Oracle® Communications Platform

PM&C Disaster Recovery

Release 5.7 and 6.0

E54388-02

November 2014

ORACLE®

 CAUTION: Use only the Upgrade procedure included in the Upgrade Kit.
Before upgrading any system, please access My Oracle Support (MOS) (https://support.oracle.com) and review any Technical Service Bulletins (TSBs) that relate to this upgrade.

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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.
See more information on MOS in the Appendix section.

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1   Introduction

1.1   Purpose and Scope

In a disaster scenario in which the PM&C application has been lost, the procedures contained herein can be used to recover the PM&C application to its state at the time of the last backup. The PM&C application backup facility supports backup to a redundant PM&C Server or a NetBackup Server. If neither of these destinations are available, the backup data can be manually copied to a generic remote server. This document includes a section covering the additional option of restoring PM&C functionality on a redundant PM&C Server.

These procedures are intended to be run by Oracle personnel. This document assumes that the user has basic knowledge of the Management Server hardware, and at least an intermediate skill set with the LINUX environment.

1.2   References

[1]   Platform 6.7 Configuration Procedure Reference, E54386, Current Revision.

[2]   Platform 7.0 Configuration Procedure Reference, E53486, Current Revision.

[3]   PM&C 5.7/6.0 Incremental Upgrade Procedure, E54387, Current Revision.

[4]   TVOE 2.7 Disaster Recovery Procedure, E54522, Current Revision.

[5]   TVOE 3.0 Disaster Recovery Procedure, E53019, Current Revision

The following internal references are only available to Oracle personnel:

[6]   Platform 4.x+ Passwords, TR006061, Current Revision.

1.3   Glossary

This section lists terms and acronyms specific to this document.

Table 1. Glossary

Acronym/Term	Definition
Backup Server	Server providing backup and recovery services.
iLO	Integrated Lights Out manager
IPM	Initial Product Manufacturing
ISO	The name *ISO* is taken from the ISO 9660 file system used with CD-ROM media, but an ISO image might also contain a UDF (ISO/IEC 13346) file system.
Management Server	The server on which the TVOE environment is installed. This could be: HP ProLiant DL 360 HP ProLiant DL 380 Sun Netra
Management Server TVOE	The TVOE running on the Management Server and hosting the PM&C guest.
NetBackup Feature	Feature that provides support of the Symantec NetBackup client utility on an application server.
PM&C	Platform Management and Configuration application

Table 1. Glossary

Acronym/Term	Definition
Redundant PM&C Server	An optional configuration of a second PM&C Server (Guest) running on the TVOE hypervisor on separate hardware from the Management Server
TPD	Tekelec Platform Distribution
TVOE	Tekelec Virtualization Operating Environment

2   Prerequisites

2.1   Required Actions to Enable Disaster Recovery

In order for Disaster Recovery to work, a backup of the PM&C server must have been made to a remote location, meaning a remote server, a redundant PM&C Server, or a NetBackup Server. That backup will contain the data as it existed at the time the backup was created. Take care to ensure a periodic backup is performed to prevent a loss of data. The local backup option does not preserve software/firmware ISO images that have been added on the primary PM&C, these will need to be added again after the restore (so be sure to keep this additional media as well). In addition, a backup of the Management Server TVOE must have been made and transferred to a remote location, unless a redundant PM&C server is being used to restore; in this case, the redundant PM&C server should already have TVOE properly configured. The TVOE backup contains the TVOE configuration data as it existed at the time of the backup. Take care to ensure that a TVOE backup is performed when TVOE configuration changes are made.

2.2   Required Tools for PM&C Disaster Recovery Procedure

The following items/settings are required in order to perform a Disaster Recovery procedure for the PM&C application.

- Network Architecture Planning Document (NAPD) site-survey information (site specific).
- Bootable media with the TVOE release for the desired PM&C release level.
- PM&C 5.7 or 6.0 Install/Upgrade Media.
- Media with the Firmware Maintenance.
- PM&C backup data.
- Network access to the iLO of the Management Server or local access to serial console.
- iLO administrative user name and password (for Management Server).
- Password for the TVOE user "admusr".
- Password for the PM&C user "admusr".
- Name of the PM&C guest defined on the Management Server TVOE
- Username and password for a PM&C GUI Admin user (i.e. user "pmacadmin").

All of the platform passwords can be retrieved by using the Password Dragon application. To install and use Password Dragon, refer to the instructions in reference [6], [TR006061].

Note: If this document refers to a password and no other instructions are given, use Password Dragon to determine the password.

Note: Additional materials may be specified in the following procedures.

2.3   Network Connections

The user must have network connectivity to the out-of-band console of the Management Server and the management network. The restore may affect the network settings so using the out-of-band console (or serial) prevents a loss of connectivity during the restore. If the restore is to be done on a redundant Management Server, then it is assumed that the network connections mirror the primary Management Server to facilitate the restore.

3   PM&C Disaster Recovery Procedure

The following procedures may require, as a prerequisite, that the Management Server TVOE, hosting the PM&C application, be rebuilt. An IPM of the management server should be performed to the appropriate TVOE release. The TVOE may have non-PM&C guests running on it. Consult the application DR documents for details about recovering non-PM&C guests on the Management Server TVOE.

Following the TVOE restore, the PM&C instance will be deployed using the PM&C upgrade media (USB or disk image). After the PM&C is deployed, the PM&C backup data can be restored to the server using these procedures.

There are three procedures based on the Management Server, executing PM&C, you wish to restore.

1. Restoration of the primary PM&C on the Management Server TVOE in the event of Disaster Recovery (where no redundant Management Server is available).
2. Restoration of the PM&C backup data to a redundant PM&C guest on a redundant Management Server TVOE.
3. Restoration of the primary PM&C guest on the Management Server TVOE configured in a system with a Backup Server.

If none of the scenarios listed above is applicable, then a fresh installation is required. Fresh installations are beyond the scope of this document. Application-specific documents should be obtained based on the application running on the managed system.

Determine the correct procedure to follow based on the recovery desired. Also note that the second procedure requires that a redundant PM&C guest on a redundant Management Server to be installed, powered, network connected, and receiving periodic backup data from the primary PM&C. In the event that a redundant PM&C was available but did not receive periodic backup data, then use the first procedure to restore PM&C from backup media, or the third procedure to restore from a Backup Server. In the event that the Backup Server does not have the appropriate PM&C backup stored to it, then use the first procedure to restore the PM&C.

3.1   Restore PM&C Server From Backup Media

Procedure 1. Restore PM&C from Backup Media

S T E P #	Use this procedure to restore the PM&C application from the backup media. Check off (√) each step as it is completed. Boxes have been provided under each step number. If this procedure fails, see Appendix C. **Note:** In addition to the requirements listed in Section 2, this procedure also requires the following: • FRU of faulty hardware already performed, if necessary • TVOE backup image **Note:** ISO images will not be automatically recovered and will need to be manually reprovisioned.	
	Task	**Description**
1 ☐	Upgrade the Management Server firmware. Check each box as it is completed.	Using the sections listed below from reference [1] [E54386] for release 5.7 or [2] [E53486] for release 6.0, upgrade the Management Server firmware in accordance with the checklist shown: ☐ "Upgrade DL360 or DL380 Server Firmware" -OR- ☐ "Upgrade Sun Netra Server Firmware"

Procedure 1. Restore PM&C from Backup Media

2 ☐	Restore the Management Server TVOE.
	
	Check each box as it is completed.
		Using the sections listed below from reference [4] [E54522] for PM&C Release 5.7 or reference [5] [E53019] for PM&C Release 6.0, restore the Management Server TVOE in accordance with the checklist shown:
		
		☐ "Restore TVOE configuration from backup media"
		
		When asked to verify the correct storage pools, ensure "vgguests" appears in the list as shown below:
		
		<pre>[admusr@tvoe ~]$ sudo virsh –c "qemu:///system" pool-list
		Name State Autostart
		--------------------------------------- 	
		vgguests active yes
		[admusr@tvoe ~]$</pre>

3 ☐	Deploy the PM&C guest application. Check each box as it is completed.	Using the sections listed below from reference [1] [E54386] or [2] [E53486], deploy the PM&C guest application in accordance with the checklist shown: ☐ "Deploy PM&C Guest"
4 ☐	Connect to the iLO of the Management Server	Using the Appendix "How to Access a Server Console Using the iLO" in reference [1] [E54386] or [2] [E53486], establish a connection to the iLO console of the Management Server.

5 ☐	Log in to the TVOE host on the Management Server.	Log in to the TVOE console as user "admusr":
		
		<pre>login as: admusr
		Password:
		Last login: Wed Jun 5 17:52:28 2013
		[admusr@tvoe ~]$</pre>

6 ☐	Log in to the PM&C guest.	Using Appendix B of this document, log in to the PM&C guest console.

7 ☐	Copy the PM&C backup file to the /var/TKLC/smac /backup/ directory on the PM&C guest.	From the remote backup location, copy the backup file to the deployed PM&C. There are too many possible backup scenarios to cover them all here.
		
		The example below is a simple scp from a redundant PM&C backup location. If using IPv6 addresses, command requires shell escapes, e.g.
		admusr@[<ipV6addr>]:/<file>
		
		<pre>[admusr@pmac-07360004-a ~]$ sudo /usr/bin/scp -p \
		   admsur@<remoteserver>:/var/TKLC/smac/backup/*.pef \
		   /var/TKLC/smac/backup/
		[admusr@pmac-07360004-a ~]$</pre>
		Note: It is important to copy the correct backup file to use in the restore. The latest backup may not be the backup which contains the system data of interest. This could be the case if the automatic backup, which is scheduled in the morning, is performed on the newly installed PM&C prior to the restoration of the data.

Procedure 1. Restore PM&C from Backup Media

8 ☐	Run alarmMgr. The alarmMgr, command output should display no failures. **Note:** Output similar to that shown will appear on the terminal window.	`[admusr@pmac ~]$` **sudo /usr/TKLC/plat/bin/alarmMgr --alarmStatus** `[admusr@pmac ~]$` **Note:** If the output of alarmMgr is not empty, see Appendix D
9 ☐	From the command prompt of the PM&C guest, restore the PM&C data from backup. **Note:** Output similar to that shown will appear on the terminal window.	[admusr@pmac-07360004-a ~]$ **sudo /usr/TKLC/smac/bin/pmacadm restore** `PM&C Restore been successfully initiated as task ID 1` **Note:** The restore runs as a background task. To check the status of the background task, issue the command "**sudo /usr/TKLC/smac/bin/pmaccli getBgTasks**". The result should eventually be PM&C Restore successful. **Note:** If more than one backup archive exists in the "/var/TKLC/smac/backup" directory, and the operator does not wish to restore from the latest backup, the operator must use the **"--fileName"** option on the restore to select the backup archive of interest. When using the **"--fileName"** option, the directory path of the backup should be included in the file name.
10 ☐	Verify the status of the PM&C application.	Perform steps in Appendix A to verify the successful restoration of the data. **Note:** If after the restoration of the PM&C, provisioned data does not represent the correct data, see Appendix D
11 ☐	Re-add required Software Images.	If needed, use the ***Adding ISO Images to the PM&C Image Repository*** procedure in reference [1] [E54386] or [2] [E53486] to provision any required ISO images.
Procedure 1 has been completed.		

3.2   Making the Redundant Management Server Primary
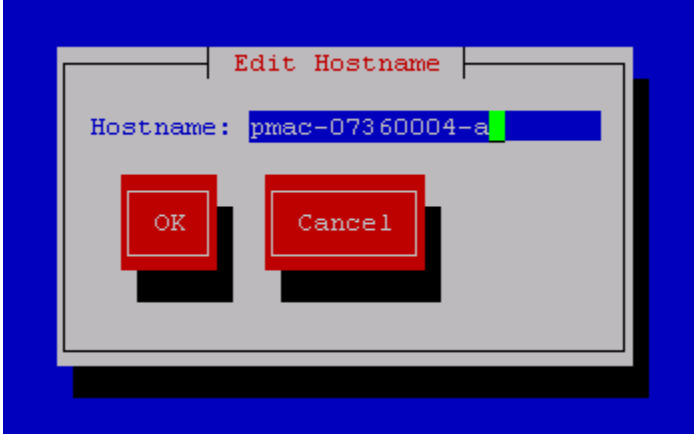
Procedure 2. Restore PM&C backup on redundant Management Server

S T E P #	Use this procedure to restore the PM&C application from a backup onto the redundant PM&C. Check off (√) each step as it is completed. Boxes have been provided under each step number. If this procedure fails, see Appendix C. **Note:** In addition to the requirements listed in Section 2, this procedure also requires the following: • Access to the redundant Management Services	
	Task	**Description**
1 ☐	Disconnect the primary Management Server from the network and power down the unit.	The removal of cabling and power ensures that the IP addresses in-use by the primary Management Server are available to the redundant Management Server without potential conflict after the restore is initiated.

Procedure 2. Restore PM&C backup on redundant Management Server

2 ☐	Transfer serial console connectivety from to the redundant Management Server	Make note of the physical port locations for the console connections attached to the primary Management Server TVOE, these connections will need to be replicated on the redundant Management Server. The serial wiring for the redundant Management Server should already be run to the target aggregation switches. Simply disconnect the primary Management Server connections at the switches and replace them with the redundant Management Server connections.
3 ☐	Connect to the iLO of the redundant Management Server	Using the Appendix "How to Access a Server Console Using the iLO" in reference [1] [E54386] or [2] [E53486], establish a connection to the iLO console of the redundant Management Server.
4 ☐	Log in to the TVOE host on the redundant Management Server.	Log in to the TVOE console as user "admusr": login as: **admusr** Password: Last login: Wed Jun 5 17:52:28 2013 [admusr@tvoe ~]$
5 ☐	Log in to the PM&C guest on the redundant Management Server	Using Appendix B of this document, log in to the PM&C guest console on the redundant Management Server.

6 ☐	Validate the release.
	
	Note: Output similar to that shown will appear on the terminal window.
	Note: It is expected that the redundant Manager Server is kept in sync with the primary Management Server as a regular part of the upgrade procedure.
		Verify the redundant Management Server release matches what the primary Management Server had installed. If not, then the redundant Management Server needs upgrading.
		[admusr@pmac ~]$ **sudo /usr/TKLC/plat/bin/appRev**
		        Install Time: Mon Jun 10 18:09:30 2013
		        Product Name: PMAC
		     Product Release: 5.5.0_55.10.0
		     Part Number ISO: 872-2586-101
		     Part Number USB: 872-2586-101
		 Base Distro Product: TPD
		 Base Distro Release: 6.5.0_82.14.0
		     Base Distro ISO: TPD.install-6.5.0_82.14.0-CentOS6.4-x86_64.iso
		                  OS: CentOS 6.4
		
		Verify that the displayed release number matches that of the primary Management Server, if not, follow steps below:
		
		Using the sections listed below from the *PM&C Incremental Upgrade* procedure [E53487], upgrade the Management Server PM&C application in accordance with the checklist shown:
		
		☐ "PM&C Upgrade Procedure on the redundant PM&C"
		
		☐ "Post Upgrade Verification on the redundant PM&C"

Procedure 2. Restore PM&C backup on redundant Management Server

7 ☐	Set the hostname to match that of the primary PM&C server.	Reconfigure the hostname of this server to be the same as that of the PM&C guest it is replacing.
		
		Log in to the CLI of the redundant PM&C guest server as the user "admusr", using the PM&C admusr password. Run the following command:
		
		`[admusr@pmac ~]$ `**`sudo /bin/su - platcfg`**
		
		`Highlight the "Server Configuration" option and press enter.`
		`Highlight the "Hostname" option and press enter.`
		`Select "Edit" and press enter.`
		`Change the hostname and select "OK".`
		`Exit the platcfg tool.`
		
		`In this case, the hostname has been set to "pmac-07360004-a"`
		`to match the hostname saved with the backup.`

8 ☐	Run alarmMgr. The alarmMgr, command output should display no failures. **Note:** Output similar to that shown will appear on the terminal window.	`[admusr@pmac ~]$ `**`sudo /usr/TKLC/plat/bin/alarmMgr --alarmStatus`** `[admusr@pmac ~]$` **Note:** If the output of alarmMgr is not empty, Appendix D.

Procedure 2. Restore PM&C backup on redundant Management Server

9 ☐	From the command prompt of the Management Server, restore the PM&C data from backup. **Note:** Output similar to that shown will appear on the terminal window.	[admusr@pmac ~]$ **sudo /usr/TKLC/smac/bin/pmacadm restore** `PM&C Restore been successfully initiated as task ID 1` **Note:** The restore runs as a background task. To check the status of the background task, issue the command "**sudo /usr/TKLC/smac/bin/pmaccli getBgTasks**". The result should eventually be PM&C Restore successful. **Note:** The restore will set the IP Addresses for the control and management networks as well as perform initialization of the PM&C application. **Note:** It is important to restore the correct backup. The latest backup may not be the backup which contains the system data of interest. This could be the case if the automatic backup, which is scheduled in the morning, is performed on the newly installed PM&C prior to the restoration of the data. If more than one backup archive exists in the "/var/TKLC/smac/backup" directory, and the operator does not wish to restore from the latest backup, the operator must use the **"--fileName"** option on the restore to select the backup archive of interest. When using the "--fileName" option, the directory path of the backup should be included in the file name.
10 ☐	Verify the status of the PM&C application.	Perform steps Appendix A to verify the successful restoration of the data. **Note:** If after the restoration of the PM&C, provisioned data does not represent the correct data, see Appendix D

<table>
<tr><td align="center">Procedure 2 has been completed.
The failed primary Management Server should follow FRU procedures and be installed using the section entitled "Install PM&C on a redundant Management Server" from reference 1 [E54386] or [2] [E53486].</td></tr>
</table>

3.3 Restore PM&C Server From Backup Server

Procedure 3. Restore PM&C Server From Backup Server

<table>
<tr>
<td rowspan="2" style="text-align:center;">S
T
E
P
#</td>
<td colspan="2">This procedure provides instructions on how to restore the PM&C application from a Backup Server.

Note: In addition to the requirements listed in Section 2, this procedure also requires the following:

• FRU of faulty hardware already performed, if necessary.
• Backup Server configured to service PM&C Management Server backup client, the backup server network data, and appropriate backup server user and user password.
• TVOE backup image

<i>Check off (√) each step as it is completed.</i> Boxes have been provided for this purpose under each step number.

If this procedure fails, see Appendix D</td>
</tr>
<tr>
<td>Task</td>
<td>Description</td>
</tr>
<tr>
<td>1
☐</td>
<td>Upgrade the Management Server firmware.

Check each box as it is completed.</td>
<td>Using the sections listed below from reference [1] [E54386] or [2] [E53486], upgrade the Management Server firmware in accordance with the checklist shown:

☐ "Upgrade DL360 or DL380 Server Firmware"
-OR-

☐ "Upgrade Sun Netra Server Firmware"</td>
</tr>
<tr>
<td>2
☐</td>
<td>Restore the Management Server TVOE.

Check each box as it is completed.</td>
<td>Using the sections listed below from reference [4], [E53487], restore the Management Server TVOE in accordance with the checklist shown:

☐ "Restore TVOE configuration from backup media"</td>
</tr>
<tr>
<td>3
☐</td>
<td>Deploy the PM&C guest application.

Check each box as it is completed.</td>
<td>Using the sections listed below from reference [1] [E54386] or [2] [E53486], deploy the PM&C guest application in accordance with the checklist shown:

☐ "Deploy PM&C Guest"
Note: This procedure is for restoring from a NetBackup server, so specify the appropriate options when deploying PM&C for use with NetBackup.</td>
</tr>
</table>

Procedure 3. Restore PM&C Server From Backup Server

4 ☐	Connect to the iLO of the Management Server	Using the Appendix "How to Access a Server Console Using the iLO" of reference [1] [E54386] or [2] [E53486], establish a connection to the iLO console of the Management Server.
5 ☐	Log in to the TVOE host on the Management Server.	Log in to the TVOE console as user "admusr": ``` login as: admusr Password: Last login: Wed Jun 5 17:52:28 2013 [admusr@tvoe ~]$ ```
6 ☐	Log in to the PM&C guest.	Using Appendix B of this document, log in to the PM&C guest console.
7 ☐	Prepare PM&C guest to transfer the appropriate backup from Backup Server. Disable iptables, and enable the TPD platcfg backup configuration menus.	Run the following commands on the PM&C: ``` [admusr@pmac ~] $ sudo /sbin/service iptables stop iptables: Flushing firewall rules: [OK] iptables: Setting chains to policy ACCEPT: filter [OK] [admusr@pmac ~]$ sudo /usr/TKLC/smac/etc/services/netbackup start Modified menu NBConfig --show Set the following menus: NBConfig to visible=1 Modified menu NBInit --show Set the following menus: NBInit to visible=1 Modified menu NBDeInit --show Set the following menus: NBDeInit to visible=1 Modified menu NBInstall --show Set the following menus: NBInstall to visible=1 Modified menu NBVerifyEnv --show Set the following menus: NBVerifyEnv to visible=1 Modified menu NBVerify --show Set the following menus: NBVerify to visible=1 ```

Procedure 3. Restore PM&C Server From Backup Server

8 ☐	Verify the TPD platcfg backup menus are visible, then exit the TPD platcfg utility.	`[admusr@pmac-07360004-a ~]$` **`sudo /bin/su – platcfg`** **Note:** In the example image above of the TPD platcfg utility Main Menu the backup menu is identified as "NetBackup Configuration". `[admusr@pmac ~]$`

9 ☐	Verify the iptables rules are disabled on the PM&C guest.	`[admusr@pmac ~]$` **`sudo /sbin/iptables –nL`**
		 `Chain INPUT (policy ACCEPT)`
		 `target     prot opt source              destination`
		
		 `Chain FORWARD (policy ACCEPT)`
		 `target     prot opt source              destination`
		
		 `Chain OUTPUT (policy ACCEPT)`
		 `target     prot opt source              destination`

10 ☐	Install backup utility client software on the PM&C guest.	Using the sections listed below from the reference [1] [E54386] or [2] [E53486], configure the Management Server and reinstall the NetBackup client in accordance with the checklist shown: ☐ "PM&C NetBackup Client Installation and Configuration" **Note:** When executing the "PM&C NetBackup Client Installation and Configuration" procedure, start at step 4. The "Initialize PM&C Application" and "Configure PM&C application" prerequisites can be ignored.

Procedure 3. Restore PM&C Server From Backup Server

11 ☐	At Backup Server, verify the appropriate PM&C backup exists.	This step will likely be executed by customer IT personnel.
		Log in to the Backup Server as the appropriate user, using the user password.
		
		Execute the appropriate commands to verify the PM&C backup exists for the desired date.
		
		    Note: If the appropriate backup does not exist on the Backup Server, perform the restore using procedure 1.
		    Note: The actions and commands required to verify that the PM&C backups exist and the commands required to perform backup and restore on the Backup Server are the responsibility of the site customer.
		    Note: It is important to choose the correct backup file to use in the restore. The latest backup may not be the backup which contains the system data of interest. This could be the case if the automatic backup, which is scheduled in the morning, is performed on the newly installed PM&C prior to the restoration of the data.

12 ☐	At the Backup Server restore the PM&C backup file to the `/var/TKLC/smac /backup/` directory on the PM&C.	This step will likely be executed by customer IT personel. Log in to the Backup Server as the appropriate user, using the user password. Execute the appropriate commands to restore the PM&C Management Server backup for the desired date. **Note:** The actions, and commands, required to verify the PM&C backups exist, and the commands required to perform backup and restore on the Backup Server are the responsibility of the site customer.
13 ☐	Run alarmMgr. The alarmMgr, command output should display no failures. **Note:** Output similar to that shown will appear on the terminal window.	[admusr@pmac ~]$ sudo /usr/TKLC/plat/bin/alarmMgr --alarmStatus [admusr@pmac ~]$

Procedure 3. Restore PM&C Server From Backup Server

14 ☐	From the command prompt of the Management Server, restore the PM&C data from backup. **Note:** Output similar to that shown will appear on the terminal window.	[admusr@pmac-07360004-a ~]$ **sudo /usr/TKLC/smac/bin/pmacadm restore** `PM&C Restore been successfully initiated as task ID 1` **Note:** The restore runs as a background task. To check the status of the background task, issue the command "**sudo /usr/TKLC/smac/bin/pmaccli getBgTasks**". The result should eventually be PM&C Restore successful **Note:** If more than one backup archive exists in the "/var/TKLC/smac/backup" directory, and the operator does not wish to restore from the latest backup, the operator must use the **"--fileName"** option on the restore to select the backup archive of interest. When using the "--fileName" option, the directory path of the backup should be included in the file name.
15 ☐	Verify the status of the PM&C application.	Perform steps in Appendix Ato verify the successful restoration of the data. **Note:** If after the restoration of the PM&C, provisioned data does not represent the correct data, see Appendix D
Procedure 3 has been completed.	

Appendix A.   Post Restoration Verification

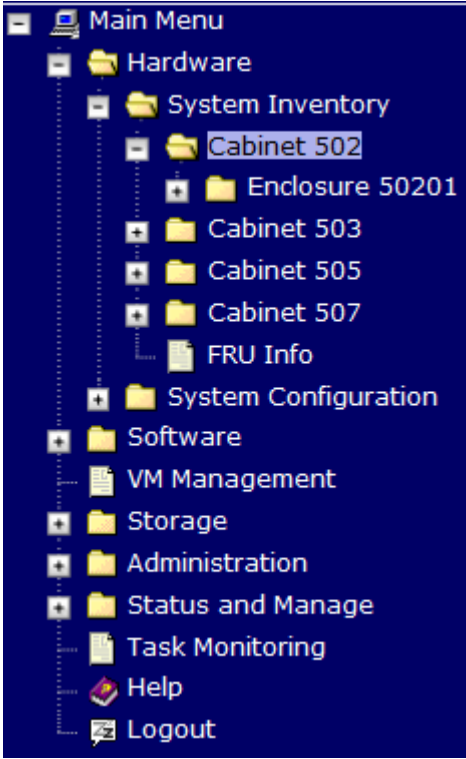**Procedure 4. Post restoration verification**

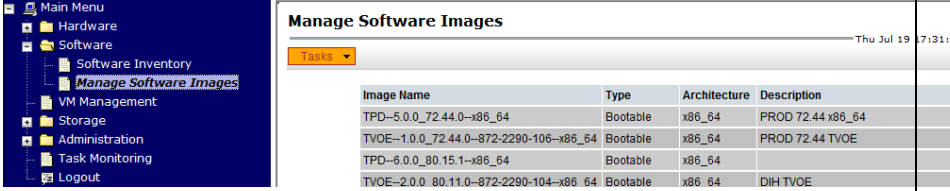| S T E P #	Use this procedure to verify the PM&C configuration following the restoration procedure. **Note:** This procedure assumes the restoration steps have been completed. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, see Appendix C.	
	Task	**Description**
1 ☐	Log in to the PM&C GUI.	If necessary, open web browser and enter: https://{PM&C Guest Server ip} Login as pmacadmin user. **ORACLE®** **Oracle System Login** ————————————————Thu Sep 18 16:26:24 2014 UTC **Log In** Enter your username and password to log in Username: [ ] Password: [ ] ☐ Change password [Log In] Unauthorized access is prohibited. This Oracle system requires the use of Microsoft Internet Explorer 8.0, 9.0, or 10.0 with support for JavaScript and cookies. Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners. Copyright © 2010, 2014, Oracle and/or its affiliates. All rights reserved.
2 ☐	Verify the Restore Task completes.	Navigate to the **Task Monitoring** page on the menu. Verify that the restore background task completes successfully. **Note:** After the restore is complete, you should see "Add Enclosure" tasks start for all previously provisioned enclosures. These should be allowed to complete before continuing. **Note:** After the restore is complete, you may see some tasks mentioning ISO images being deleted. This is normal behavior when executing Procedure 1. These ISO images may be re-provisioned manually.
3 ☐	Connect to the iLO of the Management Server	Using the Appendix "How to Access a Server Console Using the iLO" in reference [1] [E54386] or [2] [E53486], establish a connection to the iLO console of the Management Server.

Procedure 4. Post restoration verification

4 ☐	Log in to the TVOE host on the Management Server.	Log in to the TVOE console as user "admusr": ``` login as: admusr Password: Last login: Wed Jun 5 17:52:28 2013 [admusr@tvoe ~]$ ```
5 ☐	Log in to the PM&C guest.	Using Appendix B of this document, log in to the PM&C guest console.
6 ☐	Check for missing interfaces	If interfaces other than the control and management interfaces exited, they must be manually recreated. From the PM&C guest, verify no configured but not active devices exists, such as the highlighted example below. Typically, this is a netBackup dedicated device. [admusr@pmac ~]$ **sudo /sbin/service network status** ``` Configured devices: lo control management otherdevice Currently active devices: lo control management [admusr@pmac ~]$ ``` Use Appendix C of this document if a missing device must be recreated. Note the name shown, it must be used as the guest device name.
7 ☐	Verify the status of the PM&C application. **Note:** Output similar to that shown will appear on the terminal window.	[admusr@pmac ~]$ **sudo /usr/TKLC/smac/bin/sentry status** sending status command... PM&C Sentry Status ------------------ sentryd started: Thu May 31 13:56:47 2012 Current activity mode: ACTIVE Process PID Status StartTS NumR ----------------- ------ ----------- ------------------------ ---- smacTalk 21423 running Thu May 31 13:56:47 2012 1 smacMon 21448 running Thu May 31 13:56:47 2012 1 hpiPortAudit 21471 running Thu May 31 13:56:47 2012 1 snmpEventHandler 21494 running Thu May 31 13:56:47 2012 1 eclipseHelp 21691 running Thu May 31 13:57:00 2012 1 Mon Jun 11 13:26:50 2012 Command Complete. [admusr@pmac ~]$

Procedure 4. Post restoration verification

8 ☐	Run alarmMgr. The alarmMgr, command output should display no failures. **Note:** Output similar to that shown will appear on the terminal window.	`[admusr@pmac ~]$ `**`sudo /usr/TKLC/plat/bin/alarmMgr --`** **`alarmStatus`** `[admusr@pmac ~]$`
9 ☐	Verify the connectivity to the aggregate switches.	Execute **Procedure 5: Post-Restoration Verification for Aggregate Switches** in **Appendix A** to verify the connectivity to the aggregate switches.
10 ☐	Exit the command line session	`[admusr@pmac ~]$ `**`exit`**
11	Verify the System Inventory looks correct through the PM&C GUI. **Note:** Output similar to that shown will appear on the terminal window. **Note:** The hardware discovery may take some time to complete. The screen capture assumes discovery is complete for all enclosures.	Select the System Inventory node and verify the previously provisioned enclosures are present.

Procedure 4. Post restoration verification

12 ☐	Verify Software Images **Note:** Output similar to that shown will appear on the terminal window.	Navigate to the Manage Software Images GUI to verify all images that you wish to have are available for installation/upgrade. **Note:** If this was a restore performed by following Procedure 1, ISO images will need to be added manually
13 ☐	Verify the Software Inventory looks correct through the PM&C GUI. **Note:** The software discovery may take some time to complete. The screen capture assumes discovery is complete.	Using the main menu, navigate to **Software → Software Inventory** page. Verify that all the servers (blades, RMS, VMs) are listed and have the details filled in (assuming TVOE or TPD is installed on the server).
This procedure has been completed.		

Procedure 5. Post Restoration Verification for Switches

S T E P #	Use this procedure to provide instructions on how to verify the connectivity to the switches, and console access to aggregation switches following the restoration procedure. **Note:** This procedure assumes the restoration steps have been completed, and the netConfig repository for the switches are accurate. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. If this procedure fails, see Appendix C.	
	Task	**Description**

1
☐
	From the PM&C login, test network access to all switches	The netConfig validate command will test netConfig access to all managed switches. The command should display 1 "Validating …" line per device showing the switch hostname.
		
		`[admusr@pmac ~]$ `**`sudo netConfig --repo validate`**
		`Validating aggA...`
		`Validating aggB...`
		`Validating bay1R...`
		`Validating bay2R...`
		`[admusr@pmac ~]$`
		
		        Note: If any "Failed to connect" error messages are displayed, see Appendix D.

Procedure 5. Post Restoration Verification for Switches

2 ☐	List aggregation switches	If the system has aggregation switches with console access, continue with this step. Otherwise this procedure is complete.
		
		The netConfig listDevices command displays all devices. Only the 4948 "Model" aggregation devices need to be identified. The "Device" names will be used in the next step. The example below identifies "aggA".
		
		`[admusr@pmac ~]$ `**`sudo netConfig --repo listDevices`**
		
		`Device: aggA`
		`    Vendor:   Cisco`
		`    Model:    4948E-F`
		`    Access:   Network: 10.240.72.36`
		`    Live Protocol Configured`
		
		   Note: The above example output is not a complete response, several devices will likely be shown.

3 ☐	Test console access to aggregation switches	Execute this step for each named aggregation switch identified in the previous step.
		
		Create a file replacing the string **SWITCH_NAME** with the switch hostname identified. The cat command is terminated with a Control-D.
		
		`[admusr@pmac ~]$ cat > /tmp/consoleTest`
		`<configure>`
		` <procedure access="oob">`
		`  <device>`**`SWITCH_NAME`**`</device>`
		`  <task>`
		`   <command>getVersion</command>`
		`  </task>`
		` </procedure>`
		`</configure>`
		
		`[control-D]`
		`[admusr@pmac ~]$`
		
		This check validates the file just created (any output means the file content is incorrect, and you may attempt to recreate it again):
		
		`[admusr@pmac ~]$ xmllint –noout /tmp/consoleTest`
		`[admusr@pmac ~]$`
		
		The following netConfig command will use the console to display the version. It should look similar to the following:
		
		`[admusr@pmac ~]$ `**`sudo netConfig --file=/tmp/consoleTest`**
		`Firmware Version: (cat4500e-ENTSERVICESK9-M), Version 12.2(54)WO`
		`[admusr@pmac ~]$`
		
		   Note: If the connection failed, see Appendix D

Procedure 5. Post Restoration Verification for Switches

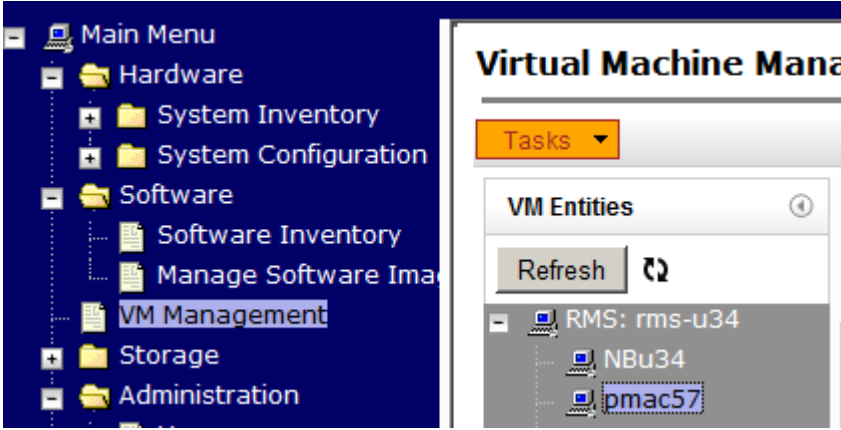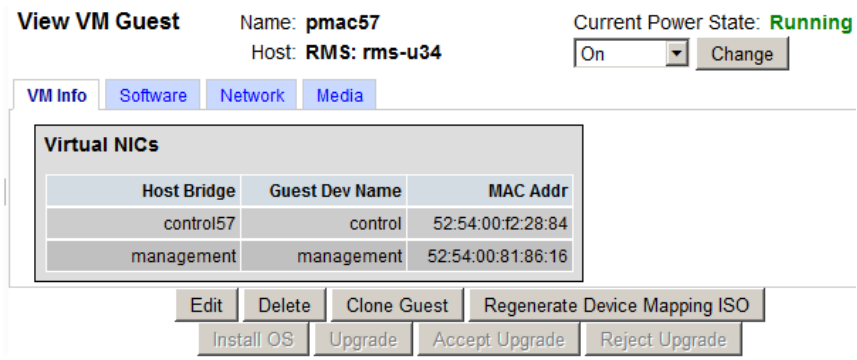| 4 ☐	Remove test file	The file created in the previous step may be deleted. `[admusr@pmac ~]$` rm /tmp/consoleTest
This procedure has been completed, return to calling procedure.		

Appendix B.   Accessing the PM&C Command Prompt from the Management

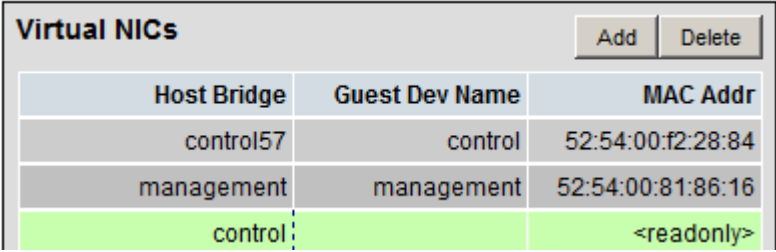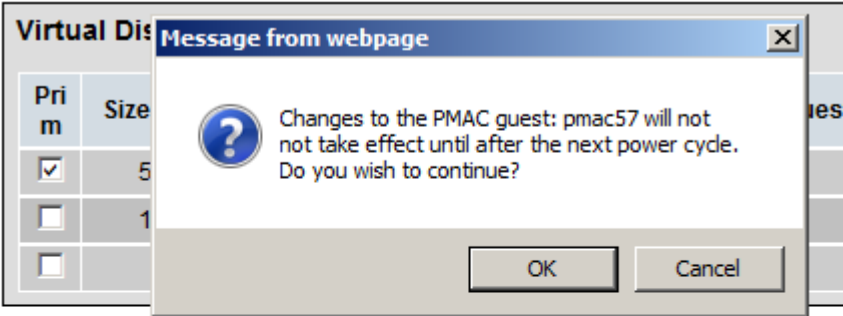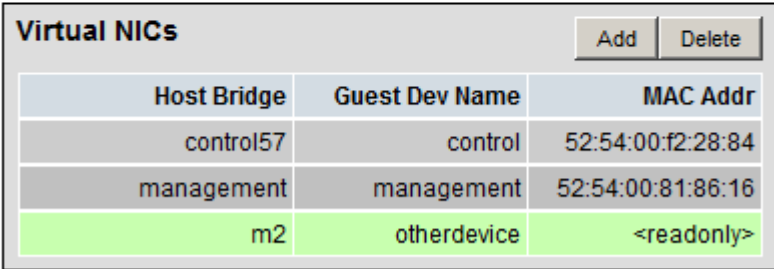**Procedure 6. Accessing the PM&C Command Prompt from the Management Server TVOE Console**

S T E P #	Use this procedure to provide instructions on how to access the PM&C command prompt from the TVOE command prompt. **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, see Appendix C.	
	Task	**Description**

1 ☐	Determine the name of the PM&C guest	At the TVOE console, list the guests and locate the one representing the PM&C:
		
		`[admusr@tvoe ~]$` **`sudo /usr/bin/virsh list`**
		` Id    Name                             State`
		`---------------------------------------------------`
		` 11    `pmac-07360004-a`              running`
		`[admusr@tvoe ~]$`

2 ☐	Log in to the PM&C guest	At the TVOE console, log in to the console of the PM&C guest using the guest name from the previous step. It may be necessary to press return to get a login prompt. Log in to the PM&C console as usr "admusr":
		
		`[admusr@tvoe]$` **`sudo /usr/bin/virsh console pmac-07360004-a`**
		`Connected to domain pmac-07360004-a`
		`Escape character is ^]`
		
		`CentOS release 6.4 (Final)`
		`Kernel 2.6.32-358.6.1.el6prerel6.5.0_82.14.0.x86_64 on an`
		`x86_64`
		
		`pmac-07360004-a login:` **`admusr`**
		`Password:`
		`Last login: Tue Jun 11 13:23:35 from 10.25.81.98`
		`[admusr@pmac-07360004-a ~]$`

3 ☐	Return to the procedure which referred you.	Return to the next step in the referring procedure.
	This procedure has been completed.	

Appendix C. Restore PM&C Guest Devices

Procedure 7. Create Guest Interface

S T E P #	Use this procedure to provide instructions on how to create the guest device on a PM&C. **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, see Appendix C.
	Task · **Description**
1 ☐	View the PM&C guest · From the PM&C GUI, navigate to VM Management and select the PM&C guest in the VM Entries pane.
2 ☐	Edit the guest · Click on the Edit button

Procedure 7. Create Guest Interface

3 ☐	Add the device	Click the Add button in the Virtual NICs. For the Host Bridge, use the drop down menu to select the TVOE bridge name. For The Guest Dev Name, ener the name from the "service network status" output in the calling procedure.

4 ☐	Save the device	Click on the Save button, and respond to the pop-up confirmation:

5 ☐	From the TVOE login, restart the guest	Shudown and restart the PM&C guest to get the new guest device. [admusr@tvoe]$ sudo /usr/bin/virsh destroy pmac57 Domain pmac57 destroyed [admusr@tvoe]$ sudo /usr/bin/virsh destroy pmac57 Domain pmac57 started [admusr@tvoe]$
6 ☐	Return to the procedure which referred you.	Return to the verification procedure and execute the procedure from the beginning. The device should now be seen.

This procedure has been completed.

Appendix D.   Accessing Customer Support Site

Oracle customer documentation is available on the web at the Oracle Technology Network (OTN) 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 *www.adobe.com*.

1. Log into the Oracle Customer Support site at *http://docs.oracle.com*.

2. Under **Applications**, click the link for **Communications**.The **Oracle Communications Documentation** window opens with Tekelec shown near the top.

3. Click **Oracle Communications Documentation for Tekelec Products**.

4. Navigate to your Product and then the Release Number, and click the **View** link (the **Download** link will retrieve the entire documentation set).

5. To download a file to your location, right-click the PDF link and select **Save Target As**.