the Enclosures being managed by this PMAC. Start at the top of this table and apply the remaining steps of this procedure successively to each enclosure in the list.
3. ☐	Access the GUI of the active OA	Open your web browser and navigate to the login page of the first OA of the enclosure by using the Bay 1 OA IP address from the Provisioned Enclosures table. `http://< Bay 1 OA IP>` If the login page contains the red warning message similar to **This Onboard Administrator is in Standby mode**, then repeat this step using the Bay 2 OA IP.
4. ☐	Log into the active OA	Log into the GUI of the active OA with credentials listed in Table 3. Software Upgrade Required Data.
5. ☐	View the configuration of power supply redundancy	In the OA GUI, navigate to **Enclosure Information > Power and Thermal > Power Management**.

Procedure 4. Check/Modify OA Power Supply Redundancy

6. ☐	Configure power supply redundancy	The first available setting is either **AC Redundant** or **DC Redundant** depending on whether the Enclosure is powered by AC or DC. In either case, confirm **Power Supply Redundant** is selected. If necessary, change the selection to **Power Supply Redundant**. **AC-Powered Enclosures**:  **DC-Powered Enclosures**:  Click **Apply** at the bottom of the page to save the change.
7. ☐	Continue with the next Enclosure	Continue with step 2. using the IP addresses of the next enclosure in the Provisioned Enclosures table.

Procedure 5. Back Up OA Configuration to PMAC

STEP #		
	This procedure backs up the OA configuration to the PMAC for inclusion in a backup of PMAC, and then performs the actual PMAC data backup. 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 (MOS) and ask for assistance.	
1. ☐	Back up the OA configuration to the PMAC	Execute the **Store OA Configuration on Management Server** procedure in the Platform Configuration Guide for the release being upgraded to 6.6.

Procedure 6. Execute the Health Check Procedure for the Redundant PMAC

S T E P #		
	This procedure executes a health check on the redundant PMAC (if present). ***Note:*** This procedure is only executed if the site contains a redundant PMAC ***Note:*** The PMAC Health check procedure should be executed. • 72 to 24 hours before the scheduled upgrade, and • Immediately before executing the upgrades If any error or failure conditions are discovered then do not proceed with upgrade. Contact My Oracle Support (MOS) for assistance in resolving the failure conditions. Upgrade has to be rescheduled at a later date. 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 (MOS) and ask for assistance.	
1. ☐	Execute the redundant PMAC system health check	Execute Appendix C PMAC System Health Check on redundant PMAC. If any error or failure conditions are discovered then do **not** proceed with upgrade. Contact My Oracle Support (MOS) to work to resolve the failure conditions. Upgrade has to be rescheduled at a later date.

Procedure 7. Prepare the Redundant PMAC for a Remote Upgrade (Optional)

S T E P #		
	This procedure prepares the redundant PMAC (if present) for a remote upgrade. ***Note:*** This procedure is only executed if the site contains a redundant PMAC. 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 (MOS) and ask for assistance.	
1. ☐	If this upgrade is to be performed remotely, get the ISO image onto the redundant PMAC	***Note:*** This procedure is only executed if the site contains a redundant PMAC. Obtain a copy of the Target-release PMAC ISO image file and place that copy using SCP into the `/var/TKLC/upgrade` directory of the redundant PMAC guest: Use platform **admusr** credentials listed in Table 3. Software Upgrade Required Data.

Procedure 8. Backup PMAC Database Data to Redundant PMAC (Optional)

S T E P #		
	This procedure backs up all necessary PMAC database data to redundant PMAC. ***Note:*** This procedure is only executed if the site contains a redundant PMAC. 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 (MOS) and ask for assistance.	
1. ☐	Backup the PMAC database to redundant PMAC	***Note:*** This procedure is only executed if the site contains a redundant PMAC. Execute Appendix D, PMAC System Backup.

5. Software Upgrade Procedures

See the warning block in Section 3, Upgrade Overview, before proceeding with procedures in this section

5.1 Software Upgrade Execution on the Primary PMAC

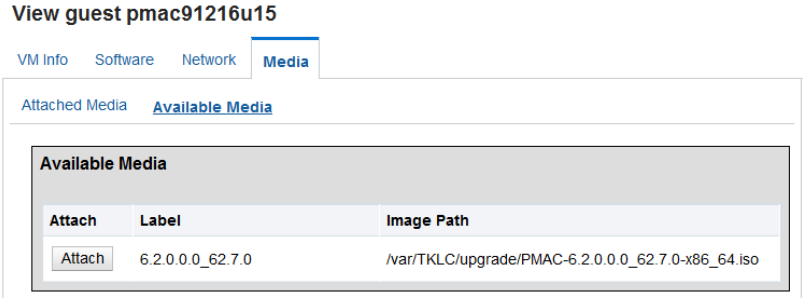
If the PMAC application ISO was delivered to the system remotely (using SCP or SFTP) then make sure the image is located in the **/var/TKLC/upgrade** directory before executing this procedure. This should have been done as part of the Software Upgrade Preparation in section 4.2.

The upgrade of the PMAC Guest TVOE host may be executed in the same maintenance window as the PMAC. It is expected that the TVOE host upgrade is completed before the start of the PMAC upgrade. This procedure does not cover the procedural steps required for the upgrade of the TVOE host. Please see the appropriate references noted in the procedures of section 4.2.

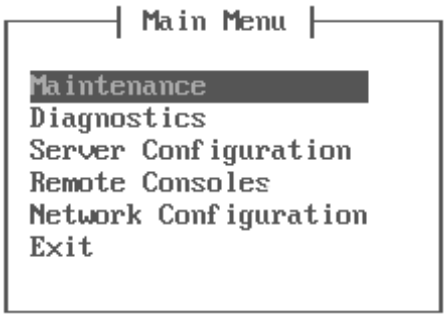
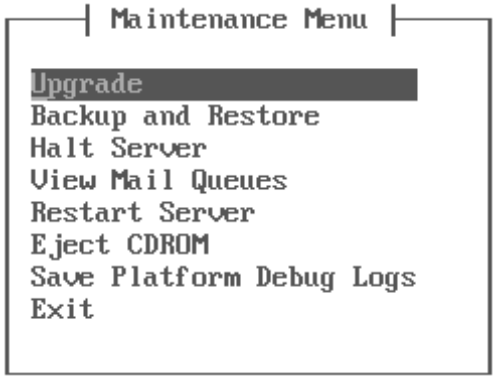
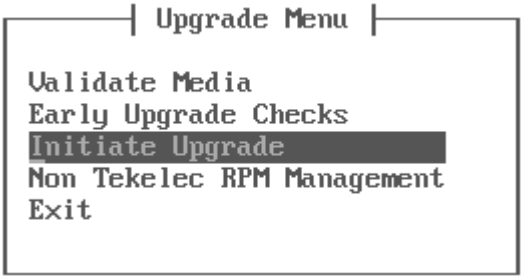
Procedure 9. PMAC Upgrade Procedure on the Primary PMAC

S T E P #	This procedure provides instructions to perform a software upgrade of the PMAC. 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 (MOS) and ask for assistance.	
1. ☐	Execute the system health check	Re-execute Procedure 2 Execute the Health Check Procedure on the Primary PMAC.
2. ☐	For Remote Upgrade, verify correct ISO file is present, and then skip to step 6.	If you executed Procedure 3 Prepare the Primary PMAC for a Remote Upgrade (Optional), then verify the correct ISO has been delivered to the PMAC. • Access the PMAC Guest console using Appendix B. • Verify the correct ISO file is located in the **/var/TKLC/upgrade** directory. • If the correct ISO is present, proceed to step 6. • If the correct ISO is NOT present, then redo Procedure 3 before proceeding.
3. ☐	Insert the media containing PMAC image into the Management Server	Insert the media containing PMAC image (section 3.3) into the Management Server.

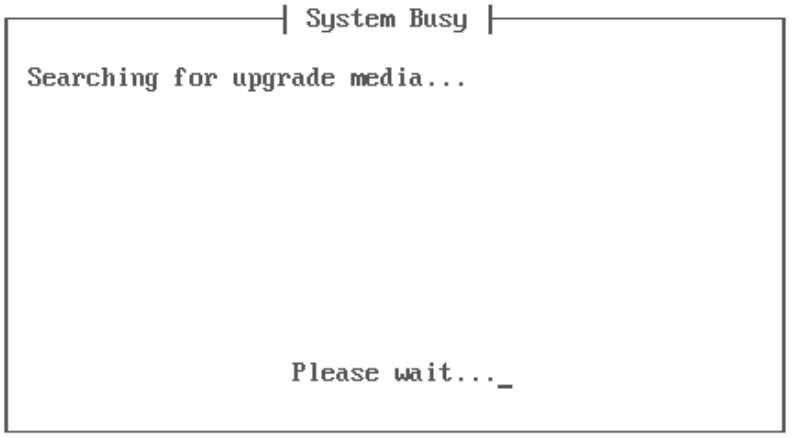
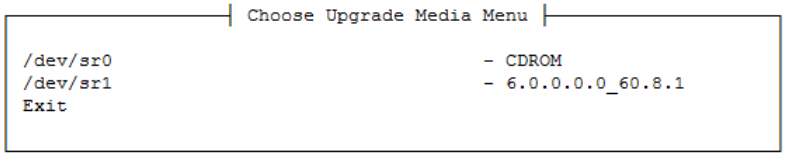
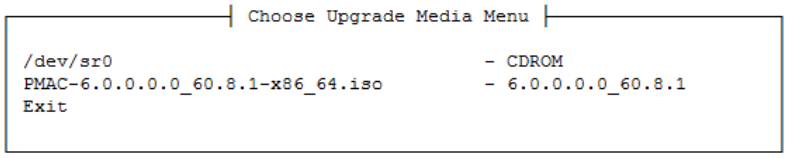
Procedure 9. PMAC Upgrade Procedure on the Primary PMAC

4. ☐	**PMAC GUI**: Login	Open a web browser and enter: `https://<PMAC Management Network IP>` Login with administrator credentials listed in Table 3. Software Upgrade Required Data.
5. ☐	Attach the PMAC ISO media to the PMAC guest	Using the PMAC GUI, navigate to **VM Management**. Select the PMAC Guest to navigate to **View Guest**. Select the Media tab. Click **Available Media**. Click **Attach** for the image just inserted. ***Note:*** The Label field can help identify the PMAC upgrade media by part number and release level (see section 3.1). 
6. ☐	Close any active browser sessions to the PMAC	If you have any open browsers connected to the PMAC, close them before proceeding.
7. ☐	Access the PMAC guest console	Execute Appendix B Access the PMAC Guest Console.

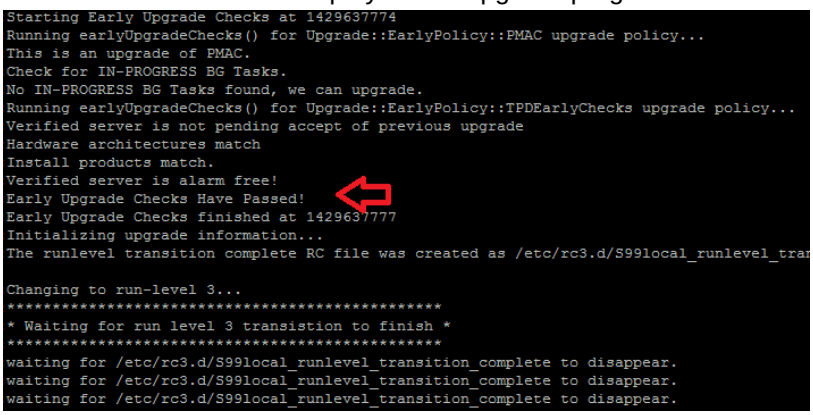
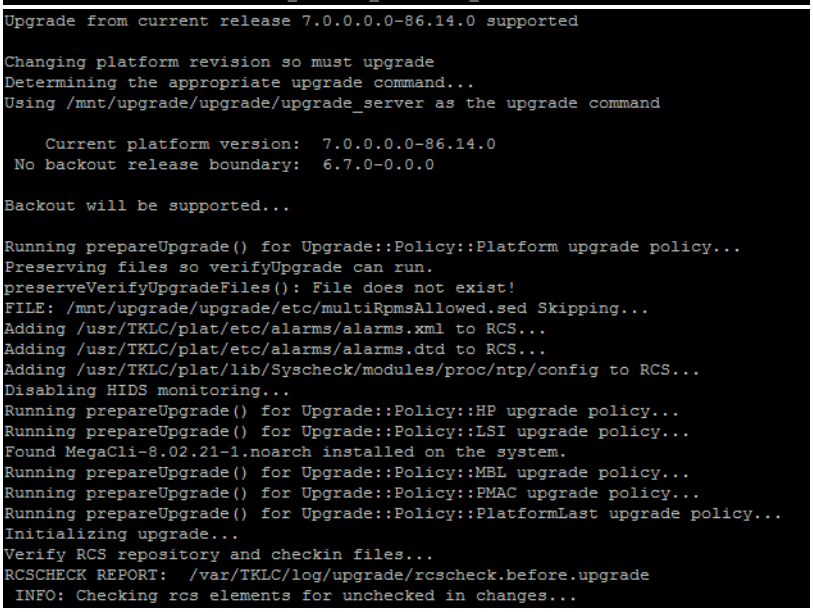
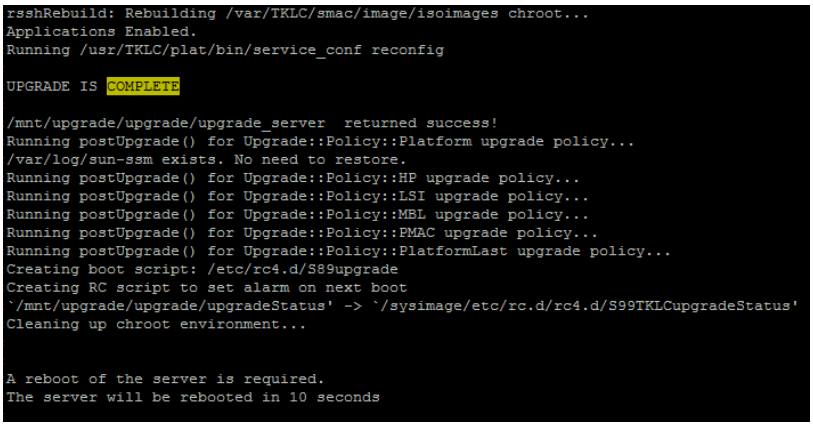
Procedure 9. PMAC Upgrade Procedure on the Primary PMAC

8. ☐	Run the **platcfg** utility	***Note:*** If you deviated from the previous step, please ensure you are in admusr's home directory before executing the following command. Execute (from PMAC guest console): `[admusr@pmac ~]$ sudo su - platcfg`
9. ☐	In **platcfg** utility, access the Maintenance menu	***Note:*** Use the arrow and the **Enter** key to navigate through the menu options. ***Note:*** The following images are for illustrative purposes only. The actual menu content differs based on the current PMAC release. Select **Maintenance** to navigate to the Maintenance Menu. 
10. ☐	In **platcfg** utility, access the Upgrade menu	Select **Upgrade** to navigate to the Upgrade Menu. 
11. ☐	In **platcfg** utility, select **Initiate Upgrade** to start the upgrade process	Select **Initiate Upgrade** and press **Enter** to start the upgrade process. 

Procedure 9. PMAC Upgrade Procedure on the Primary PMAC

12. ☐	Wait for the Choose Upgrade Media Menu screen	Wait for the Choose Upgrade Media Menu screen to display before proceeding to the next step. 
13. ☐	Start the upgrade to the target release	If the image is located on virtual CD, then the menu looks similar to this:  If the image was copied to the **/var/TKLC/upgrade** directory of the PMAC guest, then the menu looks similar to this:  Select the **PMAC 6.6 target release** and press **Enter**.

Procedure 9. PMAC Upgrade Procedure on the Primary PMAC

14. ☐	The upgrade begins. Ensure the Early Upgrade Checks pass and the upgrade starts. ***Note:*** Upgrade takes about 20 minutes and includes a boot of the PMAC guest.	Screens similar to these display as the upgrade progresses.  
15. ☐	Upgrade completes successfully	If the upgrade completes successfully, the screen displays as the upgrade progresses.  ***Note:*** If the PMAC upgrade fails to complete, contact My Oracle Support (MOS) for assistance.

5.2 Software Upgrade Completion on the Primary PMAC

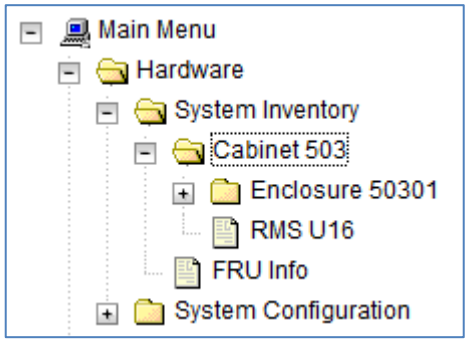
Procedure 10. Post Upgrade Verification on the Primary PMAC

S T E P #	This procedure verifies the success of the PMAC upgrade and performs other required post upgrade steps. 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 (MOS) and ask for assistance.	
1. ☐	If necessary, access the PMAC guest console	If necessary, access the PMAC guest console as detailed in Appendix B Access the PMAC Guest Console.
2. ☐	After logging in, a notice similar to the one shown here displays	Last login: Wed Jun 6 08:39:14 on ttyS0 |==========| | This system has been upgraded but the upgrade has not yet been accepted or rejected. Please accept or reject the upgrade soon. | |==========| [admusr@pmac ~]$
3. ☐	Verify the date/time stamp of the upgrade log aligns with the time of the upgrade	Execute this command: [admusr@pmac ~]$ sudo /bin/ls -l /var/TKLC/log/upgrade/upgrade.log -rw-rw-r-- 1 platcfg root 113112 Apr 21 14:09 /var/TKLC/log/upgrade/upgrade.log
4. ☐	Verify the release has been updated	Execute this command: [admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/appRev Install Time: Fri Oct 14 11:37:42 2016 Product Name: PMAC Product Release: 6.6.0.0.0_66.5.0 Base Distro Product: TPD Base Distro Release: 7.6.0.0.0_88.50.0 Base Distro ISO: TPD.install-7.6.0.0.0_88.50.0-OracleLinux6.9-x86_64.iso ISO name: PMACBLD-6.6.0.0.0_66.5.0.iso OS: OracleLinux 6.9 If the Product Release does not match the new target release number, then upgrade was not successful. Contact My Oracle Support (MOS) and do not proceed until instructed by an Oracle customer representative.
5. ☐	Remove any whitelisted alarms that may keep the upgrade early checks from succeeding	Execute Appendix J Whitelist Special Alarms, Procedure 39. Clear Whitelist listed alarms after Upgrade complete.

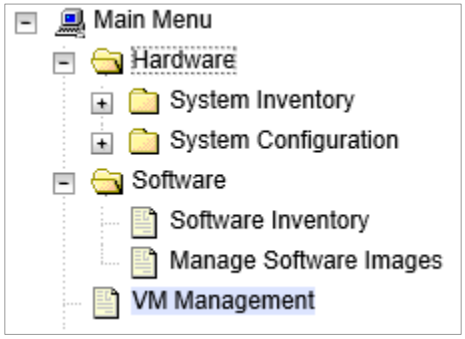
Procedure 10. Post Upgrade Verification on the Primary PMAC

6. ☐	Execute the system health check	Execute Appendix C PMAC System Health Check. ***Note:*** An alarm about pending accept/reject such similar to this one can be safely ignored in this step. `SEQ: 1 UPTIME: 185 BIRTH: 1372167411 TYPE: SET ALARM: TKSPLATMI33|tpdServerUpgradePendingAccept|1.3.6.1.4.1.323.5.3.18.3.1.3.33` If any other error or failure conditions are discovered on the PMAC system then do **not** proceed. Contact My Oracle Support (MOS) to work to resolve the failure conditions.
7. ☐	Clear browser cache	Clear your browser's cache to ensure your browser has the latest client-side code loaded. Refer to your browser's documentation, if necessary.
8. ☐	**PMAC GUI**: Login	Open a web browser and enter: `https://<PMAC Management Network IP>` Login with administrator credentials listed in Table 3. Software Upgrade Required Data.

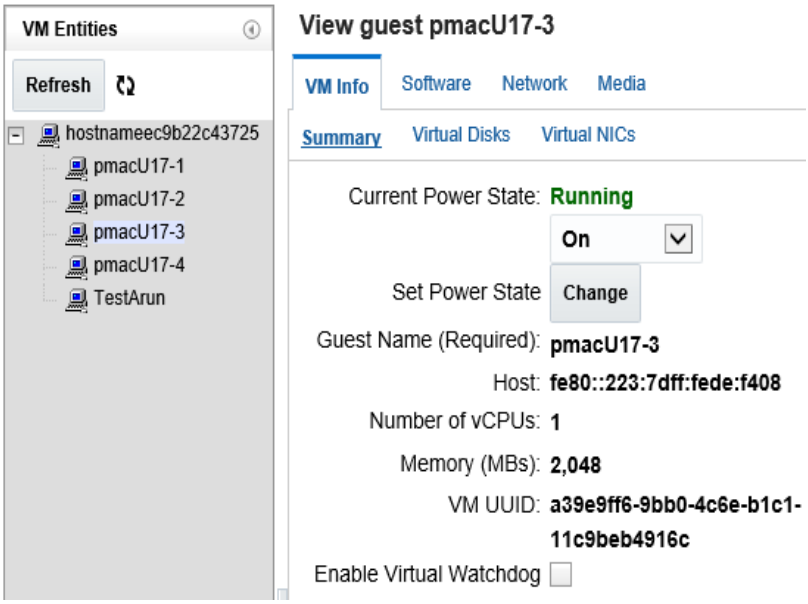
Procedure 10. Post Upgrade Verification on the Primary PMAC

9. ☐	Verify the **Hardware > System Inventory** looks correct in the PMAC GUI	Select the System Inventory node and verify the previously provisioned enclosures are present. ***Note:*** The hardware discovery may take some time to complete. The screen capture assumes discovery is complete for all enclosures. 
10. ☐	Verify the **Software->Software Inventory** looks correct through the PMAC GUI	***Note:*** The software discovery may take some time to complete. The screen capture assumes discovery is complete. Navigate to **Software > Software Inventory**. Verify all the servers are listed and have the details filled in (assuming TPD or TVOE is installed on the server).
11. ☐	Update the pmacgsoap.cfg file, if needed	If you want to update your SSL cipher list (usually this is not necessary), follow the instructions provided in the 7.6 PMAC Configuration Guide Appendix O Updating the PMAC GSOAP Cipher List.

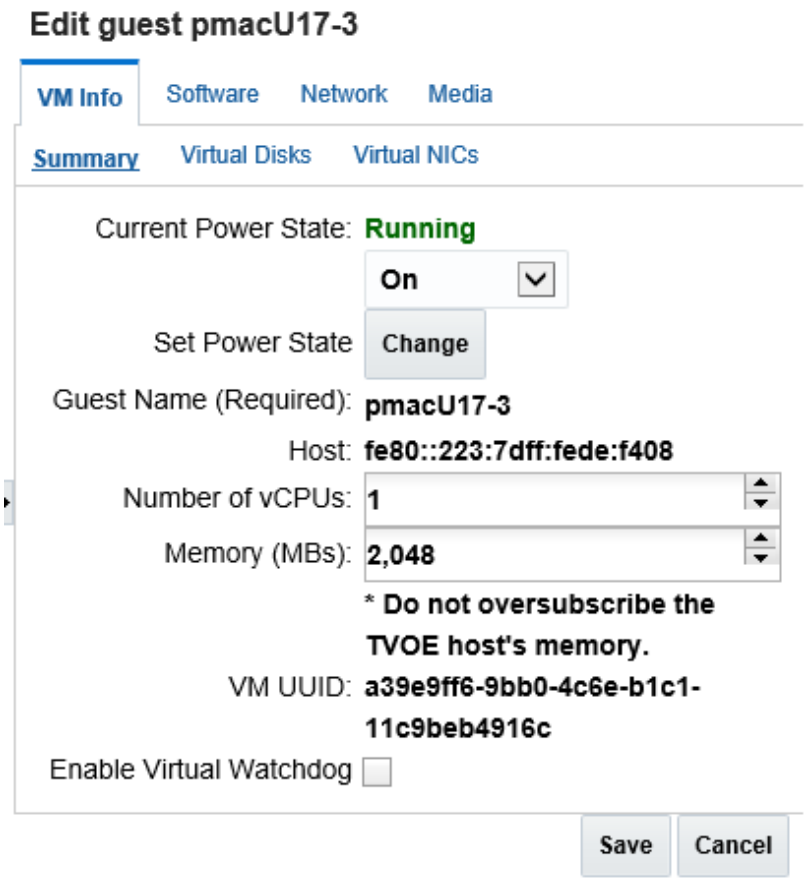
Procedure 11. Post Upgrade Procedure to Enable PMAC Virtual Watchdog

S T E P #		
	This procedure provides instructions to enable Virtual Watchdog of the PMAC and should be executed after upgrade to PMAC 6.6 release. 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 (MOS) and ask for assistance.	
1. ☐	**PMAC GUI**: Login	Open a web browser and enter: `https://<PMAC Management Network IP>` Login with administrator credentials listed in Table 3. Software Upgrade Required Data. The welcome message displays after a successful login.
2. ☐	Navigate to the VM Management page	Navigate to **VM Management**. 

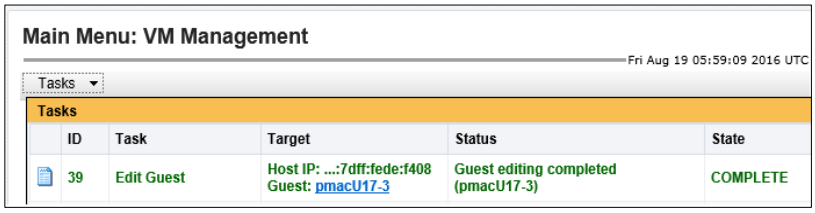
Procedure 11. Post Upgrade Procedure to Enable PMAC Virtual Watchdog

3. ☐	Select the PMAC guest	Click on the VM host under **VM Entities**. Expand the VM host, if needed, and select the PMAC guest.  If the **Enable Virtual Watchdog** checkbox is not checked, proceed to the next step; otherwise exit the procedure.

Procedure 11. Post Upgrade Procedure to Enable PMAC Virtual Watchdog

4. ☐	Edit PMAC Virtual Watchdog	Click **Edit**. Mark the **Enable Virtual Watchdog** checkbox. Click **Save**. 
5. ☐	Confirm the change to the PMAC guest	A confirmation screen displays. Click **OK**.

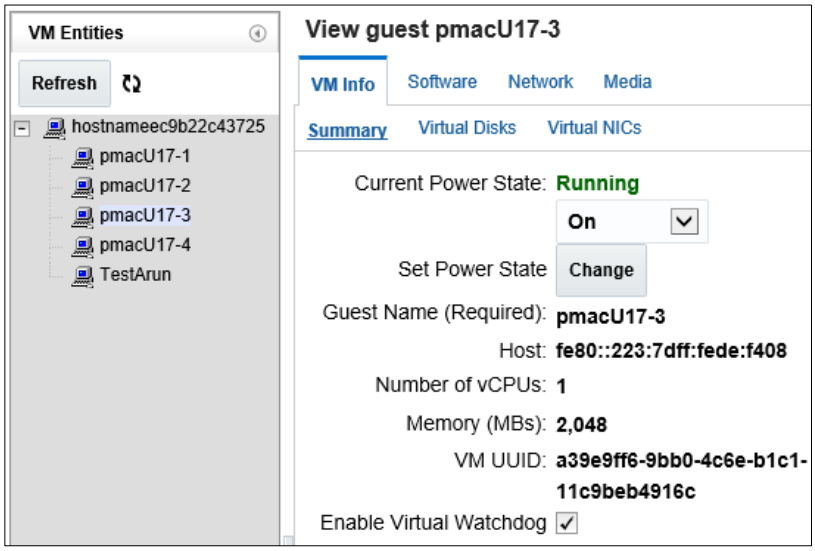
Procedure 11. Post Upgrade Procedure to Enable PMAC Virtual Watchdog

6. ☐	Wait for the Edit Guest background task to complete	Click **Tasks** on the View guest <PMAC guest name> screen. Verify the **Edit Guest** Task has completed successfully. 
7. ☐	Shut down the PMAC guest	Shut down the PMAC guest as detailed in Appendix H Shut Down PMAC Guest.

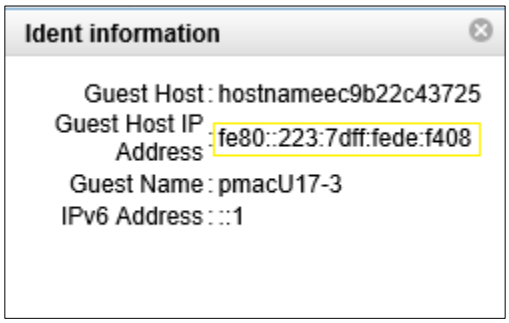
8. ☐	Start the redundant PMAC guest	Using the **virsh** utility on the redundant PMAC TVOE host, start the redundant PMAC guest.
		Query the list of guests until the redundant PMAC guest is **running**.
		`[admusr@tvoeU17~]$ sudo /usr/bin/virsh list --all`
		`Id Name State`
		`----------------------------------`
		`20 <redundant PMAC guest name> shut off`
		`[admusr@tvoeU17~]$ sudo /usr/bin/virsh start <pmac>`
		`Domain <redundant PMAC guest name> started`
		`[admusr@tvoeU17 ~]$ sudo /usr/bin/virsh list --all`
		`Id Name State`
		`----------------------------------`
		`20 <redundant PMAC guest name> running`

9. ☐	Monitor the redundant PMAC guest until it comes up	In a Putty session to redundant PMAC TVOE host, execute this command: `[admusr@tvoeU17 ~]$ sudo /usr/bin/virsh console <Redundant PMAC guest name>` Wait for the redundant PMAC guest login prompt to display.

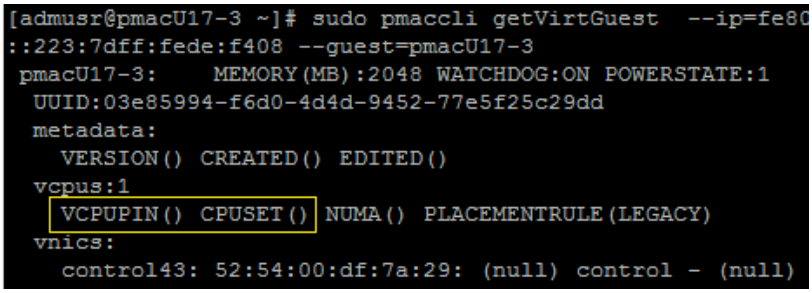
Procedure 11. Post Upgrade Procedure to Enable PMAC Virtual Watchdog

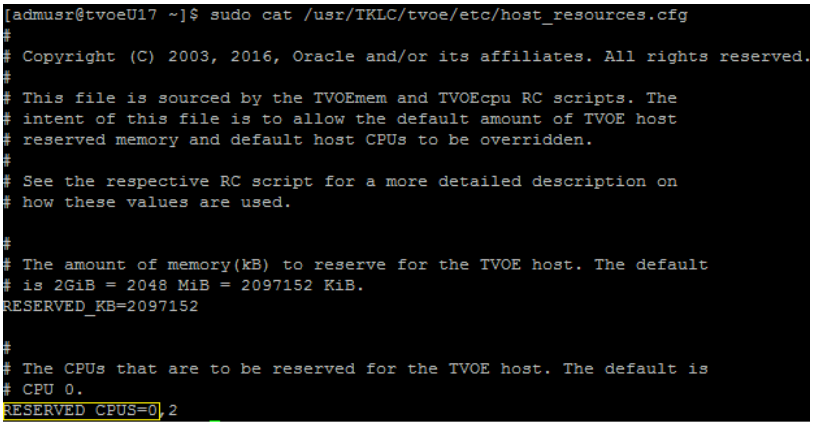
10. ☐	Verify if the Virtual Watchdog is enabled	In the GUI session of the PMAC guest, navigate **VM Management**. Click on the VM host under VM Entities. Expand the VM host, if needed, and select the redundant PMAC guest.  Verify the **Enable Virtual Watchdog** checkbox is marked.

Procedure 12. Post Upgrade Procedure to Edit PMAC NUMA Tuning

S T E P #	This procedure edits the NUMA tuning of the PMAC and should be executed after upgrade to PMAC 6.6 release. 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 (MOS) and ask for assistance.	
1. ☐	Locate the IPv6 address of the PMAC TVOE host	Open a web browser and enter: `https://<PMAC Management Network IP>` Login with administrator credentials listed in Table 3. Software Upgrade Required Data. Navigate to **Software > Software Inventory** page. Locate the entry belonging to the PMAC guest. Click the **IP Address** field of the PMAC guest entry to display the Ident Information screen.  Note the **Guest Host IP** value: Guest Host IP:

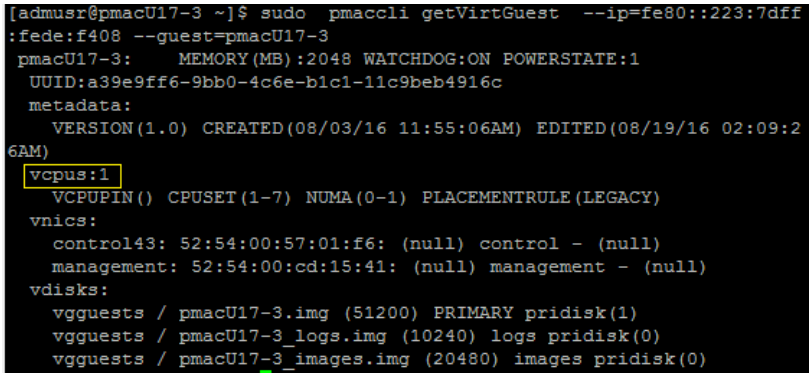
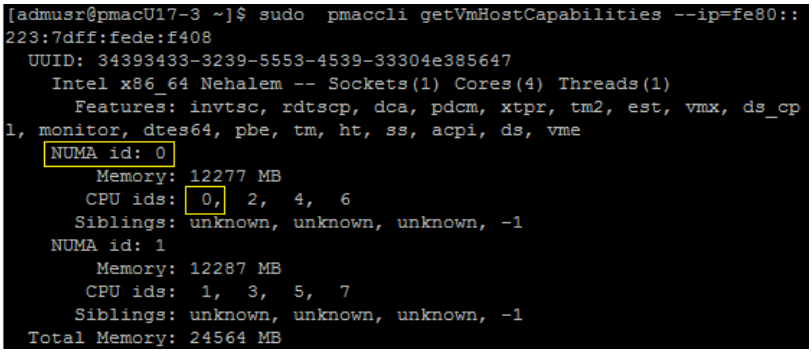
Procedure 12. Post Upgrade Procedure to Edit PMAC NUMA Tuning

<table>
<tr>
<td>2. ☐</td>
<td>Decide if NUMA tuning is required</td>
<td>Log into PMAC guest console as detailed in Appendix B Access the PMAC Guest Console.
Execute the following command:
[admusr@pmacU17-3~]$ sudo pmaccli getVirtGuest --ip=<Guest Host IP> --guest=<PMAC guest name>
 

If both VCPUPIN and CPUSET have empty values, proceed to the next step; otherwise, exit the procedure.</td>
</tr>
<tr>
<td>3. ☐</td>
<td>Log into PMAC TVOE host</td>
<td>Log into the TVOE host console, using Appendix A Access The PMAC TVOE Host Console.</td>
</tr>
<tr>
<td>4. ☐</td>
<td>Get reserved CPUs on PMAC TVOE host</td>
<td>In the Putty session to PMAC TVOE host, execute this command:
[admusr@tvoeU17 ~]$ sudo cat /usr/TKLC/tvoe/etc/host_resources.cfg
Note the first CPU number listed next to RESERVED_CPU:
<table><tr><td>Reserved CPU</td><td></td></tr></table> 

Reserved CPU to be noted is 0.</td>
</tr>
</table>

Procedure 12. Post Upgrade Procedure to Edit PMAC NUMA Tuning

5. ☐	Get the allocated vcpus for the PMAC	In a Putty session to PMAC guest, execute this command: `[admusr@pmacU17-3~]$ sudo pmaccli getVirtGuest --ip=<Guest Host IP> --guest=<PMAC guest name>` Note the value next to vcpus: vcpus |  Vcpus to be noted is 1.
6. ☐	Identify the NUMA where PMAC's host CPUs are reserved	In a Putty session to PMAC guest, execute this command: `[admusr@pmacU17-3~]$ sudo pmaccli getVmHostCapabilities --ip=<Guest Host IP>` Note the NUMA ID to which the reserved CPU (from step 2) belongs: NUMA ID |  NUMA ID to be noted is 0 since the reserved CPU 0 (from Step 2) belongs to the NUMA ID 0.

Procedure 12. Post Upgrade Procedure to Edit PMAC NUMA Tuning

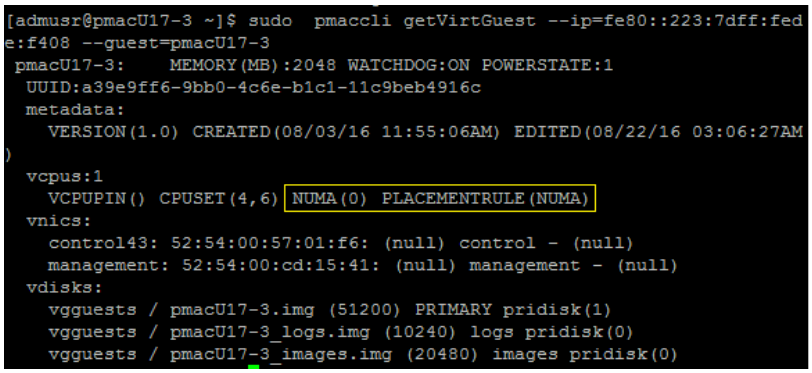
7. ☐	Edit the PMAC NUMA Tuning	In a Putty session to PMAC guest, execute this command using the NUMA ID gathered in the previous step:
		`[admusr@pmacU17-3~]$ sudo pmaccli editVirtGuestVcpu --ip=<Guest Host IP> --guest=<PMAC Guest Name> --vcpus=<vcpus> --placementRule=NUMA --numaCell=<NUMA ID>`
		Note the value next the BgTask:
		BgTask
		`[admusr@pmacU17-3 ~]$ sudo pmaccli editVirtGuestVcpu --ip=fe80::223:7dff:fede:f408 --guest=pmacU17-3 --vcpus=1 --placementRule=NUMA --numaCell=0`
		`Virtual Guest edit started with BgTask: 43`
		BgTask to be noted is 43.

8. ☐	Wait for the Edit Guest background task to complete	In a GUI session to PMAC guest, navigate to **Background Task Monitoring**. Verify the **Edit Guest** task with the ID, <BgTask> has completed successfully. ID | Task | Target | Status | State 43 | Edit Guest | Host IP: ...:7dff:fede:f408 Guest: pmacU17-3 | Guest editing completed (pmacU17-3) | COMPLETE
9. ☐	Shut down the PMAC guest	Shut down the PMAC guest as detailed in Appendix H Shut Down PMAC Guest.

10. ☐	Start the PMAC guest	Using the **virsh** utility on the PMAC TVOE host, start the PMAC guest.
		Query the list of guests until the PMAC guest is **running**.
		`[admusr@tvoeU17~]$ sudo /usr/bin/virsh list --all`
		`Id Name State`
		`----------`
		`20 <PMAC guest name> shut off`
		`[admusr@tvoeU17~]$ sudo /usr/bin/virsh start <PMAC guest name>`
		`Domain <PMAC guest name> started`
		`[admusr@tvoeU17 ~]$ sudo /usr/bin/virsh list --all`
		`Id Name State`
		`----------`
		`20 <PMAC guest name> running`

11. ☐	Monitor the PMAC guest until it comes up	In a Putty session to PMAC TVOE host, execute this command: `[admusr@tvoeU17 ~]$ sudo /usr/bin/virsh console <PMAC guest name>` Wait for the PMAC guest login prompt to display.
12. ☐	Log into PMAC	Log into PMAC guest console as detailed in Appendix B Access the PMAC Guest Console.

Procedure 12. Post Upgrade Procedure to Edit PMAC NUMA Tuning

13. ☐	Verify the PMAC NUMA Tuning	In a Putty session to PMAC guest, execute this command: `[admusr@pmacU17-3~]$ sudo pmaccli getVirtGuest --ip=<Guest Host IP> --guest=<PMAC guest name>` Verify the output contains the following: • NUMA is set to <NUMA ID> • PLACEMENTRULE is set to NUMA 

Procedure 13. Post Upgrade Configuration for netConfig

STEP #		
	This procedure configures netConfig. 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 (MOS) and ask for assistance.	

1. ☐	List and record the devices in the current netConfig repository	List the devices managed by the **netConfig** utility to be used in future steps.
		Execute:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig --repo listDevices`
		Sample output:
		`Devices:`
		`Device: 6125G_IOBAY4`
		`Vendor: HP`
		`Model: 6125`
		`Access: Network: 10.240.8.10`
		`Access: OOB:`
		`Service: oa_service_en1`
		`Console: 4`
		`Init Protocol Configured`
		`Live Protocol Configured`
		`Device: C3020_IOBAY8`
		`Vendor: Cisco`
		`Model: 3020`
		`Access: Network: 10.240.8.14`

Procedure 13. Post Upgrade Configuration for netConfig

<table>
<tr>
<td></td>
<td></td>
<td>
<pre>
        Init Protocol Configured
        Live Protocol Configured
    Device: 6120XG_IOBAY6
        Vendor: HP
        Model: 6120
        Access: Network: 10.240.8.12
        Init Protocol Configured
        Live Protocol Configured
    Device: cClass-switch1B
        Vendor: Cisco
        Model: 4948E
        Access: Network: 10.240.8.3
        Access: OOB:
                      Service: console_service
                      Console: switch1B_console
        Init Protocol Configured
        Live Protocol Configured
</pre>
<table>
<tr><th>Device Name</th><th>Type (Vendor & Model)</th></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
</table>
</td>
</tr>
<tr>
<td>2. ☐</td>
<td>List and record ssh services in the current netConfig repository</td>
<td>
List the services in the current netConfig repository. Identify the SSH services(s) for use in future steps, wherever the <ssh_service> variable is seen.
Execute:
<pre>
    [admusr@pmac ~]$ sudo
    /usr/TKLC/plat/bin/netConfig --repo listServices
</pre>
Sample output:
<pre>
Services:
...
     Service Name: ssh_service
             Type: ssh
             Host: 10.240.8.4
             Options:
                password: 390F1FAE4A420
                user: admusr
     Service Name: ssh_service_mgmt2
</pre>
</td>
</tr>
</table>

Procedure 13. Post Upgrade Configuration for netConfig

<table>
<tr><td></td><td></td><td>
<pre>
            Type: ssh
            Host: 10.240.16.4
            Options:
               password: 390F1FAE4A420
               user: admusr
</pre>
<table>
<tr><td>Service Name (ssh)</td></tr>
<tr><td></td></tr>
<tr><td></td></tr>
</table>
</td></tr>
<tr><td>3. ☐</td><td>List and record OA services in the current netConfig repository</td><td>
List the services in the current netConfig repository. Identify the OA service(s) for use in future steps, wherever the <oa_service> variable is seen.
Execute:
<pre>
[admusr@pmac ~]$ sudo
/usr/TKLC/plat/bin/netConfig --repo listServices
</pre>
Sample output:
<pre>
Services:
...
    Service Name: oa_service_en1
            Type: oa
            Host: 10.240.8.5
            Options:
               password:
C6BBEF35A06FCE81F7850A13525E21D3
               user: root
</pre>
For each OA service, identify the OA service name and current OA IP address. Also identify the second OA IP address, if available. The following step reconfigures the netConfig OA service with both OA IP addresses.
<table>
<tr><th>Variable</th><th>Value</th></tr>
<tr><td><OA_service_name>
(acquired above)</td><td></td></tr>
<tr><td><OA_ipAddress_A>
(acquired above)</td><td></td></tr>
<tr><td><OA_ipAddress_B>
(acquired directly from standby OA or from site IP plan documentation)</td><td></td></tr>
</table>
</td></tr>
<tr><td>4. ☐</td><td>Recreate OA service with both OA IP addresses</td><td>
The following step should be executed to assign both primary and secondary OA IP addresses in the netConfig repository. Use variable values acquired in the previous step to recreate the OA service in this step.
Delete the existing OA service:
<pre>
[admusr@pmac ~]$ sudo netConfig --repo
deleteService name=<OA_service_name>
</pre>
</td></tr>
</table>

Procedure 13. Post Upgrade Configuration for netConfig

<table>
<tr><td></td><td></td><td>
<pre>Are you sure you want to delete <OA_service_name> (y/n)? y
Deleting service <OA_service_name>...</pre>
Recreate the OA service with both IPs:
<pre>[admusr@pmac ~]$ sudo netConfig --repo addService name=<OA_service_name>
Service type [ssh, tftp, oa, conserver]? oa
Primary OA IP? <OA_ipAddress_A>
Secondary OA IP? <OA_ipAddress_B>
OA username? : root
OA password?
Verify password:
Add service for <OA_service_name> successful</pre>
Note: If no OA services existed when inspected in the previous step, the netConfig –repo deleteService command is unnecessary. The OA service(s) should still be created for any managed enclosure OAs regardless.
</td></tr>
<tr><td>5. ☐</td><td>Gather network access information</td><td>
The following information must be identified:
<table>
<tr><th>Variable</th><th>Value</th></tr>
<tr><td><management_vlanID> (4948/4948E/4948E-F only)</td><td></td></tr>
<tr><td><switch_management_ip> (see note 1)</td><td></td></tr>
<tr><td><switch_management_netmask >(4948/4948E/4948E-F only) (see note 2)</td><td></td></tr>
<tr><td><control_vlanID> (4948/4948E/4948E-F only)</td><td></td></tr>
</table>
Note: For Platform 7.0, IPv4 address must be in CIDR notation, IPv6 address must be in address/prefix notation. For Platform 6.7, only an IPv4 and netmask is applicable.
</td></tr>
<tr><td>6. ☐</td><td>Standardize switch configurations in PMAC 6.0</td><td>If the target PMAC version is 6.6 and the source before PMAC 6.6, execute steps 7-14 and Appendix I.</td></tr>
<tr><td>7. ☐</td><td>Repository changes for pre-5.7 upgrades</td><td>Use the information gathered in step 2 to update repository entries.
Note: Some upgrade paths may not require changes, but the steps may still be performed.</td></tr>
</table>

Procedure 13. Post Upgrade Configuration for netConfig

8. ☐	Upgrade the repository for all 4948/4948E/4948E-F Switches	***Note:*** If there are no 4948/4948E/4948E-F switches in the repository, skip this step.
		
		Execute these commands to upgrade the repository for a 4948/4948E/4948E-F.
		Determine the current <FW_image> on the switch:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig getFirmware --device=<switch_name>`
		`Version: 122-54.XO`
		`License: entservicesk9`
		`Flash: <FW_image>`
		Note: It is important to capture the exact filename output for <FW_image>.
		
		Edit the repository:
		Note: The output from this command contains sample information. Only enter information that is bold. For all other entries, press **Enter** to use the current data from the repository.
		
		Example output for PMAC 6.0:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig --repo editDevice name=<switch_name>`
		`Initialization Management Options`
		`What is the IPv4 (CIDR notation) or IPv6 (address/prefix notation) address for management? [switch_management_ip]:`
		`Access OOB service [oa_service_en#]:`
		`Access OOB console [IO_BAY#]:`
		`Firmware service [ssh_service]:`
		`Firmware filename [6125xlg-cmw710-system-r2403.bin]:` **`<FW_image>`**
		`Init OOB Credentials`
		`Platform access username [plat]:`
		`Platform user password [***...]:`
		`Device console password [***...]:`
		`Device privileged mode password [***...]:`
		`Live Network Credentials`
		`Platform access username [plat]:`
		`Platform user password [***...]:`
		`Device privileged mode password [***...]:`
		`Live OOB Credentials`
		`Platform access username [plat]:`
		`Device console password [***...]:`
		`Device privileged mode password [***...]:`
		`Device named <switch_name> successfully edited.`
		`Repeat this step for each 4948/4948E/4948E-F in the repository.`

Procedure 13. Post Upgrade Configuration for netConfig

<table>
<tr>
<td>9. ☐</td>
<td>Upgrade the repository for all 3020 Switches</td>
<td>
Note: If there are no 3020 switches in the repository, skip this step.
Execute these commands to upgrade the repository for a 3020.
Determine the current <FW_image> on the switch:
<pre>[admusr@pmac ~]$ sudo
/usr/TKLC/plat/bin/netConfig getFirmware --
device=<switch_name>
Version: 122-58.SE1
License: ipbasek9
Flash: <FW_image></pre>
Note: It is important to capture the exact filename output for <FW_image>.
Edit the repository:
Note: The output from this command contains sample information. Only enter information that is bold. For all other entries, press Enter to use the current data from the repository.
<pre>[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig
--repo editDevice name=<switch_name>
Access network address [10.240.8.13]:
Firmware service []: tftp_service
Firmware filename [cbs30x0-ipbasek9-tar.122-
58.SE1.tar]: <FW_image>
    Init Network Credentials
Platform access username [plat]:
Platform user password [***...]:
Device privileged mode password [***...]:
    Live Network Credentials
Platform access username [plat]:
Platform user password [***...]:
Device privileged mode password [***...]:
Device named <switch_name> successfully edited.
Repeat this step for each 3020 in the repository.</pre>
</td>
</tr>
<tr>
<td>10. ☐</td>
<td>Upgrade the repository for all 6120 Switches</td>
<td>
Note: If there are no 6120 switches in the repository, skip this step.
Execute these commands to upgrade the repository for a 6120.
Determine the current <FW_image> on the switch:
<pre>[admusr@pmac ~]$ sudo
/usr/TKLC/plat/bin/netConfig getFirmware --
device=<switch_name>
Version: <preformatted_FW_image>
Flash: Secondary</pre>
Note: The <preformatted_FW_image> needs to be converted to a proper filename needed for the next command. Convert any “.” to an “_” and add “.swi” to the end. For example, if the output above is “Z.14.46” the resulting filename should be “Z_14_46.swi” for the command below. The formatted FW filename is referred to as <FW_image> in the command.
</td>
</tr>
</table>

Procedure 13. Post Upgrade Configuration for netConfig

		Edit the repository.
		Note: The output from this command contains sample information. Only enter information that is bold. For all other entries, press **Enter** to use the current data from the repository.
		Example output for PMAC 6.0:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig --repo editDevice name=<switch_name>`
		`Initialization Management Options`
		`What is the IPv4 (CIDR notation) or IPv6 (address/prefix notation) address for management? [switch_management_ip]:`
		`Access OOB service [oa_service_en#]:`
		`Access OOB console [IO_BAY#]:`
		`Firmware service []:`**`<ssh_service>`**
		`Firmware filename [Z_14_37.swi]:` **`<FW_image>`**
		`Init OOB Credentials`
		`Platform access username [plat]:`
		`Platform user password [***...]:`
		`Device console password [***...]:`
		`Device privileged mode password [***...]:`
		`Live Network Credentials`
		`Platform access username [plat]:`
		`Platform user password [***...]:`
		`Device privileged mode password [***...]:`
		`Live OOB Credentials`
		`Platform access username [plat]:`
		`Device console password [***...]:`
		`Device privileged mode password [***...]:`
		`Device named <switch_name> successfully edited.`
		`Repeat this step for each 6120 in the repository.`

11. ☐	Upgrade the repository for all 6125G switches	***Note:*** If there are no 6125G switches in the repository, skip this step.
		Execute these commands to upgrade the repository for a 6125G.
		Determine the current <FW_image> on the switch:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig getFirmware --device=<switch_name>`
		`Version: 5.20.99`
		`Flash:<FW_image>`
		`Release: 2106`
		Note: It is important to capture the exact filename output for <FW_image>.
		Edit the repository:
		Note: The output from this command contains sample information. Only enter information that is bold. For all other entries, press

Procedure 13. Post Upgrade Configuration for netConfig

		Enter to use the current data from the repository.
		Example output for PMAC 6.0:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig --repo editDevice name=<switch_name>`
		`Initialization Management Options`
		`What is the IPv4 (CIDR notation) or IPv6 (address/prefix notation) address for management? [switch_management_ip]:`
		`Access OOB service [oa_service_en#]:`
		`Access OOB console [IO_BAY#]:`
		`Firmware service []:`**`<ssh_service>`**
		`Firmware filename []:` **`<FW_image>`**
		`Init OOB Credentials`
		`Platform access username [plat]:`
		`Platform user password [***...]:`
		`Device console password [***...]:`
		`Device privileged mode password [***...]:`
		`Live Network Credentials`
		`Platform access username [plat]:`
		`Platform user password [***...]:`
		`Device privileged mode password [***...]:`
		`Live OOB Credentials`
		`Platform access username [plat]:`
		`Device console password [***...]:`
		`Device privileged mode password [***...]:`
		`Device named <switch_name> successfully edited`
		`Repeat this step for each 6125G in the repository.`

12. ☐	Upgrade the repository for all 6125XLG switches	***Note:*** If there are no 6125XLG switches in the repository, skip this step.
		Execute these commands to upgrade the repository for a 6125XLG.
		Determine the current <FW_image> on the switch:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig getFirmware --device=<switch_name>`
		`Version: 7.1.045`
		`Flash: = <FW_image>`
		`Release: 2403`
		Note: It is important to capture the exact filename output for <FW_image>
		Edit the repository:
		Note: The output from the command below contains sample information. Depending on your specific upgrade path and current setup some information may need to be updated and some may not. Check the default values (values in brackets [ ]) carefully to decide whether update is needed. To accept

Procedure 13. Post Upgrade Configuration for netConfig

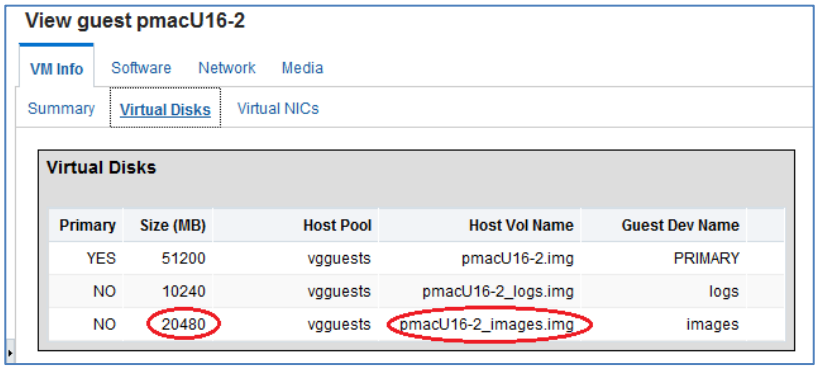
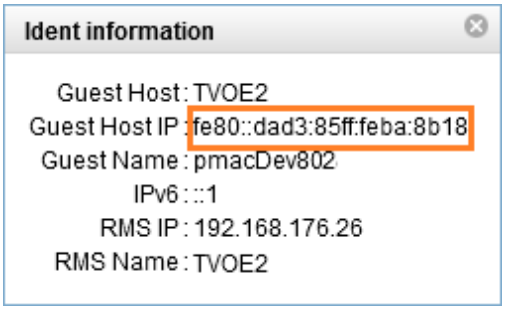
		default values press **Enter**. The value for Firmware service must be as listed.
		Note: If the default management address is not in CIDR (IPv4) or address/prefix (IPv6) notation then it must be replaced with an address with correct notation.
		`[admusr@host ~]$ sudo /usr/TKLC/plat/bin/netConfig --repo editDevice name=<switch_name>`
		`Initialization Management Options`
		`What is the IPv4 (CIDR notation) or IPv6 (address/prefix notation) address for management? [switch_management_ip]:`
		`Access OOB service [oa_service_en#]:`
		`Access OOB console [IO_BAY#]:`
		`Firmware service [ssh_service]:` **`<ssh_service>`**
		`Firmware filename [6125xlg-cmw710-system-r2403.bin]:` **`<FW_image>`**
		`Init OOB Credentials`
		`Platform access username [plat]:`
		`Platform user password [***...]:`
		`Device console password [***...]:`
		`Device privileged mode password [***...]:`
		`Live Network Credentials`
		`Platform access username [plat]:`
		`Platform user password [***...]:`
		`Device privileged mode password [***...]:`
		`Live OOB Credentials`
		`Platform access username [plat]:`
		`Device console password [***...]:`
		`Device privileged mode password [***...]:`
		`Device named <switch_name> successfully edited.`
		Repeat this step for each 6125XLG in the repository.

Procedure 13. Post Upgrade Configuration for netConfig

13. ☐	Verify the ssh_service configuration	For each service found in step 2, execute this command to verify the ssh_service is using the admusr credentials:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig --repo showService name=<ssh_service>`
		`Service Name: <ssh_service>`
		`Type: ssh`
		`Host: 10.240.8.4`
		`Options:`
		`password: C20F7D639AE7E7`
		`user: root`
		Repeat this step for each <ssh_service> found in step 2. If the user in the output is **admusr**, skip the rest of this procedure; otherwise, proceed to the next step for each ssh service not configured for **admusr**.

14. ☐	Recreate the ssh_service with admusr credentials on PMAC guest console	The ssh service(s) must be deleted and re-added.
		To delete the ssh_service:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig --repo deleteService name=<ssh_service>`
		`Are you sure you want to delete <ssh_service> (y/n)? y`
		`Deleting device <ssh_service>...`
		`Recreate the ssh_service with the admusr user:`
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig --repo addService name=<ssh_service>`
		`Service type [ssh, conserver, oa, tftp]? ssh`
		`SSH host IP? <pmac_mgmtVLAN_ip_address>`
		`SSH username? admusr`
		`SSH password? <admusr_password>`
		`Verify Password: <admusr_password>`
		`Add service for <ssh_service> successful`

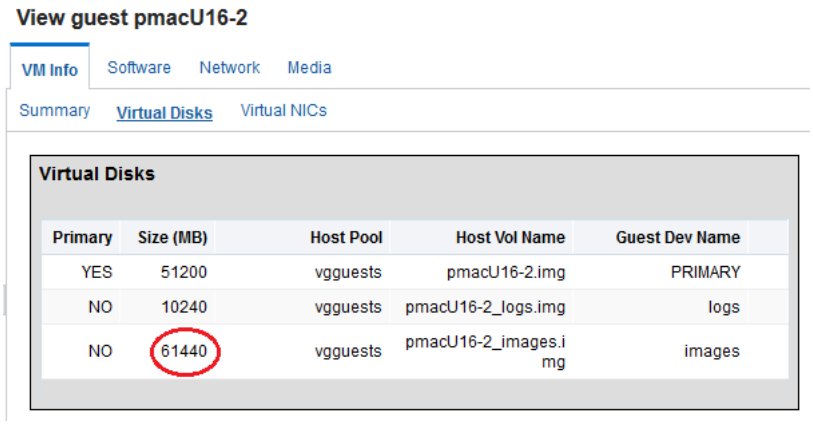
Procedure 14. Post Upgrade Configuration of Larger PMAC ISO Image Repository Area

S T E P #		
	This procedure verifies the PMAC ISO image repository size. 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 (MOS) and ask for assistance.	
1. ☐	Determine if the PMAC ISO image repository needs to be enlarged	***Note:*** It is required that the PMAC ISO repository is 61440 MB (60 GB) in any PMAC 6.6 release. Using the primary PMAC GUI, navigate to **VM Management**. Select the primary PMAC Guest to navigate to the View guest screen. Click **Virtual Disks**. Scroll to the **Guest Dev Name** images.  View guest pmacU16-2 VM Info Software Network Media Summary Virtual Disks Virtual NICs Virtual Disks Primary / Size (MB) / Host Pool / Host Vol Name / Guest Dev Name YES 51200 vgguests pmacU16-2.img PRIMARY NO 10240 vgguests pmacU16-2_logs.img logs NO 20480 vgguests pmacU16-2_images.img images Note these values: Size (MB) | Host Vol Name ***Note:*** If the size (MB) is smaller than 61440 MB (60 GB), proceed to the next step; otherwise, skip the rest of this procedure.
2. ☐	Locate the IPv6 address of PMAC TVOE host	Navigate to **Software > Software Inventory** page. Locate the entry belonging to the PMAC guest. Host: hostname02be2be44427 169.254.132.1 pmacU16-2.localdomain TPD (x86_64) 7.2.0.0.0-88.2.0 PMAC Guest: pmacU16-2 Click the **IP Address** of the PMAC guest entry to display the Ident Information screen.  Ident information Guest Host : TVOE2 Guest Host IP : fe80::dad3:85ff:feba:8b18 Guest Name : pmacDev802 IPv6 : ::1 RMS IP : 192.168.176.26 RMS Name : TVOE2 Note the **Guest Host IP** value: Guest Host IP:

Procedure 14. Post Upgrade Configuration of Larger PMAC ISO Image Repository Area

3. ☐	If necessary, access the PMAC guest console	If necessary, access the PMAC guest console as detailed in Appendix B Access the PMAC Guest Console.

4. ☐	Enlarge the PMAC ISO repository	Execute this command with appropriate values gathered in steps 1 and 2:
		`[admusr@pmac2 ~]$ sudo /usr/TKLC/smac/bin/pmaccli enlargeIsoImageRepository --ip=<Guest_Host_IP> --guest=<pmac_guest_name> --volname=<Host_Vol_Name> --volpool=vgguests --volsize=61440`
		For example, enlarging repository of PMAC guest with name pmac2 to 61440 MB would be similar to this:
		`[admusr@pmac2 ~]$ sudo /usr/TKLC/smac/bin/pmaccli enlargeIsoImageRepository --ip=fe80::dad3:85ff:feba:8b18 --guest=pmac2 --volname=pmac2_images.img --volpool=vgguests --volsize=61440`
		Successful resize of pmac2_images.img to 61440 MB.

5. ☐	Verify the size of PMAC ISO repository	Using the PMAC GUI, navigate to **VM Management**. Select the PMAC Guest to navigate to the **View guest** screen. Click **Virtual Disks**. Scroll to the **Guest Dev Name** images.  Ensure the size (MB) now is 61440.

Procedure 15. Post Upgrade NetBackup Configuration

S T E P #		
	This procedure validates the post upgrade NetBackup configuration if it is present. ***Note:*** If the NetBackup has not been configured for this system, skip this step. 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 (MOS) and ask for assistance.	
1. ☐	Validate the PMAC NetBackup configuration when applicable	***Note:*** If the NetBackup Feature has been configured for this system, execute procedure "PMAC Guest Migrate NetBackup Client to New File System" in the appropriate Platform Configuration Guide for the release being upgraded to. ***Note:*** The NetBackup client software is delivered by default to the **/usr** partition. This partition is configured by TPD and has limited space, and is not designed to share this partition with third party applications. With a NetBackup client installed the **/usr** partition does not have sufficient room to perform upgrades of the TPD based application. The creation of a NetBackup virtual disk, partition, alleviates the upgrade issue. This procedure does not describe how to upgrade the NetBackup Client itself. That procedure would be provided by the owner (Veritas) of the NetBackup application. ***Note:*** If NetBackup is being upgraded to version 7.7 and the Client has been moved to a separate filesystem (see above note), then that filesystem must be increased in size to 5G or higher (with 5G being the recommended size). Execute Appendix P "How to Increase the PMAC NetBackup Filesystem Size" from the current version of the 7.6 Platform Configuration Guide, to increase the size of the **/usr/openv** filesystem on the PMAC.

Procedure 16. Post Upgrade Configuration of Larger PMAC Temporary ISO Import Area

S T E P #		
	This procedure enlarges the PMAC ISO image temporary import area up to 20480 MB (20 GB). ***Note:*** This procedure can be executed only on PMAC 5.7 or later releases. ***Note:*** Only execute this procedure if it is required by 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 Support (MOS) and ask for assistance.	
1. ☐	Access the PMAC guest console	If necessary, access the PMAC guest console as detailed in Appendix B Access the PMAC Guest Console.

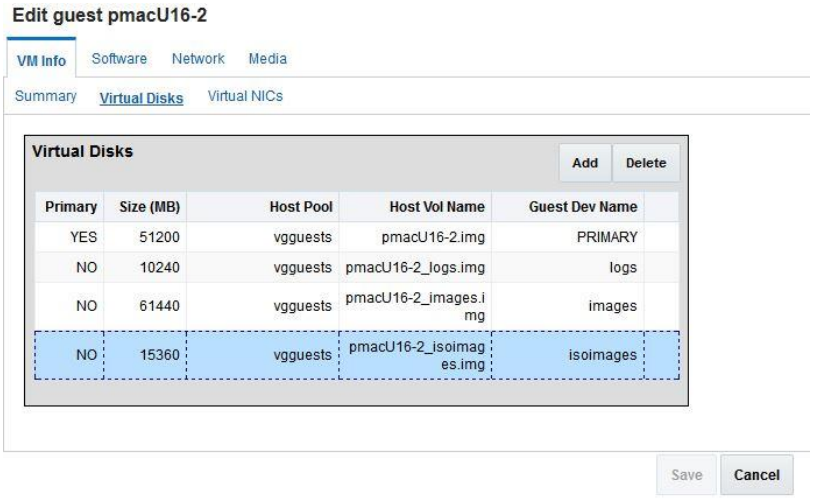
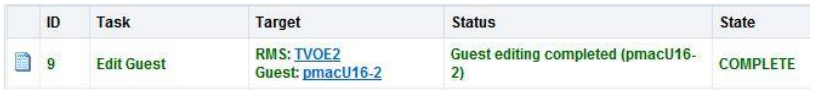
Procedure 16. Post Upgrade Configuration of Larger PMAC Temporary ISO Import Area

2. ☐	Determine if the PMAC ISO temporary import area needs to be enlarged	Execute this command:
		`[admusr@pmac ~]$ sudo /bin/df -h | grep isoimages`
		In the sample output below , there is no entry related to `/var/TKLC/smac/image/isoimages/home/smacftpusr`, which would be there if the ISO temporary import area was enlarged during PMAC deployment or afterward. The ISO temporary import area in the example above has at the most 5 GB available.
		`/dev/mapper/vgroot-smac_isoimages`
		`5.0G 147M 4.6G 4%`
		`/var/TKLC/smac/image/isoimages`
		In the following sample there is an additional entry, indicating the ISO temporary import area `/var/TKLC/smac/image/isoimages/home/smacftpusr` has 20 GB available from an EVD.
		`/dev/mapper/vgroot-smac_isoimages`
		`5.0G 147M 4.6G 4%`
		`/var/TKLC/smac/image/isoimages`
		`/dev/vdd 20G 173M 19G 1%`
		`/var/TKLC/smac/image/isoimages/ home/smacftpusr`
		If the application requires the repository to be larger than the size reported by the command above, proceed to the next step; otherwise, skip the rest of this procedure.
		Note: To be able to transfer an application ISO image to the PMAC, this area must be large enough for the largest ISO image file size anticipated at the site.

Procedure 16. Post Upgrade Configuration of Larger PMAC Temporary ISO Import Area

3. ☐	**PMAC GUI**: Login	If necessary, open a web browser and enter: `https://<PMAC Management Network IP>` Login with administrator credentials listed in Table 3. Software Upgrade Required Data.
4. ☐	Navigate to the Edit guest page of the primary PMAC guest	Using the PMAC GUI, navigate to **VM Management**. Select the PMAC Guest to navigate to **View guest**. Click **Edit**.
5. ☐	Determine whether the **isoimages** virtual disk exists	Click **Virtual Disks**. Locate the **Guest Dev Name** isoimages. If you cannot find the isoimages entry, skip to step 13; otherwise, proceed to step 6.

Procedure 16. Post Upgrade Configuration of Larger PMAC Temporary ISO Import Area

6. ☐	Delete the **isoimages** vdisk	***Note:*** When the vdisk is deleted, any files stored on it are destroyed, so copy any files you would like to keep to a safe location. Select the entry for the **isoimages** virtual disk. Click **Delete**.  Verify the **isoimages** vidsk is no longer listed and click **Save**.
7. ☐	Confirm the change to the PMAC guest	A confirmation screen displays. Click **OK**.
8. ☐	Wait for the Edit Guest background task to complete	Navigate to the Background Task Monitoring view. Confirm the **Edit Guest** task has completed successfully. 
9. ☐	Shut down the PMAC guest	Shut down the PMAC guest as detailed in Appendix H.

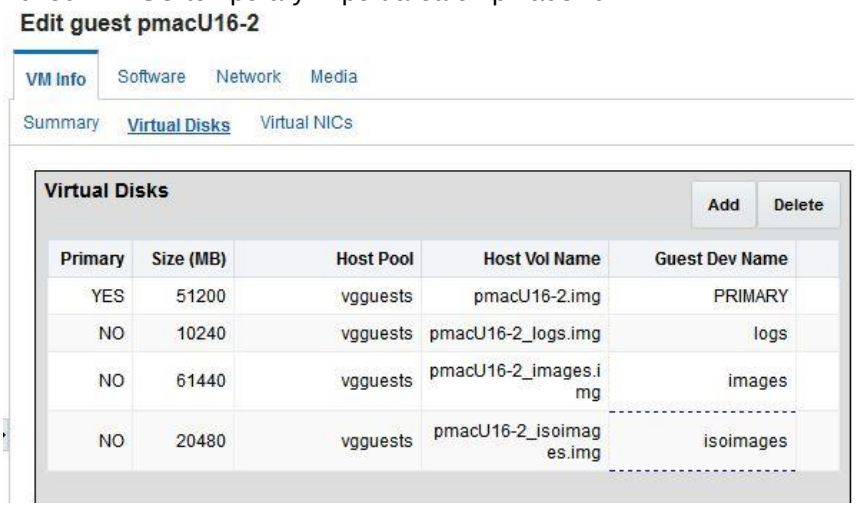
Procedure 16. Post Upgrade Configuration of Larger PMAC Temporary ISO Import Area

10. ☐	Start the PMAC guest	Using the **virsh** utility on the TVOE host of PMAC guest, start the PMAC guest.
		Query the list of guests until the PMAC guest is **running**.
		`[admusr@tvoe ~]$ sudo /usr/bin/virsh list --all`
		`Id Name State`
		`----------------------------------`
		`20 pmac shut off`
		`[admusr@tvoe ~]$ sudo /usr/bin/virsh start <pmac>`
		`Domain pmac started`
		`[admusr@tvoe ~]$ sudo /usr/bin/virsh list --all`
		`Id Name State`
		`----------------------------------`
		`20 pmac running`

11. ☐	Monitor the PMAC guest until it comes up and verify the temporary ISO import area does not exist	Execute:
		`[admusr@tvoe ~]$ sudo /usr/bin/virsh console <pmac>`
		Wait for the PMAC guest login prompt to display.
		Login as **admusr** as listed in Table 3. Software Upgrade Required Data and verify the entry for the **/var/TKLC/smac/image/isoimages/home/smacftpusr** mount point is not displayed.
		`[admusr@pmac2 ~]$ sudo /bin/df -h | grep isoimages`
		`/dev/mapper/vgroot-smac_isoimages`
		`5.0G 147M 4.6G 4%`
		`/var/TKLC/smac/image/isoimages`

12. ☐	Navigate to the Edit Guest page of the PMAC guest	Using the PMAC GUI, navigate to **VM Management**. Select the PMAC Guest to navigate to **View guest**. Click **Virtual Disks**. Click **Edit**.

Procedure 16. Post Upgrade Configuration of Larger PMAC Temporary ISO Import Area

13. ☐	Add the **isoimages** vdisk to the PMAC guest	Click **Add**. Enter this data for the new isoimages virtual disk: • Size (MB): <total_size_of_temporary_import_area> • Host Pool: "vgguests" • Host Vol Name: "<pmac_guest_name>_isoimages.img" • Guest Dev Name: "isoimages" ***Note:*** Set the Size (MB) to a value large enough for the largest ISO image file size anticipated at the site. The size can be increased up to 20480 MB. For instance, this example shows what a user would enter to achieve a 20480 MB ISO temporary import area on pmacU16-2.  **Edit guest pmacU16-2** VM Info Software Network Media Summary Virtual Disks Virtual NICs **Virtual Disks** Add Delete Primary | Size (MB) | Host Pool | Host Vol Name | Guest Dev Name YES | 51200 | vgguests | pmacU16-2.img | PRIMARY NO | 10240 | vgguests | pmacU16-2_logs.img | logs NO | 61440 | vgguests | pmacU16-2_images.img | images NO | 20480 | vgguests | pmacU16-2_isoimages.img | isoimages ***Note:*** The **Guest Dev Name** must be set to **isoimages** for the PMAC application to mount the appropriate host device. The <pmac_guest_name> variable should be set to this PMAC guest's name to create a unique volume name on the TVOE host of the PMAC. Verify the new **isoimages** virtual disk data and click **Save**.
14. ☐	Confirm the change to the PMAC guest	A confirmation screen displays. Click **OK**. Message from webpage Changes to the PMAC guest: pmacU16-2 will not not take effect until after the next power cycle. Do you wish to continue? OK Cancel

Procedure 16. Post Upgrade Configuration of Larger PMAC Temporary ISO Import Area

<table>
<tr><td>15. ☐</td><td>Wait for the Edit Guest background task to complete</td><td>Navigate to the Background Task Monitoring view. Confirm the Edit Guest task has completed successfully.
<table><tr><th></th><th>ID</th><th>Task</th><th>Target</th><th>Status</th><th>State</th></tr><tr><td></td><td>9</td><td>Edit Guest</td><td>RMS: TVOE2
Guest: pmacU16-2</td><td>Guest editing completed (pmacU16-2)</td><td>COMPLETE</td></tr></table></td></tr>
<tr><td>16. ☐</td><td>Shut down the PMAC guest</td><td>Shut down the PMAC guest as detailed in Appendix H.</td></tr>
<tr><td>17. ☐</td><td>Start the PMAC guest</td><td>Using the virsh utility on TVOE host of PMAC guest, start the PMAC guest.
Query the list of guests until the PMAC guest is running.
<pre>[admusr@tvoe ~]$ sudo /usr/bin/virsh list --all
Id Name State
----
20 pmac shut off
[admusr@tvoe ~]$ sudo /usr/bin/virsh start <pmac>
Domain pmac started
[admusr@tvoe ~]$ sudo /usr/bin/virsh list --all
Id Name State
----
20 pmac running</pre></td></tr>
<tr><td>18. ☐</td><td>Monitor the PMAC guest until it comes up and verify the size of the isoimages vdisk</td><td>Execute:
<pre>[admusr@tvoe ~]$ sudo /usr/bin/virsh console <pmac></pre>Wait for the PMAC guest login prompt to display.
Login as admusr as listed in Table 3. Software Upgrade Required Data and verify the disk size using the df command.
<pre>[admusr@pmac2 ~]$ sudo /bin/df -h | grep isoimages
/dev/mapper/vgroot-smac_isoimages
5.0G 147M 4.6G 4%
/var/TKLC/smac/image/isoimages
/dev/vdd 20G 173M 19G 1%
/var/TKLC/smac/image/isoimages/ home/smacftpusr</pre></td></tr>
<tr><td>19. ☐</td><td>Verify the size of PMAC ISO temporary import area.
Note: It may take up to 5 minutes for the PMAC GUI to be responsive and provide a login prompt.</td><td>It can take up to 15 minutes for the PMAC to perform sufficient software discovery and enable navigation to the View Guest page.
Using the primary PMAC GUI, navigate to VM Management.
Select the primary PMAC Guest to navigate to View guest.
Click Virtual Disks.
In the table, locate the Guest Dev Name isoimages.
Ensure the Size (MB) field now reflects the new value.</td></tr>
</table>

Procedure 17. Post Upgrade PMAC Backup

S T E P #	This procedure backs up all necessary PMAC database data post 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 (MOS) and ask for assistance.	
1. ☐	Back up the PMAC database	Execute the procedure detailed in Appendix D PMAC System Backup.

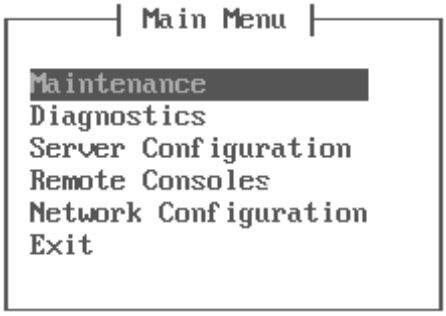
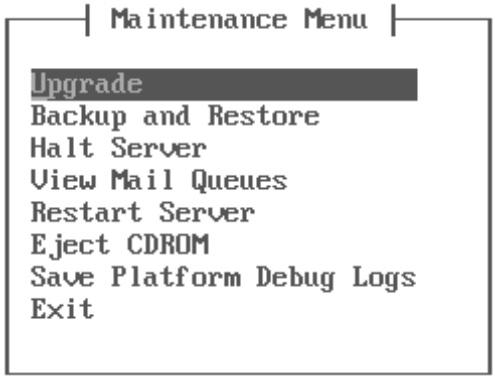
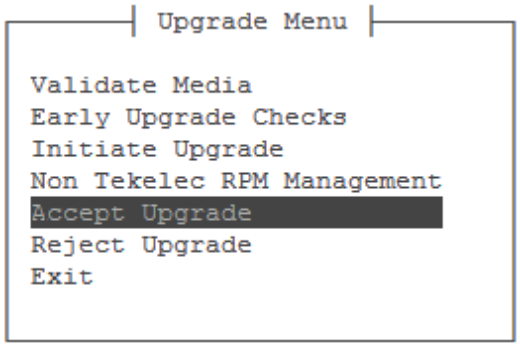
5.3 Software Upgrade Acceptance and Cleanup on the Primary PMAC

Once you verify the upgrade is complete and there are no issues on the PMAC, it is time to accept the upgrade. Please note that once you accept an upgrade, a back out to the previous release is not possible. If back out becomes necessary after an upgrade has been accepted, then a disaster recovery process is required. Keep the PMAC backup created in section 4.2 for this purpose. The following procedure identifies the steps required to accept the upgrade. Once the upgrade has been accepted it is safe to remove the media used for the upgrade.

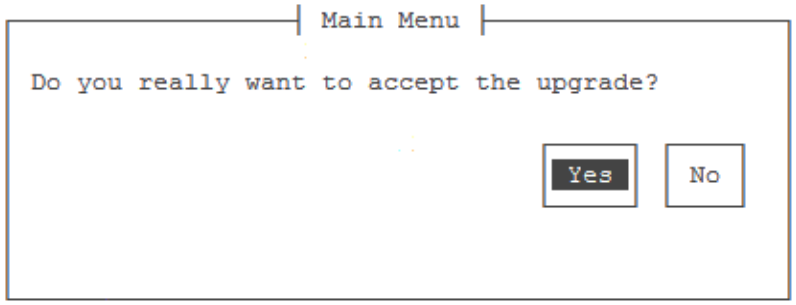
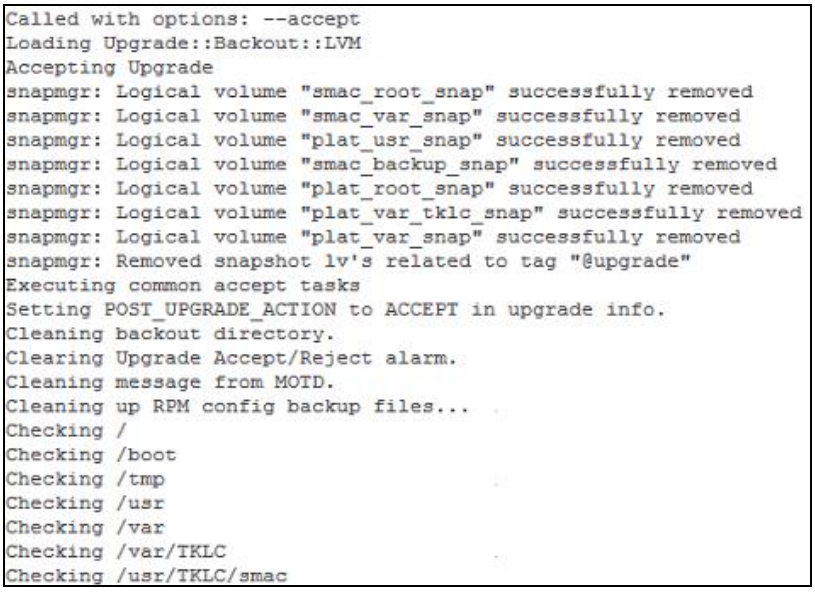
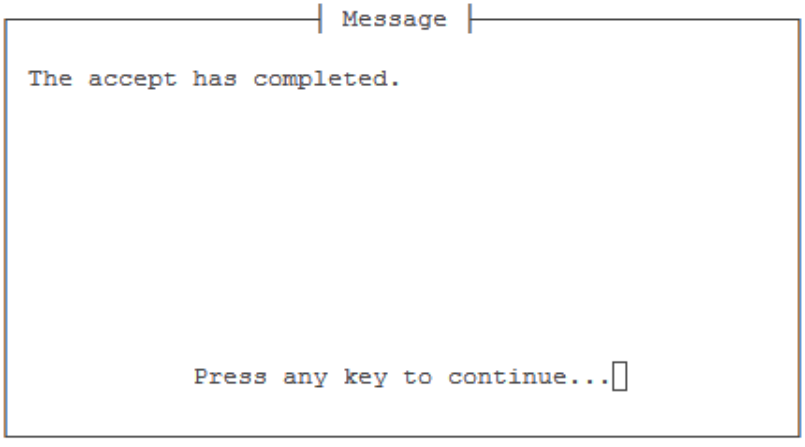
Procedure 18. Software Upgrade Acceptance on the Primary PMAC

S T E P #	This procedure upgrades the PMAC. Once complete, the backout is no longer available/possible. ***Note:*** This procedure should only be performed when a back out is no longer anticipated/desired. 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 (MOS) and ask for assistance.	
1. ☐	If necessary, access the PMAC guest console	Access the PMAC guest console as detailed in Appendix B Access the PMAC Guest Console
2. ☐	Run the **platcfg** utility	Execute: `[admusr@pmac ~]$ sudo su - platcfg`

Procedure 18. Software Upgrade Acceptance on the Primary PMAC

3. ☐	In **platcfg** utility, access the Maintenance menu	***Note:*** Use the arrow and the **Enter** key to navigate through the menu options. ***Note:*** The following images are for illustrative purposes only. The actual menu content differs based on the current PMAC release. Select **Maintenance** to navigate to the Maintenance Menu. 
4. ☐	In **platcfg** utility, access the Upgrade menu	Select **Upgrade** to navigate to the Upgrade Menu. 
5. ☐	In **platcfg** utility, select **Accept Upgrade** to start the accept process	Select **Accept Upgrade** and press **Enter** to start the accept process. 

Procedure 18. Software Upgrade Acceptance on the Primary PMAC

6. ☐	Confirm the decision and execute the accept	
7. ☐	The Accept Upgrade process starts	
8. ☐	Verify the Accept Upgrade completes and exit the **platcfg** utility	 Press any key to return to the Upgrade menu. Use the arrow keys to select **Exit** and press **Enter** to exit from all menus until the PMAC command prompt displays.

Procedure 18. Software Upgrade Acceptance on the Primary PMAC

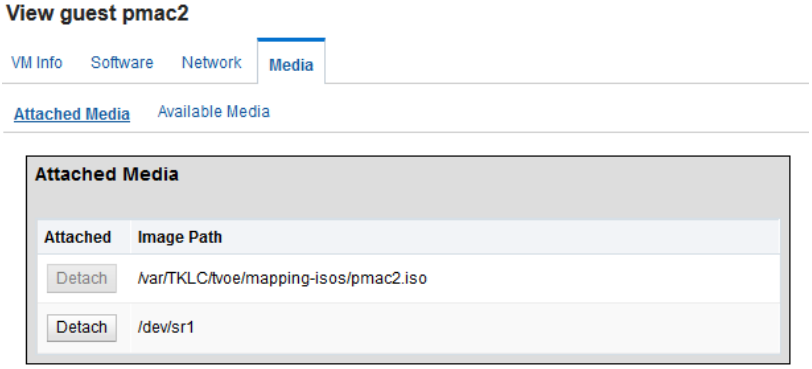
9. ☐	If the TVOE host was upgraded using Appendix G	The upgrade of TVOE includes acceptance of the upgrade. This acceptance may have been intentionally delayed by the PMAC upgrade during the execution of Appendix G. If the TVOE upgrade was delayed, then return to TVOE host upgrade procedures outlined in the TVOE Software Upgrade document for the given version being upgraded. Continue the upgrade process with Procedure 8, Stand Alone TVOE Upgrade Accept.

Procedure 19. Post Upgrade Cleanup of Upgrade Media

STEP #		
	This procedure removes the upgrade media from PMAC. ***Note:*** The procedure should only be performed when a back out is no longer anticipated/desired. 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 (MOS) and ask for assistance.	

1. ☐	If this was a Remote Upgrade, then ensure images used for upgrade have been removed from PMAC	Execute the following command on the PMAC:
		`[admusr@pmac ~]$ sudo /bin/ls /var/TKLC/upgrade/PMAC-6.6.0.0.0_66.5.0-x86_64.iso`
		If there are images that need to be removed, using the output of the command above, specify the full path of the image to be removed:
		`[admusr@pmac ~]$ sudo /bin/rm -f /var/TKLC/upgrade/<image_name.iso>`
		For instance:
		`[admusr@pmac ~]$sudo /bin/rm -f /var/TKLC/upgrade/PMAC-6.6.0.0.0_66.5.0-x86_64.iso`
		Repeat this step as necessary to ensure there are no images left to be removed.

Procedure 19. Post Upgrade Cleanup of Upgrade Media

2. ☐	If this was a local upgrade, log into the PMAC GUI	If necessary, open a web browser and enter: `https://<PMAC Management Network IP>` Login with administrator credentials listed in Table 3. Software Upgrade Required Data.
3. ☐	If upgrade was performed using external media, then detach the media	***Note:*** It can take up to 15 minutes for the PMAC to perform sufficient software discovery to locate the PMAC TVOE host and enable navigation to the View Guest page. Using the primary PMAC GUI, navigate to **VM Management**. Select the redundant PMAC Guest to navigate to **View guest**. Select the Media tab. Click **Detach** for the image previously attached. 
4. ☐	If present, remove the external media from the PMAC TVOE host server	Remove the external media from the appropriate slot of the PMAC TVOE host server.

5.4 Software Upgrade Execution on the Redundant PMAC

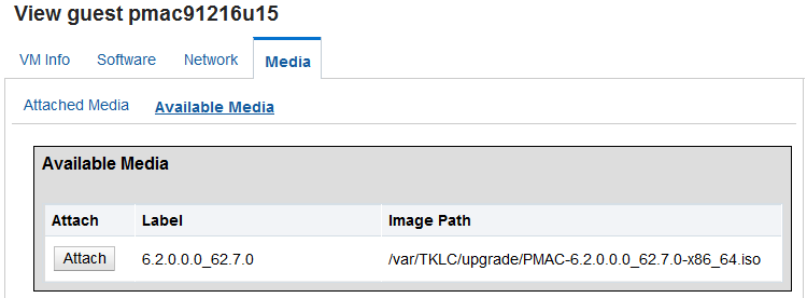
If the PMAC application ISO was delivered to the system remotely (via SCP or SFTP) then make sure the image is located in the **/var/TKLC/upgrade** directory before executing this procedure. This should have been done as part of the health check procedure.

The upgrade of the PMAC TVOE host may be executed in the same maintenance window as the PMAC. It is expected that the TVOE host upgrade is completed before the start of the PMAC upgrade. This procedure does not cover the procedural steps required for the upgrade of the TVOE host. Please see the appropriate references noted in the procedures of section 4.2.

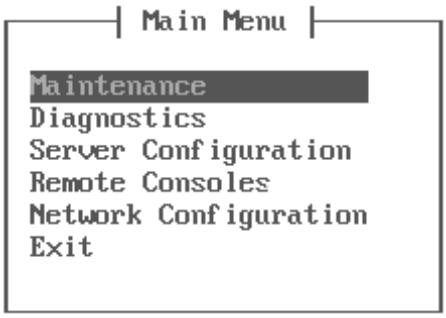
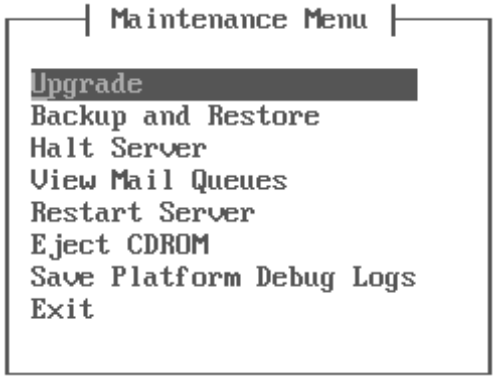
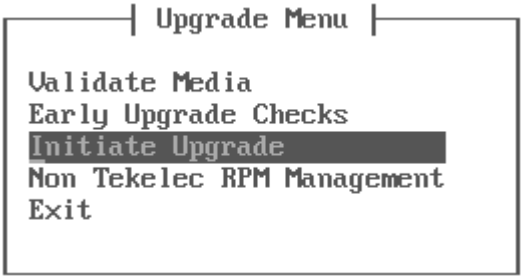
Procedure 20. PMAC Upgrade Procedure on the Redundant PMAC

S T E P #	This procedure upgrade the software upgrade on the redundant PMAC. 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 (MOS) and ask for assistance.	
1. ☐	Execute the system health check	Re-execute Procedure 6 Execute the Health Check Procedure for the Redundant PMAC.
2. ☐	For Remote Upgrade, verify correct ISO file is present and then skip to step 6.	If you executed Procedure 7 Prepare the Redundant PMAC for a Remote Upgrade (Optional), then verify the correct ISO has been delivered to the redundant PMAC. • Access the redundant PMAC Guest console using Appendix B. • Verify the correct ISO file is located in the **/var/TKLC/upgrade** directory. • If the correct ISO is present, proceed to step 6. • If the correct ISO is NOT present, then redo Procedure 3 before proceeding.
3. ☐	Insert the media containing PMAC image into the Management Server	Insert the media containing PMAC image (section 3.3) into the Management Server.

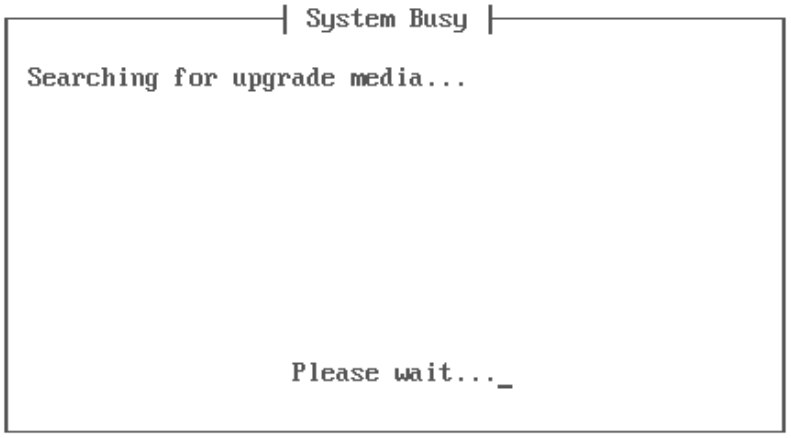
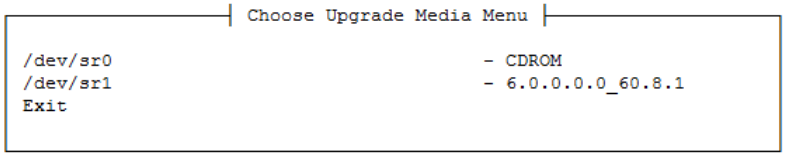
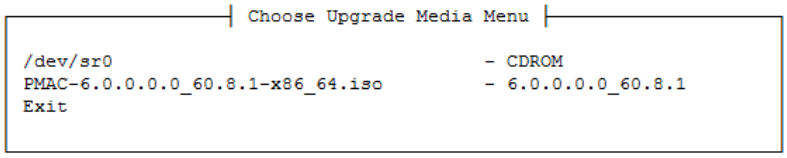
Procedure 20. PMAC Upgrade Procedure on the Redundant PMAC

4. ☐	**PMAC GUI**: Login	Open a web browser and enter: `https://<PMAC Management Network IP>` Login with administrator credentials listed in Table 3. Software Upgrade Required Data.
5. ☐	Attach the PMAC ISO media to the redundant PMAC guest	Using the PMAC GUI, navigate to **VM Management**. Select the PMAC Guest to navigate to **View Guest**. Select the Media tab. Click **Available Media**. Click **Attach** for the image just inserted. ***Note:*** The Label field can help identify the PMAC upgrade media by part number and release level (see section 3.1). 
6. ☐	Access the redundant PMAC guest console	Execute Appendix B Access the PMAC Guest Console for the redundant PMAC.

Procedure 20. PMAC Upgrade Procedure on the Redundant PMAC

7. ☐	Run the **platcfg** utility	***Note:*** If you deviated from the previous step, please ensure you are in admusr's home directory before executing the following command. Execute (from redundant PMAC guest console): `[admusr@pmac ~]$ sudo su - platcfg`
8. ☐	In **platcfg** utility, access the Maintenance menu	***Note:*** Use the arrow and the **Enter** key to navigate through the menu options. ***Note:*** The following images are for illustrative purposes only. The actual menu content differs based on the current PMAC release. Select **Maintenance** to navigate to the Maintenance Menu. 
9. ☐	In **platcfg** utility, access the Upgrade menu	Select **Upgrade** to navigate to the Upgrade Menu. 
10. ☐	In **platcfg** utility, select **Initiate Upgrade** to start the upgrade process	Select **Initiate Upgrade** and press **Enter** to start the upgrade process. 

Procedure 20. PMAC Upgrade Procedure on the Redundant PMAC

11. ☐	Wait for the Choose Upgrade Media Menu screen	Wait for the Choose Upgrade Media Menu screen to display before proceeding to the next step. 
12. ☐	Start the upgrade to the target release	If the image is located on virtual CD, then the menu looks similar to this:  If the image was copied to the **/var/TKLC/upgrade** directory of the redundant PMAC guest, then the menu looks similar to this:  Select the **PMAC 6.6 target release** and press **Enter**.

Procedure 20. PMAC Upgrade Procedure on the Redundant PMAC

13. ☐	The upgrade begins. Ensure the Early Upgrade Checks pass and the upgrade is started.	Screens similar to these display as the upgrade progresses.

```
Running earlyUpgradeChecks() for Upgrade::EarlyPolicy::PMAC upgrade policy...
This is an upgrade of PMAC.
Check for IN-PROGRESS BG Tasks.
No IN-PROGRESS BG Tasks found, we can upgrade.
Running earlyUpgradeChecks() for Upgrade::EarlyPolicy::TPDEarlyChecks upgrade policy...
Verified server is not pending accept of previous upgrade
Hardware architectures match
Install products match.
Verified server is alarm free!
Early Upgrade Checks Have Passed!
Initializing upgrade information...
Shutting down PMAC services: The runlevel transition complete RC file was created as /et
Changing to run-level 3...
**********************************************
* Waiting for run level 3 transistion to finish *
**********************************************
waiting for /etc/rc3.d/S99local_runlevel_transition_complete to disappear.
waiting for /etc/rc3.d/S99local_runlevel_transition_complete to disappear.
waiting for /etc/rc3.d/S99local_runlevel_transition_complete to disappear.
waiting for /etc/rc3.d/S99local_runlevel_transition_complete to disappear.
sending kill command...
please wait up to 60 seconds
waiting for /etc/rc3.d/S99local_runlevel_transition_complete to disappear.
waiting for /etc/rc3.d/S99local_runlevel_transition_complete to disappear.
```

```
Upgrade from current release 6.0.1-80.32.0 supported

Changing platform revision so must upgrade
Determining the appropriate upgrade command...
Using /mnt/upgrade/upgrade/upgrade_server as the upgrade command

    Current platform version:  6.0.1-80.32.0
 No backout release boundary:  4.0.0-70.0.0

Backout will be supported...

Running prepareUpgrade() for Upgrade::Policy::Platform upgrade policy...
Preserving files so verifyUpgrade can run.
preserveVerifyUpgradeFiles(): File does not exist!
FILE: /mnt/upgrade/upgrade/etc/multiRpmsAllowed.sed Skipping...
Adding /etc/sysconfig/iptables to RCS...
Adding /etc/sysconfig/ip6tables to RCS...
Adding /usr/TKLC/plat/etc/alarms/alarms.xml to RCS...
Adding /usr/TKLC/plat/etc/alarms/alarms.dtd to RCS...
Running prepareUpgrade() for Upgrade::Policy::MBL upgrade policy...
Running prepareUpgrade() for Upgrade::Policy::PMAC upgrade policy...
Running prepareUpgrade() for Upgrade::Policy::PlatformLast upgrade policy...
Initializing upgrade...
Verify RCS repository and checkin files...
RCSCHECK REPORT:  /var/TKLC/log/upgrade/rcscheck.before.upgrade
 INFO: Checking rcs elements for unchecked in changes...
```

Procedure 20. PMAC Upgrade Procedure on the Redundant PMAC

14. ☐	Upgrade completes successfully	If the upgrade completes successfully, the screen displays as the upgrade progresses.
		`PMAC postTransactions method completed.`
		`Running post transactions script for Upgrade::Policy::PlatformLast upgrade policy...`
		`Executing ldconfig`
		`Updating RPM manifest file.`
		`FILE: /usr/TKLC/plat/etc/upgrade/rpm_manifest.`
		`RPM manifest file does not exist.`
		`Creating RPM manifest file.`
		`FILE: /usr/TKLC/plat/etc/upgrade/rpm_manifest.`
		`Adding /usr/TKLC/plat/etc/upgrade/rpm_manifest to RCS...`
		`Enabling applications on the server`
		`Running prelink`
		`Enabling applications on the server...`
		`File cleanup. MODE is --upgrade`
		`FILE is /mnt/upgrade/upgrade/etc/upg_delete_these_files`
		`rsshRebuild: Rebuilding /var/TKLC/smac/image/isoimages chroot...`
		`Applications Enabled.`
		`Running /usr/TKLC/plat/bin/service_conf reconfig`
		
		`UPGRADE IS COMPLETE`
		
		`Upgrade command returned success!`
		`Running postUpgrade() for Upgrade::Policy::Platform upgrade policy...`
		`Restarting alarmMgr.`
		Note: If the PMAC upgrade fails to complete, contact My Oracle Support (MOS) for assistance.

15. ☐	Update the pmacgsoap.cfg file, if needed	If you want to update your SSL cipher list (usually this is not necessary), follow the instructions provided in the 7.6 PMAC Configuration Guide Appendix O Updating the PMAC GSOAP Cipher List

5.5 Software Upgrade Completion on the Redundant PMAC

Procedure 21. Post Upgrade Verification on the Redundant PMAC

STEP #	This procedure verifies the success of the redundant PMAC 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 (MOS) and ask for assistance.	
1. ☐	If necessary, access the redundant PMAC guest console	If necessary, access the redundant PMAC guest console as detailed in Appendix B Access the PMAC Guest Console.

2. ☐	After logging in, a notice similar to the one shown here displays	`Last login: Wed Jun 6 08:39:14 on ttyS0`
		`|==========|`
		`| This system has been upgraded but the upgrade has not yet been accepted or rejected. Please accept or reject the upgrade soon. |`
		`|==========|`
		`[admusr@pmac ~]$`

3. ☐	Verify the date/time stamp of the upgrade log aligns with the time of the upgrade	Execute this command:
		`[admusr@pmac ~]$ sudo /bin/ls -l /var/TKLC/log/upgrade/upgrade.log`
		`-rw-rw-r-- 1 platcfg root 113112 Apr 21 14:09 /var/TKLC/log/upgrade/upgrade.log`

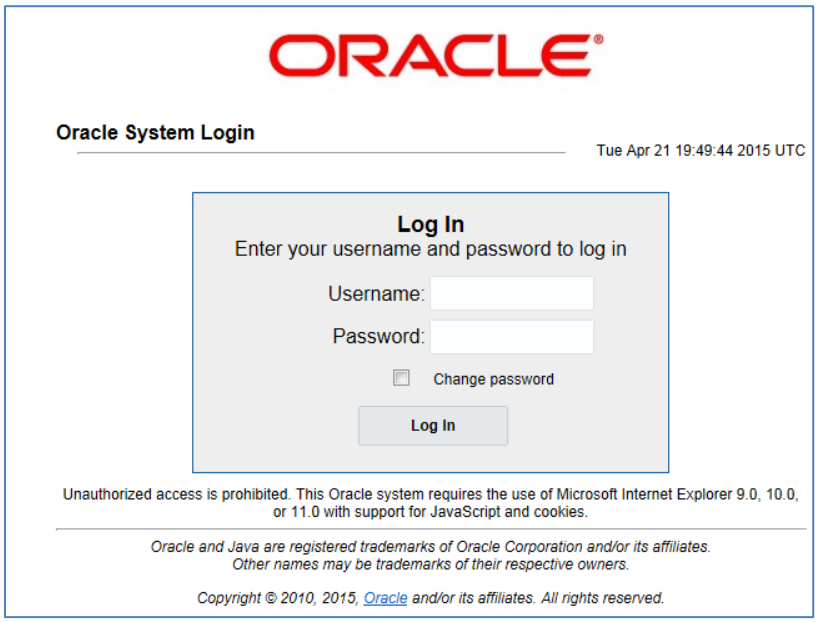
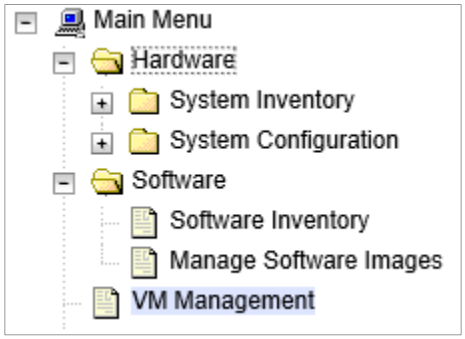
Procedure 21. Post Upgrade Verification on the Redundant PMAC

4. ☐	Verify the release has been updated	Execute this command:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/appRev`
		`Install Time: Fri Oct 14 11:37:42 2016`
		`Product Name: PMAC`
		`Product Release: 6.6.0.0.0_66.5.0`
		`Base Distro Product: TPD`
		`Base Distro Release: 7.6.0.0.0_88.50.0`
		`Base Distro ISO: TPD.install-7.6.0.0.0_88.50.0-OracleLinux6.9-x86_64.iso`
		`ISO name: PMACBLD-6.6.0.0.0_66.5.0.iso`
		`OS: OracleLinux 6.9`
		If the Product Release does not match the new target release number, then upgrade was not successful. Contact My Oracle Support (MOS) and do not proceed until instructed by an Oracle customer representative.

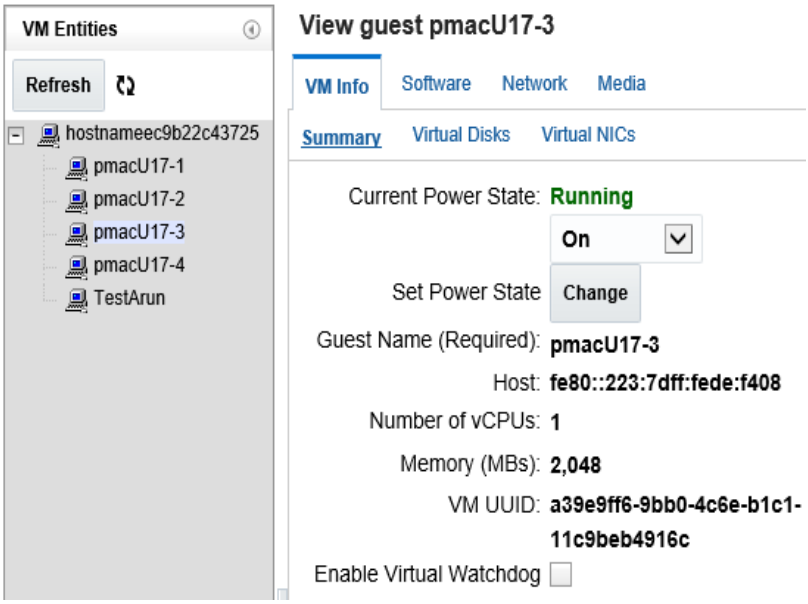
5. ☐	Verify upgrade completion through the upgrade log.
	Note: If the PMAC upgrade has failed, contact My Oracle Support (MOS)
		Execute this command on the redundant PMAC:
		`[admusr@pmac ~]$ grep COMPLETE /var/TKLC/log/upgrade/upgrade.log`
		`1371492983:: UPGRADE IS COMPLETE`
		Note: Output like above is expected.
		Execute this command:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/verifyUpgrade`
		Note: This command can take over a minute to complete. No output is expected, only the prompt should return.
		Note: If **UPGRADE IS COMPLETE** is not in the output from the first command, or if any output showing errors result from the verifyUpgrade command, contact My Oracle Support (MOS) and do not proceed until instructed by an Oracle representative.

6. ☐	Execute the redundant PMAC system health check	Execute the Appendix C PMAC System Health Check for the redundant PMAC. ***Note:*** An alarm about pending accept/reject such similar to this one can be safely ignored in this step. `SEQ: 1 UPTIME: 185 BIRTH: 1372167411 TYPE: SET ALARM: TKSPLATMI33|tpdServerUpgradePendingAccept|1.3.6.1.4.1.323.5.3.18.3.1.3.33` If any other error or failure conditions are discovered on the PMAC system then do **not** proceed. Contact My Oracle Support (MOS) to work to resolve the failure conditions.

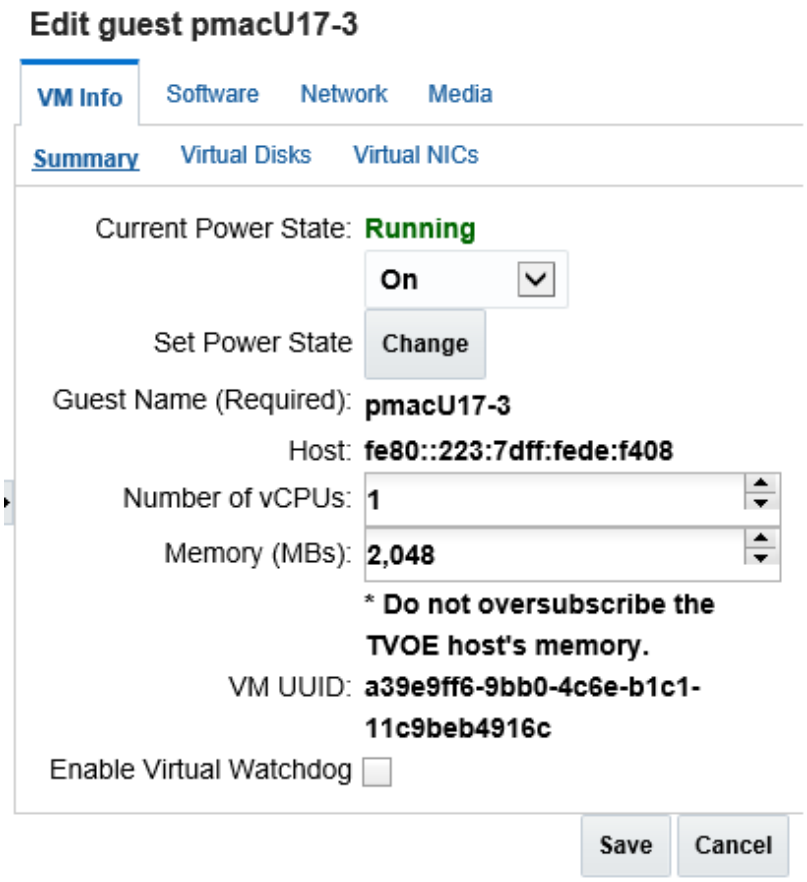
Procedure 22. Post Upgrade Procedure to Enable redundant PMAC Virtual Watchdog

S T E P #		
	This procedure provides instructions to enable Virtual Watchdog of the redundant PMAC and should be executed after upgrade to PMAC 6.6 release. 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 (MOS) and ask for assistance.	
1. ☐	Access the redundant PMAC GUI	Open a web browser and enter: `https://<PMAC Management Network IP>` Login with administrator credentials listed in Table 3. Software Upgrade Required Data.  The welcome message displays after a successful login.
2. ☐	Navigate to the VM Management page	Navigate to **VM Management**. 

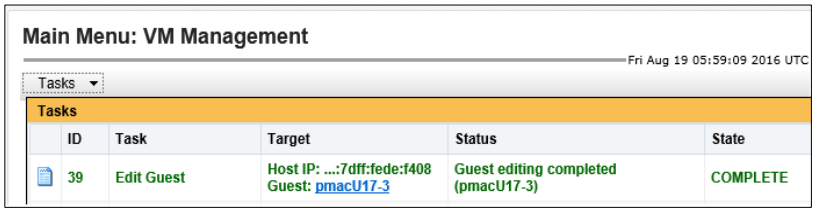
Procedure 22. Post Upgrade Procedure to Enable redundant PMAC Virtual Watchdog

3. ☐	Select the redundant PMAC guest	Click on the VM host under **VM Entities**. Expand the VM host, if needed, and select the PMAC guest.  If the **Enable Virtual Watchdog** checkbox is not checked, proceed to the next step; otherwise exit the procedure.

Procedure 22. Post Upgrade Procedure to Enable redundant PMAC Virtual Watchdog

4. ☐	Edit redundant PMAC Virtual Watchdog	Click **Edit**. Mark the **Enable Virtual Watchdog** checkbox. Click **Save**. 
5. ☐	Confirm the change to the PMAC guest	A confirmation screen displays. Click **OK**.

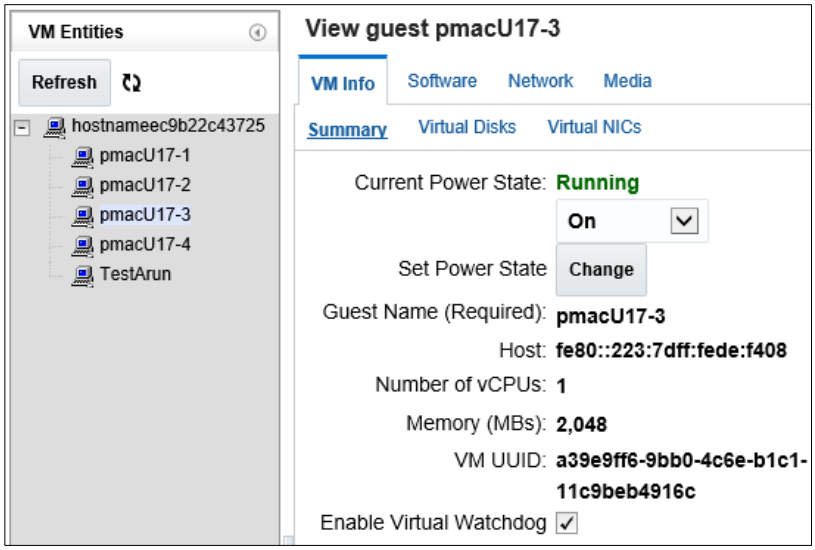
Procedure 22. Post Upgrade Procedure to Enable redundant PMAC Virtual Watchdog

6. ☐	Wait for the Edit Guest background task to complete	Click **Tasks**, on the View guest <PMAC guest name> screen. Verify the **Edit Guest** Task has completed successfully. 
7. ☐	Shut down the PMAC guest	Shut down the PMAC guest as detailed in Appendix H Shut Down PMAC Guest.

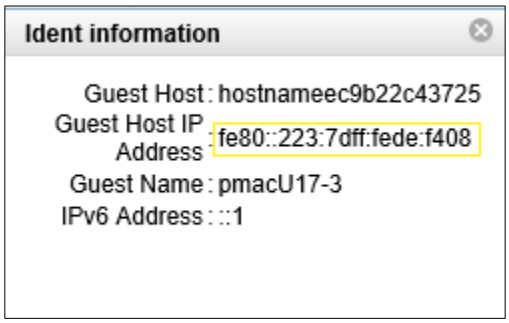
8. ☐	Start the redundant PMAC guest	Using the **virsh** utility on the redundant PMAC TVOE host, start the redundant PMAC guest.
		Query the list of guests until the redundant PMAC guest is **running**.
		`[admusr@tvoeU17~]$ sudo /usr/bin/virsh list --all`
		`Id Name State`
		`----------`
		`20 <redundant PMAC guest name> shut off`
		`[admusr@tvoeU17~]$ sudo /usr/bin/virsh start <pmac>`
		`Domain <redundant PMAC guest name> started`
		`[admusr@tvoeU17 ~]$ sudo /usr/bin/virsh list --all`
		`Id Name State`
		`----------`
		`20 <redundant PMAC guest name> running`

9. ☐	Monitor the redundant PMAC guest until it comes up	In a Putty session to redundant PMAC TVOE host, execute this command: `[admusr@tvoeU17 ~]$ sudo /usr/bin/virsh console <Redundant PMAC guest name>` Wait for the redundant PMAC guest login prompt to display.

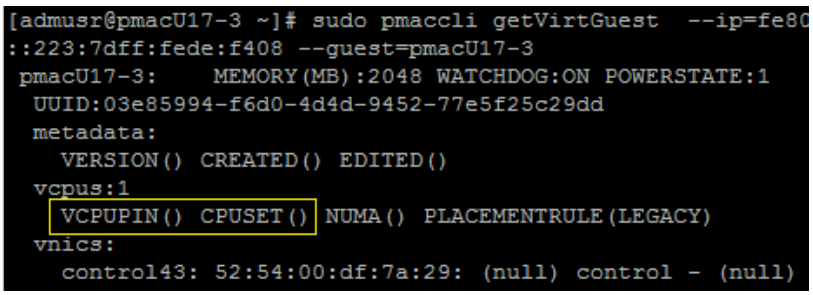
Procedure 22. Post Upgrade Procedure to Enable redundant PMAC Virtual Watchdog

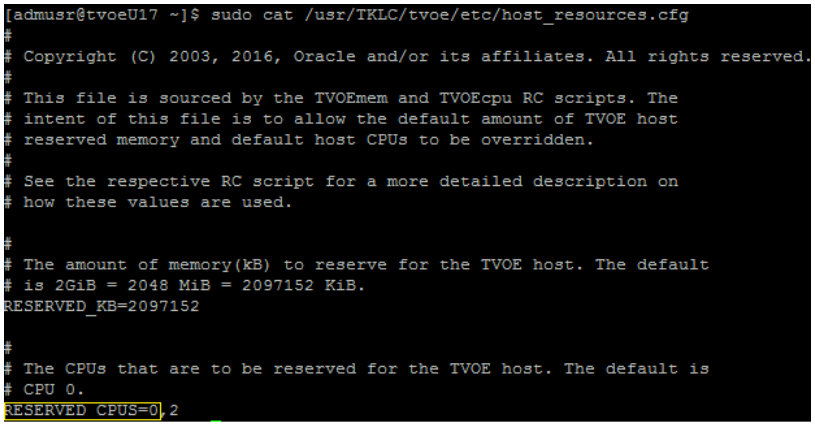
10. ☐	Verify the Virtual Watchdog is Enabled	In the GUI session of the redundant PMAC guest, navigate **VM Management**. Click on the VM host under **VM Entities**. Expand the VM host, if needed, and select the redundant PMAC guest.  Verify the **Enable Virtual Watchdog** checkbox is marked.

Procedure 23. Post Upgrade Procedure to Edit Redundant PMAC NUMA Tuning

S T E P #		
	This procedure provides instructions to edit the NUMA tuning of the redundant PMAC and should be executed after upgrade to PMAC 6.6 release. 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 (MOS) and ask for assistance.	
1. ☐	Locate the IPv6 address of the PMAC TVOE host	Open a web browser and enter: `https://<PMAC Management Network IP>` Login with administrator credentials listed in Table 3. Software Upgrade Required Data. Navigate to **Software > Software Inventory** page. Locate the entry belonging to the PMAC guest. Click the **IP Address** field of the PMAC guest entry to display the Ident Information screen.  Note the **Guest Host IP** value: Guest Host IP:

Procedure 23. Post Upgrade Procedure to Edit Redundant PMAC NUMA Tuning

<table>
<tr>
<td>2. ☐</td>
<td>Decide if NUMA tuning is required</td>
<td>Log into PMAC guest console as detailed in Appendix B Access the PMAC Guest Console.
Execute the following command:
[admusr@pmacU17-3~]$ sudo pmaccli getVirtGuest --ip=<Guest Host IP> --guest=<PMAC guest name>
 

If both VCPUPIN and CPUSET have empty values, proceed to the next step; otherwise, exit the procedure.</td>
</tr>
<tr>
<td>3. ☐</td>
<td>Log into redundant PMAC TVOE host</td>
<td>Log into the redundant PMAC TVOE host console, using Appendix A Access The PMAC TVOE Host Console.</td>
</tr>
<tr>
<td>4. ☐</td>
<td>Get reserved CPUs on redundant PMAC TVOE host</td>
<td>In the Putty session to redundant PMAC TVOE host, execute this command:
[admusr@tvoeU17 ~]$ sudo cat /usr/TKLC/tvoe/etc/host_resources.cfg
Note the first CPU number listed next to RESERVED_CPU:
<table>
<tr><td>Reserved CPU</td><td></td></tr>
</table>


Reserved CPU to be noted is 0.</td>
</tr>
</table>

Procedure 23. Post Upgrade Procedure to Edit Redundant PMAC NUMA Tuning

<table>
<tr>
<td>5. ☐</td>
<td>Get the allocated vcpus for the redundant PMAC</td>
<td>
In a Putty session to PMAC guest, execute this command:
<code>[admusr@pmacU17-3~]$ sudo pmaccli getVirtGuest --ip=<Guest Host IP> --guest=<PMAC guest name></code>
Note the value next to vcpus:
<table>
<tr><td>vcpus</td><td></td></tr>
</table>
<pre>[admusr@pmacU17-3 ~]$ sudo pmaccli getVirtGuest --ip=fe80::223:7dff
:fede:f408 --guest=pmacU17-3
 pmacU17-3:   MEMORY(MB):2048 WATCHDOG:ON POWERSTATE:1
  UUID:a39e9ff6-9bb0-4c6e-b1c1-11c9beb4916c
  metadata:
    VERSION(1.0) CREATED(08/03/16 11:55:06AM) EDITED(08/19/16 02:09:2
6AM)
  vcpus:1
    VCPUPIN() CPUSET(1-7) NUMA(0-1) PLACEMENTRULE(LEGACY)
  vnics:
    control43: 52:54:00:57:01:f6: (null) control - (null)
    management: 52:54:00:cd:15:41: (null) management - (null)
  vdisks:
    vgguests / pmacU17-3.img (51200) PRIMARY pridisk(1)
    vgguests / pmacU17-3_logs.img (10240) logs pridisk(0)
    vgguests / pmacU17-3_images.img (20480) images pridisk(0)</pre>
Vcpus to be noted is 1.
</td>
</tr>
<tr>
<td>6. ☐</td>
<td>Identify the NUMA where PMAC's host CPUs are reserved</td>
<td>
In a Putty session to PMAC guest, execute this command:
<code>[admusr@pmacU17-3~]$ sudo pmaccli getVmHostCapabilities --ip=<Guest Host IP></code>
Note the NUMA ID to which the reserved CPU (from step 2) belongs:
<table>
<tr><td>NUMA ID</td><td></td></tr>
</table>
<pre>[admusr@pmacU17-3 ~]$ sudo pmaccli getVmHostCapabilities --ip=fe80::
223:7dff:fede:f408
  UUID: 34393433-3239-5553-4539-33304e385647
    Intel x86_64 Nehalem -- Sockets(1) Cores(4) Threads(1)
      Features: invtsc, rdtscp, dca, pdcm, xtpr, tm2, est, vmx, ds_cp
l, monitor, dtes64, pbe, tm, ht, ss, acpi, ds, vme
    NUMA id: 0
        Memory: 12277 MB
      CPU ids: 0, 2, 4, 6
      Siblings: unknown, unknown, unknown, -1
    NUMA id: 1
        Memory: 12287 MB
      CPU ids: 1, 3, 5, 7
      Siblings: unknown, unknown, unknown, -1
  Total Memory: 24564 MB</pre>
NUMA ID to be noted is 0 since the reserved CPU 0 (from Step 2) belongs to the NUMA ID 0.
</td>
</tr>
</table>

Procedure 23. Post Upgrade Procedure to Edit Redundant PMAC NUMA Tuning

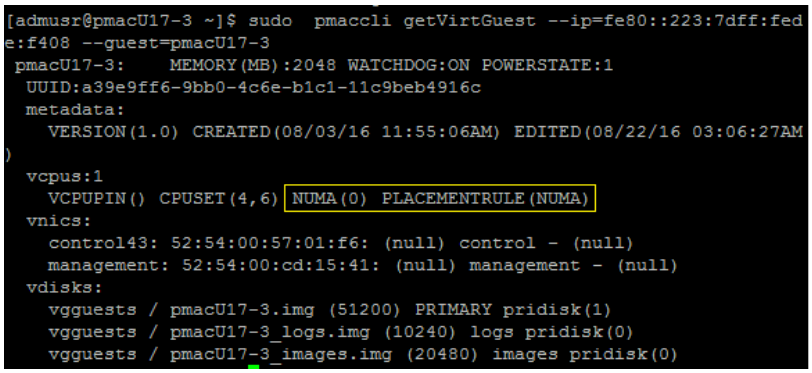
7. ☐	Edit the redundant PMAC NUMA Tuning	In a Putty session to PMAC guest, execute this command using the NUMA ID gathered in the previous step:
		`[admusr@pmacU17-3~]$ sudo pmaccli editVirtGuestVcpu --ip=<Guest Host IP> --guest=<Redundant PMAC Guest Name> --vcpus=<vcpus> --placementRule=NUMA --numaCell=<NUMA ID>`
		Note the value next the BgTask:
		BgTask
		`[admusr@pmacU17-3 ~]$ sudo pmaccli editVirtGuestVcpu --ip=fe80::223:7dff:fede:f408 --guest=pmacU17-3 --vcpus=1 --placementRule=NUMA --numaCell=0`
		`Virtual Guest edit started with BgTask: 43`
		BgTask to be noted is 43.

8. ☐	Wait for the Edit Guest background task to complete	In a GUI session to redundant PMAC guest, navigate to **Background Task Monitoring**. Verify the **Edit Guest** task with the ID, <BgTask> has completed successfully. ID: 43 | Task: Edit Guest | Target: Host IP: ...:7dff:fede:f408 Guest: pmacU17-3 | Status: Guest editing completed (pmacU17-3) | State: COMPLETE
9. ☐	Shut down the redundant PMAC guest	Shut down the redundant PMAC guest as detailed in Appendix H Shut Down PMAC Guest.

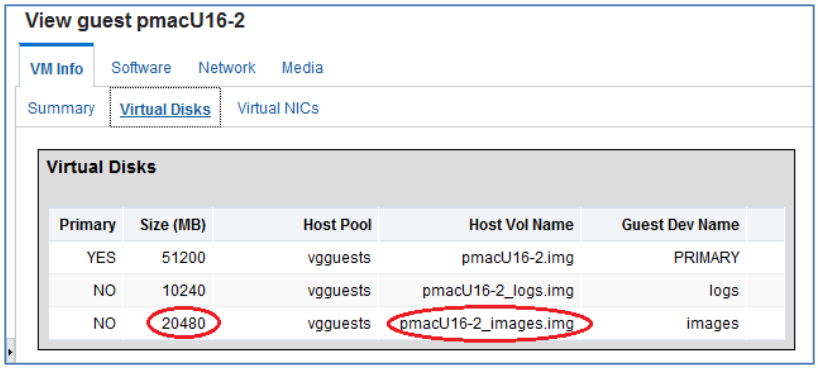
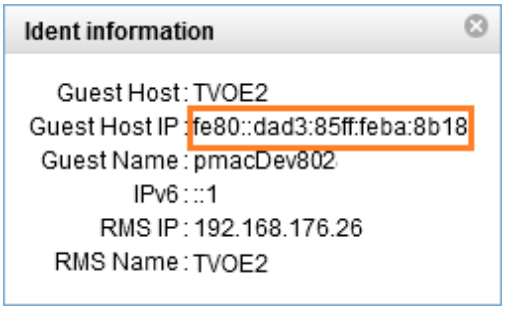
10. ☐	Start the redundant PMAC guest	Using the **virsh** utility on the redundant PMAC TVOE host , start the redundant PMAC guest.
		Query the list of guests until the redundant PMAC guest is **running**.
		`[admusr@tvoeU17~]$ sudo /usr/bin/virsh list --all`
		`Id Name State`
		`----------`
		`20 <redundant PMAC guest name> shut off`
		`[admusr@tvoeU17~]$ sudo /usr/bin/virsh start <pmac>`
		`Domain <redundant PMAC guest name> started`
		`[admusr@tvoeU17 ~]$ sudo /usr/bin/virsh list --all`
		`Id Name State`
		`----------`
		`20 <redundant PMAC guest name> running`

11. ☐	Monitor the redundant PMAC guest until it comes up	In a Putty session to redundant PMAC TVOE host, execute this command: `[admusr@tvoeU17 ~]$ sudo /usr/bin/virsh console <Redundant PMAC guest name>` Wait for the redundant PMAC guest login prompt to display.
12. ☐	Log into redundant PMAC	Log into redundant PMAC guest console as detailed in Appendix B Access the PMAC Guest Console.

Procedure 23. Post Upgrade Procedure to Edit Redundant PMAC NUMA Tuning

13. ☐	Verify the redundant PMAC NUMA Tuning	In a Putty session to redundant PMAC guest, execute this command: `[admusr@pmacU17-3~]$ sudo pmaccli getVirtGuest --ip=<Guest Host IP> --guest=<PMAC guest name>` Verify the output contains the following: • NUMA is set to <NUMA ID> • PLACEMENTRULE is set to NUMA 

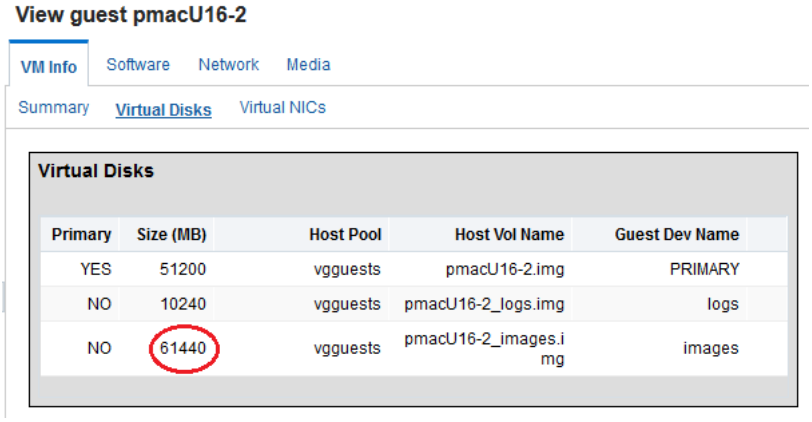
Procedure 24. Post Upgrade Configuration of Larger Redundant PMAC ISO Image Repository Area

STEP #		
	This procedure verifies the PMAC ISO image repository size. 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 (MOS) and ask for assistance.	
1. ☐	Determine if the redundant PMAC ISO image repository needs to be enlarged	***Note:*** It is required that the PMAC ISO repository is 61440 MB (60 GB) in any PMAC 6.6 release. Using the primary PMAC GUI, navigate to **VM Management**. Select the primary PMAC Guest to navigate to the View guest screen. Click **Virtual Disks**. Scroll to the **Guest Dev Name** images.  View guest pmacU16-2 VM Info Software Network Media Summary Virtual Disks Virtual NICs Virtual Disks Primary / Size (MB) / Host Pool / Host Vol Name / Guest Dev Name YES 51200 vgguests pmacU16-2.img PRIMARY NO 10240 vgguests pmacU16-2_logs.img logs NO 20480 vgguests pmacU16-2_images.img images Note these values: Size (MB) | Host Vol Name ***Note:*** If the size (MB) is smaller than 61440 MB (60 GB), proceed to the next step; otherwise, skip the rest of this procedure.
2. ☐	Locate the IPv6 address of PMAC TVOE host	Navigate to **Software > Software Inventory** page. Locate the entry belonging to the PMAC guest. Host: hostname02be2be44427 169.254.132.1 pmacU16-2.localdomain TPD (x86_64) 7.2.0.0.0-88.2.0 PMAC Guest: pmacU16-2 Click the **IP Address** of the PMAC guest entry to display the Ident Information screen.  Ident information Guest Host : TVOE2 Guest Host IP : fe80::dad3:85ff:feba:8b18 Guest Name : pmacDev802 IPv6 : ::1 RMS IP : 192.168.176.26 RMS Name : TVOE2 Note the **Guest Host IP** value: Guest Host IP:

Procedure 24. Post Upgrade Configuration of Larger Redundant PMAC ISO Image Repository Area

3. ☐	If necessary, access the PMAC guest console	If necessary, access the PMAC guest console as detailed in Appendix B Access the PMAC Guest Console.

4. ☐	Enlarge the redundant PMAC ISO repository	Execute this command with appropriate values gathered in steps 1 and 2:
		`[admusr@pmac2 ~]$ sudo /usr/TKLC/smac/bin/pmaccli enlargeIsoImageRepository --ip=<Guest_Host_IP> --guest=<redundant pmac_guest_name> --volname=<Host_Vol_Name> --volpool=vgguests --volsize=61440`
		For example, enlarging repository of PMAC guest with name pmac2 to 61440 MB would be similar to this:
		`[admusr@pmac2 ~]$ sudo /usr/TKLC/smac/bin/pmaccli enlargeIsoImageRepository --ip=fe80::dad3:85ff:feba:8b18 --guest=pmac2 --volname=pmac2_images.img --volpool=vgguests --volsize=61440`
		Successful resize of pmac2_images.img to 61440 MB.

5. ☐	Verify the size of redundant PMAC ISO repository	Using the primary PMAC GUI, navigate to **VM Management**. Select the redundant PMAC Guest to navigate to the **View guest** screen. Click **Virtual Disks**. Scroll to the **Guest Dev Name** images.  Ensure the size (MB) now is 61440.

Procedure 25. Post Upgrade Configuration of Larger Redundant PMAC Temporary ISO Import Area

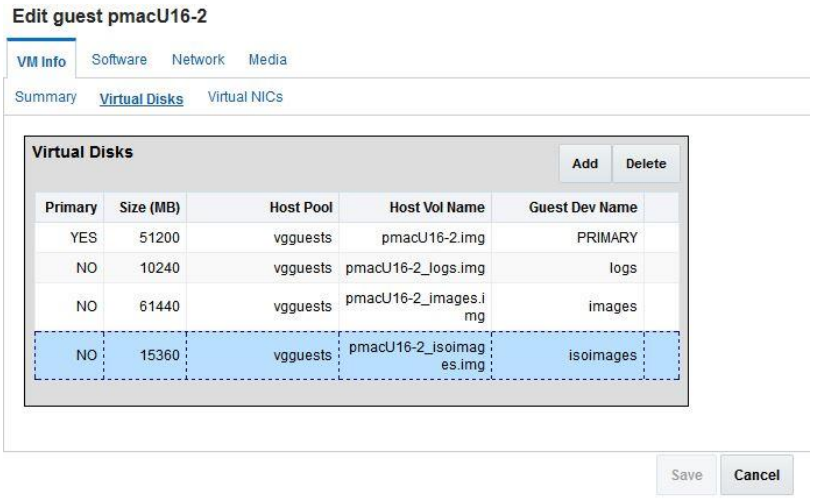
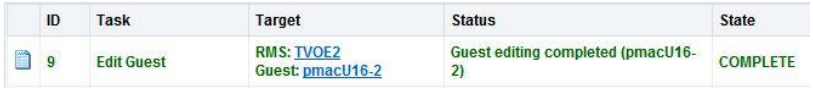
STEP #		
	This procedure enlarges the redundant PMAC ISO image temporary import area up to 20480 MB (20 GB). ***Note:*** This procedure can be executed only on PMAC 5.7 and later releases. ***Note:*** Only execute this procedure if it is required by application. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, contact My Oracle Support (MOS) and ask for assistance.	
1. ☐	Access the PMAC guest console	If necessary, access the PMAC guest console as detailed in Appendix B Access the PMAC Guest Console.

2. ☐	Determine if the PMAC ISO temporary import area needs to be enlarged	Execute this command:
		`[admusr@pmac ~]$ sudo /bin/df -h | grep isoimages`
		In the sample output below , there is no entry related to `/var/TKLC/smac/image/isoimages/home/smacftpusr`, which would be there if the ISO temporary import area was enlarged during PMAC deployment or afterward. The ISO temporary import area in the example above has at the most 5 GB available.
		`/dev/mapper/vgroot-smac_isoimages`
		`5.0G 147M 4.6G 4%`
		`/var/TKLC/smac/image/isoimages`
		In the following sample there is an additional entry, indicating the ISO temporary import area `/var/TKLC/smac/image/isoimages/home/smacftpusr` has 20 GB available from an EVD.
		`/dev/mapper/vgroot-smac_isoimages`
		`5.0G 147M 4.6G 4%`
		`/var/TKLC/smac/image/isoimages`
		`/dev/vdd 20G 173M 19G 1%`
		`/var/TKLC/smac/image/isoimages/ home/smacftpusr`
		If the application requires the repository to be larger than the size reported by the command above, proceed to the next step; otherwise, skip the rest of this procedure.
		Note: To be able to transfer an application ISO image to the PMAC, this area must be large enough for the largest ISO image file size anticipated at the site.

Procedure 25. Post Upgrade Configuration of Larger Redundant PMAC Temporary ISO Import Area

3. ☐	**Redundant PMAC GUI**: Login	If necessary, open a web browser and enter: `https://<PMAC Management Network IP>` Login with administrator credentials listed in Table 3. Software Upgrade Required Data.
4. ☐	Navigate to the Edit guest page of the redundant PMAC guest	Using the redundant PMAC GUI, navigate to **VM Management**. Select the redundant PMAC Guest to navigate to **View guest**. Click **Edit**.
5. ☐	Determine whether the **isoimages** virtual disk exists	Click **Virtual Disks**. Locate the Guest Dev Name **isoimages**. If you cannot find the isoimages entry, skip to step 13; otherwise, proceed to step 6.

Procedure 25. Post Upgrade Configuration of Larger Redundant PMAC Temporary ISO Import Area

6. ☐	Delete the **isoimages** vdisk	***Note:*** When the vdisk is deleted, any files stored on it are destroyed, so copy any files you would like to keep to a safe location. Select the entry for the **isoimages** virtual disk. Click **Delete**.  Verify the **isoimages** vidsk is no longer listed and click **Save**.
7. ☐	Confirm the change to the PMAC guest	A confirmation screen displays. Click **OK**.
8. ☐	Wait for the Edit Guest background task to complete	Navigate to the Background Task Monitoring view. Confirm the **Edit Guest** task has completed successfully. 
9. ☐	Shut down the PMAC guest	Shut down the PMAC guest as detailed in Appendix H.

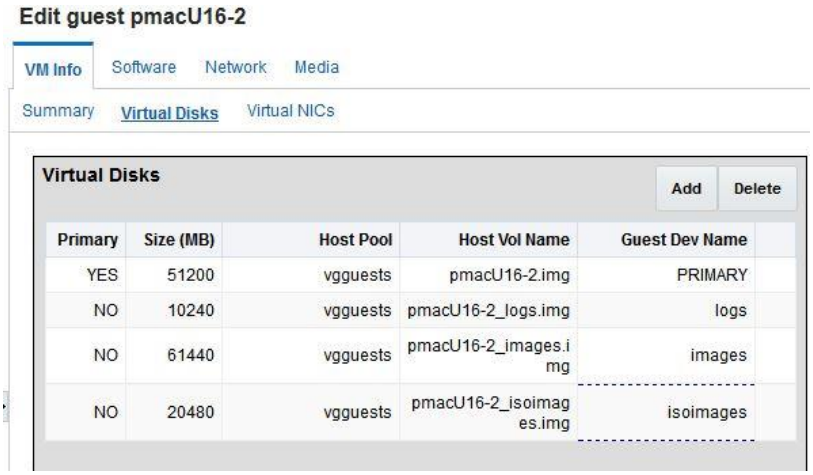
Procedure 25. Post Upgrade Configuration of Larger Redundant PMAC Temporary ISO Import Area

10. ☐	Start the PMAC guest	Using the **virsh** utility on the TVOE host of PMAC guest, start the PMAC guest.
		Query the list of guests until the PMAC guest is **running**.
		`[admusr@tvoe ~]$ sudo /usr/bin/virsh list --all`
		`Id Name State`
		`----------`
		`20 pmac shut off`
		`[admusr@tvoe ~]$ sudo /usr/bin/virsh start <pmac>`
		`Domain pmac started`
		`[admusr@tvoe ~]$ sudo /usr/bin/virsh list --all`
		`Id Name State`
		`----------`
		`20 pmac running`

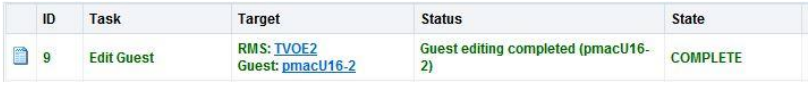
11. ☐	Monitor the PMAC guest until it comes up and verify the temporary ISO import area does not exist	Execute:
		`[admusr@tvoe ~]$ sudo /usr/bin/virsh console <pmac>`
		Wait for the PMAC guest login prompt to display.
		Login as **admusr** as listed in Table 3. Software Upgrade Required Data and verify the entry for the **/var/TKLC/smac/image/isoimages/home/smacftpusr** mount point is not displayed.
		`[admusr@pmac2 ~]$ sudo /bin/df -h | grep isoimages`
		`/dev/mapper/vgroot-smac_isoimages`
		`5.0G 147M 4.6G 4%`
		`/var/TKLC/smac/image/isoimages`

12. ☐	Navigate to the Edit Guest page of the redundant PMAC guest	Using the redundant PMAC GUI, navigate to **VM Management**. Select the redundant PMAC Guest to navigate to **View guest**. Click **Virtual Disks**. Click **Edit**.

Procedure 25. Post Upgrade Configuration of Larger Redundant PMAC Temporary ISO Import Area

13. ☐	Add the **isoimages** vdisk to the PMAC guest	Click **Add**. Enter this data for the new isoimages virtual disk: • Size (MB): <total_size_of_temporary_import_area> • Host Pool: "vgguests" • Host Vol Name: "<pmac_guest_name>_isoimages.img" • Guest Dev Name: "isoimages" ***Note:*** Set the Size (MB) to a value large enough for the largest ISO image file size anticipated at the site. The size can be increased up to 20480 MB. For instance, this example shows what a user would enter to achieve a 20480 MB ISO temporary import area on pmacU16-2.  **Edit guest pmacU16-2** VM Info | Software | Network | Media Summary | Virtual Disks | Virtual NICs **Virtual Disks** — Add | Delete Primary | Size (MB) | Host Pool | Host Vol Name | Guest Dev Name YES | 51200 | vgguests | pmacU16-2.img | PRIMARY NO | 10240 | vgguests | pmacU16-2_logs.img | logs NO | 61440 | vgguests | pmacU16-2_images.img | images NO | 20480 | vgguests | pmacU16-2_isoimages.img | isoimages ***Note:*** The **Guest Dev Name** must be set to **isoimages** for the PMAC application to mount the appropriate host device. The <pmac_guest_name> variable should be set to this PMAC guest's name to create a unique volume name on the TVOE host of the PMAC. Verify the new **isoimages** virtual disk data and click **Save**.
14. ☐	Confirm the change to the PMAC guest	A confirmation screen displays. Click **OK**. Message from webpage Changes to the PMAC guest: pmacU16-2 will not not take effect until after the next power cycle. Do you wish to continue? OK | Cancel

Procedure 25. Post Upgrade Configuration of Larger Redundant PMAC Temporary ISO Import Area

15. ☐	Wait for the Edit Guest background task to complete	Navigate to the Background Task Monitoring view. Confirm the **Edit Guest** task has completed successfully.  ID: 9 | Task: Edit Guest | Target: RMS: TVOE2, Guest: pmacU16-2 | Status: Guest editing completed (pmacU16-2) | State: COMPLETE
16. ☐	Shut down the PMAC guest	Shut down the PMAC guest as detailed in Appendix H.

17. ☐	Start the PMAC guest	Using the **virsh** utility on TVOE host of PMAC guest, start the PMAC guest.
		Query the list of guests until the PMAC guest is **running**.
		`[admusr@tvoe ~]$ sudo /usr/bin/virsh list --all`
		`Id Name State`
		`----------------------------------`
		`20 pmac shut off`
		`[admusr@tvoe ~]$ sudo /usr/bin/virsh start <pmac>`
		`Domain pmac started`
		`[admusr@tvoe ~]$ sudo /usr/bin/virsh list --all`
		`Id Name State`
		`----------------------------------`
		`20 pmac running`

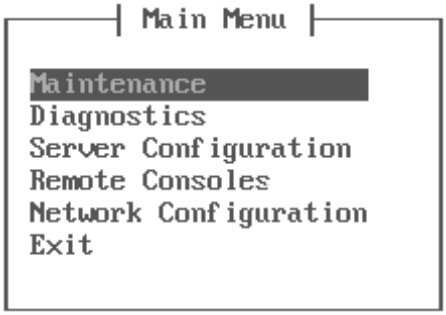
18. ☐	Monitor the PMAC guest until it comes up and verify the size of the **isoimages** vdisk	Execute:
		`[admusr@tvoe ~]$ sudo /usr/bin/virsh console <pmac>`
		Wait for the PMAC guest login prompt to display.
		Login as **admusr** as listed in Table 3. Software Upgrade Required Data and verify the disk size using the df command.
		`[admusr@pmac2 ~]$ sudo /bin/df -h | grep isoimages`
		`/dev/mapper/vgroot-smac_isoimages`
		`5.0G 147M 4.6G 4%`
		`/var/TKLC/smac/image/isoimages`
		`/dev/vdd 20G 173M 19G 1%`
		`/var/TKLC/smac/image/isoimages/ home/smacftpusr`

19. ☐	Verify the size of PMAC ISO temporary import area. ***Note:*** It may take up to 5 minutes for the PMAC GUI to be responsive and provide a login prompt.	It can take up to 15 minutes for the PMAC to perform sufficient software discovery and enable navigation to the View Guest page. Using the primary PMAC GUI, navigate to **VM Management**. Select the primary PMAC Guest to navigate to **View guest**. Click **Virtual Disks**. In the table, locate the **Guest Dev Name** isoimages. Ensure the Size (MB) field now reflects the new value.

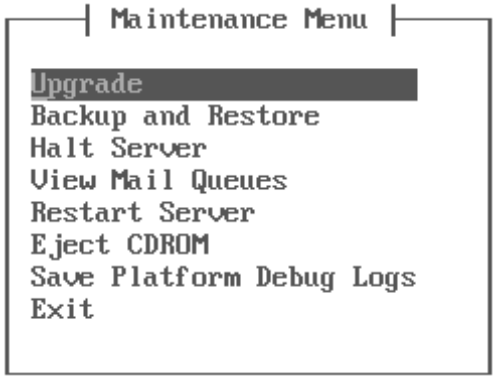
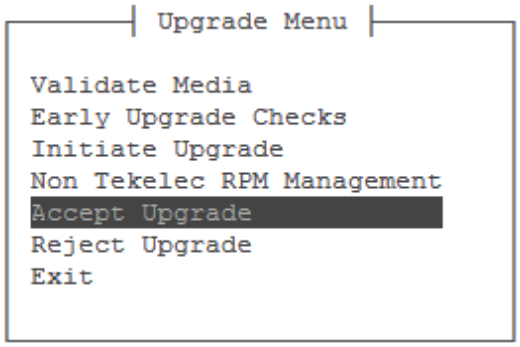
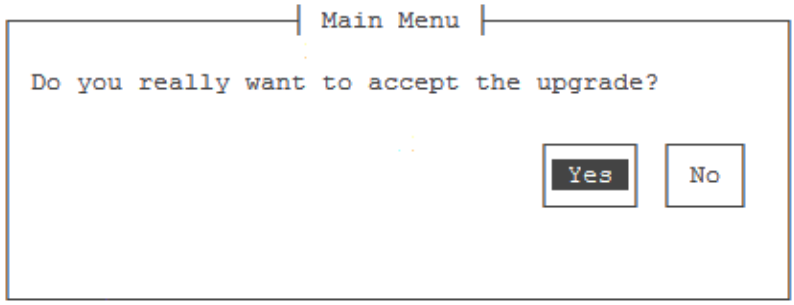
5.6 Software Upgrade Acceptance and Cleanup on the Redundant PMAC

Once you are satisfied that this release of PMAC is acceptable, it is time to accept the upgrade. Please note that once you accept an upgrade, a backout to the previous release is not possible. If backout becomes necessary after an upgrade has been accepted, then a disaster recovery process is required. The following procedure identifies the steps required to accept the upgrade. Once the upgrade has been accepted, it is safe to remove the media used for the upgrade.

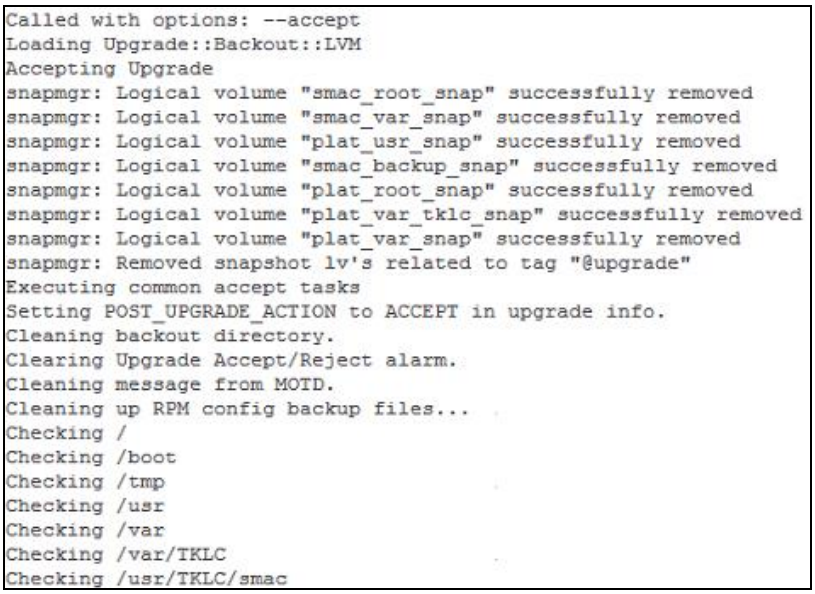
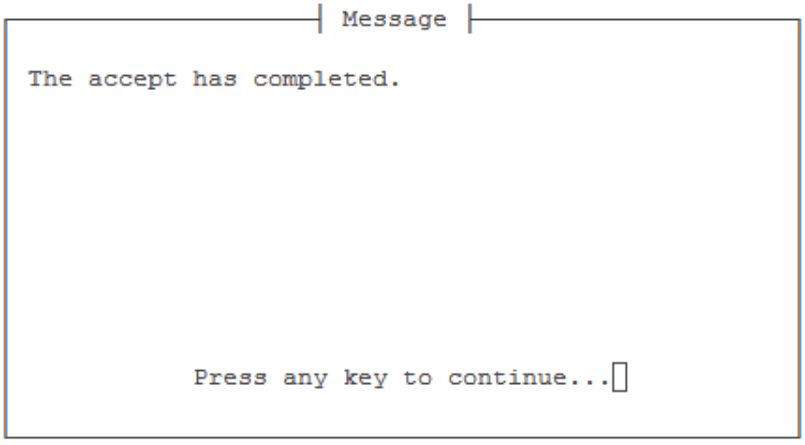
Procedure 26. Post Upgrade Acceptance on the Redundant PMAC

S T E P #		
	This procedure upgrades the redundant PMAC. Once complete, the backout is no longer available/possible. ***Note:*** This procedure should only be performed when a back out is no longer anticipated/desired. 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 (MOS) and ask for assistance.	
1. ☐	If necessary, access the redundant PMAC guest console	If necessary, access the redundant PMAC guest console as detailed in Appendix B Access the PMAC Guest Console
2. ☐	Run the **platcfg** utility	Execute: `[admusr@pmac ~]$ sudo su - platcfg`
3. ☐	In **platcfg** utility, access the Maintenance menu	***Note:*** Use the arrow and the **Enter** key to navigate through the menu options. ***Note:*** The following images are for illustrative purposes only. The actual menu content differs based on the current PMAC release. Select **Maintenance** to navigate to the Maintenance Menu. 

Procedure 26. Post Upgrade Acceptance on the Redundant PMAC

4. ☐	In **platcfg** utility, access the Upgrade menu	Select **Upgrade** to navigate to the Upgrade Menu. 
5. ☐	In **platcfg** utility, select **Accept Upgrade** to start the accept process	Select **Accept Upgrade** and press **Enter** to start the accept process. 
6. ☐	Confirm the decision and execute the accept	

Procedure 26. Post Upgrade Acceptance on the Redundant PMAC

7. ☐	The Accept Upgrade process starts	
8. ☐	Verify the Accept Upgrade completes and exit the **platcfg** utility	 Press any key to return to the Upgrade menu. Use the arrow keys to select **Exit** and press **Enter** to exit from all menus until the PMAC command prompt displays.
9. ☐	If the TVOE host was upgraded using Appendix G	The upgrade of TVOE includes acceptance of the upgrade. This acceptance may have been intentionally delayed by the PMAC upgrade during the execution of Appendix G. If the TVOE upgrade was delayed, then return to TVOE host upgrade procedures outlined in the TVOE Software Upgrade document for the given version being upgraded. Continue the upgrade process with Procedure 8, Stand Alone TVOE Upgrade Accept.

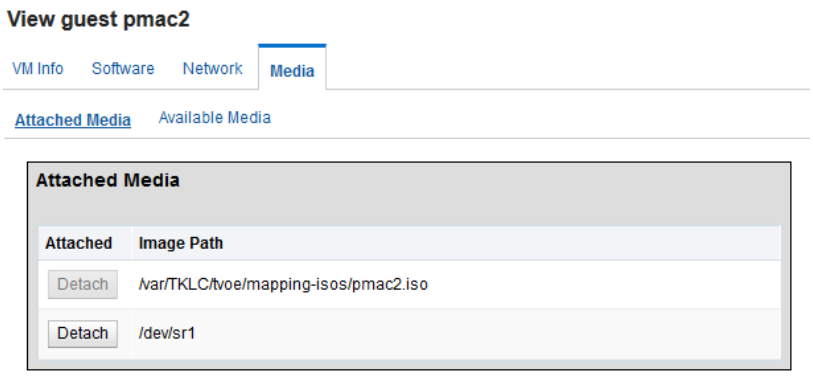
Procedure 27. Post Upgrade Cleanup of Upgrade Media

S T E P #		
	This procedure removes the upgrade media from the redundant PMAC. ***Note:*** This procedure should only be performed when a back out is no longer anticipated/desired. 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 (MOS) and ask for assistance.	

1. ☐	If this was a Remote Upgrade, then ensure images used for upgrade have been removed from PMAC	Execute the following command on the redundant PMAC:
		`[admusr@pmac ~]$ sudo /bin/ls /var/TKLC/upgrade/PMAC-6.6.0.0.0_66.5.0-x86_64.iso`
		If there are images that need to be removed, using the output of the command above, specify the full path of the image to be removed:
		`[admusr@pmac ~]$ sudo /bin/rm -f /var/TKLC/upgrade/<image_name.iso>`
		For instance:
		`[admusr@pmac ~]$sudo /bin/rm -f /var/TKLC/upgrade/PMAC-6.6.0.0.0_66.5.0-x86_64.iso`
		Repeat this step as necessary to ensure there are no images left to be removed.

2. ☐	If this was a local upgrade, log into the primary PMAC GUI	If necessary, open a web browser and enter: `https://<PMAC Management Network IP>` Login with administrator credentials listed in Table 3. Software Upgrade Required Data.

Procedure 27. Post Upgrade Cleanup of Upgrade Media

3. ☐	If upgrade was performed using external media, then detach the media from the redundant PMAC guest	***Note:*** It can take up to 15 minutes for the PMAC to perform sufficient software discovery to locate the PMAC TVOE host and enable navigation to the View Guest page. Using the primary PMAC GUI, navigate to **VM Management**. Select the redundant PMAC Guest to navigate to **View guest**. Select the Media tab. Click **Detach** for the image previously attached. 
4. ☐	If present, remove the external media from the redundant PMAC TVOE host server	Remove the external media from the appropriate slot of the redundant PMAC TVOE host server.

6. Recovery Procedures

Upgrade procedure recovery issues should be directed to My Oracle Support (MOS). Before executing any of these procedures, contact My Oracle Support (MOS). In the event that a full installation is needed, the PMAC Installation Procedures also need to be performed. Persons performing the upgrade should be familiar with these documents.

6.1 Back Out (Reject) Setup 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

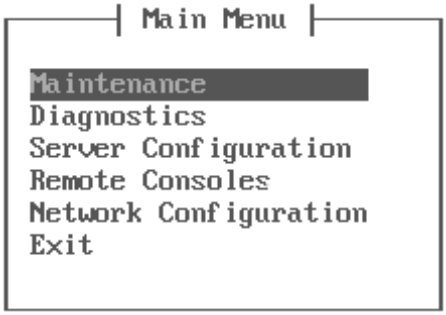
Do not attempt to perform these back out procedures without first contacting My Oracle Support (MOS). Back out of an initial installation is not supported.

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

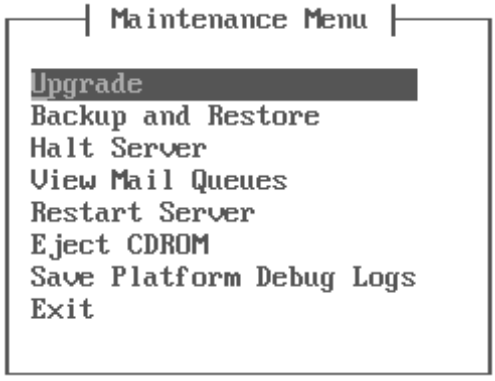
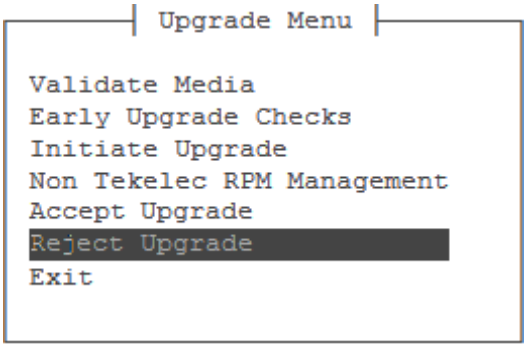
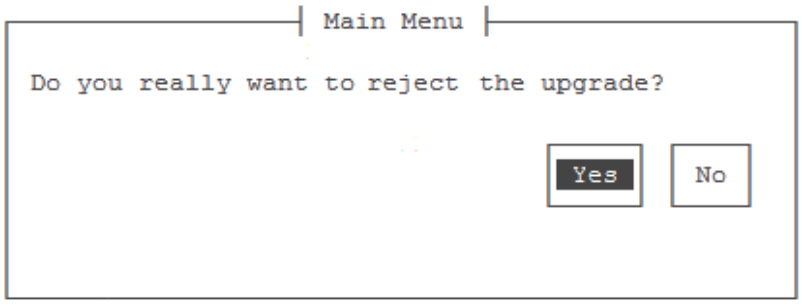
My Oracle Support (MOS) personnel require login access to the affected PMAC, probe the server for the root cause of the problem, and execute whatever setup or cleanup is necessary in order to prepare the PMAC for back out.

6.2 Recovery Procedures

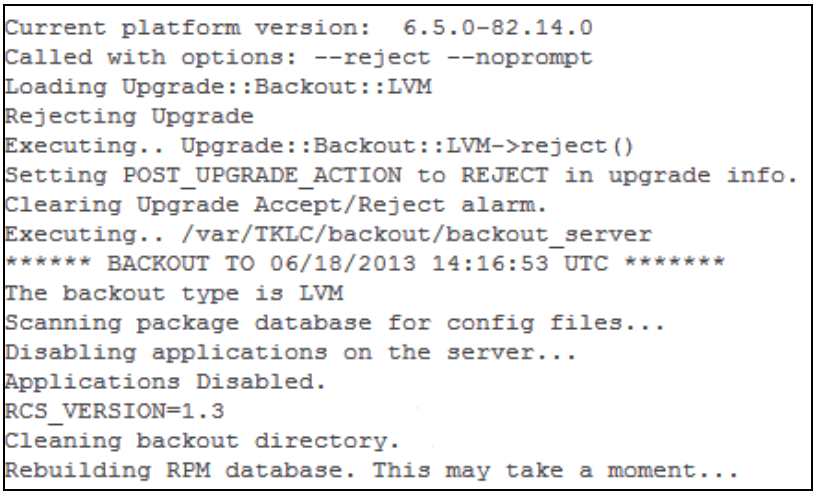
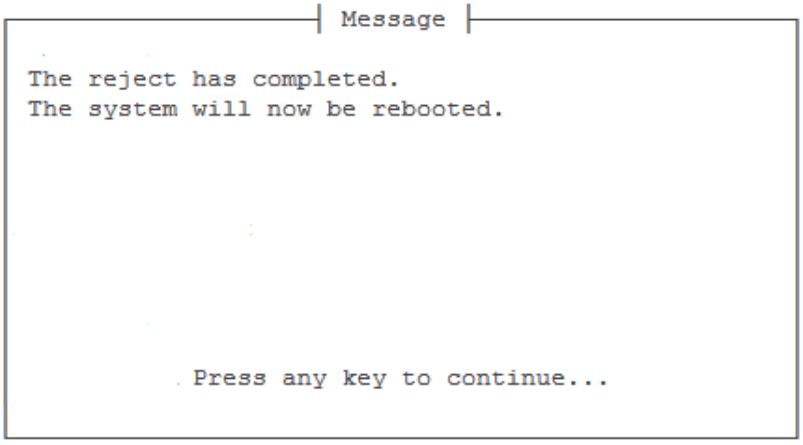
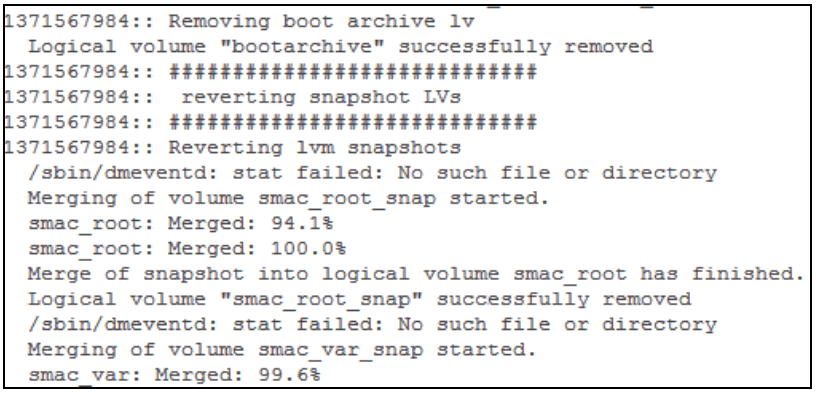
Procedure 28. PMAC Back Out (Reject) Procedure

S T E P #		
	This procedure backs out PMAC applications software to the previous version. ***Note:*** No matter what the initial cause of the upgrade problem, only once all necessary corrective steps have been taken to prepare for the back out(reject), then the following procedure can be executed to perform a back out(reject). ***Note:*** This procedure can also be used for a failed upgrade on the redundant PMAC. 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 (MOS) and ask for assistance.	
1. ☐	Close any active browser sessions to the PMAC	If you have any open browsers connected to the PMAC, close them before proceeding.
2. ☐	If necessary, access the PMAC guest console	If necessary, access the PMAC guest console as detailed in Appendix B Access the PMAC Guest Console
3. ☐	Run the **platcfg** utility	Execute: `[admusr@pmac ~]$ sudo su - platcfg`
4. ☐	In **platcfg** utility, access the Maintenance menu	***Note:*** Use the arrow and the **Enter** key to navigate through the menu options. ***Note:*** The following images are for illustrative purposes only. The actual menu content differs based on the current PMAC release. Select **Maintenance** to navigate to the Maintenance Menu. 

Procedure 28. PMAC Back Out (Reject) Procedure

5. ☐	In **platcfg** utility, access the Upgrade menu	Select **Upgrade** to navigate to the Upgrade Menu. 
6. ☐	In **platcfg** utility, select **Reject Upgrade** to start the reject process	Select **Reject Upgrade** and press **Enter** to start the reject process. 
7. ☐	Confirm the decision and execute the back out	

Procedure 28. PMAC Back Out (Reject) Procedure

8. ☐	The Reject Upgrade process starts	
9. ☐	Back out requires a reboot	
10. ☐	A revert of Logical Volume Snapshots is performed	 After reverting LVM snapshots completes, a second reboot is performed to reload the system as it existed before the original upgrade.
11. ☐	Wait for PMAC login prompt	Upon successful completion of the upgrade, the user is returned to a login prompt.
12. ☐	Login with correct credentials	Use platform **admusr** credentials listed Table 3. Software Upgrade Required Data.

Procedure 28. PMAC Back Out (Reject) Procedure

13. ☐	If present, remove the external media from the PMAC TVOE host server	Remove the external media from the PMAC TVOE host server slot.

14. ☐	Verify the back out completed	Execute this command to verify source PMAC release:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/appRev`
		`Install Time: Wed Nov 9 16:59:23 2016`
		`Product Name: PMAC`
		`Product Release: 6.6.0.0.0_66.5.0`
		`Base Distro Product: TPD`
		`Base Distro Release: 7.6.0.0.0_88.50.0`
		`Base Distro ISO: TPD.install-7.6.0.0.0_88.50.0-OracleLinux6.9-x86_64.iso`
		`ISO name: PMACBLD-6.6.0.0.0_66.5.0.iso`
		`OS: OracleLinux 6.9`
		If correct Product Release is not displayed, contact My Oracle Support (MOS) and do not proceed until instructed by an Oracle representative.

15. ☐	Execute the system health check	Execute Appendix C PMAC System Health Check. Unless otherwise instructed, if any error or failure conditions are discovered on the PMAC or PMAC application, then do **not** proceed. Contact My Oracle Support (MOS) to resolve the failure conditions.
16. ☐	Clear browser cache	Clear your browser's cache to ensure your browser has the latest client-side code loaded. Refer to your browser's documentation if necessary.

Appendix A. Access The PMAC TVOE Host Console

Procedure 29. Access the PMAC 6.3, 6.4, 6.5, or 6.6 TVOE Host Console

S T E P #		
	This procedure accesses the console of a TVOE host in PMAC 6.3, 6.4, 6.5, or 6.6 system. ***Note:*** Be sure to capture a log of all lines appearing on the screen on the laptop, desktop, or other computer used when executing this procedure. 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 (MOS) and ask for assistance.	
1. ☐	Log into Management Server iLO/ILOM	Access the Management Server iLO/ILOM using Appendix F How to Access a Server Console Remotely, in the appropriate Platform Configuration Guide for the release being upgrade to 6.6.
2. ☐	Log into TVOE as **admusr**	If necessary, login with the **admusr** credentials listed in Table 3. Software Upgrade Required Data `[admusr@tvoe ~]$`

Procedure 29. Access the PMAC 6.3, 6.4, 6.5, or 6.6 TVOE Host Console

3. ☐	Exit this procedure and return to the procedure which referred you	Return to the next step in the referring procedure.

Appendix B. Access the PMAC Guest Console

Procedure 30. Access the PMAC 6.3, 6.4, 6.5, or 6.6 Guest Console

S T E P #		
	This procedure accesses the virtualized PMAC 6.6 guest console running on a TVOE hypervisor. ***Note:*** Be sure to capture a log of all lines appearing on the screen on the laptop, desktop, or other computer used when executing this procedure. 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 (MOS) and ask for assistance.	
1. ☐	Access the TVOE host console	Log into the TVOE host console, using Appendix A Access The PMAC TVOE Host Console.

2. ☐	Determine the name of the PMAC guest	At the TVOE console, list the guests and locate the one representing the PMAC:
		`[admusr@tvoe ~]$ sudo /usr/bin/virsh list`
		`Id Name State`
		`----------`
		`11 pmac running`

3. ☐	Log into the PMAC guest console as the **admusr**	Connect to the console and login as the admusr captured in Table 3. Software Upgrade Required Data (this example assumes the PMAC is currently at release 6.0).
		It may be necessary to press **Enter** to get a prompt.
		`[admusr@tvoe ~]$ sudo /usr/bin/virsh console <PMAC_Name>`
		`Connected to domain <PMAC_Name>`
		`Escape character is ^]`
		`Oracle Linux Server release 6.9`
		`Kernel 2.6.32-642.6.1.el6prerel7.5.0.0.0_88.44.0.x86_64 on an x86_64`
		`pmacu162 login:` **`admusr`**
		`Password:`
		`Last login: Fri Nov 18 09:38:03 from 10.75.9.112`

Appendix C. PMAC System Health Check

Procedure 31. PMAC 6.3, 6.4, 6.5, or 6.6 System Health Check

STEP #		
	This procedure performs a PMAC 6.6 system health check. ***Note:*** Be sure to capture a log of all lines appearing on the screen on the laptop, desktop, or other computer used when executing this procedure. 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 (MOS) and ask for assistance.	
1. ☐	Access the PMAC guest console	If necessary, access the PMAC guest console as detailed in Appendix B Access the PMAC Guest Console

2. ☐	Run the `sentry status` command to verify the status of the PMAC application	`[admusr@pmac ~]$ sudo /usr/TKLC/smac/bin/sentry status`
		`sending status command...`
		`PMAC Sentry Status`
		`sentryd started: Mon Nov 14 14:02:32 2016`
		`Current activity mode: ACTIVE`
		`Process PID Status StartTS NumR`
		`smacTalk 10047 running Mon Nov 14 14:02:32 2016 1`
		`smacMon 10115 running Mon Nov 14 14:02:32 2016 1`
		`hpiPortAudit 10247 running Mon Nov 14 14:02:32 2016 1`
		`snmpEventHandler 10388 running Mon Nov 14 14:02:32 2016 1`
		`Fri Nov 18 09:44:29 2016`
		`Command Complete.`

3. ☐	Run `alarmMgr` on PMAC instance	`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/alarmMgr –alarmStatus`
4. ☐	If any error messages are displayed by the alarmMgr command, if sentry shows any PMAC processes not running, or alarmMgr shows any failures, then there is a problem with the Management Server or PMAC application	If sentry shows any PMAC processes not running, then the health check was not successful. Contact My Oracle Support (MOS) for information on how to proceed; otherwise, if alarmMgr shows no alarms and sentry shows all processes running, then PMAC appears to be running normally.

Procedure 31. PMAC 6.3, 6.4, 6.5, or 6.6 System Health Check

5. ☐	Verify the backup directory contains recent backup archive files	Execute this command:
		`[admusr@pmac ~]$ sudo /bin/ls -al /var/TKLC/smac/backup/`
		`total 40`
		`drwxrwxr-x 4 pmacadmin pmacbackup 4096 Jun 5 16:18 .`
		`drwxr-xr-x 9 pmacadmin smac 4096 May 25 16:33 ..`
		`-rw-rw-r-1 pmacd pmacd 11014 Jun 5 16:18 backupPmac_20120605_161825.pef`
		`drwx------ 2 pmacadmin pmacbackup 16384 May 25 16:32 lost+found`
		`drwxr-xr-x 2 pmacadmin pmacbackup 4096 May 25 16:32 tvoeBackup`
		Verify recent backups are present. The date of the backup is coded in the backup archive file name:
		`backupPmac_<YYYY><MM><DD>_<hh><mm><ss>.pef`
		You should see backup archive files for any backups performed as part of this upgrade procedure.

6. ☐	If recent backup archive files do not exists, health check fails	If no recent backup archive files are present, the health check fails. Contact My Oracle Support (MOS) for resolution of the backup issue.
7. ☐	Exit the PMAC guest console	Exit the PMAC guest console following instructions in the Platform Configuration Guide for the release being upgrade to 6.6., Appendix I How to Exit a Guest Console Session on an iLO
8. ☐	Run alarmMgr on Management Server console	`[admusr@tvoe ~]$ sudo /usr/TKLC/plat/bin/alarmMgr –alarmStatus` If alarmMgr shows no alarms then the management server appears to be running normally; otherwise, contact My Oracle Support (MOS) for information on how to proceed.

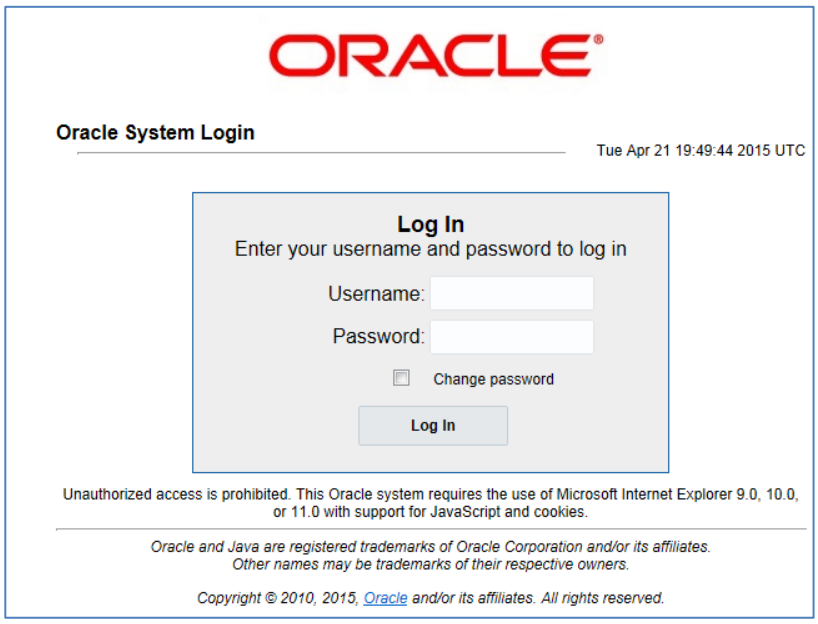
Appendix D. PMAC System Backup

Procedure 32. Primary PMAC 6.3, 6.4, 6.5, or 6.6 Backup

STEP #	This procedure backs up all necessary PMAC 6.3, 6.4, 6.5, or 6.6 database data. 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 (MOS) and ask for assistance.
1. ☐	Access the primary PMAC guest console	If necessary, access the primary PMAC guest console as detailed in Appendix B Access the PMAC Guest Console

Procedure 32. Primary PMAC 6.3, 6.4, 6.5, or 6.6 Backup

2. ☐	Perform the backup to local disk	`[admusr@pmac ~]$ sudo /usr/TKLC/smac/bin/pmacadm backup`
		`PMAC backup been successfully initiated as task ID 7`
		The output of the command should be indicate success of starting a background task. Note the task ID in your command output.

3. ☐	**PMAC GUI**: Login	If necessary, open a web browser and enter: `https://<PMAC Management Network IP>` Login with administrator credentials listed in Table 3. Software Upgrade Required Data. 
4. ☐	Verify the backup task succeeds in PMAC GUI	Navigate to the Task Monitoring page on the PMAC GUI. Verify the backup task with the task ID noted in step 2 completes successfully. If the PMAC backup fails, contact My Oracle Support (MOS) for assistance.

5. ☐	The backup file must be transferred off-host to provide recovery in the event of a disaster	Execute the following command to locate the latest backup file (output similar to the following is observed):
		`[admusr@pmac ~]$ sudo /bin/ls -al /var/TKLC/smac/backup/`
		`-rw-rw-r-- 1 pmacd pmacd 11014 Jun 5 16:18 backupPmac_20120605_161825.pef`
		Transfer the file to a remote server using scp.

Appendix E. PMAC System Backup To Redundant PMAC

Procedure 33. PMAC 6.3, 6.4, 6.5, or 6.6 Backup to Redundant PMAC

STEP #		
	This procedure backs up all necessary PMAC database data from the primary PMAC 6.3, 6.4, 6.5, or 6.6 to the redundant PMAC. ***Note:*** The procedure requires a redundant PMAC be installed, configured, and have network connectivity. 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 (MOS) and ask for assistance.	
1. ☐	Access the primary PMAC guest console	If necessary, access the primary PMAC guest console as detailed in Appendix B Access the PMAC Guest Console.

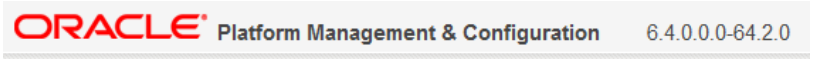
2. ☐	In the primary PMAC guest console perform the backup to the redundant PMAC	***Note:*** The following command transfers the new backup file to the redundant PMAC. In addition, it transfers any and all of the images provisioned in the Software Inventory (not previously transferred).
		Note: The --media option must be used with the pmacadm backup command. The value assigned to the media must indicate the desire to backup data to the redundant PMAC.
		Note: The IP Address of the redundant Management Sever must have been provisioned on the Manage Backup Data GUI screen.
		`[admusr@pmac ~]$ sudo /usr/TKLC/smac/bin/pmacadm --media=”Remote Server”`
		`PMAC backup been successfully initiated as task ID 8`
		The output of the command should be indicate success of starting a background task. Note the task ID in your command output.

Procedure 33. PMAC 6.3, 6.4, 6.5, or 6.6 Backup to Redundant PMAC

3. ☐	**PMAC GUI**: Login	If necessary, open a web browser and enter: `https://<PMAC Management Network IP>` Login with administrator credentials listed in Table 3. Software Upgrade Required Data.
4. ☐	Verify the backup task succeeds in primary PMAC GUI	Navigate to the Task Monitoring page on the primary PMAC GUI. Verify the backup task with the task ID noted in step 2 completes successfully. If the PMAC backup fails, contact My Oracle Support (MOS) for assistance.

Appendix F. Determine the Current PMAC Version

Procedure 34. Determine the Current PMAC Version

S T E P #		
	This procedure determines the current PMAC version. 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 (MOS) and ask for assistance.	
1. ☐	**PMAC GUI**: Login	If necessary, open a web browser and enter: `https://<PMAC Management Network IP>` Login with administrator credentials listed in Table 3. Software Upgrade Required Data.
2. ☐	Determine the PMAC release running	The top most header on the Welcome Page should contain the Release Number. It should start with **Platform Management & Configuration** and then indicate the PMAC release number, which should start with 6.6. 

Appendix G. Determine If PMAC TVOE Host Requires Upgrade

Procedure 35. Determine if PMAC 6.3, 6.4, 6.5, or 6.6 TVOE Host Requires Upgrade

S T E P #		
	This procedure determines if the PMAC 6.3, 6.4, 6.5, or 6.6 TVOE host needs upgrading. ***Note:*** If the PMAC TVOE host cannot be upgrade at this time, then PMAC upgrade must not be attempted. 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 (MOS) and ask for assistance.	
1. ☐	Access the TVOE host console	Log into the TVOE host console, using Appendix A Access The PMAC TVOE Host Console. If needed, exit the PMAC guest console following instructions in Appendix I How to Exit a Guest Console Session on an iLO, in the appropriate Platform Configuration Guide for the release being upgraded to.

2. ☐	Determine the release of TVOE running	`[admusr@tvoe ~]$ sudo /usr/TKLC/plat/bin/appRev`
		`Install Time: Mon Apr 27 15:47:04 2015`
		`Product Name: TVOE`
		`Product Release: 3.5.0.0.0_88.44.0`
		`Base Distro Product: TPD`
		`Base Distro Release: 7.5.0.0.0_88.44.0`
		`Base Distro ISO: TPD.install-7.5.0.0.0_88.44.0-OracleLinux6.9-x86_64.iso`
		`ISO name: TVOE-3.5.0.0.0_88.44.0-x86_64.iso`
		`OS: OracleLinux 6.9`

3. ☐	Compare the product release shown above against the supported release of TVOE noted in the Application release notes	If a newer TVOE release is specified, then you must upgrade the PMAC TVOE host before upgrade of the PMAC can commence, using the procedure that follows.

Procedure 36. Upgrade the PMAC 6.3, 6.4, 6.5, or 6.6 TVOE Host

S T E P #		
	This procedure upgrades the PMAC 6.3, 6.4, 6.5, or 6.6 TVOE host. ***Note:*** This procedure is executed either during the same maintenance window or in a separate maintenance window from the PMAC upgrade. ***Note:*** If the PMAC TVOE host cannot be upgraded at this time, then PMAC upgrade must not be attempted. 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 (MOS) and ask for assistance.	
1. ☐	Shutdown all running guests in preparation for the TVOE upgrade	An upgrade of a TVOE host shuts down all guest OS (including PMAC) during the upgrade. However, before upgrading the TVOE host, ensure all guests on that host are properly shut down. Shut down the PMAC guest as detailed in Appendix H Shut Down PMAC Guest. ***Note:*** Shut down all additional non-PMAC guests as detailed in application document. The upgrade of the TVOE automatically restarts each guest that was shut down.
2. ☐	Perform the TVOE upgrade	Execute all Stand Alone TVOE host upgrade procedures outlined in the TVOE Software Upgrade document for the release being upgraded.
3. ☐	Access the TVOE host console	Log into the TVOE host console, using Appendix A Access The PMAC TVOE Host Console.

4. ☐	Ensure all images that have been used during upgrade have been removed from TVOE	Execute:
		`[admusr@tvoe ~]$ sudo /bin/ls /var/TKLC/upgrade/`
		`TVOE-3.6.0.0.0_88.48.0-x86_64.iso`
		If there are images that need to be removed, using the output of the command above, specify the full path of the image to be removed:
		`[admusr@tvoe ~]$ sudo /bin/rm -f /var/TKLC/upgrade/<image_name.iso>`
		`For instance:`
		`[admusr@tvoe ~]$ sudo /bin/rm -f /var/TKLC/upgrade/TVOE-3.6.0.0.0_88.48.0-x86_64.iso`
		Repeat this step as necessary to ensure there are no images left to be removed.

5. ☐	If present, remove the external media from the PMAC TVOE host server	Remove the external media from the appropriate slot of the PMAC TVOE host server.

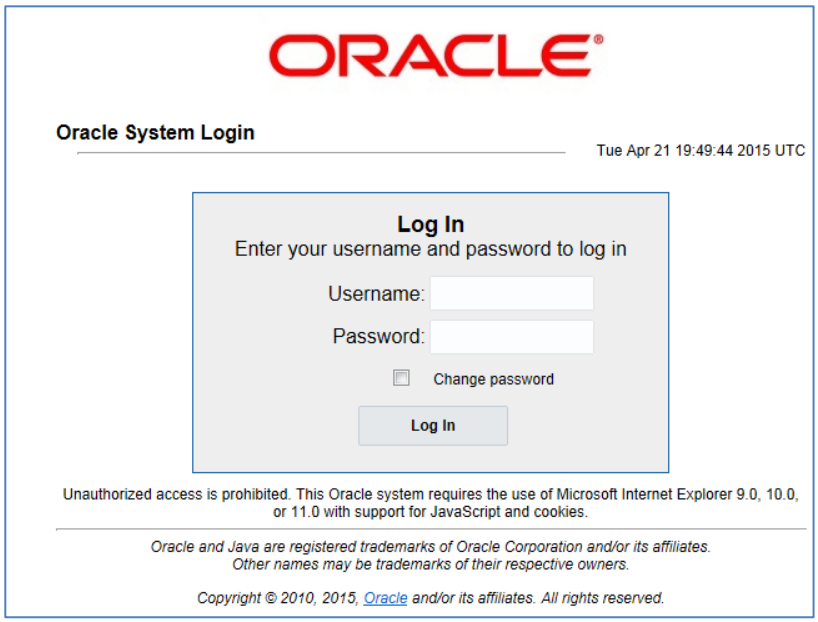
Procedure 36. Upgrade the PMAC 6.3, 6.4, 6.5, or 6.6 TVOE Host

6. ☐	Start the PMAC guest	Using **virsh** utility on TVOE host of PMAC guest, start the PMAC guest. Query the list of guests until the PMAC guest is **running**.
		`[admusr@tvoe ~]$ sudo /usr/bin/virsh list --all`
		`Id Name State`
		`----------------------------------`
		`20 pmac shut off`
		`[admusr@tvoe ~]$ sudo /usr/bin/virsh start <pmac>`
		`Domain pmac started`
		`[admusr@tvoe ~]$ sudo /usr/bin/virsh list --all`
		`Id Name State`
		`----------------------------------`
		`20 pmac running`

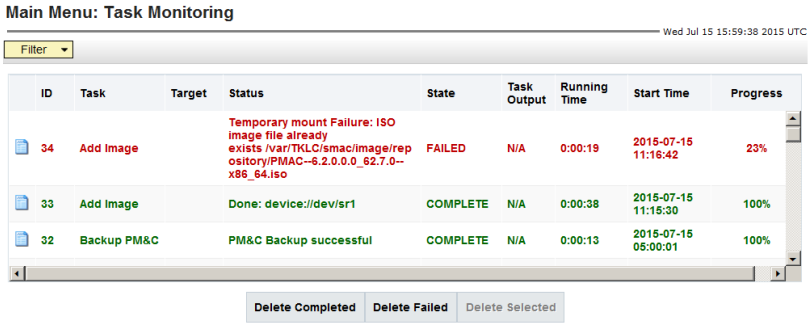
Appendix H. Shut Down PMAC Guest

This appendix contains a procedure shut down of the PMAC guest.

Procedure 37. Shut Down the PMAC 6.3, 6.4, 6.5, or 6.6 Guest

S T E P #	This procedure shuts down a PMAC 6.2 or later guest. 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 (MOS) and ask for assistance.	
1. ☐	**PMAC GUI**: Login	If necessary, open a web browser and enter: `https://<PMAC Management Network IP>` Login with administrator credentials listed in Table 3. Software Upgrade Required Data. 

Procedure 37. Shut Down the PMAC 6.3, 6.4, 6.5, or 6.6 Guest

2. ☐	Check for any background tasks in-progress on PMAC	On the PMAC GUI, navigate to the Task Monitoring page. Verify all tasks show as complete (either green 100% progress, or red failed) and not in-progress (blue with <100% progress). If any tasks show as in-progress (blue), then wait for the task to complete before going to the next step.  ***Note:*** If desired, you can delete all of the Complete and Failed tasks using the **Delete Completed** and **Delete Failed** buttons. This leaves only the in-progress tasks.
3. ☐	Access the PMAC guest console	If necessary, access the PMAC guest console as detailed in Appendix B Access the PMAC Guest Console.

4. ☐	Shut down PMAC Guest	Assuming no in-progress tasks exist, then it is safe to shut down the PMAC guest.
		Execute this command:
		`[admusr@pmac ~]$ sudo /usr/bin/halt -p`
		`Broadcast message from root@pmacDev901`
		`(/dev/ttyS0) at 11:20 ...`
		`The system is going down for power off NOW!`
		`[admusr@pmac ~]$`
		`Eventually the virsh console session is closed and you are returned to the TVOE host command prompt:`
		`Halting system...`
		`Power down.`

5. ☐	Verify PMAC guest is shut down	From the TVOE host command prompt execute this command:
		`[admusr@tvoe ~]$ sudo /usr/bin/virsh list --all`
		`Id Name State`
		`----------`
		`- pmac shut off`
		This should show the guest state as **shut off**.
		Note: Make sure all guests are in the shut off state as well.

Appendix I. Upgrade Devices For 7.2 NetConfig

This appendix contains a procedure used to perform required Platform 7.2 switch configurations with netConfig. The commands in this appendix modify switch configurations to bring them in-line with Platform 7.2 initialized switches, without going through the disruptive process of re-initializing and restoring switch configurations of in-service switches. Though Platform 7.2 supports more than one upgrade path, the procedure below is written generically to apply to any valid Platform 7.2 upgrade path. Some commands below may have already been executed during a previous upgrade. If this is the case, some commands may return a notice that an object or setting was not found, as it was removed in a previous upgrade operation.

Procedure 38. Post Upgrade Configuration of netConfig Baseline Level Set for Switch Configurations

S T E P #	This procedure standardizes post init switch configurations. 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 (MOS) and ask for assistance.	
1. ☐	Platform 7.0 updates	Commands in this section are only applicable when upgrading to Platform 7.2 and later. ***Note:*** Depending on the specific upgrade path some of the commands below may have already been completed during original or subsequent initializations. If this is the case, a command line message indicating the setting already exists or does not exist may be received. Ignore these messages; no action is required beyond completion of the following commands. An example would be removing a community string from an SNMP community. In this case, the message **SNMP community not found: <community_string>** may display.

Procedure 38. Post Upgrade Configuration of netConfig Baseline Level Set for Switch Configurations

2. ☐	Reconfigure all 3020 enclosure switches	***Note:*** If there are no Cisco 3020 switches in the repository, skip this step.
		Execute the following for all 3020 devices:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig userConfigureCommand --device=<switch_name> command=”line vty 0” commandPrompt=”config-line” subcommand=”exec-timeout 15”`
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig userConfigureCommand --device=<switch_name> command=”aaa authentication login onconsole local”`
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig userConfigureCommand --device=<switch_name> command="line con 0" commandPrompt="config-line" subcommand="login authentication onconsole"`
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig userConfigureCommand --device=<switch_name> command="vtp mode transparent"`
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig userConfigureCommand --device=<switch_name> command="vtp mode off"`
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig userConfigureCommand --device=<switch_name> command="no service config"`
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig saveConfiguration --device=<switch_name>`
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig reboot --device=<switch_name>`

3. ☐	Reconfigure all 6120 enclosure switches	***Note:*** If there are no 6120 switches in the repository, skip this step.
		Execute the following for all 6120 devices:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig userConfigureCommand --device=<switch_name> command="no web-management"`
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig userConfigureCommand --device=<switch_name> command=" trunk-load-balance L3-based "`
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig userConfigureCommand --device=<switch_name> command='no snmp-server community "public" unrestricted'`
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig saveConfiguration --device=<switch_name>`

Procedure 38. Post Upgrade Configuration of netConfig Baseline Level Set for Switch Configurations

4. ☐	Reconfigure all aggregation switches	***Note:*** If there are no Cisco 4948 switches in the repository, skip this step.
		Execute the following for all 4948 devices:
		For Cisco 4948:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig userConfigureCommand --device=<switch_name> command="vtp mode transparent"`
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig saveConfiguration --device=<switch_name>`
		For Cisco 4948E, E-F:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig userConfigureCommand --device=<switch_name> command="vtp mode off"`
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig saveConfiguration --device=<switch_name>`

5. ☐	6125 enclosure switches	No action is necessary for 6125G and XLG devices.

6. ☐	Backup all switch configurations	Execute this command against each platform switch using their corresponding ssh_service:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig backupConfiguration --device=<switch_name> service=<ssh_service> filename=<switch_name>-backup`
		Note: If the command failed with error message same as or similar to **Error saving to service** and the TPD version is 7.6.0.0.0_88.50.0 or later, refer to Appendix K.
		Verify switch configuration was backed up by cat <switch_name>-backup and inspect its contents to ensure it reflects the latest known good switch configurations. Then, copy the files over to the backup directory.
		`$ sudo /bin/ls -i ~<switch_backup_user>/<switch_name>-backup*`
		`$ sudo /bin/cat ~<switch_backup_user>/<switch_name>-backup*`
		`$ sudo /bin/chmod 644 <switch_name>-backup*`
		`$ sudo /bin/mv -i ~admusr/<switch name>-backup* /usr/TKLC/smac/etc/switch/backup/`

Appendix J. Whitelist Special Alarms

There are certain alarms that can cause the early checks to fail and thus stop the Upgrade from starting. The two procedures provide a means to do the following:

- "whitelist" a given alarm before the upgrade which allows the upgrade early checks to succeed.
- Remove the whitelisted alarm after the upgrade has completed.

Procedure 39. Whitelist Listed Alarms

S T E P #	This procedure prepares PMAC for an upgrade by whitelisting the given list of alarms. This is performed before the upgrade takes place. 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 (MOS) and ask for assistance.	
1. ☐	Whitelist alarm: TKSPLATMI1	From the PMAC shell, enter: `echo "EARLY_CHECK_ALARM_WHITELIST=TKSPLATMI1" > /usr/TKLC/plat/etc/upgrade/upgrade.info`

Procedure 40. Clear Whitelist Listed Alarms After Upgrade Complete

S T E P #	This procedure removes the white listed alarms created in Procedure 39. This procedure should only be run after the upgrade has 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 (MOS) and ask for assistance.	

1. ☐	Remove the Whitelisted alarm: TKSPLATMI1	Edit the file:
		`/usr/TKLC/plat/etc/upgrade/upgrade.info`
		Look for lines:
		`EARLY_CHECK_ALARM_WHITELIST=`
		Delete this line.
		Save the file.

Appendix K. netConfig backupConfiguration/ restoreConfiguration/upgradeFirmware with TPD Cipher Change

Beginning with TPD 7.6.0.0.0_88.50.0, the cipher list is restricted to allow only a limited number of ciphers for ssh access to the servers. As a result, netConfig backup and restore operations are not functional with Cisco switches (3020, 4948s) since these switches use other ciphers. Executing these commands with the restricted ciphers would fail as shown here:

```
[admusr@p5-pmac ~]$ sudo netConfig --device=3020_ip backupConfiguration
service=ssh_ip filename=backup
Command failed: backupConfiguration
Error saving to SSH service
[admusr@p5-pmac ~]$
```

To avoid this issue while maintaining a focus on improved security, the Procedure 41 must be executed before and after netConfig backup and restore operations.

Procedure 41. Turn Off Cipher List Before backupConfiguation/restoreConfiguration/upgradeFirmware Command

STEP #	This procedure prepares the PMAC to avoid the cipher mismatch issue with Cisco switches. This is performed before the netConfig backup or restore operations. 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 (MOS) and ask for assistance.	

1. ☐	Turn off cipher list	From the PMAC shell enter:
		`sudo vi /etc/ssh/sshd_config`
		Add # in the beginning of the following three lines to comment them out, the result is:
		`#Ciphers aes256-ctr,aes192-ctr,aes128-ctr`
		`#MaxAuthTries 4`
		`#LoginGraceTime 1m`

2. ☐	Restart sshd	`sudo service sshd restart`

3. ☐	Run the netConfig backupConfiguation/restoreConfiguration/upgradeFirmware command	For a backup operation:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig backupConfiguration --device=<switch_name> service=<ssh_service> filename=<switch_name>-backup`
		For a restore operation:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig restoreConfiguration --device=<switch_name> service=<ssh_service> filename=<switch_name>-backup`
		For a upgrade operation:
		`[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/netConfig upgradeFirmware --device=<switch_name> service=<ssh_service> filename=<Cisco IOS>`

Procedure 42. Resume Cipher List After backupConfiguation/restoreConfiguration/upgradeFirmware Command

S T E P #	This procedure restores the PMAC restricted cipher list after perform the netConfig backup and restore operations. 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 (MOS) and ask for assistance.	

1. ☐	Resume the cipher list	From the PMAC shell enter:
		`sudo vi /etc/ssh/sshd_config`
		Uncomment the three lines:
		`Ciphers aes256-ctr,aes192-ctr,aes128-ctr`
		`MaxAuthTries 4`
		`LoginGraceTime 1m`

2. ☐	Restart sshd	`sudo service sshd restart`

Appendix L. My Oracle Support (MOS)

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

Call the CAS 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:

1. Select **2** for New Service Request.
2. Select **3** for Hardware, Networking and Solaris Operating System Support.
3. Select one of the following options:
   - For technical issues such as creating a new Service Request (SR), select 1.
   - For non-technical issues such as registration or assistance with MOS, select 2.

You are connected to a live agent who can assist you with MOS registration and opening a support ticket. MOS is available 24 hours a day, 7 days a week, 365 days a year.

Emergency Response

In the event of a critical service situation, emergency response is offered by the CAS main number at 1-800-223-1711 (toll-free in the US), or by calling the Oracle Support hotline for your local country from the list at **http://www.oracle.com/us/support/contact/index.html**. The emergency response provides immediate coverage, automatic escalation, and other features to ensure the critical situation is resolved as rapidly as possible.

A critical situation is defined as a problem with the installed equipment that severely affects service, traffic, or maintenance capabilities, and requires immediate corrective action. Critical situations affect service and/or system operation resulting in one or several of these situations:

- A total system failure that results in loss of all transaction processing capability
- Significant reduction in system capacity or traffic handling capability
- Loss of the system's ability to perform automatic system reconfiguration

- Inability to restart a processor or the system
- Corruption of system databases that requires service affecting corrective actions
- Loss of access for maintenance or recovery operations
- Loss of the system ability to provide any required critical or major trouble notification

Any other problem severely affecting service, capacity/traffic, billing, and maintenance capabilities may be defined as critical by prior discussion and agreement with Oracle.

Locate Product Documentation on the Oracle Help Center

Oracle Communications customer documentation is available on the web at the Oracle Help Center (OHC) site, http://docs.oracle.com. You do not have to register to access these documents. Viewing these files requires Adobe Acrobat Reader, which can be downloaded at http://www.adobe.com.

1. Access the **Oracle Help Center** site at http://docs.oracle.com.
2. Click Industries.
3. Under the **Oracle Communications** subheading, click the **Oracle Communications documentation** link. The Communications Documentation page appears. Most products covered by these documentation sets display under the headings N**etwork Session Delivery and Control Infrastructure** or **Platforms**.
4. Click on your Product and then the Release Number. A list of the entire documentation set for the selected product and release displays. To download a file to your location, right-click the PDF link, select `Save target as` (or similar command based on your browser), and save to a local folder.