

**Oracle® Communications
Tekelec Platform**

Platform 6.5 Configuration Procedures Reference

Release 6.5

909-2249-001

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ORACLE®

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Chapter 1

Introduction

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This document describes the procedures to configure third-party hardware and platform components that make up Tekelec Platform 6.5. Configurable hardware components include HP ProLiant rackmount servers and Cisco switches, HP c7000 enclosures with HP blade servers, HP and Cisco switches, and HP external storage systems. Platform components include the firmware for various hardware components as well as the Platform Management & Configuration (PM&C) application to provision and manage those components when hosting feature applications.

Prior to executing any procedure in this document, power must be available to each component and all network cabling must be in place.

The procedures in this document are not in any specific order. Each procedure describes a discrete action. Application engineers will reference individual procedures in their specific installation and configuration procedures. It is the application documentation that will provide the proper sequencing of procedures, application specific supplemental steps, and the passwords to be used during the configuration.

Procedures from this document can be referenced by their section numbers, for example:

Execute Section 3.10.1 *Upgrade DL360 or DL380 Server Firmware* (909-2249-001)

FOR PLATFORM 4.2, REFER TO REVISION D OF 909-1620-001.

FOR PLATFORM 5.X, REFER TO LATEST REVISION OF 909-1620-001.

FOR PLATFORM 6.0, REFER TO LATEST REVISION OF 909-2209-001.

1.1 References

1. *Formal Peer Review Process*, PD001866, v6.21, Nov 2008
2. *909-2130-001 Initial Product Manufacture*
3. *HP Solutions Firmware Upgrade Pack*, 795-0000-3xx (USB media) or 795-0000-4xx (ISO files), version 2.2.x (the latest must be used if an upgrade is to be performed, otherwise version 2.2.5 is the minimum)
4. *909-2281-001 PM&C 5.5 Incremental Upgrade*
5. *909-2283-001 PM&C 5.5 Disaster Recovery for HP c-Class*

Refer to [D.1 Accessing Tekelec's Customer Support Site](#) to access the Tekelec documentation.

1.2 Acronyms

An alphabetized list of acronyms used in the document:

Table 1: Acronyms

Acronym	Definition
BIOS	Basic Input Output System
CA	Certificate Authority
CD	Compact Disk
CSR	Certificate Signing Request
DNS	Domain Name System
DSCP	Differentiated Services Code Point, a form of QoS
DVD	Digital Versatile Disc
EBIPA	Enclosure Bay IP Addressing
FMA	File Management Area
FQDN	Fully Qualified Domain Name
FRU	Field Replaceable Unit
HP c-Class	HP blade server offering
iLO	Integrated Lights Out remote management port
IE	Internet Explorer
IPM	Initial Product Manufacture – the process of installing TPD on a hardware platform
MSA	Modular Smart Array
NAPD	Network Architecture Planning Diagram

Acronym	Definition
OA	HP Onboard Administrator
OS	Operating System (e.g. TPD)
PM&C	Platform Management & Configuration
RMS	Rack Mount Server
QOS	Quality of Service
SAN	Storage Area Network
SFTP	Secure File Transfer Protocol
SNMP	Simple Network Management Protocol
SSO	Single Sign On
TPD	Tekelec Platform Distribution
TVOE	Tekelec Virtual Operating Environment
VSP	Virtual Serial Port

1.3 Terminology

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

Describes the location/server on which the action takes place and the operation to be performed.



1. **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
```

Each command that the technician is to enter is in bold Courier font



Figure 1: Example Of An Instruction That Indicates The Server To Which It Applies

Table 2: Terminology

Community String	An SNMP community string is a text string used to authenticate messages sent between a management station and a device (the SNMP agent). The community string is included in every packet that is transmitted between the SNMP manager and the SNMP agent.
-------------------------	--

Domain Name System	A system for converting hostnames and domain names into IP addresses on the Internet or on local networks that use the TCP/IP protocol
Management Server	An HP ProLiant DL 360/DL 380 server that has physical connectivity required to configure switches and may host the PM&C application or serve other configuration purposes.
NetBackup Feature	Feature that provides support of the Symantec NetBackup client utility on an application server.
Non-Segregated Network	Network interconnect where the control and management, or customer, networks utilize the same physical network.
PM&C	An application that supports platform-level management of Tekelec HP systems, such as the capability to manage and provision platform components of the system, so they can host applications.
Segregated Network	Network interconnect where the control and management, or customer, networks utilize separate physical networks.
Server	A generic term to refer to a server, regardless of underlying hardware, be it physical hardware or a virtual TVOE guest server.
Virtual PM&C	Additional term for PM&C - used in networking procedures to distinguish activities done on a PM&C guest and not the TVOE host running on the Management server.

1.4 Customer Care Center

The Tekelec Customer Care Center is your initial point of contact for all product support needs. A representative takes your call or email, creates a Customer Service Request (CSR) and directs your requests to the Tekelec Technical Assistance Center (TAC). Each CSR includes an individual tracking number. Together with TAC Engineers, the representative will help you resolve your request.

The Customer Care Center is available 24 hours a day, 7 days a week, 365 days a year, and is linked to TAC Engineers around the globe.

Tekelec TAC Engineers are available to provide solutions to your technical questions and issues 7 days a week, 24 hours a day. After a CSR is issued, the TAC Engineer determines the classification of the trouble. If a critical problem exists, emergency procedures are initiated. If the problem is not critical, normal support procedures apply. A primary Technical Engineer is assigned to work on the CSR and provide a solution to the problem. The CSR is closed when the problem is resolved.

Tekelec Technical Assistance Centers are located around the globe in the following locations:

Tekelec - Global

Email (All Regions): support@tekelec.com

- **USA and Canada**

Phone:

1-888-FOR-TKLC or 1-888-367-8552 (toll-free, within continental USA and Canada)

1-919-460-2150 (outside continental USA and Canada)

TAC Regional Support Office Hours:

8:00 a.m. through 5:00 p.m. (GMT minus 5 hours), Monday through Friday, excluding holidays

- **Caribbean and Latin America (CALA)**

Phone:

+1-919-460-2150

TAC Regional Support Office Hours (except Brazil):

10:00 a.m. through 7:00 p.m. (GMT minus 6 hours), Monday through Friday, excluding holidays

- **Argentina**

Phone:

0-800-555-5246 (toll-free)

- **Brazil**

Phone:

0-800-891-4341 (toll-free)

TAC Regional Support Office Hours:

8:00 a.m. through 5:48 p.m. (GMT minus 3 hours), Monday through Friday, excluding holidays

- **Chile**

Phone:

1230-020-555-5468

- **Colombia**

Phone:

01-800-912-0537

- **Dominican Republic**

Phone:

1-888-367-8552

- **Mexico**

Phone:

001-888-367-8552

- **Peru**

Phone:

0800-53-087

- **Puerto Rico**

Phone:

1-888-367-8552 (1-888-FOR-TKLC)

- **Venezuela**

Phone:

0800-176-6497

- **Europe, Middle East, and Africa**

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- **Signaling**

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+44 1784 467 804 (within UK)

- **Software Solutions**

Phone:

+33 3 89 33 54 00

- **Asia**

- **India**

Phone:

+91-124-465-5098 or +1-919-460-2150

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Chapter 2

Acquiring Firmware

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2.1 Acquiring Firmware

Several procedures in this document pertain to the upgrading of firmware on various servers and hardware devices that are part of the Platform 6.5 configuration. The required firmware media and binaries are managed and distributed as part of the HP *Solutions Firmware Upgrade Pack 2.2.x*, released under Tekelec Part Number 795-0000-3yy¹ (2 USB media and 2 Documents) and 795-0000-4yy (2 ISO files and 2 PDF files). The minimum firmware release required for Platform 6.5 is HP *Solutions Firmware Upgrade Pack 2.2.5* (PN: 795-0000-316 and 795-0000-416). However, if a firmware upgrade is needed, the current GA release of the HP Solutions Firmware Upgrade Pack must be used.

The HP *Solutions Firmware Upgrade Pack* contains multiple BOM items including media and documentation. This document only requires access to the media (USB media or ISO files) as well as the Release Notes [3] document. The *Upgrade Procedures* document is not used as the firmware upgrade procedures specific to this document are provided here.

The two pieces of required firmware media provided in the HP *Solutions Firmware Upgrade Kit 2.2.x* releases are:

- Tekelec's HP Service Pack for ProLiant (SPP) USB media or ISO file
- Tekelec's HP Misc. Firmware USB media or ISO file

Refer to the Release Notes of the target release of the HP Solutions Firmware Upgrade Pack [3] used to determine specific media part numbers to use and the specific firmware versions provided.

Platform 6.5 Servers and devices requiring possible firmware updates are:

- HP c7000 BladeSystem Enclosure Components:
 - Onboard Administrator
 - 1Gb Ethernet Pass-Thru Module
 - Cisco 3020 Enclosure Switches
 - HP6120XG Enclosure Switches
 - HP6125G Enclosure Switches
 - Brocade Fibre Channel Switches
 - Blade Servers (BL460/BL620)
- HP Rack Mount Servers (DL360 / DL380)
- HP External Storage Systems
 - MSA2012fc
 - D2200sb (Storage Blade)
 - D2220sb (Storage Blade)
 - D2700
 - P2000
- Cisco 4948/4948E/4948E-F Rack Mount Network Switches

¹ Where yy is a 2-digit number which increases with every new release.

Chapter 3

Procedures

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3.1 Networking

3.1.1 Configure netConfig Repository

This procedure will configure the netConfig repository for all required services and for each switch to be configured.

Prerequisites

- [3.6.1 IPM DL360 or DL380 Server](#)
- If a PM&C is included in the installation:
 - [3.7.2 Installing TVOE on the Management Server](#)
 - [3.7.3 TVOE Network Configuration](#)
 - [3.7.4 Deploy PM&C Guest](#)
 - [3.7.5 Setup PM&C](#)

At any time, you can view the contents of the netConfig repository by using one of the following commands:

- For switches, use the command: **sudo /usr/TKLC/plat/bin/netConfig --repo listDevices**
- For services, use the command: **sudo /usr/TKLC/plat/bin/netConfig --repo listServices**

Users returning to this procedure after initial installation should run the above commands and note any devices and/or services that have already been configured. Duplicate entries cannot be added; if changes to a repository entry are necessary, you must delete the original entry first:

- For switches, use the command: **sudo /usr/TKLC/plat/bin/netConfig --repo deleteDevice name=<device>**
- For services, use the command: **sudo /usr/TKLC/plat/bin/netConfig --repo deleteService name=<service>**

Terminology

The term 'netConfig server' refers to the entity where netConfig is executed. This may be a virtualized or physical environment. 'Management server' may also accurately describe this location but has been historically used to describe the physical environment while 'Virtual PM&C' was used to describe the virtualized netConfig server. Use of the term 'netConfig server' to describe dual scenarios of physical and virtualized environments will allow for future simplification of network configuration procedures.

Procedure Reference Tables

Steps within this procedure and subsequent procedures that require this procedure may refer to variable data indicated by text within "<>". Fill these worksheets out based on NAPD, and then refer back to these tables for the proper value to insert depending on your system type.

Variable	Value
<management_server_iLO_ip>	
<netConfig_server_mgmt_ip_address>	
<switch_backup_user>	admusr

Variable	Value
<switch_backup_user_password>	See application documentation

For the first aggregation switch(4948, 4948E, or 4948E-F): Fill in the appropriate value for this site.

Variable	Value
<switch_hostname>	
<device_model>	
<console_name>	
<switch_console_password>	
<switch_platform_username>	
<switch_platform_password>	
<switch_enable_password>	
<switch_mgmt_ip_address>	

For the second aggregation switch(4948, 4948E, or 4948E-F): Fill in the appropriate value for this site.

Variable	Value
<switch_hostname>	
<device_model>	
<console_name>	
<switch_console_password>	
<switch_platform_username>	
<switch_platform_password>	
<switch_enable_password>	
<switch_mgmt_ip_address>	

For each enclosure switch(6120XG, 6125G, or 3020): Fill in the appropriate value for this site.

Variable	Value
<switch_hostname>	
<enclosure_switch_IP>	
<switch_platform_username>	
<switch_platform_password>	
<switch_enable_password>	
<io_bay>	
<OA1_enX_ip_address>	X= the enclosure #

Variable	Value
<OA_password>	

For each enclosure switch(6120XG, 6125G, or 3020): Fill in the appropriate value for this site.

Variable	Value
<switch_hostname>	
<enclosure_switch_IP>	
<switch_platform_username>	
<switch_platform_password>	
<switch_enable_password>	
<io_bay>	
<OA1_enX_ip_address>	X= the enclosure #
<OA_password>	

Note: If you have additional enclosure switches, use the worksheets provided in [Worksheet: netConfig Repository](#).

1. **Management server iLO:** Follow [How to Access a Server Console using the iLO](#) to access the server console

Follow Appendix G to log in to the management server iLO as admusr.

2. **Management Server:** Procedure pre-check

If the installation is not designed for a virtual PM&C, log in to PM&C and go to [Step 4](#).

If there is a virtual PM&C, log in to the console of the virtual PM&C.

- Verify virtual PM&C installation by issuing the following commands as admusr on the management server:

```
$ sudo /usr/bin/virsh list --all
Id Name State
-----
6 vm-pmac1A running
```

- If this command provides no output, it is likely that a virtual instance of PM&C is not installed.
 - If there is a virtual PM&C, log in to the console of the virtual PM&C.
 - If the installation is not designed for a virtual PM&C, go to [Step 4](#).
- From the management server, log in to the console of the virtual PM&C instance found above.

Example:

```
$ sudo /usr/bin/virsh console vm-pmac1A
Connected to domain vm-pmac1A
Escape character is ^]
<Press ENTER key>
CentOS release 6.2 (Final)
Kernel 2.6.32-220.7.1.el6prere16.0.0_80.13.0.x86_64 on an x86_64
```

If the root user is already logged in, logout and log back in as admusr.

```
[root@pmac ~]# logout
```

```
vm-pmaclA login: admusr
Password:
Last login: Fri May 25 16:39:04 on ttyS4
```

- If this command fails, it is likely that a virtual instance of PM&C is not installed.
- If this is unexpected, refer to application documentation or contact [1.4 Customer Care Center](#).

3. netConfig Server: Check that the switch templates directory exists:

```
$ /bin/ls -i /usr/TKLC/smac/etc/switch/xml
```

If the command returns an error:

```
ls: cannot access /usr/TKLC/smac/etc/switch/xml/: No such file or directory
```

Create the directory:

```
$ sudo /bin/mkdir -p /usr/TKLC/smac/etc/switch/xml
```

4. netConfig Server: Set up netConfig repository with necessary ssh information.

Use netConfig to create a repository entry that will use the ssh service. This command will provide the user with several prompts. The prompts shown with <variables> as the answers are site specific that the user MUST modify. Other prompts that don't have a <variable> shown as the answer must be entered EXACTLY as they are shown here.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo addService name=ssh_service
Service type? (tftp, ssh, conserver, oa) ssh
Service host? <netConfig_server_mgmt_ip_address>
Enter an option name <q to cancel>: user
Enter the value for user: <switch_backup_user>
Enter an option name <q to cancel>: password
Enter the value for password: <switch_backup_user_password>
Verify Password: <switch_backup_user_password>
Enter an option name <q to cancel>: q
Add service for ssh_service successful
$
```

To ensure that you entered the information correctly, use the following command and inspect the output, which will be similar to the one shown below.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showService name=ssh_service
Service Name: ssh_service
Type: ssh
Host: 10.250.8.4
Options:
password: C20F7D639AE7E7
user: admusr
$
```

5. netConfig Server: Set up netConfig repository with necessary tftp information.

Note: If there are no new Cisco (3020, 4948, 4948E or 4948E-F) switches to be configured, go to [Step 8](#).

Use netConfig to create a repository entry that will use the tftp service. This command will give the user several prompts. The prompts with <variables> as the answers are site specific that the user MUST modify. Other prompts that don't have a <variable> as an answer must be entered EXACTLY as they are shown here.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo addService name=tftp_service
Service type? (tftp, ssh, conserver, oa) tftp
Service host? <netConfig_server_mgmt_ip_address>
Enter an option name (q to cancel): dir
Enter a value for user: /var/TKLC/smac/image/
Enter an option name(q to cancel): q
Add service for tftp_service successful
```

6. netConfig Server: Set up netConfig repository with necessary OA information.

Note: If there are no new HP 6125G switches to be configured, go to [Step 8](#).

Use netConfig to create a repository entry that will use the OA service. This command will give the user several prompts. The prompts with <variables> as the answers are site specific that the user MUST modify. Other prompts that don't have a <variable> as an answer must be entered EXACTLY as they are shown here.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo addService name=oa_service_en<enclosure
#>
Service type? (tftp, ssh, conserver, oa) oa
Service host? <OA1_enX_ip_address>
Enter an option name <q to cancel>: user
Enter the value for user: root
Enter an option name <q to cancel>: password
Enter the value for password: <OA_password>
Verify password:<OA_password>
Enter an option name <q to cancel>: q
Add service for oa_service successful
```

7. Virtual PM&C: Run conserverSetup command.

```
$ sudo /usr/TKLC/plat/bin/conserverSetup -s <management_server_mgmt_ip_address>
```

You will be prompted for the platcfg credentials.

An example:

```
[admusr@vm-pmac1A]$ sudo /usr/TKLC/plat/bin/conserverSetup -s
<management_server_mgmt_ip_address>
Enter your platcfg username, followed by [ENTER]:platcfg
Enter your platcfg password, followed by [ENTER]:<platcfg_password>
Checking Platform Revision for remote TPD installation...
The remote machine is running:
    Product Name: TPD
    Base Distro Release: 6.5.0_82.7.0
Checking Platform Revision for local TPD installation...
The local machine is running:
    Product Name: PMAC
    Base Distro Release: 6.0.0_80.17.0
Configuring switch 'switch1A_console' console server...Configured.
Configuring switch 'switch1B_console' console server...Configured.
Configuring iptables for port(s) 782...Configured.
```

```
Configuring iptables for port(s) 1024:65535...Configured.
Configuring console repository service...Configured.
bond0 interface: eth01
bond0 interface: eth02
```

- If this command fails, contact Tekelec [1.4 Customer Care Center](#).
- Verify the output of the script.
- Verify that your Product Release is based on Tekelec Platform 6.5 (versions 6.5.x.x.x.x).
- Note the slave interface names of bond interfaces (<ethernet_interface_1> and <ethernet_interface_2>) for use in subsequent steps.

8. netConfig Server: Set up netConfig repository with aggregation switch information.

Note: If there are no new aggregation switches to be configured, go to [Step 9](#).

Use netConfig to create a repository entry for each switch. The initial command will prompt the user multiple times. The prompts with <variables> as the answers are site specific that the user MUST modify. Other prompts that don't have a <variable> as an answer must be entered EXACTLY as they are shown here.

- The <device_model> can be 4948, 4948E, or 4948E-F depending on the model of the device. If you do not know, stop now and contact [1.4 Customer Care Center](#).
- The device name must be 20 characters or less.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo addDevice name=<switch_hostname>
--reuseCredentials
Device Vendor? Cisco
Device Model? <device_model>
Should the init oob adapter be added (y/n)? y
Adding consoleInit protocol for switch1A using oob...
What is the name of the service used for OOB access? console_service
What is the name of the console for OOB access? <console_name>
What is the device console password? <switch_console_password>
Verify Password: <switch_console_password>
What is the platform access username? <switch_platform_username>
What is the platform user password? <switch_platform_password>
Verify Password: <switch_platform_password>
What is the device privileged mode password? <switch_enable_password>
Verify Password: <switch_enable_password>
Should the live network adapter be added (y/n)? y
Adding cli protocol for <hostname> using network...
What is the address used for network device access? <switch_mgmt_ip_address>
Should the live oob adapter be added (y/n)? y
Adding cli protocol for <hostname> using oob...
OOB device access already set: console_service
Device named switch1A successfully added.
```

To check that you entered the information correctly, use the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showDevice name=<switch_hostname>
```

and check the output, which will be similar to the one shown:

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showDevice name=<switch_hostname>
Devices: Device: <switch_hostname> Vendor: Cisco Model: <device_model> Access:
Network: <enclosure_switch_IP> Access: OOB: Service: console_service Console:
<console_name> Init Protocol Configured Live Protocol Configured
$
```

Repeat this step for each 4948 / 4948E / 4948 E-F, using appropriate values for those switches.

9. netConfig Server: Set up netConfig repository with 3020 switch information.

Note: If there are no new 3020s to be configured, go to [Step 10](#).

Use netConfig to create a repository entry for each 3020. This command will give the user several prompts. The prompts with <variables> as the answers are site specific that the user MUST modify. Other prompts that don't have a <variable> as an answer must be entered EXACTLY as they are shown here.

- If you do not know any of the required answers, stop now and contact [1.4 Customer Care Center](#).
- The device name must be 20 characters or less.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo addDevice name=<switch_hostname>
--reuseCredentials
Device Vendor? Cisco
Device Model? 3020

Should the init network adapter be added (y/n)? y

Adding netBootInit protocol for <switch_hostname> using network...
What is the address used for network device access? <enclosure_switch_ip>
What is the platform access username? <switch_platform_username>
What is the platform user password? <switch_platform_password>
Verify password: <switch_platform_password>

What is the device privileged mode password? <switch_enable_password>
Verify password: <switch_enable_password>

Should the init file adapter be added (y/n)? y

Adding netBootInit protocol for <switch_hostname> using file...
What is the name of the service used for TFTP access? tftp_service

Should the live network adapter be added (y/n)? y

Adding cli protocol for <switch_hostname> using network...
Network device access already set: <enclosure_switch_ip>

Device named <switch_hostname> successfully added.
```

To check that you entered the information correctly, use the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showDevice name=<switch_hostname>
```

and check the output, which will be similar to the one shown below.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showDevice name=<switch_hostname>
Device: <switch_hostname>
  Vendor: Cisco
  Model: <device_model>
  Access: Network: <enclosure_switch_IP>
Access: OOB:
Init Protocol Configured
Live Protocol Configured
```

Repeat this step for each 3020, using appropriate values for those 3020s.

10. netConfig Server: Set up netConfig repository with 6120XG switch information.

Note: If there are no 6120XGs to be configured, stop and continue with the appropriate switch configuration procedure.

Use netConfig to create a repository entry for each 6120XG. This command will give the user several prompts. The prompts with <variables> as the answers are site specific that the user **MUST** modify. Other prompts that don't have a <variable> as an answer must be entered **EXACTLY** as they are shown here.

- If you do not know any of the required answers, stop now and contact [1.4 Customer Care Center](#).
- The device name must be 20 characters or less.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo addDevice name=<switch_hostname>
--reuseCredentials
Device Vendor? HP
Device Model? 6120

Should the init network adapter be added (y/n)? y

Adding sshInit protocol for <switch_hostname> using network...
What is the address used for network device access? <enclosure_switch_ip>
What is the platform access username? <switch_platform_username>
What is the platform user password? <switch_platform_password>
Verify password: <switch_platform_password>

What is the device privileged mode password? <switch_enable_password>
Verify password: <switch_enable_password>

Should the live network adapter be added (y/n)? y

Adding cli protocol for <switch_hostname> using network...
Network device access already set: <enclosure_switch_ip>

Should the live oob adapter be added (y/n)? n

Device named <switch_hostname> successfully added.
```

To check that you entered the information correctly, use the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showDevice name=<switch_hostname>
```

and check the output, which will be similar to the one shown:

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showDevice name=<switch_hostname>
Devices:
Device: <switch_hostname>
Vendor: HP
Model: 6120
FW Ver: 0
Access: Network: <enclosure_switch_IP>
Init Protocol Configured
Live Protocol Configured
$
```

Repeat this step for each 6120, using appropriate values for those 6120s.

11. netConfig Server: Set up netConfig repository with 6125G switch information.

Note: If there are no 6125Gs to be configured, stop and continue with the appropriate switch configuration procedure.

Use netConfig to create a repository entry for each 6125G. This command will give the user several prompts. The prompts with <variables> as the answers are site specific that the user MUST modify. Other prompts that don't have a <variable> as an answer must be entered EXACTLY as they are shown here.

- If you do not know any of the required answers, stop now and contact [1.4 Customer Care Center](#)
- The device name must be 20 characters or less.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo addDevice name=<switch_hostname>
--reuseCredentials
Device Vendor? HP
Device Model? 6125
Should the live network adapter be added (y/n)? y
Adding cli protocol for <switch_hostname> using network...
What is the address used for network device access? <enclosure_switch_ip>
What is the platform access username? <switch_platform_username>
What is the platform user password? <switch_platform_password>
Verify password: <switch_platform_password>
What is the device privileged mode password? <switch_platform_password>
Verify password: <switch_platform_password>
Should the live oob adapter be added (y/n)? y
Adding cli protocol for <switch_hostname> using oob...
What is the name of the service used for OOB access? oa_service_en<enclosure #>
What is the name of the console for OOB access? <io_bay>
What is the device console password? <switch_platform_password>
Verify password: <switch_platform_password>

Should the init oob adapter be added (y/n)? y

Adding consoleInit protocol for <switch_hostname> using oob...
OOB device access already set: oa_service

Device named 6125G_IOBAY3 successfully added.
```

To check that you entered the information correctly, use the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showDevice name=<switch_hostname>
```

and check the output, which will be similar to the one shown:

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showDevice name=<switch_hostname>
Device: <switch_hostname>
Vendor: HP
Model: 6125
FW Ver: 0

Access: Network: <enclosure_switch_IP>
Access: OOB:
Service: oa_service
Console: <io_bay>
Init Protocol Configured
Live Protocol Configured
$
```

3.1.2 Aggregation Switch - netConfig Procedures

3.1.2.1 Configure Cisco 4948/4948E/4948E-F aggregation switches (PM&C installed)(netConfig)

This procedure will configure 4948/4948E/4948E-F switches with an appropriate IOS and configuration from a single management server and virtual PM&C for use with the c-Class or RMS platform.

Prerequisites:

- [3.7.2 Installing TVOE on the Management Server](#),
- [3.7.3 TVOE Network Configuration](#),
- [3.7.4 Deploy PM&C Guest](#),
- [3.1.1 Configure netConfig Repository](#), and
- Application management network interfaces must be configured on the management servers prior to executing this procedure.
- Application username and password for creating switch backups must be configured on the management server prior to executing this procedure.

Procedure Reference Tables:

Steps within this procedure may refer to variable data indicated by text within "<>". Refer to this table for the proper value to insert depending on your system type.

Variable	Serial Port
<switch1A_serial_port>	ttyS4
<switch1B_serial_port>	ttyS5

Fill in the appropriate value from [3].

Variable	Cisco 4948	Cisco 4948E	Cisco 4948E-F
<IOS_image_file>			
<PROM_image_file>			

Fill in the appropriate value for this site:

Variable	Value
<switch_platform_username>	See referring application documentation
<switch_platform_password>	See referring application documentation
<switch_console_password>	See referring application documentation
<switch_enable_password>	See referring application documentation
<management_server_mgmt_ip_address>	
<pmac_mgmt_ip_address>	
<switch_mgmtVLAN_id>	

<switch1A_mgmtVLAN_ip_address>	
<mgmt_Vlan_subnet_id>	
<netmask>	
<switch1B_mgmtVLAN_ip_address>	
<management_server_iLO_ip>	
<customer_supplied_ntp_server_address>	

Variable	Value
<platcfg_password>	Refer to TR006061 for this value
<management_server_mgmtInterface>	Value gathered from NAPD
<switch_backup_user>	admusr
<switch_backup_user_password>	Check application documentation

Note: The onboard administrators are not available during the configuration of Cisco 4948/4948E/4948E-F switches.

Note: Uplinks must be disconnected from the customer network prior to executing this procedure. One of the steps in this procedure will instruct when to reconnect these uplink cables. Refer to the application appropriate schematic or procedure for determining which cables are used for customer uplink.

Needed Material:

- Tekelec's HP Misc. Firmware USB media or ISO file
- HP Solutions Firmware Upgrade Pack Release Notes [3]
- Template xml files on the application media.

Note: Filenames and sample command line input/output throughout this section do not specifically reference the 4948E-F. Template settings are identical between the 4948E and 4948E-F. The original 4948 switch -- as opposed to the 4948E or the 4948E-F is referred to simply by the model number 4948. Where all three switches are being referred to, this will be made clear by reference to '4948 / 4948E / 4948 E-F' switches.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Virtual PM&C: Run conserverSetup command.

```
$ sudo /usr/TKLC/plat/bin/conserverSetup -s <management_server_mgmt_ip_address>
```

You will be prompted for the platcfg credentials.

An example:

```
[admusr@vm-pmac1A]$ sudo /usr/TKLC/plat/bin/conserverSetup -s
<management_server_mgmt_ip_address>
Enter your platcfg username, followed by [ENTER]:platcfg
Enter your platcfg password, followed by [ENTER]:<platcfg_password>
Checking Platform Revision for remote TPD installation...
The remote machine is running:
```

```

Product Name: TPD
Base Distro Release: 6.5.0_82.7.0
Checking Platform Revision for local TPD installation...
The local machine is running:
Product Name: PMAC
Base Distro Release: 6.0.0_80.17.0
Configuring switch 'switch1A_console' console server...Configured.
Configuring switch 'switch1B_console' console server...Configured.
Configuring iptables for port(s) 782...Configured.
Configuring iptables for port(s) 1024:65535...Configured.
Configuring console repository service...Configured.
bond0 interface: eth01
bond0 interface: eth02

```

- If this command fails, contact Tekelec [1.4 Customer Care Center](#).
 - Verify the output of the script.
 - Verify that your Product Release is based on Tekelec Platform 6.5 (versions 6.5.x_x.x.x).
 - Note the slave interface names of bond interfaces (<ethernet_interface_1> and <ethernet_interface_2>) for use in subsequent steps.
2. **Virtual PM&C:** Verify the IOS image is on the system. If the appropriate image does not exist, copy the image to the PM&C.

Determine if the IOS image for the 4948/4948E/4948E-F is on the PM&C.

```
$ /bin/ls -i /var/TKLC/smac/image/<IOS_image_file>
```

If the file exists, skip the remainder of this step and continue with the next step. If the file does not exist, copy the file from the firmware media and ensure the file is specified by the Firmware Upgrade Pack Release Notes [3]

3. **Virtual PM&C:** Get IOS image and PROM information on the switches.
- Note:** ROM & PROM are intended to have the same meaning for this procedure
- Connect to switch1A, check the IOS and PROM version.

Connect serially to switch1A by issuing the following command.

```

$ sudo /usr/bin/console -M <management_server_mgmt_ip_address> -l platcfg
switch1A_console
Enter platcfg@pmac5000101's password: <platcfg_password>
[Enter '^Ec?' for help]
Press Enter
Switch> show version | include image
System image file is "bootflash:cat4500-ipbasek9-mz.122-53.SG2.bin"
Switch> show version | include ROM
ROM: 12.2(31r)SGA1
System returned to ROM by reload

```

Note: If the console command fails, contact Tekelec Customer Care Center.

Note the IOS image & ROM version for comparison in a following step.

To exit from the console, enter <ctrl-e><c><. > and you will be returned to the server prompt.

Connect to switch1B, check the IOS and PROM version.

Connect serially to switch1B by issuing the following command:

```
$ sudo /usr/bin/console -M <management_server_mgmt_ip_address> -l platcfg
switch1B_console
Enter platcfg@pmac5000101's password: <platcfg_password>
[Enter '^Ec?' for help]
Press Enter
Switch> show version | include image
System image file is "bootflash:cat4500-ipbasek9-mz.122-53.SG2.bin"
Switch> show version | include ROM
ROM: 12.2(31r)SGA1
System returned to ROM by reload
```

Note: If the console command fails, contact Tekelec Customer Care Center.

Note the IOS image & ROM version for comparison in a following step.

To exit from the console, enter `<ctrl-e><c><.>` and you will be returned to the server prompt.

4. Virtual PM&C: Determine if switch IOS and/or PROM upgrade is required.

Compare the IOS and PROM version from previous step with the version specified in the [List item](#) for the switch model being used.

Check the version from the previous step against the version from the release notes referenced. If the versions are different, or if the IOS version from the previous step does not have "k9" in the name, then an upgrade is necessary. Check below for the appropriate action.

FOLLOW ONE OF THESE CHOICES:

- If switch1A or both switches require an upgrade, then continue to the next step.
- If switch1B requires an upgrade, skip to step 16.
- If neither switch requires an upgrade, then skip to step 18.

5. Virtual PM&C: Verify IOS & PROM images on the system. If the appropriate image does not exist, copy the image to the PM&C and upload the switch.

Determine if the IOS & PROM images for the 4948/4948E/4948E-F is on the PM&C.

```
$ /bin/ls -i /var/TKLC/smac/image/<IOS_image_file>
$ /bin/ls -i /var/TKLC/smac/image/<PROM_image_file>
```

If the file exists, skip the remainder of this step and continue with the next step. If the file does not exist, copy the file from the firmware media and ensure the file is specified by the Firmware Upgrade Pack Release Notes [3]

6. Virtual PM&C: Modify PM&C Feature to allow TFTP.

Enable the DEVICE.NETWORK.NETBOOT feature with the management role to allow tftp traffic:

```
$ sudo /usr/TKLC/smac/bin/pmacadm editFeature --featureName=DEVICE.NETWORK.NETBOOT
--enable=1
$ sudo /usr/TKLC/smac/bin/pmacadm resetFeatures
```

Note: This may take up to 60 seconds to complete.

7. Virtual PM&C -> Management Server: Manipulate host server physical interfaces.

Note: On a TVOE host, If you launch the virsh console, i.e., "# **virsh console X**" or from the virsh utility "virsh # **console X**" command and you get garbage characters or output is not quite right, then more than likely there is a stuck "virsh console" command already being run on the TVOE host. Exit out of the "virsh console", then run "**ps -ef |grep virsh**", then kill the existing process "**kill -9 <PID>**". Then execute the "virsh console X" command. Your console session should now run as expected.

Exit from the virtual PM&C console by following the instructions in Appendix I [How to Exit a Guest Console Session on an iLO](#). This will return the terminal to the server prompt.

If upgrading the IOS or PROM on switch1A:

Ensure that the interface of the server connected to switch1A is the only interface up and obtain the IP address of the management server management interface by performing the following commands:

```
$ sudo /sbin/ifup <ethernet_interface_1>
$ sudo /sbin/ifdown <ethernet_interface_2>
$ sudo /sbin/ip addr show <management_server_mgmtInterface> | grep inet
```

The command output should contain the IP address of the variable **<management_server_mgmt_ip_address>**

If upgrading the IOS or PROM on switch1B:

Ensure that the interface of the server connected to switch1B is the only interface up and obtain the IP address of the management server management interface by performing the following commands:

```
$ sudo /sbin/ifup <ethernet_interface_2>
$ sudo /sbin/ifdown <ethernet_interface_1>
$ sudo /sbin/ip addr show <management_server_mgmtInterface> | grep inet
```

The command output should contain the IP address of the variable **<management_server_mgmt_ip_address>**

Connect to the Virtual PMAC by logging into the console of the virtual pmac instance found in procedure 3.1.1 Step 2.

```
$ sudo /usr/bin/virsh console vm-pmac1A
```

8. Virtual PM&C: Attach to switch console.

If upgrading the firmware on switch1A, connect serially to switch1A by issuing the following command as admusr on the PM&C server:

```
$ sudo /usr/bin/console -M <management_server_mgmt_ip_address> -l platcfg
switch1A_console
Enter platcfg@pmac5000101's password: <platcfg_password>
[Enter `^Ec?' for help]
Press Enter
```

If the switch is not already in enable mode ("switch#" prompt) then issue the "enable" command, otherwise continue with the next step.

```
Switch> enable
Switch#
```

If upgrading the firmware on switch1B, connect serially to switch1B by issuing the following command as admusr on the PM&C server:

```
$ sudo /usr/bin/console -M <management_server_mgmt_ip_address> -l platcfg
switch1B_console
Enter platcfg@pmac5000101's password: <platcfg_password>
[Enter '^Ec?' for help]
Press Enter
```

If the switch is not already in enable mode ("switch#" prompt), then issue the "enable" command, otherwise continue with the next step.

```
Switch> enable
Switch#
```

9. **Virtual PM&C (switch console session):** Configure ports on the 4948/4948E/4948E-F switch. To ensure connectivity, ping the management server's management vlan ip address from the switch. Platform version specific to be on the management vlan:

```
Switch# conf t
```

If upgrading the firmware on switch1A, use these commands:

```
Switch(config)# vlan <switch_mgmtVLAN_id>
Switch(config-vlan)# int vlan <switch_mgmtVLAN_id>
Switch(config-if)# ip address <switch1A_mgmtVLAN_ip_address> <netmask>
Switch(config-if)# no shut
Switch(config-if)# int gil/40
```

If upgrading the firmware on switch1B, use these commands:

```
Switch(config)# vlan <switch_mgmtVLAN_id>
Switch(config-vlan)# int vlan <switch_mgmtVLAN_id>
Switch(config-if)# ip address <switch1B_mgmtVLAN_ip_address> <netmask>
Switch(config-if)# no shut
Switch(config-if)# int gil/40
```

If the model is 4948, execute these commands:

```
Switch(config-if)# switchport trunk encap dot1q
Switch(config-if)# switchport mode trunk
Switch(config-if)# spanning-tree portfast trunk
Switch(config-if)# end
Switch# write memory
```

If the model is 4948E or 4948E-F, execute these commands:

```
Switch(config-if)# switchport mode trunk
Switch(config-if)# spanning-tree portfast trunk
```

```
Switch(config-if)# end
Switch# write memory
```

Now issue ping command:

Note: The ip address<pmac_mgmt_ip_address> should be in the reference table at the beginning of this procedure.

```
Switch# ping <pmac_mgmtVLAN_ip_address>
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to <pmac_mgmt_ip_address>, timeout
is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round trip min/avg/max = 1/1/4 ms
```

If ping is not successful, double check that the procedure was completed correctly by repeating all steps up to this point. If after repeating those steps, ping is still unsuccessful, contact Customer Care Center.

10. Virtual PM&C (Switch console session): Upgrade PROM

If upgrading the PROM, continue, otherwise skip to Step 13.

```
Switch# copy tftp: bootflash:
Address or name of remote host []? <pmac_mgmt_ip_address>

Source filename []? <PROM_image_file>
Destination filename [<PROM_image_file>]? [Enter]
Accessing tftp://<pmac_mgmt_ip_address>/<PROM_image_file>...
Loading <PROM_image_file> from <pmac_mgmt_ip_address> (via Vlan2): !!!!! [OK -
45606 bytes]

45606 bytes copied in 3.240 secs (140759 bytes/sec)
Switch#
```

11. Virtual PM&C (Switch console session): Reload the switch

```
Switch# reload
System configuration has been modified. Save? [yes/no]: no
Proceed with reload? [confirm] [Enter]
=== Boot messages removed ===
```

Type [Control-C] when *Type control-C to prevent autobooting* is displayed on the screen.

12. Virtual PM&C (Switch console session): Upgrade PROM

```
rommon 1 > boot bootflash:<PROM_image_file>

=== PROM upgrade messages removed ===

System will reset itself and reboot within few seconds....
```

13. Virtual PM&C (Switch console session): Verify Upgrade

The switch will reboot when the firmware upgrade completes. Allow it to boot up. Wait for the following line to be printed:

```
Press RETURN to get started!
Would you like to terminate autoinstall? [yes]: [Enter]
```

```
Switch> show version | include ROM
ROM: 12.2(31r)SGA1
System returned to ROM by reload
```

Review the output and look for the ROM version. Verify that the version is the desired new version. If the switch does not boot properly or has the wrong ROM version, contact Tekelec Customer Care.

14. Virtual PM&C (switch console session): Upload the IOS to the switch and verify.

On the switch, copy the IOS file over to the switch by issuing the following command sequence:

```
Switch> en
Switch# copy tftp: bootflash:
Address or name of remote host []? <pmac_mgmt_ip_address>
Source filename []? <IOS_image_file>
Destination filename [<IOS_image_file>]? Enter
```

Press Enter here, you do NOT want to change the filename.

```
Accessing tftp://<pmac_mgmt_ip_address>/<IOS_image_file>...
Loading <IOS_image_file> from <pmac_mgmt_ip_address> (via Vlan2):
!!!!!! [OK - 45606 bytes]
45606 bytes copied in 3.240 secs (140759 bytes/sec)

Switch# dir bootflash:
Directory of bootflash:/
 1 -rwx 17779888 May 11 2011 02:25:23 -05:00
   <IOS_image_file>
 2 -rwx 17779888 May 11 2011 02:25:23 -05:00
   <OLD_IOS_image_file>
60817408 bytes total (43037392 bytes free)
```

15. Virtual PM&C (switch console session): Set the active IOS image and config-register from the switch console session that was established.

Set the active IOS image:

```
Switch# conf t
Switch(config)# boot system flash bootflash:<ios_image_file>
Switch(config)# no boot system flash bootflash:<OLD_IOS_image_file>
Switch(config)# config-register 0x2102
Switch(config)# end
Switch# write memory
Switch#
```

Verify the changes:

```
Switch# show run | include boot
boot-start-marker
boot system flash bootflash: <ios_image_file>
boot-end-marker

Switch# show version | include register
Configuration register is 0xXXXX (will be 0x2102 at next reload)

Switch# reload
Proceed with reload? [confirm]
```

Wait until the switch reloads, then issue the following command to ensure the switch is at the appropriate IOS version:

```
Switch> show version | include image
System image file is <IOS_image_file>"
```

Note: You might see an additional prompt:

```
System Config has been modified. Save? [yes|no] no
```

If the switch is not at the appropriate version, stop here and contact Customer Care Center. If it is, move on to the next step.

- 16. Virtual PM&C (switch console session):** Delete any other IOS images if there are multiple IOS images on the switch, delete the unused images.

```
Switch>en
Switch# show bootflash:
-#- --length-- ----date/time----- path
1 25771102 Jan 20 2012 08:20:08 <ios_image_file>
2 16332568 Jan 24 2012 18:54:44 <OLD_IOS_image>

Switch# delete /force /recursive bootflash:<OLD_IOS_image>
```

Repeat this command until the only file on the switch is <ios_image_file>

Execute the following to remove remaining vlan data and reset the config register.

```
Switch# conf t
Switch(config)# config-register 0x2101
Switch(config)# no vlan 2-4094
Switch(config)# end
```

Note: There might be a switch message saying some default vlans will not be deleted, it is ok to ignore this.

To exit from console, enter <ctrl-e><c><. > and you will be returned to the server prompt.

- 17. Virtual PM&C:** Repeat for switch1B, if determined to be needed.
Repeat [Step 7](#) - [Step 16](#) for switch1B, then continue to the next step.
- 18. Virtual PM&C:** Modify PM&C Feature to disable TFTP.

Disable the DEVICE.NETWORK.NETBOOT feature.

```
$ sudo /usr/TKLC/smac/bin/pmacadm editFeature --featureName=DEVICE.NETWORK.NETBOOT
--enable=0
$ sudo /usr/TKLC/smac/bin/pmacadm resetFeatures
```

Note: This may take up to 60 seconds to complete.

- 19. Virtual PM&C:** Reset switches to factory defaults.

Connect serially to both switch1A and switch1B as outlined in [Step 7](#), and reload each switch by performing the following commands:

```
Switch# write erase
Switch# reload
```

Wait until the switch reloads, then exit from console, enter `<ctrl-e><c><. >` and you will be returned to the server prompt. Wait for the first switch to finish before repeating this process for the second switch.

Note: There might be messages from the switch, if asked to confirm, press enter. If asked yes or no, type in 'no' and press enter.

20. Virtual PM&C:

Verify the initialization xml template file and configuration xml template file is present on the system and is the correct version for the system.

```
$ sudo /bin/more /usr/TKLC/smac/etc/switch/xml/switch1A_4948_4948E_init.xml
$ sudo /bin/more /usr/TKLC/smac/etc/switch/xml/switch1B_4948_4948E_init.xml
$ sudo /bin/more /usr/TKLC/smac/etc/switch/xml/4948_4948E_configure.xml
```

If either file does not exist, copy the files onto the virtual pmac from the application media using application provided procedures. .

21. Virtual PM&C: Modify switch1A_4948_4948E_init.xml and switch1B_4948_4948E_init.xml files for information needed to initialize the switch.

Update the init.xml files for all values preceded by a dollar sign. For example, if a value has \$some_variable_name, that value will be modified and the dollar sign must be removed during the modification.

When done editing the file, save and exit to return to the command prompt.

22. Virtual PM&C: Modify 4948_4948E_configure.xml for information needed to configure the switches.

Update the configure.xml file for all values preceded by a dollar sign. For example, if a value has \$some_variable_name, that value will be modified and the dollar sign must be removed during the modification.

When done editing the file, save and exit to return to the command prompt.

23. Virtual PM&C: Initialize each switch

Initialize switch1A by issuing the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig
--file=/usr/TKLC/smac/etc/switch/xml/switch1A_4948_4948E_init.xml
Processing file: /usr/TKLC/smac/etc/switch/xml/switch1A_4948_4948E_init.xml
$
```

Note: This step takes about 2-3 minutes to complete.

Check the output of this command for any errors. If this fails for any reason, stop this procedure and contact Customer Care Center.

A successful completion of netConfig will return the user to the prompt.

Use netConfig to get the hostname of the switch, to verify that the switch was initialized properly, and to verify that netConfig can connect to the switch.

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=switch1A getHostname
Hostname: switch1A
```

```
$
```

Note: If this command fails, stop this procedure and contact Customer Care Center

Initialize switch1B by issuing the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig
--file=/usr/TKLC/smac/etc/switch/xml/switch1B_4948_4948E_init.xml
Processing file: /usr/TKLC/smac/etc/switch/xml/switch1B_4948_4948E_init.xml
$
```

Note: This step takes about 2-3 minutes to complete.

Check the output of this command for any errors. If this fails for any reason, stop this procedure and contact Customer Care Center.

A successful completion of netConfig will return the user to the prompt.

Use netConfig to get the hostname of the switch, to verify that the switch was initialized properly, and to verify that netConfig can connect to the switch.

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=switch1B getHostname
Hostname: switch1B
$
```

Note: If this command fails, stop this procedure and contact Customer Care Center

24. Virtual PM&C -> Management Server: Manipulate host server physical interfaces for switch1B.

Exit from the virtual pmac console, by entering `<ctrl-] >` and you will be returned to the server prompt.

Ensure that the interface of the server connected to switch1B is the only interface up and obtain the IP address of the management server management interface by performing the following commands:

```
$ sudo /sbin/ifup <ethernet_interface_2>
$ sudo /sbin/ifdown <ethernet_interface_1>
$ sudo /sbin/ip addr show <management_server_mgmtInterface> | grep inet
```

The command output should contain the IP address of the variable

`<management_server_mgmt_ip_address>`

Connect to the Virtual PMAC by logging into the console of the virtual pmac instance found in procedure 3.1.1 Step 2.

```
$ sudo /usr/bin/virsh console vm-pmac1A
```

Note: On a TVOE host, If you launch the virsh console, i.e "# virsh console X" or from the virsh utility "virsh # console X" command and you get garbage characters or output is not quite right, then more than likely there is a stuck "virsh console" command already being run on the TVOE host. Exit out of the "virsh console", then run "ps -ef | grep virsh", then kill the existing process "kill -9 <PID>". Then execute the "virsh console X" command. Your console session should now run as expected.

25. Virtual PM&C: Verify switch configuration

Ping each of the switches' SVI (router interface) addresses to verify switch configuration.

```
# /bin/ping <switch1A_mgmtVLAN_IP>
# /bin/ping <switch1B_mgmtVLAN_IP>
```

26. Virtual PM&C: Verify the switch is using the proper IOS image per Platform version.

Issue the following commands to verify the IOS release on each switch:

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=switch1A listFirmware
Image: cat4500-ipbasek9-mz.122-53.SG2.bin
$ sudo /usr/TKLC/plat/bin/netConfig --device=switch1B listFirmware
Image: cat4500-ipbasek9-mz.122-53.SG2.bin
```

27. Management Server: Ensure both interfaces are enabled on the TVOE host.

Exit from the virtual PM&C console by following the instructions in Appendix I [How to Exit a Guest Console Session on an iLO](#). This will return the terminal to the server prompt.

Ensure that the interfaces of the server connected to switch1A and switch1B are up by performing the following commands:

```
$ sudo /sbin/ifup <ethernet_interface_1>
$ sudo /sbin/ifup <ethernet_interface_2>
```

28. Cabinet: Connect network cables from customer network

Attach switch1A customer uplink cables. Refer to application documentation for which ports are uplink ports.

Note: If the customer is using standard 802.1D spanning-tree, the links may take up to 50 seconds to become active

29. Virtual PM&C: Verify access to customer network

Verify connectivity to the customer network by issuing the following command:

```
$ /bin/ping <customer_supplied_ntp_server_address>
PING ntpserver1 (10.250.32.51) 56(84) bytes of data.
64 bytes from ntpserver1 (10.250.32.51): icmp_seq=0 ttl=62 time=0.150 ms
64 bytes from ntpserver1 (10.250.32.51): icmp_seq=1 ttl=62 time=0.223 ms
64 bytes from ntpserver1 (10.250.32.51): icmp_seq=2 ttl=62 time=0.152 ms
```

30. Cabinet: Connect network cables from customer network

Attach switch1B customer uplink cables and detach switch1A customer uplink cables. Refer to application documentation for which ports are uplink ports.

Note: If the customer is using standard 802.1D spanning-tree, the links may take up to 50 seconds to become active.

31. Virtual PM&C: Verify access to customer network

Verify connectivity to the customer network by issuing the following command:

```
$ /bin/ping <customer_supplied_ntp_server_address>
PING ntpserver1 (10.250.32.51) 56(84) bytes of data.
64 bytes from ntpserver1 (10.250.32.51): icmp_seq=0 ttl=62 time=0.150 ms
```

```
64 bytes from ntpserver1 (10.250.32.51): icmp_seq=1 ttl=62 time=0.223 ms
64 bytes from ntpserver1 (10.250.32.51): icmp_seq=2 ttl=62 time=0.152 ms
```

32. Cabinet: Connect network cables from customer network

Re-attach switch1A customer uplink cables. Refer to application documentation for which ports are uplink ports.

Note: If the customer is using standard 802.1D spanning-tree, the links may take up to 50 seconds to become active

33. Management Server: Restore the TVOE host back to its original state.

Exit from the virtual PM&C console by following the instructions in Appendix I [How to Exit a Guest Console Session on an iLO](#). This will return the terminal to the server prompt.

Restore the server networking back to original state:

```
$ sudo /sbin/service network restart
```

34. Perform [3.1.2.5 Backup Cisco 4948/4948E/4948E-F Aggregation Switch and/or Cisco 3020 Enclosure Switch \(netConfig\)](#) for each switch configured in this procedure.

3.1.2.2 Configure Cisco 4948/4948E/4948E-F aggregation switches (RMS system, no PM&C) (netConfig)

This procedure will configure 4948/4948E/4948E-F switches with an appropriate IOS and configuration from two management servers for use with the rack mount server platform.

This procedure assumes a Platform 6.5 interconnect. **If the system being configured follows a Platform 6.0 interconnect, then Platform 6.0 procedures should be followed.**

Prerequisites:

- [3.1.1 Configure netConfig Repository](#), and
- [3.6.1 IPM DL360 or DL380 Server](#) is required to be complete before this procedure is attempted.
- Application management network interfaces must be configured on the management servers prior to executing this procedure
- Application username and password for creating switch backups must be configured on the management server prior to executing this procedure.
- netConfig is installed.

Procedure Reference Tables

Steps within this procedure may refer to variable data indicated by text within "<>". Refer to this table for the proper value to insert depending on your system type.

Fill in the appropriate value from [3]:

Variable	Cisco WS-C4948	Cisco WS-C4948E	Cisco WS-C4948E-F
<IOS_image_file>			
<PROM_image_file>			

Fill in the appropriate value for this site:

Variable	Value
<switch_platform_username>	See referring application documentation
<switch_platform_password>	See referring application documentation
<switch_console_password>	See referring application documentation
<switch_enable_password>	See referring application documentation
<management_server_mgmt_ip_address >	
<switch1A_mgmtVLAN_ip_address>	
<netmask>	
<switch1B_mgmtVLAN_ip_address>	
<switch_mgmtVLAN_id>	
<management_server_iLO_ip>	
<customer_supplied_ntp_server_address>	

Fill in the appropriate value for this site:

Variable	Value
<platcfg_password>	Refer to TR006061 for this value
<management_server_mgmtInterface>	Value gathered from NAPD
<switch_backup_user>	admusr
<switch_backup_user_password>	Check application documentation

Note: Uplinks must be disconnected from the customer network prior to executing this procedure. One of the steps in this procedure will instruct when to reconnect these uplink cables. Refer to the application appropriate schematic or procedure for determining which cables are used for customer uplink.

Needed Material:

- Tekelec's HP Misc. Firmware USB media or ISO file
- HP Solutions Firmware Upgrade Pack Release Notes [3]
- Application specific documentation (documentation that referred to this procedure)
- Template xml files in an application ISO on an application CD.
- Application ISO's with netConfig and its required RPMs.

Note: Filenames and sample command line input/output throughout this section do not specifically reference the 4948E-F. Template settings are identical between the 4948E and 4948E-F. The original 4948 switch -- as opposed to the 4948E or the 4948E-F is referred to by the model number 4948. Where all three switches are being referred to, this will be made clear by reference to '4948 / 4948E / 4948 E-F' switches.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document

1. Management Server: Run conserverSetup command .

```
$ sudo /usr/TKLC/plat/bin/conserverSetup -s <management_server_mgmt_ip_address>
-l
```

You will be prompted for the platcfg credentials.

An example:

```
$ sudo /usr/TKLC/plat/bin/conserverSetup -s <management_server_mgmt_ip_address>
-l
Enter your platcfg username, followed by [ENTER]:platcfg
Enter your platcfg password, followed by [ENTER]:<platcfg_password>
Checking Platform Revision for local TPD installation...
The local machine is running:
    Product Name: TPD
    Product Release: 6.5.0_80.19.0
Configuring switch 'switch1A_console' console server...Configured.
Configuring switch 'switch1B_console' console server...Configured.
Configuring console repository service...Configured.
bond0 interface: eth01
bond0 interface: eth02
```

- If this command fails, contact Tekelec [1.4 Customer Care Center](#).
- Verify the output of the script.
- Verify that your Product Release is based on Tekelec Platform 6.5 (versions 6.5.x_x.x.x).
- Note the slave interface names of bond interfaces (<ethernet_interface_1> and <ethernet_interface_2>) for use in subsequent steps.

2. Management Server: Get IOS image and PROM information on the switches.

Connect to switch1A, check the IOS and PROM version. Connect serially to switch1A by issuing the following command:

```
$ sudo /usr/bin/console -M <management_server_mgmt_ip_address> -l platcfg
switch1A_console
Enter platcfg@localhost's password: <platcfg_password>
[Enter ^Ec? for help]
Press Enter
Switch> show version | include image
System image file is "bootflash:cat4500-ipbasek9-mz.122-53.SG2.bin"
Switch> show version | include ROM
ROM: 12.2(31r)SGA1
System returned to ROM by reload
```

Note the image version for comparison in a following step. To exit from console, enter <ctrl+e>, <c>, <. >, and you will be returned to the server prompt.

Connect serially to switch1B, check the IOS and PROM version:

```
$ sudo /usr/bin/console -M <management_server_mgmt_ip_address> -l platcfg
switch1B_console
Enter platcfg@localhost's password: <platcfg_password>
[Enter ^Ec? for help]
Press Enter
Switch> show version | include image
System image file is "bootflash:cat4500-ipbasek9-mz.122-53.SG2.bin"
Switch> show version | include ROM
```

```
ROM: 12.2(31r)SGA1
System returned to ROM by reload
```

Note the image version for comparison in a following step. To exit from console enter **<ctrl+e>**, **<c>**, **<. >** and you will be returned to the server prompt.

Note: If the console command fails, contact Tekelec Customer Care Center.

3. Management Server: Determine if switch IOS and/or PROM upgrade is required.

Compare the IOS and PROM version from previous step with the version specified in the Firmware Upgrade Pack Release Notes [3] for the switch model being used.

Check the version from the previous step against the version from the release notes referenced. If the versions are different, or if the IOS version from the previous step does not have "k9" in the name, then an upgrade is necessary. Check below for the appropriate action.

FOLLOW ONE OF THESE CHOICES:

- If one or both switches require an upgrade, then continue to [Step 4](#).
- If neither switch requires an upgrade, then skip to [Step 19](#).

4. Management Server: Verify IOS & PROM images on the system. If the appropriate image does not exist, copy the image to the management server and upload to the switch.

Determine if the IOS & PROM image for the 4948/4948E/4948E-F is on the management server

```
$ /bin/ls -i /var/lib/tftpboot/<IOS_image_file>
$ /bin/ls -i /var/lib/tftpboot/<PROM_image_file>
```

If the file exists, continue with the next step. If the file does not exist, copy the file from the firmware media. Ensure the file is specified by the Firmware Upgrade Pack Release Note [3].

5. Management Server: Enable tftp on the system for tftp transfer of IOS upgrade file.

Execute the commands that enable tftp transfer.

```
$ sudo /usr/TKLC/plat/bin/tpdProvd --client --noxml --ns=Xinetd startXinetdService
service tftp
Login on Remote: platcfg
Password of platcfg: <platcfg_password>
1
$ sudo /usr/TKLC/plat/sbin/prepswconf --prepare
```

Note: The prepswconfig command will open up iptables to allow tftp access from the switch for 120 minutes. This procedure must be completed within that time frame. If not, this step must be repeated before any of the remaining steps can be completed.

6. Management Server: Manipulate server interfaces

If upgrading the IOS on switch1A: Ensure that the interface of the server connected to switch1A is the only interface up and obtain the IP address of the management server management interface by performing the following commands:

```
$ sudo /sbin/ifup <ethernet_interface_1>
$ sudo /sbin/ifdown <ethernet_interface_2>
$ sudo /sbin/ip addr show <management_server_mgmtInterface> | grep inet
```

The command output should contain the IP address of the variable `<management_server_mgmt_ip_address>`.

If upgrading the IOS on switch 1B: Ensure that the interface of the server connected to switch1B is the only interface up and obtain the IP address of the management server management interface by performing the following commands:

```
$ sudo /sbin/ifup <ethernet_interface_2>
$ sudo /sbin/ifdown <ethernet_interface_1>
$ sudo /sbin/ip addr show <management_server_mgmtInterface> | grep inet
```

The command output should contain the IP address of the variable `<management_server_mgmt_ip_address>`.

7. Management Server: Attach to switch console

If upgrading the IOS or ROM on switch1A, connect serially to switch1A by issuing the following command as admusr on the management server:

```
$ sudo /usr/bin/console -M <management_server_mgmt_ip_address> -l platcfg
switch1A_console
Enter platcfg@localhost's password: <platcfg_password>
[Enter '^Ec?' for help]
```

Press **Enter**

If the switch is not already in enable mode ("switch#" prompt), then issue the "enable" command, otherwise continue with the next step.

```
Switch> enable
Switch#
```

If upgrading the firmware on switch1B, connect serially to switch1B by issuing the following command as admusr on the management server:

```
$ sudo /usr/bin/console -M <management_server_mgmt_ip_address> -l platcfg
switch1B_console
Enter platcfg@localhost's password: <platcfg_password>
[Enter '^Ec?' for help]
```

Press **Enter**

If the switch is not already in enable mode ("switch#" prompt), then issue the "enable" command, otherwise continue with the next step.

```
Switch> enable
Switch#
```

8. Management Server (switch console session): Configure ports on switch of type 4948/4948E/4948E-F.

On the switch, create the management vlan, create and configure the router interface of the management vlan, and configure the appropriate port on the switch (this is Platform version specific) to be on the management vlan:

```
Switch# conf t
Switch(config)# vlan <switch_mgmtVLAN_id>
Switch(config)# int vlan <switch_mgmtVLAN_id>
```

If configuring switch1A, use this command:

```
Switch(config-if)# ip address <switch1A_mgmtVLAN_ip_address> <netmask>
```

If configuring switch1B, use this command:

```
Switch(config-if)# ip address <switch1B_mgmtVLAN_ip_address> <netmask>
```

Continue with these commands:

```
Switch(config-if)# no shut
Switch(config-if)# int range gil/2 - 4
Switch(config-if)# shut
Switch(config-if)# int range gil/1, gil/40
```

If the model is 4948, execute this command:

```
Switch(config-if)# switchport trunk encap dot1q
```

Continue with these commands:

```
Switch(config-if)# switchport mode trunk
Switch(config-if)# spanning-tree portfast trunk
Switch(config-if)# end
Switch# write memory
```

Now issue ping command:

Note: The ip address <management_server_mgmt_ip_address> is the one obtained in [Step 6](#).

```
Switch# ping <management_server_mgmt_ip_address>
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to <management_server_mgmt_ip_address>,
timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round trip min/avg/max = 1/1/4 ms
```

If ping is not successful the first time, repeat the ping. If unsuccessful again, double check that the procedure was completed correctly by repeating all steps up to this point. If after repeating those steps, ping is still unsuccessful, contact Customer Care Center.

9. Management Server (Switch console session): Upgrade ROM

If upgrading the ROM continue. Otherwise, skip to [Step 13](#).

```
Switch# copy tftp: bootflash:
Address or name of remote host []? <management_server_mgmt_ip_address>

Source filename []? <PROM_image_file>
Destination filename [cat4500-ios-promupgrade-122_31r_SGA1]? [Enter]
Accessing tftp://<management_server_mgmt_ip_address>/<PROM_image_file>...
Loading <PROM_image_file> from <management_server_mgmt_ip_address> (via Vlan2):
!!!!!! [OK - 45606 bytes]

45606 bytes copied in 3.240 secs (140759 bytes/sec)
Switch#
```

10. Management Server (Switch console session): Reload the switch

```
Switch# reload
System configuration has been modified. Save? [yes/no]: no
Proceed with reload? [confirm] [Enter]
=== Boot messages removed ===
```

Type **[Control-C]** when *Type control-C to prevent autobooting* is displayed on the screen.

11. Management Server (Switch console session): Upgrade PROM.

```
rommon 1 > boot bootflash:<PROM_image_file>

=== PROM upgrade messages removed ===

System will reset itself and reboot within few seconds....
```

12. Management Server (Switch console session): Verify Upgrade

The switch will reboot when the firmware upgrade completes. Allow it to boot up. Wait for the following line to be printed:

```
Press RETURN to get started!
Would you like to terminate autoinstall? [yes]: [Enter]
Switch> show version | include ROM
ROM: 12.2(31r)SGA1
System returned to ROM by reload
```

Review the output and look for the ROM version. Verify that the version is the desired new version. If the switch does not boot properly or has the wrong ROM version, contact Tekelec Customer Care.

13. Management Server (switch console session): Upload the IOS to the switch. The command is the same regardless if you are upgrading switch1A or switch1B, that is why neither switch is called out specifically in this step. These commands apply to whatever switch you are upgrading the IOS on.

On the switch, copy the IOS file over to the switch by issuing the following command sequence:

```
Switch# copy tftp: bootflash:
Address or name of remote host []? <management_server_mgmt_ip_address>
Source filename []? <IOS_image_file>
Destination filename [<IOS_image_file>]? <ENTER>
```

Press **Enter** here, you do NOT want to change the filename

```
Accessing tftp://<management_server_mgmt_ip_address>/<IOS_image_file>...
Loading <IOS_image_file> from <management_server_mgmt_ip_address> (via
Vlan2): !!!!!!! [OK - 45606 bytes]
45606 bytes copied in 3.240 secs (140759 bytes/sec)

Switch# dir bootflash:
Directory of bootflash:/
 1 -rwx 17779888 May 11 2011 02:25:23 -05:00
cat4500-entservicesk9-mz.122-53.SG.bin
 2 -rwx 17779888 May 11 2011 02:25:23 -05:00
cat4500-ipbasek9-mz.122-53.SG2.bin
60817408 bytes total (43037392 bytes free)
```

Note: Take note which filename matches with <IOS_image_file> because the other filename is the value for the variable <OLD_ios_image> which will be used to define which file is deleted.

- 14. Management Server (switch console session):** Delete any other IOS images if there are multiple IOS images on the switch, delete the unused images.

```
Switch> en
Switch# show bootflash:
-#- --length-- -----date/time----- path
1 25771102 Jan 20 2012 08:20:08 <ios_image_file>
2 16332568 Jan 24 2012 18:54:44 <OLD_IOS_image>
Switch# delete /force /recursive bootflash:<OLD_IOS_image>
```

Repeat this command until the only file on the switch is <ios_image_file>

Exit from console, enter <ctrl+e> , <c> , <. > and you will be returned to the server prompt.

- 15. Management Server:** Reset the switch to factory defaults.

```
Switch# conf t
Switch(config)# config-register 0x2101
Switch(config)# no vlan 2-4094
Switch(config)# end
Switch# write erase
[confirm] <enter>
Switch# reload
```

After entering the reload command, additional prompts may appear:

```
System Config has been modified. Save ? [yes|no] no
Proceed with reload?
[confirm] ENTER
```

Note: It takes approximately 3 to 4 minutes for a switch to finish rebooting.

- 16. Management Server (switch console session):** Set the active IOS image and config-register from the switch console session that was established.

Set the active IOS Image:

```
Switch> en
Switch# conf t
Switch(config)# boot system flash bootflash:<ios_image_file>
Switch(config)# config-register 0x2102
Switch(config)# end
Switch# write memory
Switch#
```

Verify the changes:

```
Switch# show run | include boot
boot-start-marker
boot system flash bootflash: <ios_image_file>
boot-end-marker
Switch# show version | include register
Configuration register is 0xXXXX (will be 0x2102 at next reload)
Switch# reload
Proceed with reload? [confirm]
```

Wait until the switch reloads, then issue the following command to ensure the switch is at the appropriate IOS version:

```
Switch> show version | include image
System image file is "bootflash:cat4500-ipbasek9-mz.122-53.SG2.bin"
```

If the switch is not at the appropriate version, stop here and contact Customer Care Center. If it is, move on to the next step.

- To exit from the console enter `<ctrl+e><c><. >` and you will be returned to the server prompt.

17. Management Server: If determined by [Step 3](#), upgrade switch1B.

Execute steps [Step 6](#) - [Step 16](#) for switch1B, otherwise continue with [Step 18](#).

18. Management Server: Force server interface activity and disable tftp

Execute the commands that disable tftp transfer.

```
$ sudo /usr/TKLC/plat/bin/tpdProvdc --client --noxml --ns=Xinetd stopXinetdService
service tftp
Login on Remote: platcfg
Password of platcfg: <platcfg_password>
1
$
```

Ensure that the tftp service is not running by executing the following command. A zero is expected.

```
$ sudo /usr/TKLC/plat/bin/tpdProvdc --client --noxml --ns=Xinetd getXinetdService
service tftp
Login on Remote: platcfg
Password of platcfg:
0
$
```

If it returns a 1, stop the process by executing this command:

```
$ sudo /usr/TKLC/plat/bin/tpdProvdc --client --noxml --ns=Xinetd stopXinetdService
service tftp force yes
Login on Remote: platcfg
Password of platcfg:
1
$
```

This should return a 1. Repeat this process until stopXinetdService returns a 1.

Ensure that the interfaces of the server connected to switch1A & switch1B are up by performing the following commands:

```
$ sudo /sbin/ifup <ethernet_interface_1>
$ sudo /sbin/ifup <ethernet_interface_2>
```

19. Management Server: Reset switches to factory defaults.

Connect serially to both switch1A and switch1B as outlined in [Step 7](#), and reload each switch by performing the following commands.

```
Switch# write erase
Switch# reload
```

Wait until the switch reloads, then exit from console, enter `<ctrl-e><c><. >` and you will be returned to the server prompt. Wait for the first switch to finish before repeating this process for the second switch.

Note: There might be messages from the switch, if asked to confirm, press enter. If asked yes or no, type in no and press enter.

- 20. Management Server:** Verify the initialization template xml file in existence on the management server. If no template file present, copy over the from application media.

Verify the initialization xml template file and configuration xml template file is present on the system and is the correct version for the system.

```
$ sudo /bin/more /usr/TKLC/plat/etc/switch/xml/switch1A_4948_4948E_init.xml
$ sudo /bin/more /usr/TKLC/plat/etc/switch/xml/switch1B_4948_4948E_init.xml
$ sudo /bin/more /usr/TKLC/plat/etc/switch/xml/4948_4948E_configure.xml
```

If either file does not exist, copy the files onto the management server from the application media using application provided procedures.

- 21. Management Server:** Modify switch1A_4948_4948E_init.xml and switch1B_4948_4948E_init.xml files for information needed to initialize the switch.

Update the switch1A_4948_4948E_init.xml and switch1B_4948_4948E_init.xml files for site specific information. Values to be edited in those files are preceded with a dollar sign, an example is \$ **some_variable_name** . When done editing the file, save and quit.

- 22. Management Server:** Modify 4948_4948E_configure.xml file for information needed to initialize the switch

Update the 4948_4948E_configure.xml file for site specific information. Values to be edited in those files are preceded with a dollar sign, an example is \$ **some_variable_name**. When done editing the file, save and quit.

- 23. Management Server:** Initialize each switch

Initialize switch1A by issuing the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig
--file=/usr/TKLC/plat/etc/switch/xml/switch1A_4948_4948E_init.xml
Processing file: /usr/TKLC/plat/etc/switch/xml/switch1A_4948_4948E_init.xml
$
```

This step takes about 2-3 minutes to complete.

Check the output of this command for any errors. If this fails for any reason, stop this procedure and contact Customer Care Center.

A successful completion of netConfig will return the user to the prompt.

Initialize switch1B by issuing the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig
--file=/usr/TKLC/plat/etc/switch/xml/switch1B_4948_4948E_init.xml
Processing file: /usr/TKLC/plat/etc/switch/xml/switch1B_4948_4948E_init.xml
$
```

Note: This step takes about 2-3 minutes to complete

Check the output of this command for any errors. If this fails for any reason, stop this procedure and contact Customer Care Center.

A successful completion of netConfig will return the user to the prompt.

Use netConfig to get the hostname of the switch, to verify that the switch was initialized properly, and to verify that netConfig can connect to the switch.

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=switch1A getHostname
Hostname: switch1A
$
```

Note: If this command fails, stop this procedure and contact Customer Care Center

Use netConfig to get the hostname of the switch, to verify that the switch was initialized properly, and to verify that netConfig can connect to the switch.

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=switch1B getHostname
Hostname: switch1B
$
```

Note: If this command fails, stop this procedure and contact Customer Care Center.

24. Management Server: Configure both switches

Configure the switch by issuing the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig
--file=/usr/TKLC/plat/etc/switch/xml/4948_4948E_configure.xml
Processing file: file=/usr/TKLC/plat/etc/switch/xml/4948_4948E_configure.xml
$
```

Note: This step takes about 2-3 minutes to complete.

Check the output of this command for any errors. If this fails for any reason, stop this procedure and contact Customer Care Center.

A successful completion of netConfig will return the user to the prompt.

25. Management Server: Set firmware boot image

Issue the following commands from the management server to set the IOS release on each switch:

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=switch1A setFirmware
filename=<ios_image_file>

$ sudo /usr/TKLC/plat/bin/netConfig --device=switch1B setFirmware
filename=<ios_image_file>
```

26. Cabinet: Connect network cables from customer network

Attach switch1A customer uplink cables. Refer to application documentation for which ports are uplink ports.

Note: If the customer is using standard 802.1D spanning-tree, the links may take up to 50 seconds to become active

27. Management Server: Verify access to customer network.

Verify connectivity to the customer network by issuing the following command:

```
# /bin/ping <customer_supplied_ntp_server_address>
PING ntpserver1 (10.250.32.51) 56(84) bytes of data.
64 bytes from ntpserver1 (10.250.32.51): icmp_seq=0 ttl=62 time=0.150 ms
64 bytes from ntpserver1 (10.250.32.51): icmp_seq=1 ttl=62 time=0.223 ms
64 bytes from ntpserver1 (10.250.32.51): icmp_seq=2 ttl=62 time=0.152 ms
```

28. Cabinet: Connect network cables from customer network

Attach switch1B customer uplink cables and detach switch1A customer uplink cables. Refer to application documentation for which ports are uplink ports.

Note: If the customer is using standard 802.1D spanning-tree, the links may take up to 50 seconds to become active

29. Management Server: Verify access to customer network

Verify connectivity to the customer network by issuing the following command:

```
# /bin/ping <customer_supplied_ntp_server_address>
PING ntpserver1 (10.250.32.51) 56(84) bytes of data.
64 bytes from ntpserver1 (10.250.32.51): icmp_seq=0 ttl=62 time=0.150 ms
64 bytes from ntpserver1 (10.250.32.51): icmp_seq=1 ttl=62 time=0.223 ms
64 bytes from ntpserver1 (10.250.32.51): icmp_seq=2 ttl=62 time=0.152 ms
```

30. Cabinet: Connect network cables from customer network

Re-attach switch1A customer uplink cables. Refer to application documentation for which ports are uplink ports.

Note: If the customer is using standard 802.1D spanning-tree, the links may take up to 50 seconds to become active

31. Perform [3.1.2.5 Backup Cisco 4948/4948E/4948E-F Aggregation Switch and/or Cisco 3020 Enclosure Switch \(netConfig\)](#) for each switch configured in this procedure.**3.1.2.3 Replace a failed 4948/4948E/4948E-F switch (PM&C Installed) (netConfig)**

The procedure details the steps necessary to replace a failed 4948/4948E/4948E-F switch.

This procedure assumes a Platform 6.5 interconnect. **If the system being configured follows a Platform 6.0 interconnect, then Platform 6.0 procedures should be followed.**

Prerequisites:

- [3.7.2 Installing TVOE on the Management Server](#),
- [3.7.3 TVOE Network Configuration](#),
- [3.7.4 Deploy PM&C Guest](#), and
- [3.7.5 Setup PM&C](#) are required to perform this procedure.
- A fully configured and operational redundant switch must be in operation (1 and 3 have been completed on the redundant switch). If this is not ensured, connectivity may be lost to the end devices.

Procedure Reference Tables:

Steps within this procedure may refer to variable data indicated by text within "<>". Refer to this table for the proper value to insert depending on your system type.

Fill in the appropriate value from [3]:

Variable	Cisco 4948	Cisco 4948E	Cisco 4948E-F
<PROM_image_file>			
<IOS_image_file>			

Fill in the appropriate value for this site:

Variable	Value
<switch_console_password>	See referring application documentation
<switch_enable_password>	See referring application documentation
<management_server_mgmt_ip_address >	
<switch1A_mgmtVLAN_ip_address>	
<switch1B_mgmtVLAN_ip_address>	
<switch_mgmtVlan_id>	
<management_server_mgmtInterface>	
<management_server_iLO_ip>	
<netmask>	

Ethernet Interface	DL360	DL380
<ethernet_interface_1>	eth01	eth01
<ethernet_interface_2>	eth02	eth03

Variable	Platform 6.5
<management_server_switchport>	gi1/40

Variable	Value
<mgmt_VLAN_ID>	Value gathered from NAPD
<switch_backup_user>	admusr
<switch_backup_user_password>	Check application documentation

Note: The onboard administrators that are connected to the failed switch will be unavailable during this procedure.

Needed Material:

- Tekelec's HP Misc. Firmware USB media or ISO file
- HP Solutions Firmware Upgrade Pack Release Notes [3]

- Application specific documentation (documentation that referred to this procedure)
- Template xml files in an application ISO on an application CD.

Note: Filenames and sample command line input/output throughout this section do not specifically reference the 4948E-F. Template settings are identical between the 4948E and 4948E-F. The original 4948 switch -- as opposed to the 4948E or the 4948E-F is referred to simply by the model number 4948. Where all three switches are being referred to, this will be made clear by reference to '4948 / 4948E / 4948 E-F' switches.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Cabinet: Power off failed switch

If not already done so, power off the failed switch.

If the failed switch is DC powered, power off using the cabinet breakers, then remove the DC power and ground cables.

If the failed switch is AC powered, remove the AC power cords from the unit.

2. Cabinet: Find and prepare to replace switch

If not already done so, determine whether switch1A or switch1B failed, locate the failed switch, and detach all network and console cables from the failed switch.

Note: If needed label cables prior to removal.

3. Cabinet: Replace switch

If not already done so, remove failed switch and replace with new switch of same model.

4. Cabinet: Power on replacement switch

If the switch is DC powered, attach the DC power and ground cables, then power on the replacement switch using the appropriate cabinet breakers.

Otherwise, connect the AC power cords to the unit (AC).

5. Cabinet: Attach cables to new switch

Connect all network and console cables to the new switch except the customer uplink cables. Ensure each cable is connected to the same ports of the replacement switch as they were in the failed switch.

Note: Refer to appropriate application schematic or procedure for determining which cables are used for customer uplink.

6. Virtual PM&C: Verify current PROM release

Execute [3.1.2.1 Configure Cisco 4948/4948E/4948E-F aggregation switches \(PM&C installed\)\(netConfig\)](#), step 2.

7. Virtual PM&C: Verify need for PROM upgrade

Compare the PROM version from step 6 with the PROM version specified in the [List item](#). Firmware Upgrade Pack Release Notes [3] for the switch model being used.

If the version from [Step 6](#) is equal or greater than the version from the release notes, then skip to [Step 13](#), there is no PROM upgrade necessary for this switch.

Otherwise, continue with the next step.

8. Virtual PM&C: Prepare for PROM upgrade

Execute [3.1.2.1 Configure Cisco 4948/4948E/4948E-F aggregation switches \(PM&C installed\)\(netConfig\)](#), steps 4 - 6.

9. Virtual PM&C: Attach to replacement switch

If replacing switch1A, complete sub-step (a). If replacing switch1B, complete sub-step (b).

a) Connect serially to switch1A by issuing the following command:

```
$ sudo /usr/bin/console -M <management_server_mgmt_ip_address> -l platcfg
switch1A_console
Press RETURN to get started.
```

Press **Enter**

If the "autoinstall" line below does not appear, the switch may not be in factory default condition, continue with the step, disregarding this line:

```
Would you like to terminate autoinstall? [yes]: Enter
Switch> enable
Switch#
```

If "enable" command above prompts for a password, the switch is not in factory default configuration. If this is the case, do not proceed and contact Customer Care Center for corrective action. This procedure is for a replacement switch with manufacturing default state.

b) Connect serially to switch1B by issuing the following command:

```
$ sudo /usr/bin/console -M <management_server_mgmt_ip_address> -l platcfg
switch1B_console
Press RETURN to get started.
```

Press **Enter**

If the "autoinstall" line below does not appear, the switch may not be in factory default condition, continue with the step, disregarding this line:

```
Would you like to terminate autoinstall? [yes]: Enter
Switch> enable
Switch#
```

If "enable" command above prompts for a password, the switch is not in factory default configuration. If this is the case, do not proceed and contact Customer Care Center for corrective action. This procedure is for a replacement switch with manufacturing default state.

10. Virtual PM&C (switch console session): Configure port on 4948/4948E/4948E-F

For Platform 6.5, the port to be configured is gi1/40.

To ensure connectivity, ping the management server's management vlan ip address from the switch.

On the switch, create vlan <mgmt_VLAN_ID>, create and configure the router interface of vlan <mgmt_VLAN_ID>, and configure the appropriate port on the switch (this is Platform version specific) to be on vlan <mgmt_VLAN_ID>:

```
Switch# conf t
Switch(config)# vlan <mgmt_VLAN_ID>
Switch(config)# int vlan <mgmt_VLAN_ID>
```

If configuring switch1A, use this command:

```
Switch(config-if)# ip address <switch1A_mgmtVLAN_ip_address> <netmask>
```

If configuring switch1B, use this command:

```
Switch(config-if)# ip address <switch1B_mgmtVLAN_ip_address> <netmask>
```

If configuring either switch1A or switch1B, execute these commands:

```
Switch(config-if)# no shut
Switch(config-if)# int <management_server_switchport>
```

If configuring either switch1A or switch1B, and the model is 4948, execute this command:

```
Switch(config-if)# switchport trunk encap dot1q
Switch(config-if)# switchport mode trunk
Switch(config-if)# spanning-tree portfast trunk
Switch(config-if)# int range gil/1 - 4
Switch(config-if)# switchport trunk encap dot1q
Switch(config-if)# switchport mode trunk
Switch(config-if)# spanning-tree portfast trunk
Switch(config-if)# channel-group 8 mode active
Switch(config-if)# end
```

If configuring either switch1A or switch1B, and the model is 4948E or 4948E-F, execute this command:

```
Switch(config-if)# switchport mode trunk
Switch(config-if)# spanning-tree portfast trunk
Switch(config-if)# int range gil/1 - 4
Switch(config-if)# switchport mode trunk
Switch(config-if)# spanning-tree portfast trunk
Switch(config-if)# channel-group 8 mode active
Switch(config-if)# end
```

Now issue ping command:

```
Switch# ping <management_server_mgmt_ip_address>
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to <management_server_mgmt_ip_address>, timeout
is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round trip min/avg/max = 1/1/4 ms
```

If ping is not successful, double check that the procedure was completed correctly by repeating all steps up to this point. If after repeating those steps, ping is still unsuccessful, contact Customer Care Center.

11. Virtual PM&C (switch console session): Upgrade PROM

Execute [3.1.2.1 Configure Cisco 4948/4948E/4948E-F aggregation switches \(PM&C installed\)\(netConfig\)](#), steps 9 - 12.

12. Virtual PM&C: Cleanup

Cleanup PROM upgrade file:

```
$ sudo /bin/rm -i /var/TKLC/smac/image/<PROM_image_file>
```

13. Virtual PM&C: Initialize switches and verify network connectivity.

Execute [3.1.2.1 Configure Cisco 4948/4948E/4948E-F aggregation switches \(PM&C installed\)\(netConfig\)](#) steps 2 - 15 and 18 - 22 for the switch being replaced.

14. Virtual PM&C: Copy the switch backup files to the current directory

```
$ sudo /bin/cp -i /usr/TKLC/smac/etc/backup/<swname> ~<switch_backup_user>/
```

Get a list of the file copied over.

Note: 'switch1A' is shown as an example.

```
$ /bin/ls -i
switch1A-backup      switch1A-backup.info      switch1A-backup.vlan
```

15. Virtual PM&C: Verify switch is initialized

Verify switch is at least initialized correctly and connectivity to the switch by verifying hostname.

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=<switch_name> getHostname
Hostname: switch1A
$
```

Note: The value beside 'Hostname:' should be the same as the <switch_name> variable.

16. Virtual PM&C: Issue the restore command

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=<switch_name> restoreConfiguration
service=ssh_service filename=<switch_name>-backup
```

17. Virtual PM&C: Verify switch configuration

Ping each of the switches' SVI (router interface) addresses to verify switch configuration.

```
$ /bin/ping <switch1A_mgmtVLAN_IP>
$ /bin/ping <switch1B_mgmtVLAN_IP>
```

18. Virtual PM&C: Verify the switch is using the proper IOS image per Platform version

Issue the following commands to verify the IOS release on each switch:

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=switch1A listFirmware
Image: cat4500-ipbasek9-mz.122-53.SG2.bin
$ sudo /usr/TKLC/plat/bin/netConfig --device=switch1B listFirmware
Image: cat4500-ipbasek9-mz.122-53.SG2.bin
```

19. Cabinet: Connect network cables from customer network

Attach the customer uplink cables of the switch being replaced and disconnect the uplink cables from the other switch.

20. Virtual PM&C: Verify access to customer network

Verify connectivity to the customer network by issuing the following command:

```
$ /bin/ping <customer_supplied_ntp_server_address>
PING ntpserver1 (10.250.32.51) 56(84) bytes of data.
64 bytes from ntpserver1 (10.250.32.51): icmp_seq=0 ttl=62 time=0.150 ms
64 bytes from ntpserver1 (10.250.32.51): icmp_seq=1 ttl=62 time=0.223 ms
64 bytes from ntpserver1 (10.250.32.51): icmp_seq=2 ttl=62 time=0.152 ms
```

21. Cabinet: Connect network cables from customer network

Re-attach the uplink cables that were disconnected in [Step 19](#).

22. Virtual PM&C: Cleanup FW

Remove the FW images from the users' home directory and TFTP directory with the following command:

```
$ sudo rm ~admusr/<fw_filename>
$ sudo rm /var/TKLC/smac/image/<fw_filename>
```

3.1.2.4 Replace a failed 4948/4948E/4948E-F switch (RMS system no PM&C)(netConfig)

The procedure details the steps necessary to replace a failed 4948/4948E/4948E-F switch.

This procedure assumes a Platform 6.5 interconnect. **If the system being configured follows a Platform 6.0 interconnect, then Platform 6.0 procedures should be followed.**

Prerequisites:

- [3.6.1 IPM DL360 or DL380 Server](#) is required to be completed before this procedure is attempted.
- A fully configured and operational redundant switch must be in operation (2 and 4 have been completed on the redundant switch). If this is not ensured, connectivity may be lost to the end devices.
- Application username and password for creating switch backups must be configured on the management server prior to executing this procedure.

Procedure Reference Tables:

Steps within this procedure may refer to variable data indicated by text within "<>". Refer to this table for the proper value to insert depending on your system type.

Fill in the appropriate value from [3]:

Variable	Cisco 4948	Cisco 4948E	Cisco 4948E-F
<PROM_image_file>			
<IOS_image_file>			

Fill in the appropriate value for this site:

Variable	Value

<switch_console_password>	See referring application documentation
<switch_enable_password>	See referring application documentation
<management_server_mgmt_ip_address >	
<switch1A_mgmtVLAN_ip_address>	
<switch1B_mgmtVLAN_ip_address>	
<switch_mgmtVlan_id>	
<management_server_iLO_ip>	
<switch_backup_user>	admusr
<switch_backup_user_password>	See referring application documentation

Ethernet Interface	DL360	DL380
<ethernet_interface_1>	eth01	eth01
<ethernet_interface_2>	eth02	eth03

Note: The onboard administrators that are connected to the failed switch will be unavailable during this procedure

Needed material:

- Tekelec's HP Misc. Firmware USB media or ISO file
- HP Solutions Firmware Upgrade Pack Release Notes [3]
- Application specific documentation (documentation that referred to this procedure)
- Template xml files in an application ISO on an application CD.

Note: Filenames and sample command line input/output throughout this section do not specifically reference the 4948E-F. Template settings are identical between the 4948E and 4948E-F. The original 4948 switch -- as opposed to the 4948E or the 4948E-F is referred to simply by the model number 4948. Where all three switches are being referred to, this will be made clear by reference to '4948 / 4948E / 4948 E-F' switches.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Cabinet: Power off failed switch

If not already done so, power off the failed switch.

If the failed switch is DC powered, power off using the cabinet breakers, then remove the DC power and ground cables.

If the failed switch is AC powered, remove the AC power cords from the unit.

2. Cabinet: Find and prepare to replace switch

If not already done so, determine whether switch1A or switch1B failed, locate the failed switch, and detach all network and console cables from the failed switch.

Note: If needed label cables prior to removal.

3. Cabinet: Replace switch

If not already done so, remove failed switch and replace with new switch of same model.

4. **Cabinet:** Attach power and ground cables and power on replacement switch

If the switch is DC powered, attach the DC power and ground cables, then power on the replacement switch using the appropriate cabinet breakers.

Otherwise, connect the AC power cords to the unit (AC).

5. **Cabinet:** Attach data cables to a new switch

Connect all network and console cables to the new switch except the customer uplink cables. Ensure each cable is connected to the same ports of the replacement switch as they were in the failed switch.

Note: Refer to appropriate application schematic or procedure for determining which cables are used for customer uplink.

6. **Management server:** Login to appropriate management server as admusr

Log in to iLO in IE using password provided by application.

```
http://<management_server_iLO_IP>
```

Then click in the **Remote Console** tab and launch the **Integrated Remote Console** on the server.

Click **Yes** if the Security Alert pops up.

If not already done so, login as admusr.

7. **Management server:** Attach to replacement switch

If replacing switch1A, complete sub-step (a). If replacing switch1B, complete sub-set (b).

a) Connect serially to switch1A by issuing the following command:

```
$ sudo /usr/bin/console -M <management_server_mgmt_ip_address> -l platcfg
switch1A_console
Enter platcfg@localhost's password: <platcfg_password>
[Enter '^Ec?' for help]
```

Press **Enter**

If the "autoinstall" line below does not appear, the switch may not be in factory default condition, continue with the step, disregarding this line:

```
Would you like to terminate autoinstall? [yes]: Enter
Switch> enable
Switch#
```

If "enable" command above prompts for a password, the switch is not in factory default configuration. If this is the case, do not proceed and contact Customer Care Center for resolution. This procedure is for a replacement switch with manufacturing default state.

To exit from console, enter **<ctrl-e>+<c>+<. >** and you will be returned to the server prompt.

b) Connect serially to switch1B by issuing the following command:

```
$ sudo /usr/bin/console -M <management_server_mgmt_ip_address> -l platcfg
switch1B_console
```

```
Enter platcfg@localhost's password: <platcfg_password>
[Enter '^Ec?' for help]
```

Press **Enter**

If the "autoinstall" line below does not appear, the switch may not be in factory default condition, continue with the step, disregarding this line:

```
Would you like to terminate autoinstall? [yes]: Enter
Switch> enable
Switch#
```

If "enable" command above prompts for a password, the switch is not in factory default configuration. If this is the case, do not proceed and contact Customer Care Center for resolution. This procedure is for a replacement switch with manufacturing default state.

To exit from console, enter `<ctrl-e>+<c>+<. >` and you will be returned to the server prompt.

8. Management server: Verify current PROM release

Execute [3.1.2.2 Configure Cisco 4948/4948E/4948E-F aggregation switches \(RMS system, no PM&C\) \(netConfig\), Step 2.](#)

9. Management server: Verify need for PROM & IOS upgrade

Compare the IOS and PROM version from previous step with the version specified in the Firmware Upgrade Pack Release Notes [3] for the switch model being used.

Check the version from the previous step against the version from the release notes referenced. If the versions are the same, and the IOS version from the previous step has "k9" in the name, no upgrade is necessary.

Otherwise, continue with the next step.

10. Management server: Prepare for PROM and IOS upgrade

Execute [3.1.2.2 Configure Cisco 4948/4948E/4948E-F aggregation switches \(RMS system, no PM&C\) \(netConfig\)](#), steps 4 - 15.

While logged in to each switch, issue the reload command to ensure that all commands are applied to the switch.

11. Management server: Cleanup

Cleanup PROM upgrade file:

```
$ sudo /bin/rm -i /var/lib/tftpboot/<PROM_image_file>
```

12. Management server: Initialize and configure switches, and verify network connectivity.

Execute [3.1.2.2 Configure Cisco 4948/4948E/4948E-F aggregation switches \(RMS system, no PM&C\) \(netConfig\)](#) steps 18 - 23 and 25 for the switch being replaced.

13. Management Server: Copy the switch backup files to the current directory

```
$ sudo /bin/cp -i /usr/TKLC/plat/etc/switch/backup/<swname> ~<switch_backup_user>/
```

Get a list of the file copied over.

Note: 'switch1A' is shown as an example.

```
$ /bin/ls -i
switch1A-backup      switch1A-backup.info      switch1A-backup.vlan
```

14. Management Server: Verify switch is initialized

Verify switch is at least initialized correctly and connectivity to the switch by verifying hostname.

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=<switch_name> getHostname
Hostname: switch1A
$
```

Note: The value beside 'Hostname:' should be the same as the <switch_name> variable.

15. Management Server: Issue the restore command

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=<switch_name> restoreConfiguration
service=ssh_service filename=<switch_name>-backup
```

16. Management Server: Verify switch configuration

Ping each of the switches SVI (router interface) addresses to verify switch configuration.

```
$ /bin/ping <switch1A_mgmtVLAN_IP>
$ /bin/ping <switch1B_mgmtVLAN_IP>
```

17. Management Server: Verify the switch is using the proper IOS image per Platform version.

Issue the following commands to verify the IOS release on each switch:

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=switch1A listFirmware
Image: cat4500-ipbasek9-mz.122-53.SG2.bin
$ sudo /usr/TKLC/plat/bin/netConfig --device=switch1B listFirmware
Image: cat4500-ipbasek9-mz.122-53.SG2.bin
```

18. Cabinet: Connect network cables from customer network

Attach the customer uplink cables of the switch being replaced and disconnect the uplink cables from the other switch.

19. Management Server: Verify access to customer network

Verify connectivity to the customer network by issuing the following command:

```
$ /bin/ping <customer_supplied_ntp_server_address>
PING ntpserver1 (10.250.32.51) 56(84) bytes of data.
64 bytes from ntpserver1 (10.250.32.51): icmp_seq=0 ttl=62 time=0.150 ms
64 bytes from ntpserver1 (10.250.32.51): icmp_seq=1 ttl=62 time=0.223 ms
64 bytes from ntpserver1 (10.250.32.51): icmp_seq=2 ttl=62 time=0.152 ms
```

20. Cabinet: Connect network cables from customer network.

Re-attach the uplink cables that were disconnected in [Step 18](#).

21. Management Server: Cleanup FW

Remove the FW images from the users' home directory and TFTP directory with the following command:

```
$ sudo rm ~admusr/<fw_filename>
$ sudo rm /var/TKLC/smac/image/<fw_filename>
```

3.1.2.5 Backup Cisco 4948/4948E/4948E-F Aggregation Switch and/or Cisco 3020 Enclosure Switch (netConfig)

Tekelec Provided Aggregation Switch Prerequisites for RMS system:

- [3.6.1 IPM DL360 or DL380 Server](#) must be completed.
- [3.1.2.1 Configure Cisco 4948/4948E/4948E-F aggregation switches \(PM&C installed\)\(netConfig\)](#)
- Application username and password for creating switch backups must be configured on the management server prior to executing this procedure.

Tekelec Provided Aggregation Switch Prerequisites for c-Class system:

- [3.6.1 IPM DL360 or DL380 Server](#) must be completed
- [3.7.2 Installing TVOE on the Management Server](#) must be completed
- [3.7.3 TVOE Network Configuration](#) must be completed
- [3.7.4 Deploy PM&C Guest](#) must be completed
- [3.1.2.1 Configure Cisco 4948/4948E/4948E-F aggregation switches \(PM&C installed\)\(netConfig\)](#)

Prerequisites for Cisco 3020 Enclosure switches:

- [3.6.1 IPM DL360 or DL380 Server](#) must be completed
- [3.7.2 Installing TVOE on the Management Server](#) must be completed
- [3.7.3 TVOE Network Configuration](#) must be completed
- [3.7.4 Deploy PM&C Guest](#) must be completed
- [3.1.3.1 Configure Cisco 3020 switch \(netConfig\)](#)

Procedure Reference Tables:

Variable	Value
<switch_backup_user> (also needed in switch configuration procedure)	admusr
<switch_backup_user_password> (also needed in switch configuration procedure)	Check application documentation
<switch_name>	hostname of the switch
<switch_backup_directory>	Non-PM&C System: /usr/TKLC/plat/etc/switch/backup
	PM&C System: /usr/TKLC/smac/etc/switch/backup

3.1.2.6 Replace a failed Telco T5C-24GT

This procedure will configure a Telco T5C-24GT switch with an appropriate configuration from its corresponding T1200 server.

Note: This procedure assumes a T1200 server running TPD 6.5 or higher and connected serially to the Telco T5C-24GT switch console port via /dev/ttyUSB1.

Procedure Reference Tables: Steps within this procedure and subsequent procedures that require this procedure may refer to variable data indicated by text within "<>". Fill in the appropriate values for the site.

Variable	Value
<T1200_server_RMM_ip>	
<T1200_server_RMM_user>	
<T1200_server_RMM_user_password>	
<T1200_server_password>	
<Telco_switch_name>	
<Telco_switch_password>	
<Telco_switch_enable_password>	
<T5CL3_24G_firmware_image_file>	
<Remote_customer_target_ip>	

Notes:

- See the T1200 Solutions Firmware Upgrade Pack (Tekelec part# 909-1618-001) for appropriate T5CL3_24G firmware image.
 - See [Step 18](#) for determining appropriate value of <Remote_customer_target_ip>
1. **Telco T5CL3_24G:** Identify and power down the failed Telco switch. Label and disconnect all cables connected to the Telco switch. Remove the defective Telco switch.
 2. **Telco T5CL3_24G:** Installation of replacement switch

Install new Telco switch and re-cable all cables, except for uplinks to customer network. Connect power and power on switch.

In the ssh_service parameters, the value for 'user:' will be the value for the variable <switch_backup_user>.
 3. **Management server Remote Management Module (RMM):** Log in to the RMM.
 - Using IE, log into the RMM using the username and password provided by <T1200_server_RMM_user> and <T1200_server_RMM_user_password>:
 http://<T1200_server_RMM_ip>
 4. **Management server Remote Management Module (RMM):** Launch and log in to the Telco T1200 server via the Remote Console.
 - Click on the **Console** icon in the upper left corner to launch the **Remote Console** on the server.

- Click on **Don't Block** if the **Security Warning** window pops up.

Note: Different versions of Internet Explorer may present additional security prompts.

If not already done so, log in as admusr using the <T1200_server_password> password.

5. Management server: Procedure pre-check - Verify Telco switch console connection.

- Determine whether needed minicom files are already available by issuing the following command:

```
$ /bin/ls -i /etc/minirc.*
```

If the file "minirc.<Telco_switch_name>" is not listed, proceed with the rest of this step, otherwise skip to [Step 6](#).

- Set up the serial connections to the switch by issuing the following command:

```
$ sudo /usr/TKLC/plat/bin/remoteConsole --add --name=<Telco_switch_name>
--bps=9600 --port=ttyUSB1
```

6. Management server: Attach to the switch console.

- Connect serially to the switch by issuing the following command as admusr on the management server:

```
$ sudo /usr/bin/minicom <Telco_switch_name>
```

```
Welcome to minicom 2.1
```

```
OPTIONS: History Buffer, F-key Macros, Search History Buffer, I18n
Compiled on Jan 7 2007, 01:16:05.
```

```
Press CTRL-A Z for help on special keys
```

```
Press Enter
```

```
Password: <Telco_switch_password>
```

```
T5C-24GT>
```

```
Switch> enable
```

```
Password: <Telco_switch_enable_password>
```

```
T5C-24GT#
```

If the "enable" command above prompts for a password, the switch is not in a factory default configuration. This may be due to a previous configuration attempt. If this is the case, please continue with [Step 7](#). If not and the switch is in a factory default configuration, skip to [Step 8](#).

7. Management Server (switch console session): Initialize switch to factory default configuration.

- Type the following commands in the switch console session to restore the switch to factory default configuration:

```
T5C-24GT# write erase
wait ...
T5C-24GT# reload no-save
Proceed with reload? [y/n] : y
Rebooting...
[Additional output omitted]
```

- The switch will reboot in a factory default configuration. Once the switch has rebooted and you will see the following, indicating the switch is back up:

```
User Access Verification
Password:
```

8. Management Server (switch console session): Exiting the switch console and minicom session.

To exit the console session and minicom program:

- If you are at the “T5C-24GT# “ or “T5C-24GT>” prompt in the switch console session , log out first by typing exit and pressing **Enter**.
- After you log out of the switch, exit the minicom session by pressing **CTRL** and **A**, press **X**, then press **Enter**

9. Management Server: Verify that the switch configuration file exists.

Verify vlan.conf exists.

```
$ /bin/ls -i /usr/TKLC/plat/etc/vlan.conf
/usr/TKLC/plat/etc/vlan.conf
```

If the file “vlan.conf” file does not exist, stop and contact the [1.4 Customer Care Center](#).

10. Management Server: Verify that the switch firmware binary exists.

Check to see if the correct firmware binary is present on the system.

```
$ /bin/ls -i /var/TKLC/switchconfig/<T5CL3_24G_firmware_image_file>
```

If the appropriate image does not exist, please check the T1200 Solutions Firmware Upgrade Pack (Tekelec part# 909-1618-001), or contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document. If the appropriate image does exist, continue with [Step 11](#).

11. Management Server: Check the tftp status.

Check to see if the tftp service is enabled.

```
$ /sbin/chkconfig --list tftp
tftp off
```

If the tftp service is set to “off” continue with this step. If the tftp service is set to “on”, skip to [Step 12](#).

To turn on tftp, run the following command:

```
$ sudo /sbin/chkconfig tftp on
```

Verify that it is now enabled:

```
$ /sbin/chkconfig --list tftp
tftp on
```

12. Management Server: Check xinetd service is running

```
$ sudo /sbin/service xinetd status
```

If the output from the above command is:

```
xinetd (pid xxxx) is running...
```

Run the following command:

```
$ sudo /sbin/service xinetd restart
Stopping xinetd: [ OK ]
Starting xinetd: [ OK ]
```

If the output from the above command is:

```
xinetd is stopped
```

Run the following command:

```
$ sudo /sbin/service xinetd start
Starting xinetd: [ OK ]
```

13. Management Server: Modify iptables to allow tftp.

Run prepswconf to modify iptables to allow the switch to pull configuration data from the server.

```
$ sudo /usr/TKLC/plat/sbin/prepswconf --prepare
```

Note: This will open up iptables to allow tftp access from the switch for 120 minutes. This procedure must be completed within that time frame. If not, this step must be repeated before any of the remaining steps can be completed.

14. Management Server: Run switchconfig to configure the switch.

```
$ sudo /usr/TKLC/plat/sbin/switchconfig --swname=<Telco_switch_name>
Successfully enabled on switch <Telco_switch_name>.
Reloading switch <Telco_switch_name> with defaults, please standby...
Switch <Telco_switch_name> successfully set to default configuration.
Successfully started management VLAN on <Telco_switch_name>.
Startup configuration created OK.
Successfully uploaded startup config for <Telco_switch_name>.
Removing config file <Telco_switch_name>.startup-config from /var/lib/tftpboot.
Reloading switch <Telco_switch_name>, please standby...
Reload of switch <Telco_switch_name> complete.
Switch <Telco_switch_name> successfully configured.
```

Note: This step will take approximately 20 minutes to complete.

15. Management Server: Stop the xinetd service.

Stop the xinetd service once the switch has been upgraded and configured:

```
$ sudo /sbin/service xinetd stop
Stopping xinetd: [ OK ]
```

16. Management Server: Disable tftp services.

Disable the tftp service by running the following command:

```
$ sudo /sbin/chkconfig tftp off
```

17. Telco T5CL3_24G: Connect uplink cables.

Connect the uplink cables from the new Telco switch to the customer network.

18. Management Server: Test network flow /traffic through both Telco switches.

To ensure traffic is flowing through both Telco switches properly after a RMA procedure, start up a ping on each T1200 server:

```
$ /bin/ping <Remote_customer_target_ip>
```

Notes

- If the management server is a SOAM, use the IP address of the NOAM VIP for <Remote_customer_target_ip>.
- If the management server is an NOAM, use the address of the SOAM VIP for <Remote_customer_target_ip>.

With these pings running on each server, perform the following steps:

- a) On the Management Server connected to the replacement Telco switch, force it to use eth01 by running the following command:

```
$ sudo /sbin/ifenslave -c bond1 eth01
```

- b) On the mated Management server connected to the mated Telco switch, force it to use eth02 by running the following command:

```
$ sudo /sbin/ifenslave -c bond1 eth02
```

If either server is not pinging correctly or has stopped responding at this point, please contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

- c) On the new /replacement Telco switch, unplug the customer uplink cables.
- d) Verify that the pings from each server are still reaching <Remote_customer_target_ip>.
- There may be a brief pause after unplugging the uplink cables as the mated switch takes over the VRRP interfaces (less than 5 seconds).
- If the pings are no longer reaching <Remote_customer_target_ip> on both servers, stop and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.
 - If the pings continue, this verifies that the mated switch is performing as expected by sending traffic to the customer network, and traffic is flowing to it over the ISL from the replacement Telco switch.
- e) Replace the uplink cables to the customer network on the replacement Telco switch.
- f) On the mated Telco switch, unplug the customer uplink cables.
- g) Verify that the pings from each server are still reaching <Remote_customer_target_ip>.
- Again, there may be a brief pause after unplugging the uplink cables as the replaced Telco switch takes over the VRRP interfaces (less than 5 seconds).
- If the pings are no longer reaching <Remote_customer_target_ip> on both servers, stop and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.
 - If the pings continue, this verifies that traffic is flowing over the replacement Telco switch to the customer network and over the ISL and that both switches are functioning as expected.
- h) Replace the uplink cables to the customer network on the replacement Telco switch.

3.1.3 C-Class Enclosure Switch - netConfig Procedures

3.1.3.1 Configure Cisco 3020 switch (netConfig)

This procedure will configure 3020 switches from the PM&C server using templates included with an application.

Prerequisites:

- It is essential that PM&C is installed. In addition,
- [3.1.1 Configure netConfig Repository](#)
- [3.5.1 Configure Initial OA IP](#) and
- [3.5.2 Configure initial OA settings via configuration wizard](#) must be completed. Also,
- It is essential that [3.1.3.7 Upgrade 3020 Switch IOS Firmware](#) has been completed successfully.

Conditional Prerequisite:

If the aggregation switches are provided by Tekelec, then the Cisco 4948/4948E/4948E-F switches must be configured using [3.1.2.1 Configure Cisco 4948/4948E/4948E-F aggregation switches \(PM&C installed\)\(netConfig\)](#) If the aggregation switches are provided by the customer, the user must ensure that the customer aggregation switches are configured as per requirements provided in the NAPD. If there is any doubt as to whether the aggregation switches are provided by Tekelec or the customer, contact Tekelec Technical Services and ask for assistance.

This procedure requires that no IPM activity is occurring or will occur during the execution of this procedure.

Needed materials:

- HP Misc. Firmware DVD
- HP Solutions Firmware Upgrade Pack Release Notes [3]
- Application specific documentation (documentation that referred to this procedure)
- Template xml files in an application ISO on an application CD.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Virtual PM&C: Prepare for switch configuration

Login as admusr to the PM&C, then run:

```
$ /bin/ping -w3 <mgmtVLAN_gateway_address>
```

2. Virtual PM&C: Verify network connectivity to 3020 switches

For each 3020 switch, verify network reachability.

```
$ /bin/ping -w3 <enclosure_switch_IP>
```

3. Virtual PM&C: Modify PM&C Feature to allow TFTP.

Enable the DEVICE.NETWORK.NETBOOT feature with the management role to allow tftp traffic:

```
$ sudo /usr/TKLC/smac/bin/pmacadm editFeature --featureName=DEVICE.NETWORK.NETBOOT
--enable=1
$ sudo /usr/TKLC/smac/bin/pmacadm resetFeatures
```

Note: This may take up to 60 seconds to complete.

4. Virtual PM&C: Verify the template xml files are in existence.

Verify the initialization xml template file and configuration xml template file is present on the system and is the correct version for the system.

Note: The XML files prepared in advanced with the NAPD can be used as an alternative.

```
$ /bin/more /usr/TKLC/smac/etc/switch/xml/3020_init.xml
$ /bin/more /usr/TKLC/smac/etc/switch/xml/3020_configure.xml
```

If either file does not exist, copy the files from the application media into the directory shown above.

If 3020_init.xml file exists, page through the contents to verify it is devoid of any site specific configuration information other than the device name. If the template file is appropriate, then skip the remainder of this step and continue with the next step.

If 3020_configure.xml file exists, page through the contents to verify it is the appropriate file for the this site and edited for this site. All network information is necessary for this activity. If the template file is appropriate, then skip the remainder of this step and continue with the next step.

5. Virtual PM&C: Modify 3020 xml files for information needed to configure the switch.

Update the 3020_init.xml file for the values noted in the next sentence. Values to be modified by the user will be notated in this step by a preceding dollar sign. So a value that has **\$some_variable_name** will need to be modified, removing the dollar sign and the less than, greater than sign. When done editing the file, save and quit.

Update the 3020_configure.xml file for the values noted in the next sentence. Values to be modified by the user will be notated in this step by a preceding dollar sign. So a value that has **\$some_variable_name** will need to be modified, removing the dollar sign and the less than, greater than sign. When done editing the file, save and quit.

```
$ sudo /bin/vi /usr/TKLC/smac/etc/switch/xml/3020_init.xml
```

```
$ sudo /bin/vi /usr/TKLC/smac/etc/switch/xml/3020_config.xml
```

6. Virtual PM&C/OA GUI: Reset switch to factory defaults

Note: Do not wait for the switch to finish reloading before proceeding to the next step. After completing step 6 by initiating the reload, proceed to [Step 7](#).

If the switch has been previously configured using netConfig or previous attempts at initialization have failed, use netConfig to reset the switch to factory defaults by executing the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=<switch_name> setFactoryDefault
```

If the above command failed, use Internet Explorer to navigate to <enclosure_switch_ip_address>.

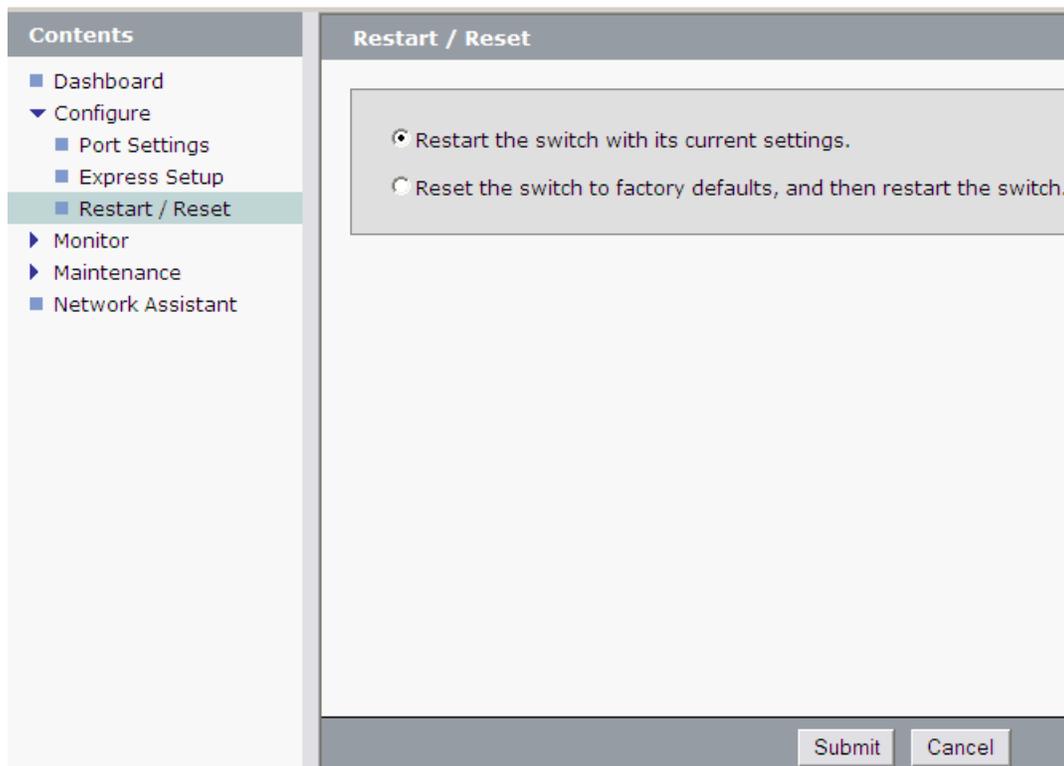
A new page will be opened. If you are asked for a username and password, leave the username blank and use the appropriate password provided by the application documentation. Then click **OK**.

If you are prompted with the "Express Setup" screen, click **Refresh**.

If you are prompted with "Do you want a secured session with the switch?", click on **No**.

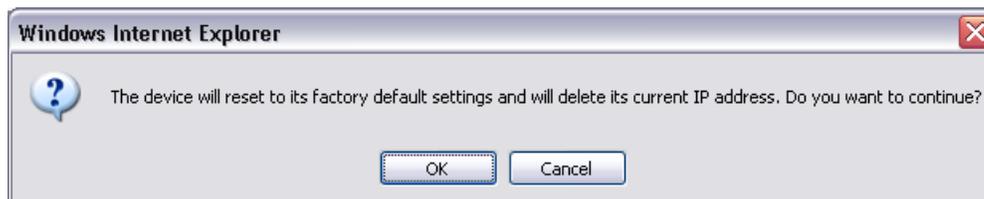
Then a new Catalyst Blade Switch 3020 Device Manager will be opened.

Navigate to **Configure > Restart/Reset**.



Click the circle that says "Reset the switch to factory defaults, and then restart the switch". Then click the "Submit" button.

A pop-up window will appear that looks like this:



Click OK and the switch will be reset to factory defaults and reloaded.

7. Virtual PM&C: Remove the old ssh key and Initialize the switch

Remove the old ssh key:

```
$ sudo /usr/bin/ssh-keygen -R <enclosure_switch_ip>
```

The following command must be entered at least 60 seconds and at most 5 minutes after the previous step is completed.

```
$ sudo /usr/TKLC/plat/bin/netConfig
--file=/usr/TKLC/smac/etc/switch/xml/3020_init.xml
Processing file: /usr/TKLC/smac/etc/switch/xml/3020_init.xml
Waiting to load the configuration file...
loaded.
```

```
Attempting to login to device...
Configuring...
```

Note: This step takes about 4-5 minutes to complete, it is imperative that you wait until returned to the command prompt. **DO NOT PROCEED UNTIL RETURNED TO THE COMMAND PROMPT.**

Check the output of this command for any errors. A successful completion of netConfig will return the user to the prompt. Due to strict host checking and the narrow window of time in which to perform the command, this command is prone to user error. Most issues are corrected by returning to the previous step and continuing. If this step has failed for a second time, stop the procedure and contact the Customer Care Center.

8. Virtual PM&C: Reboot the switch using netConfig

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=<switch_name> reboot save=no
```

Wait 2-3 minutes for the switch to reboot. Verify it has completed rebooting and is reachable by pinging it.

```
$ /bin/ping <enclosure_switch_IP>
From 10.240.8.48 icmp_seq=106 Destination Host Unreachable
From 10.240.8.48 icmp_seq=107 Destination Host Unreachable
From 10.240.8.48 icmp_seq=108 Destination Host Unreachable
64 bytes from 10.240.8.13: icmp_seq=115 ttl=255 time=1.13 ms
64 bytes from 10.240.8.13: icmp_seq=116 ttl=255 time=1.20 ms
64 bytes from 10.240.8.13: icmp_seq=117 ttl=255 time=1.17 ms
```

9. Virtual PM&C: Configure the switches

Configure both switches by issuing the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig
--file=/usr/TKLC/smac/etc/switch/xml/3020_configure.xml
Processing file: /usr/TKLC/smac/etc/switch/xml/3020_configure.xml
$
```

Note: This step takes about 2-3 minutes to complete

Check the output of this command for any errors. If the file fails to configure the switch, please review/troubleshoot the file first. If troubleshooting is unsuccessful, stop this procedure and contact Customer Care Center.

A successful completion of netConfig will return the user to the prompt.

10. Virtual PM&C: Verify switch configuration

To verify the configuration was completed successfully, execute the following command and review the configuration:

```
# sudo /usr/TKLC/plat/bin/netConfig showConfiguration --device=<switch_name>
Configuration: = (
  Building configuration...

  Current configuration : 3171 bytes
  !
  ! Last configuration change at 23:54:24 UTC Fri Apr 2 1993 by plat
  !
```

```

version 12.2

<output removed to save space >

monitor session 1 source interface Gi0/2 rx
monitor session 1 destination interface Gi0/1 encapsulation replicate
end

)

```

Return to step 4 and repeat for each 3020 switch.

11. Virtual PM&C: Modify PM&C Feature to disable TFTP.

Disable the DEVICE.NETWORK.NETBOOT feature:

```

$ sudo /usr/TKLC/smac/bin/pmacadm editFeature --featureName=DEVICE.NETWORK.NETBOOT
--enable=0
$ sudo /usr/TKLC/smac/bin/pmacadm resetFeatures

```

Note: This may take up to 60 seconds to complete.

12. Perform [3.1.2.5 Backup Cisco 4948/4948E/4948E-F Aggregation Switch and/or Cisco 3020 Enclosure Switch \(netConfig\)](#) for each switch configured in this procedure

3.1.3.2 Reconfigure a failed 3020 switch (netConfig)

The procedure describes all of the required steps to configure a replacement 3020 switch.

Prerequisite:

Prerequisites for this procedure are to follow the prerequisites for procedures referenced in the steps of this procedure. It also assumed the user can determine which switch is the failed switch.

Needed Material:

- Tekelec's HP Misc. Firmware USB media or ISO file

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Replace switch
Replace the failed switch with the replacement switch.
2. Install cables
Install all cables in the new switch. Be sure all cables are placed in the same ports in the replacement switch as they were used on the failed switch.
3. Upgrade IOS
Perform [3.1.3.7 Upgrade 3020 Switch IOS Firmware](#) and then proceed with step 4 of this procedure
4. Apply configuration
Perform [3.1.3.1 Configure Cisco 3020 switch \(netConfig\)](#), steps 3-9 then 12, replacing the values for the switch being replaced.
5. **Virtual PM&C:** Restore the switch to the latest known good configuration.

Navigate to the <switch_backup_user> home directory.

```
$ cd ~<switch_backup_user>
```

Verify your location on the server

```
$ /bin/pwd
/some/user/home/dir/path
```

6. Virtual PM&C: Copy the switch backup files to the current directory

```
$ /bin/cp -i /usr/TKLC/smac/etc/switch/backup/<swname>-backup*
```

Get a list of the file copied over.

Note: 'switch1A' is shown as an example.

```
$ /bin/ls -i
switch1A-backup      switch1A-backup.info      switch1A-backup.vlan
```

7. Virtual PM&C: Verify switch is initialized

Verify switch is at least initialized correctly and connectivity to the switch by verifying hostname.

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=<switch_name> getHostname
Hostname: switch1A
#
```

Note: The value beside 'Hostname:' should be the same as the <switch_name> variable.

8. Virtual PM&C: Issue the restore command

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=<switch_name> restoreConfiguration
service=ssh_service filename=<switch_name>-backup
```

9. Virtual PM&C: Verify Connectivity

Perform [3.1.3.1 Configure Cisco 3020 switch \(netConfig\)](#) step 10.

10. Virtual PM&C: Cleanup FW

Remove the FW images from the users' home directory and TFTP directory with the following command:

```
$ sudo rm ~admusr/<fw_image>
$ sudo rm /var/TKLC/smac/image/<fw_image>
```

3.1.3.3 Configure HP 6120XG switch (netConfig)

This procedure will configure the HP 6120XG switches from the PM&C server & the command line interface using templates included with an application.

Prerequisites:

- It is essential that PM&C is installed. In addition,
- [3.5.1 Configure Initial OA IP](#) and
- [3.5.2 Configure initial OA settings via configuration wizard](#) must be completed.

- [3.1.1 Configure netConfig Repository](#),
- This procedure requires the reader to issue commands on the switch command line interface.
- It is also essential that [3.1.3.8 Upgrade HP 6120XG Switch Firmware](#) has been completed. IF THIS IS NOT COMPLETED, THE COMMANDS PERFORMED BELOW WILL NOT WORK.

Conditional Prerequisites: If the aggregation switches are provided by Tekelec, then the Cisco 4948/4948E/4948E-F switches need to be configured using [3.1.2.1 Configure Cisco 4948/4948E/4948E-F aggregation switches \(PM&C installed\)\(netConfig\)](#). If the aggregation switches are provided by the customer, the user must ensure that the customer aggregation switches are configured as per requirements provided in the NAPD. If there is any doubt as to whether the aggregation switches are provided by Tekelec or the customer, contact Tekelec Technical Services and ask for assistance.

Needed materials:

- HP Misc. Firmware DVD
- HP Solutions Firmware Upgrade Pack Release Notes [3]
- Application specific documentation (documentation that referred to this procedure)
- Template xml files in an application ISO on an application CD.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Virtual PM&C: Prepare for switch configuration

If the aggregation switches are provided by Tekelec, login to the management server, then run:

```
$ /bin/ping -w3 <switch1A_mgmtVLAN_address>
$ /bin/ping -w3 <switch1B_mgmtVLAN_address>
$ /bin/ping -w3 <switch_mgmtVLAN_VIP>
```

If the aggregation switches are provided by the customer, login to the management server, then run:

```
$ /bin/ping -w3 <mgmtVLAN_gateway_address>
```

2. Virtual PM&C: Verify network connectivity to 6120XG switches

For each 6120XG switch, verify network reachability.

```
$ /bin/ping -w3 <enclosure_switch_IP>
```

3. Virtual PM&C: Restore switch to factory defaults

If the 6120XG switch has been configured prior to this procedure, clear out the configuration using the following command:

```
$ /usr/bin/ssh manager@<enclosure_switch_IP>
Switch# config
Switch(config)# no password all
Password protection for all will be deleted, continue [y/n]? y
Switch(config)# end
Switch# erase startup-config
Configuration will be deleted and device rebooted, continue [y/n]? y
(switch will automatically reboot, reboot takes about 120-180 seconds)
```

Note: You may need to press [ENTER] twice. You may also need to use previously configured credentials.

If the above procedures fails, log in via telnet and reset the switch to manufacturing defaults. If the above ssh procedures fails, log in via telnet and reset the switch to manufacturing defaults

```
$ /usr/bin/telnet <enclosure_switch_IP>
Switch# config
Switch(config)# no password all (answer yes to question)
Password protection for all will be deleted, continue [y/n]? y
Switch(config)# end
Switch# erase startup-config
(switch will automatically reboot, reboot takes about 120-180 seconds)
```

Note: The console connection to the switch must be closed, or the initialization (step 8) will fail.

- 4. Virtual PM&C:** Copy switch configuration template from media to the tftp directory.
Copy switch initialization template and configuration template from the media to the tftp directory.

```
$ sudo /bin/cp -i /<path to media>/6120XG_init.xml /usr/TKLC/smac/etc/switch/xml
$ sudo /bin/cp -i /<path to media>/6120XG_[single,LAG]Uplink_configure.xml
/usr/TKLC/smac/etc/switch/xml
$ sudo /bin/cp -i
/usr/TKLC/plat/etc/TKLNetwork-config-templates/templates/utility/addQOS_trafficTemplate_6120XG.xml
/usr/TKLC/smac/etc/switch/xml
```

- Where [**single,LAG**] are variables for either one of 2 files-see the following:
 - 6120XG_SingleUplink_configure.xml is for one uplink per enclosure switch topology
 - 6120XG_LAGUplink_configure.xml is for LAG uplink topology

- 5. Virtual PM&C:** verify the switch configuration file template in the tftp directory
Verify the switch initialization template file and configuration file template are in the correct directory.

```
$ /bin/ls -l /usr/TKLC/smac/etc/switch/xml/*6120XG*.xml
-rw-r--r-- 1 root root 1955 Feb 16 11:36
/usr/TKLC/smac/etc/switch/xml/6120XG_init.xml
-rw-r--r-- 1 root root 1955 Feb 16 11:36
/usr/TKLC/smac/etc/switch/xml/6120XG_[single,LAG]Uplink_configure.xml
-rw-r--r-- 1 root root 702 Sep 10 10:33 addQOS_trafficTemplate_6120XG.xml
```

- 6. Virtual PM&C:** Edit the switch configuration file template for site specific information
Edit the switch initialization file and switch configuration file template for site specific addresses, VLAN IDs, and other site specific content. Values to be modified by the user will be notated in this step by a preceding dollar sign. So a value that has **\$<some_variable_name>** will need to be modified, removing the dollar sign and the less than, greater than sign.

```
$ sudo /bin/vi /usr/TKLC/smac/etc/switch/xml/6120XG_init.xml
$ sudo /bin/vi
/usr/TKLC/smac/etc/switch/xml/6120XG_[single,LAG]Uplink_configure.xml
$ sudo /bin/vi /usr/TKLC/smac/etc/switch/xml/addQOS_trafficTemplate_6120XG.xml
```

- 7. Virtual PM&C:** Apply include-credentials command to the switch

Login to the switch using SSH

```
$ /usr/bin/ssh manager@<enclosure_switch_IP>
Switch# config
Switch(config)# include-credentials
```

If prompted, answer yes to both questions.

Log out of the switch.

```
Switch(config)# logout
Do you want to log out [y/n]? y
Do you want to save current configuration [y/n/^C]? y
```

Continue to the next step.

8. Virtual PM&C: Initialize the switch

Initialize the switch

```
$ sudo /usr/TKLC/plat/bin/netConfig
--file=/usr/TKLC/smac/etc/switch/xml/6120XG_init.xml
```

This could take up to 2-3 minutes.

Note: Upon successful completion of netConfig, the user will be returned to the PM&C command prompt. If netConfig fails to complete successfully, contact Tekelec Customer Service

9. Virtual PM&C: Configure the switch

Configure the switch

```
$ sudo /usr/TKLC/plat/bin/netConfig
--file=/usr/TKLC/smac/etc/switch/xml/6120XG_[single,LAG]Uplink_configure.xml
```

This could take up to 2-3 minutes.

Note: Upon successful completion of netConfig, the user will be returned to the PM&C command prompt. If netConfig fails to complete successfully, contact Tekelec Customer Service

10. Virtual PM&C: Apply QoS Settings

Apply the QoS traffic template settings.

```
$ sudo /usr/TKLC/plat/bin/netConfig
--file=/usr/TKLC/smac/etc/switch/xml/addQoS_trafficTemplate_6120XG.xml
```

Note: The switch will reboot after this command. This step will take 2-5 minutes.

11. Virtual PM&C: Verify proper configuration of HP 6120XG switches

Once each HP 6120XG has finished booting from the previous step, verify network reachability and configuration.

```
$ /bin/ping -w3 <enclosure_switch_IP>
$ /usr/bin/ssh <switch_platform_username>@<enclosure_switch_IP>
<switch_platform_username>@<enclosure_switch_IP>'s password:
<switch_platform_password>
Switch# show run
```

Inspect the output of show run, and ensure that it is configured as per site requirements.

12. Virtual PM&C: Repeat steps for each HP 6120XG

For each HP 6120XG, repeat steps 3-12.

13. Perform [3.1.3.6 Backup HP \(6120XG, 6125G\) Enclosure Switch](#) for each switch configured in this procedure.**3.1.3.4 Reconfigure a failed HP (6120XG, 6125G) switch (netConfig)**

The procedure describes all of the required steps to configure a replacement HP (6120XG, 6125G) switch.

Prerequisite: Prerequisites for this procedure are to follow the prerequisites for procedures referenced in the steps of this procedure. It is also assumed the user can determine which switch is the failed switch.

Needed Material:

- Tekelec's HP Misc. Firmware USB media or ISO file

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Replace switch

Replace the failed switch with the replacement switch.

2. Upgrade Firmware

- For a 6125G:

Perform [3.1.3.9 Upgrade 6125G Switch Firmware](#) and then return to this procedure and continue with [Step 3](#).

- For a 6120XG:

Perform [3.1.3.8 Upgrade HP 6120XG Switch Firmware](#) and then return to this procedure and continue with [Step 3](#).

3. Initialize Switch

- For a 6125G:

Perform [3.1.3.5 Configure HP 6125G switch \(netConfig\)](#), steps 3-4, 6 (init.xml only), and then perform step 8. Return to this procedure, and continue with [Step 4](#).

- For a 6120XG:

Perform [3.1.3.3 Configure HP 6120XG switch \(netConfig\)](#), steps 3, 5 (init.xml only), 6 (init.xml only), and then perform step 8. Return to this procedure, and continue with [Step 4](#).

4. Virtual PM&C: Copy the switch backup files to the user's home directory

```
$ sudo /bin/cp -i /usr/TKLC/smac/etc/switch/backup/<swname>-backup*
~<switch_backup_user>/
```

5. Virtual PM&C: Issue the restore command

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=<switch_name> restoreConfiguration
service=ssh_service filename=<switch_name>-backup
```

Note: This will cause the switch to reboot. It will take approximately 120-180 seconds before connectivity is restored.

6. Install Cables

Install all cables in the new switch. Be sure all cables are placed in the same ports in the replacement switch as they were used on the failed switch.

7. Virtual PM&C: Verify connectivity

- For a 6125G:

Refer to [3.1.3.5 Configure HP 6125G switch \(netConfig\)](#), step 11.

- For a 6120XG:

Refer to [3.1.3.3 Configure HP 6120XG switch \(netConfig\)](#), step 10 - 11.

8. Virtual PM&C: Cleanup FW

Remove the FW images from the users' home directory and TFTP directory with the following command:

```
$ sudo rm ~admusr/<fw_image>
$ sudo rm /var/TKLC/smac/image/<fw_image>
```

3.1.3.5 Configure HP 6125G switch (netConfig)

This procedure will configure the HP 6125G switches from the PM&C server & the command line interface using templates included with an application.

Prerequisites:

- It is essential that PM&C is installed. In addition,
- [3.5.1 Configure Initial OA IP](#) and
- [3.5.2 Configure initial OA settings via configuration wizard](#)
- [3.1.1 Configure netConfig Repository](#),
- This procedure requires the reader to issue commands on the switch command line interface.
- It is also essential that the [3.1.3.9 Upgrade 6125G Switch Firmware](#) procedure has been completed. IF THIS IS NOT COMPLETED, THE COMMANDS PERFORMED BELOW WILL NOT WORK.

Conditional Prerequisites: If the aggregation switches are provided by Tekelec, then the Cisco 4948/4948E/4948E-F switches need to be configured using [3.1.2.1 Configure Cisco 4948/4948E/4948E-F aggregation switches \(PM&C installed\)\(netConfig\)](#). If the aggregation switches are provided by the customer, the user must ensure that the customer aggregation switches are configured as per requirements provided in the Application physical Site Survey and related IP/Network Site survey. If there is any doubt as to whether the aggregation switches are provided by Tekelec or the customer, contact Tekelec Technical Services and ask for assistance.

Needed materials:

- Application specific documentation (documentation that referred to this procedure)
- Template xml files in an application ISO on an application CD.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Virtual PM&C: Prepare for switch configuration

If the aggregation switches are provided by Tekelec, login to the PM&C, then run:

```
$ /bin/ping -w3 <switch1A_mgmtVLAN_address>
$ /bin/ping -w3 <switch1B_mgmtVLAN_address>
$ /bin/ping -w3 <switch_mgmtVLAN_VIP>
```

If the aggregation switches are provided by the customer, login to the PM&C, then run:

```
$ /bin/ping -w3 <mgmtVLAN_gateway_address>
```

2. Virtual PM&C: Verify network connectivity to OAs.

For each OA, verify network reachability.

```
$ /bin/ping -w3 <OA1_IP>
$ /bin/ping -w3 <OA2_IP>
```

3. Virtual PM&C: Determine which OA is currently active.

Login to OA1 to determine if it is active:

```
$ /usr/bin/ssh root@<OA1_IP>
```

The OA is active if you see the following:

```
Using username "root".

-----
WARNING: This is a private system.  Do not attempt to login unless you are an
authorized user.  Any authorized or unauthorized access and use may be moni-
tored and can result in criminal or civil prosecution under applicable law.
-----

Firmware Version: 3.70
Built: 10/01/2012 @ 17:53
OA Bay Number: 2
OA Role: Active
root@10.240.8.6's password:
```

If you see the following, it is standby:

```
Using username "root".

-----
WARNING: This is a private system.  Do not attempt to login unless you are an
authorized user.  Any authorized or unauthorized access and use may be moni-
tored and can result in criminal or civil prosecution under applicable law.
-----

Firmware Version: 3.70
Built: 10/01/2012 @ 17:53
OA Bay Number: 1
OA Role: Standby
root@10.240.8.5's password:
```

Press **<ctrl> + C** to close the SSH session.

If OA1 has a role of Standby, verify that OA2 is the active by logging in to it:

```
$ usr/bin/ssh root@<OA2_IP>
Using username "root".

-----
WARNING: This is a private system. Do not attempt to login unless you are an
authorized user. Any authorized or unauthorized access and use may be moni-
tored and can result in criminal or civil prosecution under applicable law.
-----

Firmware Version: 3.70
Built: 10/01/2012 @ 17:53
OA Bay Number: 2
OA Role: Active
root@10.240.8.6's password:
```

In the following steps, OA will mean the 'active OA' and <active_OA_IP> will be the IP address of the active OA.

Note: If neither OA reports Active, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of the document.

Press <ctrl> + C to close the SSH session.

4. Virtual PM&C: Restore switch to factory defaults

If the 6125G switch has been configured prior to this procedure, clear out the configuration using the following command:

```
$/usr/bin/ssh root@<active_OA_IP>
Using username "root".

-----
WARNING: This is a private system. Do not attempt to login unless you are an
authorized user. Any authorized or unauthorized access and use may be moni-
tored and can result in criminal or civil prosecution under applicable law.
-----

Firmware Version: 3.70
Built: 10/01/2012 @ 17:53
OA Bay Number: 2
OA Role: Active
root@10.240.8.6's password: <OA_password>
> connect interconnect <switch_IOBAY #>
Press [Enter] to display the switch console:
```

Note: You may need to press [ENTER] twice. You may also need to use previously configured credentials.

```
<switch>reset saved-configuration
The saved configuration file will be erased. Are you sure? [Y/N]:y
Configuration file in flash is being cleared.
Please wait ...

MainBoard:
Configuration file is cleared.
<switch>reboot
Start to check configuration with next startup configuration file, please
wait.....DONE!
This command will reboot the device. Current configuration will be lost, save
current configuration? [Y/N]:n
This command will reboot the device. Continue? [Y/N]: y
```

The switch will automatically reboot; this takes about 120-180 seconds. The switch reboot is complete when you see the following text:

```
[...Output omitted...]
User interface aux0 is available.

Press ENTER to get started.
```

When the reboot is complete, disconnect from the console by entering <ctrl> + <shift> + <->, then 'd'.

Exit from the OA terminal:

```
>exit
```

Note: The console connection to the switch must be closed, or the initialization (step 8) will fail.

- Virtual PM&C:** Copy switch configuration template from media to the tftp directory.
Copy switch initialization template and configuration template from the media to the tftp directory.

```
$ sudo /bin/cp -i /<path to media>/6125G_init.xml /usr/TKLC/smac/etc/switch/xml
$ sudo /bin/cp -i /<path to media>/6125G_configure.xml
/usr/TKLC/smac/etc/switch/xml
```

- Virtual PM&C:** verify the switch configuration file template in the tftp directory
Verify the switch initialization template file and configuration file template are in the correct directory.

```
$ /bin/ls -l /usr/TKLC/smac/etc/switch/xml/*6125G*.xml
-rw-r--r-- 1 root root 1955 Feb 16 11:36
/usr/TKLC/smac/etc/switch/xml/6125G_init.xml
-rw-r--r-- 1 root root 1955 Feb 16 11:36
/usr/TKLC/smac/etc/switch/xml/6125G_configure.xml
```

- Virtual PM&C:** Edit the switch configuration file template for site specific information
Edit the switch initialization file and switch configuration file template for site specific addresses, VLAN IDs, and other site specific content. Values to be modified by the user will be notated in this step by a preceding dollar sign. So a value that has \$<some_variable_name> will need to be modified, removing the dollar sign and the less than, greater than sign.

```
$ sudo /bin/vi /usr/TKLC/smac/etc/switch/xml/6125G_init.xml
$ sudo /bin/vi /usr/TKLC/smac/etc/switch/xml/6125G_configure.xml
```

- Virtual PM&C:** Initialize the switch

Note: The console connection to the switch must be closed before performing this step.

```
$ sudo /usr/TKLC/plat/bin/netConfig
--file=/usr/TKLC/smac/etc/switch/xml/6125G_init.xml
```

This could take up to 2-3 minutes.

- Virtual PM&C:** Verify the switch was initialized

Verify the initialization succeeded with the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig getHostname --device=<switch_hostname>
Hostname: <switch_hostname>
```

This could take up to 2-3 minutes.

Note: Upon successful completion of netConfig, the user will be returned to the PM&C command prompt. If netConfig fails to complete successfully, contact Tekelec Customer Service

10. Virtual PM&C: Configure the switch

Configure the switch.

```
$ sudo /usr/TKLC/plat/bin/netConfig
--file=/usr/TKLC/smac/etc/switch/xml/6125G_configure.xml
```

This could take up to 2-3 minutes. Note:

Note: Upon successful completion of netConfig, the user will be returned to the PM&C command prompt. If netConfig fails to complete successfully, contact Tekelec Customer Service.

11. Virtual PM&C: Verify proper configuration of HP 6125G switch

Once the HP 6125G has finished booting from the previous step, verify network reachability and configuration.

```
$ /bin/ping -w3 <enclosure_switch_IP>
PING 10.240.8.10 (10.240.8.10) 56(84) bytes of data:64 bytes from 10.240.8.10:
icmp_seq=1 ttl=255 time=0.637 ms64 bytes from 10.240.8.10: icmp_seq=2 ttl=255
time=0.661 ms64 bytes from 10.240.8.10: icmp_seq=3 ttl=255 time=0.732 m
$ /usr/bin/ssh <switch_platform_username>@<enclosure_switch_IP>
<switch_platform_username>@<enclosure_switch_IP>'s password:
<switch_platform_password>
Switch_hostname> display current-configuration
Inspect the output, and ensure that it is configured as per site requirements.
```

12. Virtual PM&C: Repeat steps for each HP 6125G

For each HP 6125G, repeat [Step 4-Step 11](#).

13. Perform [3.1.3.6 Backup HP \(6120XG, 6125G\) Enclosure Switch](#) for each switch configured in this procedure.

3.1.3.6 Backup HP (6120XG, 6125G) Enclosure Switch

This procedure should be executed after every change to the switch configuration after completing [3.1.3.3 Configure HP 6120XG switch \(netConfig\)](#) and/or [3.1.3.5 Configure HP 6125G switch \(netConfig\)](#).

Prerequisites:

- [3.6.1 IPM DL360 or DL380 Server](#) must be completed
- [3.7.2 Installing TVOE on the Management Server](#) must be completed
- [3.7.3 TVOE Network Configuration](#) must be completed
- [3.7.4 Deploy PM&C Guest](#) must be completed
- [3.1.3.3 Configure HP 6120XG switch \(netConfig\)](#)
- [3.1.3.5 Configure HP 6125G switch \(netConfig\)](#)

Procedure Reference Tables:

Variable	Value
<switch_name>	hostname of the switch

1. Ensure the directory where the backups will be stored exists.

```
$ /bin/ls -i -l /usr/TKLC/smac/etc/switch/backup
```

If you receive an error such as the following:

```
-bash: ls: /usr/TKLC/smac/etc/switch/backup: No such file or directory
```

Then the directory must be created by issuing the following command:

```
$ sudo /bin/mkdir -p /usr/TKLC/smac/etc/switch/backup
```

2. Execute the backup command

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=<switch_name> backupConfiguration
service=ssh_service filename=<switch_name>-backup
```

3. Copy the files to the backup directory.

```
$ sudo /bin/mv -i ~admusr/<switch>-backup* /usr/TKLC/smac/etc/switch/backup
```

4. Verify switch configuration was backed up by cat <switch_name> and inspecting its contents to ensure it reflects the latest known good switch configurations.

```
$ /bin/ls -i /usr/TKLC/smac/etc/switch/backup/<switch_name>-backup*
$
$ /bin/cat /usr/TKLC/smac/etc/switch/backup/<switch_name>-backup
$
```

5. Repeat [Step 2](#) - [Step 4](#) for each HP switch to be backed up.

3.1.3.7 Upgrade 3020 Switch IOS Firmware

This procedure will describe the steps how to upgrade IOS firmware for the 3020 switches.

Prerequisites:

- It is essential that PM&C is installed
- [3.5.1 Configure Initial OA IP](#)
- [3.5.2 Configure initial OA settings via configuration wizard](#)
- [3.1.1 Configure netConfig Repository](#)
- Must be familiar with the "vim" command line editing tool.

Needed material:

- Tekelec's HP Misc. Firmware USB media or ISO file
- HP Solutions Firmware Upgrade Pack Release Notes [3]
- Application specific documentation (documentation that referred to this procedure)

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. **Virtual PM&C:** Login as admusr to the Virtual PM&C server.

Then verify prerequisite network reachability with the following command:

```
$ /bin/ping -w3 <mgmtVLAN_gateway_address>
```

2. **Virtual PM&C:** Copy the appropriate version of Cisco 3020 IOS firmware, as specified by the HP Solutions Firmware Upgrade Pack Release Notes [3], from the HP Misc Firmware ISO or DVD to the /home/admusr directory.

Then check to make sure it is present in the /home/admusr directory:

```
$ /bin/ls -i /home/admusr
```

The output of the command should show the appropriate 3020 IOS firmware file among the files listed. Example:

```
cbs30x0-ipbasek9-tar.122-58.SE1.tar
```

Then copy the Cisco 3020 IOS firmware file to the /var/TKLC/smac/image directory:

```
$ sudo /bin/cp /home/admusr/<3020_IOS_Firmware_File> /var/TKLC/smac/image/
```

Then check to make sure it is present in the /var/TKLC/smac/image directory:

```
$ /bin/ls -i /var/TKLC/smac/image
```

3. **Virtual PM&C:** Create and edit a file named "network-config" in the /var/TKLC/smac/image directory by entering the following command:

```
$ sudo /usr/bin/vim /var/TKLC/smac/image/network-config
```

4. **Virtual PM&C:** Once in the "vim" editor modify the "network-config" file to contain only the following lines:

```
enable secret passtemp
line vty 0 15
password passtemp
transport input telnet
```

Once the contents of the "network-config" file match the above lines save the file and exit the "vim" editor.

5. **Virtual PM&C:** Use the **cat** command to check that the "network-config" file was created and edited successfully.

```
$ /bin/cat /var/TKLC/smac/image/network-config
enable secret passtemp
line vty 0 15
password passtemp
transport input telnet
```

The output above should be seen.

6. **Virtual PM&C:** Verify network reachability to the 3020 switch by using this command:

```
$ /bin/ping -w3 <enclosure_switch_IP>
```

7. **Virtual PM&C:** Enable the DEVICE.NETWORK.NETBOOT feature with the management role to allow tftp traffic:

```
$ sudo /usr/TKLC/smac/bin/pmacadm editFeature --featureName=DEVICE.NETWORK.NETBOOT
--enable=1
Successful Edit of Admin Feature
$
```

```
$ sudo /usr/TKLC/smac/bin/pmacadm resetFeatures
Platform has been successfully reset
```

NOTE: If you change the enabled features, restart sentry
\$

Note: This may take up to 60 seconds to complete. The "restart sentry" note can be ignored.

8. **OAGUI:** Login to the OA GUI and click on the interconnect bay for the 3020 to be configured on the Rear View image of the middle pane.

Alternatively, on the left pane, one could expand **Interconnect Bays**, then click on the Cisco 3020 to be upgraded.

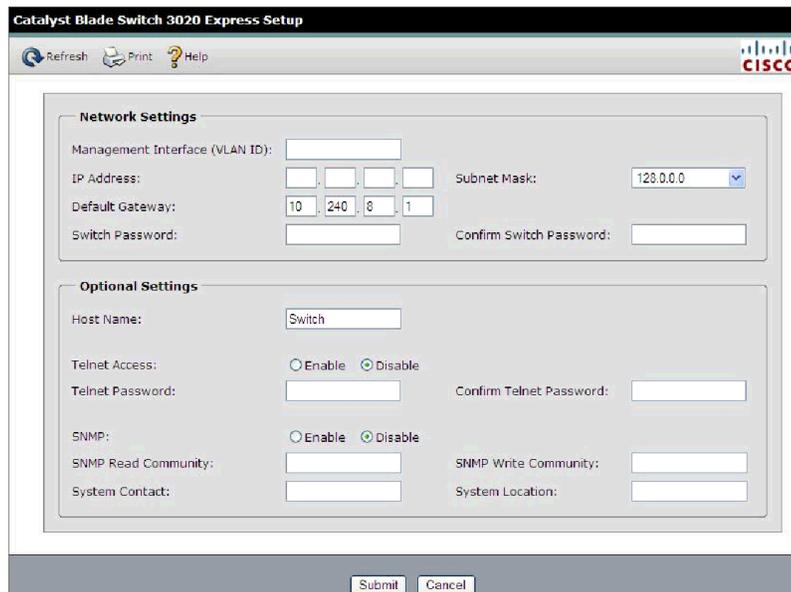
- a) Then click on **Management Console**.

The screenshot displays the HP BladeSystem Onboard Administrator interface. The main window is titled "Interconnect Bay Information - Bay 2". On the left, a navigation tree shows "Systems and Devices" expanded to "Interconnect Bays", with "2. Cisco Catalyst Blade Switch" selected. The main content area shows "Interconnect Module Management" with a "Management Console" link circled in red. Below this, a "Status" section shows "Status: OK", "Thermal Status: OK", and "Powered: On". A "Diagnostic Information" section shows "Device Identification Data: OK".

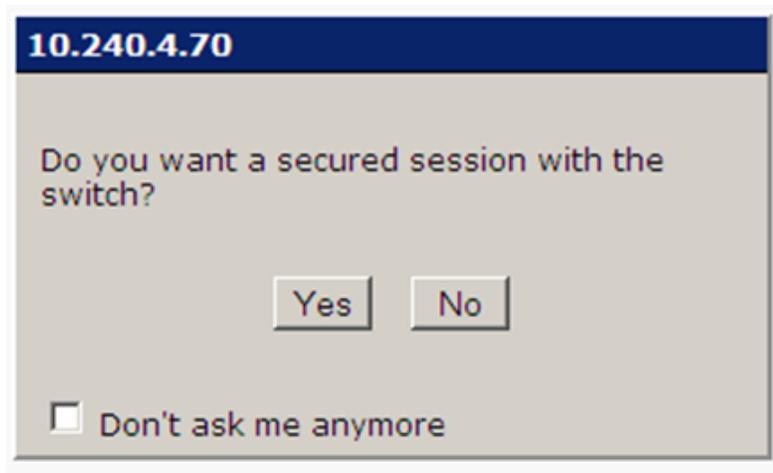
- b) A new page will be opened. If asked for a username and password, leave the username blank and use the appropriate password provided by the application documentation. Then click **OK**.



c) If prompted with the “Express Setup” screen, click **Refresh**.



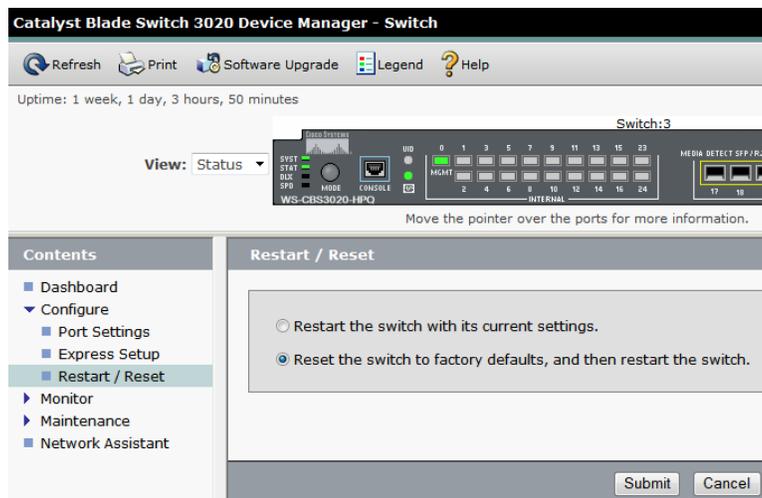
d) If prompted with "Do you want a secured session with the switch?", click on **No**.



Then a new Catalyst Blade Switch 3020 Device Manager will be opened.

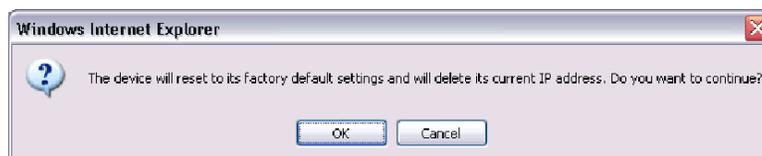
9. OA GUI: Restore switch to factory defaults.

- a) Navigate to **Configure > Restart/Reset**.



- b) Click the radio button that says "Reset the switch to factory defaults, and then restart the switch".
- c) Then click the "Submit" button.

A pop-up window will appear that looks like this:



- d) Click OK and the switch will be reset to factory defaults and reloaded.

10. 3020 Switch CLI: Use telnet to connect to the command line interface of the 3020 switch once it has had time to restart and acquire the configuration from the "network-config" file.

Then login and enter enabled mode:

```
User Access Verification
Password:passtemp
Switch>en
Password:passtemp
Switch#
```

11. 3020 Switch CLI: Begin the firmware download:

```
Switch#archive download-sw /overwrite /force-reload
tftp://<pmac_mgmtVLAN_ip_address>/<cisco_3020_IOS_firmware_file>
```

Example:

```
Switch#archive download-sw /overwrite /force-reload
tftp://10.240.34.10/cbs30x0-ipbasek9-tar.122-58.SE1.tar
```

The firmware download will take several minutes. The following is some of the output that will be seen during the upgrade:

```
Loading cbs30x0-ipbasek9-tar.122-58.SE1.tar from 10.240.34.10 (via FastEthernet0):
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 16455680 bytes]

Loading cbs30x0-ipbasek9-tar.122-58.SE1.tar from 10.240.34.10 (via FastEthernet0):
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
examining image...
extracting info (110 bytes)
extracting cbs30x0-ipbasek9-mz.122-58.SE1/info (390 bytes)
extracting info (110 bytes)

System Type:                0x00000000
Ios Image File Size:        0x00D59A00
Total Image File Size:      0x00FB1A00
Minimum Dram required:      0x08000000
Image Suffix:                ipbasek9-122-58.SE1
Image Directory:             cbs30x0-ipbasek9-mz.122-58.SE1
Image Name:                  cbs30x0-ipbasek9-mz.122-58.SE1.bin
Image Feature:               IP|LAYER_3|SSH|3DES|MIN_DRAM_MEG=128

Old image for switch 1: same as image to overwrite
Image to be installed already exists...will be removed before download.

Deleting `flash:cbs30x0-ipbasek9-mz.122-58.SE1' to create required space
Extracting images from archive into flash...
cbs30x0-ipbasek9-mz.122-58.SE1/ (directory)
extracting cbs30x0-ipbasek9-mz.122-58.SE1/cbs30x0-ipbasek9-mz.122-58.SE1.bin
(13988491 bytes)
```

Skipping many lines beginning with "extracting".

The following output will be seen once the firmware installation is done and the switch is reloaded into the new firmware image:

```
Installing (renaming): `flash:update/cbs30x0-ipbasek9-mz.122-58.SE1' ->
`flash:/cbs30x0-ipbasek9-mz.122-58.SE1'
New software image installed in flash:/cbs30x0-ipbasek9-mz.122-58.SE1
All software images installed.
```

```
Requested system reload in progress...
Switch#
```

12. **3020 Switch CLI:** Use telnet to connect to the command line interface of the 3020 switch once it has had time to restart and acquire the configuration from the "network-config" file.

Then login and enter enabled mode:

```
User Access Verification
```

```
Password:passtemp
Switch>en
Password:passtemp
Switch#
```

13. **3020 Switch CLI:** Check the installed IOS firmware version to verify the upgrade completed:

```
Switch#show version
```

After scrolling to the bottom of the output produced by this command, the following will be seen or similar:

SW Version	SW Image
-----	-----
12.2(58)SE1	CBS30X0-IPBASEK9-M

Make sure the "SW Version" column matches the appropriate version indicated in the HP Solutions Firmware Upgrade Pack Release Notes [3] and that the "SW Image" column includes the wording "IPBASEK9".

Once the installed IOS version is verified, exit the telnet connection to the switch:

```
Switch#exit
```

14. **Virtual PM&C:** Disable the DEVICE.NETWORK.NETBOOT feature with the management role to stop tftp traffic:

```
$ sudo /usr/TKLC/smac/bin/pmacadm editFeature --featureName=DEVICE.NETWORK.NETBOOT
--enable=0
Successful Edit of Admin Feature
$

$ sudo /usr/TKLC/smac/bin/pmacadm resetFeatures
Platform has been successfully reset
NOTE: If you change the enabled features, restart sentry
$
```

Note: This may take up to 60 seconds to complete. The "restart sentry" note can be ignored.

15. **Virtual PM&C:** Clean up the network-config and 3020 IOS firmware files, answering "yes" when prompted.

The 3020 IOS filename used is an example. Make sure to remove any 3020 IOS firmware files present.

```
$ sudo /bin/rm /var/TKLC/smac/image/network-config
rm: remove regular file `/var/TKLC/smac/image/network-config'?yes
```

```
$ sudo /bin/rm /var/TKLC/smac/image/cbs30x0-ipbasek9-tar.122-58.SE1.tar
rm: remove regular file
`/var/TKLC/smac/image/cbs30x0-ipbasek9-tar.122-58.SE1.tar' ?yes
```

16. **OA GUI:** Perform [Step 8](#) and [Step 9](#) again, using "passtemp" as the password if prompted, to reset the 3020 back to factory defaults now that the firmware has been upgraded.

17. **Virtual PM&C:** Make sure this procedure has been run for all 3020 switches to be upgraded.

3.1.3.8 Upgrade HP 6120XG Switch Firmware

This procedure describes the steps how to upgrade firmware for the 6120XG switches.

Prerequisite:

- [3.5.1 Configure Initial OA IP](#) and
- [3.5.2 Configure initial OA settings via configuration wizard](#) must be completed.

Needed material:

- Tekelec's HP Misc. Firmware USB media or ISO file
- HP Solutions Firmware Upgrade Pack Release Notes [3]
- WinSCP
- SSH client (eg. PuTTY)

1. Local Workstation:

Copy the appropriate version of HP 6120XG firmware, as specified by the *HP Solutions Firmware Upgrade Pack Release Notes*[3]

2. 6120XG Switch: Login

Login to the switch as *manager* via ssh (accepting switch's key if prompted):

```
login as: manager
```

Press any key to continue as prompted by the switch

3. 6120XG Switch: Enter global configuration

```
Switch# config
```

4. 6120XG Switch: Find current firmware version and compare to release notes

```
Switch(config)# show version
Image stamp:      /sw/code/build/vern(Z 14 zin t4b)
                  Sep 23, 2010 16:48:29
                  z.14.12
                  31
Boot Image:      Secondary
```

Record the firmware version (z.14.12 in this case) and the current Boot Image location being used (Secondary in this case). Compare the firmware version currently being used to the latest version specified in the *HP Solutions Firmware Upgrade Pack Release Notes* [3]. Continue with this upgrade procedure if necessary.

Whatever Boot Image is being used, the opposite one will be upgraded. So in this case, since the Secondary Boot Image is being used, the Primary Boot image will be upgraded.

5. **6120XG Switch:** Record current firmware version of boot image to be upgraded.

Record the current version of the Boot Image to be upgraded. This will be used to compare after upgrading the success of the upgrade. (Primary Image in this case).

```
Switch(config)# show flash
Image                Size(Bytes)Date   Version
-----
Primary Image       : 7595562    8/17/10  z.14.09
Secondary Image     : 7732899    9/23/10  z.14.12

Boot Rom Version    : z.14.09
Default Boot       : Secondary
```

6. **6120XG Switch:** Make sure Secure Copy is enabled.

```
Switch(config)# show ip ssh
SSH Enabled          : Yes                Secure Copy enabled : Yes
TCP Port Number     : 22                 Timeout (sec)      : 120
Host Key Type       : RSA                 Host Key Size      : 2048

Ciphers :
MACs    :

Ses Type | Source IP | Port
---+-----+-----
1 console |           |
. . . .
```

Look at the output of **show ip ssh**. If Secure Copy Enabled = Yes, then continue to the next step. If **Secure Copy Enabled = No**, then perform the command below:

```
Switch(config)# ip ssh filetransfer
Tftp and auto-tftp have been disabled.
Switch(config)#
```

Enter **show ip ssh** again to make sure Secure Copy has been enabled.

7. **6120XG Switch:** Open the event log.

Go into the switch's menu interface and type "y" to save the configuration

```
Switch(config)# menu
Do you want to save current configuration [y/n/^C]? y
```

Select:

4. Event Log

Then select:

End

Keep this terminal window open.

8. **Local Workstation:**

Configure WinSCP to work with the 6120XG. (These directions are applicable to WinSCP versions 4.27 to 5.14. Other versions may have these options in different locations).

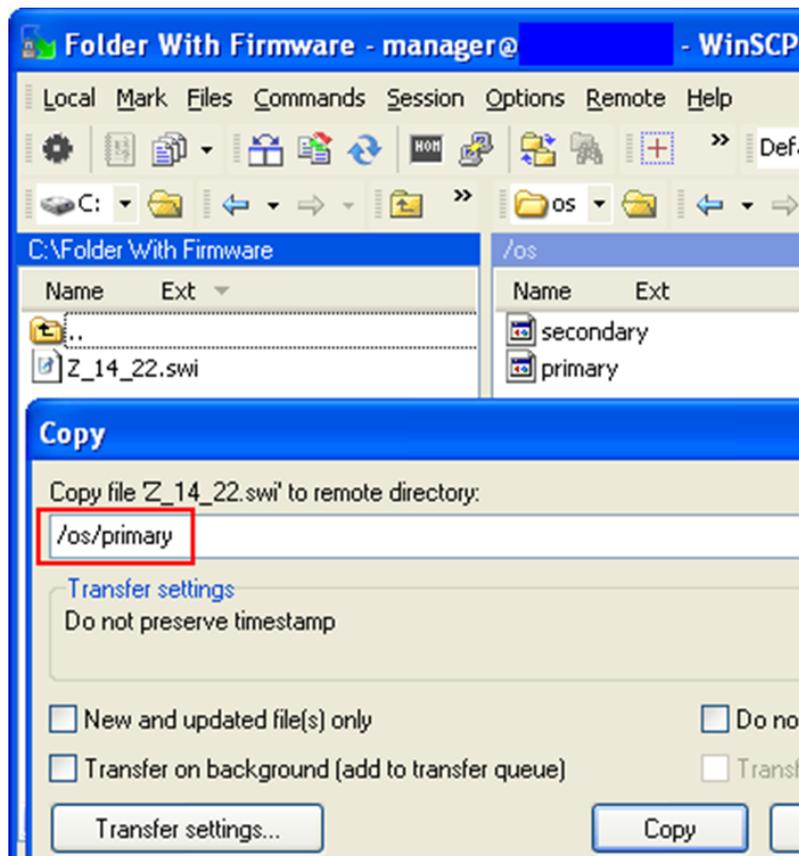
- Open WinSCP on your local workstation.
- Click on "Preferences" in the list on the left.
- Select the "Commander" interface (click on the circle next to it)
- Then click on the **Preferences...** button.
- In "Transfer settings", uncheck "Preserve timestamp".
- In "Endurance" settings, set the "Enable transfer resume/ ..." option to "Disable".
- Click the **OK** button.
- Click on "Session" in the list on the left.

9. Local Workstation:

- With WinSCP still on the "Session" screen, enter the 6120XG's <switch_ip_address> under *Host name* and **manager** as the **User name**.
- Leave the *Port number* at **22**
- Leave *File protocol* at **SFTP**, and if present, select the checkbox next to *Allow SCP fallback*.
- Click the **Login** button.
- If prompted to "add host key to the cache", click the **Yes** button

10. Local Workstation: Copy the new firmware to the switch Boot Image to be updated

- Once WinSCP logs into the switch, in the left window, find the firmware file that was copied to the local workstation in [Step 1](#).
- In the right window on the switch, open the folder labeled "**os**"
- Drag the firmware file on the left to the window on the right.
- A copy window pop up with **/os/*.*** written will appear. Replace *.* with either *primary* or *secondary* depending on which boot image is being upgraded. (in this example it would be *primary*).



- Click the **C**opy button.

11. 6120XG Switch: Go back to the Event Log on the SSH session with the switch.

Go back to the switch ssh window where the *Event Log* is open. If the connection has timed out, redo [Step 2](#), [Step 3](#), and [Step 6](#). Watch for the following log event (it can take a few minutes):

```
update: Primary Image updated
```

In this example, the Primary Image is being updated. If the user were updating the Secondary Image, it would say "Secondary" instead of "Primary".

12. 6120XG Switch: Get Back to the Command Line Interface (CLI).

Now that the "updated" message has appeared, select:

```
Back
```

Then select:

```
5. Command Line (CLI)
Switch(config)#
```

13. 6120XG Switch: Check the firmware version.

Run the **show flash** command to make sure the Image being updated has the correct firmware version. (in this example *Primary Image* has changed to *z.14.22*)

```
Switch(config)# show flash
Image          Size(Bytes) Date    Version
-----
Primary Image  : 7732899      10/21/10  z.14.22
Secondary Image : 7193633      06/23/10  z.14.12
Boot Rom Version: z.14.09
Default Boot   : Secondary
```

14. 6120XG Switch: Reboot into the new firmware.

Now reboot the switch into the new Boot Image. (*primary* in this example). If the *Secondary Image* has been updated, replace "primary" with "secondary" in the command below:

```
Switch(config)# boot system flash primary
Device will be rebooted, do you want to continue [y/n]? y
```

15. 6120XG Switch: Log back in.

Once the switch has rebooted, log back into the switch as *manager* via ssh.

```
login as: manager
Press any key to continue as prompted by the switch.

Switch#
```

16. 6120XG Switch: Re-enter global configuration.

```
Switch# config
```

17. 6120XG Switch: Make sure the switch has booted properly into the new firmware image.

Run the **show version** command. Make sure the new firmware version is displayed.

```
Switch(config)# show version
Image stamp:/sw/code/build/vern(Z_14_zin_t4b)
          Oct 21 2010 16:48:29
          Z.14.22
          31
Boot Image: Primary
```

18. 6120XG Switch: Verify the "Default Boot" has changed.

Run the **show flash** command, checking to make sure the image that was upgraded has been set as the "default Boot". (**Primary** in this example).

```
6120XG_IOBAY1# show flash
Image          Size(Bytes)  Date    Version
-----
Primary Image  : 7798047   03/07/12 Z.14.32
Secondary Image : 7732899   10/21/10 Z.14.22
Boot Rom Version: Z.14.09
Default Boot   : Primary
```

3.1.3.9 Upgrade 6125G Switch Firmware

This procedure will describe the steps to upgrade firmware for the 6125G switches.

Prerequisites

- It is essential that PM&C is installed. In addition,
- If a PM&C is included in the installation:
 - [3.5.1 Configure Initial OA IP](#)
 - [3.5.2 Configure initial OA settings via configuration wizard](#)
 - [3.1.1 Configure netConfig Repository](#) must be completed

Needed Materials

- Tekelec's HP Misc. Firmware USB media or ISO file
- HP Solutions Firmware
- Upgrade Pack Release Notes [3]
- WinSCP
- SSH client (for example, PuTTY)

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. **Local Workstation:** Copy the appropriate version of 6125G firmware, as specified by the HP Solutions Firmware Upgrade Pack Release Notes [3], to the local workstation.
2. **Active OA CLI:** Log in to the active Onboard Administrator via ssh (accepting the OA's key if prompted).

```
login as: <OA_Admin_User>
-----
WARNING: This is a private system. Do not attempt to login unless you are an
authorized user. Any authorized or unauthorized access and use may be moni-
tored and can result in criminal or civil prosecution under applicable law.
-----
Firmware Version: 3.70
Built: 10/01/2012 @ 17:53
OA Bay Number: 2
OA Role: Active
root@10.240.8.6's password: <OA_Admin_Password>

OA>
```

3. **Active OA CLI:** Connect to the serial console of the 6125G switch to be upgraded. Setup netConfig repository with necessary ssh information.

```
OA> connect interconnect <iobay_number>
```

Use the number of the IO bay the switch is in to complete the command, which will be similar to the one shown below.

```
OA> connect interconnect 1
NOTICE: This pass-thru connection to the integrated I/O console
is provided for convenience and does not supply additional access
control. For security reasons, use the password features of the
integrated switch.
```

```
Connecting to integrated switch 4 at 9600,N81...
Escape character is '<Ctrl>_' (Control + Shift + Underscore)
```

Press [Enter] to display the switch console:

Press the "Enter" button, as needed, to continue to the 6125G switch serial console.

```
<6125G Blade Switch>
```

4. 6125G CLI: Check current firmware version.

```
<6125G Blade Switch> display boot-loader
Slot 1
The current boot app is:  flash:/6125-cmw520-r2105.bin
The main boot app is:    flash:/6125-cmw520-r2105.bin
The backup boot app is:  flash:/6125-cmw520-r2105.bin
```

If the "current boot app" and the "main boot app" are already at the version specified by the HP Solutions Firmware Upgrade Pack Release Notes [3], then the switch is up to date and the rest of this procedure can be skipped. Otherwise, continue to [Step 5](#).

5. 6125G CLI: Enable DHCP for the switch's management interface.

```
<6125G Blade Switch> system-view
[6125G Blade Switch] interface M-Ethernet 0/0/0
[6125G Blade Switch-M-Ethernet0/0/0] ip address dhcp-alloc
[6125G Blade Switch-M-Ethernet0/0/0] quit
[6125G Blade Switch]
```

6. 6125G CLI: Set up the local user.

```
[6125G Blade Switch] local-user plat
New local user added.
[6125G Blade Switch-luser-plat] password simple passtemp
[6125G Blade Switch-luser-plat] authorization-attribute level 3
[6125G Blade Switch-luser-plat] service-type ssh terminal
[6125G Blade Switch-luser-plat] quit
[6125G Blade Switch]
```

7. 6125G CLI: Set up SSH and SFTP.

```
[6125G Blade Switch] ssh server enable
Info: Enable SSH server.
[6125G Blade Switch] sftp server enable
Info: Enable SFTP server.
[6125G Blade Switch] ssh user plat service-type all authentication-type password
[6125G Blade Switch] public-key local create rsa
Warning: The local key pair already exist.
Confirm to replace them? [Y/N]:y
The range of public key size is (512 ~ 2048).
NOTES: If the key modulus is greater than 512,
It will take a few minutes.
Press CTRL+C to abort.
Input the bits of the modulus[default = 1024]: (Press Enter)
Generating Keys...
+++++
```

```
+++++
++++
+++++
```

Note: Answer 'y' if prompted to replace an existing local key pair

8. 6125G CLI: Set up the user interfaces.

```
[6125G Blade Switch] user-interface aux 0
[6125G Blade Switch-ui-aux0] authentication-mode scheme
[6125G Blade Switch-ui-aux0] quit
[6125G Blade Switch] user-interface vty 0 7
[6125G Blade Switch-ui-vty0-7] authentication-mode scheme
[6125G Blade Switch-ui-vty0-7] user privilege level 3
[6125G Blade Switch-ui-vty0-7] quit
[6125G Blade Switch] quit
<6125G Blade Switch>
```

9. 6125G CLI: Display the management interface information to determine its IP address.

```
<6125G Blade Switch> display interface M-Ethernet 0/0/0 brief
The brief information of interface(s) under route mode:
Link: ADM - administratively down; Stby - standby
Protocol: (s) - spoofing
Interface          Link Protocol Main IP          Description
M-E0/0/0          UP    UP           10.240.8.10
```

Note: The Main IP address that the management interface has acquired via DHCP. This IP address will be used in the following steps. In this example, it is 10.240.8.10.

10. Local Workstation: Open and configure WinSCP. (These directions are applicable to WinSCP versions 4.27 to 5.14. Other versions may have these options in different locations.)

- Open WinSCP on your local workstation.
- Click on Preferences in the list on the left.
- Select the Commander interface (click on the circle next to it).
- Then, click on the **Preferences...** button.
- In Transfer settings, uncheck Preserve timestamp.
- In Endurance settings, set the Enable transfer resume/... option to Disable.
- Click the **OK** button.
- Click on Session in the list on the left.

11. Local Workstation: Connect to the 6125 with WinSCP via SFTP.

- With WinSCP still on the Session screen, make sure SFTP is selected under File Protocol.
- Leave the port number at 22.
- Enter the 6125G's IP address under Host name. This is the IP address noted in [Step 9](#).
- Enter plat under User name.
- Enter passtemp under Password.
- Click the **Login** button. If prompted to add host key to the cache, click the **Yes** button.

12. Local Workstation: Copy the new firmware to the switch.

- After WinSCP logs into the switch, in the left window, locate the firmware file that was copied to the local workstation in [Step 1](#).

- Drag the firmware file from the left to the window on the right.
- When the Copy window appears, click on the **Copy** button and wait for the firmware file to finish copying to the switch.
- Visually check that the new firmware file now appears in the right window after the copy is complete.
- Close WinSCP.

13. Local Workstation: Log in to the 6125G.

If you have disconnected from the 6125G CLI and/or the OA, return to the 6125G CLI by performing [Step 2](#) and [Step 3](#). Then return to this step.

```
Login authentication
```

```
Username: plat
Password: passtemp
<6125G Blade Switch>
```

14. 6125G CLI: Load the new firmware file as the main flash image. Make sure to use the correct firmware file name that you copied to the switch.

```
<6125G Blade Switch> boot-loader file flash:/6125-cmw520-r2105.bin slot 1 main
```

Enter "Y" when asked to continue.

```
This command will set the boot file of the specified board. Continue? [Y/N]: Y
The specified file will be used as the main boot file at the next reboot on
slot 1!
```

15. 6125G CLI: Reboot the switch to run the new firmware version. Enter Y to save the configuration when prompted.

```
<6125G Blade Switch> reboot
Start to check configuration with next startup configuration file, please
wait.....DONE!
This command will reboot the device. Current configuration will be lost, save
current configuration? [Y/N]: Y
```

When prompted about the file name leave it blank and press **Enter**.

```
Please input the file name(*.cfg)[flash:/config.cfg]
(To leave the existing filename unchanged, press the enter key):
Validating file. Please wait...
The current configuration is saved to the active main board successfully.
Configuration is saved to device successfully.
```

When prompted to continue with the reboot, enter **Y**.

```
This command will reboot the device. Continue? [Y/N]:Y
#Apr 26 13:43:23:098 2000 6125G Blade Switch DEVM/1/REBOOT:
Reboot device by command.

%Apr 26 13:43:23:190 2000 6125G Blade Switch DEVM/5/SYSTEM_REBOOT: System is
rebooting now.
```

- 16. 6125G CLI:** Press the **Enter** key when prompted after the reboot is complete and login to the 6125G.

```
Press ENTER to get started.
```

```
Login authentication
Username: plat
Password: passtemp
<6125G Blade Switch>
```

- 17. 6125G CLI:** Verify that the new firmware is both the "current boot app" and the "main boot app".

```
<6125G Blade Switch> display boot-loader
Slot 1
The current boot app is: flash:/6125-cmw520-r2105.bin
The main boot app is: flash:/6125-cmw520-r2105.bin
The backup boot app is: flash:/6125-cmw520-r2105.bin
```

- 18. 6125G CLI:** Reset the 6125G to a default state.

Clear the RSA key.

```
<6125G Blade Switch> system-view
System View: return to User View with Ctrl+Z.

[6125G Blade Switch] public-key local destroy rsa
Warning: Confirm to destroy these keys? [Y/N]: Y

[6125G Blade Switch] quit
```

Reset the configuration to defaults.

```
<6125G Blade Switch> reset saved-configuration
The saved configuration file will be erased. Are you sure? [Y/N]: Y
Configuration file in flash is being cleared.
Please wait ...

MainBoard:
Configuration file is cleared.
```

Reboot the switch.

```
<6125G Blade Switch> reboot
Start to check configuration with next startup configuration file, please
wait.....DONE!
```

Do not save the configuration. Enter "N" when prompted.

```
This command will reboot the device. Current configuration will be lost, save
current configuration? [Y/N]: N
```

Enter "Y" when asked to continue.

```
This command will reboot the device. Continue? [Y/N]:Y
#Apr 26 13:43:23:098 2000 6125G Blade Switch DEVM/1/REBOOT:
Reboot device by command.
```

- 19. 6125G CLI:** After the reboot is complete, exit the 6125G CLI by pressing (Ctrl + Shift + Underscore).

Then enter "D" to disconnect when prompted.

```
Press ENTER to get started.
-----
Command: D)isconnect, C)hange settings, send B)reak, E)xit command mode X)modem
send > D
-----
OA>
```

Make sure this procedure has been run for all 6125G switches to be upgraded.

3.1.4 Utility Procedures

3.1.4.1 Configure SNMP Communities and Trap Servers

It is essential that all switches have been configured successfully using:

- [3.1.3.1 Configure Cisco 3020 switch \(netConfig\)](#) and/or
- [3.1.3.3 Configure HP 6120XG switch \(netConfig\)](#) and/or
- [3.1.2.1 Configure Cisco 4948/4948E/4948E-F aggregation switches \(PM&C installed\)\(netConfig\)](#)

Variable	Value
<switch_name>	See Application Documentation and step 2
<switch_platform_username>	See Application Documentation
<community string>	See Application Documentation
<snmp_server_ip>	See Application Documentation

1. **Virtual PM&C:** Log in to the PM&C Guest
2. **Virtual PM&C:** Determine which devices require SNMP configuration.
 1. Use the command netConfig to list the devices in its repository.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo listDevices
Devices:

Device: 6120XG_IOBAY3
Vendor:   HP
Model:   6120
Access:  Network: 10.240.8.9
Init Protocol Configured
Live Protocol Configured

Device: C3020_IOBAY1
Vendor:   Cisco
Model:   3020
Access:  Network: 10.240.8.7
Init Protocol Configured
Live Protocol Configured

Device: cClass-switch1A
Vendor:   Cisco
```

```

Model:      4948E
Access:     Network: 10.240.8.3
Access:     OOB:
            Service: console_service
            Console: cClass-sw1A-console
Init Protocol Configured
Live Protocol Configured

```

2. Determine which devices should have the community string added/removed.

Note: Refer to application documentation to determine which switches to add/remove the community string, making a note of the DEVICE NAME of each switch. This will be used as <switch_name>. In the example output above, DEVICE NAME = 6120XG_IOBAY3, C3020_IOBAY1 and cClass-switch1A.

3. **Virtual PM&C:** Configure the community string

Using the information from [Step 2](#), use these commands to add or remove the community string.

- To ADD a community string:

```
$sudo /usr/TKLC/plat/bin/netConfig addSNMP --device=<switch_name>
community=<community_string> uauth=RO
```

- To DELETE a community string:

```
$sudo /usr/TKLC/plat/bin/netConfig deleteSNMP --device=<switch_name>
community=<community_string>
```

4. **Virtual PM&C:** Configure the SNMP trap server

Using the information from [Step 2](#), use these commands to add or remove a trap server.

- To ADD a trap server:

1. For the 6120XG:

```
$ sudo /usr/TKLC/plat/bin/netConfig addSNMPNotify --device=<switch_name>
host=<snmp_server_ip> version=2c auth=<community_string> traplvl=not-info
```

2. For all other devices:

```
$ sudo /usr/TKLC/plat/bin/netConfig addSNMPNotify --device=<switch_name>
host=<snmp_server_ip> version=2c auth=<community_string>
```

- To DELETE a trap server:

1. For the 6120XG:

```
$ sudo /usr/TKLC/plat/bin/netConfig deleteSNMPNotify --device=<switch_name>
host=<snmp_server_ip> version=2c auth=<community_string> traplvl=not-info
```

2. For all other devices:

```
$ sudo /usr/TKLC/plat/bin/netConfig deleteSNMPNotify --device=<switch_name>
host=<snmp_server_ip> version=2c auth=<community_string>
```

5. Virtual PM&C: Verify the SNMP configuration

Verify the switch has been configured with the appropriate SNMP communities and trap servers:

```
$ sudo /usr/TKLC/plat/bin/netConfig getSNMP --device=<switch_name>
```

```
SNMP Community: "test"
```

```
$ sudo /usr/TKLC/plat/bin/netConfig listSNMPNotify --device=<switch_name>
```

```
Notification: = (
  Password change
  Login failures
  Port-Security
  Authorization Server Contact
  DHCP-Snooping
  Dynamic ARP Protection
  Dynamic IP Lockdown
)
```

```
Host: = (
  10.240.8.4
  10.240.8.6
)
```

6. Virtual PM&C: Backup the switch configuration.

- **For Cisco:** Perform [3.1.2.5 Backup Cisco 4948/4948E/4948E-F Aggregation Switch and/or Cisco 3020 Enclosure Switch \(netConfig\)](#).
- **For 6120XG:** Perform [3.1.3.6 Backup HP \(6120XG, 6125G\) Enclosure Switch](#).

7. Virtual PM&C: Repeat steps [Step 3](#) - [Step 6](#) for each device.

3.1.4.2 Configure QoS (DSCP and/or CoS) on HP 6120XG Switches

Prerequisites:

- It is essential that all switches have been configured successfully using [3.1.3.3 Configure HP 6120XG switch \(netConfig\)](#)

Variable	Value
<switch_name>	See Application Documentation and step 2
<dscp value>	See Application Documentation (if present)
<cos value>	See Application Documentation (if present)
<switch_platform_username>	See Application Documentation
<Vlanid>	See Application Documentation

1. Virtual PM&C: Login to the PM&C Guest

Login to the PM&C Guest.

2. Virtual PM&C: Determine which devices require QoS Policies

Use netConfig to list the devices in its repository and determine which devices should be configured with QoS.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo listDevices
Devices:
Device: 6120XG_IOBAY3
Vendor: HP
Model: 6120
Access: Network: 10.240.8.9
Init Protocol Configured
Live Protocol Configured
Device: C3020_IOBAY1
Vendor: Cisco
Model: 3020
Access: Network: 10.240.8.7
Init Protocol Configured
Live Protocol Configured
Device: cClass-switch1A
Vendor: Cisco
Model: 4948E
Access: Network: 10.240.8.3
Access: OOB:
Service: console_service
Console: cClass-sw1A-console
Init Protocol Configured
Live Protocol Configured
```

Note: Refer to application documentation to determine which switches or pairs of switches to configure with QoS, making a note of the DEVICE NAME of each 6120XG switch. These will be referred to as <switch_name> in the following steps

3. Virtual PM&C: Add DSCP and/or CoS Policy.

Using the information from the previous step, use one of the following commands to configure DSCP and/or CoS marking on the device.

For DSCP and CoS Marking:

```
$ sudo /usr/TKLC/plat/bin/netConfig addQOS --device=<switch_name> vlan=<vlanid>
dscp=<dscp value> cos=<cos value> name=<user defined name>
```

For DSCP Marking Only:

```
$ sudo /usr/TKLC/plat/bin/netConfig addQOS --device=<switch_name> vlan=<vlanid>
dscp=<dscp value> name=<user defined name>
```

For CoS Marking Only:

```
$ sudo /usr/TKLC/plat/bin/netConfig addQOS --device=<switch_name> vlan=<vlanid>
cos=<cos value>
```

4. Virtual PM&C: Verify the QoS configuration on the switch

Verify the QoS configuration:

```
$ sudo /usr/TKLC/plat/bin/netConfig getQOS --device=<switch_name> vlan=<vlanid>
```

Example Output:

```
$ sudo /usr/TKLC/plat/bin/netConfig getQOS --device=6120XG_IOBAY3 vlan=2

Policy: = (
  VLAN priorities
  VLAN ID Apply rule | DSCP  Priority
2      DSCP          | 000011 3
)
```

5. **Virtual PM&C:** Repeat steps 3-4 for each Policy
Repeat steps 3-4 for each policy that needs to be applied to the switch.
6. **Backup the Switch.**
Execute the [3.1.3.6 Backup HP \(6120XG, 6125G\) Enclosure Switch](#) procedure.
7. **Virtual PM&C:** Repeat steps 3-6 for each switch.
Repeat steps 3-6 for each switch identified in step 2.

3.1.4.3 Configure Port Mirroring**Prerequisites:**

- It is essential that all switches have been configured successfully using:
 - [3.1.3.1 Configure Cisco 3020 switch \(netConfig\)](#) and/or
 - [3.1.3.3 Configure HP 6120XG switch \(netConfig\)](#) and/or
 - [3.1.3.5 Configure HP 6125G switch \(netConfig\)](#) and/or
 - [3.1.2.1 Configure Cisco 4948/4948E/4948E-F aggregation switches \(PM&C installed\)\(netConfig\)](#)

Variable	Value
<switch_name>	See Application Documentation and step Step 2
<switch_model>	Fill in appropriate value from step Step 2
<switch_IP>	Fill in appropriate value from step Step 2
<srcInterface>	See Application Documentation
<destInterface>	See Application Documentation
<switch_platform_username>	See Application Documentation
<srcVlanid>	See Application Documentation

1. **Virtual PM&C:** Log into the PM&C Guest
2. **Virtual PM&C:** Determine the port mirror source devices.
Use netConfig to list the devices in its repository and determine which devices should be configured with port mirroring.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo listDevices
Devices:

Device: 6120XG_IOBAY3
```

```

Vendor: HP
Model: 6120
Access: Network: 10.240.8.9
Init Protocol Configured
Live Protocol Configured

Device: C3020_IOBAY1
Vendor: Cisco
Model: 3020
Access: Network: 10.240.8.7
Init Protocol Configured
Live Protocol Configured

Device: 6125G_IOBAY5
Vendor: HP
Model: 6125
Access: Network: 10.240.8.12
Access: OOB:
Service: oa_service
Console: 5
Init Protocol Configured
Live Protocol Configured

Device: cClass-switch1A
Vendor: Cisco
Model: 4948E
Access: Network: 10.240.8.3
Access: OOB:
Service: console_service
Console: cClass-sw1A-console
Init Protocol Configured
Live Protocol Configured

```

Note: Refer to application documentation to determine which switches to configure source monitoring devices, making a note of the DEVICE NAME, MODEL and IP ADDRESS of each switch. These will be used as <switch_name>,<switch_model>,<switch_IP> in future steps and the model will determine the command.

3. Virtual PM&C: Configure port mirroring.

Using the information from [Step 2](#), use the following command to configure port mirroring. Pay close attention to the device model.

For VLAN Monitoring (Cisco Devices Only):

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=<switch_name> addPortMirror session=1
vlan=<srcVlanid> destInterface=<mirrorPort> direction=both
```

For Port Mirroring:

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=<switch_name> addPortMirror session=1
interface=<srcInterface> destInterface=<mirrorPort> direction=both
```

Note: The interface option allows for more than one source interface. The value can be entered as a single interface ex: GE1 (1Gb port) or tenGE1 (10Gb port) or it can be entered as a range of interfaces separated by commas and dashes ex: GE1-5,GE7,tenGE9-10.

Note: The only direction supported by the HP switches is 'both.' If the direction option is used on an HP switch, it will be ignored and 'both' is applied.

VLAN Example:

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=C3020_IOBAY1 addPortMirror session=1
vlan=2 destInterface=GE10 direction=both
```

Port Example:

```
$ sudo /usr/TKLC/plat/bin/netConfig --device=6120XG_IOBAY3 addPortMirror session=1
interface=tenGE1,tenGE3 destInterface=tenGE2
```

4. **Virtual PM&C:** Verify the Port Mirroring configuration on the switch.
Verify that the port monitoring session is configured:

```
$ sudo /usr/TKLC/plat/bin/netConfig listPortMirrors --device=6120XG_IOBAY3

Destination: 2
Source: = (
tenGE1
tenGE3
)
```

```
$ sudo /usr/TKLC/plat/bin/netConfig listPortMirrors --device=6125G_IOBAY4

listPortMirrorsDestination:
GigabitEthernet1/1/8Direction:
bothSource: GE1Session: 1
```

Note: Output from the command above may vary slightly from one device type to another.

5. **Virtual PM&C:** Backup the switch configuration

For Cisco:

Perform the [3.1.2.5 Backup Cisco 4948/4948E/4948E-F Aggregation Switch and/or Cisco 3020 Enclosure Switch \(netConfig\)](#) procedure.

For HP:

Perform the [3.1.3.6 Backup HP \(6120XG, 6125G\) Enclosure Switch](#) procedure.

6. **Virtual PM&C:** Repeat steps [Step 3-Step 5](#) for each monitor source device.

3.1.4.4 SwitchConfig to netConfig Repository Configuration

This procedure will configure the netConfig repository with the necessary services and previously configured switches from a single management server for use with the c-Class platform.

Prerequisites:

- [3.6.1 IPM DL360 or DL380 Server](#),
- [3.7.2 Installing TVOE on the Management Server](#),
- [3.7.3 TVOE Network Configuration](#),
- [3.7.4 Deploy PM&C Guest](#), and
- [3.7.5 Setup PM&C](#) are required to be completed before this procedure is attempted.
- Application management network interfaces must be configured on the management servers prior to executing this procedure.

- Application username and password for creating switch backups must be configured on the management server prior to executing this procedure.

Procedure Reference Tables:

Steps within this procedure may refer to variable data indicated by text within "<>". Refer to this table for the proper value to insert depending on your system type.

Variable	Serial Port
<switch1A_serial_port>	ttyS4
<switch1B_serial_port>	ttyS5

Fill in the appropriate value for this site:

Variable	Value
<switch_hostname>	Fill in the appropriate value for this site:
<switch_platform_username>	See referring application documentation
<switch_platform_password>	See referring application documentation
<switch_console_password>	See referring application documentation
<switch_enable_password>	See referring application documentation
<management_server1A_mgmtVLAN_ip_address>	
<management_server1B_mgmtVLAN_ip_address>	
<pmac_mgmtVLAN_ip_address>	
<switch_mgmtVLAN_id>	
<switch1A_mgmtVLAN_ip_address>	
<mgmt_Vlan_subnet_id>	
<netmask>	
<switch1B_mgmtVLAN_ip_address>	
<switch_Internal_VLANS_list>	
<switch_mgmtVlan_id>	
<management_server_mgmtInterface>	
<management_server1A_iLO_ip>	
<management_server1B_iLO_ip>	

Variable	Value
<platcfg_password>	Refer to TR006061 for this value
<management_server_mgmtInterface>	Value gathered from NAPD
<switch_backup_user>	admusr

<switch_backup_user_password>	Refer to TR006061
-------------------------------	-------------------

Note: The onboard administrators are not available during the configuration of Cisco 4948/4948E/4948E-F switches.

Note: Uplinks must be disconnected from the customer network prior to executing this procedure. One of the steps in this procedure will instruct when to reconnect these uplink cables. Refer to the application appropriate schematic or procedure for determining which cables are used for customer uplink.

Needed Material:

- HP Misc. Firmware DVD
- HP Solutions Firmware Upgrade Pack Release Notes [3]
- Application specific documentation (documentation that referred to this procedure)
- Template xml files on the application media.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Management server iLO: Login and launch the integrated remote console.

On Server1A login to iLO in IE using password provided by application:

```
http://<management_server1A_iLO_ip>
```

Click in the **Remote Console** tab and launch the **Integrated Remote Console** on the server.

Click **Yes** if the Security Alert pops up.

If not already done so, login as admusr.

2. management Server: Procedure pre-check - verify hardware type

Certain steps in this procedure require enabling and disabling ethernet interfaces. This procedure supports DL360 and DL380 servers. The interfaces that are to be enabled and disabled are different for each server type.

To determine the interface name, on the server, execute the following command:

```
$ /bin/cat /proc/net/bonding/bond0 | grep Interface
Slave Interface: eth01
Slave Interface: eth02
$
```

Note the slave interface names of ethernet interfaces to use in subsequent steps. The first line will be the value for <ethernet_inteface_1> and the second line will be the value for <ethernet_interface_2> .

For example, from the sample output provided, <ethernet_inteface_1> would be eth01 . If the output from the above command is not successful, refer back to the application documentation.

3. Management Server: Procedure pre-check - determine Platform version

On each management server, determine the Platform version of the system by issuing the following command:

```
$ /usr/TKLC/plat/bin/appRev
```

If the following is shown in the output, the Platform version is 6.5:

```
Base Distro Release: 6.5.x-x.x.x
```

The values of x-x.x.x do not matter. The value of 6.5 shows the platform version. If the command shows a Base Distro Release version lower than 6.5, or fails to execute, stop this procedure and refer back to application procedures. It is possible the wrong version of TVOE/TPD is installed.

4. Management Server: Procedure pre-check - verify virtual PM&C is installed

PM&C is required to be installed prior to this procedure being attempted. Verify virtual PM&C installation by issuing the following commands as admusr on the management server:

```
$ sudo /usr/bin/virsh list --all
Id Name State
-----
6 vm-pmac1A running
```

If this command provides no output, it is likely that a virtual instance of PM&C is not installed. Refer to application documentation or contact Tekelec Customer Service.

5. Management server1A: Setup conserver serial access for switch1A and switch1B and open the firewall to allow for future tftp use in this procedure.

Note: If there are no aggregation switches in this deployment, skip to the next step.

From management server1A, configure the conserver service to enable serial access to the switches:

For switch1A:

```
$ sudo /usr/TKLC/plat/bin/conserverSetup --addConsole --name=switch1A_console
--device=/dev/ttyS4
```

For switch1B:

```
$ sudo /usr/TKLC/plat/bin/conserverSetup --addConsole --name=switch1B_console
--device=/dev/ttyS5
```

Open the conserver port on the firewall of the TVOE management server:

```
$ sudo /bin/iptables -I INPUT -s <pmac_mgmtVLAN_ip_address>/255.255.255.255 -p
all -j ACCEPT
$ service iptables save
```

You should be returned to the command line prompt. If so, continue to the next step; if not, contact Customer Care Center for assistance.

6. Virtual PM&C: Login to the console of the virtual PM&C.

Note: On a TVOE host, If you launch the virsh console, i.e., "\$ virsh console X" or from the virsh utility "virsh \$ console X" command and you get garbage characters or output is not quite right, then more than likely there is a stuck "virsh console" command already being run on the TVOE host. Exit out of the "virsh console", then run "ps -ef |grep virsh", then kill the existing process "kill -9 <PID>". Then execute the "virsh console X" command. Your console session should now run as expected.

From management server1A, log into the console of the virtual pmac instance found in step 4.

```
$ sudo /usr/bin/virsh console vm-pmac1A
Connected to domain vm-pmac1A
Escape character is ^]
<Press ENTER key>
CentOS release 6.2 (Final)
Kernel 2.6.32-220.7.1.el6prere16.0.0_80.13.0.x86_64 on an x86_64
```

If another user is already logged in, logout and log back in as admusr.

```
[root@pmac ~]$ logout
```

```
vm-pmac1A login: admusr
Password:
Last login: Fri May 25 16:39:04 on ttyS4
```

If this command fails, it is likely that a virtual instance of PM&C is not installed. Refer to application documentation or contact Tekelec Customer Service.

7. Virtual PM&C: Verify PM&C release version.

Verify the PM&C release version.

```
$ /usr/TKLC/plat/bin/appRev
```

If the following is shown in the output, the PM&C version is 5.0:

```
Product Name: PMAC
Product Release: 5.0.0_x.x.x
```

If the output does not contain "Product Name: PMAC" or does not contain a PMAC version of 5.0 or higher, then stop this procedure and refer back to the application instructions.

8. Virtual PM&C: Setup netConfig repository with necessary console information.

Note: If there are no aggregation switches in this deployment, skip to the next step.

Use netConfig to create a repository entry that will use the conserver service that was configured in the previous steps. This command will give the user several prompts. The prompts with <variables> as the answers are site specific that the user MUST modify. Other prompts that don't have a <variable> as an answer must be entered EXACTLY as they are shown here.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo addService name=console_service
Service type? (tftp, ssh, conserver, oa) conserver
Service host? <management_server1A_mgmtVLAN_ip_address>
Enter an option name (q to cancel): user
Enter a value for user: platcfg
Enter an option name(q to cancel): password
Enter a value for password: <platcfg_password>
Verify password: <platcfg_password>
Enter an option name(q to cancel): q
Add service for console_service successful
```

To check that you entered the information correctly, use the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showService name=console_service
```

and check the output, which will be similar to the one shown below:

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showService name=console_service
Services:
Service Name: console_service
Type: conserver
Host: 10.240.8.4
Options:
password: D8396824B3B2B9EE
user: platcfg
$
```

9. Virtual PM&C: Setup netConfig repository with necessary tftp information.

Use netConfig to create a repository entry that will use the tftp service. This command will give the user several prompts. The prompts with <variables> as the answers are site specific that the user MUST modify. Other prompts that don't have a <variable> as an answer must be entered EXACTLY as they are shown here.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo addService name=tftp_service
Service type? (tftp, ssh, conserver, oa) tftp
Service host? <pmac_mgmtVLAN_ip_address>
Enter an option name (q to cancel): dir
Enter a value for user: /var/TKLC/smac/image/
Enter an option name(q to cancel): q
Add service for tftp_service successful
```

To check that you entered the information correctly, use the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showService name=tftp_service
```

and check the output, which will be similar to the one shown below (Note: only the tftp service info has been shown in this example. If the previous step and this step were done correctly, both the console_service and tftp_service entries would show up)

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showService name=tftp_service
Services:
Service Name: tftp_service
Type: tftp
Host: 10.240.8.4
Options:
dir: /var/TKLC/smac/image
$
```

10. Virtual PM&C: Setup netConfig repository with necessary ssh information.

Use netConfig to create a repository entry that will use the ssh service. This command will provide the user with several prompts. The prompts with <variables> as the answers are site specific that the user MUST modify. Other prompts that don't have a <variable> as answer must be entered EXACTLY as they are shown here.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo addService name=ssh_service
Service type? (tftp, ssh, conserver, oa) ssh
Service host? <pmac_mgmtVLAN_ip_address>
Enter an option name <q to cancel>: user
Enter the value for user: <switch_backup_user>
Enter an option name <q to cancel>: password
Enter the value for password: <switch_backup_user_password>
Verify Password: <switch_backup_user_password>
```

```
Enter an option name <q to cancel>: q
Add service for ssh_service successful
$
```

To ensure that you entered the information correctly, use the following command and inspect the output, which will be similar to the one shown below.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showService name=ssh_service
Service Name: ssh_service
Type: ssh
Host: 10.250.62.85
Options:
password: C20F7D639AE7E7
user: admusr
$
```

11. Virtual PM&C: Setup netConfig repository with Aggregation switch information.

Note: If there are no aggregation switches in this deployment, skip to the next step.

Use netConfig to create a repository entry for switch1A and switch1B. This command will give the user several prompts. The prompts with <variables> as the answers are site specific that the user MUST modify. Other prompts that don't have a <variable> as an answer must be entered EXACTLY as they are shown here.

Note: The model can be 4948, 4948E, or 4948E-F depending on the model of the device. If you do not know, stop now and contact Customer Care Center.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo addDevice name=switch1A
--reuseCredentials
Device Vendor? Cisco
Device Model? <device_model>

Should the init oob adapter be added (y/n)? y

Adding consoleInit protocol for switch1A using oob...
What is the name of the service used for OOB access? console_service
What is the name of the console for OOB access? switch1A_console
What is the platform access username? <switch1A_platform_username>
What is the device console password? <switch1A_console_password>
Verify password: <switch1A_console_password>

What is the platform user password? <switch1A_platform_password>
Verify password: <switch1A_platform_password>

What is the device privileged mode password? <switch1A_enable_password>
Verify password: <switch1A_enable_password>

Should the live network adapter be added (y/n)? y

Adding cli protocol for switch1A using network...
What is the address used for network device access? <switch1A_mgmt_ip_address>

Should the live oob adapter be added (y/n)? y

Adding cli protocol for switch1A using oob...
OOB device access already set: console_service
```

```
Device named <switch_hostname> successfully added.
```

To check that you entered the information correctly, use the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showDevice name=switch1A
```

and check the output, which will be similar to the one shown below.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo listDevices
Device: switch1A
Vendor: Cisco
Model: 4948E
FW Ver: 0
Access: Network: 10.240.64.34
Access: OOB:
Service: console_service
Console: switch1A_console
Init Protocol Configured
Live Protocol Configured
$
```

Create the Repository entry for switch1B

Note: The model can be 4948, 4948E, or 4948E-F depending on the model of the device. If you do not know, stop now and contact Customer Care Center.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo addDevice name=switch1B
--reuseCredentials
Device Vendor? Cisco
Device Model? <device_model>

Should the init oob adapter be added (y/n)? y

Adding consoleInit protocol for switch1A using oob...
What is the name of the service used for OOB access? console_service
What is the name of the console for OOB access? switch1B_console
What is the platform access username? <switch1B_platform_username>
What is the device console password? <switch1B_console_password>
Verify password: <switch1B_console_password>

What is the platform user password? <switch1B_platform_password>
Verify password: <switch1B_platform_password>

What is the device privileged mode password? <switch1B_enable_password>
Verify password: <switch1B_enable_password>

Should the live network adapter be added (y/n)? y

Adding cli protocol for switch1A using network...
What is the address used for network device access? <switch1B_mgmt_ip_address>

Should the live oob adapter be added (y/n)? y

Adding cli protocol for switch1A using oob...
OOB device access already set: console_service
```

```
Device named <switch_hostname> successfully added.
```

To check that you entered the information correctly, use the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showDevice name=switch1B
```

and check the output, which will be similar to the one shown below.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showDevice name=switch1B
Device: switch1A
Vendor: Cisco
Model: 4948E
FW Ver: 0
Access: Network: 10.240.64.35
Access: OOB:
Service: console_service
Console: switch1B_console
Init Protocol Configured
Live Protocol Configured
$
```

12. Virtual PM&C: Setup netConfig repository with switch information.

Note: If there are no 3020s in this deployment, skip to the next step.

Use netConfig to create a repository entry for each 3020. This command will give the user several prompts. The prompts with <variables> as the answers are site specific that the user MUST modify. Other prompts that don't have a <variable> as an answer must be entered EXACTLY as they are shown here. If you do not know, stop now and contact Customer Care Center.

Note: The device name must be 20 characters or less

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo addDevice name=<switch_hostname>
--reuseCredentials
Device Vendor? Cisco
Device Model? 3020

Should the init network adapter be added (y/n)? y

Adding netBootInit protocol for <switch_hostname> using network...
What is the address used for network device access? <enclosure_switch_ip>
What is the platform access username? <switch_platform_username>
What is the platform user password? <switch_platform_password>
Verify password: <switch_platform_password>

What is the device privileged mode password? <switch_enable_password>
Verify password: <switch_enable_password>

Should the init file adapter be added (y/n)? y

Adding netBootInit protocol for <switch_hostname> using file...
What is the name of the service used for TFTP access? tftp_service

Should the live network adapter be added (y/n)? y

Adding cli protocol for <switch_hostname> using network...
Network device access already set: <enclosure_switch_ip>
```

```
Device named <switch_hostname> successfully added.
```

To check that you entered the information correctly, use the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo listDevices
```

and check the output, which will be similar to the one shown below

Note: Only the switch1B info has been shown in this example. If the previous step and this step were done correctly, both switch1A and switch1B entries would show up.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo listDevices
Devices:
Device: C3020_IOBAY1
Vendor: Cisco
Model: 3020
Access: Network: 10.240.8.7
Init Protocol Configured
Live Protocol Configured
[admusr@pmac5000101 ~]$
```

Repeat for each 3020, using appropriate values for those 3020s.

13. Virtual PM&C: setup netConfig repository

Note: If there are no 6120s in this deployment, skip to the next step.

Use netConfig to create a repository entry for each 6120XG. This command will give the user several prompts. The prompts with <variables> as the answers are site specific that the user MUST modify. Other prompts that don't have a <variable> as an answer must be entered EXACTLY as they are shown here. If you do not know, stop now and contact Customer Care Center.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo addDevice name=<switch_hostname>
--reuseCredentials
Device Vendor? HP
Device Model? 6120

Should the init network adapter be added (y/n)? y

Adding sshInit protocol for <switch_hostname> using network...
What is the address used for network device access? <enclosure_switch_ip>
What is the platform access username? <switch_platform_username>
What is the platform user password? <switch_platform_password>
Verify password: <switch_platform_password>

What is the device privileged mode password? <switch_enable_password>
Verify password: <switch_enable_password>

Should the live network adapter be added (y/n)? y

Adding cli protocol for <switch_hostname> using network...
Network device access already set: <enclosure_switch_ip>

Should the live oob adapter be added (y/n)? n
```

```
Device named <switch_hostname> successfully added.
```

To check that you entered the information correctly, use the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showDevice name=<switch_hostname>
```

and check the output, which will be similar to the one shown below:

Note: If the previous step and this step were done correctly, both switch1A and switch1B entries would show up.

```
$ sudo /usr/TKLC/plat/bin/netConfig --repo showDevice name=<switch_hostname>
Device: 6120XG_IOBAY1
Vendor: HP
Model: 6120
FW Ver: 0
Access: Network: 10.240.8.10
Init Protocol Configured
Live Protocol Configured
[admusr@pmac5000101 ~]$
```

Repeat for each 6120, using appropriate values for those 6120s.

14. Perform the 'switchconfig to netConfig migration procedure' for all switches in the system.

3.1.4.5 Cisco Switch switchconfig to netConfig Migration

This procedure configures a Cisco switch to migrate from switchconfig to netConfig.

Needed Materials:

- HP Misc. Firmware DVD,
- HP Solutions Firmware Upgrade Pack Release Notes [3],
- Application specific documentation (documentation that referred to this procedure), and
- Template xml files in an application ISO on an application CD.

Variable	Serial Port
<switch1A_serial_port>	ttyS4
<switch1B_serial_port>	ttyS5

In the following tables, fill in the blanks with the appropriate value for this site:

Variable	Value
<switch_platform_username>	See referring application documentation
<switch_platform_password>	See referring application documentation
<switch_console_password>	See referring application documentation
<switch_enable_password>	See referring application documentation
<pmac_mgmtVLAN_ip_address>	
<switch_mgmtVLAN_id>	

<mgmt_Vlan_subnet_id>	
<netmask>	
<switch_Internal_VLANS_list>	
<switch_mgmtVlan_id>	
<management_server_mgmtInterface>	
<management_server1A_iLO_ip>	
<management_server1B_iLO_ip>	
<switch_mgmt_IP_address>	

Variable	Value
<platcfg_password>	Refer to TR006061 for this value
<management_server_mgmtInterface>	Value gathered from NAPD
<switch_backup_user>	admusr
<switch_backup_user_password>	Refer to TR006061

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Virtual PM&C: Verify network connectivity to the switch

For each switch, verify network reachability.

```
# /bin/ping -w3 <switch_mgmt_IP_address>
```

2. Virtual PM&C: Login to the switch

Login to the switch using Telnet

```
# /usr/bin/telnet <switch_mgmt_IP_address>
```

3. Switch CLI: Apply netConfig required commands:

From the switch CLI, apply the following commands required by netConfig:

```
Switch# config t
Switch(config)# hostname <switch_name>
Switch(config)# no service config
Switch(config)# service password-encryption
Switch(config)# crypto key generate rsa usage-keys label sshkeys modulus 768
Switch(config)# aaa new-model
Switch(config)# aaa authentication login onconsole line
Switch(config)# username <switch_platform_username> secret
<switch_platform_password>
Switch(config)# enable secret <switch_enable_password>
Switch(config)# line vty 0 15
Switch(config-line)# no password
Switch(config-line)# transport input ssh
Switch(config)# exit
Switch(config)# line console 0
Switch(config-line)# login authentication onconsole
```

```
Switch(config-line)# password <switch_console_password>
Switch(config)# exit
Switch(config)# ip ssh version 2
Switch(config)# no ip http server
Switch(config)# no ip http secure-server
Switch(config)# no ip domain lookup
Switch(config)# end
Switch# write memory
```

4. Switch CLI: Reload the switch and verify configuration

Reload the switch and verify the configuration from [Step 3](#). If a command was not applied, repeat [Step 3](#).

```
Switch# reload
```

If prompted, answer yes.

5. Virtual PM&C: Verify netConfig connectivity.

Perform the following netConfig command to verify netConfig can communicate with the switch.

```
$ sudo /usr/TKLC/plat/bin/netConfig getHostname --device=<switch_name>
```

Hostname: <switch_name>

6. Backup the Configuration

Perform the [3.1.2.5 Backup Cisco 4948/4948E/4948E-F Aggregation Switch and/or Cisco 3020 Enclosure Switch \(netConfig\)](#) procedure and then return to this procedure and continue with [Step 7](#) of this procedure

7. Reset to factory defaults

- For the 4948-series switches, perform the following command:

```
$ sudo /usr/TKLC/plat/bin/netConfig setFactoryDefault --device=<switch_name>
```

- For the 3020-series switches, perform Step 4 of the [3.1.3.2 Reconfigure a failed 3020 switch \(netConfig\)](#) procedure.

8. Restore the Configuration

- For 4948-series switches: Perform Steps 6-24 of the [3.1.2.3 Replace a failed 4948/4948E/4948E-F switch \(PM&C Installed\) \(netConfig\)](#) procedure.
- For 3020 switches: Perform Steps 5-11 of the [3.1.3.2 Reconfigure a failed 3020 switch \(netConfig\)](#) procedure.

9. Virtual PM&C: Repeat [Step 2-Step 8](#) for each switch being migrated.

3.1.4.6 HP 6120XG switchconfig to netConfig Migration

This procedure configures a 6120XG switch to migrate from switchconfig to netConfig.

Needed Materials:

- HP Misc. Firmware DVD
- HP Solutions Firmware Upgrade Pack Release Notes

- Application specific documentation (documentation that referred to this procedure)
- Template xml files in an application ISO on an application CD

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the Customer Care Center section of this document.

1. Management Server: Verify network connectivity to 6120XG switches

For each 6120XG switch, verify reachability.

```
$ /bin/ping -w3 <enclosure_switch_IP>
```

2. Management Server: Login to the Switch

Login to the 6120XG switch using SSH/Telnet

```
$ /usr/bin/ssh manager@<enclosure_switch_IP>
```

If the above command fails, log in using telnet:

```
$ /usr/bin/telnet <enclosure_switch_IP>
```

3. Switch CLI: Apply netConfig required commands:

From the 6120XG CLI, apply the following commands required by netConfig:

```
Switch# config
Switch(config)# hostname <switch_name>
Switch(config)# no password all
Password protection for all will be deleted, continue [y/n]? y
Switch(config)# include-credentials
```

Note: If prompted after 'include-credentials' answer yes to both questions.

```
Switch(config)# password manager user-name <platform_username> plaintext
<platform_enable_password>
Switch(config)# console flow-control none
Switch(config)# ip ssh listen oobm
Switch(config)# ip ssh filetransfer
Switch(config)# no tftp client
Switch(config)# no tftp server
Switch(config)# no telnet-server
Switch(config)# end
Switch# write memory
```

4. Switch CLI: Reload the switch and verify configuration

Reload the switch and verify the configuration from step 3. If a command was not applied, repeat step 3.

```
Switch# reload
```

If prompted, answer yes.

5. Management Server: Verify netConfig connectivity.

Perform the following netConfig command to verify netConfig can communicate with the switch.

```
$ sudo /usr/TKLC/plat/bin/netConfig getFirmware --device=<switch_name>
Version: Z.14.32
Image: Secondary
```

6. Backup the Configuration

Perform the [3.1.2.5 Backup Cisco 4948/4948E/4948E-F Aggregation Switch and/or Cisco 3020 Enclosure Switch \(netConfig\)](#) procedure and then return to this procedure and continue with step 7 of this procedure.

7. Restore the Configuration

Perform steps 3-8 of the [3.1.2.3 Replace a failed 4948/4948E/4948E-F switch \(PM&C Installed\) \(netConfig\)](#) procedure and continue with step 8 of this procedure.

8. Verify the Configuration

Once each HP 6120XG has finished booting from the previous step, verify network reachability and configuration.

```
[admusr@localhost ~]$ /bin/ping -w3 <enclosure_switch_IP>
[admusr@localhost ~]$ /usr/bin/ssh <switch_platform_username>@<enclosure_switch_IP>
Switch# show run
```

Inspect the output of show run, and ensure that it is configured as per site requirements

3.1.4.7 Configuring DSCP Marking Using iptablesADM

Note: DSCP marking set using the QoS procedure [3.1.4.2 Configure QoS \(DSCP and/or CoS\) on HP 6120XG Switches](#) may conflict/overwrite marking set using the steps below.

iptablesAdm uses a native iptables command with additional TPD driven arguments.

Generic command for DSCP marking:

```
$ sudo /sbin/iptablesAdm insert --table=mangle --type=rule --protocol=[ipv4|ipv6]
--domain=<domain> --chain=<chain> --match='-p [tcp|udp|icmp] -j DSCP --set-dscp
0x[DSCP value]' -location=<number> --persist=yes
```

Where

<table> - For DSCP marking, the table will always = mangle

<domain> - User initiated name for a set of iptables rules. Valid names start with a two-digit number and then an alphanumeric value; such as 25example. NOTE: the domain sets the order of operation.

<match> - This is the native iptables command string.

<chain> - Native iptables set of rules. For the mangle table valid values are: PREROUTING, OUTPUT, FORWARD, INPUT and POSTROUTING.

Example 1

Use this command to mark a locally generated outgoing icmp packet with the value of 18:

```
$ sudo /sbin/iptablesAdm insert --table=mangle --type=rule --protocol=ipv4
--domain=<domain> --chain=POSTROUTING --match='-p icmp -j DSCP --set-dscp 18'
-location=1--persist=yes
```

- If no domain has been previously setup this command will create the domain.
- If persist=yes then the rule is placed in /etc/sysconfig/iptables or /etc/sysconfig/ip6tables

The resulting user defined rule can be viewed with the command:

```
$ sudo /sbin/iptablesAdm show --type=rule --protocol=ipv4 --table=mangle
```

The resulting user defined rule can be removed with the command:

```
$ sudo /sbin/iptablesAdm delete --table=mangle --type=rule --protocol=ipv4
--domain=<domain> --chain=POSTROUTING --match='-p icmp -j DSCP --set-dscp 0x12'18'
```

Note: Either the --match '<native iptables command string>' or the -location=<number> can be used to delete a rule.

Example 2

Use this command to mark an outgoing packet leaving via the ssh port with the DSCP value 12:

```
$ sudo /sbin/iptablesAdm insert --table=mangle --type=rule --protocol=ipv4
--domain=<domain> --chain=POSTROUTING --match='-p tcp --sport 22 -j DSCP --set-dscp
12' --location=1 --persist=yes
```

The resulting user defined rule can be viewed with the command:

```
$ sudo /sbin/iptablesAdm show --type=rule --protocol=ipv4 --table=mangle
```

The resulting user defined rule can be removed with the command:

```
$ sudo /sbin/iptablesAdm delete --table=mangle --type=rule --protocol=ipv4
--domain=<domain> --chain=POSTROUTING --match='-p tcp --sport 22 -j DSCP --set-dscp
12' --location=1 --persist=yes
```

Example 3

Use this command to mark all outbound traffic on the bond1 interface with a DSCP value of 25:

```
$ sudo /sbin/iptablesAdm insert --type=rule --protocol=ipv4 --domain=<domain>
--chain=OUTPUT --table=mangle --match='-o bond1 -j DSCP --set-dscp 25' --location=1
--persist=yes
```

The resulting user defined rule can be viewed with the command:

```
$ sudo /sbin/iptablesAdm show --type=rule --protocol=ipv4 --table=mangle
```

The resulting user defined rule can be removed with the command:

```
$ sudo /sbin/iptablesAdm delete --type=rule --protocol=ipv4 --domain=<domain>
--chain=OUTPUT --table=mangle --match='-o bond1 -j DSCP --set-dscp 25'
```

3.2 Brocade Switch - SwitchConfig Procedures

3.2.1 Configure Brocade Switches

This procedure will configure names, user passwords and NTP settings for Brocade switches and back up the configuration to the management server hosting PM&C.

Prerequisites:

- [3.5.1 Configure Initial OA IP](#),
- [3.7.2 Installing TVOE on the Management Server](#),
- [3.7.3 TVOE Network Configuration](#), and
- [3.7.4 Deploy PM&C Guest](#)

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. OA shell: Login to the active OA

Login to OA via ssh as root user.

```
login as: root
-----
WARNING: This is a private system. Do not attempt to login unless you are an
authorized user. Any authorized or unauthorized access and use may be moni-
tored and can result in criminal or civil prosecution under applicable law.
-----
Firmware Version: 3.00
Built: 03/19/2010 @ 14:13
OABayNumber: 1
OARole: Active
root@10.240.17.51's password:
```

If the **OA Role** is not **Active**, login into the other OA the enclosure system

2. OA shell: Login to the Brocade switch console

Run the following command to get Brocade switches bay IDs:

```
> show interconnect list

OA-001F296DB1BB> show interconnect list
BayInterconnect Type Manufacturer Power Health UIDManagement IP
-----
1 Ethernet Cisco Systems, Inc. On OK Off 10.240.4.70
2 Ethernet Cisco Systems, Inc. On OK Off 10.240.4.71
3 Fibre ChannelBROCADE On OK Off 10.240.4.50
4 Fibre ChannelBROCADE On OK Off 10.240.5.51
5 [Absent]
6 [Absent]
7 [Absent]
8 [Absent]
```

```
Totals: 4 interconnect modules installed, 4 powered on.
```

```
# connect interconnect <bay_id_number>
```

```
NOTICE: This pass-thru connection to the integrated I/O console is provided for convenience and does not supply additional access control.
```

```
For security reasons, use the password features of the integrated switch.
```

```
Connecting to integrated switch 4 at 9600,N81...
```

```
Escape character is '<Ctrl>_' (Control + Shift + Underscore)
```

```
Press [Enter] to display the switch console:
```

Press **Enter Enter** (Enter twice) and log in as root user.

```
swd77 console login: root
```

```
Password:
```

```
Change passwords for switch default accounts now.
```

```
Use Control-C to exit or press 'Enter' key to proceed.
```

Press **Enter** to see the prompt.

3. Brocade switch console : Set root user password

```
swd77:root> passwd root
```

```
Changing password for root
```

```
Enter new password:
```

```
Re-type new password:
```

```
passwd: all authentication tokens updated successfully
```

```
Saving password to stable storage.
```

```
Password saved to stable storage successfully.
```

4. Brocade switch console : Set factory user password

```
swd77:root> passwd factory
```

5. Brocade switch console : Set admin user password

```
swd77:root> passwd admin
```

6. Brocade switch console : Set user user password

```
swd77:root> passwd user
```

7. Brocade switch console : Set switch name for the FC switch

Run the following command, the bay id number is the same as the one used in step 1 to connect:

```
swd77:root> switchName bay<bay_id_number>
```

```
Committing configuration...
```

```
Done.
```

8. Brocade switch console : Set chassis name for the FC switch

Use the enclosure name used during the OA setup, prepended by alphabetical character. (e.g. c505_05_01)

```
swd77:root> chassisName <chassis_name>
```

Note: The chassis name must begin with alphabetical character.

9. Brocade switch console : Set NTP server on the FC switch

```
swd77:root> tsclockserver <NTP_server_ip>
Updating Clock Server configuration...done.
Updated with the NTPservers
```

Check if the change was applied with:

```
swd77:root> tsclockserver
Active NTPServer      10.250.32.10
Configured NTPServer List 10.250.32.10
```

10. Brocade switch console : Backup configuration

```
swd77:root> configUpload
Protocol (scp, ftp, local) [ftp]: scp
Server Name or IP Address [host]: <PM&C_ip>
User Name [user]: pmacadmin
File Name [config.txt]: /var/TKLC/smac/backup/<chassis_switch_bay>
Section (all|chassis [all]):
pmacadmin@<ip>'s password:

configUpload complete: All config parameters are uploaded
```

where **<chassis_switch_bay>** would be **500_05_01_bay3** for instance

11. Brocade switch console : Logout

```
swd77:root> logout
```

Press **control + shift + underscore** and then **D** to logout from FC switch console.

12. Repeat for second Brocade switch

Repeat step 2-11 for the second Brocade switch.

13. OA : Logout

```
> exit
```

3.2.2 Upgrade Brocade Switch Firmware

This procedure will describe how to upgrade firmware for the Brocade switches. The procedure covers either 4/24 or 8/24 Brocade switches.

Prerequisites:

- [3.5.1 Configure Initial OA IP](#) and
- [3.7.9 Adding ISO Images to the PM&C Image Repository](#) have been completed using Misc. Firmware CD.

Needed material:

- Tekelec's HP Misc. Firmware USB media or ISO file
- HP Solutions Firmware Upgrade Pack Release Notes [3]

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. OA shell: Login to the active OA

Login to OA via ssh as root user.

```
login as: root
-----
WARNING: This is a private system. Do not attempt to login unless you are an
authorized user. Any authorized or unauthorized access and use may be moni-
tored and can result in criminal or civil prosecution under applicable law.
-----
Firmware Version: 3.00
Built: 03/19/2010 @ 14:13
OA BayNumber: 1
OARole: Active
root@10.240.17.51's password:
```

If the **OA Role** is not **Active**, login into the other OA the enclosure system

2. OA shell: Login to the brocade switch console

Login to OA via ssh as root user.

Run the following command to get Brocade switches bay IDs:

```
> show interconnect list

OA-001F296DB1BB> show interconnect list
BayInterconnect Type Manufacturer Power Health UIDManagement IP
-----
1 Ethernet Cisco Systems, Inc. On OK Off 10.240.4.70
2 Ethernet Cisco Systems, Inc. On OK Off 10.240.4.71
3 Fibre ChannelBROCADE On OK Off 10.240.4.50
4 Fibre ChannelBROCADE On OK Off 10.240.5.51
5 [Absent]
6 [Absent]
7 [Absent]
8 [Absent]
Totals: 4 interconnect modules installed, 4 powered on.

# connect interconnect <bay_id_number>
NOTICE: This pass-thru connection to the integrated I/O
console is provided for convenience and does not supply additional access control.

For security reasons, use the password features of the integrated switch.

Connecting to integrated switch 4 at 9600,N81...
```

```
Escape character is '<Ctrl>_' (Control + Shift + Underscore)
Press [Enter] to display the switch console:
```

Press **Enter Enter** (Enter twice) and log in as admin user.

```
swd77 console login: admin
Password: <admin_password>
```

```
Change passwords for switch default accounts now.
Use Control-C to exit or press 'Enter' key to proceed.
```

Press **Control-C** to skip changing passwords.

3. Brocade switch console : Verify upgrade of Brocade switches is required

```
swd77:admin> firmwareshow
Appl      Primary/Secondary Versions
-----
FOS       v6.2.1b
          v6.2.1b
```

Check the **FOS** version.

If the version is at level recommended by the Firmware Release Notes [3] there is no need to upgrade the firmware on this switch. Skip the rest of this procedure if firmware version of both switches has been verified.

4. Management server: Prepare to upgrade Brocade switch firmware

Note: This step only needs to be done once on the management server.

If needed, follow *Appendix G, How to Access a Server Console using the iLO* to log into the TVOE management server as admusr. Then use the virsh console to connect to the PM&C guest console and log into the PM&C as admusr. Then execute:

```
$ sudo /bin/mkdir /var/TKLC/upgrade/brocade
$ cd /var/TKLC/upgrade/brocade
$ sudo /bin/tar xvzf
/usr/TKLC/smac/html/TPD/HPFW--872-2488-XXX--HPFW/files/<brocade_firmware_version>.tar.gz
```

Refer to Release Notes [3] to identify the correct brocade firmware file.

5. Management server: Prepare to upgrade Brocade switch firmware

The sshd settings need to be temporarily changed for this upgrade to proceed. This will be undone at the end of the procedure.

Use the 'vim' editor to edit the sshd_config file.

```
$ sudo /usr/bin/vim /etc/ssh/sshd_config
```

Change the line:

```
PasswordAuthentication no
```

To:

```
PasswordAuthentication yes
```

Save the changes and exit the 'vim' editor.

Now restart the sshd server for the changes to take effect.

```
$ sudo /sbin/service sshd restart
Stopping sshd:
Starting sshd:
```

6. Brocade switch console : Upgrade Brocade switch firmware

```
swd77:admin> firmwaredownload
Server Name or IP Address: <PM&C_management_network_IP>
User Name: pmacadmin
FileName: /var/TKLC/upgrade/brocade/<brocade_firmware_version>
Network Protocol(1-auto-select, 2- FTP, 3- SCP) [1]: 3
Password: <pmacadmin_password>
Checking system settings for firmwaredownload...Server IP: <ip>, Protocol IPv4
System settings check passed.

You can run firmwaredownloadstatus to get the status of this command.

This command will cause a warm/non-disruptive boot on the switch, but will require
that existing telnet, secure telnet or SSH
sessions be restarted

Do you want to continue [Y]: y
```

After few minutes, the upgrade will complete. The switch will automatically reboot after the following output:

```
HA Rebooting ...

Loopback backup before go standby

2010/03/09-20:29:07, [FSSM-1002], 385,, INFO,
SilkWorm4024, HA State is in sync.

late cleanup

2010/03/09-20:29:08, [FSSM-1003], 386,, WARNING,
SilkWorm4024, HA State out of sync.

RCS_RCV_FSS_HALT, rc 0, close sock 27

sysctrld: all services Standby

Restarting system.
```

7. Brocade switch console :

After the switch reboots, the console login prompt will appear.

```
swd77 console login: admin
Password: <admin_password>
```

Change passwords for switch default accounts now.
Use Control-C to exit or press 'Enter' key to proceed.

Press **Control-C** to skip changing passwords.

```
swd77:admin> firmwaredownloadstatus

[1]: Tue Mar  9 20:21:37 2010
Firmware is being downloaded to the switch. This step may take up to 30 minutes.

[2]: Tue Mar  9 20:28:39 2010
Firmware has been downloaded to the secondary partition of the switch.

[3]: Tue Mar  9 20:33:02 2010
The firmware commit operation has started. This may take
up to 10 minutes.
```

Wait until the following output appears:

Firmwaredownload command has completed successfully.

Use version to verify the firmware version:

```
swd77:admin> firmwareshow
Appl      Primary/Secondary Versions
-----
FOS       v6.2.1b
          v6.2.1b
```

Check the **FOS** version.

To exit brocade switch console press **Control + Shift + Underscore**

8. Upgrade the other Brocade switch
Repeat Steps 2-7 on the second Brocade switch.
9. **Management server:** Undo the changes to the sshd_config file
Use the 'vim' editor to edit the sshd_config file.

```
$ sudo /usr/bin/vim /etc/ssh/sshd_config
```

Change the line:

```
PasswordAuthentication yes
```

To:

```
PasswordAuthentication no
```

Save the changes and exit the 'vim' editor.

Now restart the sshd service for the changes to take effect.

```
$ sudo /sbin/service sshd restart
Stopping sshd:
Starting sshd:
```

10. PM&C: Remove temporary files

```
$ cd
$ sudo /bin/rm -rf /var/TKLC/upgrade/brocade
```

3.2.3 Configure Zones in Brocade Switches

This optional procedure should be applied on both Brocade switches that are part of the same enclosure. Zone settings have to be the same for both switches.

Prerequisites:

- [3.2.1 Configure Brocade Switches](#) has been completed.
- Knowing the network cabling and SAN requirements by bladeserver is required.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. General guide

This procedure is optional. Skipping this procedure will allow switches to connect to all ports.

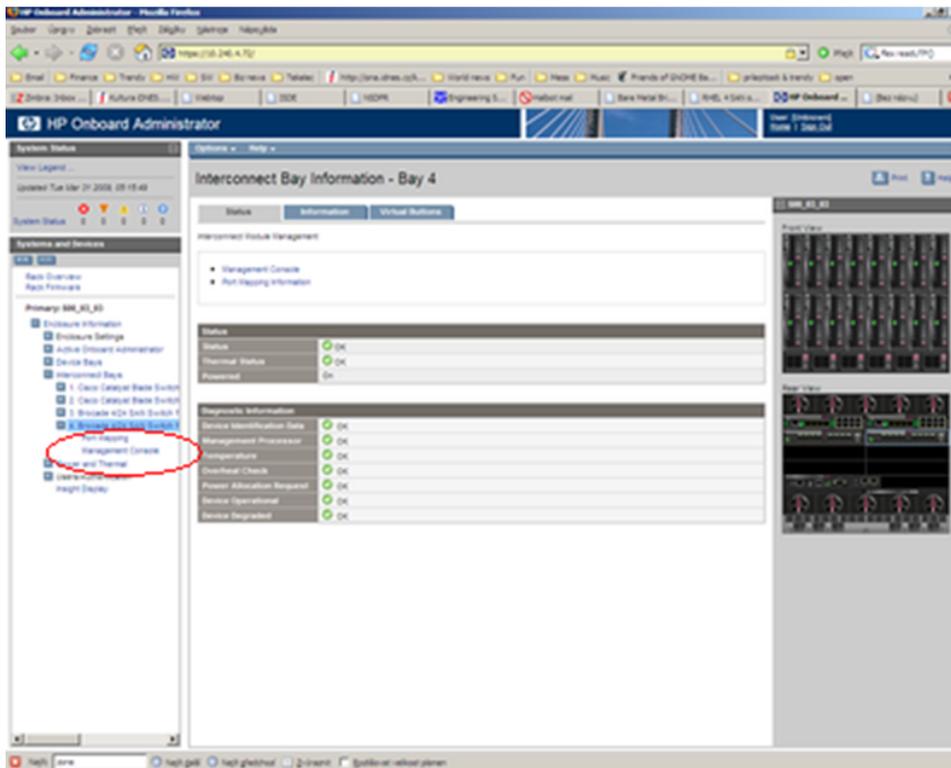
Note: This procedure should be used with requirements provided by the application. There are general guidelines typically used, but the application documentation is the authoritative source:

- The rules for the zone configuration: There should be one zone per one storage array in the Fibre Channel Switch
- Identical zones need to be created in each Brocade in the same enclosure
- The members of such zone will be all ports from the management storage array and all servers that need access to it.
- Be sure to create zones for all management storage array controllers. If a Brocade port is not in a zone, then it cannot communicate.
- After configuring specific zones create another "catch-all" zone that covers the rest of the devices.

2. OAGUI: Log into the Fibre Channel switch

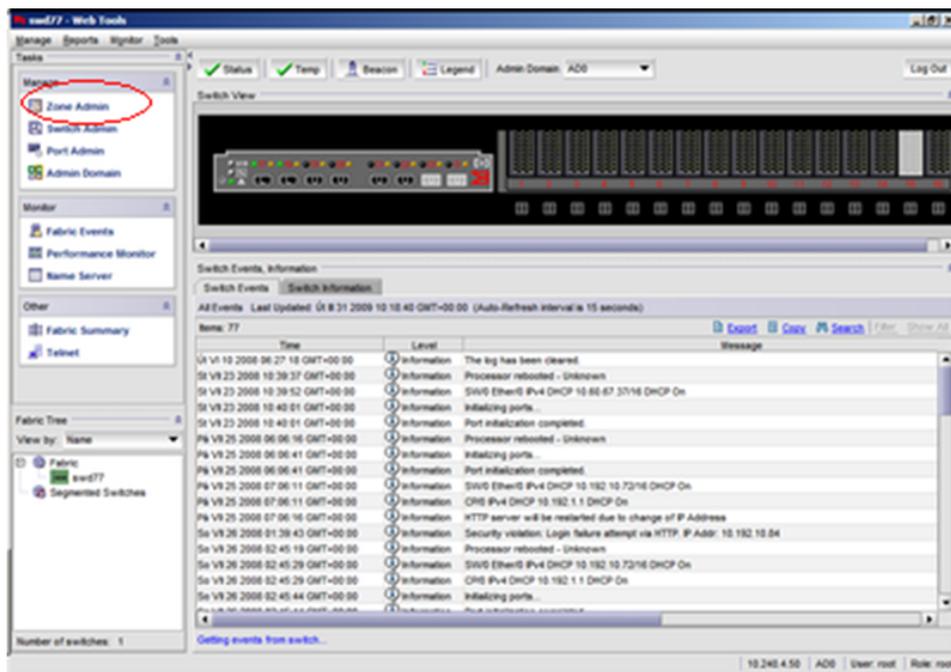
Log into the OA select the Fibre Channel switch

Select **Enclosure Information > Interconnect Bays > Brocade ... > Management Console**



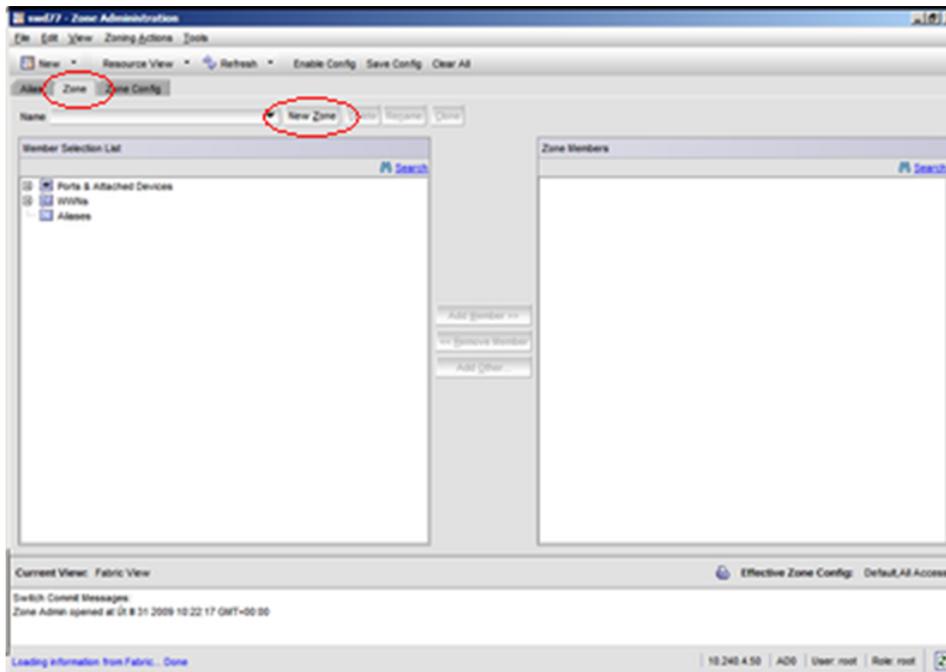
Fibre Channel console will be loaded. Login as administrative user.

3. **Fibre Channel switch console:** Navigate to Zone Admin
 Navigate to **Zone Admin**.



4. Fibre Channel switch console: Create new zone

Select **Zone** tab.



Click on **New Zone**.

Type in an appropriate name and click **OK**.

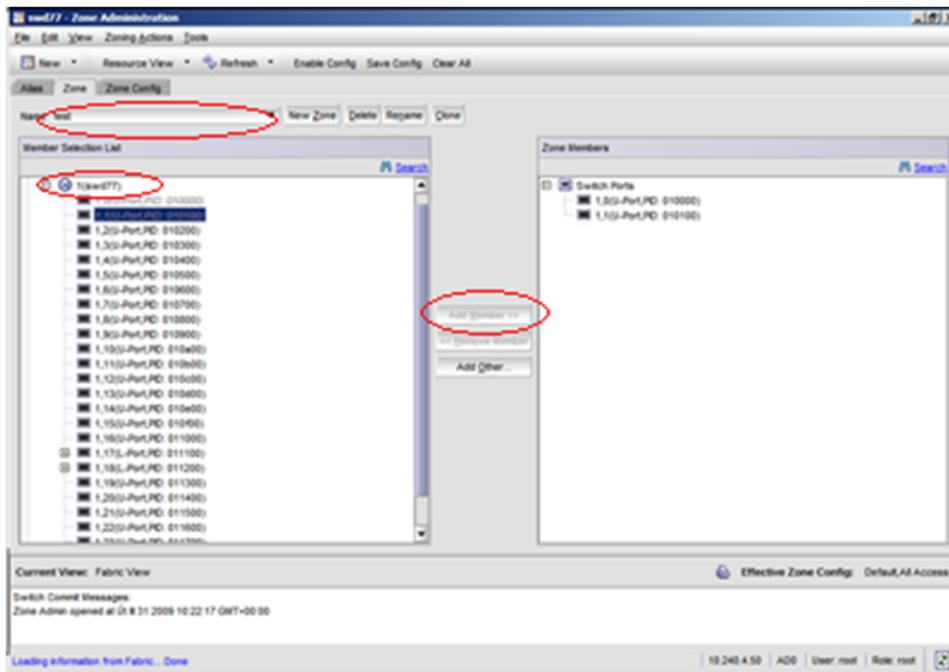
5. Fibre Channel switch console : Add port members into the zone

In the popup menu choose the zone where ports should be added.

Expand the **Ports and Attached Devices** twice. Select the appropriate ports under **Ports** and **Attached Devices**.

A single Brocade port should be just in a single zone.

Press the **Add Member** button.

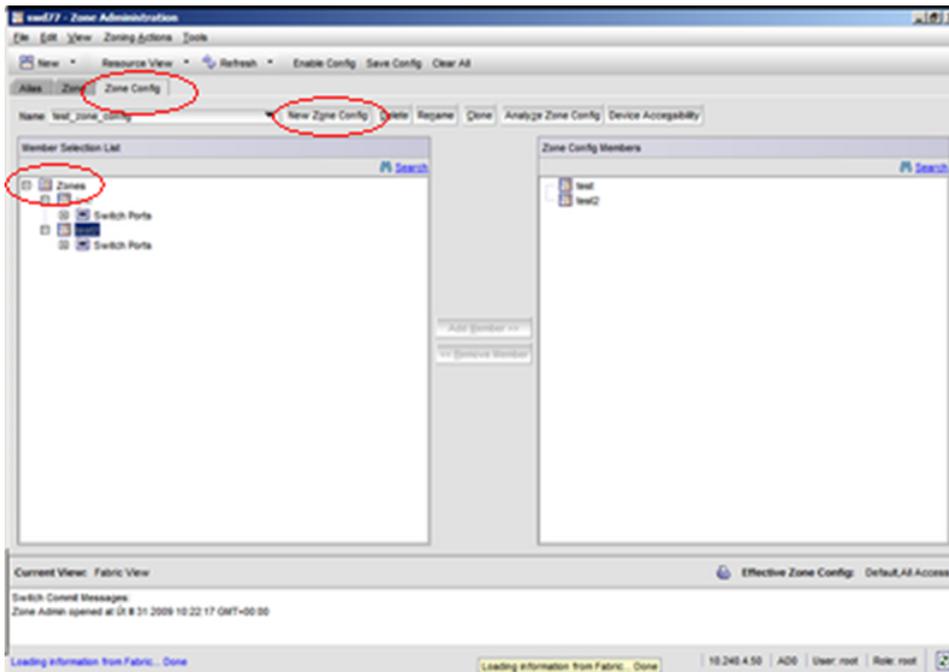


Then create “catch-all” zone that covers all the remaining devices (blade servers and ports) that are not in the zones specified above.

6. Fibre Channel switch console : Create Zone Config

Click on the Zone Config tab.

To create a new zone config click on the **New Zone Config** button.

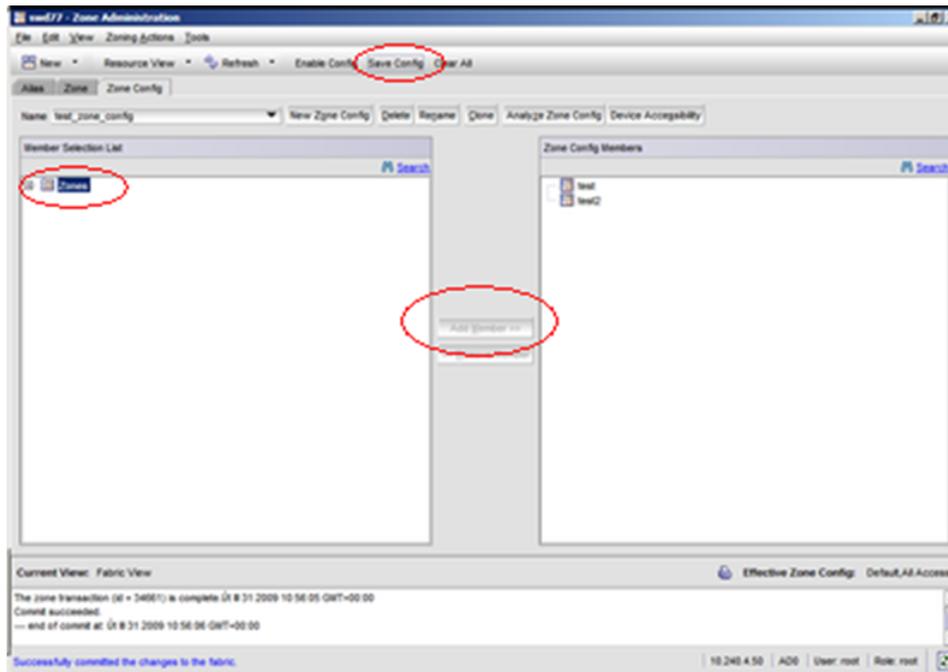


Enter appropriate name such as "Production_Zone_Config" and click **OK**.

7. Fibre Channel switch console : Add Zones into Zone Config

Expand the **Zones** Selection List.

Select all desired zones and press **Add Member** button.



Press **Save Config** and then **Yes**.

Observe the status at the bottom of the screen. Make sure that the "Successfully committed the changes to the fabric" message is displayed in blue at the bottom of the window.

8. Fibre Channel switch console : Enable Zone Config

Press **Enable Config**

Use the pull down menu to select the Zone Config to apply.

Press **OK**

Press **Yes**

Observe the status at the bottom of the screen. Make sure Successfully committed the changes to the fabric appears in blue at the bottom of the window.

9. Repeat on the second switch

Repeat steps 2-8 on second switch in the same enclosure. The two switches should have identical configurations.

3.2.4 Configure Brocade SwitchSNMP Trap Target

This procedure will configure SNMP settings for Brocade switches.

Prerequisites:

- [3.2.1 Configure Brocade Switches](#) has been completed.
- Knowing the network cabling and SAN requirements by bladeserver is required.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. OA: Login to Brocade switch console

Login to OA via ssh as root user. Run the following command to get Brocade switches bay IDs:

```
> show interconnect list
OA-001F296DB1BB> show interconnect list
Bay Interconnect Type Manufacturer Power Health UIDManagement IP
-----
1 Ethernet Cisco Systems, Inc. On OK Off 10.240.4.70
2 Ethernet Cisco Systems, Inc. On OK Off 10.240.4.71
3 Fibre Channel BROCADE On OK Off 10.240.4.50
4 Fibre Channel BROCADE On OK Off 10.240.5.51
5 [Absent]
6 [Absent]
7 [Absent]
8 [Absent]
Totals: 4 interconnect modules installed, 4 powered on.
```

Run:

```
# connect interconnect <bay_id>
```

This will connect the user to the FC switch console. Press **Enter** twice and log in as admin user.

Note: The switch will be configured to reject SNMP sets and gets. Only the hosts listed in step 4 will be able to receive traps.

2. Brocade switch console: Set the SNMP parameters to the default values

```
swd77:admin> snmpconfig --default snmpv1
*****
This command will reset the agent's SNMPv1 configuration back to factory default
*****

SNMPv1 community and trap recipient configuration:
Community 1: Secret C0de (rw)
  No trap recipient configured yet
Community 2: OrigEquipMfr (rw)
  No trap recipient configured yet
Community 3: private (rw)
  No trap recipient configured yet
Community 4: public (ro)
  No trap recipient configured yet
Community 5: common (ro)
  No trap recipient configured yet
Community 6: FibreChannel (ro)
  No trap recipient configured yet

*****
Are you sure? (yes, y, no, n): [no] yes
```

3. Brocade switch console: Set security level (to disable SNMP sets and gets)

```
swd77:admin> snmpconfig --set seclevel
```

See output. A prompt for security level will appear:

Select 1 and press **Enter**.

```
Select SNMP GET Security Level
(0 = No security, 1 = Authentication only, 2 =
Authentication and Privacy, 3 = No Access): (0..3) [0] 1
```

Select 3 and press **Enter**.

```
Select SNMP SET Security Level
(0 = No security, 1 = Authentication only, 2 =
Authentication and Privacy, 3 = No Access): (3..3) [3] 3
```

Verify settings:

```
swd77:admin> snmpconfig --show seclevel
```

4. Brocade switch console:

Set SNMP trap recipient IP addresses

```
swd77:admin> snmpconfig --set snmpv1
SNMPcommunity and traprecipient configuration:
Community (rw): [Secret C0de] <new_password_rw>
Trap Recipient's IPaddress : [0.0.0.0]
Community (rw): [OrigEquipMfr] <new_password_rw>
Trap Recipient's IPaddress : [0.0.0.0]
Community (rw): [private] <new_password_rw>
Trap Recipient's IPaddress : [0.0.0.0]
Community (ro): [public] <new_password>
Trap Recipient's IP address : [0.0.0.0] <trap_recipient_ip>
Trap recipient Severity level : (0..5) [0] 2
Trap recipient Port : (0..65535) [162]
Community (ro): [common] <new_password>
Trap Recipient's IP address : [0.0.0.0] <trap_recipient_ip>
Trap recipient Severity level : (0..5) [0] 2
Trap recipient Port : (0..65535) [162]
Community (ro): [FibreChannel] <new_password>
Trap Recipient's IPaddress : [0.0.0.0]
Committing configuration...done.
```

Replace the passwords in the following examples with the appropriate passwords provided by the application. If only one trap recipient is required, set the IP address to 0.0.0.0.:

Verify the settings:

```
swd77:admin> snmpconfig --show snmpv1
```

5. Brocade switch console: Set access control

Set access control to make sure the right hosts get access. If only one trap recipient is required, set the IP address to 0.0.0.0.:

```
swd77:admin> snmpconfig --set accessControl
SNMPaccess list configuration:
Access host subnet area : [0.0.0.0] <trap_recipient_ip>
Read/Write? (true, t, false, f): [true] f
Access host subnet area : [0.0.0.0] <trap_recipient-ip>
Read/Write? (true, t, false, f): [true] f
Access host subnet area : [0.0.0.0]
Read/Write? (true, t, false, f): [true] f
Access host subnet area : [0.0.0.0]
Read/Write? (true, t, false, f): [false] f
Access host subnet area : [0.0.0.0]
Read/Write? (true, t, false, f): [false] f
Access host subnet area : [0.0.0.0]
Read/Write? (true, t, false, f): [false] f
Committing configuration...done.
```

Verify the settings are correct:

```
swd77:admin> snmpconfig --show accessControl
```

6. Brocade switch console:

Set system location

Set the system location so it is clear where the trap originates from:

```
swd77:admin> snmpconfig --set systemGroup
Customizing MIB-II system variables ...

At each prompt, do one of the following:
o <Return> to accept current value,
o enter the appropriate new value,
o <Control-D> to skip the rest of configuration, or
o <Control-C> to cancel any change.

To correct any input mistake:
<Backspace> erases the previous character,
<Control-U> erases the whole line,
sysDescr: [Fibre Channel Switch.]
sysLocation: [End User Premise.]
<e.g Cab7enclosure1lobay3>
sysContact: [Field Support.]
authTrapsEnabled (true, t, false, f): [true]
Committing configuration...done.
```

Verify the settings are correct:

```
swd77:admin> snmpconfig --show systemGroup
```

7. Brocade switch console: Log out

```
swd77:aadmin> logout
```

8. Configure settings for the other Brocade switch

Repeat steps 1 through 7 on the other Brocade switch in the enclosure.

3.3 SAN Storage Arrays Procedures

3.3.1 Set IP on Fibre Channel Disk Controllers

This procedure will set IP address for fibre channel disk controllers.

Note: This procedure needs to be executed only for one of the two controllers.

Needed material:

General:

- Serial access cable that ships with the given controller and laptop running Microsoft Windows with USB port are required for console access.

P2000:

- If setting IP address for P2000, the user may need to install the P2000 MSAUSB driver on the laptop, use HP Misc. Firmware CD and follow Appendix B ([B.1 P2000 MSA USB Driver Installation](#)).
- If setting IP address for P2000, the user may need HP Solutions Firmware Upgrade Pack Release Notes [3].

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

Disk array serial console: Configure IP address on Fibre Channel Disk Controller

Connect to the disk array serial console with following settings:

- 115200 bps, 8 data bits, no parity, 1 stop bit, no flow control

Proprietary cable that ships with the controller is required for console access

The user may have to log in using the manage username and the corresponding password. Once at the prompt (#), execute the following commands:

```
# set network-parameters ip <controller_A_IP_address> netmask <netmask> gateway  
<gateway_IP_address> controller a  
  
# set network-parameters ip <controller_B_IP_address> netmask <netmask> gateway  
<gateway_IP_address> controller b
```

To verify the values were entered correctly, run the following command and check the output:

```
# show network-parameters
```

Since the user is currently logged in at the cli, execute the following command at this time to make sure the expansion disk arrays will be identified correctly:

```
# rescan
```

3.3.2 Configuring Fibre Channel Disk Controllers

This procedure will configure security and user settings for fibre channel disk controllers.

Prerequisite: [3.3.1 Set IP on Fibre Channel Disk Controllers](#) has been completed.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Login to the Fibre Channel Disk Controller

Login to Fibre Channel Disk Controller via ssh as a manage user.

Output similar to the following will appear:

```
login as: manage
manage@10.240.5.186's password: <manage_password>
HPStorageWorks MSA2012fc
System Name: Platform IXP MSA2012fc
System Location: 500.07 U17 Brocade Ports 17 and 18
Version: W420R45

#
```

2. Fibre Channel Disk Controller: Disable http

```
# set protocols http disabled
```

3. Fibre Channel Disk Controller: Disable telnet

```
# set protocols telnet disabled
```

4. Fibre Channel Disk Controller: Disable ftp

```
# set protocols ftp disabled
```

5. Fibre Channel Disk Controller: Delete ftp user

```
# delete user ftp
```

6. Fibre Channel Disk Controller Delete admin user

Note: This step only required if device is a P2000 G3 array

```
# delete user admin
```

This account is an additional management account added by HP and is not needed

7. Fibre Channel Disk Controller: Change password for manage account

```
# set password manage
```

Use the appropriate password provided by the application documentation.

8. Fibre Channel Disk Controller: Change password for monitor account

```
# set password monitor
```

Use the appropriate password provided by the application documentation.

9. Fibre Channel Disk Controller: Set NTP and timezone

```
# set controller-date <month> <day> <hh>:<mm>:<ss> <year> <time-zone> ntp enabled
ntpaddress <PM&C_management_network_IP>
```

where

month: **jan** | **feb** | **mar** | **apr** | **may** | **jun** | **jul** | **aug** | **sep** | **oct** | **nov** | **dec**

day: 1-31

hh: 0-23

mm: 0-59

ss: 0-59

year: four-digit number

time-zone: offset from Universal Time (UT) in hours (e.g.: -7)

For example:

```
# set controller-date sep 22 13:45:0 2007 -7 ntp enabled
ntpaddress 69.10.36.3
```

Check the time settings:

```
# show controller-date
# show ntp-status
```

10. Fibre Channel Disk Controller: Verify settings:

Verify service and security protocols status:

```
# show protocols
```

Verify user settings:

```
# show users
```

11. Fibre Channel Disk Controller: Configure SNMPtrap host

```
# set snmp-parameters enable crit add-trap-host <target_IP>
```

This will enable delivery of critical events to the target destination.

12. Fibre Channel Disk Controller: Logout

Logout from the Fibre Channel Disk Controller console.

```
# exit
```

3.3.3 Configuring Advanced Settings on MSA2012fc Fibre Channel Disk Controllers

This procedure configures advanced settings on each MSA2012fc controller.

Prerequisites:

- [3.3.1 Set IP on Fibre Channel Disk Controllers](#) and
- [3.3.2 Configuring Fibre Channel Disk Controllers](#) have been completed.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Fibre Channel Disk Controller GUI: Login to the Fibre Channeldiskcontroller

Login to Fibre Channel Disk Controller GUI as a manage user using https:

```
https://<fibre_channel_disk_controller_IP>
```

2. Fibre Channel Disk Controller GUI: Navigate to system configuration

Navigate to **MANAGE > GENERAL CONFIG > System configuration**

3. Fibre Channel Disk Controller GUI: Change advanced settings

Make sure that:

Dynamic Spare Configuration is disabled

Background Scrub is enabled

Partner Firmware Upgrade is enabled

System Configuration	
Virtual Disk/Utility Configuration Options	
Dynamic Spare Configuration	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
Background Scrub	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
Partner Firmware Upgrade	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
Utility Priority	High ** ▾

Press **Change System Configuration**.

4. Fibre Channel Disk Controller GUI: Verify advanced settings

Verify that the following message appears above the System Configuration area:

✓ Your change was successful.

5. Fibre Channel Disk Controller GUI: Logout

Logout by pressing the **LOG OFF** button on the left hand side.

3.3.4 Configuring Advanced Settings on P2000 Fibre Channel Disk Controllers

This procedure configures advanced settings on each P2000 controller.

Prerequisites:

- [3.3.1 Set IP on Fibre Channel Disk Controllers](#) and
- [3.3.2 Configuring Fibre Channel Disk Controllers](#) have been completed.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Login to fibre channel diskcontroller

Connect to Fibre Channel Disk Controller via ssh as a manage user.

Output similar to the following will appear:

```
login as: manage
manage@10.240.4.205's password: <manage_password>
HPStorageWorks MSASStorage P2000G3 FC/iSCSI
System Name: Uninitialized Name
System Location: Uninitialized Location
Version: L100R010

#
```

2. Fibre Channel Disk Controller: Configure advanced settings

```
# set advanced-settings dynamic-spares disabled
Info: Command completed successfully. - Parameter 'dynamic-spare' was set to
'disabled'.
Success: Command completed successfully. - The settings were changed successfully.

# set advanced-settings background-scrub enabled
Info: Command completed successfully. - Parameter
'background-scrub' was set to 'enabled'.
Success: Command completed successfully. - The settings
were changed successfully.

# set advanced-settings partner- firmware-upgrade enabled
Info: Command completed successfully. - Parameter
'partner- firmware-upgrade' was set to 'enabled'.
Success: Command completed successfully. - The settings
were changed successfully.
```

3. Fibre Channel Disk Controller: Verify advanced settings

```
# show advanced-settings
```

4. Fibre Channel Disk Controller: Logout

Logout from the Fibre Channel Disk Controller console.

```
# exit
```

3.3.5 Upgrade Firmware on MSA 2012fc Disk Controllers

This procedure will upgrade the firmware of the MSA 2012fc disk controllers.

Prerequisites:

- [3.3.3 Configuring Advanced Settings on MSA2012fc Fibre Channel Disk Controllers](#) has been completed.
- [3.7.9 Adding ISO Images to the PM&C Image Repository](#) has been completed using Misc. Firmware CD.

Needed material:

- Tekelec's HP Misc. Firmware USB media or ISO file
- HP Solutions Firmware Upgrade Pack Release Notes [3]

Note: Only the Acontroller needs to have the steps in this section executed; B controller will be upgraded automatically after the Acontroller.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Fibre Channel Disk Controller GUI: Login

Login to Fibre Channel Disk Controller A GUI as a manage user using https:

https://<fibre_channel_disk_controller_A_IP>

2. Fibre Channel Disk Controller GUI: Verify firmware upgrade is required

In the left column, click on **MANAGE**, then click on **UPDATE SOFTWARE** and if needed, **controller software**

invent

MONITOR

MANAGE

+VIRTUAL DISK CONFIG
+VOLUME MANAGEMENT
+SCHEDULER
+GENERAL CONFIG
+EVENT NOTIFICATION
+UTILITIES
+RESTART SYSTEM
UPDATE SOFTWARE
 + controller software
 + disk drive firmware
 + enclosure firmware

LOG OFF

User: "manage"
Standard Manage User

Date: Mar 17 2010
Time: 13:36:30

Help Bar PAGE HELP

Load Software to RAID Controller B

Locate your software package file by clicking on the "Browse" button below.

The software package file contains several software components that will update your RAID Controller.

The code load has three steps:

1. Load the file to the MSA Storage and validate the file.
2. Store the code from that file permanently in the MSA Storage.
3. Update the other controller board with the same code (known as Partner Firmware Update).

The first step takes approximately 45 seconds. When it is complete, you will be prompted on whether you want to proceed or cancel the operation. The second step will write the file to the flash memory of the MSA Storage. This step may take several minutes to complete. The third step will also take several minutes to complete.

Current Storage Controller Code Version	J200P39
Current Storage Controller Loader Code Version	15.010
Current Memory Controller FPGA Code Version	F300R22
Current Management Controller Code Version	W420R56
Current Management Controller Loader Code Version	12.013
Current Expander Controller Code Version	3201
Current CPLD Version	27

Locate Software Package File

Load Software Package File

Look at the **Current Storage Controller Code Version**. If the version is at the level required by the Release Notes [3] or greater, there is no need to upgrade. Skip the remainder of this procedure.

3. Management server: Prepare to upgrade Fibre Channel disk controller

Copy the following file from the management server to the PC using an scp client and the admusr user:

```
/usr/TKLC/smac/html/TPD/<HP_Misc_Firmware_mount_point>/files/<MSA_2012fc_firmware_version>.bin
```

Windows users: Refer to Appendix A ([A.1 Using WinSCP](#)) to copy the zip file to the PC.

Unzip the file on the PC.

4. Fibre Channel Disk Controller GUI: Upgrade controllerfirmware

In the browser opened in step 2, execute the following commands:

Click **Browse...**

Browse to the location of the file unzipped in step 3. and select the "bin" file.

Click **Open**

Click **Load Software Package File**

Click **Proceed with Code Update**

Writing of the file to the flash memory of the MSA Storage will take several minutes, followed by Partner Firmware Upgrade that also takes several minutes to complete.

5. Fibre channel diskcontrollerGUI: Verify new firmware

After about 20 minutes the user should be able to login to one of the controllers as in step 1 and verify the firmware version as in step 2.

3.3.6 Upgrade Firmware on MSA P2000 Disk Controllers

This procedure will upgrade the firmware of the MSA P2000 disk controllers.

Prerequisites:

- [3.3.4 Configuring Advanced Settings on P2000 Fibre Channel Disk Controllers](#) has been completed.
- [3.7.9 Adding ISO Images to the PM&C Image Repository](#) has been completed using Misc. Firmware CD.

Needed material:

- Tekelec's HP Misc. Firmware USB media or ISO file
- HP Solutions Firmware Upgrade Pack Release Notes [3]

Note: Only the Acontroller needs to have the steps in this section executed; the B controller will be upgraded automatically after the Acontroller. This will also upgrade any I/O modules of P2000 JBOD enclosures cascaded from the P2000 controller being upgraded.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

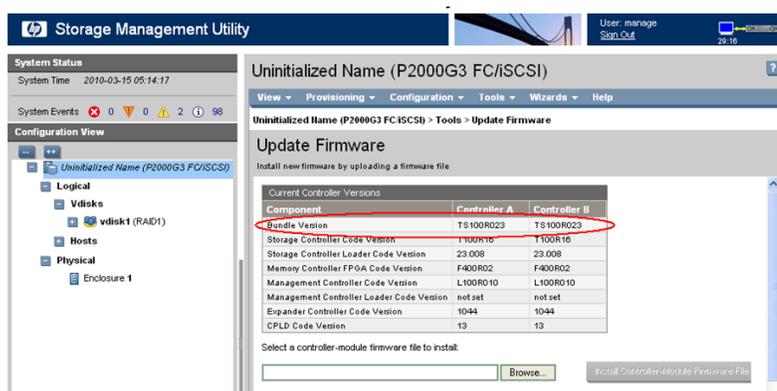
1. Fibre channel diskcontrollerGUI: Login

Login to Fibre Channel Disk Controller A GUI using https as a manage user.

```
https://<fibre_channel_disk_controller_A_IP>
```

2. Fibre channel diskcontrollerGUI: Verify firmware upgrade is required

In the **Configuration View** panel, right-click the system if needed (if the blue bar offering options such as **View** is missing) and then on the right hand side blue bar menu select **Tools > Update Firmware**. The table titled **Current Controller Versions** shows the currently installed versions.



If the **Bundle Version** is the minimum supported version in the Release Notes [3] or greater, there is no need to upgrade. Skip the remainder of this procedure.

3. Prepare to upgrade Fibre Channeldiskcontroller

Copy the following file from the management server to the PC using an scp client and the admusr user:

```
/usr/TKLC/smac/html/TPD/<HP_Misc_Firmware_mount_point>/files/<P2000_firmware_version>.bin
```

Windows users:

Refer to Appendix A ([A.1 Using WinSCP](#)) to copy the file to the PC.

4. Fibre channel diskcontrollerGUI: Upgrade firmware

In the browser opened in step 2, execute the following commands:

Click **Browse...**

Browse to the location of the file copied in step 3. and select the "bin" file.

Click **Install Controller-Module Firmware File**. It takes approximately 10 minutes for the firmware to load and for the automatic restart to complete on the controller the user is connected to.

Wait for the progress messages to specify that the update has completed. Because the Partner Firmware Update is enabled, allow an additional 20 minutes for the partner controller to be updated.

5. Fibre channel diskcontrollerGUI: Verify new firmware

Login to one of the controllers as in step 1 and verify the Bundle Version as instructed in step 2.

3.3.7 Replacing a Failed Disk in MSA 2012Fc Array

The MSA 2012fc arrays should be configured with spare disks. The designation and the type of spare should always be recorded for future reference.

When a disk fails, the system looks for a dedicated spare first in order to reconstruct the vdisk. If it does not find a properly sized dedicated spare, it looks for a global spare. A properly sized vdisk spare is one whose capacity is equal to or greater than that of the largest disk in the vdisk. A properly sized global spare is one whose capacity is equal to or greater than that of the largest disk in the disk array. Ideally, the disk that failed in the first place should still be physically replaced by a new disk and designated as the dedicated spare or a global spare, the decision depends on what kind of spare was used to reconstruct the vdisk.

If no properly sized spares are available, the vdisk reconstruction does not start automatically. To start reconstruction manually, replace each failed disk by appropriately sized disk and then add each new disk as a dedicated spare.

During the vdisk reconstruction, you can continue to use the vdisk. When a spare replaces a disk in a vdisk, the spare's icon in the enclosure view changes to match the other disks in that vdisk.

The array can indicate that a failure has occurred in several ways:

- SNMPtrap will be sent (if controller is configured to send SNMP traps (it should be)).
- Failed drive will have amber LED illuminated.
- If you log into the diskcontroller, a pop up will be shown which indicates which disk(s) failed.

Prerequisites:

- [3.3.1 Set IP on Fibre Channel Disk Controllers](#) and
- [3.3.2 Configuring Fibre Channel Disk Controllers](#) have been completed.

Note: The vdisk reconstruction can take hours or days to complete, depending on the vdisk RAID level and size, disk speed, utility priority, and other processes running on the storage system. You can stop reconstruction only by deleting the vdisk.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Fibre channel diskcontrollerGUI: Login

Login to Fibre Channel Disk Controller GUI using https as a manage user.

```
https://<fibre_channel_disk_controller_IP>
```

2. Fibre Channel Disk Controller GUI: Clear metadata

If the replacement disk has been used in another MSA2012fc array, it will have metadata stored on it. This data must be cleared before the disk can be used in the new array. The disks which need their metadata to be cleared will be in a "Leftover" or "L" state.

Navigate to **MANAGE > UTILITIES > disk drive utilities > clear metadata** .

Select the disk(s) that are in an "L" state

Click **Clear Metadata for Selected Disk Drives** button

3. Fibre Channel Disk Controller GUI: Add a global spare disk

If you choose to add a global spare to reconstruct a vdisk, navigate to **MANAGE > VIRTUAL DISK CONFIG** . Click on **global spare menu** and then on **add global spares**.

Select the disk that was replaced by clicking the check box on it. It should be the bright green with an "A" on it.

Click the **Add Global Spares** button towards the bottom of the screen.

Verify that the color of the disk changes and a "G" appears on the disk. If there is a problem, new popup will explain the failure. Popups must be allowed for this message to be seen.

4. Fibre Channel Disk Controller GUI: Add a dedicated spare disk

If you choose to add a dedicated spare to reconstruct a vdisk, navigate to **MANAGE > VIRTUAL DISK CONFIG** . Click on **vdisk configuration** and then on **add vdisk spares**

Select the appropriate vdisk at the top of the page. You should see that the disk that was replaced should be bright green with an "A" ("A" means Available) on it.

After ensuring the disk is in the correct enclosure, select the disk by clicking the check box on it.

Click the **Add Vdisk Spares** button towards the bottom of the screen. The disk changes from a state "A" to being the same shade of blue (grey) as the rest of the disks in the enclosure. If there is a problem a popup will explain the failure. Popups must be allowed for this message to be seen.

Log off of the disk controller by clicking **LOG OFF**.

3.3.8 Replacing a Failed Disk in MSA P2000 Disk Array

The MSA P2000 arrays should be configured with spare disks. The designation and the type of spare should always be recorded for future reference.

When a disk fails, the system looks for a dedicated spare first in order to reconstruct the vdisk. If it does not find a properly sized dedicated spare, it looks for a global spare. A properly sized vdisk spare is one whose capacity is equal to or greater than that of the largest disk in the vdisk. A properly sized global spare is one whose capacity is equal to or greater than that of the largest disk in the disk array. Ideally, the disk that failed in the first place should still be physically replaced by a new disk and designated as the dedicated spare or a global spare, the decision depends on what kind of spare was used to reconstruct the vdisk

If no properly sized spares are available, the vdisk reconstruction does not start automatically. To start reconstruction manually, replace each failed disk by appropriately sized disk and then add each new disk as a dedicated spare.

During the vdisk reconstruction, you can continue to use the vdisk. When a spare replaces a disk in a vdisk, the spare's icon in the enclosure view changes to match the other disks in that vdisk.

The array can indicate that a failure has occurred in several ways:

- SNMPtrap will be sent (if controller is configured to send SNMP traps (it should be)).
- Failed drive will have amber LED illuminated.
- If you log into the diskcontroller, a pop up will be shown which indicates which disk(s) failed.

Prerequisites:

- [3.3.1 Set IP on Fibre Channel Disk Controllers](#) and
- [3.3.2 Configuring Fibre Channel Disk Controllers](#) have been completed.

Note: The vdisk reconstruction can take hours or days to complete, depending on the vdisk RAID level and size, disk speed, utility priority, and other processes running on the storage system. You can stop reconstruction only by deleting the vdisk.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Fibre channel diskcontrollerGUI: Login

Login to Fibre Channel Disk Controller GUI using https as a manage user.

```
https://<fibre_channel_disk_controller_IP>
```

2. Fibre Channel Disk Controller GUI: Clear metadata

If the replacement disk has been used in another P2000 array, it will have metadata stored on it. This data must be cleared before the disk can be used in the new array. The disks which need their metadata to be cleared will be in a **LEFTOVR** state.

To clear metadata from leftover disks:

In the **Configuration View** panel, right-click the system and then select **Tools > Clear Disk Metadata**.

In the main panel, select the disk(s) that are in an **LEFTOVR** state

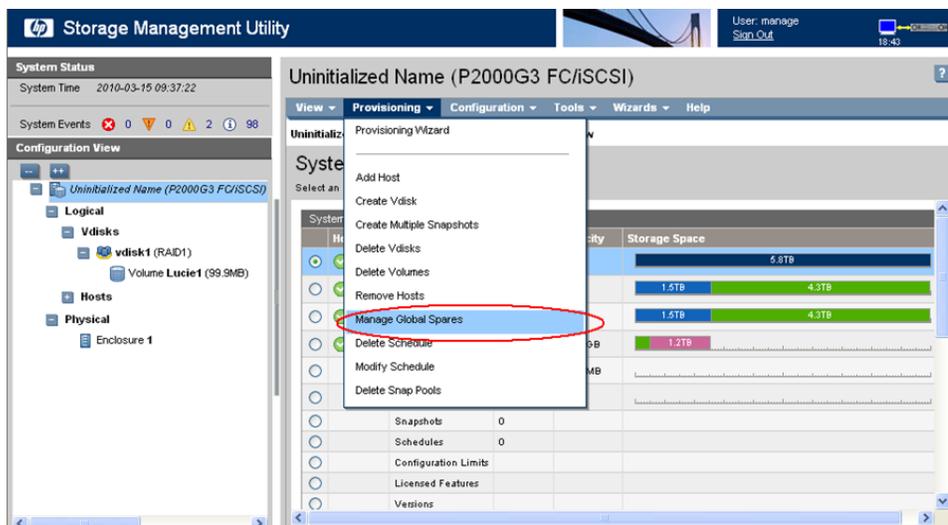
Click **Clear Metadata**.

When processing is complete a success dialog appears.

Click **OK**.

3. Fibre Channel Disk Controller GUI: Add a global spare disk

If you choose to add a global spare to reconstruct a vdisk, in the **Configuration View** panel, right-click the system. Then in the right hand side blue bar menu click **Provisioning** and select **Manage Global Spares**



Switch to **Graphical** representation if needed. Select the disk that was replaced by clicking the check box on it. It should be labeled with an **AVAIL** on it.

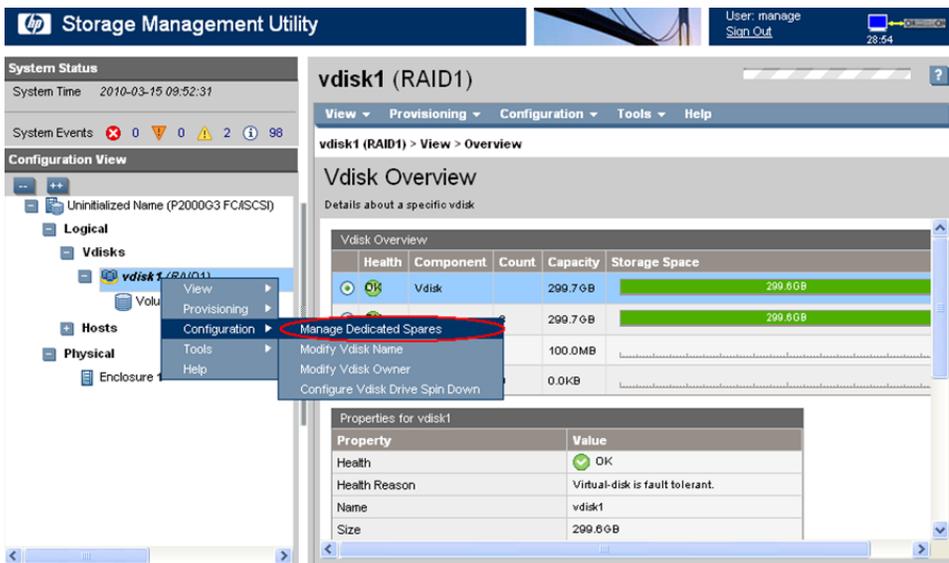


Click the **Modify Spares** button .

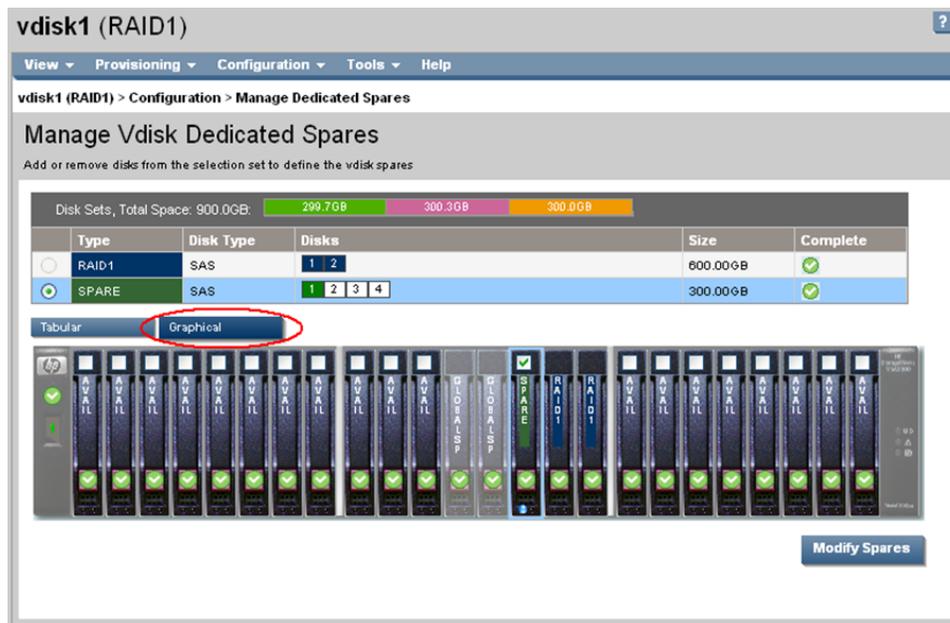
Verify that the color of the disk changes to blue and a **GLOBALSP** appears on the disk. If there is a problem, new popup will explain the failure. Popups must be allowed for this message to be seen.

4. **Fibre Channel Disk Controller GUI: Add a dedicated spare disk**

If you choose to add a dedicated spare to reconstruct a vdisk, in the **Configuration View** panel, right-click appropriate vdisk and navigate to **Configuration > Manage Dedicated Spares**



Switch to **Graphical** representation if needed . After ensuring the disk is in the correct enclosure, select the replaced disk by clicking the check box on it. It should be labeled with an **AVAIL** on it.



Click the **Modify Spares** button .

Verify that the color of the disk changes to green and SPARE appears on the disk. If there is a problem, new popup will explain the failure. Popups must be allowed for this message to be seen.

Log off of the disk controller by clicking **Log off**.

3.4 Blade Server Procedures

3.4.1 Upgrade Blade Server Firmware

This procedure will provide the steps to upgrade the firmware on the Blade servers.

The HP Support Pack for ProLiant installer automatically detects the firmware components available on the target server and will only upgrade those components with firmware older than what is on the current ISO.

Prerequisites:

- TPD has to have been installed on the server

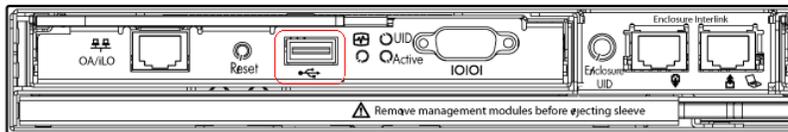
Needed Materials:

- Tekelec's HP Service Pack for ProLiant (SPP) USB media or ISO file
- Tekelec's HP Misc Firmware USB media or ISO file (for errata updates is applicable)
- HP Solutions Firmware Upgrade Pack Release Notes [3]
- USB Flash Drive (1GB or larger) if not starting with Tekelec USB media

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. **Local Workstation:** When starting with ISO files, Prepare the USB Flash Drive
Copy the HP Support Pack for ProLiant ISO to the USB Flash Drive.
If starting with Tekelec USB media this is unnecessary, continue to the next step.
2. Insert USB Flash Drive

Insert the USB Flash Drive with the HP Support Pack for ProLiant ISO into the USB port of the Active OA Module.



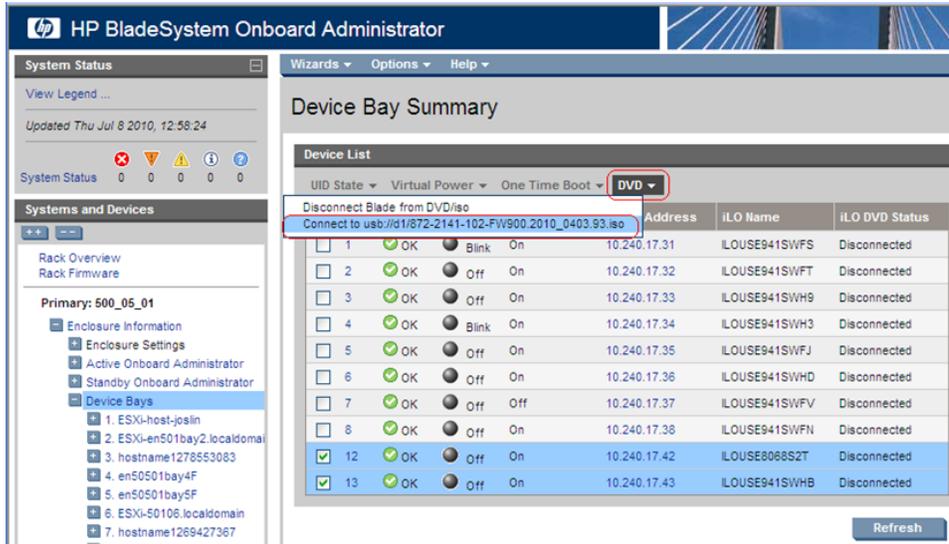
3. **Active OAGUI:** Login
Navigate to the IP address of the active OA, using Appendix C (*C.1 Determining Which Onboard Administrator is Active*). Login as an administrative user.
4. **OA Web GUI:** Access the Device Summary page
On the left pane, expand the **Device Bays** node to display the **Device Bay Summary** window.
Select the individual blades to be upgraded by clicking and enabling the corresponding UID checkbox.

Bay	Status	UID	Power State	iLO IP Address	iLO Name	iLO DVD Status
1	OK	Blink	On	10.240.17.31	ILOUSE941SWFS	Disconnected
2	OK	Off	On	10.240.17.32	ILOUSE941SWFT	Disconnected
3	OK	Off	On	10.240.17.33	ILOUSE941SWH9	Disconnected
4	OK	Off	On	10.240.17.34	ILOUSE941SWH3	Disconnected
5	OK	Off	On	10.240.17.35	ILOUSE941SWFJ	Disconnected
6	OK	Off	On	10.240.17.36	ILOUSE941SWHD	Disconnected
7	OK	Off	Off	10.240.17.37	ILOUSE941SWFV	Disconnected
8	OK	Off	On	10.240.17.38	ILOUSE941SWFN	Disconnected
12	OK	Off	On	10.240.17.42	ILOUSE8068S2T	Disconnected
13	OK	Off	On	10.240.17.43	ILOUSE941SWHB	Disconnected

Note: A maximum of 8 blades should be upgraded concurrently at one time. If the c7000 enclosure has more than 8 blades they will need to be upgraded in multiple sessions.

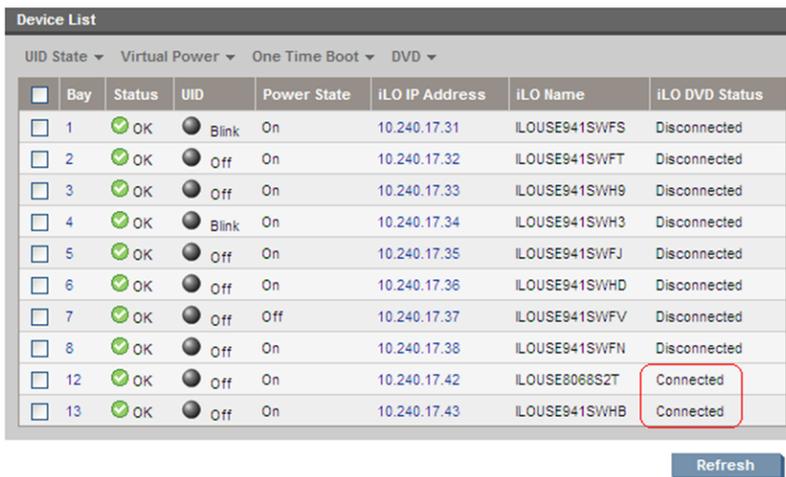
5. **OA Web GUI:** Connect to USB Drive

Once the blades are selected, connect them to the ISO on the USB Drive, by selecting the **Connect to usb...** item from the **DVD** menu.



6. OA Web GUI: Verify Drive Connection

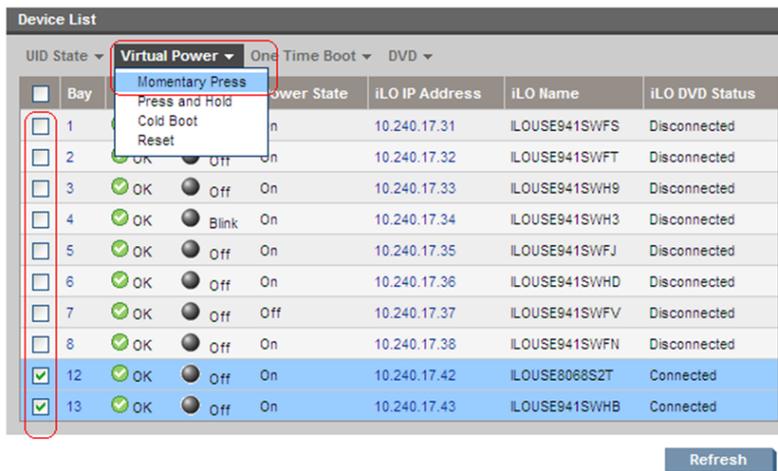
Once each blade has mounted the ISO media the **Device List** table should indicate an **iLO DVD Status** as **Connected** for each blade that was previously selected.



Note: The **Refresh** button may need to be clicked in order to see the current status of all blades.

7. OA Web GUI: Power Down Blades

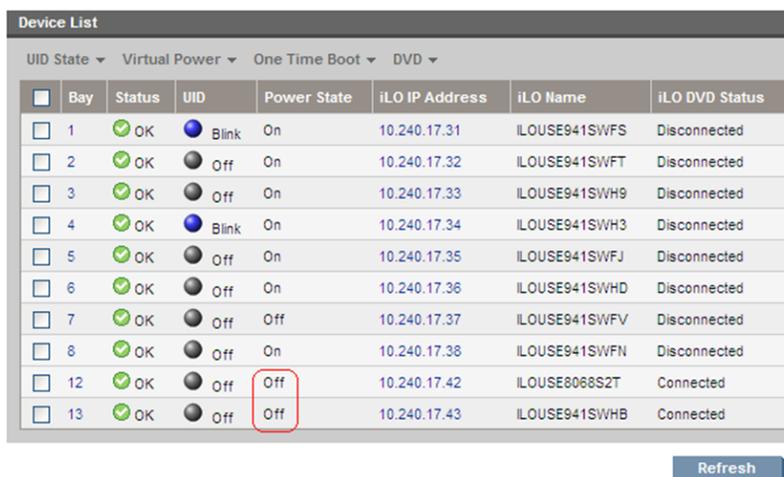
If needed, reselect the UID checkbox for each blade to be upgraded and then select the **Momentary Press** option under the **Virtual Power** menu.



When prompted click the OK button to confirm the action.

8. OA Web GUI: Verify Power Down

The power down sequence can take several minutes to complete. When it completes the **Device List** table will indicate the **Power State** of each select blade to be **Off**.



Note: The **Refresh** button may need to be clicked in order to see the current status of all blades.

9. OA Web GUI: Initiate Firmware Upgrade

To power the blades back on and begin the automated firmware upgrade process, repeat Steps 7 and 8 this time being sure the **Power State** indicates **On** for each selected blade.

10. OA Web GUI: Monitor Firmware Upgrade

From this point on each blade will boot into an automated firmware upgrade process that will last between 20 to 25 minutes. During this time all feedback is provided through the UID lights. While the update process is running, the UID light blinks.

The UID lights will not blink until the server fully boots and the firmware upgrades have started to be applied. If no upgrades are needed the UID lights will not blink, but the server will still reboot and the iLO DVD will disconnected after completion.

Bay	Status	UID	Power State	iLO IP Address	iLO Name	iLO DVD Status
1	OK	Blink	On	10.240.17.31	ILOUSE941SWFS	Disconnected
2	OK	Off	On	10.240.17.32	ILOUSE941SWFT	Disconnected
3	OK	Off	On	10.240.17.33	ILOUSE941SWH9	Disconnected
4	OK	Blink	On	10.240.17.34	ILOUSE941SWH3	Disconnected
5	OK	Off	On	10.240.17.35	ILOUSE941SWFJ	Disconnected
6	OK	Off	On	10.240.17.36	ILOUSE941SWHD	Disconnected
7	OK	Off	Off	10.240.17.37	ILOUSE941SWFV	Disconnected
8	OK	Off	On	10.240.17.38	ILOUSE941SWFN	Disconnected
12	OK	Off	On	10.240.17.42	ILOUSE8068S2T	Disconnected
13	OK	Off	On	10.240.17.43	ILOUSE941SWHB	Disconnected

Upon a successful firmware upgrade, the **Device List** table will list each blade with a **Status** of **OK**, **UID** of **Off** and the **iLO DVD Status** as **Disconnected**. At this time the blades will automatically be rebooted.

Note: Make sure all blades have disconnected before continuing. If any blades are still connected after their UIDs have stopped blinking and Status=OK, disconnect them manually by selecting **Disconnect Blade from DVD/ISO** from the DVD menu. If the UID led is solid, a failure has occurred during the firmware upgrade. Use the iLO's integrated remote console or a kvm connection to view the error.

If necessary, repeat Steps 4 through 10 for the remaining blades in the enclosure to be upgraded. Proceed to the next step.

11. Remove USB Flash Drive

The USB flash drive may now safely be removed from the Active OA module.

12. Update Firmware Errata

Check the HP Solutions Firmware Upgrade Pack Release Notes [3] to see if there are any firmware errata items that apply to the server being upgraded.

If there is, there will be a directory matching the errata's ID in the /errata directory of the HP Misc Firmware ISO. The errata directories contain the errata firmware and a README file detailing the installation steps.

3.4.2 Confirm/Upgrade Blade Server BIOS Settings

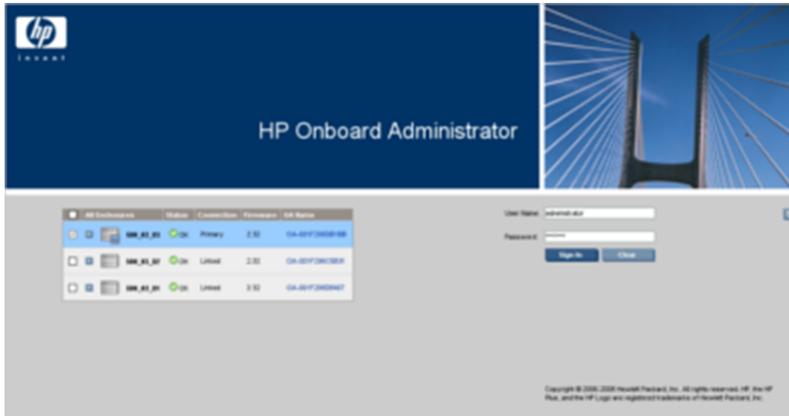
This procedure will provide the steps to confirm and update the BIOS boot order on the blade servers.

Prerequisite: [3.4.1 Upgrade Blade Server Firmware](#) has been completed.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Active OAGUI: Login

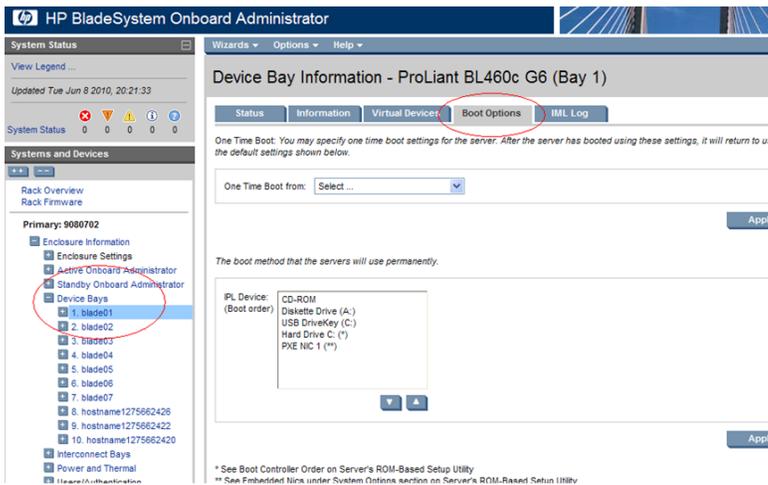
Navigate to the IP address of the active OA, using Appendix C (*C.1 Determining Which Onboard Administrator is Active*). Login as an administrative user.



2. Active OAGUI: Navigate to device Bay Settings

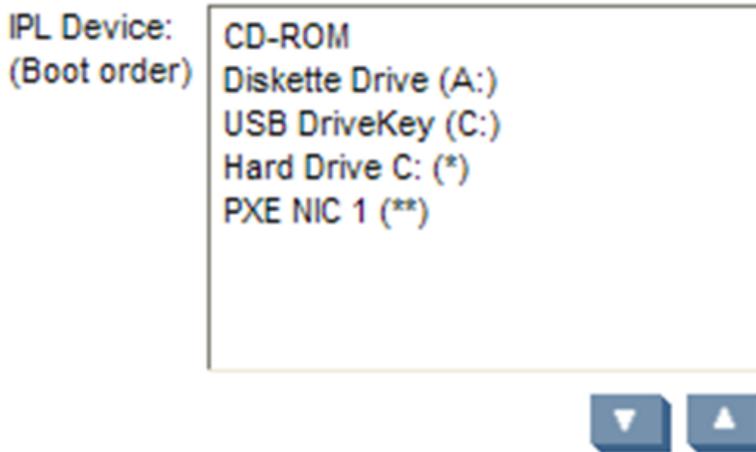
Navigate to **Enclosure Information > Device Bays > <Blade 1>**

Click on **Boot Options** tab.

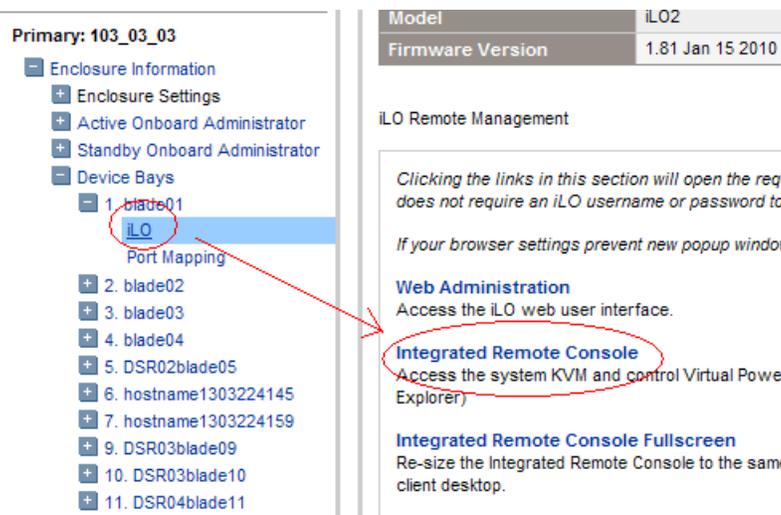


3. Active OAGUI: Verify/update Boot device Order

Verify that the Boot order is as follows. If it is not, use the up and down arrows to adjust the order to match the picture below, then click on **Apply**



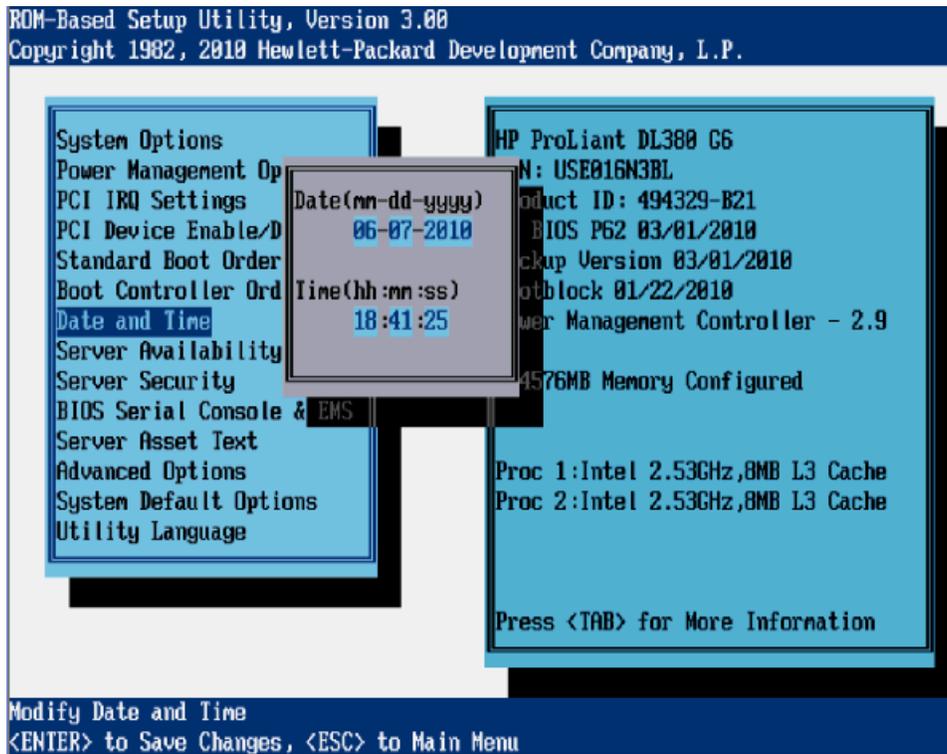
4. **OA:** Access the Blade iLO
 Navigate to **Enclosure Information > Device Bays > <Blade 1> > iLO**
 Click on **Integrated Remote Console**



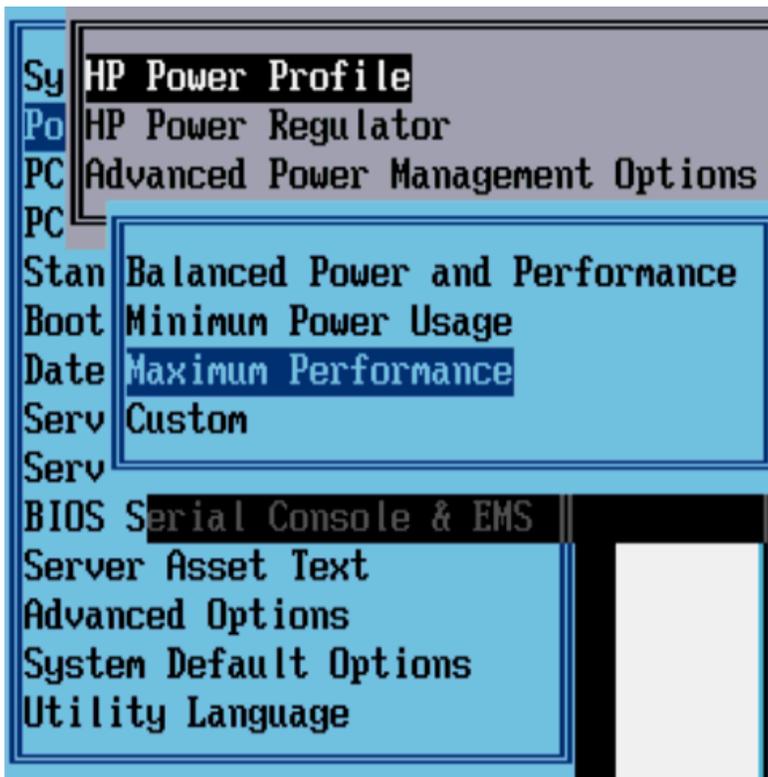
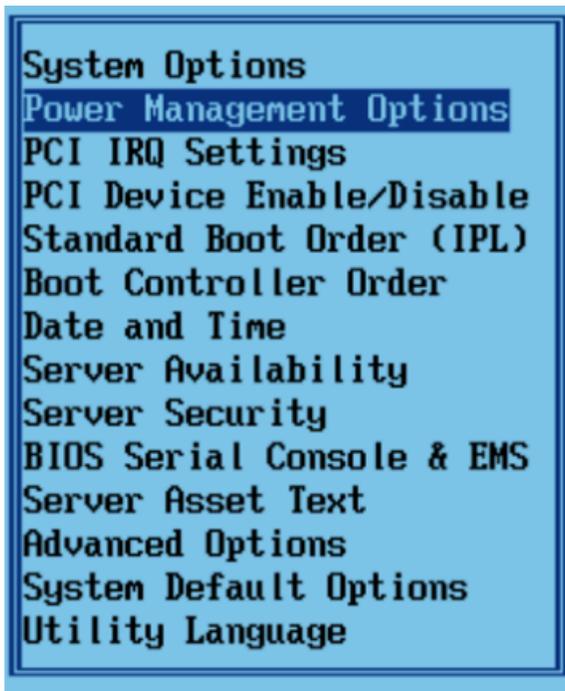
This will launch the iLO interface for that blade. If this is the first time the iLO is being accessed, you will be prompted to install an addon to your web browser, follow the on screen instructions to do so.

5. **OA:** Restart the blade and access the BIOS
 You might be prompted with a certificate security warning, just press continue.
 Once a prompt is displayed, login onto the blade using the "admusr" username.
 Once logged in, Reboot the server (using the "reboot" command) and after the server is powered on, as soon as you see <F9=Setup> in the lower left corner of the screen, press **F9** to access the BIOS setup screen.
6. **OA:** Updated BIOS settings

1. Scroll to **Date and Time** and press **Enter**
2. Set current date, set current UTC time and press **Enter**



3. Go back to the main menu by pressing **<ESC>** and scroll down to **Power Management Options** and press **Enter**
4. Select **HP Power Profile** and press **Enter**
5. Scroll down to **Maximum Performance** and press **Enter**



6. Press <ESC> twice to return to exit the BIOS setup screen and F10 to confirm, exiting the utility
7. The blade will reboot afterwards

7. Active OAGUI: Repeat for the remaining blades

Repeat Steps 2 through 6 for the remaining blades. Once done, exit out of the OA GUI.

3.4.3 Configure Blade Server iLO Password for Administrator Account

This procedure will change the blade server iLO password for Administrator account for blade Servers in an enclosure.

Prerequisites:

- [3.5.1 Configure Initial OA IP](#),
- [3.7.2 Installing TVOE on the Management Server](#),
- [3.7.3 TVOE Network Configuration](#), and
- [3.7.4 Deploy PM&C Guest](#)

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. **PM&C:** Log into the PM&C as admusr using ssh.
2. **PM&C:** Create xml file

In `/usr/TKLC/smac/html/public-configs` create an xml file with information similar to the following example. Change the Administrator password field only as instructed by the application.

```
<RIBCL VERSION="2.0">
<LOGIN USER_LOGIN="admusr" PASSWORD="password">
<USER_INFO MODE="write">
<MOD_USER USER_LOGIN="Administrator">
<PASSWORD value="<b>new Administrator password</b>" />
</MOD_USER>
</USER_INFO>
</LOGIN>
</RIBCL>
```

Save this file as `change_ilo_admin_passwd.xml`

3. OA shell: Login to the active OA

Log into OA via ssh as root user.

```
login as: root

-----
WARNING: This is a private system. Do not attempt to login unless you are an
authorized user. Any authorized or unauthorized access and use may be moni-
tored and can result in criminal or civil prosecution under applicable law.
-----

Firmware Version: 3.00
Built: 03/19/2010 @ 14:13 OA
  Bay
Number: 1 OA
Role: Active
admusr@10.240.17.51's password:
```

If the **OA Role** is not **Active**, login into the other OA the enclosure system

4. OA shell: Run hponcfg

Run the following command:

```
> hponcfg all https://<pmac_ip>/public-configs/change_ilo_admin_passwd.xml
```

5. OA shell: Check the output

Observe the output for error messages and refer to the **HP Integrated Lights-Out Management Processor Scripting and Command Line Resource Guide** for troubleshooting

6. OA shell: Logout

Logout from the OA

7. PM&C: Remove temporary file

On the PM&C remove the configuration file you created. This is done for security reasons, so that no one can reuse the file:

```
$ sudo /bin/rm -rf /usr/TKLC/smac/html/public-configs/change_ilo_admin_passwd.xml
```

3.4.4 Accessing the Server Virtual Serial Port

This procedure describes the steps how to access iLO or iLOM VSP.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. For HP Servers:

Prerequisite: [3.4.3 Configure Blade Server iLO Password for Administrator Account](#) has been completed.

a) HP iLO: Access VSP

This procedure describes the steps how to access iLO or iLOM VSP.

Log in via SSH to the iLO IP as the Administrator user:

```
# ssh Administrator@<ilo_ip>
Administrator@<ilo_ip>'s password:
User:Administrator logged-in to
ILOUSE8068S2T.nc.tekelec.com(10.250.36.71)
iLO Advanced 1.50 at 17:30:27 INT=4Mar 12 2008
Server Name: localhost.localdomain
Server Power: On

</>hpiLO-> vsp

Starting virtual serial port

Press 'ESC (' to return to the CLI Session
</>hpiLO-> Virtual Serial Port active: IO=0x03F8
```

Press **Enter** to refresh the screen.

Note: press **ESC**(to escape VSP console.

2. For Oracle Servers:

- a) **Oracle Sun ILOM:** Log in via SSH as the root user:

```
# ssh root@<ilom_ip>
Password:
Oracle(R) Integrated Lights Out Manager
Version 3.1.0.18 r72481
Copyright (c) 2012, Oracle and/or its affiliates. All rights reserved.
Warning: password is set to factory default
```

- b) **Oracle Sun ILOM:** Connect to the virtual serial port.

```
-> start /HOST/console/
Are you sure you want to start /HOST/console (y/n)? y

Serial console started. To stop, type ESC (
```

Press **Enter** to refresh the screen.

Note: press **ESC**(to escape VSP console.

3.4.5 Configure Syscheck Default Route Ping Test

This procedure will provide the steps how configure ping test on the blade system

Prerequisite: TPD must be installed on the blade server.

Note: Repeat this test for every bladeserver in the blade system.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

Blade Server: Configure syscheck default route test

Log in to blade server as admusr.

Enable the syscheck default router test:

```
$ sudo /usr/TKLC/plat/bin/syscheckAdm net defaultroute -enable
```

Run syscheck to verify that the test is working:

```
$ sudo /usr/TKLC/plat/bin/syscheck -v net defaultroute
Running modules in class net...
OK
LOG LOCATION: /var/TKLC/log/ syscheck/fail_log
```

Restart syscheck:

```
$ sudo /sbin/initctl/syscheck restart
```

Repeat for each blade.

3.4.6 Preparing a System for Extended Power Outage

This procedure describes how to properly shutdown a system for an extended period of time such as in the event of shipment from Manufacturing to the customer site.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Power down all blade servers

Refer to instructions provided by application to correctly power down all blade servers.

2. **Verify each server has shutdown**
3. **Fibre channel controller shell: Shutdown fibre channel switch**

Login via SSH into one controller in each MSA as the manage user.

Run:

```
# shutdown both
```

4. **Power down disk arrays**

Power down disk arrays using power switches on each array.

5. **Management servers: Power off**

Login to each management server via SSH as admusr.

Run:

```
$ sudo /sbin/shutdown -h now
```

6. Power off aggregation switches

If the aggregation switches are provided by Oracle, power off the 4948/4948E switches.

If the aggregation switches are provided by the customer, request that the customer follow their policies for preparing devices for an extended power outage.

3.4.7 Bringing up a System After Extended Power Outage

This procedure describes the steps how to properly power up the HP blade system.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Power on device cabinet

Power on the cabinets that house the devices.

2. Power on aggregation switches

If the aggregation switches are provided by Oracle, power on the 4948/4948E switches.

3. Power on management server

Turn on the management server by depressing the power button on the front of the server.

4. Power on disk arrays

Turn power switches "on" on all disk arrays.

5. Power on remaining cabinets

Power on remaining cabinets.

Ensure all power supply LEDs are green on all equipment.

6. Power on blade servers

Power up each blade server.

3.5 C7000 Enclosure Procedures

3.5.1 Configure Initial OA IP

This procedure will set initial IP address for Onboard Administrator in location OA Bay 1 (left as viewed from rear) and Bay 2, using the front panel display.

Prerequisite: Onboard Administrator must be present in the OA Bay 1 location.

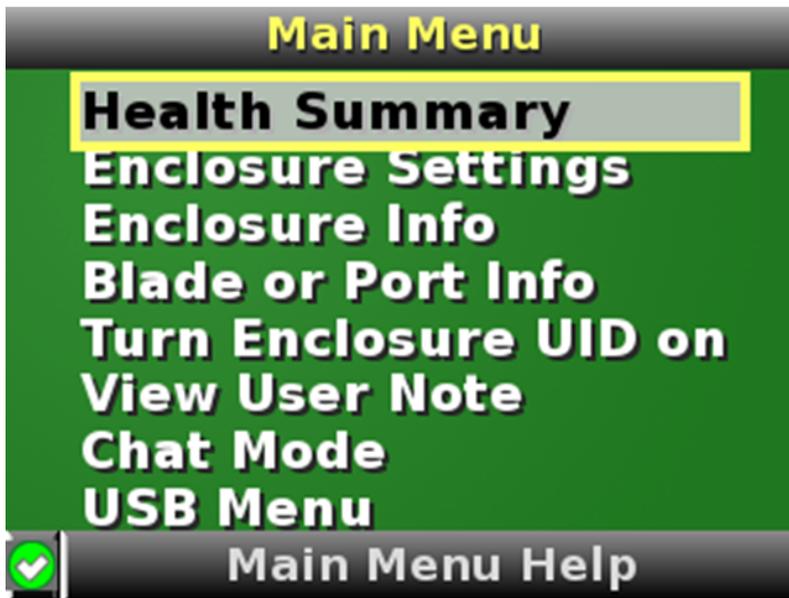
Note: The enclosure should be provisioned with two Onboard Administrators. This procedure needs to be executed only for OABay 1, regardless of the number of OA's installed in the enclosure.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

Configure OA's IP

Configure OA Bay1 IP address using insight display on the front side of the enclosure.

You will see following:



Navigate to **Enclosure Settings** and press **OK**.

Navigate to the **OA1 Ipv4** and press **OK**. Navigate again to the **OA1 Ipv4** and press **OK**.

On the **OA1 Network Mode** screen choose **static** and press **OK**.

On the **OA1 IP address** screen fill in **IP**, **mask** and **gateway**. Press **OK** and then press **Accept All**.

Navigate to "OA2 Ipv4" on the Insight display and repeat the above steps to assign the IP parameters of OA2.

3.5.2 Configure initial OA settings via configuration wizard

This procedure will configure initial OA settings using a configuration wizard. This procedure should be used for initial configuration only and should be executed when the Onboard Administrator in OA Bay 1 (left as viewed from rear) is installed and active.

Prerequisites:

- If the aggregation switches are provided by Tekelec, then the Cisco 4948/4948E switches need to be configured using [3.1.2.1 Configure Cisco 4948/4948E/4948E-F aggregation switches \(PM&C installed\)\(netConfig\)](#).
- If the aggregation switches are provided by the customer, the user must ensure that the customer aggregation switches are configured as per requirements provided in the NAPD.
- In addition, [3.5.1 Configure Initial OA IP](#) must be completed.
- If there is any doubt as to whether the aggregation switches are provided by Tekelec or the customer, contact Tekelec Technical Services and ask for assistance.
- Both OAs are installed.

Note: The enclosure should be provisioned with two Onboard Administrators. Note that the OA in Bay 2 will automatically acquire its configuration from the OA in Bay 1 once the configuration is complete.

Note: This procedure should be used for initial configuration only. Follow [3.5.8 Replacing Onboard Administrator](#) to learn how to correctly replace one of the Onboard Administrators.

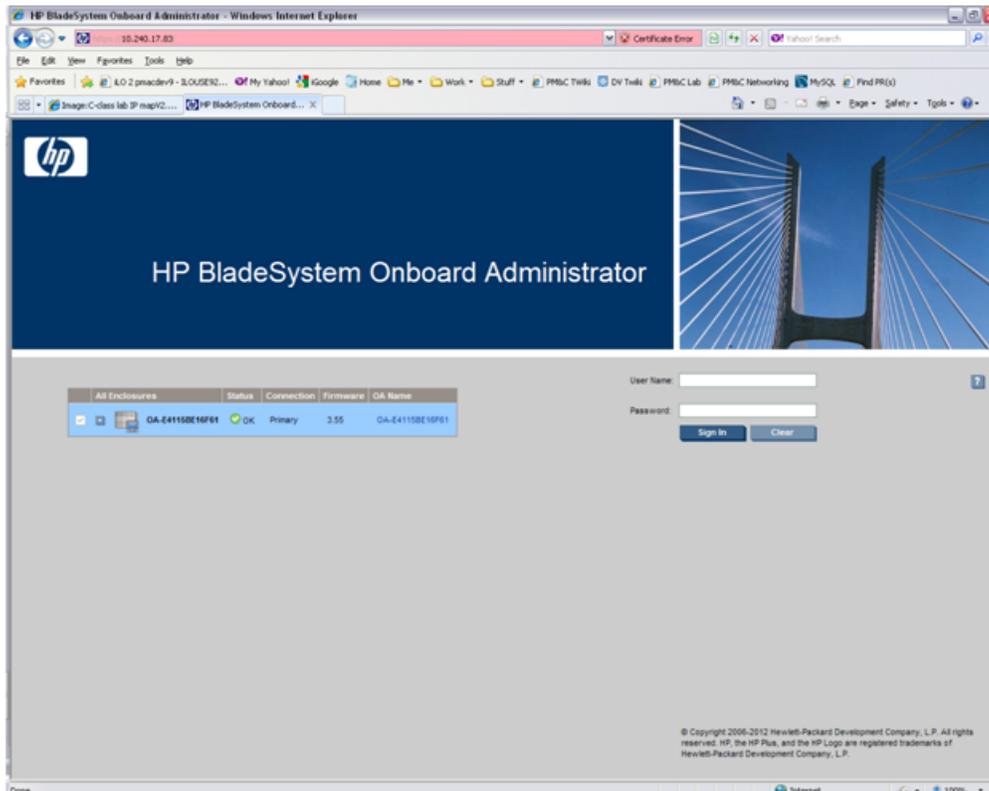
Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. OAGUI: Login

Open your web browser and navigate to the OA Bay1 IP address assigned in [3.5.1 Configure Initial OA IP](#).

`http://<OA1_ip>`

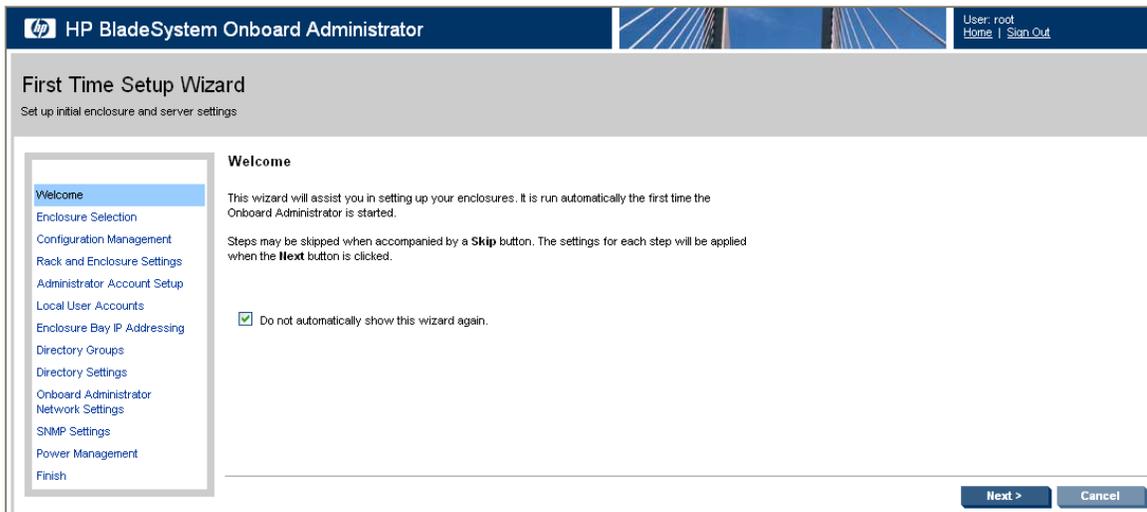
You will see following:



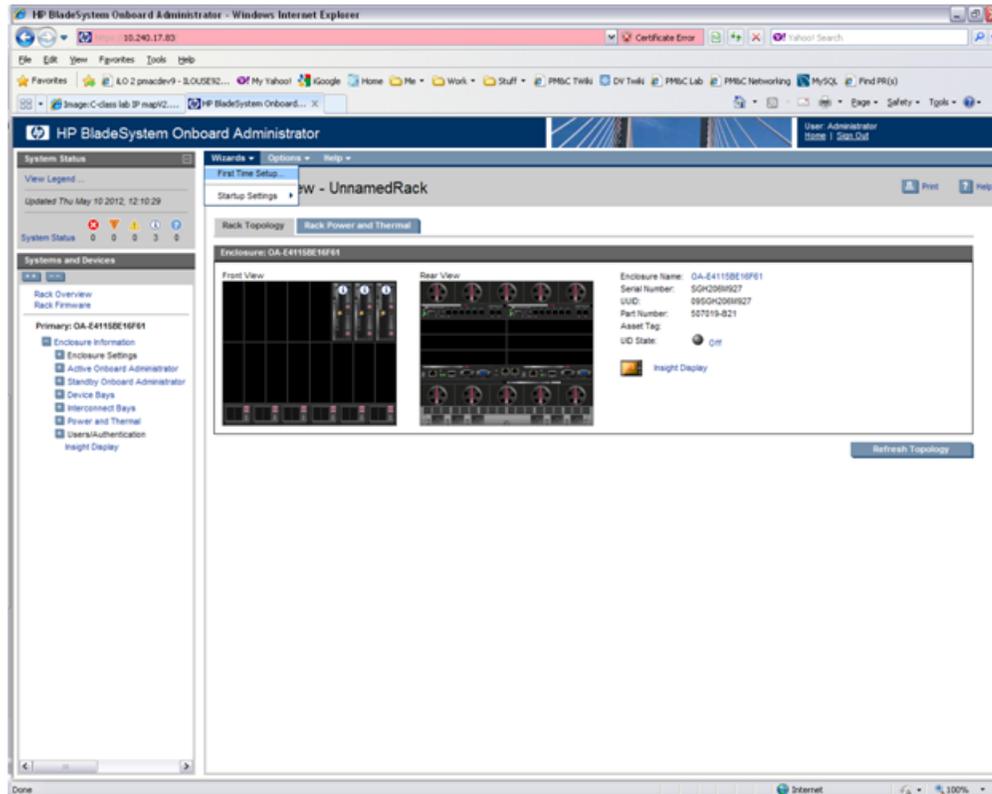
Login as an administrative user. Original password is on paper card attached to each OA.

2. OAGUI: Run First Time Setup wizard

You will see the main wizard window:



Note: If needed Navigate to **Wizards > First Time Setup** to get to the screen above.

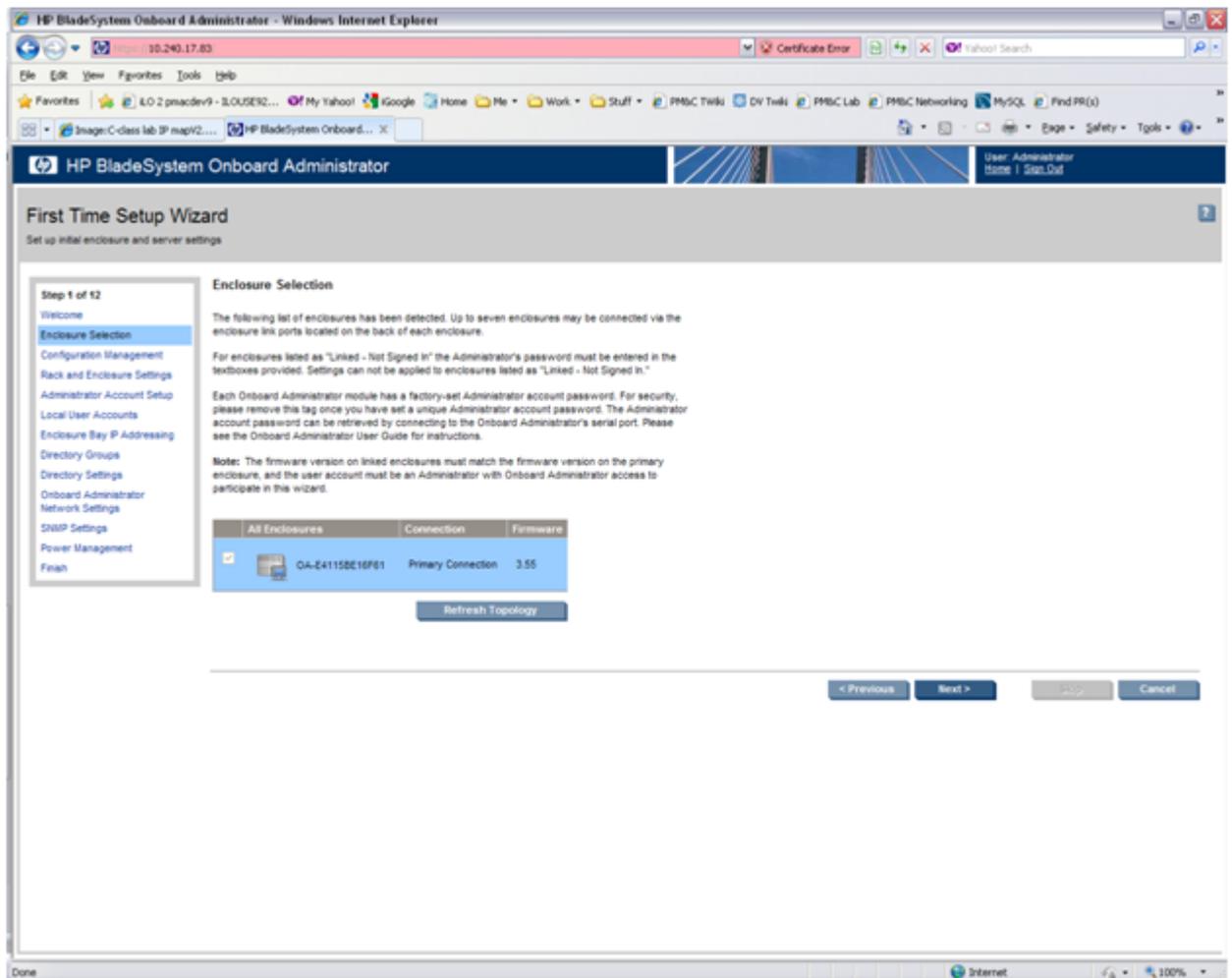


Click on **Next** to choose enclosure you want to configure.

You will see **Rack and Enclosure Settings**:

3. **OAGUI:** Select enclosure

Choose enclosure:



Click on Next.

4. **OAGUI: Skip Configuration Management**

You will see **Configuration Management**. Skip this step. Click Next.

5. **OAGUI: Rack and Enclosure Settings**

You should see this screen:

Fill in **Rack Name** in format **xxxx_xx**.

Fill in **Enclosure name** in format **<rack name>_<position>**

Example:

Rack Name: 500_03
Enclosure Name: 500_03_03

Note: Enclosure positions are numbered from 1 at the bottom of the rack to 4 at the top.

Check **Set time using an NTP server** item and fill in **Primary NTP server** (which is recommended to be set to the **<customer_supplied_ntp_server_address>**).

Set **Poll interval** to 720.

Set **Time Zone** to UTC if customer does not have any specific requirements.

Click on **Next**.

6. OAGUI: Change administrator password

You can see Administrator Account Setup:

HP BladeSystem Onboard Administrator | User: root | Home | Sign Out

First Time Setup Wizard

Set up initial enclosure and server settings

Step 4 of 12

- Welcome
- Enclosure Selection
- Configuration Management
- Rack and Enclosure Settings
- Administrator Account Setup**
- Local User Accounts
- Enclosure Bay IP Addressing
- Directory Groups
- Directory Settings
- Onboard Administrator
- Network Settings
- SNMP Settings
- Power Management
- Finish

Administrator Account Setup

The Administrator account is the master administrator account for the enclosure. This account has all possible privileges for all devices in the enclosure. These account settings will be applied to the built-in Administrator account for each enclosure you have selected.

Note: If this is your first time logging in, there is a physical tag attached to the Onboard Administrator module which contains the factory-set password.

*Required Field **

User Name:* Administrator

Password:*

Password Confirm:*

Full Name: System Administrator

Contact:

Enabling PIN protection will require a PIN code to be entered before using the enclosure's Insight Display. The PIN is alpha-numeric and must have a length from one to six characters.

Enable PIN Protection

PIN Code:

PIN Code Confirm:

< Previous Next > Skip Cancel

Change Administrator's password (refer to application documentation) and click on **Next**.

7. OAGUI: Create pmacadmin and admusr user.

On the **Local User Accounts** screen click on **New** to add **pmacadmin** user.

You will see **User Settings** screen. Fill in **User Name** and **Password**. **Privilege Level** set to **Administrator**. Refer to the application documentation for the password.

Verify that all of the blades have been checked before proceeding to check the checkbox for **Onboard Administrator Bays** under the **User Permissions** section.

Then click on **Add User**.

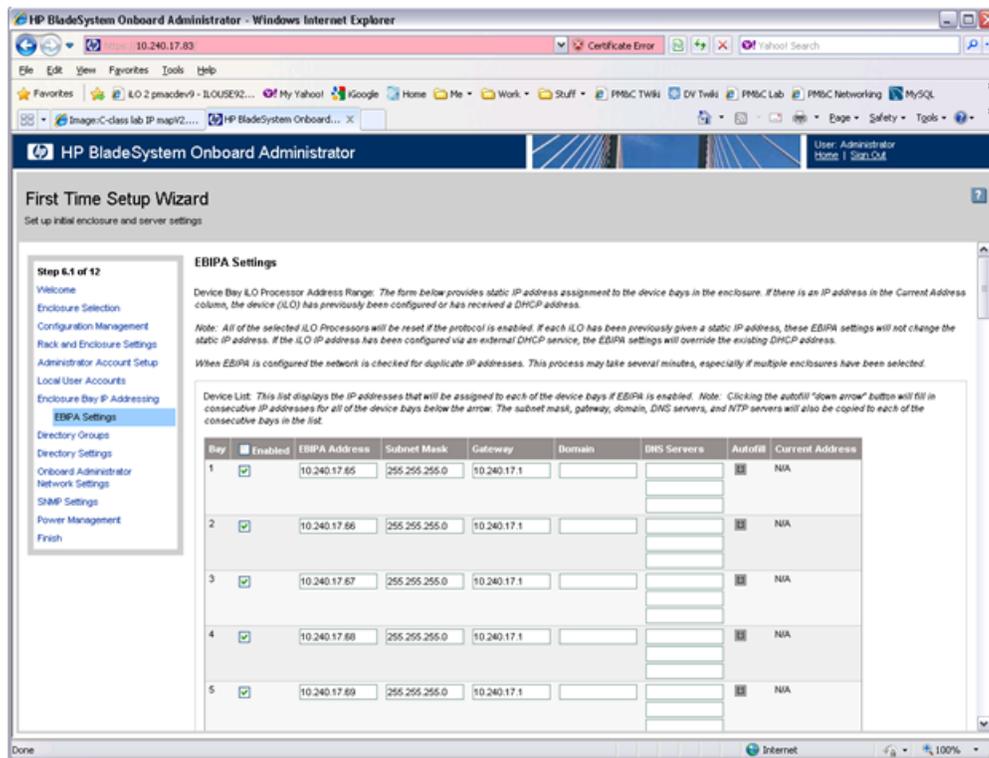
In the same way create the **admusr** user.

Then click on **Next**.

8. OAGUI: EBIPA settings

On the **EBIPA Settings** (Enclosure Bay IP Addressing) screen click on **Next** to continue or **Skip** if you have already done it. If you pressed **Skip**, go to Step 9 of this procedure.

Note: Setting up the EBIPA addresses is required.



Go to the Device List section of the EBIPA Settings Screen (at the top).

Fill in the iLO IP, Subnet Mask and Gateway fields for Device Bays 1-16.

Do not fill in the iLO IP, subnet Mask or Gateway fields for Device Bays 1A-16A and 1B-16B

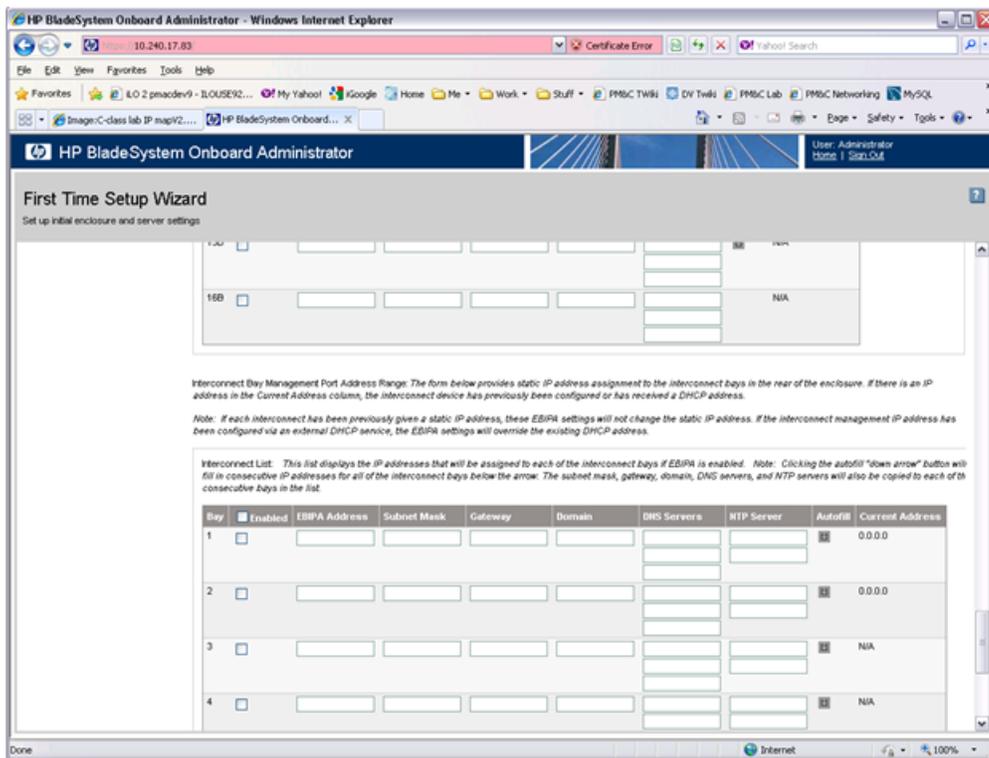
Note: Bays 1A-16A and 1B-16B are used for double-density blades (f.e. BL2x220c) which are not supported in this release.

Click Enabled on each Device Bay 1 through 16 that is in use.

Note: Any unused slots should have an ip address assigned, but should be disabled

Note: Do not use autofill as this will fill the entries for the Device Bays 1A through 16B

Scroll down to the Interconnect List (below Device Bay 16B)



Fill in the EBIPA Address, Subnet Mask and Gateway fields for each Interconnect Bay in use. Click Enable on each Interconnect Bay in use.

By clicking **Next** you will apply those settings. System may restart devices such as interconnect devices or iLOs to apply new addresses. After finishing check the IP addresses to ensure that apply was successful.

9. **OAGUI: Skip Directory Groups step**

To skip Directory Groups step, click **Next**.

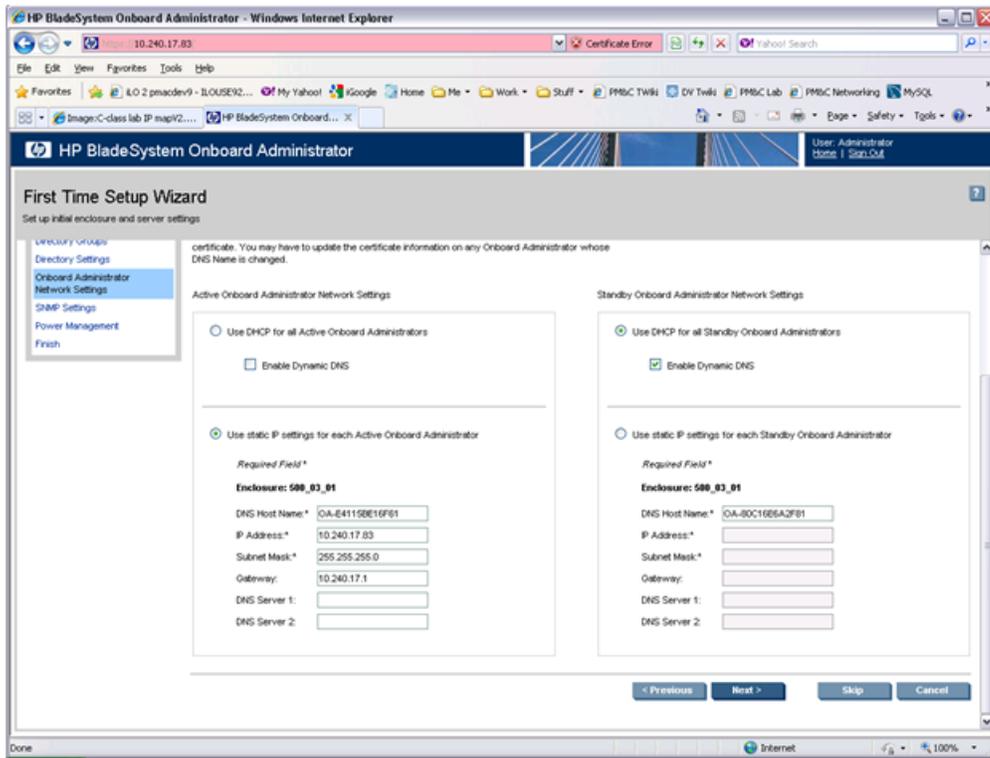
10. **OAGUI: Skip Directory Settings step**

To skip Directory Settings step, click **Next**.

11. **OAGUI:OA network settings**

On the **Onboard Administrator Network Settings** tab you can assign or modify the IP address and the other network settings for the Onboard Administrator(s).

The **Active Administrator Network Settings** pertain to the active OA (OA Bay 1 location during initial configuration). If the second Onboard Administrator is present, the **Standby Onboard Administrator Network Settings** will be displayed as well. Click on "Use static IP settings for each Standby Onboard Administrator". Fill in the IP Address, Subnet mask and Gateway for the Standard OA.



Click on **Next**.

Note: If you change the IP address of the active OA, you will be disconnected. Then you will have to close your browser and sign in again using the new IP address.

12. OAGUI:SNMP Settings

Mark **Enable SNMP**.

HP BladeSystem Onboard Administrator | User: root | Home | Sign Out

First Time Setup Wizard

Set up initial enclosure and server settings

Step 10 of 12

- Welcome
- Enclosure Selection
- Configuration Management
- Rack and Enclosure Settings
- Administrator Account Setup
- Local User Accounts
- Enclosure Bay IP Addressing
- Directory Groups
- Directory Settings
- Onboard Administrator
- Network Settings
- SNMP Settings**
- Power Management
- Finish

SNMP Settings

This function forwards alerts from the enclosure (power supplies, fans, the Onboard Administrator, enclosure thermals, etc.) to the specified alert destinations.

Note: Individual server blades must be configured separately using iLO and Server Agents. Alert destinations will be added to and removed from all selected linked enclosures.

Enclosure: 500_05_01

Enable SNMP

System Location:

System Contact:

Read Community:

Write Community:

SNMP Alert Destinations

Host:

(ex. 61.206.115.3, 2002:1 or host.example.com)

Community String:

< Previous Next > Skip Cancel

Fill in **System Location** that is equal to **Enclosure name** you have filled in Step 5.

Do not set **Read Community** and **Write Community**.

Note: This step does not set an SNMP Trap Destination, to do that see section [3.5.9 Add SNMP trap destination on OA..](#)

Click on **Next**.

13. OA GUI: Power Management

The Power Mode setting on the Power Management screen must be configured for power supply redundancy. The first available setting on the Power Management screen will be either "AC Redundant" or "Redundant" depending on whether the Enclosure is powered by AC or DC. In either case, select the **second** radio button, "Power Supply Redundant".

AC-powered Enclosures:

Power Management

Power Mode: Select the power subsystem's redundant operation mode.

- AC Redundant:** In this configuration *N* power supplies are used to provide power and *N* are used to provide redundancy, where *N* can equal 1, 2 or 3. When correctly wired with redundant AC line feeds this will ensure that an AC line feed failure will not cause the enclosure to power off.
 - (2 plus 2 configuration shown)
- Power Supply Redundant:** Up to 6 power supplies can be installed with one power supply always reserved to provide redundancy. In the event of a single power supply failure the redundant power supply will take over the load. A power line feed failure or failure of more than one power supply will cause the system to power off.
 - (3 plus 1 configuration shown)
- Not Redundant:** No power redundancy rules are enforced and power redundancy warnings will not be given. If all of the power supplies are needed to supply Present Power, the failure of a power supply or power feed to the enclosure may cause the enclosure to brown-out.

DC-powered Enclosures:

Power Management

Power Mode: Select the power subsystem's redundant operation mode.

Redundant: In this configuration N power supplies are used to provide power and N are used to provide redundancy, where N can equal 1, 2 or 3. When correctly wired with redundant AC line feeds this will ensure that an AC line feed failure will not cause the enclosure to power off.



Power Supply Redundant: Up to 6 power supplies can be installed with one power supply always reserved to provide redundancy. In the event of a single power supply failure the redundant power supply will take over the load. A power line feed failure or failure of more than one power supply will cause the system to power off.



Not Redundant: No power redundancy rules are enforced and power redundancy warnings will not be given. If all of the power supplies are needed to supply Present Power, the failure of a power supply or power feed to the enclosure may cause the enclosure to brown-out.

For all other settings on the Power Management screen, leave the default settings unchanged.

Click on **Next**.

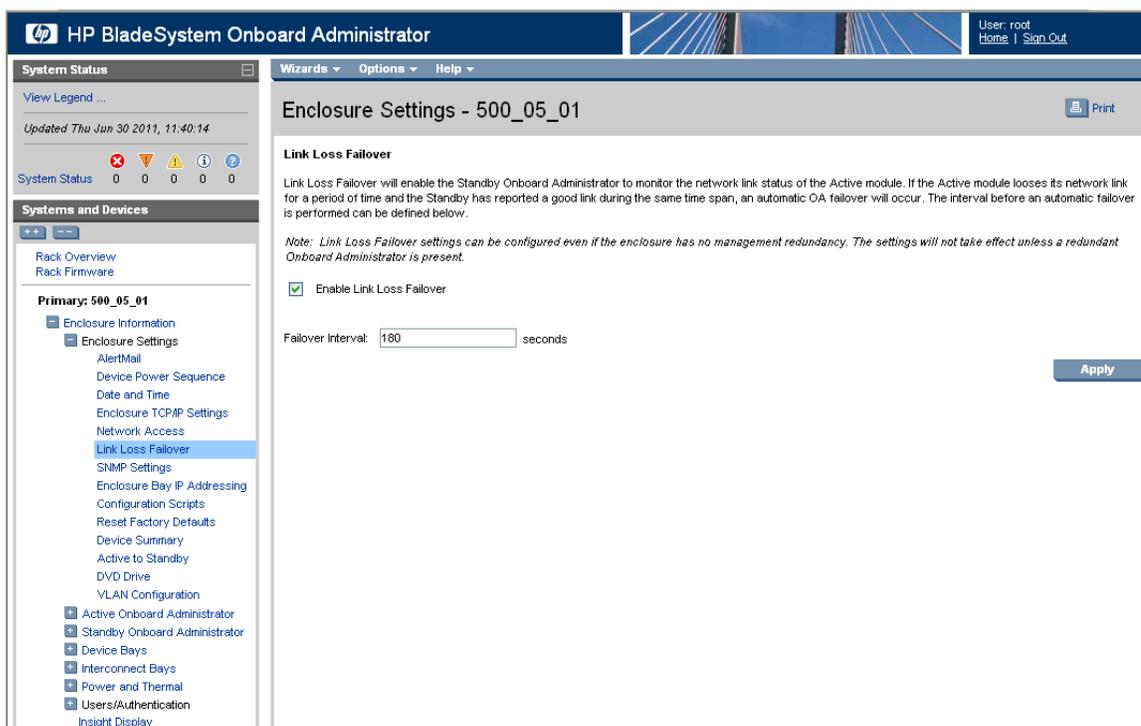
14. OAGUI: Finish First Time Setup Wizard

Click on **Finish**.

Note: If only one OA has been configured, skip the following step.

15. OAGUI: Set Link Loss Failover

Navigate to **Enclosure Information > Enclosure Settings > Link Loss Failover**



Check the **Enable Link Loss Failover** and specify **Failover Interval** to be 180 seconds. Click **Apply**.

3.5.3 Configure OA Security

This procedure will disable telnet access to OA.

Prerequisite: [3.5.2 Configure initial OA settings via configuration wizard](#) has been completed.

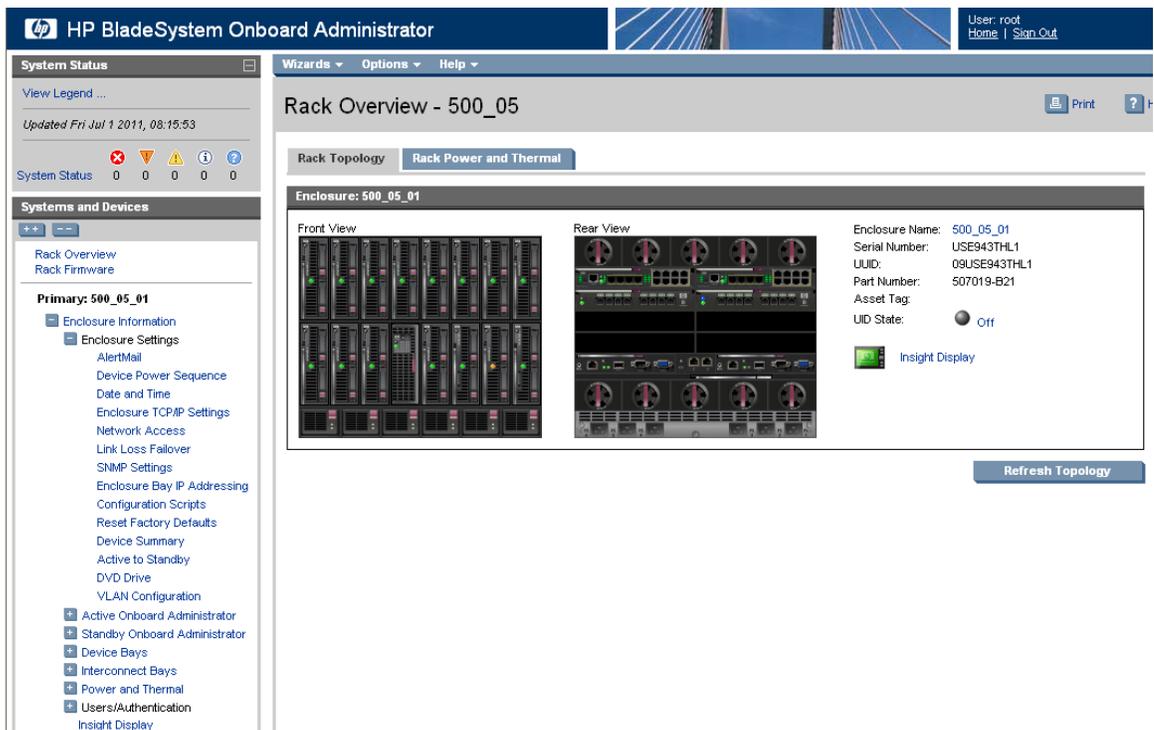
Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Active OAGUI: Login

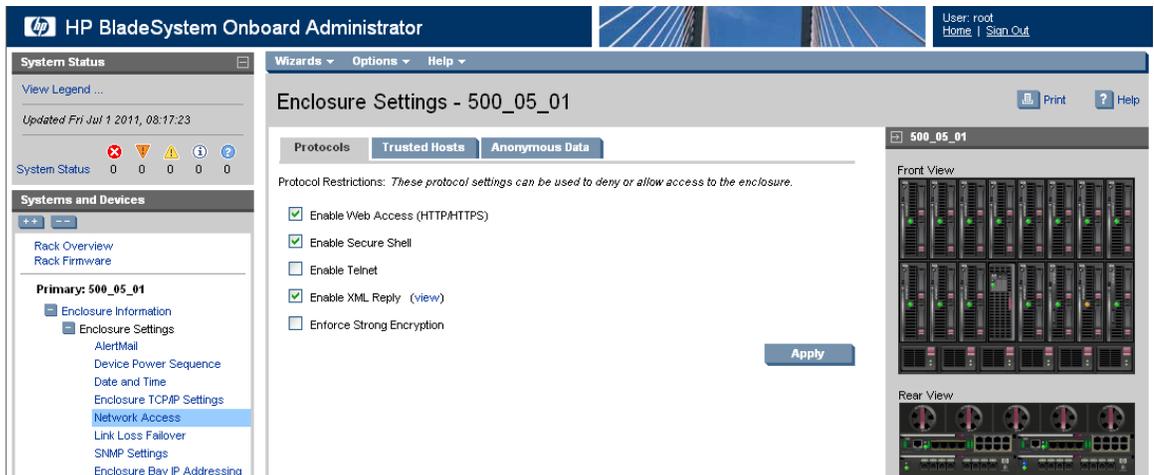
Navigate to the IP address of the active OA, using ([C.1 Determining Which Onboard Administrator is Active](#)). Login as an administrative user.

2. OAGUI: Disable telnet

Navigate to **Enclosure Information > Enclosure Settings > Network Access**



Then uncheck the **Enable Telnet**



Click on **Apply**.

3.5.4 Upgrade or Downgrade OA Firmware

This procedure will update the firmware on the OA's.

Prerequisites:

- Obtain any customer approval needed for OA firmware updates. This procedure can change the version of firmware installed in one or both OAs.

- [3.7.9 Adding ISO Images to the PM&C Image Repository](#) has been completed using Misc. Firmware CD/ISO.
- [3.1.3.7 Upgrade 3020 Switch IOS Firmware](#) MUST be completed before proceeding with this procedure, if the OAfirmware is upgraded and the 3020 switch IOS is NOT upgraded, there could be a loss of connectivity for the blades.

Needed material:

- Tekelec's HP Misc. Firmware USB media or ISO file
- HP Solutions Firmware Upgrade Pack Release Notes [3]

Note: The enclosure should be provisioned with two Onboard Administrators. This procedure will install the same firmware version on both Onboard Administrators.

Note: This procedure should be used to upgrade or downgrade firmware or to ensure both OA's have the same firmware version. When the firmware update is initiated, the standby OA is automatically updated first.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Execute section 4.10.2.1 "Adding ISO Images to the PM&C Image Repository" to add the HP Misc FW ISO.
2. **OAGUI:** Login

Navigate to the IP address of the active OA, using Appendix C ([C.1 Determining Which Onboard Administrator is Active](#)). Login as an administrative user.

3. **OA GUI:** Check OA firmware versions.

In the left navigation area, navigate to **Enclosure Information > Active Onboard Administrator > Firmware Update**

Examine the **Firmware Version** shown in the **Firmware Information table**. Verify the version meets the minimum requirement specified by Release Notes [3] and that the firmware versions match for both OA's. If it is so the firmware does not need to be changed. Skip the rest of this procedure.

4. Save All OA Configuration

If one of the two OAs has a later version of firmware than the version provided by the HP Solutions Firmware Upgrade Pack 795-000-2xx [3], this procedure will downgrade it to that version. A firmware downgrade can result in the loss of OA configuration. Before proceeding, ensure that you have a record of the initial OA configuration necessary to execute the following OA configuration procedures, as required by the customer and application:

1. [3.5.1 Configure Initial OA IP](#)
2. [3.5.2 Configure initial OA settings via configuration wizard](#)
3. [3.5.3 Configure OA Security](#)
4. [3.5.9 Add SNMP trap destination on OA.](#)

5. **OAGUI:** Initiate OAfirmware upgrade

If the firmware needs to be upgraded, click on **Firmware Update** in the left navigation area.

Enter the appropriate URL in the bottom text box labeled "Image URL". The syntax is:

```
https://<PM&C_Management_Network_IP>/TPD/<HPFW_mount_point>/files/<OA_firmware_version>.bin
```

For example:

`https://10.240.4.198/TPD/HPFW--872-2488-XXX--HPFW/files/hpoa300.bin`

Check the **Force Downgrade** box if present.

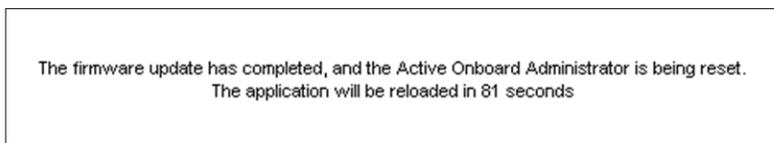
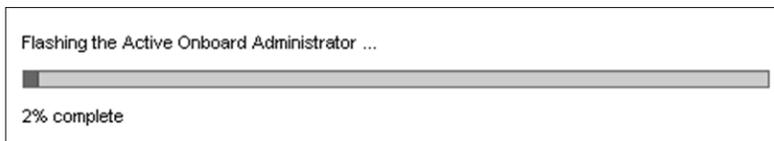
Click **Apply**

If a confirmation dialog is displayed, click "OK".

Note: The upgrade may take up to 25 minutes.

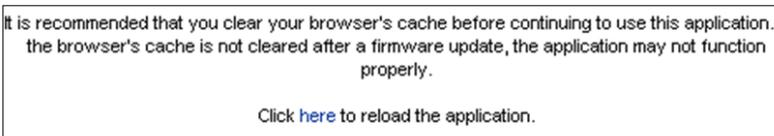
6. **OAGUI:** Observe OAfirmware upgrade progress

You should observe the following updates during the upgrade.



7. **OAGUI:** Reload the HPOAapplication

The upgrade is complete when the following is displayed:



Clear your browser's cache and click to reload the application . The login page should appear momentarily.

8. **OAGUI:** Verify the firmware upgrade

Login to the OA again. It may take few minutes before the OA is fully functional and accepts the credentials.

In the left navigation area, navigate to **Enclosure Information > Active Onboard Administrator > Firmware Update**

Examine the **Firmware Version** shown in the **Firmware Information table**. Verify the firmware version information is correct.

9. OA GUI: Check/re-establish OA configuration

Ensure that all OA configuration established by the following procedures is still intact after the firmware update. Re-establish any settings by performing the procedure(s):

1. [3.5.1 Configure Initial OA IP](#)
2. [3.5.2 Configure initial OA settings via configuration wizard](#)
3. [3.5.3 Configure OA Security](#)
4. [3.5.9 Add SNMP trap destination on OA.](#)

3.5.5 Store OA Configuration on Management Server

This procedure will backup OA settings on the management server .

Prerequisites:

- If the aggregation switches are provided by Tekelec, then the Cisco 4948/4948E switches need to be configured using [3.1.2.1 Configure Cisco 4948/4948E/4948E-F aggregation switches \(PM&C installed\)\(netConfig\)](#).
- If the aggregation switches are provided by the customer, the user must ensure that the customer aggregation switches are configured as per requirements provided in the NAPD.
- In addition, [3.5.2 Configure initial OA settings via configuration wizard](#),
- [3.7.2 Installing TVOE on the Management Server](#),
- [3.7.3 TVOE Network Configuration](#), and
- [3.7.4 Deploy PM&C Guest](#)
- If there is any doubt as to whether the aggregation switches are provided by Tekelec or the customer, contact Tekelec Technical Services and ask for assistance.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

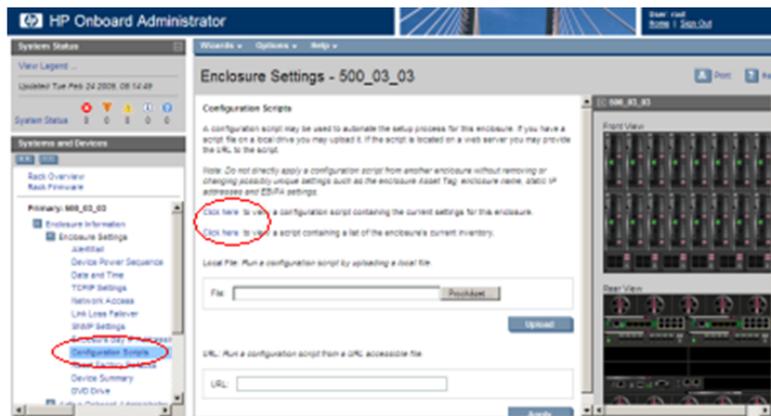
1. OAGUI: Login

Navigate to the IP address of the active OA, using Appendix C ([C.1 Determining Which Onboard Administrator is Active](#)). Login as root.

2. OAGUI: Store configuration file

Navigate to the **Enclosure Information > Enclosure Settings > Configuration scripts**

On the **Configuration script** open the first configuration file (current settings for enclosure):



Store this file on local disk.

For example:

Press **ctrl+s**, choose file name, path, and as type choose text file.

f.e. you may choose the following syntax for the configuration file name:

<enclosure ID>_<timetag>.conf

3. PM&C: Backup configuration file

Do the following to backup the file on the PM&C:

Under directory **/usr/TKLC/smac/etc** you can create your own subdirectory structure. Login to management server via ssh as admusr and create the target directory:

```
$ sudo /bin/mkdir -p /usr/TKLC/smac/etc/OA_backups/OABackup
```

Next, copy the configuration file to the created directory.

For unix users:

```
# scp ./<cabinet_enclosure_backup file>.conf \
admusr@pmac_management_network_ip>:/var/TKLC/home/admusr
```

Windows users: Refer to Appendix A ([A.1 Using WinSCP](#)) to copy the file to the management server.

Now, on the PM&C, move the configuration file to the OA Backup folder that you created under **/usr/TKLC/smac/etc**:

```
$ sudo /bin/mv /var/TKLC/home/admusr/<cabinet_enclosure_backup file>.conf
/usr/TKLC/smac/etc/OA_backups/OABackup
```

4. PM&C: Perform PM&C application backup to capture the OA backup

```
$ sudo /usr/TKLC/smac/bin/pmacadm backup
PM&C backup been successfully initiated as task ID 7
$
```

Note: The backup runs as a background task. To check that status of the background task use the PM&C GUI Task Monitor page, or issue the command "**\$ sudo /usr/TKLC/smac/bin/pmaccli**

`getBgTasks`". The result should eventually be "PM&C Backup successful" and the background task should indicate "COMPLETE".

Note: The "pmacadm backup" command uses a naming convention which includes a date/time stamp in the file name (Example file name: backupPmac_20111025_100251.pef). In the example provided, the backup file name indicates that it was created on 10/25/2011 at 10:02:51 am server time.

5. PM&C: Verify the Backup was successful

Note: If the background task shows that the backup failed, then the backup did not complete successfully. STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

The output of `pmaccli getBgTasks` should look similar to the example below:

```
$ sudo /usr/TKLC/smac/bin/pmaccli getBgTasks
2: Backup PM&C COMPLETE - PM&C Backup successful
Step 2: of 2 Started: 2012-07-05 16:53:10 running: 4 sinceUpdate: 2 taskRecordNum:
  2 Server Identity:
Physical Blade Location:
Blade Enclosure:
Blade Enclosure Bay:
Guest VM Location:
Host IP:
Guest Name:
TPD IP:
Rack Mount Server:
IP:
Name:
::
```

6. PM&C: Save the PM&C backup

If the NetBackup feature has not been configured for this PM&C, or the Redundant PM&C is not configured in this system, the PM&C backup must be moved to a remote server. Transfer, (sftp, scp, rsync, or preferred utility), the PM&C backup to an appropriate remote server.

7. OAGUI: Log out

Log out from the OA by pressing **Sign Out** at the top-right corner.

3.5.6 Restore OA Configuration from Management Server

This procedure will restore configuration backup from the management server and apply it on the OA's.

Prerequisites:

- If the aggregation switches are provided by Tekelec, then the Cisco 4948/4948E switches need to be configured using [3.1.2.1 Configure Cisco 4948/4948E/4948E-F aggregation switches \(PM&C installed\)\(netConfig\)](#).
- If the aggregation switches are provided by the customer, the user must ensure that the customer aggregation switches are configured as per requirements provided in the NAPD.
- In addition, [3.5.2 Configure initial OA settings via configuration wizard](#),
- [3.7.2 Installing TVOE on the Management Server](#),
- [3.7.3 TVOE Network Configuration](#), and

- [3.7.4 Deploy PM&C Guest](#)

It is assumed that:

- [3.5.5 Store OA Configuration on Management Server](#) has been performed in the past.
- [3.5.1 Configure Initial OA IP](#) has been completed prior to this procedure.

If there is any doubt as to whether the aggregation switches are provided by Tekelec or the customer, contact Tekelec Technical Services and ask for assistance.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Obtain configuration file

Obtain configuration files from the management server :

Unix user:

```
# scp  
adminstr@<pmac_management_network_ip>:/usr/TKLC/snac/etc/OA_backups/OABackup/<backup_config_filename>  
.
```

Windows users: Refer to Appendix A ([A.1 Using WinSCP](#)) to copy the file to your PC.

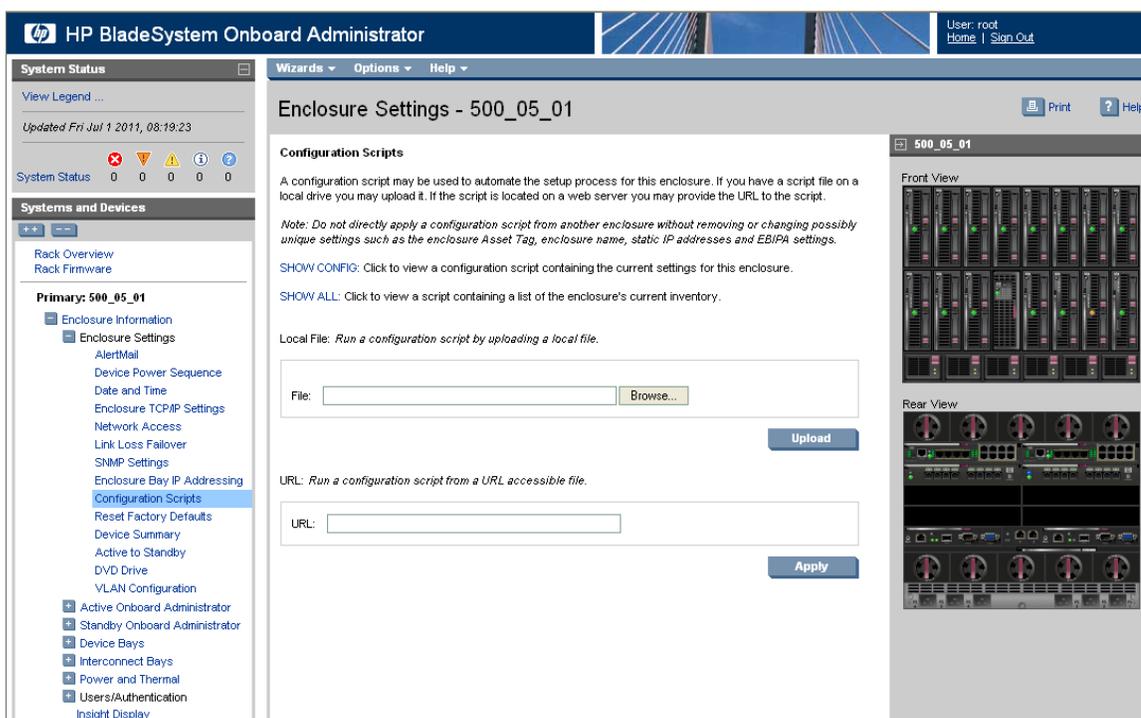
2. **OAGUI:** Login

Navigate to the IP address of the active OA, using Appendix C ([C.1 Determining Which Onboard Administrator is Active](#)). Login as an administrative.

3. **OAGUI:** Restore configuration

Navigate to the **Enclosure Information > Enclosure Settings > Configuration scripts**

Use **Local file** form to upload and run configuration script:



The restore can take up to 5-10 minutes.

A pop up appears after the restore is complete. This will contain logs from the restoration process. Check if there are any errors.

4. OAGUI: Log out

Log out from the OA by pressing **Sign Out** at the top-right corner.

3.5.7 Adding a redundant Onboard Administrator to enclosure

This procedure has become obsolete with Platform 5.0.

3.5.8 Replacing Onboard Administrator

This procedure describes how to replace OA in an enclosure with Redundant OA.

Prerequisites:

- Obtain any customer approval needed for OA firmware updates. This procedure can change the version of firmware installed in one or both OAs.
- If the aggregation switches are provided by Tekelec, then the Cisco 4948/4948E switches need to be configured using [3.1.2.1 Configure Cisco 4948/4948E/4948E-F aggregation switches \(PM&C installed\)\(netConfig\)](#).
- If the aggregation switches are provided by the customer, the user must ensure that the customer aggregation switches are configured as per requirements provided in the NAPD.
- In addition, [3.5.3 Configure OA Security](#) must be completed.

- If there is any doubt as to whether the aggregation switches are provided by Tekelec or the customer, contact Tekelec Technical Services and ask for assistance.

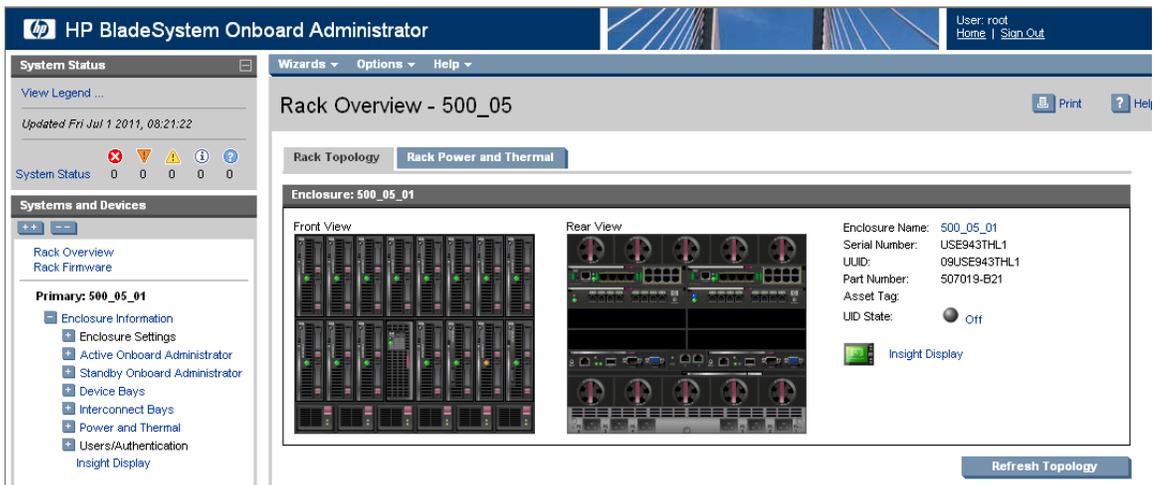
Note: The transfer of configuration occurs only from OA in Bay 1 to OA in Bay 2. Therefore in order to keep the current configuration of the system, the insertion of new OA into the OABay 1 location should be avoided.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. OAGUI: Login to the active OA

Navigate to the IP address of the active OA, using Appendix C ([C.1 Determining Which Onboard Administrator is Active](#)). Login as root.

You will see the following page.



2. OA GUI: Record the IP configuration of the Active and Standby OAs.

Navigate to Enclosure Information > Active Onboard Administrator > TCP/IP Settings. Record the Active OA's IP Address, Subnet Mask, and Gateway here:

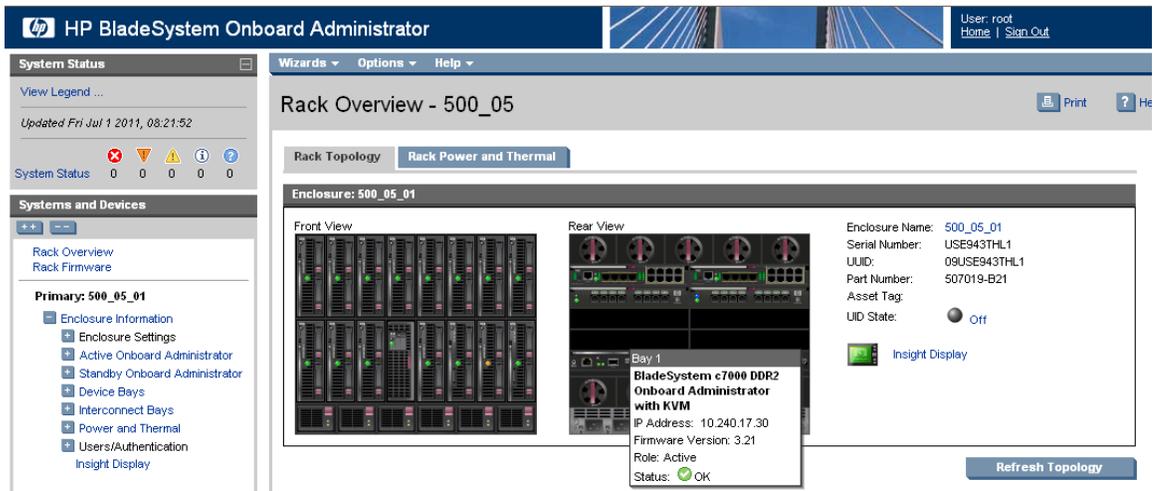
Active OA IP Address:	
Active OA Subnet Mask:	
Active OA Gateway:	

Navigate to Enclosure Information > Standby Onboard Administrator TCP/IP Settings. Record the Standby OA's IP Address, Subnet Mask, and Gateway here:

Standby OA IP Address:	
Standby OA Subnet Mask:	
Standby OA Gateway:	

3. OAGUI: Note the location of the active OA

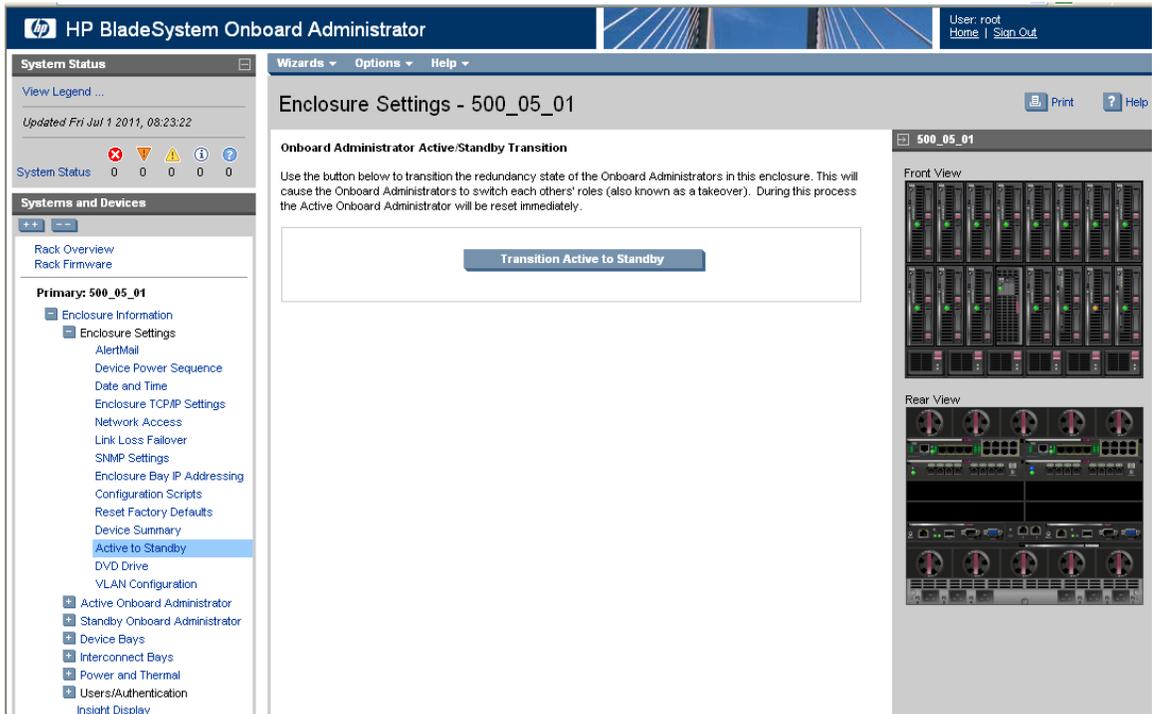
Note the location of the active onboard administrator within the enclosure. The active OA will have the Active LED on, as in the figure below. You may also mouse over the OA and see its role.



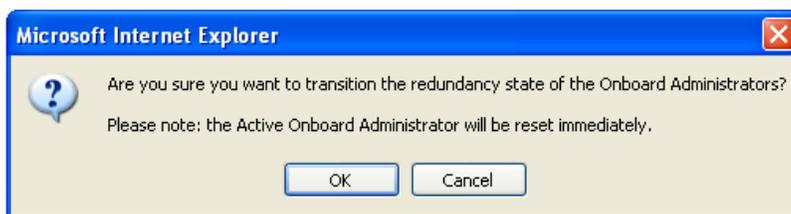
If the OA you would like to replace is not the active OA for the enclosure, skip to step 5. Otherwise, continue with step 4.

4. **OAGUI:** Force active OA into standby mode

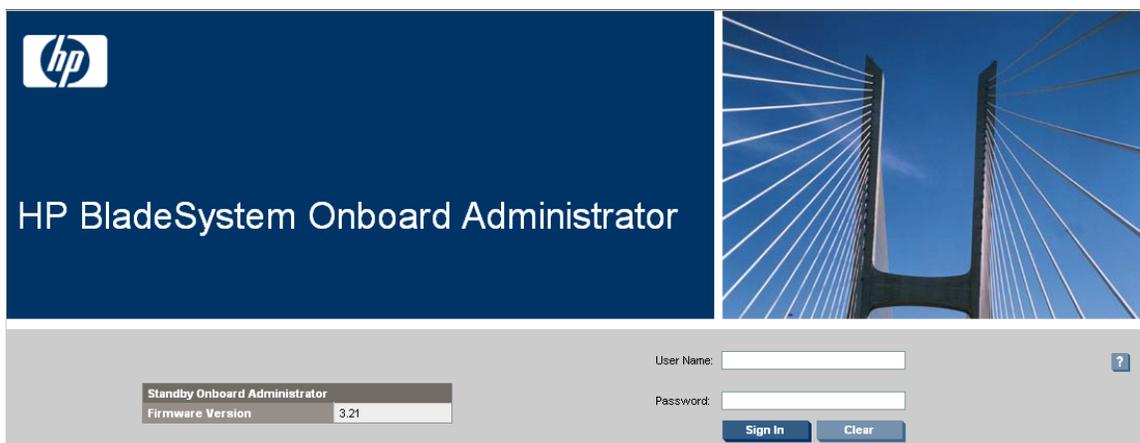
On the left-hand side navigate to **Enclosure Information > Enclosure Settings > Active to Standby**, then click on the **Transition Active to Standby** button.



Answer OK the following question:



Wait about five minutes , until the application reloads itself and the following page appears:



5. Remove the OA to be replaced

If you need to replace the Onboard Administrator from the OA Bay 2 location (right as viewed from rear) , remove it and skip to step 7.

If you need to replace the Onboard Administrator from the OA Bay 1 location (left as viewed from rear), remove it and proceed with step 6.

6. Move the OA from OABay 2 location into the OABay 1 location

Move the OA from OA Bay 2 location into the OA Bay 1 location. Wait five minutes so that the Onboard Administrator can initialize.

7. Install the new OA

Insert the new Onboard Administrator into OA Bay 2 of the enclosure and wait five minutes so it can get its configuration from the other OA and to initialize itself.

8. **OAGUI:** Login to the active OA

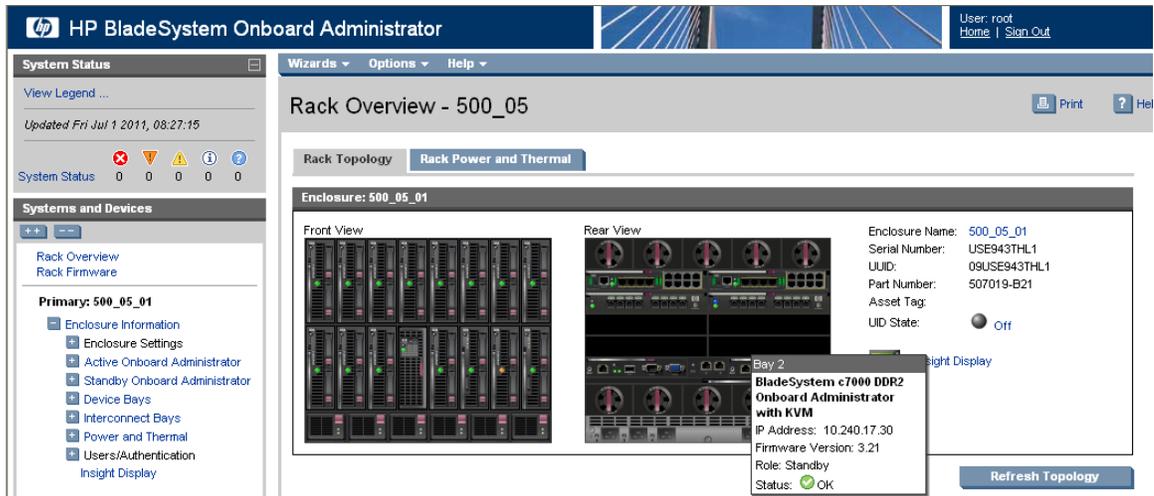
Navigate to the IP address of the active OA, using Appendix C ([C.1 Determining Which Onboard Administrator is Active](#)). Login as root.

9. **OA GUI:** Re-establish the OA's IP configuration

Refer to the OA IP configuration settings recorded in Step 2 of this procedure. The current settings of each OA should be unique and should match the recorded settings for either the Active or Standby OA. The Active OA may now have the Standby OA's recorded settings and vice versa. If changes are needed, perform "[3.5.1 Configure Initial OA IP](#)".

10. **OAGUI:** Verify the status of Onboard Administrators

On the **Rear View** mouse over each OA and verify the that the **Status** value is **OK**. If the status of one OA or the other is shown as "Degraded" because of a firmware version mismatch, perform "[3.5.4 Upgrade or Downgrade OA Firmware](#)".



11. PM&C CLI: Delete OA SSH keys

Login to the PM&C CLI as admusr. Execute these three commands:

```
$ sudo /usr/bin/ssh-keygen -R <Active-OA-IP> -f ~pmacd/.ssh/known_hosts
$ sudo /usr/bin/ssh-keygen -R <Standby-OA-IP> -f ~pmacd/.ssh/known_hosts
$ sudo /bin/chown pmacd:pmacd ~pmacd/.ssh/known_hosts
```

New SSH keys will be established by PM&C the next time it logs in to each OA.

3.5.9 Add SNMP trap destination on OA.

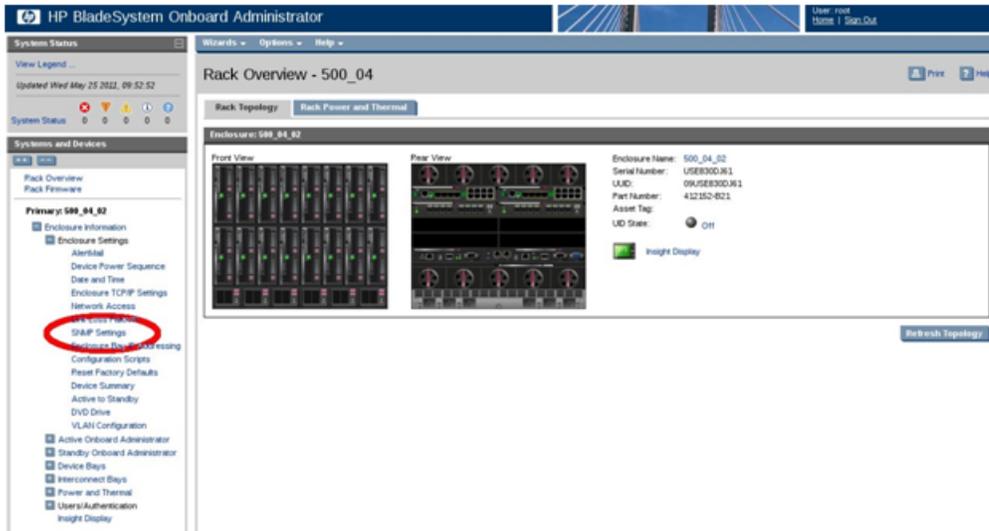
This procedure will add an SNMP trap destination from the Onboard Administrator.

1. Active OA GUI: Login

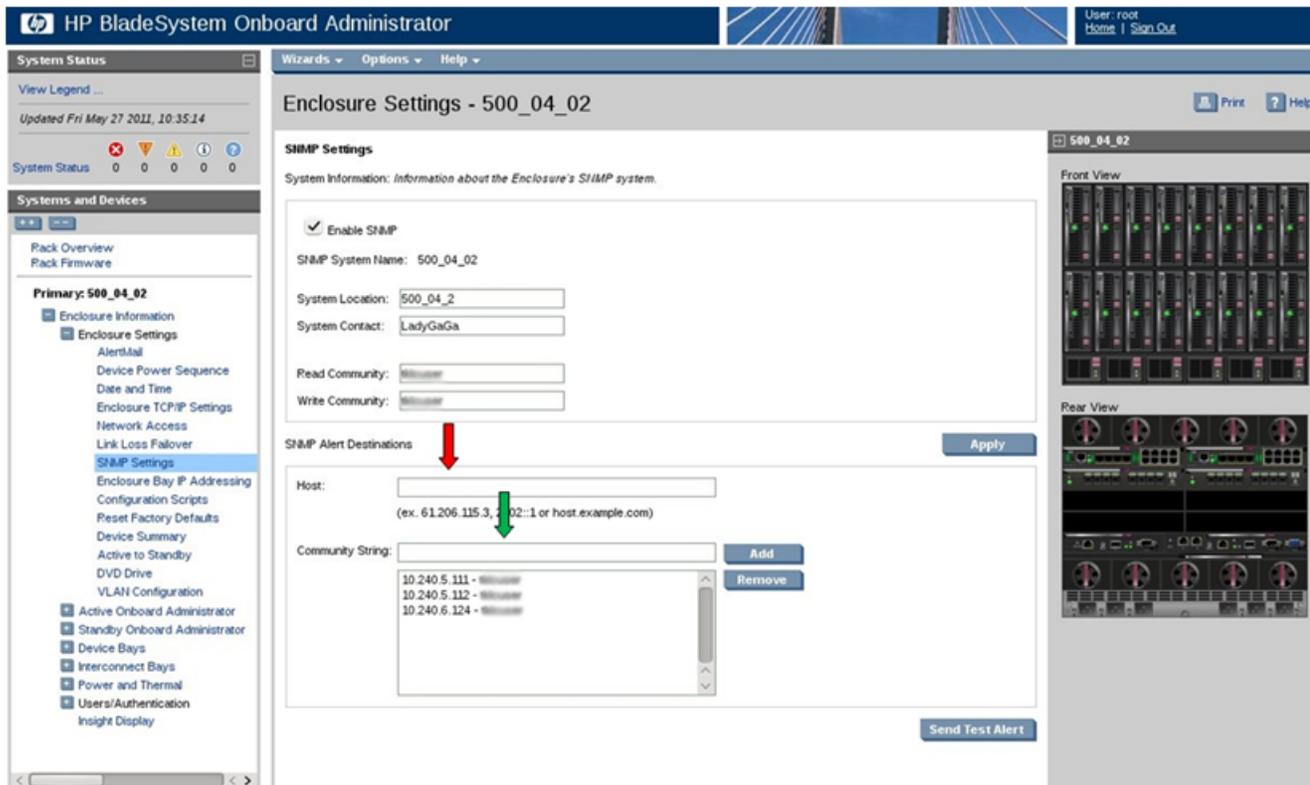
Navigate to the IP address of the active OA. Use [Determining which Onboard Administrator is Active](#) to determine the active OA. Login as an administrative user.

2. OA GUI: Add SNMP trap destination

Navigate to **Enclosure Information > Enclosure Settings > SNMP Settings**.



Type the host destination information into the 'Host:' box (indicated by the red arrow in the following figure). Additionally, type the community string to the 'Community String:' box (indicated by the green arrow in the following figure). Finally, click the **Add** button to the trap destination to the configuration.



The SNMP trap destination has now been added to the configuration and should show up in the list of configured destinations. Click **Apply** to activate the configuration. The following progress meter may appear.



When the progress meter disappears, the configuration has been applied.

3.5.10 Delete SNMP trap destination on OA.

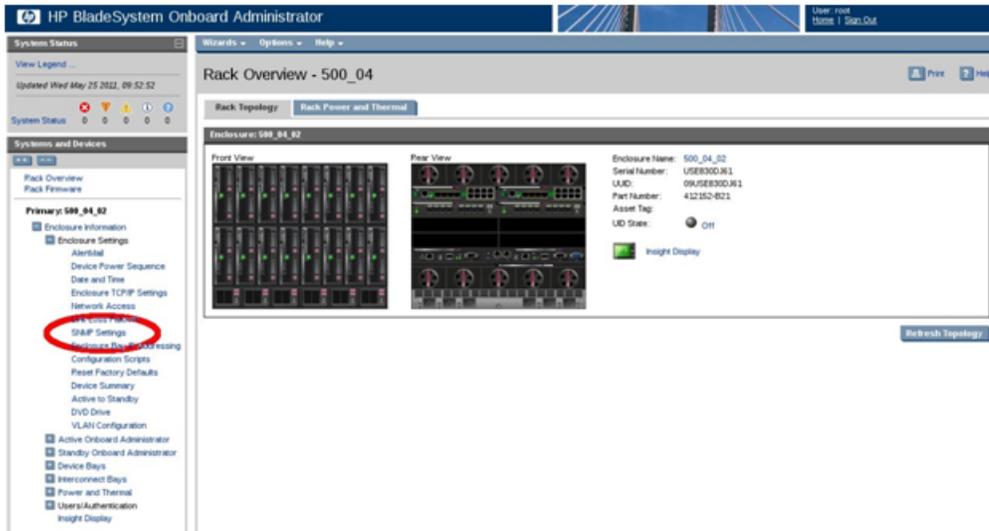
This procedure will remove an SNMP trap destination from the Onboard Administrator.

1. Active OA GUI: Login

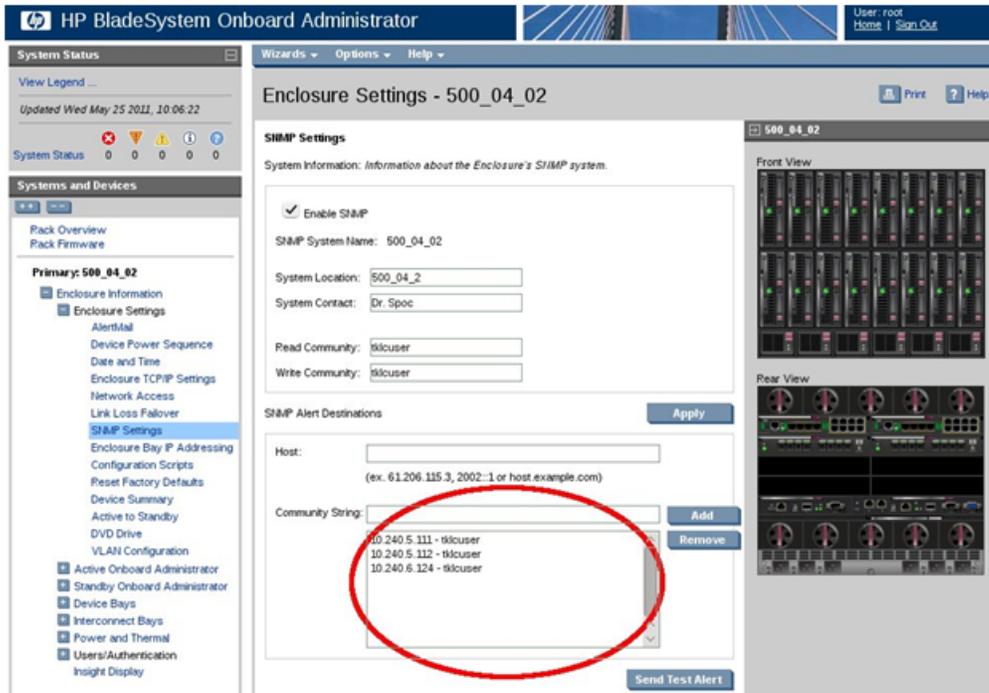
Navigate to the IP address of the active OA. Use *Determining which Onboard Administrator is Active* to determine the active OA. Log in as an administrative user.

2. OA GUI: Remove SNMP trap destination

Navigate to **Enclosure Information > Enclosure Settings > SNMP Settings**



All configured SNMP trap destinations will be shown in the box in the center of the SNMP Settings page.



Select the trap destination that will be removed and click the **Remove** button.

The SNMP trap destination has now been removed from the configuration and will no longer be listed as a configured destination. Click **Apply** to activate the configuration. The following progress meter will appear.



When the progress meter disappears the configuration has been applied.

3.6 DL360 and DL380 Server Procedures

3.6.1 IPM DL360 or DL380 Server

This procedure provides instructions for configuring and IPMing the DL360 or DL380 server.

Needed material:

- 909-2130-001 Initial Product Manufacture [2]

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Configure and IPM the DL360 or DL380 server

Initial Product Manufacture: Follow Initial Product Manufacture Appendix D to configure and IPM the management server.

Follow 909-2130-001 Initial Product Manufacture, section 3.1 through 3.4 to configure and IPM the management server

For a DL360/G5 server, the correct options to use for the IPM of the management server are:

```
TPDnoraid console=tty0
```

For a DL360 G6/G7 or DL380 G6/Gen8 server, the correct options to use for the IPM of the management server are:

```
TPDnoraid console=tty0 diskconfig=HPHW,force
```

2. Verify the initial product manufacture

Follow 909-2130-001 Initial Product Manufacture, section 3.5 to verify the IPM completed successfully.

3.6.2 Upgrade DL360 or DL380 Server Firmware

This procedure will upgrade the DL360 or DL380 server firmware.

The service Pack for ProLiant (SPP) installer automatically detects the firmware components available on the target server and will only upgrade those components with firmware older than what is on the current ISO.

Prerequisites:

- [3.6.1 IPM DL360 or DL380 Server](#) has been completed

Procedure Reference Tables:

Variable	Value
<ilo_IP>	Fill in the IP address of the iLO for the server being upgraded _____
<ilo_admin_user>	Fill in the username of the iLO's Administrator User _____
<ilo_admin_password>	Fill in the password for the iLO's Administrator User _____
<local_HPSPP_image_path>	Fill in the filename for the HP Support Pack for ProLiant ISO _____
<admusr_password>	Fill in the password for the admusr user for the server being upgraded _____

Needed Material:

- Tekelec's HP Service Pack for ProLiant (SPP) USB media or ISO file
- Tekelec's HP Misc Firmware USB media or ISO file (for errata updates is applicable)
- HP Solutions Firmware Upgrade Pack Release Notes [3]

Important Notes for this Procedure: The following procedure has some instructions meant for a production system in the field and you should be aware of the following notes regarding this procedure:

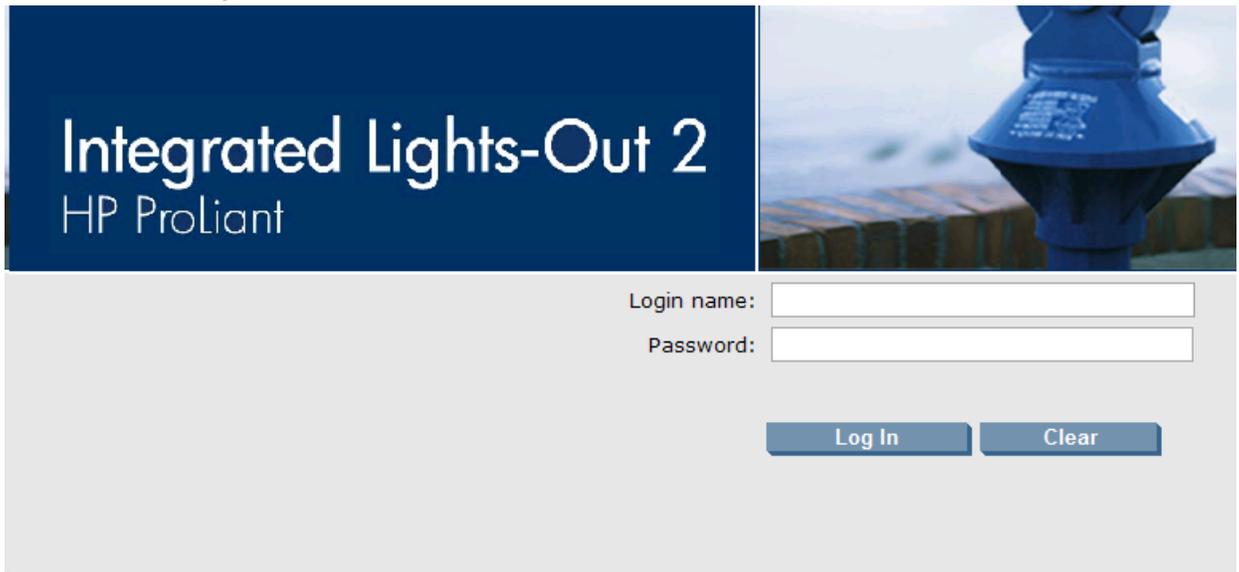
- Ignore references to the "Copy the ISO Images to the Workstation" procedure. Know that you must have the ISO files listed in the "Needed Material" section above.
- Ignore the <local_HPSUF_image_path> variable.
- For the "Update Firmware Errata" step check the HP Solutions Firmware Upgrade Pack Release Notes [3] to see if there are any firmware errata items that apply to the server being upgraded. If there is, there will be a directory matching the errata's ID in the /errata directory of the HP Misc Firmware ISO. The errata directories contain the errata firmware and a README file detailing the installation steps.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

- 1. Local Workstation:** Insert the USB Flash Drive.
If starting with the Tekelec USB media, insert the SPP USB media into a USB port on the server.
- 2. Local Workstation:** Access the iLO Web GUI.
Access the ProLiant Server iLO Web Login Page from an Internet Explorer® session using the following URL:

```
https://<ilo_IP>/
```

3. **iLO Web GUI:** Login to iLO as an "administrator" user.



Username = <iilo_admin_user>

Password = <iilo_admin_password>

4. **Determine which iLO steps to take**
 - a) If you are upgrading a G6 (iLO 2) server, continue at the next step.
 - b) If you are upgrading a G7/Gen8 (iLO3/iLO4) server, continue at step 13.

5. **iLO 2 Web GUI:**

If using SPP USB media plugged into the server, skip to step 10

Select Virtual Media page.

Click the **Virtual Media** tab from the System Summary page.



6. **iLO 2 Web GUI:**

Open the Virtual Media Applet .

Click on the **Virtual Media Applet** link to launch the Virtual Media application

The iLO GUI should open to the **Virtual Media** page.



7. **iLO 2 Web GUI: Acknowledge Security Warning.**

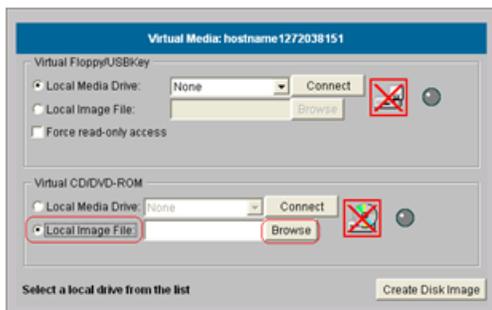
If a dialog similar to the one below is presented, click **Yes** to acknowledge the issue and proceed.



If other warning dialogs are presented you may also acknowledge them as well to proceed to the Virtual Media applet.

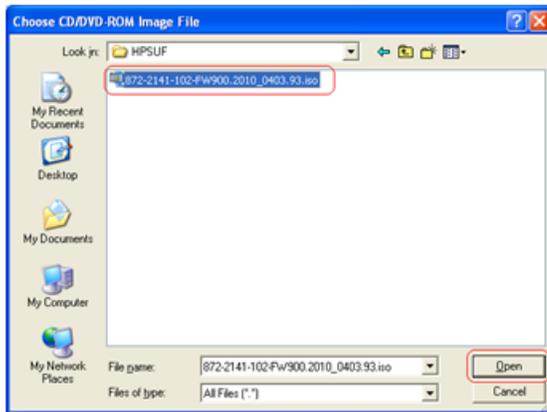
8. **iLO 2 VM Applet: Select the HP Support Pack for ProLiant ISO.**

In the Virtual CD/DVD-ROM Panel, select the **Local Image File** option and click the **Browse** button. Navigate to the *HP Smart Update Firmware* ISO file copied to the workstation in the Copy the ISO images to the workstation procedure.

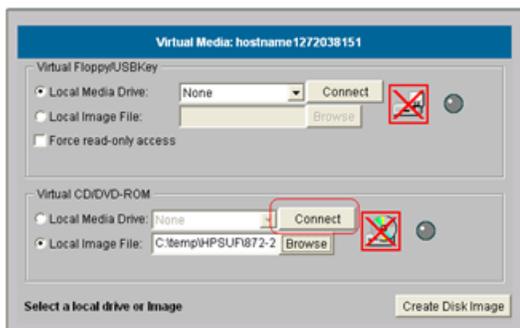


Select ISO image file and click **Open**.

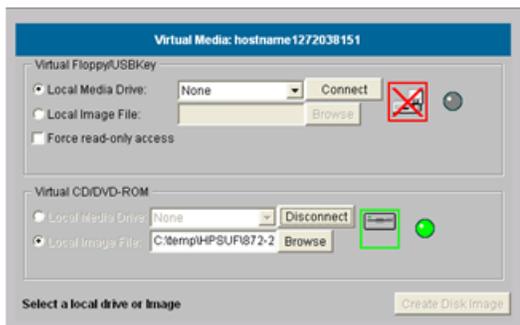
Image File Name: <local_HPSPPP_image_path> (See Copy the ISO images to the workstation)



9. **iLO 2 VM Applet: Create Virtual Drive Connection.**
Click the **Connect** button to create a virtual DVD-ROM connection to the ISO image file.



When created the LED Light icon should be green.

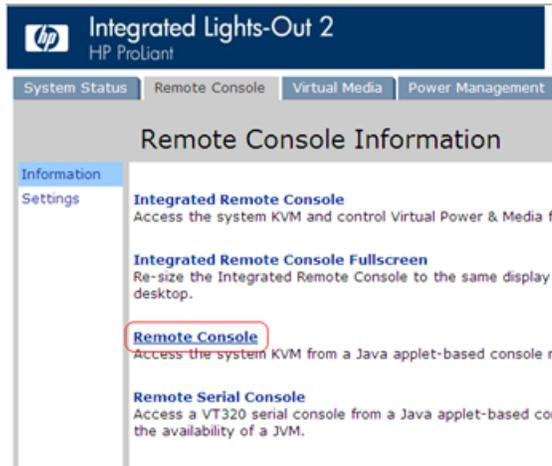


At this point, **DO NOT** close the applet but rather go back to the browser window containing the iLO Web GUI.

10. **iLO 2 Web GUI: Access the Remote Console Page.**
At the ILO2 Web GUI, click on the **Remote Console** tab.



11. **iLO 2 Web GUI:** Launch the Remote Console Applet.
On the Remote Console page, click on the **Remote Console** link to launch the console applet.



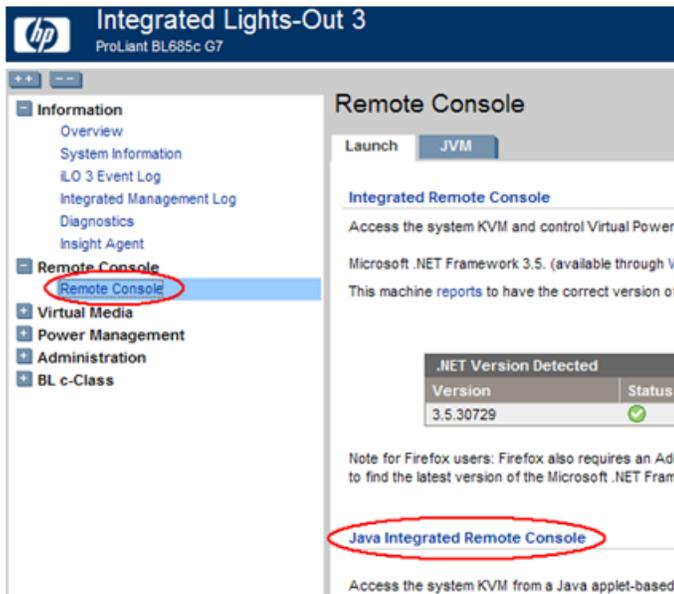
12. **iLO 2 - Java Security Prompt:** Acknowledge Security Warning
If a dialog similar to the one below is presented, click **Yes** to acknowledge the issue and proceed.
Then skip to step 16.



If other warning dialogs are presented you may also acknowledge them as well to proceed to the Java Integrated Remote Console applet.

13. **iLO3/iLO4 Web GUI:** Launch the Java Integrated Remote Console applet.

On the menu to the left navigate to the Remote Console page. Click on the Java Integrated Remote Console to open it.



14. iLO3/iLO4 - Java Security Prompt: Acknowledge Security Warning.

If a dialog similar to the one below is presented, click **Yes** to acknowledge the issue and proceed.

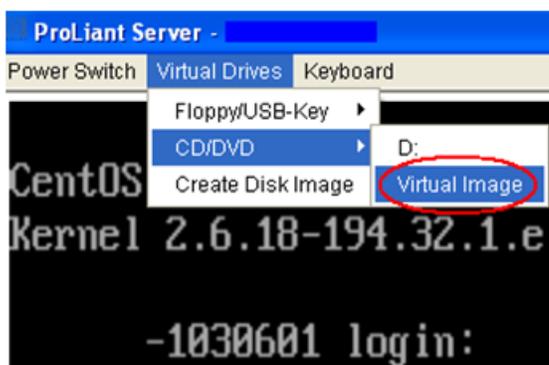


If other warning dialogs are presented you may also acknowledge them as well to proceed to the Java Integrated Remote Console applet.

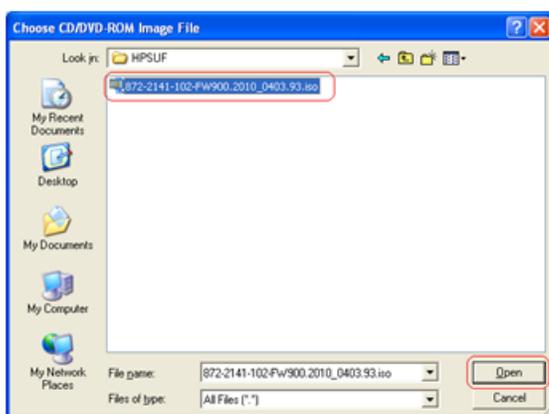
15. iLO3/iLO4 - Remote Console: Create Virtual Drive Connection

If using SPP USB media plugged into the server, skip to step 17

Click on the Virtual Drives drop down menu. Go to CD/DVD then click on Virtual Image.



Navigate to the *HP Support Pack for ProLiant ISO* ISO file copied to the workstation from the Copy the ISO images to the workstation procedure.



Select the ISO image file and click **Open**.

16. iLO3/iLO4 - Remote Console: Verify Virtual Image connection.

At the bottom of the remote console window you should now see a green highlighted drive icon and "VirtualM" written next to it.



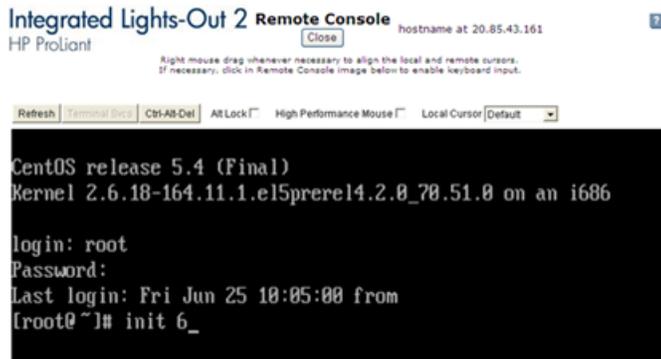
17. Remote Console: Reboot the server.

Once the remote console application opens to the login prompt, login to the server as admusr.

```
localhost login: admusr
Password: <admusr_password>
```

Next, initiate server reboot by executing the following command:

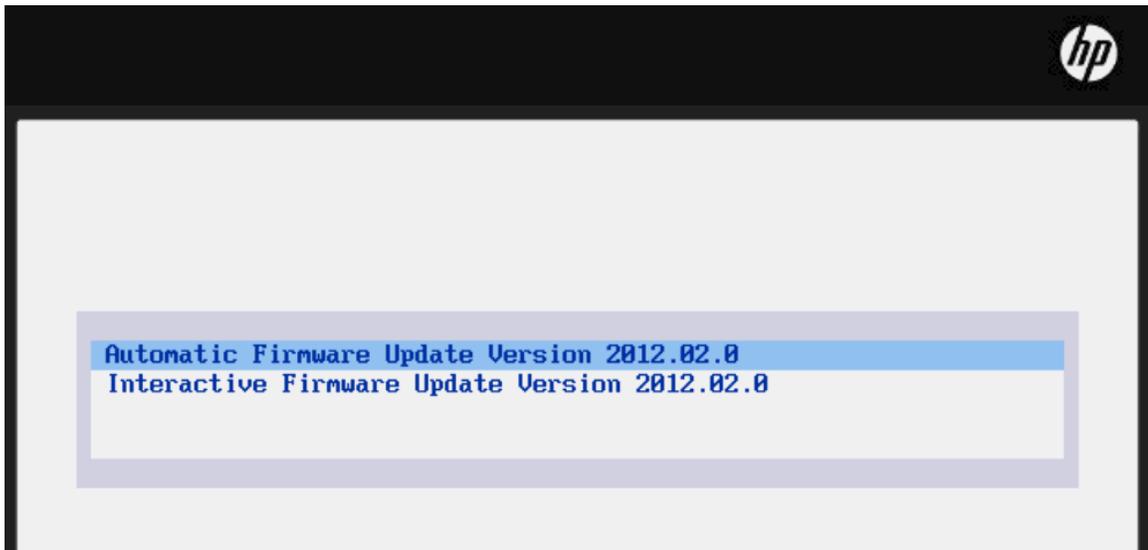
```
$ sudo init 6
```



18. Remote Console: Perform an unattended firmware upgrade.

The server will reboot into the *HP Support Pack for ProLiant ISO* ISO and present the following boot prompt.

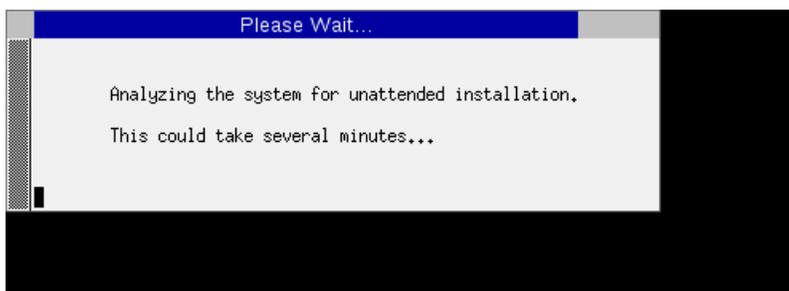
Press [Enter] to select the **Automatic Firmware Update** procedure.



If no key is pressed in 30 seconds the system will automatically perform an Automatic Firmware Update.

19. Remote Console: Analyze System.

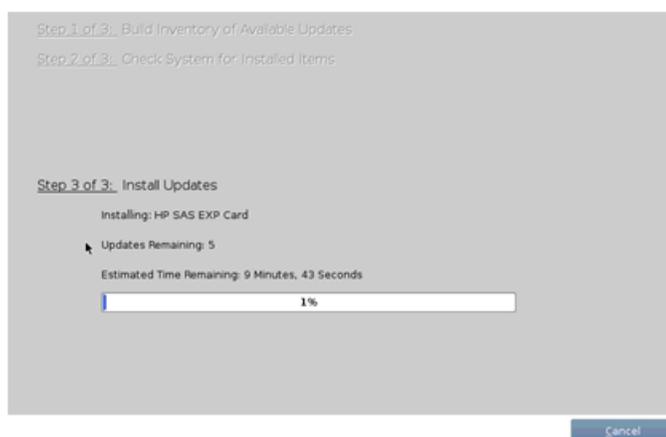
The firmware install will perform a system scan of the server in which it will identify all of the firmware components that are eligible for upgrade. This process may take up to 10 minutes and, during that time, the following screen is displayed on the console.



Note: No progress indication is displayed during the system scan and analysis stage. In about 10 minutes, the installation will automatically proceed to the next step.

20. Remote Console: Monitor Installation.

Once analysis is complete, the installer will begin to upgrade the eligible firmware components. A progress indicator is displayed at this time, as shown below.



Note: If the iLO firmware is to be upgraded, it will be upgraded last. At this point the iLO2 session will be terminated and you will lose the remote console, virtual media and Web GUI connections to the server. This is expected and will not impact the firmware upgrade process.

21. Local Workstation: Clean up.

Once the firmware updates have been completed the server will automatically be rebooted.

- If you are upgrading a **G5/G6 (iLO 2)** server; at this time you may close the remote console and virtual media applet windows and the iLO2 Web GUI browser session.
- If you are upgrading a **G7/Gen8 (iLO3/iLO4)** server; closing the remote console window will disconnect the Virtual Image and you can close the iLO3/iLO4 Web GUI browser session.
- If you are using SPP USB media plugged into the server you can now remove it.

Note: Servers running TPD 3.3.x need to have their iLO 2 immediately downgraded before moving on. In the *HP Solutions Firmware Upgrade Release Notes* refer to the section "HP Errata Firmware Components".

22. Local Workstation: Verify server availability

Wait 3 to 5 minutes and verify the server has rebooted and is available by gaining access to the login prompt.

23. Update Firmware Errata:

Refer to the ProLiant Server Firmware Errata section to determine if this HP Solutions Firmware Update Pack contains additional firmware errata updates that should be applied to the server at this time.

24. Remove the firmware Media:

Remove the HP Smart Update Firmware DVD/USB media from the server drive, or USB port. Exit from the remote console.

25. Repeat for all remaining RMSs:

Repeat this procedure for all remaining RMSs, if any.

3.7 PM&C Procedures

3.7.1 Deploying Virtualized PM&C Overview

Deployment Procedure

Deploying a VM guest in the absence of a PM&C is a bit complicated. To facilitate this, the PM&C media will include a guest archive and a script that will deploy the running PM&C into a state where the Initialization process can begin.

- Install TVOE 2.5 on the management server via the ILO
- Create and configure the management bridge
- Determine if NetBackup Feature is enabled for this system. If enabled, install appropriate NetBackup client to the PM&C TVOE host.
- Attach PM&C media to the TVOE (CDR, USB)
- Mount the media
- Use the <mount-point>/upgrade/pmac-deploy script to create the VM and configure the guest on the first boot.
- Navigate browser to the management IP address of the deployed PM&C.
- Perform Initial Configuration.

What You Will Need -- Worksheet

Use the completed NAPD information to fill in the appropriate data in this Procedure's Reference tables. The following are provided to aid with the data collection for the TVOE management server and the PM&C Application hosted on the Management Server TVOE.

- Determine if the network configuration of this management server is Non-Segregated or Segregated.
- Determine the TVOE management server's required network interface, bond, and Ethernet device, and route data.
- Determine if the control network on the TVOE management server is to be tagged. If appropriate fill in the <control VLAN ID> value in the table, otherwise the control network is not tagged.
- Determine if the management network on the TVOE management Server is to be tagged. If appropriate fill in the <management_VLAN_ID> value in the table, otherwise the management network is not tagged.

- Determine the bridge name to be used on the TVOE management server for the management network. Fill in the <TVOE_Management_Bridge> value in the table.
- Determine if the NetBackup feature is enabled
 - Determine the NetBackup network on the TVOE management server is to be tagged. If appropriate fill in the <NetBackup_VLAN_ID> value in the table, otherwise the NetBackup network is not tagged.
 - Determine the bridge name to be used on the TVOE management server for the NetBackup network. Fill in the <TVOE_NetBackup_Bridge> value in the table.
 - Determine if the NetBackup network is to be configured with jumbo frames. If appropriate fill in the <NetBackup_MTU_size> value in the table, otherwise the NetBackup network will use the default MTU size.
 - If the PM&C NetBackup feature is enabled, and the backup service will be routed, with a source interface different than the management interface where the default route is applied, then define the route during PM&C initialization as a host route to the NetBackup server.
- The PM&C initialization profiles have been designed to configure the PM&C's networks and features. Profiles must identify interfaces. Existing profiles provided by PM&C use standard named interfaces (control, management). No vlan tagging is expected on the PM&C's interfaces, all tagging should be handled on the TVOE management server configuration.

Network Interface	DL360 (without HP NC364T 4pt Gigabit)	DL360 (with HP NC364T 4pt Gigabit in PCI Slot 2)	DL380	DL380 (with HP 4pt Gigabit in PCI Slot 1)	DL380 (with HP 4pt Gigabit in PCI Slot 3)
<ethernet_interface_1>	eth01	eth01	eth01	eth01	eth01
<ethernet_interface_2>	eth02	eth02	eth02	eth02	eth02
<ethernet_interface_3>		eth21	eth03	eth03	eth03
<ethernet_interface_4>		eth22	eth04	eth04	eth04
<ethernet_interface_5>		eth23		eth11	eth31

PM&C Interface Alias	TVOE Bridge Name	TVOE Bridge Interface
control	control	Fill in the appropriate value for this site (default is bond0): _____ <TVOE_Control_Bridge_Interface>
management	Fill in the appropriate value for this site: _____ <TVOE_Management_Bridge>	Fill in the appropriate value for this site: _____ <TVOE_Management_Bridge_Interface>

PM&C Interface Alias	TVOE Bridge Name	TVOE Bridge Interface
NetBackup	Fill in the appropriate value for this site: _____	Fill in the appropriate value for this site: _____
	<TVOE_NetBackup_Bridge>	<TVOE_NetBackup_Bridge_Interface>

Fill in the appropriate value for this site:

Variable	Value	Description
<control_VLAN_ID>		For non-segregated networks, the control network may have a VLAN id assigned. In most cases, there is none.
<management_VLAN_ID>		For non-segregated networks, the management network will be on a tagged VLAN coming in on bond0
<mgmtVLAN_gateway_address>		Gateway address used for routing on the management network.
<NetBackup_server_IP>		The IP address of the remote NetBackup Server.
<NetBackup_VLAN_ID>		For non-segregated networks, the NetBackup network will be on a tagged VLAN coming in on bond0
<NetBackup_gateway_address>		Gateway address used for routing on the NetBackup network.
<NetBackup_network_ip>		The Network IP for the NetBackup network
<PMAC_NetBackup_netmask>		The IP netmask assigned to the PM&C for participation in the NetBackup network
<PMAC_NetBackup_ip_address>		The IP Address assigned to the PM&C for participation in the NetBackup network
<NetBackup_MTU_size>		If desired, the MTU size can be set to tune the NetBackup network traffic.
<management_server_mgmt_ip_address>		The TVOE Management Server's IP address on the management network.

Variable	Value	Description
<PMAC_mgmt_ip_address>		The PM&C Application's IP address on the management network.
<mgmt_netmask>		The IP netmask for the management network.
<PMAC_control_ip_address>		The PM&C Application's IP address on the control network.
<control_netmask>		The IP netmask for the control network.

Fill in the appropriate value for this site:

Network Bond Interface	Enslaved Interface 1	Enslaved Interface 2
bond0		
For Segregated Networks Only		
bond1		
bond2		Bonding used for abstraction only, not multiple interfaces

3.7.2 Installing TVOE on the Management Server

Install the TVOE Hypervisor platform on the Management Server

The PM&C is not available to do an IPM of the TVOE management server. It is necessary to physically provide the TVOE media via a USB or optical.

Prerequisites:

- TVOE installation media
Install TVOE onto the Management Server
Follow [3.6.1 IPM DL360 or DL380 Server](#) to IPM the management server with TVOE.

3.7.3 TVOE Network Configuration

Prerequisites:

- [3.7.2 Installing TVOE on the Management Server](#)
1. **TVOE Management Server iLO:** Login to the management server on the remote console
Login to iLo using application provided passwords via Appendix G [How to Access a Server Console using the iLO](#)
Login to iLO in IE using password provided by application:

```
http://<management_server_iLO_ip>
```

Click in the Remote Console tab and launch the Integrated Remote Console on the server.

Click Yes if the Security Alert pops up.

2. TVOE Management Server: Verify the control network bond

Note: The output below is for illustrative purposes only. It shows the control bond configured.

```
$ sudo /usr/TKLC/plat/bin/netAdm query --device=<TVOE_Control_Bridge_Interface>
  Protocol: none
  On Boot: yes
  IP Address:
  Netmask:
Bonded Mode: active-backup
  Enslaving: <ethernet_interface_1> <ethernet_interface_2>
```

If the bond has been configured, skip to the next step.

Note: The output below is for illustrative purposes only. The site information for this system will determine the network interfaces, (network devices, bonds, and bond enslaved devices), to configure.

Create control bond (<TVOE_Control_Bridge_Interface>).

```
$ sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_Control_Bridge_Interface>
--onboot=yes --type=Bonding --mode=active-backup --miimon=100
Interface <TVOE_Control_Bridge_Interface> added

$ sudo /usr/TKLC/plat/bin/netAdm set --device=<ethernet_interface_1>
--type=Ethernet --master=<TVOE_Control_Bridge_Interface> --slave=yes --onboot=yes
Interface <ethernet_interface_1> updated

$ sudo /usr/TKLC/plat/bin/netAdm set --device=<ethernet_interface_2>
--type=Ethernet --master=<TVOE_Control_Bridge_Interface> --slave=yes --onboot=yes
Interface <ethernet_interface_2> updated
```

3. TVOE Management Server: Verify the control network bridge

Note: The output below is for illustrative purposes only. It shows the control bridge configured.

```
$ sudo /usr/TKLC/plat/bin/netAdm query --type=Bridge --name=control
Bridge Name: control
  On Boot: yes
  Protocol: dhcp
  Persistent: yes
  Promiscuous: no
  Hwaddr: 00:24:81:fb:29:52
  MTU:
Bridge Interface: bond0
```

If the bridge has been configured, skip to the next step.

Note: The output below is for illustrative purposes only. The site information for this system will determine the network interfaces, (network devices, bonds, and bond enslaved devices), to configure. Create control bridge (<TVOE_Control_Bridge>).

```
$ sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=<TVOE_Control_Bridge>
--bootproto=dhcp --onboot=yes --bridgeInterfaces=<TVOE_Control_Bridge_Interface>
```

4. TVOE iLO: Create tagged control interface and bridge (optional)

If you are using a tagged control network interface on this PMAC, then complete this step. Otherwise, proceed to the next step now.

```
$ sudo /usr/TKLC/plat/bin/netAdm set --type=Bridge --name=control
--delBridgeInt=bond0
Interface bond0 updated
Bridge control updated
$ sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_Control_Bridge_Interface>
Interface <TVOE_Control_Bridge_Interface> created
$ sudo /usr/TKLC/plat/bin/netAdm set --type=Bridge --name=control
--bridgeInterfaces=<TVOE_Control_Bridge_Interface>
```

5. TVOE Management Server: Verify the tagged/non-segregated management network

Note: This step only applies if the management network is tagged (non-segregated).

Note: The output below is for illustrative purposes only. It shows the management bridge configured on a non-segregated network setup.

```
$ sudo /usr/TKLC/plat/bin/netAdm query --device=bond0.2
  Protocol:  none
  On Boot:  yes
  IP Address:
  Netmask:
  Bridge:   Member of bridge management
```

If the device has been configured, skip to the next step.

Note: The output below is for illustrative purposes only. The site information for this system will determine the network interfaces, (network devices, bonds, and bond enslaved devices), to configure.

Note: The example below illustrates a PM&C management server configuration in a Non-Segregated network, an un-tagged control network, and a tagged management network.

For this example created tagged device for management device.

```
$ sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_Management_Bridge_Interface>
--onboot=yes
Interface <TVOE_Management_Bridge_Interface> added
```

6. TVOE Management Server: Verify the untagged/segregated management network

Note: This step only applies if the management network is untagged (segregated).

Note: The output below is for illustrative purposes only. It shows the management bond configured on a segregated network setup.

```
$ sudo /usr/TKLC/plat/bin/netAdm query --device=<TVOE_Management_Bridge_Interface>
  Protocol:  none
  On Boot:  yes
  IP Address:
  Netmask:
  Bonded Mode:  active-backup
  Enslaving:  <ethernet_interface_3> <ethernet_interface_4>
```

If the bond has been configured, skip to the next step.

Note: The output below is for illustrative purposes only. The site information for this system will determine the network interfaces, (network devices, bonds, and bond enslaved devices), to configure.

```
$ sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_Management_Bridge_Interface>
--onboot=yes --type=Bonding --mode=active-backup --miimon=100
Interface <TVOE_Management_Bridge_Interface> added
$ sudo /usr/TKLC/plat/bin/netAdm set --device=<ethernet_interface_3>
--type=Ethernet --master=<TVOE_Management_Bridge_Interface> --slave=yes
--onboot=yes
Interface <ethernet_interface_3> updated
$ sudo /usr/TKLC/plat/bin/netAdm set --device=<ethernet_interface_4>
--type=Ethernet --master=<TVOE_Management_Bridge_Interface> --slave=yes
--onboot=yes
Interface <ethernet_interface_4> updated
```

7. TVOE Management Server: Verify the management bridge

Note: The output below is for illustrative purposes only. It shows the management bridge configured on a non-segregated network setup.

```
$ sudo /usr/TKLC/plat/bin/netAdm query --type=Bridge --name=management
Bridge Name: management
  On Boot: yes
  Protocol: none
  IP Address: 10.240.4.86
  Netmask: 255.255.255.0
Promiscuous: no
  Hwaddr: 00:24:81:fb:29:52
  MTU:
Bridge Interface: bond0.2
```

If the bridge has been configured, skip to the next step.

Note: The output below is for illustrative purposes only. The site information for this system will determine the network interfaces, (network devices, bonds, and bond enslaved devices), to configure.

For this example created tagged device for management bridge.

```
$ sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=<TVOE_Management_Bridge>
--address=<management_server_mgmtVLAN_IP> --netmask=<mgmtVLAN_netmask>
--onboot=yes --bridgeInterfaces=<TVOE_Management_Bridge_Interface>
```

8. TVOE Management Server: Verify the NetBackup network (if needed)

If the NetBackup feature is not needed, skip to the next step.

Note: The output below is for illustrative purposes only. It shows the **NetBackup** bridge is configured.

```
$ sudo /usr/TKLC/plat/bin/netAdm query --type=Bridge --name=netbackup
Bridge Name: netbackup
  On Boot: yes
  Protocol: none
  IP Address: 10.240.6.2
  Netmask: 255.255.255.0
Promiscuous: no
  Hwaddr: 00:24:81:fb:29:58
  MTU:
Bridge Interface: bond2
```

If the bridge has been configured, skip to the next step.

Note: The output below is for illustrative purposes only. The site information for this system will determine the network interfaces, (network devices, bonds, and bond enslaved devices), to configure.

Note: The example below illustrates a TVOE management server configuration with the NetBackup feature enabled. The NetBackup network is configured with a non-default MTU size.

Note: The MTU size must be consistent between a network bridge, device, or bond, and associated VLANs.

Select **only one** of the following configurations:

- Option 1: Create NetBackup bridge using a bond containing an untagged interface.

```
$ sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_NetBackup_Bridge_Interface>
--onboot=yes --type=Bonding --mode=active-backup --miimon=100
--MTU=<NetBackup_MTU_size>
Interface <TVOE_NetBackup_Bridge_Interface> added
$ sudo /usr/TKLC/plat/bin/netAdm set --device=<ethernet_interface_5>
--type=Ethernet --master=<TVOE_NetBackup_Bridge_Interface> --slave=yes --onboot=yes
--MTU=<NetBackup_MTU_size>
Interface <ethernet_interface_5> updated
$ sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=<TVOE_NetBackup_Bridge>
--bootproto=none --onboot=yes --MTU=<NetBackup_MTU_size>
--bridgeInterfaces=<TVOE_NetBackup_Bridge_Interface> --address=<TVOE_NetBackup_IP>
--netmask=<TVOE_NetBackup_Netmask>
```

- Option 2: Create NetBackup bridge using an untagged native interface.

```
$ sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=<TVOE_NetBackup_Bridge>
--bootproto=none --onboot=yes --MTU=<NetBackup_MTU_size>
--bridgeInterfaces=<Ethernet_interface_5> --address=<TVOE_NetBackup_IP>
--netmask=<TVOE_NetBackup_Netmask>
```

- Option 3: Create NetBackup bridge using a tagged device.

```
$ sudo /usr/TKLC/plat/bin/netAdm add --device=<TVOE_NetBackup_Bridge_Interface>
--onboot=yes
Interface <TVOE_NetBackup_Bridge_Interface> added
$ sudo /usr/TKLC/plat/bin/netAdm add --type=Bridge --name=<TVOE_NetBackup_Bridge>
--onboot=yes --MTU=<NetBackup_MTU_size>
--bridgeInterfaces=<TVOE_NetBackup_Bridge_Interface> --address=<TVOE_NetBackup_IP>
--netmask=<TVOE_NetBackup_Netmask>
```

9. TVOE Management Server: Setup syscheck

syscheck must be configured to monitor bond interfaces. Replace "**bondedInterfaces**" with "**bond0**" or "**bond0 ,bond1**" if segregated networks are used:

```
$ sudo /usr/TKLC/plat/bin/syscheckAdm net ipbond --set --var=DEVICES
--val=<bondedInterfaces>
$ sudo /usr/TKLC/plat/bin/syscheckAdm net ipbond -enable
$ sudo /usr/TKLC/plat/bin/syscheck -v net ipbond
```

Note: The following is an example of the setup of syscheck with a single bond, bond0:

```
$ sudo /usr/TKLC/plat/bin/syscheckAdm net ipbond --set --var=DEVICES --val=bond0
$ sudo /usr/TKLC/plat/bin/syscheckAdm net ipbond -enable
$ sudo /usr/TKLC/plat/bin/syscheck -v net ipbond
```

Note: The following is an example of the setup of syscheck with multiple bonds, bond0 and bond1:

```
$ sudo /usr/TKLC/plat/bin/syscheckAdm net ipbond --set --var=DEVICES
--val=bond0,bond1
$ sudo /usr/TKLC/plat/bin/syscheckAdm net ipbond -enable
$ sudo /usr/TKLC/plat/bin/syscheck -v net ipbond
```

10. TVOE Management Server: Verify the default route

Note: The output below is for illustrative purposes only. It shows the default route on the management bridge is configured.

```
$ sudo /usr/TKLC/plat/bin/netAdm query --route=default --device=management
Routes for TABLE: main and DEVICE: management
* NETWORK: default
  GATEWAY: 10.240.4.1
```

If the route has been configured, skip to the next step.

Note: The output below is for illustrative purposes only. The site information for this system will determine the network interfaces, (network devices, bonds, and bond enslaved devices), to configure.

For this example add default route on management network.

```
$ sudo /usr/TKLC/plat/bin/netAdm add --route=default
--device=<TVOE_Management_Bridge> --gateway=<mgmt_gateway_address>
Route to <TVOE_Management_Bridge> added
```

11. TVOE Management Server: Verify the NetBackup route (optional)

If the NetBackup network is a unique network for NetBackup data, verify the existence of the appropriate NetBackup route.

Note: The output below is for illustrative purposes only. It shows the route on the NetBackup bridge is configured.

If the NetBackup route is to be a network route, then:

```
$ sudo /usr/TKLC/plat/bin/netAdm query --route=net --device=<TVOE_NetBackup_Bridge>
Routes for TABLE: main and DEVICE: netbackup
* NETWORK: net
  GATEWAY: 169.254.253.1
```

If the NetBackup route is to be a host route then:

```
$ sudo /usr/TKLC/plat/bin/netAdm query --route=host
--device=<TVOE_NetBackup_Bridge>
Routes for TABLE: main and DEVICE: netbackup
* NETWORK: host
  GATEWAY: 169.254.253.1
```

If the route has been configured, skip to the next step.

Note: The output below is for illustrative purposes only. The site information for this system will determine the network interfaces (network devices, bonds, and bond enslaved devices) to configure.

For this example add network route on management network.

```
$ sudo /usr/TKLC/plat/bin/netAdm add --route=net --device=<TVOE_Management_Bridge>
--gateway=<NetBackup_gateway_address> --address=<NetBackup_network_IP>
--netmask=<TVOE_NetBackup_Netmask>
Route to <TVOE_NetBackup_Bridge> added
```

For this example add host route on management network.

Note: For the configuration of a host route, the <TVOE_NetBackup_Netmask> will be set to "255.255.255.255".

```
$ sudo /usr/TKLC/plat/bin/netAdm add --route=host --device=<TVOE_Management_Bridge>
--gateway=<NetBackup_Server_IP> --address=<NetBackup_Server_IP>
--netmask=<TVOE_NetBackup_Netmask>
Route to <TVOE_NetBackup_Bridge> added
```

12. TVOE Management Server: Set hostname

```
$ sudo /bin/su - platcfg
```

1. Navigate to **Server Configuration > Hostname** and set the hostname.
2. Set TVOE Management Server hostname
3. Press OK.
4. Navigate out of Hostname

13. TVOE Management Server: set time zone and/or hardware clock

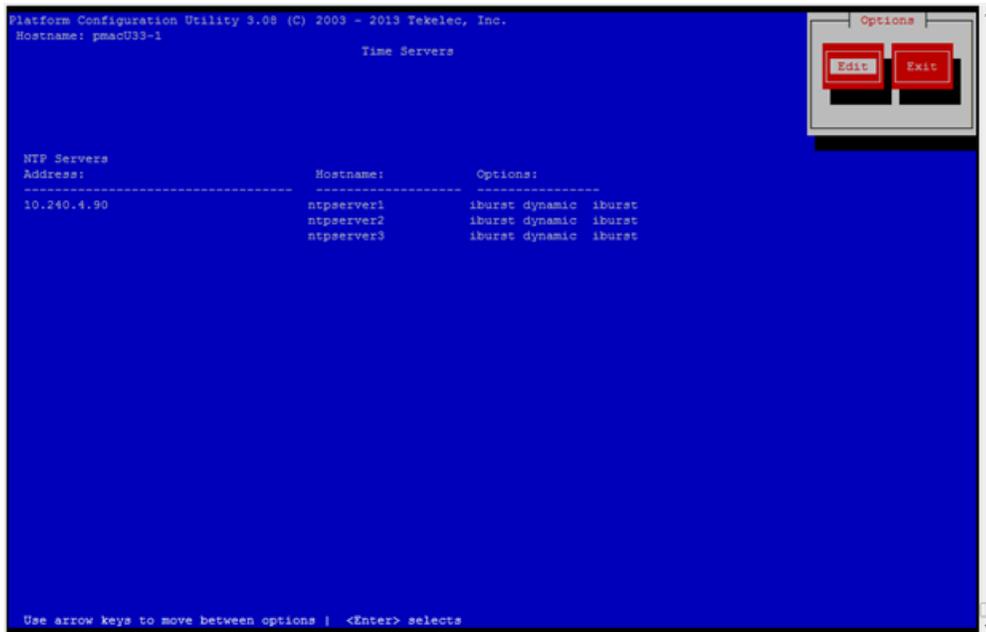
1. Navigate to **Server Configuration > Time Zone**.
2. Select Edit.
3. Set the time zone and/or hardware clock.
4. Press OK.
5. Navigate out of Server Configuration

14. This step will configure NTP servers for a server based on TPD.

1. **Server:** Login as platcfg

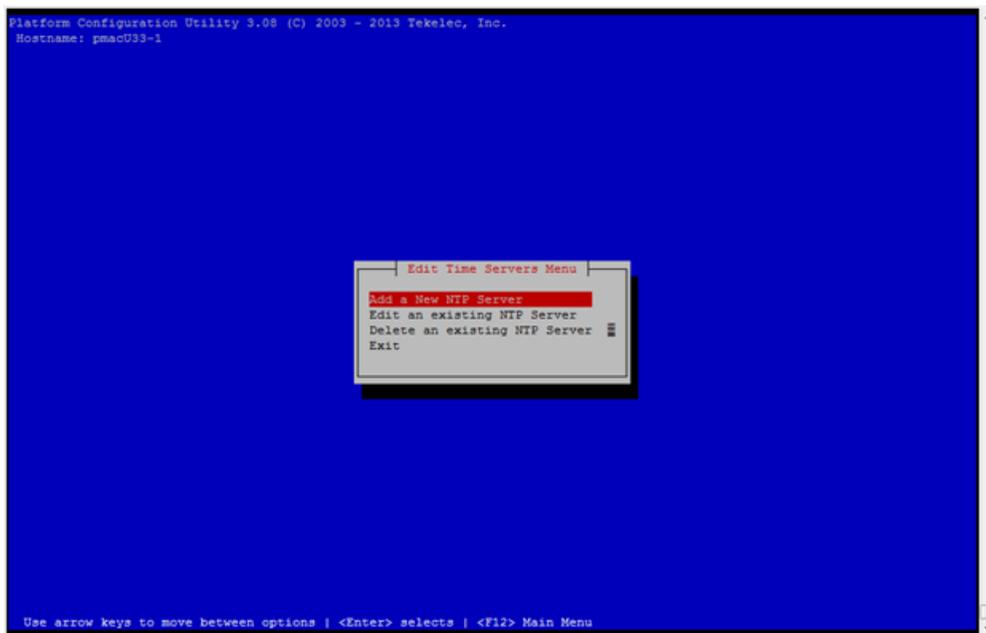
Login as platcfg user on the server. The platcfg main menu will be shown.

2. **Server:** Navigate to Time Servers configuration page. Select the following menu options sequentially: **Network Configuration > NTP**. The 'Time Servers' page will now be shown, which shows the configured NTP servers and peers.



3. **Server:** Update NTP Information

Select **Edit**. The **Edit Time Servers Menu** is displayed.



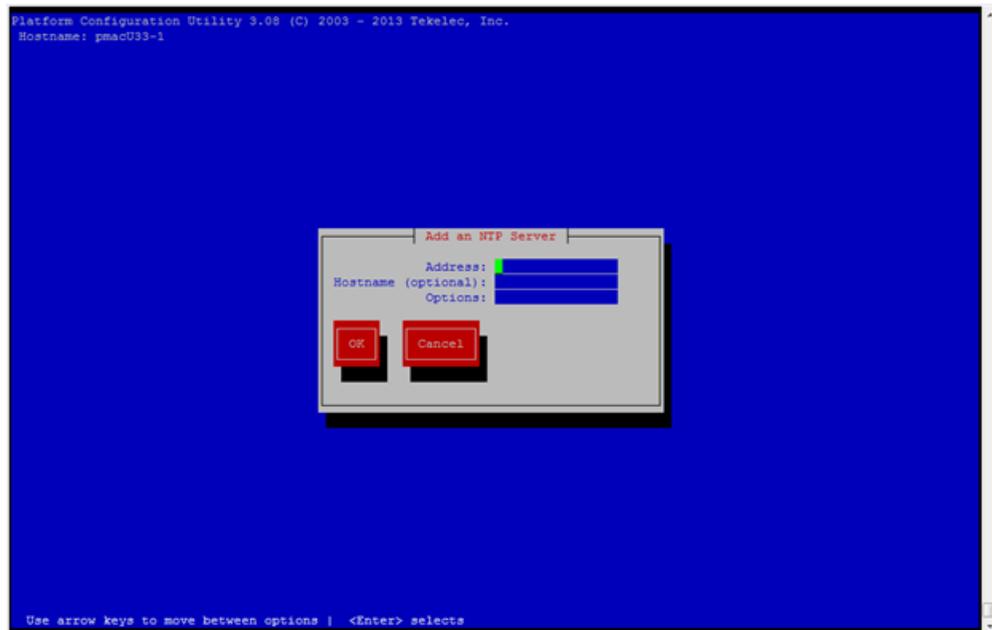
4. **Server:** Edit NTP Information

Select the appropriate **Edit Time Servers Menu** option. When all Time Server actions are complete exit the **Edit Time Servers Menu**.

a. **Adding an NTP Server**

a. **Server:** If adding a new NTP server select **Add a New NTP Server**.

The **Add an NTP Server** window is displayed.



- b. **Server:** Enter Appropriate data, and select **OK**

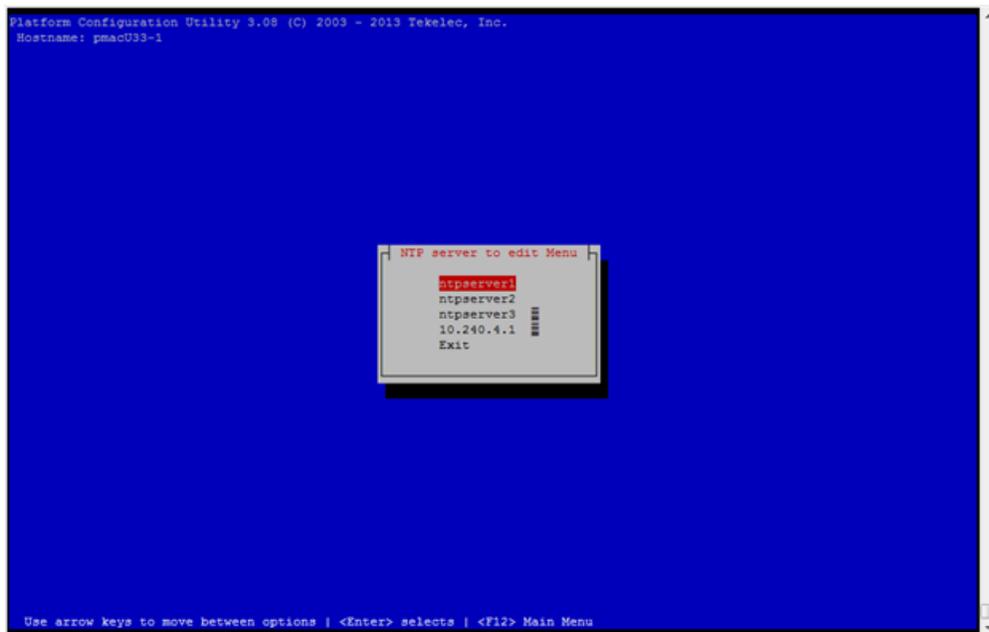
The NTP server is added. The **Edit Time Servers Menu** is displayed.

Note: The default NTP option is iburst. Additional NTP options are listed in the ntp.conf man page, some of the valid options are: burst, preferred, minpoll, and maxpoll.

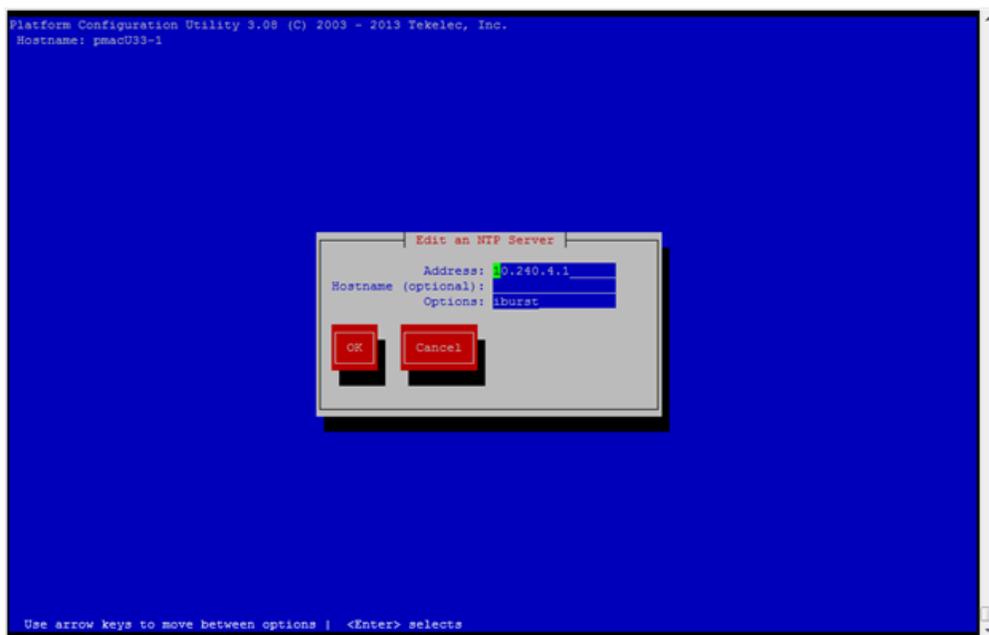
- b. **Editing an NTP Server**

- a. **Server:** If editing an existing NTP server select **Edit an existing NTP Server.**

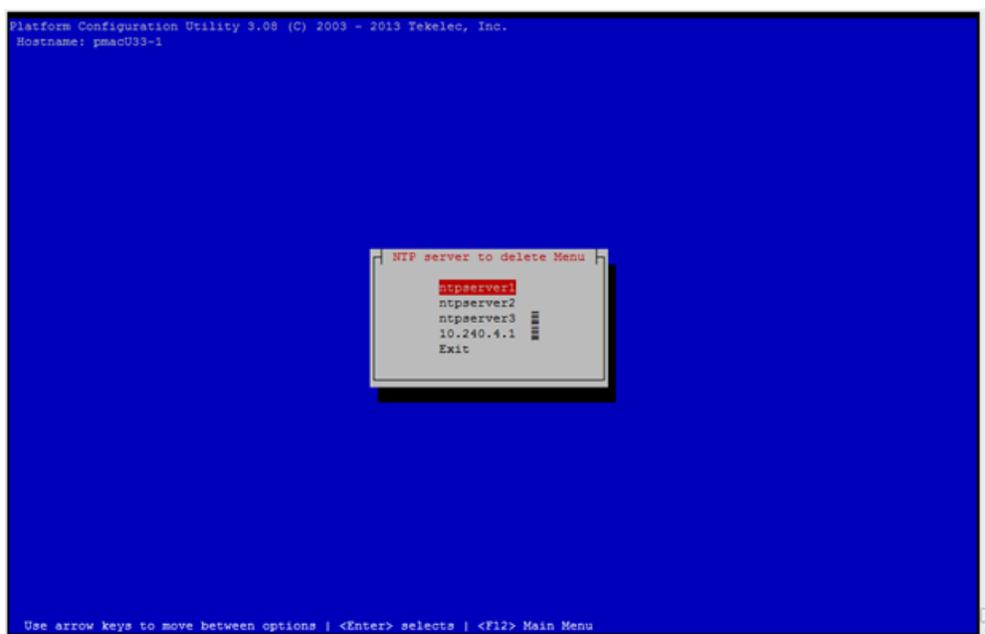
The **NTP Server to edit Menu** window is displayed.



- b. **Server:** Select appropriate NTP server.
 The Edit an NTP Server window is displayed.



- c. **Deleting an existing NTP Server**
 - a. **Server:** If deleting an existing NTP server, select **Delete an existing NTP Server**.
 The NTP server to delete Menu is displayed.



- b. **Server:** Select appropriate NTP server.

The NTP server is deleted. The **Edit Time Servers Menu** is displayed.

5. **Server:** Restart the NTP server

6. **Server:** Exit platcfg.

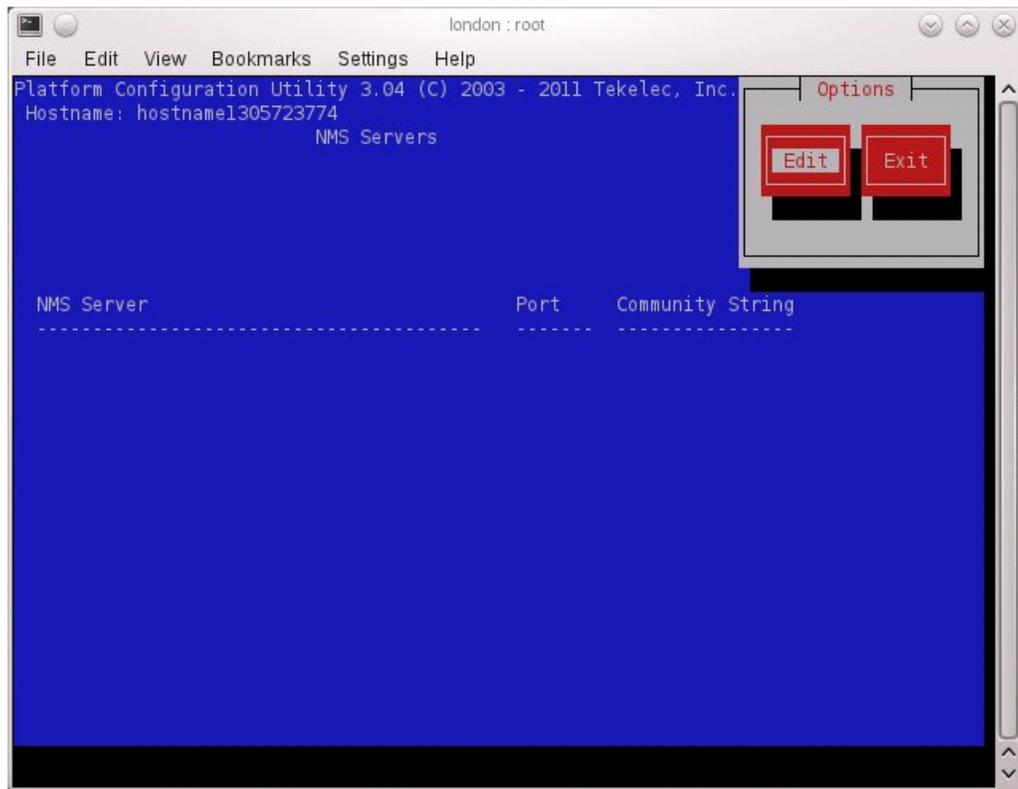
Select **Exit** on each menu until platcfg has been exited.

15. This step will add an SNMP trap destination to a server based on TPD. All alarm information will then be sent to the NMS located at the destination.

1. **Server:** Login as platcfg user on the server. The platcfg main menu will be shown.

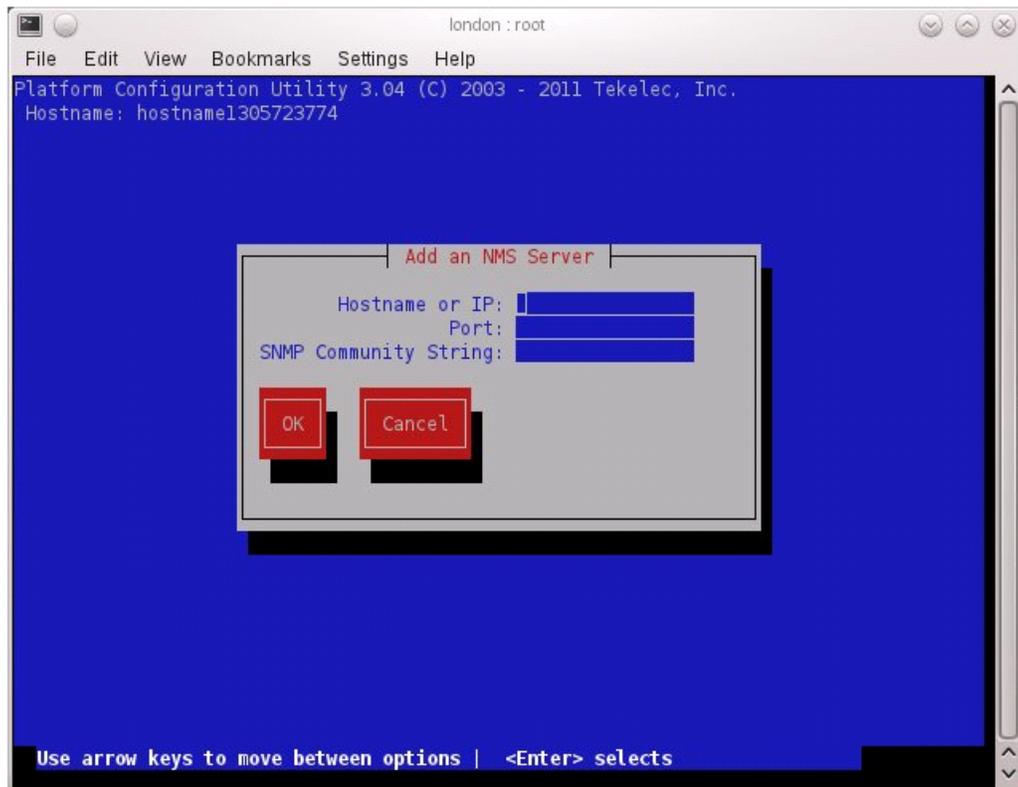
2. **Server:** Navigate to NMS server configuration page.

Select the following menu options sequentially: **Network Configuration > SNMP Configuration > NMS Configuration**. The 'NMS Servers' page will be shown, which displays all configured NMS servers for the server.



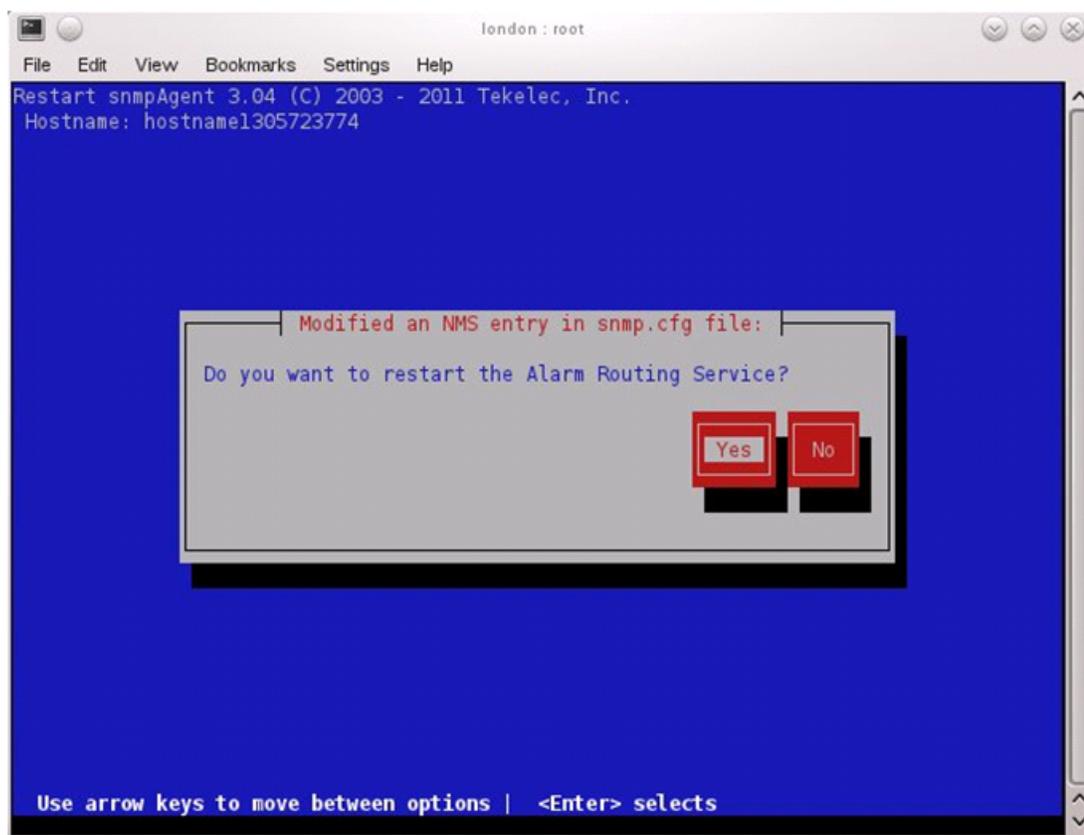
3. **Server:** Add the SNMP trap destination.

Select **Edit** and then choose **Add a New NMS Server**. The 'Add an NMS Server' page will be displayed.



Complete the form by entering in all information about the SNMP trap destination. Select **OK** to finalize the configuration.

The 'NMS Server Action Menu' will now be displayed. Select **Exit**. The following dialogue will then be presented.



Select **Yes** and then wait a few seconds while the Alarm Routing Service is restarted. At that time the SNMP Configuration Menu will be presented.

4. Select **Exit** on each menu until platcfg has been exited.
16. If NetBackup is configured in this system, this step will setup and install NetBackup Client on a TVOE host.

Note: Once the NetBackup Client is installed on TVOE, the NetBackup Master should be configured to backup the following files from the TVOE host:

- /var/TKLC/bkp/*.iso

1. **TVOE Server:** Login as the admusr user
2. **TVOE Server:** Open firewall ports for NetBackup using the following commands:

```
$ sudo ln -s /usr/TKLC/plat/share/netbackup/60netbackup.ipt
/usr/TKLC/plat/etc/iptables/
$ sudo /usr/TKLC/plat/bin/iptablesAdm reconfig
```

3. **TVOE Server:** Enable platcfg to show the NetBackup Menu Items by executing the following commands:

```
$ sudo platcfgadm --show NBConfig
$ sudo platcfgadm --show NBInit
$ sudo platcfgadm --show NBDeInit
$ sudo platcfgadm --show NBInstall
```

```
$ sudo platcfgadm --show NBVerifyEnv
$ sudo platcfgadm --show NBVerify
```

4. Use the **vgguests** volume group in the following steps to create an LV and filesystem for the NetBackup client software.
 - a. **Server:** Login as the admusr user.
 - b. **Server:** Create a storageMgr configuration file that defines the LV to be created.

```
$ sudo echo "lv --mountpoint=/usr/openv --size=2G --name=netbackup_lv --vg=$VG"
> /tmp/nb.lvm
```

The above example uses the \$VG as the volume group. Replace \$VG with the desired volume group as specified by the application group.

- c. **Server:** Create the LV and filesystem by using storageMgr.

```
$ sudo /usr/TKLC/plat/sbin/storageMgr /tmp/nb.lvm
```

This will create the LV, format it with a filesystem, and mount it under /usr/openv/. Example output is shown below:

```
Called with options: /tmp/nb.lvm
VG vgguests already exists.
Creating lv netbackup_lv.
Volume netbackup_lv will be created.
Success: Volume netbackup_lv was created.
Creating filesystem, this may take a while.
Updating fstab for lv netbackup_lv.
Configuring existing lv netbackup_lv.
```

The LV for NetBackup has been created!

5. NetBackup is a utility that allows for management of backups and recovery of remote systems. The NetBackup suite is for the purpose of supporting Disaster Recovery at the customer site. This procedure provides instructions for installing or upgrading the Netbackup client software on an application server.

See [3.10.12 Create NetBackup Client Config File](#) for more information.

Disclaimer: Failure to install the NetBackup Client properly (i.e. by neglecting to execute this procedure) may result in the NetBackup Client being deleted during a Tekelec software upgrade.

1. **Choose NetBackup Client Install Path:** There are two different ways to install NetBackup Client. The following is a guide to which method to use:

- See [3.10.8 Netbackup Client Install/Upgrade with nbAutoInstall](#) for more information.
- See [3.10.9 NetBackup Client Install/Upgrade with platcfg](#) for more information.

Chosen Procedure: _____

- **Execute the procedure chosen in Step 1**
- **Application Console:** Use platform configuration utility (platcfg) to modify hosts file with NetBackup server alias.

Note: If NetBackup Client has successfully been installed then you can find the NetBackup server's hostname in the "/usr/opensv/netbackup/bp.conf" file. It will be identified by the "SERVER" configuration parameter as is shown in the following output:

List NetBackup servers hostname:

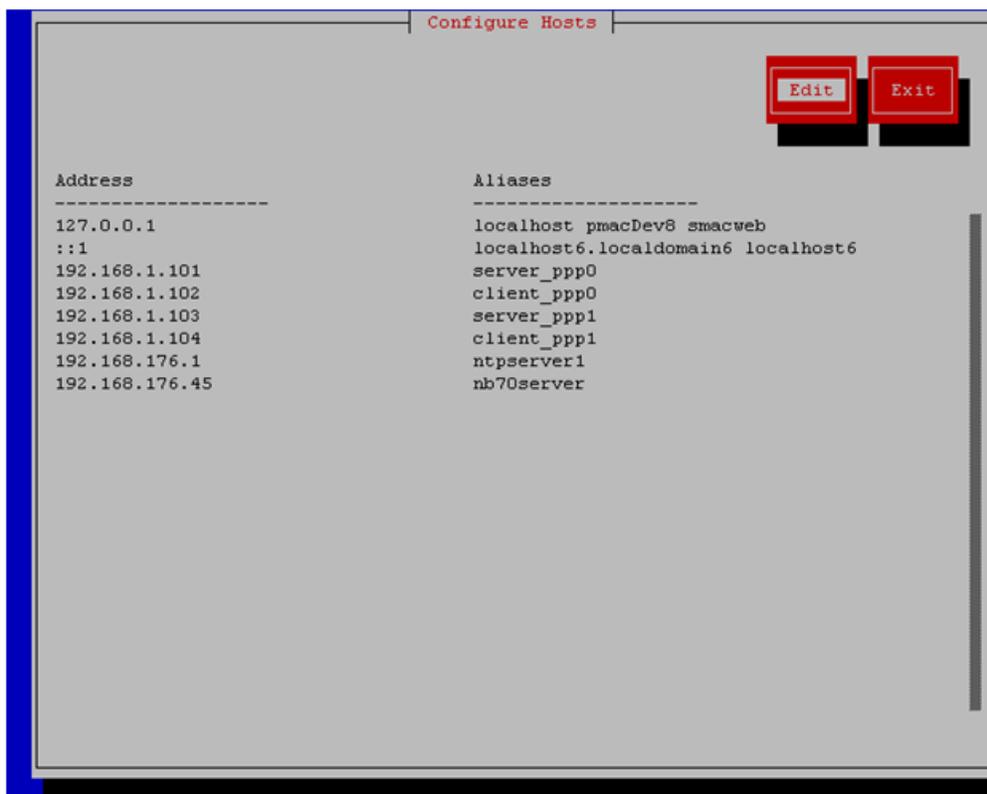
```
$ sudo cat /usr/opensv/netbackup/bp.conf
SERVER = nb70server
CLIENT_NAME = pmacDev8
```

Note: : In the case of nbAutoInstall NetBackup Client may not yet be installed. For this situation the "/usr/opensv/netbackup/bp.conf" cannot be used to find the NetBackup server alias.

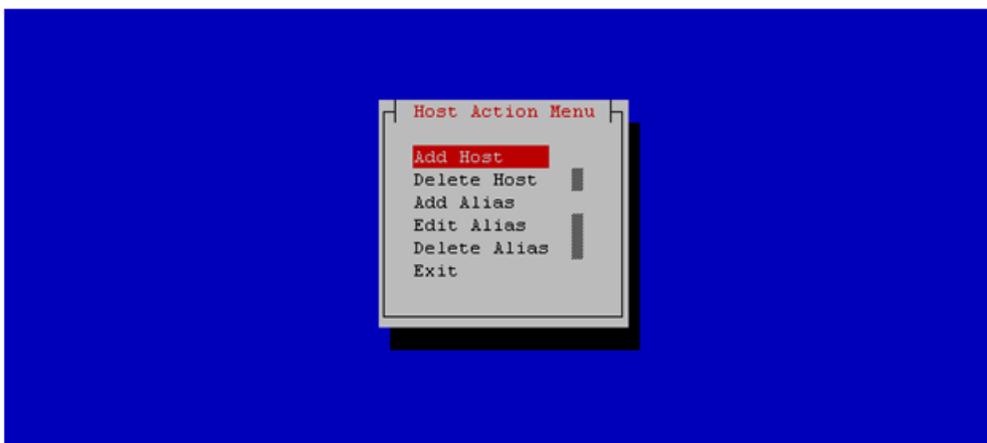
Use platform configuration utility (platcfg) to update application hosts file with NetBackup Server alias.

```
$ sudo su - platcfg
```

Navigate to **Network Configuration > Modify Hosts File**



Select **Edit**, the Host Action Menu will be displayed.



Select "Add Host", and enter the appropriate data



Select "OK", confirm the host alias add, and exit Platform Configuration Utility

- **Application Console:** Create a link for the application provided NetBackup client notify scripts to path on application server where NetBackup expects to find them.

Note: Link notify scripts from appropriate path on application server for given application.

```
$ sudo mkdir -p /usr/opensv/netbackup/bin/
$ sudo ln -s <path>/bpstart_notify /usr/opensv/netbackup/bin/bpstart_notify
$ sudo ln -s <path>/bpend_notify /usr/opensv/netbackup/bin/bpend_notify
```

- **Application Console:** Netbackup client software installation complete; if applicable return to calling procedure.

6. TVOE Server: Create softlinks for TVOE specific NetBackup notify scripts.

```
$ sudo ln -s /usr/TKLC/plat/sbin/bpstart_notify
/usr/opensv/netbackup/bin/bpstart_notify
$ sudo ln -s /usr/TKLC/plat/sbin/bpend_notify /usr/opensv/netbackup/bin/bpend_notify
```

17. TVOE Management Server: Verify server health

```
$ sudo /usr/TKLC/plat/bin/alarmMgr --alarmStatus
```

This command should return no output on a healthy system. If any alarms are reported, contact Customer Care Center.

18. TVOE Management Server: Ensure time set correctly.

- a) Set time based on NTP Server

```
$ sudo /sbin/service ntpd stop
$ sudo /usr/sbin/ntpdate ntpserver1
$ sudo /sbin/service ntpd start
```

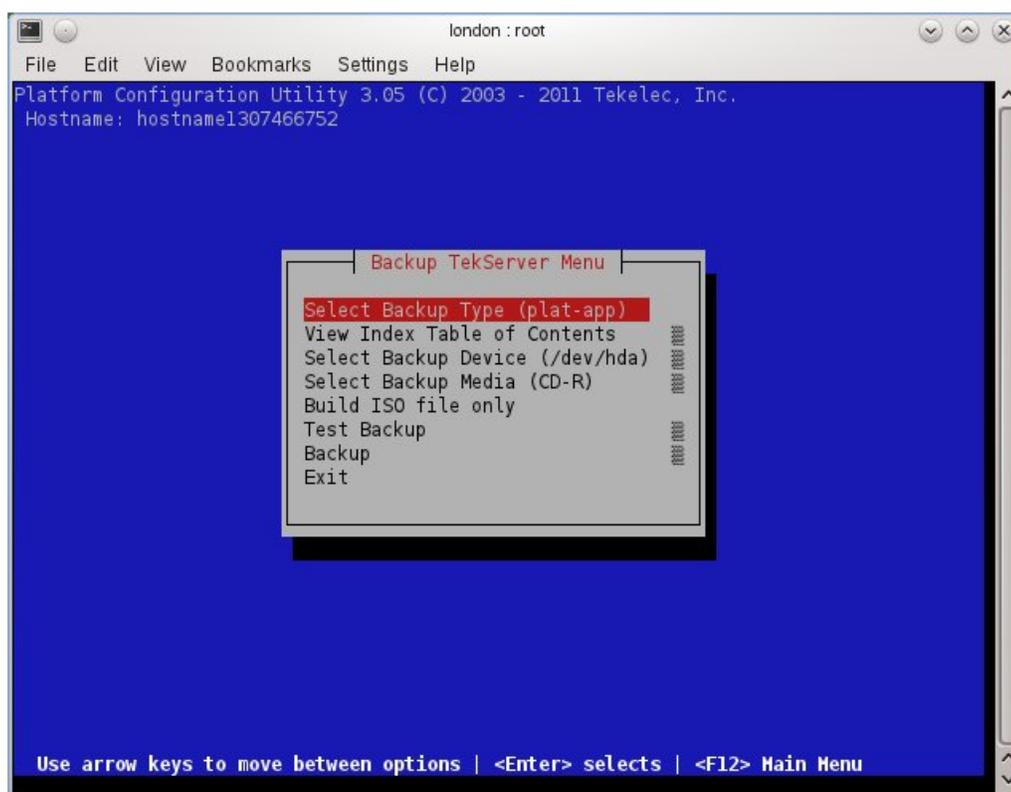
- b) Reboot the server

```
$ sudo /sbin/init 6
```

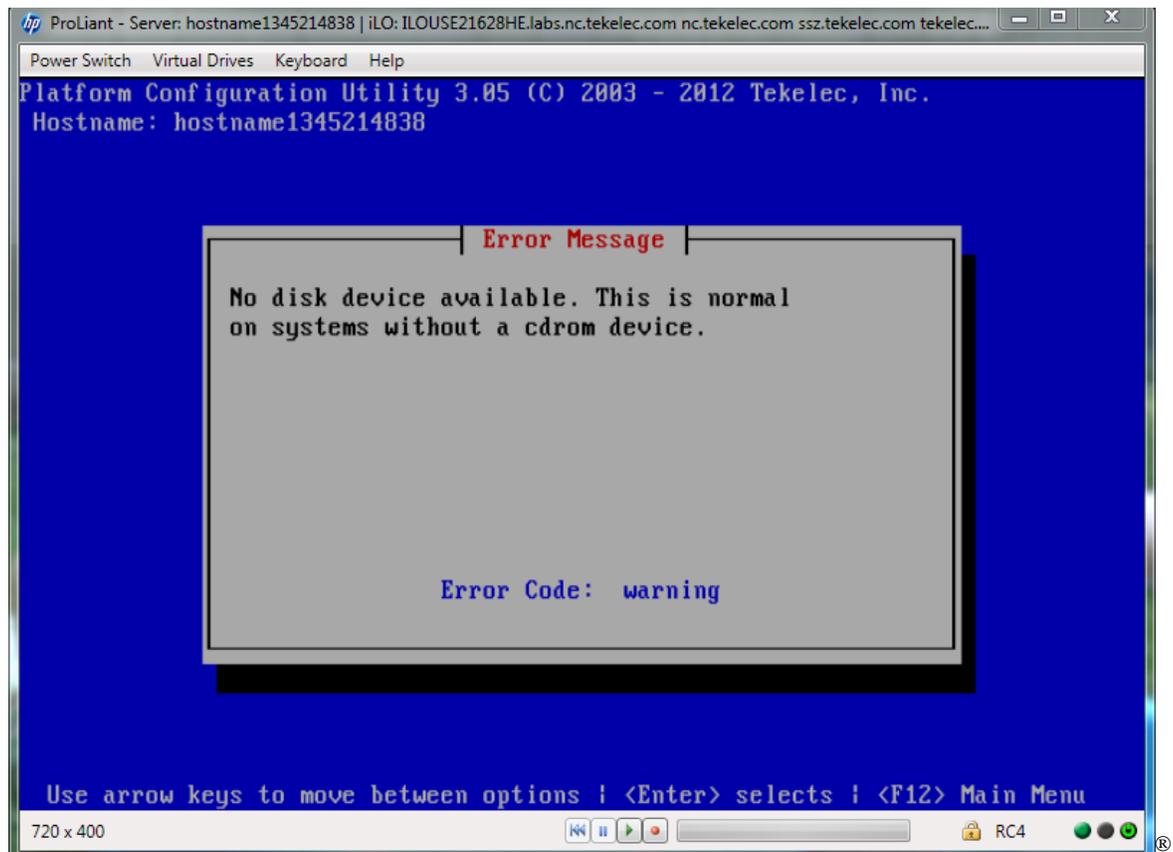
19. This step will backup system files which can be used at a later time to restore a failed system.

Note: The backup image is to be stored on a customer provided medium.

1. **TVOE Host:** Login as platcfg user. Select the following menu options sequentially: **Maintenance > Backup and Restore > Backup Platform (CD/DVD)**. The 'Backup TekServer Menu' page will now be shown.

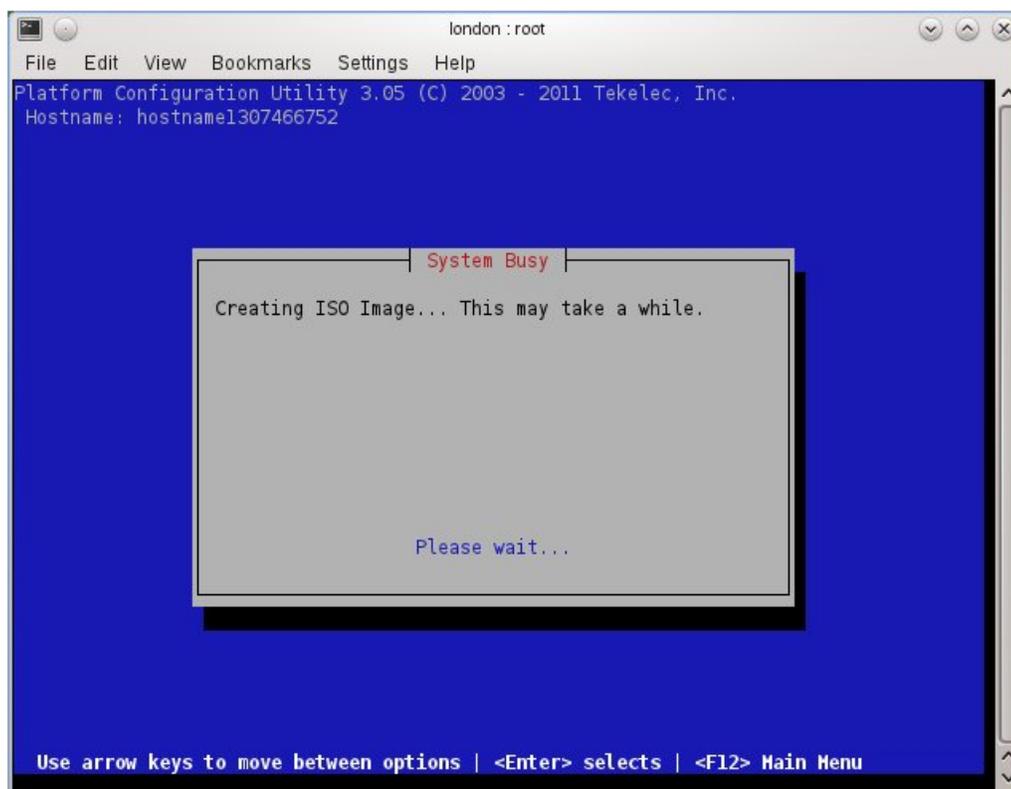


Note: If this operation is attempted on a system without a CD-ROM drive, the following message will appear:



2. **TVOE Host:** Build the backup ISO image. Select **Build ISO file only**. The following screen will display:

Note: Creating the ISO image may happen so quickly that this screen may only appear for an instant.



After the ISO is created, placfg will return to the Backup TekServer Menu as shown in step 2. The ISO has now been created and is located in the `/var/TKLC/bkp/` directory. An example filename of a backup file that was created is: "hostname1307466752-plat-app-201104171705.iso"

3. TVOE Host: Exit placfg

Select **Exit** on each menu until placfg has been exited. The SSH connection to the TVOE server will be terminated.

4. **Customer Server:** Login to the customer server and copy backup image to the customer server where it can be safely stored. If the customer system is a Linux system, execute the following command to copy the backup image to the customer system.

```
# scp tvoexfer@<TVOE IP Address>:backup/* /path/to/destination/
```

When prompted, enter the tvoexfer user password and press **Enter**.

An example of the output looks like:

```
# scp tvoexfer@<TVOE IP Address>:backup/* /path/to/destination/
tvoexfer@10.24.34.73's password:
hostname1301859532-plat-app-301104171705.iso      100% 134MB 26.9MB/s 00:05
```

If the Customer System is a Windows system refer to Appendix F Using WinSCP to copy the backup image to the customer system.

The TVOE backup file has now been successfully placed on the Customer System.

3.7.4 Deploy PM&C Guest

The `pmac-deploy` script is responsible for deploying a PM&C guest in the absence of a PM&C to create the guest and install the OS and application. This is all done a build-time and the system disk image is kept on the PM&C media, along with this script. Once the PM&C media is mounted, the `pmac-deploy` script can be found in the upgrade directory of the media.

Prerequisites:

- [3.7.2 Installing TVOE on the Management Server](#),
- [3.7.3 TVOE Network Configuration](#), and
- PM&C Installation Media.

1. TVOE Management Server iLO: Login to the management server on the remote console

Login to iLo using application provided passwords via Appendix G [How to Access a Server Console using the iLO](#)

```
http://<management_server_iLO_ip>
```

Click in the Remote Console tab and launch the Integrated Remote Console on the server.

Click Yes if the Security Alert pops up.

2. TVOE Management Server: Mount the PM&C media to the TVOE Management server.

For a sample of mounting a DVD media:

```
$ sudo /usr/TKLC/plat/bin/getCDROM
DV-W28E-RW|sr0
/dev/sr0

$ sudo /bin/mount -t iso9660 /dev/sr0 /mnt/upgrade/
```

For a sample of mounting a USB media

```
$ sudo /bin/ls /media/*/*.iso
/media/usb/872-2441-104-5.0.0_50.8.0-PMAC-x86_64.iso
$ sudo /bin/mount -o loop /media/usb/872-2441-104-5.0.0_50.8.0-PMAC-x86_64.iso
/mnt/upgrade
```

3. TVOE Management Server: Validate the PM&C media.

Execute the self-validating media script:

```
$ cd /mnt/upgrade/upgrade
$ sudo .validate/validate_cd
Validating cdrom...

UMVT Validate Utility v2.2.2, (c)Tekelec, June 2012
Validating <device or ISO>
Date&Time: 2012-10-25 10:07:01
Volume ID: tklc_872-2441-106_Rev_A_50.11.0
Part Number: 872-2441-106_Rev_A
Version: 50.11.0
Disc Label: PMAC
Disc description: PMAC
The media validation is complete, the result is: PASS
```

```
CDROM is Valid
```

If the media validation fails, the media is not valid and should not be used.

4. **TVOE Management Server:** Using the pmac-deploy script, deploy the PM&C instance using the configuration detailed by the completed NAPD.

For this example, deploy a PM&C without NetBackup feature

```
$ cd /mnt/upgrade/upgrade
$ sudo ./pmac-deploy --guest=<PMAC_Name> --hostname=<PMAC_Name>
--controlBridge=<TVOE_Control_Bridge> --controlIP=<PMAC_Control_ip_address>
--controlNM=<PMAC_Control_netmask> --managementBridge=<PMAC_Management_Bridge>
--managementIP=<PMAC_Management_ip_address>
--managementNM=<PMAC_Management_netmask>
--routeGW=<PMAC_Management_gateway_address>
--ntpserver=<TVOE_Management_server_ip_address>
```

For this example, deploy a PM&C with the NetBackup feature. Deploying a PM&C with the NetBackup feature requires the "--netbackupVol" option, which creates a separate NetBackup logical volume on the TVOE host of PM&C. If the NetBackup feature's source interface is different than the management interface include the "--bridge" and the "--nic" as in the example below.

```
$ cd /mnt/upgrade/upgrade
$ sudo ./pmac-deploy --guest=<PMAC_Name> --hostname=<PMAC_Name>
--controlBridge=<TVOE_Control_Bridge> --controlIP=<PMAC_Control_ip_address>
--controlNM=<PMAC_Control_netmask> --managementBridge=<PMAC_Management_Bridge>
--managementIP=<PMAC_Management_ip_address>
--managementNM=<PMAC_Management_netmask>
--routeGW=<PMAC_Management_gateway_address>
--ntpserver=<TVOE_Management_server_ip_address>
--netbackupVol
--bridge=<TVOE_NetBackup_Bridge>
--nic=netbackup
```

For this example, deploy a PM&C with the 20 GB of space for importing the ISO images via sftp. This requires the --isoimagesVolSizeGB option, which creates a separate isoimages logical volume on the TVOE host of PM&C.

```
$ cd /mnt/upgrade/upgrade
$ sudo ./pmac-deploy --guest=<PMAC_Name> --hostname=<PMAC_Name>
--controlBridge=<TVOE_Control_Bridge> --controlIP=<PMAC_Control_ip_address>
--controlNM=<PMAC_Control_netmask> --managementBridge=<PMAC_Management_Bridge>
--managementIP=<PMAC_Management_ip_address>
--managementNM=<PMAC_Management_netmask>
--routeGW=<PMAC_Management_gateway_address>
--ntpserver=<TVOE_Management_server_ip_address> --isoimagesVolSizeGB=20
```

Note: If a mistake in the pmac-deploy is identified during this step the operator under the advisement of customer service can remove the guest with the following command:

```
$ sudo /usr/TKLC/plat/bin/guestMgr --remove <PMAC_Name>
```

5. The PM&C will deploy and boot. The management and control network will come up based on the settings that were provided to the pmac-deploy script.

6. **TVOE Management Server:** Unmount the media and remove.

```
$ cd /
$ sudo /bin/umount /mnt/upgrade
```

7. **TVOE Management Server:** Remove the PM&C Media

3.7.5 Setup PM&C

The steps in this section configure the PM&C application guest environment on the Management Server TVOE host. It also initializes the PM&C application. At the conclusion of this section, the PM&C application environment is sufficiently configured to allow configuration of system network assets associated with the Management Server.

Prerequisites:

- [3.7.4 Deploy PM&C Guest](#)

1. **TVOE Management Server iLO:** Login to the management server on the remote console

Login to iLo using application provided passwords via Appendix G [How to Access a Server Console using the iLO](#)

```
http://<management_server_iLO_ip>
```

Click in the Remote Console tab and launch the Integrated Remote Console on the server.

Click Yes if the Security Alert pops up.

2. Login with PM&C admusr credentials

Note: On a TVOE host, If you launch the virsh console, i.e., "\$ sudo /usr/bin/virsh console X" or from the virsh utility "virsh # console X" command and you get garbage characters or output is not quite right, then more than likely there is a stuck "virsh console" command already being run on the TVOE host. Exit out of the "virsh console", then run "ps -ef |grep virsh", then kill the existing process "kill -9 <PID>". Then execute the "virsh console X" command. Your console session should now run as expected.

Login using **virsh**, and wait until you see the login prompt. If a login prompt does not appear after the guest is finished booting, press **ENTER** to make one appear:

```
$ sudo /usr/bin/virsh
virsh # list

  Id   Name                               State
-----
  4    pmacU17-1                          running

virsh # console pmacU17-1

[Output Removed]

#####
1371236760: Upstart Job readahead-collector: stopping
1371236767: Upstart Job readahead-collector: stopped
#####

CentOS release 6.4 (Final)
```

```
Kernel 2.6.32-358.6.1.el6prere16.5.0_82.16.0.x86_64 on an x86_64
pmacU17-1 login:
```

3. TVOE Management Server iLO: Login with PM&C admusr credentials

Login to the TVOE as admusr using Appendix G [How to Access a Server Console using the iLO](#)

Login to iLO in IE using password provided by application:

```
http://<management_server_iLO_ip>
```

Click in the **Remote Console** tab and launch the Integrated Remote Console on the server.

Click **Yes** if the Security Alert pops up.

4. TVOE Management Server iLO: Login with PM&C admusr credentials

Note: On a TVOE host, If you launch the virsh console, i.e., "\$ **sudo /usr/bin/virsh console X**" or from the virsh utility "virsh # **console X**" command and you get garbage characters or output is not quite right, then more than likely there is a stuck "virsh console" command already being run on the TVOE host. Exit out of the "virsh console", then run "**ps -ef |grep virsh**", then kill the existing process "**kill -9 <PID>**". Then execute the "virsh console X" command. Your console session should now run as expected.

Login to PM&C console using virsh, and wait until you see the login prompt:

```
$ sudo /usr/bin/virsh
virsh # list
  Id   Name                State
-----
  4    pmacU17-1            running

virsh # console pmacU17-1

[Output Removed]

pmacU17-1 login:
```

5. Verify the PM&C configured correctly on first boot.

Run the following command (there should be no output):

```
$ sudo /bin/ls /usr/TKLC/plat/etc/deployment.d/
$
```

6. Determine the TimeZone to be used for the PM&C

Note: Valid time zones can be found on the server in the directory "/usr/share/zoneinfo". Only the time zones within the sub-directories (i.e. America, Africa, Pacific, Mexico, etc.....) are valid with platcfg.

7. Set the TimeZone

Run:

```
$ sudo /usr/TKLC/smac/bin/set_pmac_tz.pl <timezone>
```

For Example:

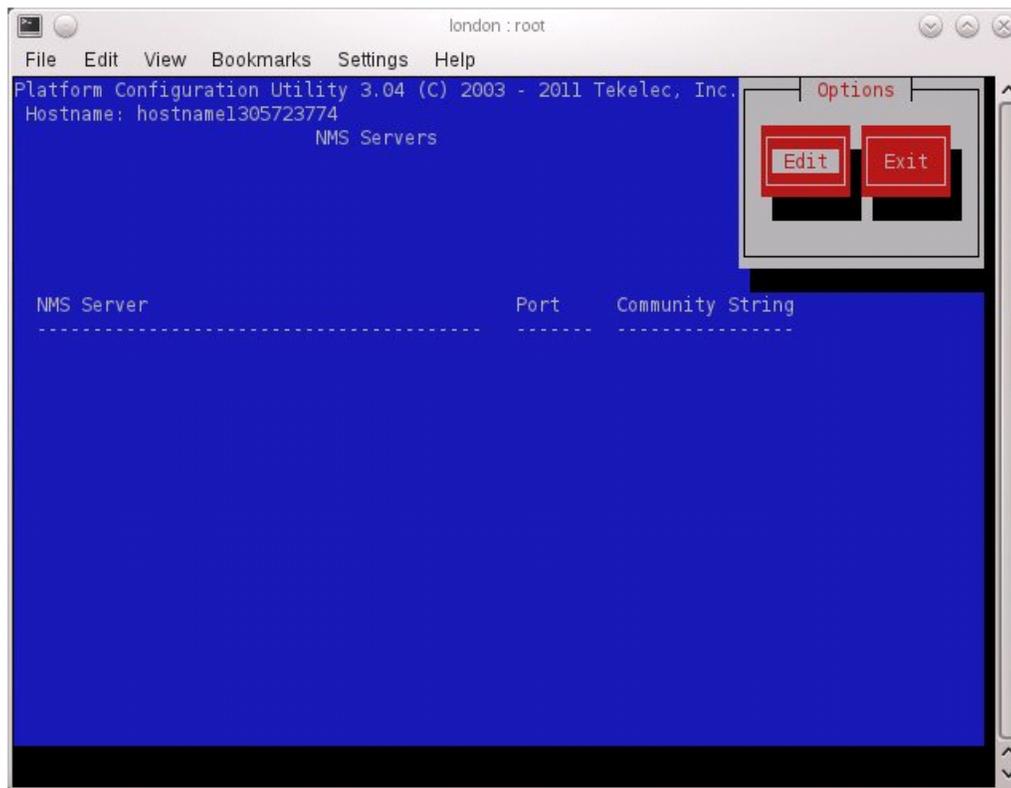
```
$ sudo set_pmac_tz.pl America/New_York
```

8. Verify the TimeZone has been updated

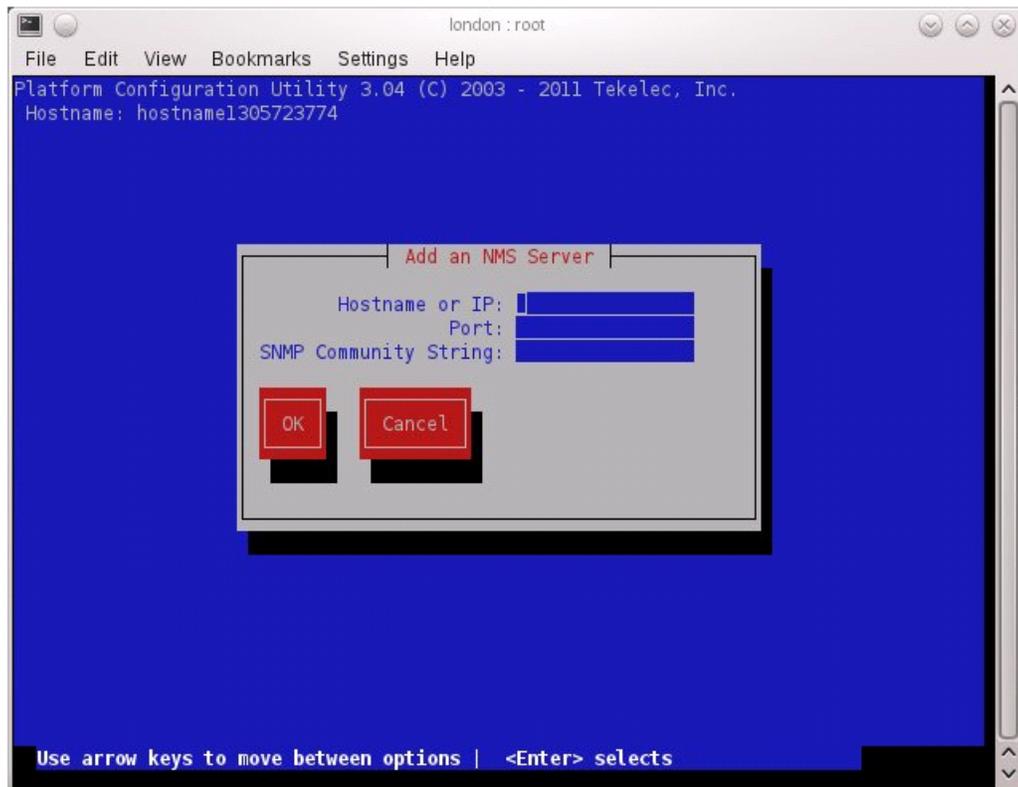
Run:

```
$ sudo /bin/date
```

9. This step will add an SNMP trap destination to a server based on TPD. All alarm information will then be sent to the NMS located at the destination.
 1. **Server:** Login as platcfg user. Login as platcfg user on the server. The platcfg main menu will be shown.
 2. **Server:** Navigate to NMS server configuration page. Select the following menu options sequentially: **Network Configuration > SNMP Configuration > NMS Configuration**. The 'NMS Servers' page will be shown, which displays all configured NMS servers for the server.

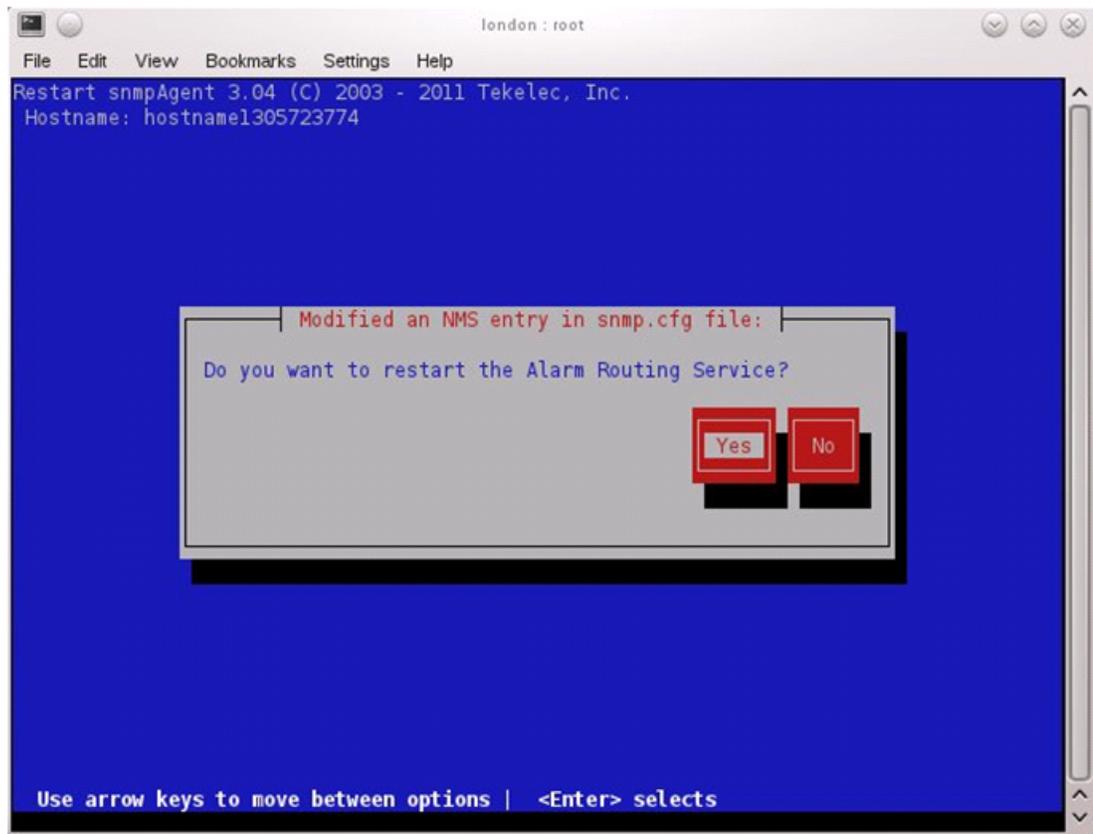


3. **Server:** Add the SNMP trap destination. Select **Edit** and then choose **Add a New NMS Server**. The 'Add an NMS Server' page will be displayed.



Complete the form by entering in all information about the SNMP trap destination. Select **OK** to finalize the configuration.

The 'NMS Server Action Menu' will now be displayed. Select **Exit**. The following dialogue will then be presented.



Select **Yes** and then wait a few seconds while the Alarm Routing Service is restarted. At that time the SNMP Configuration Menu will be presented.

4. **Server:** Exit platcfg. Select **Exit** on each menu until platcfg has been exited.
10. Execute [3.10.3 Add SNMP trap destination on TPD based Application](#) on PM&C if necessary.
11. Reboot the server to ensure all processes are started with the new TimeZone.

Run:

```
$ sudo /sbin/init 6
```

12. Gather and prepare configuration files that must be resident on the PM&C. These might be required to proceed with the Application installation after the PM&C has been deployed but before it has been initialized. These files are usually located within a given ISO on physical media (USB or CDROM).

Note: This is an **optional** step only required if needed by an Application.

- a) Once the PM&C has completed rebooting, but prior to initializing, login to the PM&C as **admusr** using **virsh** on the management server iLO.
- b) Create any necessary destination subdirectories in the PM&C **/usr/TKLC/smac/etc** directory if not using an existing directory to transfer files.
- c) Make the media available to the TVOE Host server. Mount the media on the TVOE Host using one of the following methods:
 1. If the Application ISO is on a physical CDROM disk:

- a. Insert the disk into the CDROM drive of the TVOE Host Server.
- b. Determine the CDROM of the TVOE Host server by executing the following command:

```
$ sudo /usr/TKLC/plat/bin/getCDROM
```

Example: /dev/sr0

Note: sr0 is always designated as the CDROM device. There could be additional devices listed by the command if in use.

- c. Make a temporary mount point and mount the optical media.

```
$ sudo /bin/mkdir /media/cdrom
$ sudo /bin/mount /dev/sr0 /media/cdrom
```

Note: Once mounted, this gives a direct path to the ISO on the CDROM device.

2. If using a USB Drive:
 - a. Insert the USB into an available USB slot on the TVOE Host server and execute the following command to determine its location and the ISO to be mounted:

```
$ sudo /bin/ls /media/*/*.iso
```

Example: /media/sdd1/872-xxxx-104-5.0.0_50.8.0-application-x86_64.

Note: The USB device is immediately added to the list of media devices once it is inserted into a USB slot on the TVOE Host server.

- b. Note the device directory name under the media directory. This could be sdb1, sdc1, sdd1, sde1, depending on the USB slot the media was inserted into.
- c. Loop mount the ISO to the standard TVOE Host mount point (if it is not already in use):

```
$ sudo /bin/mount -o loop /media/<device directory>/<ISO Name>.iso /mnt/upgrade
```

- d) Execute the following commands on the PM&C guest to copy the required files from the TVOE host to the PM&C guest.

Wildcards can be used as necessary.

1. If the application is on a physical disk:

```
$ sudo /usr/bin/scp -r admusr@<TVOE_management_ip_address>:/media/cdrom/<path to files>/* /<path to destination directory>
```

2. If using a USB Drive:

```
$ sudo /usr/bin/scp -r admusr@<TVOE_management_ip_address>:/mnt/upgrade/<path to files>/* /<path to destination directory>
```

- e) Remove the application media from the TVOE host:

1. If the application is on a physical disk:

```
$ sudo /bin/umount /media/cdrom
$ sudo /bin/rmdir /media/cdrom
```

2. If using a USB Drive:

```
$ sudo /bin/umount /mnt/upgrade
```

3. Remove application media, optical or USB, from the server.

13. Initialize the PM&C Application; run the following commands:

Note: If performing the setup on a Redundant PM&C do not initialize, skip this step and continue to step 14.

```
$ sudo /usr/TKLC/smac/bin/pmacadm applyProfile --fileName=TVOE
Profile successfully applied.
$ sudo /usr/TKLC/smac/bin/pmacadm getPmacFeatureState
PMAC Feature State = InProgress
$ sudo /usr/TKLC/smac/bin/pmacadm addRoute --gateway=<mgmt_gateway_address>
--ip=0.0.0.0 --mask=0.0.0.0 --device=management
Successful add of Admin Route
$ sudo /usr/TKLC/smac/bin/pmacadm finishProfileConfig
Initialization has been started as a background task
```

14. Wait for the background task to successfully complete.

The command will show "IN_PROGRESS" for a short time.

Run the following command until a "COMPETE" or "FAILED" response is seen similar to the following:

```
$ sudo /usr/TKLC/smac/bin/pmaccli getBgTasks
1: Initialize PM&C COMPLETE - PM&C initialized
Step 2: of 2 Started: 2012-07-13 08:23:55 running: 29 sinceUpdate: 47
taskRecordNum: 2 Server Identity:
Physical Blade Location:
Blade Enclosure:
Blade Enclosure Bay:
Guest VM Location:
Host IP:
Guest Name:
TPD IP:
Rack Mount Server:
IP:
Name:
```

Note: Some expected networking alarms may be present.

15. Perform a system healthcheck on PM&C

```
$ sudo /usr/TKLC/plat/bin/alarmMgr --alarmStatus
```

This command should return no output on a healthy system.

Note: An NTP alarm will be detected if the system switches are not configured.

```
$ sudo /usr/TKLC/smac/bin/sentry status
```

All Processes should be running, displaying output similar to the following:

```
PM&C Sentry Status
-----

sentryd started: Mon Jul 23 17:50:49 2012
Current activity mode: ACTIVE
Process          PID      Status      StartTS          NumR
-----
smacTalk         9039     running    Tue Jul 24 12:50:29 2012  2
smacMon          9094     running    Tue Jul 24 12:50:29 2012  2
hpiPortAudit    9137     running    Tue Jul 24 12:50:29 2012  2
snmpEventHandler 9176     running    Tue Jul 24 12:50:29 2012  2
eclipseHelp     9196     running    Tue Jul 24 12:50:30 2012  2

Fri Aug  3 13:16:35 2012
Command Complete.
```

16. Verify the PM&C application release

Verify that the PM&C application Product Release is as expected.

Note: If the PM&C application Product Release is not as expected, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

```
$ sudo /usr/TKLC/plat/bin/appRev
  Install Time: Fri Sep 28 15:54:04 2012
  Product Name: PMAC
  Product Release: 5.0.0_50.10.0
  Part Number ISO: 872-2441-905
  Part Number USB: 872-2441-105
Base Distro Product: TPD
Base Distro Release: 6.0.0_80.22.0
Base Distro ISO: TPD.install-6.0.0_80.22.0-CentOS6.2-x86_64.iso
OS: CentOS 6.2
```

17. Logout of the virsh console

Exit the virsh console session using Appendix I [How to Exit a Guest Console Session on an iLO](#).

18. Management Server iLO: Exit the TVOE console.

Run:

```
$ logout
```

You may now close the iLO browser window.

19. If the NetBackup feature is to be configured on this PM&C, execute [3.7.24 Initialize PM&C Application using the GUI](#) to initialize the PM&C using the GUI and enable the NetBackup feature.
20. If NetBackup feature is to be configured on this PM&C, continue with this procedure. Otherwise, continue with the next procedure.

3.7.6 Configure PM&C application

Configuration of the PM&C application is typically performed using the PM&C GUI. This procedure defines application and network resources. At a minimum, you should define network routes and DHCP pools. Unlike initialization, configuration is incremental, so you may execute this procedure to modify the PM&C configuration.

Prerequisites:

- PM&C has been deployed and initialized, but possibly not fully configured.
- Aggregation switches have been properly configured.

Note: The installer must be knowledgeable of the network and application requirements. The final step will configure and restart the network and the PM&C application; network access will be briefly interrupted.

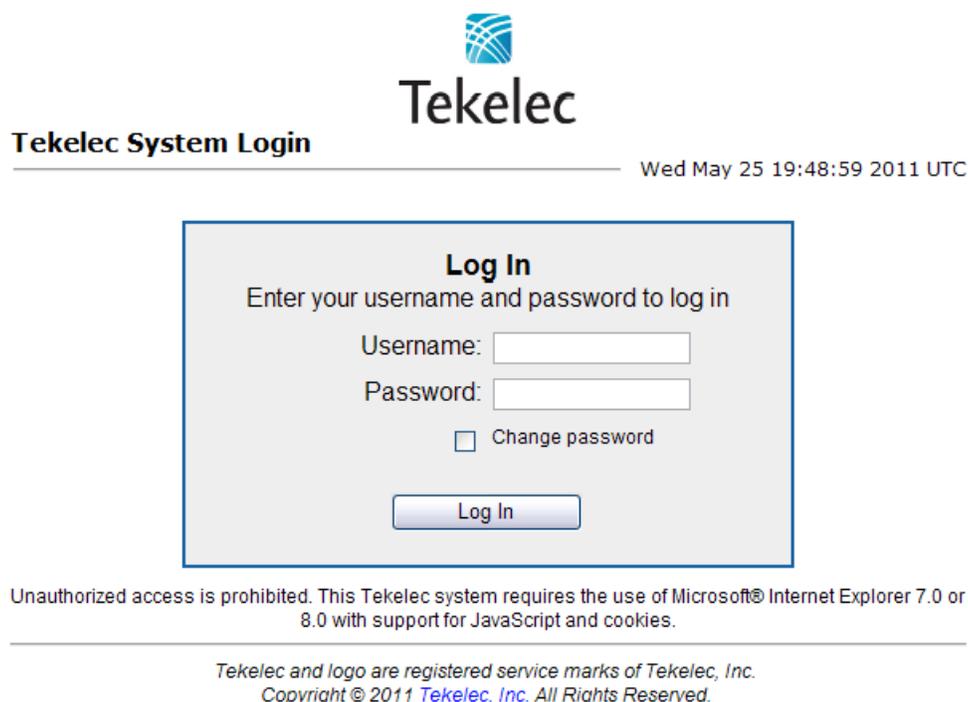
Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. PM&C GUI: Load GUI and navigate to the Configuration view

Open web browser and enter:

```
https://<pmac_management_network_ip>
```

Login as pmacadmin user.



Tekelec

Tekelec System Login Wed May 25 19:48:59 2011 UTC

Log In

Enter your username and password to log in

Username:

Password:

Change password

Unauthorized access is prohibited. This Tekelec system requires the use of Microsoft® Internet Explorer 7.0 or 8.0 with support for JavaScript and cookies.

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Navigate to **Main Menu > Administration > PM&C Configuration**.

2. PM&C GUI: Select a profile

Click on "**Feature Configuration**" in the navigation pane. The first screen will be similar to the image below.

3. PM&C GUI: Configure optional features

If NetBackup is to be used, enable the NetBackup feature. Otherwise use the selected features as is. The following image is for reference only:

Feature	Description	Role	Enabled
DEVICE.NETWORK.NETBOOT	Network device PXE initialization	management	<input checked="" type="checkbox"/>
DEVICE.NTP	PM&C as a time server	management	<input checked="" type="checkbox"/>
PMAC.MANAGED	Remote management of PM&C server	management	<input type="checkbox"/>
PMAC.REMOTE.BACKUP	Remote server for backup	management	<input checked="" type="checkbox"/>
PMAC.NETBACKUP	NetBackup client	management	<input type="checkbox"/>

The "**Enabled**" checkbox selects the desired features. The "**Role**" field provides a drop-down list of known network roles that the feature may be associated with. The "**Description**" may be edited if desired.

If the feature should be applied to a new network role (e.g. "**NetBackup**"), click on the "**Add Role**" button. Enter the name of the new role and click on "**Add**". (Note: role names are not significant, they are only used to associate features with networks). The new role name will appear in the "**Role**" drop-down field for features.

When done, click on the "**Apply**" button. This foreground task will take a few moments, and then refresh the view with an Info or Error notice to verify the action. To discard changes, just navigate away from the view.

4. PM&C GUI: Reconfigure PM&C networks

Note: The Network reconfiguration enters a tracked state. After you click on "**Reconfigure**", you should use a "**Cancel**" button to abort.

Click on "**Network Configuration**" in the navigation pane, and follow the wizard through the configuration task.

1. Click on "**Reconfigure**" to display the "**Network**" view. The default "**management**" and "**control**" networks should be configured correctly. Networks may be added, deleted or modified from this view. They are defined with IPv4 dotted-quad addresses and netmasks. When complete, click on "**Next**".
2. On the "**Network Roles**" view, you may change the role of a network. Network associations can be added (e.g. "**NetBackup**") or deleted. You cannot add a new role since roles are driven from features. When complete, click on "**Next**".
3. On the "**Network Interfaces**" view, you may add or delete interfaces, and change the IP address within the defined network space. If you add a network (again, e.g. "**NetBackup**"), the "**Add Interface**" view is displayed when clicking on "**Add**". This view provides an editable drop-down field of known interfaces. You may add a new device here if necessary. The Address must be an IPv4 host address in the network. When complete, click on "**Next**".
4. On the "**Routes**" view, you may add or delete route destinations. The initial PM&C deployment does not define routes. Most likely you will want to add a default route - the route already exists, but this action defines it to PM&C so it may be displayed by PM&C. Click on "**Add**". The Add Route view provides an editable drop-down field of known devices. Select the egress

- device for the route. Enter IPv4 dotted-quad addresses and netmask for the route destination, and next-hop gateway. Then click on **"Add Route"**. When complete, click on **"Next"**.
5. On the **"DHCP Ranges"** view, you will need to define DHCP pools used by servers that PM&C manages. Click on the **"Add"** button. Enter the starting and ending IPv4 address for the range on the network used to control servers (by default, the **"control"** network). Click on **"Add DHCP Range"**. Only one range per network may be defined. When all pools are defined, click on **"Next"**.
 6. The **"Configuration Summary"** provides a view of your reconfigured PM&C. Click **"Finish"** to launch the background task that will reconfigure the PM&C application. A Task and Info or Error notice is displayed to verify your action.
 7. Verify your reconfiguration task completes. Navigate to: **Main Menu > Task Monitoring**. As the network is reconfigured, you will have a brief network interruption. From the Background Task Monitoring view, verify the **"Reconfigure PM&C"** task succeeds.
5. **PM&C GUI: Set the PM&C Application GUI Site Settings**
 Navigate to **Main Menu > Administration > GUI Site Settings**
- Set the **"Site name"** to a descriptive name, and set the **"Welcome Message"** that is displayed upon login.
6. **PM&C: Perform PM&C application backup.**

```
$ sudo /usr/TKLC/smac/bin/pmacadm backup
PM&C backup been successfully initiated as task ID 7
$
```

Note: The backup runs as a background task. To check the status of the background task use the PM&C GUI Task Monitor page, or issue the command **"pmaccli getBgTasks"**. The result should eventually be "PM&C Backup successful" and the background task should indicate "COMPLETE".

Note: The "pmacadm backup" command uses a naming convention which includes a date/time stamp in the file name (Example file name: backupPmac_20111025_100251.pef). In the example provided, the backup file name indicates that it was created on 10/25/2011 at 10:02:51 am server time.

7. **PM&C: Verify the Backup was successful**

Note: If the background task shows that the backup failed, then the backup did not complete successfully. STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

The output of pmaccli getBgTasks should look similar to the example below:

```
$ sudo /usr/TKLC/smac/bin/pmaccli getBgTasks
2: Backup PM&C COMPLETE - PM&C Backup successful
Step 2: of 2 Started: 2012-07-05 16:53:10 running: 4 sinceUpdate: 2 taskRecordNum:
2 Server Identity:
Physical Blade Location:
Blade Enclosure:
Blade Enclosure Bay:
Guest VM Location:
Host IP:
Guest Name:
TPD IP:
Rack Mount Server:
IP:
```

Name :
: :

8. PM&C: Save the PM&C backup

The PM&C backup must be moved to a remote server. Transfer (sftp, scp, rsync, or preferred utility), the PM&C backup to an appropriate remote server.

3.7.7 Add Cabinet and Enclosure to the PM&C system inventory

This procedure provides the instructions for adding a cabinet and an enclosure to the PM&C system inventory.

Prerequisite: The [3.7.6 Configure PM&C application](#) procedure has been completed.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. PM&C GUI: Login

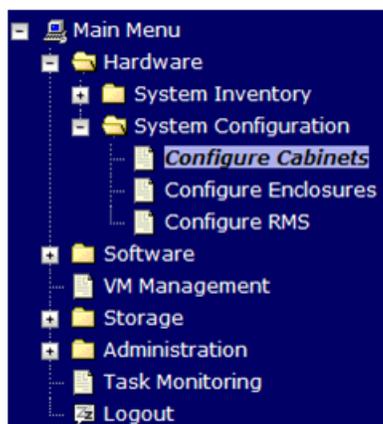
Open your web browser and enter:

```
https://<pmac_management_network_ip>
```

Login as the pmacadmin user.

2. PM&C GUI: Navigate to Configure Cabinets

Navigate to **Main Menu > Hardware > System Configuration > Configure Cabinets**.



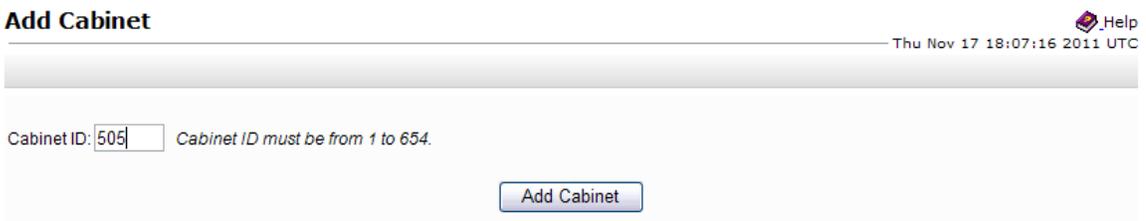
3. PM&C GUI: Add Cabinet

On the **Configure Cabinets** panel, press the **Add Cabinet** button



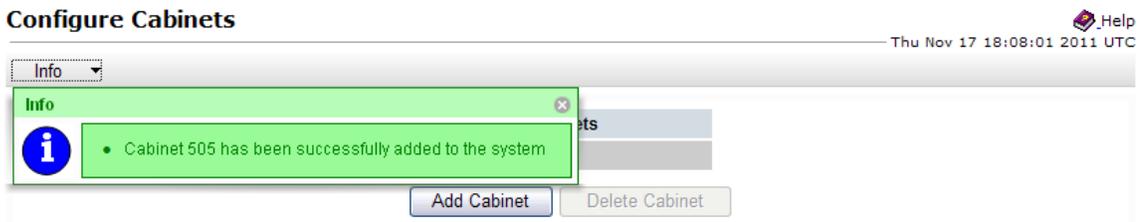
4. PM&C GUI: Enter Cabinet ID

Enter the **Cabinet ID** and press the **Add Cabinet** button.

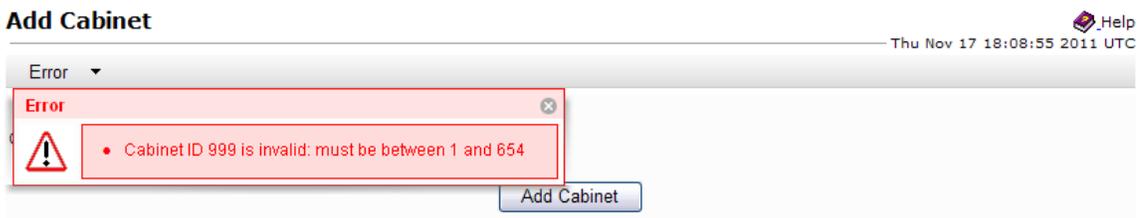


5. PM&C GUI: Check errors

If no error is reported to the user you will see the following:

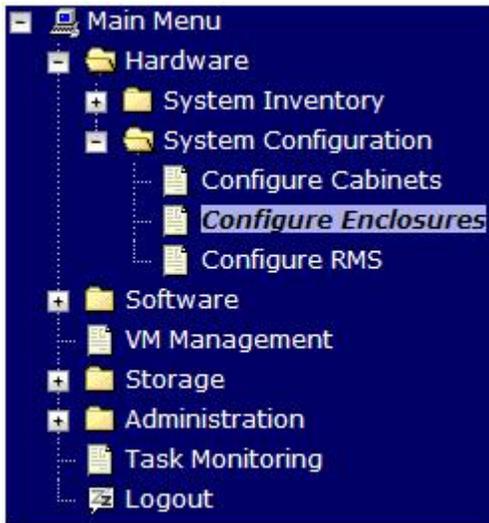


Or you will see an error message:



6. PM&C GUI: Navigate to Configure Enclosures

Navigate to **Main Menu > Hardware > System Configuration > Configure Enclosures**.



7. PM&C GUI: Add Enclosure

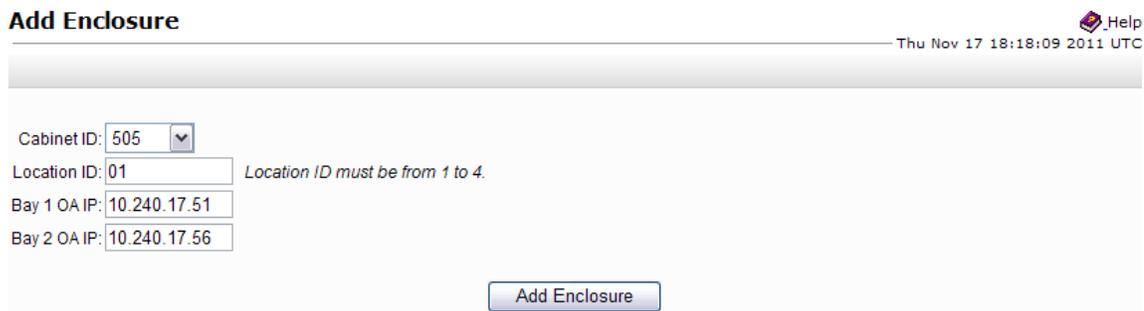
On the **Configure Enclosures** panel, press the **Add Enclosure** button



8. PM&C GUI: Provide Enclosure Details

On the **Add Enclosure** panel, enter the **Cabinet ID**, **Location ID**, and two **OA IP** addresses (the enclosure's active and standby OA).

Then click on **Add Enclosure**.



Note: Location ID is used to uniquely identify an enclosure within a cabinet. It can have a value of 1, 2, 3, or 4. The cabinet ID and location ID will be combined to create a globally unique ID for the enclosure (for example, an enclosure in cabinet 502 at location 1, will have an enclosure ID of 50201).

9. PM&C GUI: Monitor Add Enclosure

The Configure Enclosures page is then redisplayed with a new background task entry in the Tasks table. This table can be accessed by pressing the **Tasks** button located on the toolbar under the Configure Enclosures heading.



When the task is complete and successful, its text will change to green, and its Progress column will indicate "100%".

3.7.8 Edit an Enclosure in the PM&C system inventory

This procedure provides the instructions for editing an existing enclosure configuration in the PM&C system inventory. This action is used to notify PM&C of enclosure OA IP address changes.

Prerequisite: The [3.7.7 Add Cabinet and Enclosure to the PM&C system inventory](#) procedure has been completed.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. PM&C GUI: Login

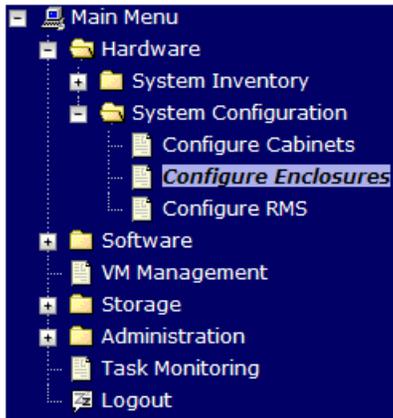
Open your web browser and enter:

```
https://<pmac_management_network_ip>
```

Login as the pmacadmin user.

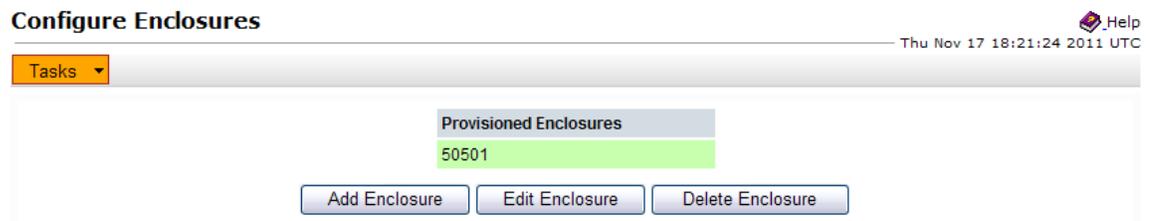
2. PM&C GUI: Navigate to Configure Enclosures

Navigate to **Main Menu > Hardware > System Configuration > Configure Enclosures**.



3. **PM&C GUI: Edit Enclosure**

On the **Configure Enclosures** panel, select a row from the list of provisioned enclosures and press the **Edit Enclosure** button



4. **PM&C GUI: Confirm Edit Enclosure**

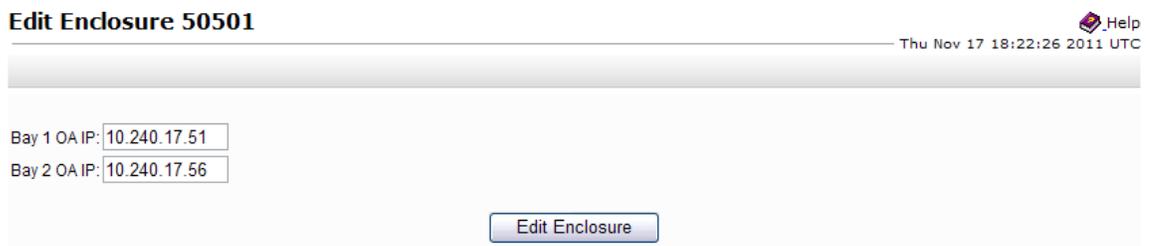
Press the **OK** button to proceed to the Edit Enclosure page.



5. **PM&C GUI: Modify Enclosure Details**

On the **Edit Enclosure** panel, modify the **OA IP** addresses as needed.

Press on the **Edit Enclosure** button.



6. **PM&C GUI: Monitor Add Enclosure**

The Configure Enclosures page is then redisplayed with a new background task entry in the Tasks table. This table can be accessed by pressing the Tasks button located on the toolbar under the Configure Enclosures heading.

Configure Enclosures .Help
Thu Nov 17 20:40:57 2011 UTC

Info Tasks

ID	Task	Target	Status	Start Time	Progress
13	Add Enclosure	Enc:50501	Starting Add Enclosure	2011-11-17 15:40:57	4%
12	Add Enclosure	Enc:50501	Enclosure added - starting monitoring	2011-11-17 15:34:47	100%
3	Add Enclosure	Enc:50501	Enclosure added - starting monitoring	2011-11-17 13:23:47	100%
2	Add Enclosure	Enc:50501	Enclosure added - starting monitoring	2011-11-17 13:18:55	100%

When the task is complete and successful, its text will change to green, and its Progress column will indicate "100%".

3.7.9 Adding ISO Images to the PM&C Image Repository

Note: If the ISO image has already been added to the PM&C Software Inventory in a previous procedure, skip this procedure.

This procedure provides the steps for adding ISO images to the PM&C repository.

Prerequisite: [3.7.6 Configure PM&C application](#) has been completed.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Make the image available to PM&C

There are three ways to make an image available to PM&C:

- Insert the CD containing an iso image into the removable media drive of the PM&C server.
- Attach the USB device containing the ISO image to a USB port of the Management Server.
- Use sftp to transfer the iso image to the PM&C server in the /var/TKLC/smac/image/isoimages/home/smacftpusr/ directory as pmacftpusr user:
 - cd into the directory where your ISO image is located (not on the PM&C server)
 - Using sftp, connect to the PM&C management server

```
> sftp pmacftpusr@<pmac_management_network_ip>
> put <image>.iso
```

- After the image transfer is 100% complete, close the connection

```
> quit
```

Refer to the documentation provided by application for pmacftpusr password.

2. PM&C GUI: Login

Open web browser and enter:

```
https://<pmac_management_network_ip>
```

Login as pmacadmin user.

3. **PM&C GUI:** Attach the software image to the PM&C guest

If in Step 1 the ISO image was transferred directly to the PM&C guest via sftp, skip the rest of this step and continue with step 4. If the image is on a CD or USB device, continue with this step.

In the PM&C GUI, navigate to **Main Menu > VM Management..** In the "VM Entities" list, select the PM&C guest. On the resulting "View VM Guest" page, select the "Media" tab.

Under the **Media** tab, find the ISO image in the "Available Media" list, and click its "Attach" button. After a pause, the image will appear in the "Attached Media" list.

View VM Guest

Name: vm-pmacdev6 Current Power State: **Running**
 Host: fe80::461e:a1ff:fe06:484 Change to... On

VM Info Software Network **Media**

Attached Media

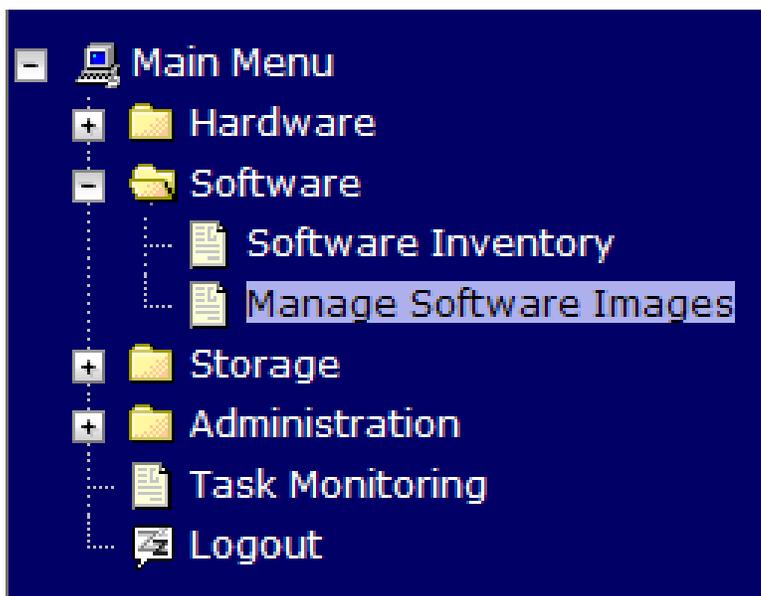
Attached	Image Path
<input type="button" value="Detach"/>	/var/TKLC/tvoe/mapping-isos/vm-pmacdev6.iso
<input type="button" value="Detach"/>	/media/sdb1/000-0000-000-6.0.0_80.16.0-CentOS-6.2-x86_64.iso

Available Media

Attach	Label	Image Path
<input type="button" value="Attach"/>	tklc_000-0000-000_Rev_A_80.16	/media/sdb1/000-0000-000-6.0.0_80.16.0-CentOS-6.2-x86_64.iso
<input type="button" value="Attach"/>	tklc_000-0000-000_Rev_A_80.17	/var/TKLC/upgrade/TPD.install-6.0.0_80.17.0-CentOS6.2-x86_64.iso

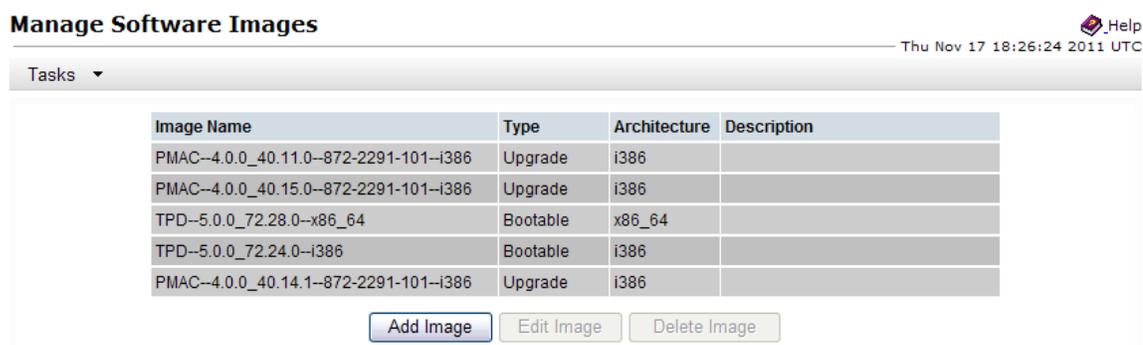
4. **PM&C GUI:** Navigate to Manage Software Images

Navigate to **Main Menu > Software > Manage Software Images**



5. PM&C GUI: Add image

Press the **Add Image** button .

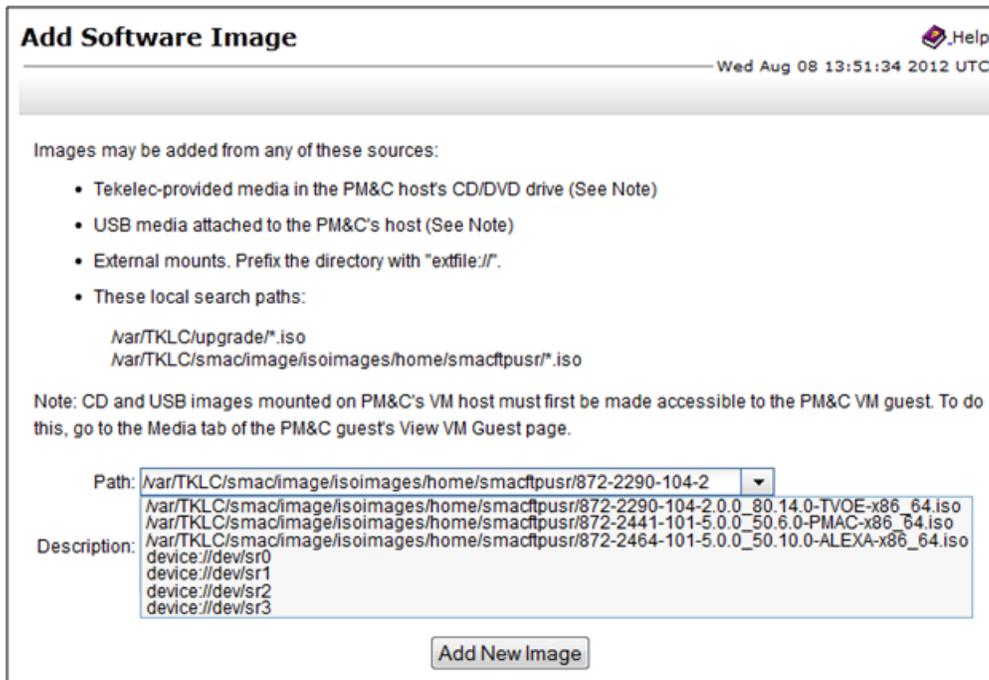


6. PM&C GUI: Add the ISO image to the PM&C image repository.

Select an image to add:

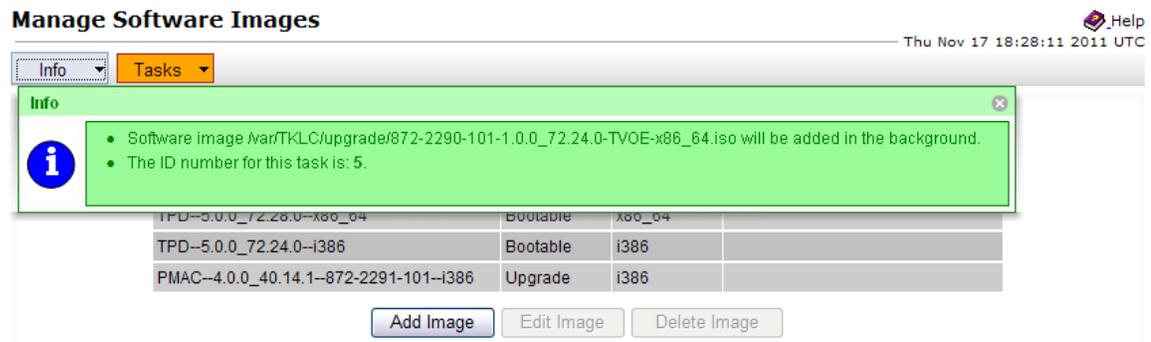
- If in Step 1 the image was transferred to PM&C via sftp it will appear in the list as a local file `"/var/TKLC/..."`.
- If the image was supplied on a CD or a USB drive, it will appear as a virtual device (`"device://..."`). These devices are assigned in numerical order as CD and USB images become available on the Management Server. The first virtual device is reserved for internal use by TVOE and PM&C; therefore, the iso image of interest is normally present on the second device, `"device://dev/sr1"`. If one or more CD or USB-based images were already present on the Management Server before you started this procedure, choose a correspondingly higher device number.

Enter an appropriate image description and press the **Add New Image** button.



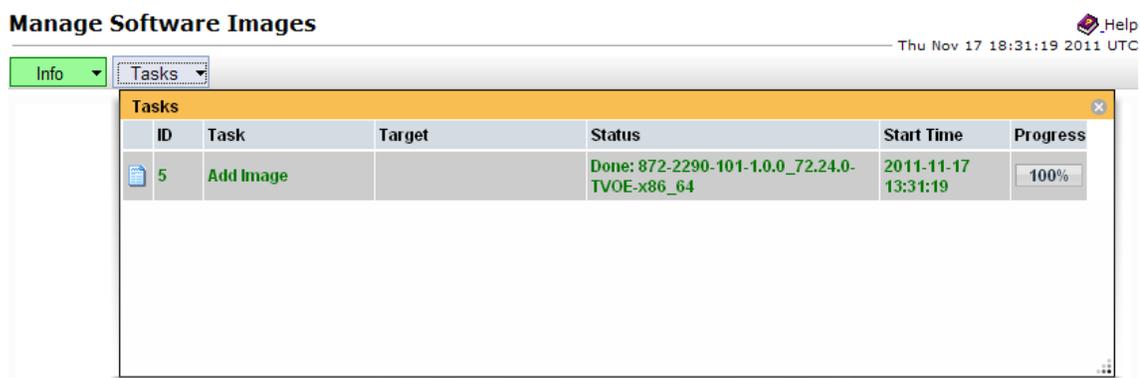
7. PM&C GUI Monitor the Add Image status

The Manage Software Images page is then redisplayed with a new background task entry in the table at the bottom of the page:



8. PM&C GUI Wait until the Add Image task finishes

When the task is complete, its text changes to green and its Progress column indicates "100%". Check that the correct image name appears in the Status column:



9. PM&C GUI: Detach the image from the PM&C guest

If the image was supplied on CD or USB, return to the PM&C guest's "Media" tab used in Step 3, locate the image in the "Attached Media" list, and click its "Detach" button. After a pause, the image will be removed from the "Attached Media" list. This will release the virtual device for future use.

Remove the CD or USB device from the Management Server.

Note: If there are additional ISO images to be provisioned on the PM&C, repeat the procedure with the appropriate ISO image data.

3.7.10 IPM Servers Using PM&C Application

This procedure provides the steps for installing TPD using an image from the PM&C image repository.

Prerequisites:

- Enclosures containing the blade servers or servers containing a TVOE host targeted for IPM have been configured using the [3.7.7 Add Cabinet and Enclosure to the PM&C system inventory](#) procedure.
- Rack mount servers targeted for IPM have been configured using the [3.7.15 Add Rack Mount Server to the PM&C System Inventory](#) procedure.
- A bootable image was added to the PM&C image repository using the [3.7.9 Adding ISO Images to the PM&C Image Repository](#) procedure.
- The BIOS settings on the servers have been verified using the [3.4.2 Confirm/Upgrade Blade Server BIOS Settings](#) procedure or section 3.2 of the 909-2130-001 Initial Product Manufacture document..

Note: If you are about to IPM as preparation for SAN configuration, follow the [3.8.2 Remove SAN Volume from Blade Server Without Preserving Existing TPD Installation](#) procedure.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. PM&C GUI: Login

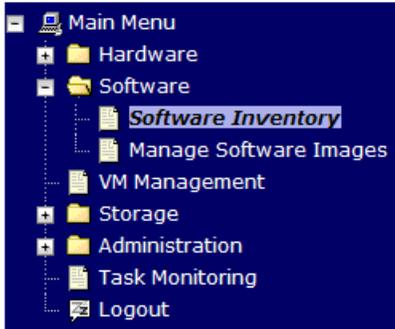
If needed, open web browser and enter:

```
https://<pmac_management_network_ip>
```

Login as the pmacadmin user.

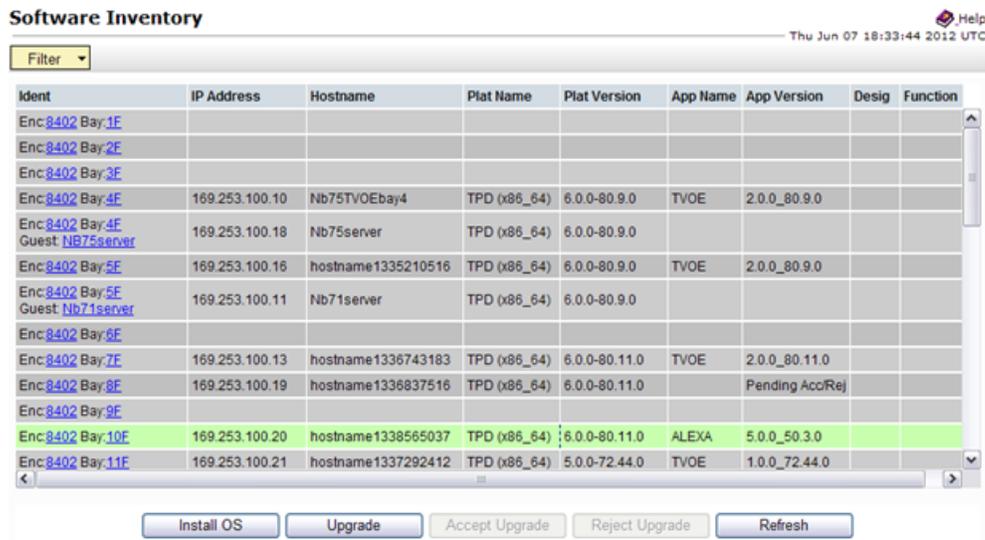
2. **PM&C GUI:** Navigate to the Software Inventory

Navigate to **Main Menu > Software > Software Inventory**.



3. **PM&C GUI:** Select Servers

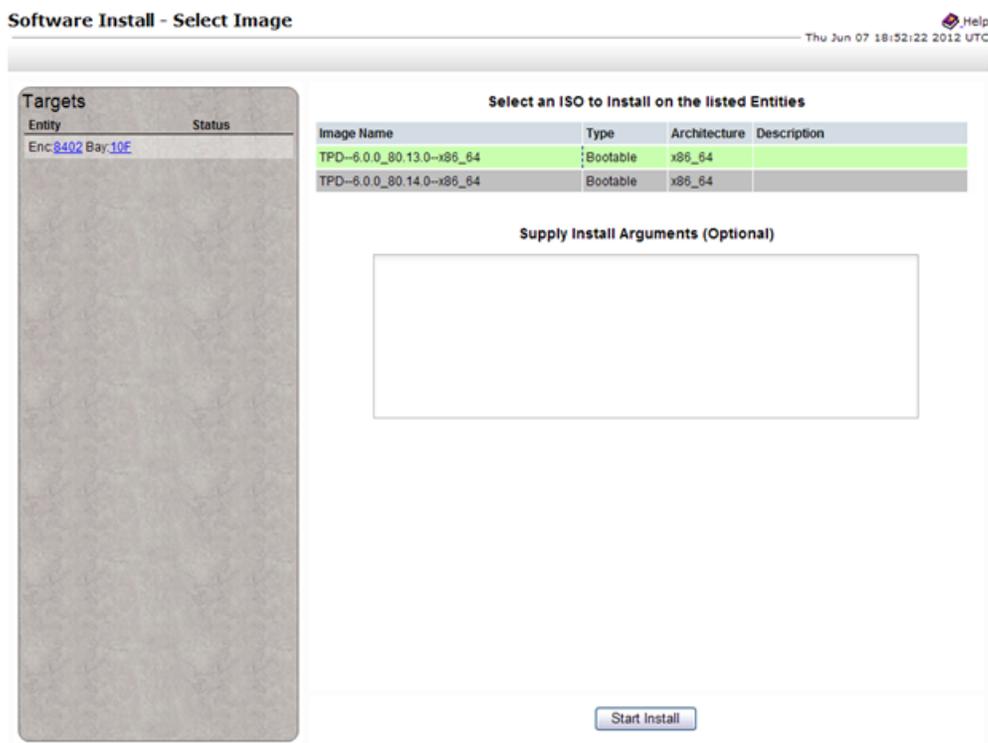
Select the servers you want to IPM. If you want to install the same OS on more than one server, you may select multiple servers by individually clicking multiple rows. Selected rows will be highlighted in green.



Press the **Install OS** button.

4. **PM&C GUI:** Select Image

The left side of the screen displays the servers to be affected by the OS installation. From the list of available bootable images on the right side of the screen, select the OS image to install on the selected servers.



5. **PM&C GUI: Supply Install Arguments (Optional)**

Install arguments can be supplied by entering them into the text box displayed under the list of bootable images. These arguments will be appended to the kernel line during the IPM process. If no install arguments need to be supplied for the OS being installed, leave the install arguments text box empty.

Note: The valid arguments for a TPD IPM are listed in Appendix D.

6. **PM&C GUI: Start Install**

Press the **Start Install** button.

7. **PM&C GUI: Confirm OS Install**

Press the **OK** button to proceed with the install.



8. **PM&C GUI: Monitor Install OS**

Navigate to **Main Menu > Task Monitoring** to monitor the progress of the Install OS background task. A separate task will appear for each server affected.

Background Task Monitoring Help
Thu Jun 07 19:29:19 2012 UTC

Filter ▾

ID	Task	Target	Status	Running Time	Start Time	Progress
6	Install OS	Enc:8402 Bay:10F	Installing packages from ISO	0:04:47	2012-06-07 15:23:04	57%
5	Add Image		Done: TPD.install-6.0.0_80.14.0-CentOS6.2-x86_64	0:00:29	2012-06-07 14:51:19	100%
4	Add Image		Done: TPD.install-6.0.0_80.13.0-CentOS6.2-x86_64	0:00:16	2012-06-06 15:04:44	100%
3	Add Enclosure	Enc:50501	Enclosure added - starting monitoring	0:05:28	2012-06-06 14:48:45	100%
2	Add Enclosure	Enc:8402	Enclosure added - starting monitoring	0:04:32	2012-06-06 14:43:37	100%
1	Initialize PM&C		PM&C initialized	0:00:34	2012-06-06	100%

When the task is complete and successful, its text will change to green and its Progress column will indicate "100%".

Note: Repeat this procedure for additional RMS servers with appropriate data.

3.7.11 Install/Upgrade Applications Using PM&C

This procedure provides the steps for performing an application install/upgrade using an image from the PM&C image repository.

Prerequisites:

- Enclosures containing blade servers or servers containing a TVOE host targeted for application install/upgrade have been configured using the [3.7.7 Add Cabinet and Enclosure to the PM&C system inventory](#) procedure.
- Rack mount servers targeted for application install/upgrade have been configured using the [3.7.15 Add Rack Mount Server to the PM&C System Inventory](#) procedure.
- An upgradable image was added to the PM&C image repository using the [3.7.9 Adding ISO Images to the PM&C Image Repository](#) procedure.
- The BIOS settings on the target servers have been verified using the [3.4.2 Confirm/Upgrade Blade Server BIOS Settings](#) procedure or section 3.2 of the 909-2130-001 Initial Product Manufacture document.

Note: Firmware update is only supported for HP c-Class blades and Rack Mount Servers.

Note: Until the target servers are fully discovered by PM&C, the user will be unable to start an application install or upgrade on the servers (this may take up to 15 minutes after the OS Installs complete).

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. PM&C GUI: Login

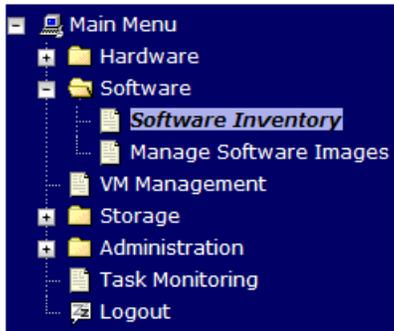
If needed, open your web browser and enter:

```
https://<pmac_management_network_ip>
```

Login as the pmacadmin user.

2. PM&C GUI: Navigate to the Software Inventory

Navigate to **Main Menu > Software > Software Inventory**.



3. PM&C GUI: Select Servers

Select the servers you want to upgrade. If you want to perform an upgrade on more than one server, you may select multiple servers by individually clicking multiple rows. Selected rows will be highlighted in green.

Software Inventory Help
Fri Jun 01 16:51:08 2012 UTC

Filter ▾

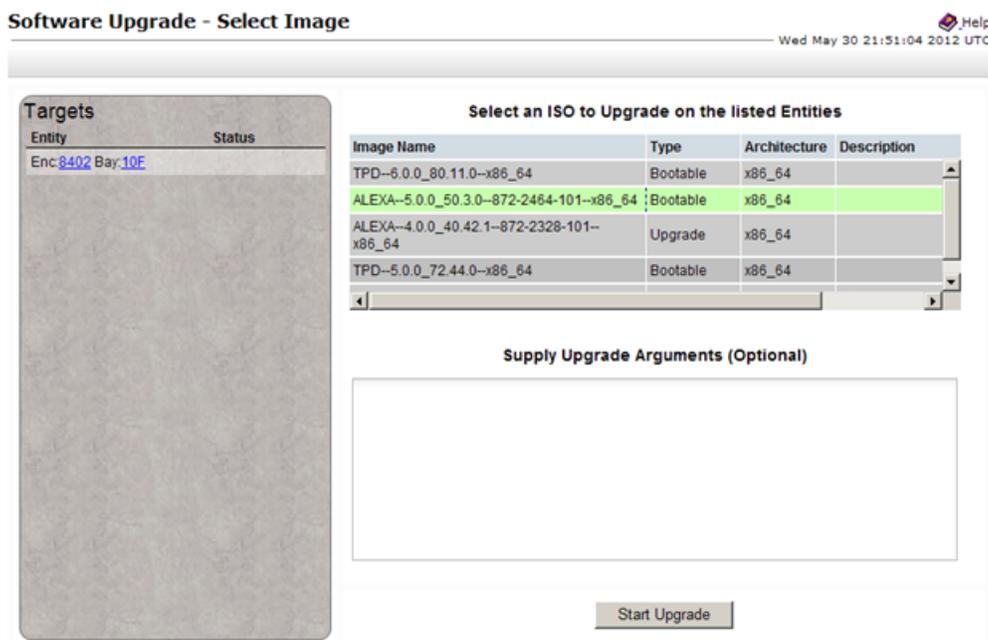
Ident	IP Address	Hostname	Plat Name	Plat Version	App Name	App Version	Desig	Function
Enc 8402 Bay 5E Guest Nb71server	169.253.100.11	Nb71server	TPD (x86_64)	6.0.0-80.9.0				
Enc 8402 Bay 9E								
Enc 8402 Bay 7F	169.253.100.13	hostname1336743183	TPD (x86_64)	6.0.0-80.11.0	TVOE	2.0.0_80.11.0		
Enc 8402 Bay 8E	169.253.100.19	hostname1336837516	TPD (x86_64)	6.0.0-80.11.0		Pending Acc/Rej		
Enc 8402 Bay 9E								
Enc 8402 Bay 10E	169.253.100.20	hostname1338565037	TPD (x86_64)	6.0.0-80.11.0				
Enc 8402 Bay 11E	169.253.100.21	hostname1337292412	TPD (x86_64)	5.0.0-72.44.0	TVOE	1.0.0_72.44.0		

Press the **Upgrade** button.

Note: Until the target servers are fully discovered by PM&C, the user will be unable to start an application install or upgrade on the servers (this may take up to 15 minutes after the OS Installs complete). A server that has not yet been discovered is represented by an empty row on the Software Inventory page (no IP address, hostname, plat name, plat version, etc. is displayed).

4. PM&C GUI: Select Image

The left side of the screen displays the servers to be upgraded. From the list of upgrade images on the right side of the screen, select the image to install on the selected servers.



5. PM&C GUI: Supply Upgrade Arguments (Optional)

Upgrade arguments can be supplied by entering them into the text box displayed under the list of upgrade images. Each upgrade argument must be of the form **key=value** and supported by the version of TPD that the application being installed/upgraded is based on. Multiple arguments must be separated by spaces or entered on new lines. If no upgrade arguments need to be supplied for the application being installed/upgraded, leave the upgrade arguments text box empty.

Note: PM&C does not validate supplied firmware update arguments.

6. PM&C GUI: Start Upgrade

Press the **Start Upgrade** button.

7. PM&C GUI: Confirm Upgrade

Press the **OK** button to proceed with the upgrade.



8. PM&C GUI: Monitor Upgrade

Navigate to **Main Menu > Task Monitoring** to monitor the progress of the Upgrade background task. A separate task will appear for each server being upgraded.

Background Task Monitoring Help
Wed May 30 21:54:25 2012 UTC

Filter ▾

ID	Task	Target	Status	Running Time	Start Time	Progress
186	Upgrade	Enc:8402 Bay:10F	In Progress	0:01:01	2012-05-30 17:54:24	60%
185	Install OS	Enc:8402 Bay:10F	Done: TPD-6.0.0_80.11.0-x86_64	0:17:57	2012-05-30 17:31:16	100%
184	Upgrade	Enc:8402 Bay:10F	Success	0:20:23	2012-05-30 15:02:14	100%
183	Install OS	Enc:8402 Bay:10F	Done: TPD-6.0.0_80.11.0-x86_64	0:18:03	2012-05-30 14:21:59	100%
182	Add Image		Done: TPD.install-6.0.0_80.11.0-CentOS6.2-x86_64	0:00:30	2012-05-30 14:20:11	100%

Delete Completed Delete Failed Delete Selected

When the task is complete and successful its text will change to green and its Progress column will indicate "100%".

9. **PM&C GUI:** Verify that the installed/upgraded application is fully functional. The application must provide the steps necessary for verifying its functionality.
10. **PM&C GUI:** Accept or Reject Upgrade (Platform 6.x Applications Only)
If the application you just upgraded or installed is based on a TPD 6.x release, you must either accept or reject the upgrade. To accept an upgrade using PM&C, perform the [3.7.18 Accepting Upgrades Using PM&C](#) procedure. Likewise, to reject an upgrade using PM&C, perform the [3.7.19 Rejecting Upgrades Using PM&C](#) procedure.

3.7.12 Install PM&C on redundant DL360 or DL380

This procedure is optional and required only if the redundant PM&C Server feature is to be deployed.

This procedure will provide the instructions for installing and configuring TVOE on a redundant DL360 or DL380 server and deploying a redundant PM&C, as well as creating the first backup from the primary PM&C.

Prerequisites:

- [3.7.9 Adding ISO Images to the PM&C Image Repository](#) has been completed using the TVOE media.
- [3.7.9 Adding ISO Images to the PM&C Image Repository](#) has been completed using the PM&C media. Make note of the PM&C Image Name; it will be used during the procedure as <PMAC_Image_Name>.
- [3.7.10 IPM Servers Using PM&C Application](#) has been completed on the redundant management server using the TVOE media.
- [3.7.3 TVOE Network Configuration](#) has been completed **for the redundant management server**.

Note: In the event a disaster recovery is required, refer to the recovery procedure in 909-2210-001.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

Note: It is assumed that the use of a redundant PM&C means the NetBackup feature is not in use.

1. **Redundant Management Server iLO:** Login to the redundant management server on the remote console.

Login to the TVOE as admusr using *Appendix G, How to Access a Server Console using the iLO*.

Log in to iLO in IE using the password provided by application:

```
http://<redundant_management_server_iLO_ip>
```

Click in the Remote Console tab and launch the Integrated Remote Console on the server.

Click Yes if the Security Alert pops up.

- 2. Primary Management Server iLO:** Login to the primary management server on the remote console. Login to the primary PM&C guest as admusr using the virsh console.

```
$ sudo /usr/bin/virsh
virsh # list
  Id   Name                               State
-----
  4    pmacU17-1                          running

virsh # console pmacU17-1

[Output Removed]

pmacU17-1 login:
```

- 3. Primary PM&C:** Export the PM&C ISO image to the Redundant Management Server's address on the control network.

```
$ sudo /usr/sbin/exportfs
<redundant_pmac_control_ip>:/usr/TKLC/smac/html/TPD/<PMAC_Image_Name>
$
```

- 4. Redundant Management Server TVOE:** Mount the PM&C upgrade media from the PM&C server.

```
$ sudo /bin/mount
<primary_pmac_control_ip>:/usr/TKLC/smac/html/TPD/<PMAC_Image_Name> /mnt/upgrade
$
```

- 5. Redundant Management Server TVOE:** Using the pmac-deploy script, deploy the PM&C instance using the configuration detailed by the completed NAPD.

For this example, deploy a PM&C without NetBackup feature:

```
$ cd /mnt/upgrade/upgrade
$ sudo ./pmac-deploy --guest=<Redundant_PMAC_Name> --hostname=<Redundant_PMAC_Name>
--controlBridge=<TVOE_Control_Bridge>
--controlIP=<Redundant_PMAC_Control_ip_address> --controlNM=<PMAC_Control_netmask>
--managementBridge=<PMAC_Management_Bridge>
--managementIP=<Redundant_PMAC_Management_ip_address>
--managementNM=<PMAC_Management_netmask>
--routeGW=<PMAC_Management_gateway_address>
--ntpserver=<Redundant_TVOE_Management_server_ip_address>
```

- The PM&C will deploy and boot. The management and control network will come up based on the settings that were provided to the pmac-deploy script.
- 7. Redundant Management Server TVOE:** Unmount the media.

```
$ cd /
$ sudo /bin/umount /mnt/upgrade
```

8. Perform [3.7.5 Setup PM&C](#) on the Redundant PM&C.



Warning: Initialization of the redundant PM&C is to be avoided at all costs

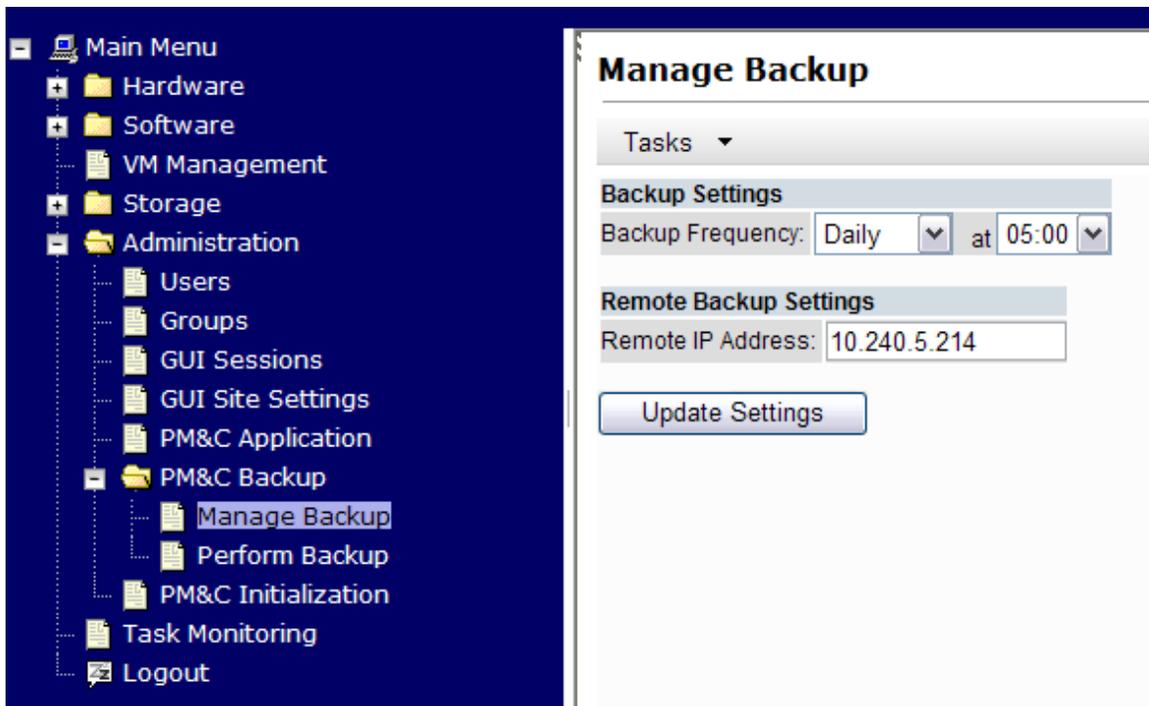
9. **Primary PM&C Server GUI: Login**

`https://<pmac_management_network_ip>`

Login as **pmacadmin** user.

10. **Primary PM&C Server GUI: Configure the primary PM&C to send backups to the redundant PM&C**

Navigate to **Main Menu > Administration > PM&C Backup > Manage Backup**



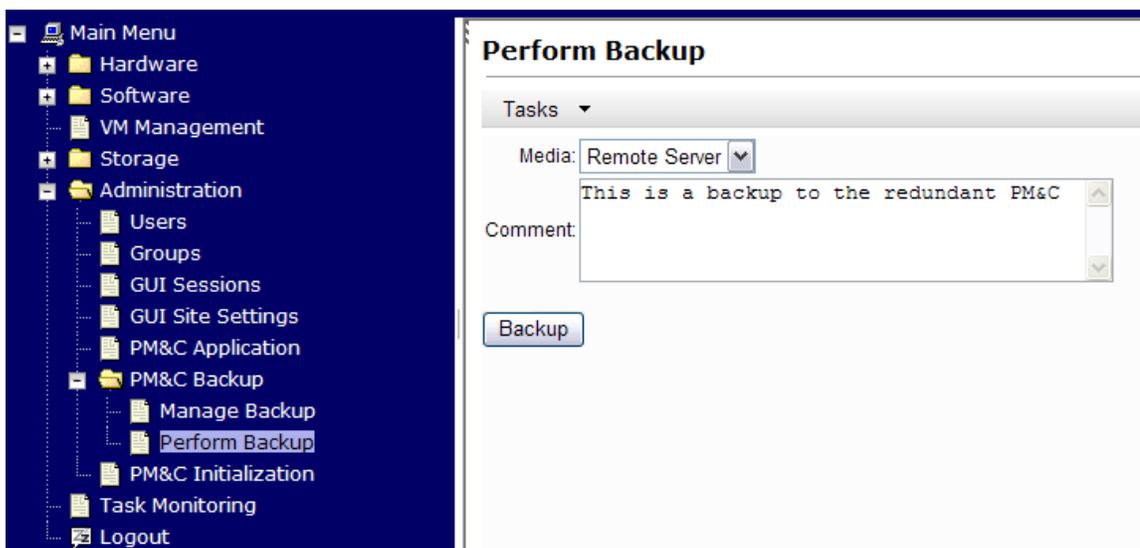
On the **Manage Backup** panel, enter the IP address of the redundant PM&C (**redundant_management_server_mgmtVLAN_IP**) and click on **Update Settings**.

11. **Primary PM&C Server GUI: Verify update was successful**

Click on the **Task Monitoring** link to monitor the Update PM&C Backup Data status. Verify the task completes successfully.

12. **Primary PM&C Server GUI: Perform initial backup to the redundant PM&C server**

Navigate to **Main Menu > Administration > PM&C Backup > Perform Backup**.



Select "**Remote Server**" from the drop down media, enter any desired comment and click **Backup**.

13. Primary PM&C Server GUI: Verify the backup was successful

Click on the Task Monitoring link to monitor the Backup PM&C status. Verify the task completes successfully.

Note: This backup copies the existing PM&C backup files and all of the images added to the PM&C image repository from the primary PM&C Server to the redundant PM&C Server.

14. Primary PM&C: Unexport the PM&C ISO image.

```
$ sudo /usr/sbin/exportfs -u
<redundant_pmac_control_ip>:/usr/TKLC/smac/html/TPD/<PMAC_Image_Name>
$
```

3.7.13 Configure Management Server SNMP trap target

This procedure will configure SNMP settings for the Management Server.

Prerequisites:

- [3.7.6 Configure PM&C application](#) has been completed.
- Knowing the IP address of the target NMS Server(s) for SNMP traps.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Perform the steps to add an SNMP trap destination.
Perform the steps in [3.10.3 Add SNMP trap destination on TPD based Application](#), logging into the Management Server and providing the IP address of each trap destination(s).
2. Ensure the PM&C MIB is available to the SNMP trap destination
PM&C specific MIB files are located in the `/usr/TKLC/smac/etc/mib` directory on the Management Server.

The file of interest is `pmacAppAlarms.mib`.

3.7.14 PM&C NetBackup Client Installation and Configuration

This procedure provides instructions for installing and configuring the Netbackup client software on a PM&C application.

Prerequisites:

- The PM&C application must be initialized, or subsequent to the initialization configured with the NetBackup Feature enabled. Additionally the appropriate NetBackup network configuration for this system must be completed.
 - [3.7.20 Initialize PM&C Application](#), or [3.7.6 Configure PM&C application](#) as is applicable.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. **PM&C GUI:** Verify the PM&C application guest has been configured with "NetBackup" virtual disk.

Execute [3.7.21 Configure PM&C application guest NetBackup virtual disk](#).

2. **TVOE Management Server iLO:** Login with PM&C admusr credentials

Login to iLo using application provided passwords via Appendix G [How to Access a Server Console using the iLO](#)

Login to iLO in IE using password provided by application:

```
http://<management_server_iLO_ip>
```

Click in the **Remote Console** tab and launch the Integrated Remote Console on the server.

Click **Yes** if the Security Alert pops up.

3. **TVOE Management Server iLO:** Login with PM&C admusr credentials

Note: On a TVOE host, If you launch the virsh console, i.e., "`$ sudo /usr/bin/virsh console X`" or from the virsh utility "`virsh # console X`" command and you get garbage characters or output is not quite right, then more than likely there is a stuck "virsh console" command already being run on the TVOE host. Exit out of the "virsh console", then run "`ps -ef |grep virsh`", then kill the existing process "`kill -9 <PID>`". Then execute the "virsh console X" command. Your console session should now run as expected.

Login to PM&C console using virsh, and wait until you see the login prompt:

```
$ sudo /usr/bin/virsh
virsh # list
  Id   Name                State
-----
  4    pmacU17-1           running

virsh # console pmacU17-1

[Output Removed]

pmacU17-1 login:
```

4. PM&C: Perform [3.10.5 Application NetBackup Client Install/Upgrade Procedures](#).

Note: The following data is required to perform the [3.10.5 Application NetBackup Client Install/Upgrade Procedures](#):

- The PM&C is a 64 bit application; the appropriate Netbackup client software versions are 7.1 and 7.5.
- The PM&C application NetBackup user is "NetBackup"; see appropriate documentation for password.
- The paths to the PM&C application software NetBackup notify scripts are:
 - /usr/TKLC/smac/sbin/bpstart_notify
 - /usr/TKLC/smac/sbin/bpend_notify
- For the PM&C application the following is the NetBackup server policy files list:
 - /var/TKLC/smac/image/repository/*.iso
 - /var/TKLC/smac/backup/backupPmac*.pef

After executing the [3.10.5 Application NetBackup Client Install/Upgrade Procedures](#), the NetBackup installation and configuration on the PM&C application server is complete.

Note: At the NetBackup Server the NetBackup policy(ies) can now be created to perform the NetBackup backups of the PM&C application.

3.7.15 Add Rack Mount Server to the PM&C System Inventory

This procedure provides instructions to add a rack mount server to the PM&C system inventory.

Prerequisite:

- [3.7.6 Configure PM&C application](#) has been completed.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

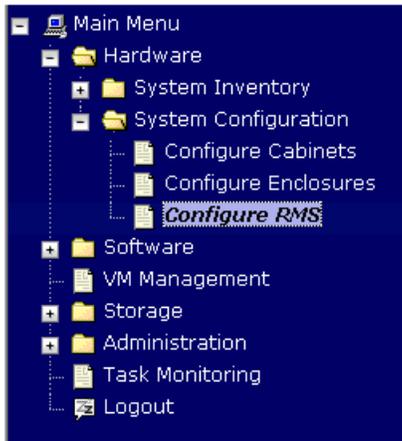
1. PM&C GUI: Login

Open web browser and enter:

```
https://<pmac_management_network_ip>
```

2. PM&C GUI: Configure RMS

Navigate to **Main Menu > Hardware > System Configuration > Configure RMS**



3. **PM&C GUI: Add RMS**

On the Configure RMS panel, click the Add RMS button.



4. **PM&C GUI: Enter information**

Enter the IP Address of the rack mount server management port (iLO). All the other fields are optional.

Then click on the **Add RMS** button.

Add RMS

IP: *

Name:

Cabinet ID: ▼

User:

Password:

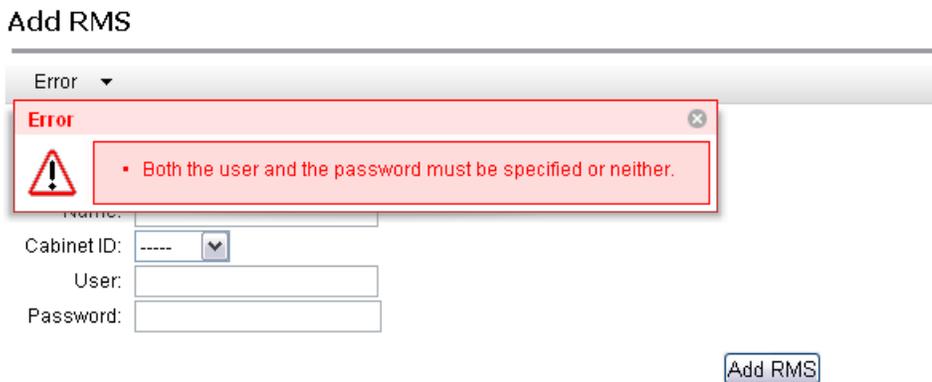
Note: The PM&C contains default credentials for the rack mount server management port (not to be confused with OS or Application credentials), however if you know the default credentials will not work then enter the valid credentials for the rack mount server management port.

5. **PM&C GUI: Check errors**

If no error is reported to the user you will see the following:

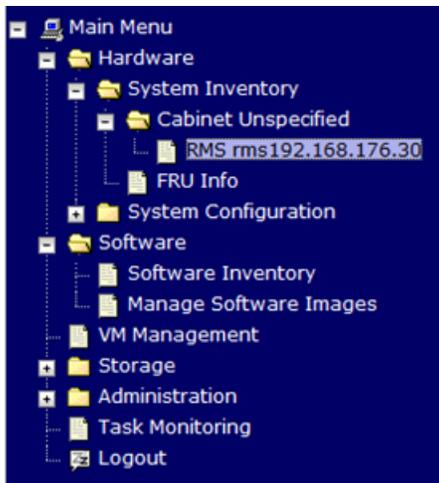


Or you will see an error message:

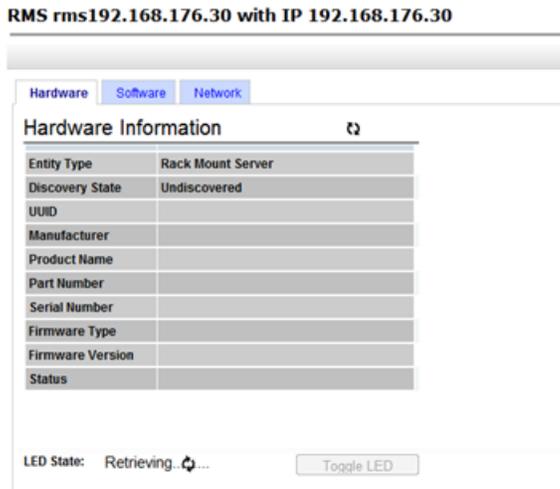


6. PM&C GUI:Verify RMS discovered

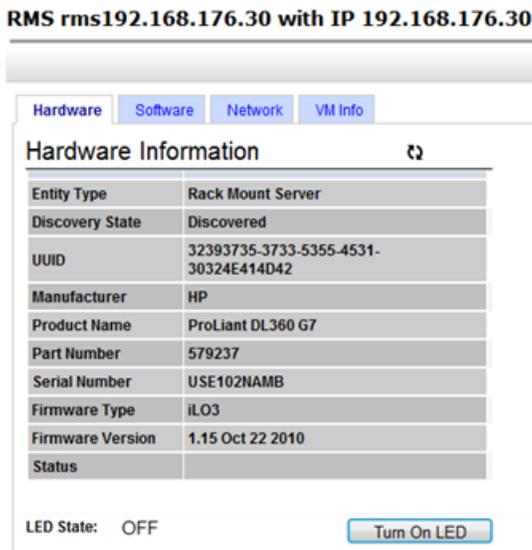
Navigate to **Main Menu > Hardware > System Inventory > Cabinet xxx > RMS yyy** Where xxx is the cabinet id selected when adding RMS (or "unspecified") and yyy is the name of the RMS.



The RMS inventory page is displayed.



Periodically refresh the hardware information using the double arrow to the right of the title "Hardware Information" until the "Discovery state" changes from "Undiscovered" to "Discovered". If "Status" displays an error, contact the Customer Care Center for assistance by referring to the [1.4 Customer Care Center](#) section of this document.



3.7.16 Edit Rack Mount Server in the PM&C System Inventory

This procedure provides instructions to edit a rack mount server in the PM&C system inventory. This option is used to modify the name, cabinet, or credentials of an already provisioned rack mount server.

Prerequisite:

- [3.7.15 Add Rack Mount Server to the PM&C System Inventory](#) has been completed.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

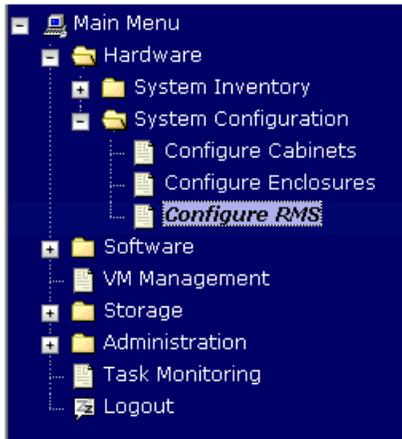
1. **PM&C GUI: Login**

Open web browser and enter:

`https://<pmac_management_network_ip>`

2. **PM&C GUI: Configure RMS**

Navigate to **Main Menu > Hardware > System Configuration > Configure RMS.**



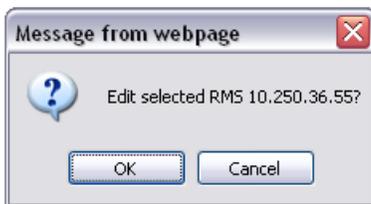
3. **PM&C GUI: Edit RMS**

On the Configure RMS panel, select one row in the list of rack mount servers and click the **Edit RMS** button.



4. **PM&C GUI: Confirmation**

A popup window appears asking you to confirm your desire to edit the rack mount server, click **OK**.



5. **PM&C GUI: Edit RMS**

In the Edit RMS panel, modify the field that needs to be altered.

Then click on the **Edit RMS** button.

Edit RMS 10.250.36.55

Name:

Cabinet ID:

User:

Password:

6. PM&C GUI: Check errors

If no error is reported to the user you will see the following:

Configure RMS

Info

Info

- RMS 10.250.36.55 was updated in the database.

	RMS Name
10.250.36.173	hp90207u07
	myTVOEu06

Or you will see an error message:

Edit RMS 10.250.36.55

Error

Error

- Both the user and the password must be specified or neither.

Cabinet ID:

User:

Password:

3.7.17 Finding and Adding a Rack Mount Server to the PM&C System Inventory

This procedure provides instructions to find and add a rack mount server to the PM&C system inventory. This option is used to locate rack mount servers already running a Tekelec OS or within a specified IP Address range and then add those to the PM&C system inventory.

Prerequisites:

- [3.7.6 Configure PM&C application](#) has been completed.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document

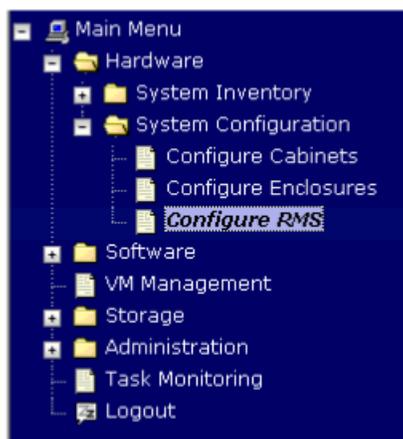
1. PM&C GUI: Login

Open web browser and enter:

```
https://<pmac_management_network_ip>
```

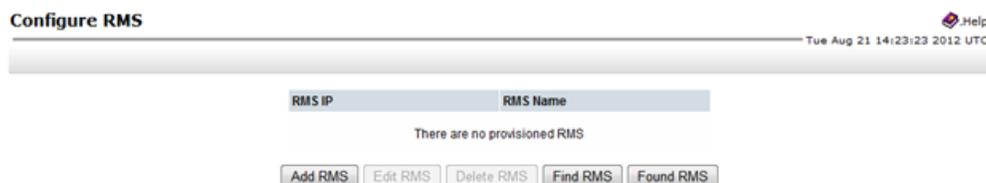
2. PM&C GUI: Configure RMS

Navigate to **Main Menu > Hardware > System Configuration > Configure RMS**



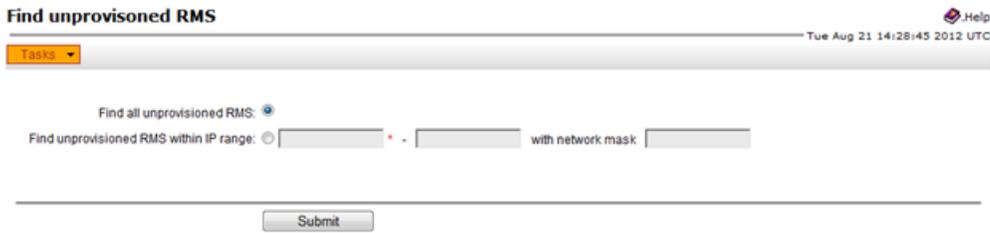
3. PM&C GUI: Find RMS

On the Configure RMS panel, click the **Find RMS** button.



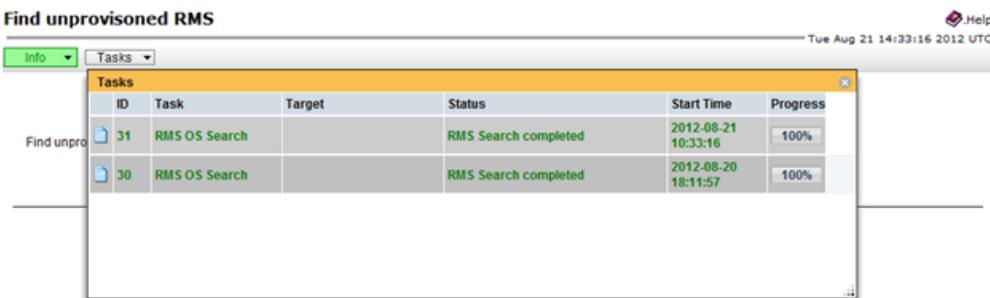
4. PM&C GUI: Find unprovisioned RMS

On the Find unprovisioned RMS panel, click on the type of find you wish to perform. If the RMS has a Tekelec OS installed then use the default "Find all unprovisioned RMS" option. If the RMS does not have a Tekelec OS Installed then PM&C can search a range of IP Addresses for a valid Management Port (e.g. iLO) connection. Click the Submit button.



5. **PM&C GUI: Monitor Find RMS**

The Find unprovisioned RMS page is then redisplayed with a new background task entry in the Tasks table. This table can be accessed by pressing the **Tasks** button located on the toolbar under the Find unprovisioned RMS heading.



When the task is complete and successful, its text will change to green, and its Progress column will indicate "100%".

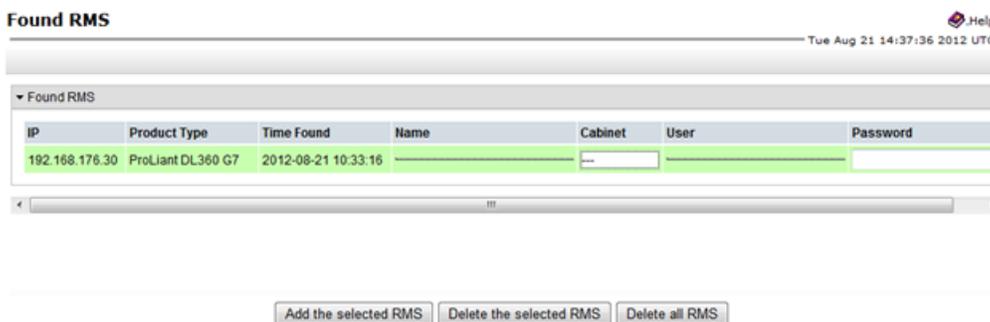
6. **PM&C GUI: Found RMS**

On the Configure RMS panel, click the **Found RMS** button.



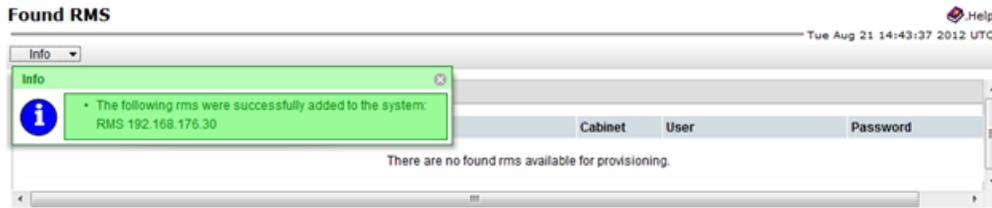
7. **PM&C GUI: Add a found RMS**

On the Found RMS panel, click on one of the found RMS, enter values for any of the optional fields as needed. Press the "Add the selected RMS" button.



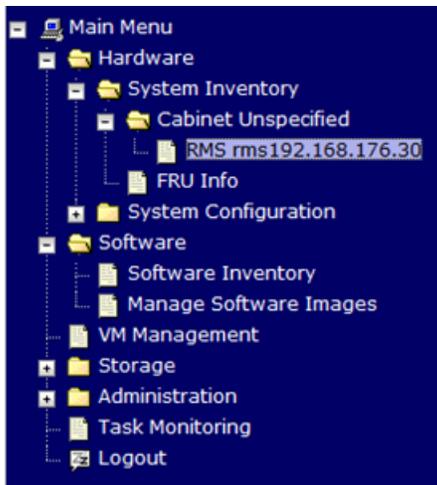
8. PM&C GUI: Check errors

If no error is reported to the user you will see the following:



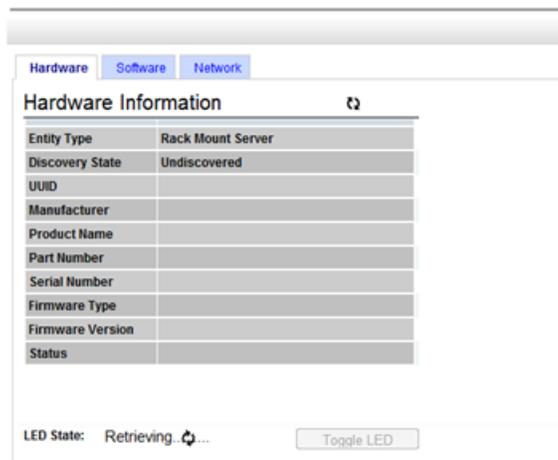
9. PM&C GUI: Verify RMS discovered

Navigate to **Main Menu > Hardware > System Inventory > Cabinet xxx > RMS yyy** Where xxx is the cabinet id selected when adding RMS (or "unspecified") and yyy is the name of the RMS.



The RMS inventory page is displayed.

RMS rms192.168.176.30 with IP 192.168.176.30



Periodically refresh the hardware information using the double arrow to the right of the title "Hardware Information" until the "Discovery state" changes from "Undiscovered" to "Discovered".

If "Status" displays an error, contact the Customer Care Center for assistance by referring to the [1.4 Customer Care Center](#) section of this document.

RMS rms192.168.176.30 with IP 192.168.176.30

The screenshot displays the PM&C GUI for a server. At the top, there are tabs for Hardware, Software, Network, and VM Info. The Hardware Information tab is selected, showing a table of server details. Below the table, the LED State is shown as OFF, and there is a button labeled 'Turn On LED'.

Hardware Information	
Entity Type	Rack Mount Server
Discovery State	Discovered
UUID	32393735-3733-5355-4531-30324E414D42
Manufacturer	HP
Product Name	ProLiant DL360 G7
Part Number	579237
Serial Number	USE102NAMB
Firmware Type	iLO3
Firmware Version	1.15 Oct 22 2010
Status	

LED State: OFF Turn On LED

3.7.18 Accepting Upgrades Using PM&C

This procedure provides the steps for accepting upgrades via PM&C.

Prerequisites:

- Enclosures containing blade servers or servers containing a TVOE host targeted for accept upgrade have been configured using the [3.7.7 Add Cabinet and Enclosure to the PM&C system inventory](#) procedure.
- Rack mount servers targeted for accept upgrade have been configured using the [3.7.15 Add Rack Mount Server to the PM&C System Inventory](#) procedure.
- The BIOS settings on the target servers have been verified using the [3.4.2 Confirm/Upgrade Blade Server BIOS Settings](#) procedure or section 3.2 of the 909-2130-001 Initial Product Manufacture document.
- The target servers have been upgraded with an application based on a TPD 6.x release.

Note: Until the target servers are fully discovered by PM&C, the user will be unable to accept upgrades on the servers (this may take up to 15 minutes after the upgrades complete).

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. PM&C GUI: Login

If needed, open your web browser and enter:

```
https://<pmac_management_network_ip>
```

Login as the pmacadmin user.

2. PM&C GUI: Navigate to the Software Inventory

Navigate to **Main Menu > Software > Software Inventory**.



3. PM&C GUI: Select Servers

To accept upgrades, the servers must be in the pending accept/reject upgrade state. Servers in the pending accept/reject upgrade state will have **Pending Acc/Rej** displayed in their App Version column. Note that it may take up to 15 minutes for PM&C to discover and display the **Pending Acc/Rej** state after an upgrade completes. Select the servers whose upgrades you want to accept. If you want to perform an accept upgrade on more than one server, you may select multiple servers by individually clicking multiple rows. Selected rows will be highlighted in green.

Software Inventory _Help
Fri Jun 01 15:06:49 2012 UTC

Filter

Ident	IP Address	Hostname	Plat Name	Plat Version	App Name	App Version	Desig	Function
Enc:8402 Bay:5F Guest: Nb71server	169.253.100.11	Nb71server	TPD (x86_64)	6.0.0-80.9.0				
Enc:8402 Bay:6F								
Enc:8402 Bay:7F	169.253.100.13	hostname1336743183	TPD (x86_64)	6.0.0-80.11.0	TVOE	2.0.0_80.11.0		
Enc:8402 Bay:8F	169.253.100.19	hostname1336837516	TPD (x86_64)	6.0.0-80.11.0		Pending Acc/Rej		
Enc:8402 Bay:9F								
Enc:8402 Bay:10F	169.253.100.20	hostname1338502102	TPD (x86_64)	6.0.0-80.11.0	ALEXA	Pending Acc/Rej		
Enc:8402 Bay:11F	169.253.100.21	hostname1337292412	TPD (x86_64)	5.0.0-72.44.0	TVOE	1.0.0_72.44.0		

Press the **Accept Upgrade** button

4. PM&C GUI: Confirm Accept Upgrade

Press the **OK** button to proceed with the accept upgrade.



5. PM&C GUI: Monitor Accept Upgrade

Navigate to **Main Menu > Task Monitoring** to monitor the progress of the Accept Upgrade background task. A separate task will appear for each upgrade being accepted.

Background Task Monitoring Help
Thu May 31 21:25:17 2012 UTC

Filter ▾

ID	Task	Target	Status	Running Time	Start Time	Progress
199	Accept Upgrade	Enc:8402 Bay:10F	Task ID Assigned	0:00:00	2012-05-31 17:24:56	40%
192	Upgrade	Enc:8402 Bay:10F	Success	0:15:31	2012-05-31 16:38:47	100%
188	Install OS	Enc:8402 Bay:10F	Done: TPD-6.0.0_80.11.0-x86_64	0:18:10	2012-05-31 16:13:37	100%
187	Accept Upgrade	Enc:8402 Bay:10F	Success	0:01:03	2012-05-31 15:34:34	100%
186	Upgrade	Enc:8402 Bay:10F	Success	0:20:26	2012-05-30 17:54:24	100%

Delete Completed Delete Failed Delete Selected

When the task is complete and successful, its text will change to green, and its Progress column will indicate "100%".

3.7.19 Rejecting Upgrades Using PM&C

This procedure provides the steps for rejecting upgrades via PM&C.

Prerequisites:

- Enclosures containing blade servers or servers containing a TVOE host targeted for reject upgrade have been configured using the [3.7.7 Add Cabinet and Enclosure to the PM&C system inventory](#) procedure.
- Rack mount servers targeted for reject upgrade have been configured using the [3.7.15 Add Rack Mount Server to the PM&C System Inventory](#) procedure.
- The BIOS settings on the target servers have been verified using the [3.4.2 Confirm/Upgrade Blade Server BIOS Settings](#) procedure or section 3.2 of the 909-2130-001 Initial Product Manufacture document.
- The target servers have been upgraded with an application based on a TPD 6.x release.

Note: Until the target servers are fully discovered by PM&C, the user will be unable to reject upgrades on the servers (this may take up to 15 minutes after the upgrades complete).

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. PM&C GUI: Login

If needed, open your web browser and enter:

```
https://<pmac_management_network_ip>
```

Login as the pmacadmin user.

2. PM&C GUI: Navigate to the Software Inventory

Navigate to **Main Menu > Software > Software Inventory**.



3. PM&C GUI: Select Servers

To reject upgrades, the servers must be in the pending accept/reject upgrade state. Servers in the pending accept/reject upgrade state will have **Pending Acc/Rej** displayed in their App Version column. Note that it may take up to 15 minutes for PM&C to discover and display the **Pending Acc/Rej** state after an upgrade completes. Select the servers whose upgrades you want to reject. If you want to perform a reject upgrade on more than one server, you may select multiple servers by individually clicking multiple rows. Selected rows will be highlighted in green.

Software Inventory _Help
Fri Jun 01 15:06:49 2012 UTC

Filter ▾

Ident	IP Address	Hostname	Plat Name	Plat Version	App Name	App Version	Desig	Function
Enc 8402 Bay 5F Guest Nb71server	169.253.100.11	Nb71server	TPD (x86_64)	6.0.0-80.9.0				
Enc 8402 Bay 6F								
Enc 8402 Bay 7F	169.253.100.13	hostname1336743183	TPD (x86_64)	6.0.0-80.11.0	TVOE	2.0.0_80.11.0		
Enc 8402 Bay 8F	169.253.100.19	hostname1336837516	TPD (x86_64)	6.0.0-80.11.0		Pending Acc/Rej		
Enc 8402 Bay 9F								
Enc 8402 Bay 10F	169.253.100.20	hostname1338502102	TPD (x86_64)	6.0.0-80.11.0	ALEXA	Pending Acc/Rej		
Enc 8402 Bay 11F	169.253.100.21	hostname1337292412	TPD (x86_64)	5.0.0-72.44.0	TVOE	1.0.0_72.44.0		

Press the **Reject Upgrade** button.

4. PM&C GUI: Confirm Reject Upgrade

Press the **OK** button to proceed with the reject upgrade.



5. PM&C GUI: Monitor Reject Upgrade

Navigate to **Main Menu > Task Monitoring** to monitor the progress of the Reject Upgrade background task. A separate task will appear for each upgrade being rejected.

Background Task Monitoring Help

Fri Jun 01 14:27:41 2012 UTC

Filter ▾

ID	Task	Target	Status	Running Time	Start Time	Progress
203	Reject Upgrade	Enc:8402 Bay:10F	In Progress	0:01:02	2012-06-01 10:27:35	60%
202	Upgrade	Enc:8402 Bay:10F	Success	0:10:58	2012-06-01 09:50:02	100%
200	Install OS	Enc:8402 Bay:10F	Done: TPD-6.0.0_80.11.0--x86_64	0:18:09	2012-05-31 17:50:54	100%
199	Accept Upgrade	Enc:8402 Bay:10F	Success	0:01:02	2012-05-31 17:24:56	100%
192	Upgrade	Enc:8402 Bay:10F	Success	0:15:31	2012-05-31 16:38:47	100%

Delete Completed Delete Failed Delete Selected

When the task is complete and successful, its text will change to green, and its Progress column will indicate "100%".

3.7.20 Initialize PM&C Application

Initialization of the PM&C application can be performed using the PM&C CLI if an initialization profile exists with the desired features. In the case where a PM&C feature needs to be enabled or modified the PM&C GUI is used to initialize the application. This procedure defines the initialization of the PM&C application and network resources.

Prerequisites:

- PM&C has been deployed and is not initialized or fully configured.
- Aggregation switches have been properly configured.

Note: The installer must be knowledgeable of the network and application requirements. The final step will configure and restart the network and the PM&C application; network access will be briefly interrupted.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

If the PM&C application is to be initialized using the PM&C CLI, execute [3.7.23 Initialize PM&C Application using CLI](#), otherwise, execute [3.7.24 Initialize PM&C Application using the GUI](#).

Note: If the NetBackup feature is to be configured on this PM&C, execute [3.7.24 Initialize PM&C Application using the GUI](#)

3.7.21 Configure PM&C application guest NetBackup virtual disk

1. **PM&C GUI:** Determine if the PM&C application guest is configured with a "NetBackup" virtual disk.

Navigate to "**Virtual Machine Management**" view and select the PM&C application guest from the "VM Entities" list.

2. **PM&C GUI:** Determine if the "Virtual Disks" list contains the "NetBackup" device.

If the "NetBackup" device exists for the PM&C application guest then return to the procedure that invoked this procedure. Otherwise continue with this procedure.

3. **PM&C GUI:** Edit the PM&C application guest to add the "NetBackup" virtual disk.
Click "Edit" and enter the following data for the new NetBackup virtual disk.

- Size (MB): "2048"
- Host Pool: "vgguests"
- Host Vol Name: "<pmacGuestName>_netbackup.img"
- Guest Dev Name: "NetBackup"

Note: The "Guest Dev Name" must be set to "isoimages" for the PM&C application to mount the appropriate host device. The <pmacGuestName> variable should be set to this PM&C guest's name to create a unique volume name on the TVOE host of the PM&C.

4. **PM&C GUI:** Verify the new NetBackup virtual disk data and save.

The screenshot displays the Tekelec Platform Management & Configuration GUI. The main window is titled "Virtual Machine Management" and shows the "Edit VM Guest" configuration for a VM named "pmacU14-1". The current power state is "Running". The configuration is divided into several sections:

- VM Info:** Name: pmacU14-1, Host: fe80::2e76:8aff:fe50:7960, Num vCPUs: 1, Memory (MBs): 2,048, VM UUID: 25d4df67-5bc8-4190-fe72-a5d92bf4839e, Enable Virtual Watchdog:
- Virtual Disks:** A table listing three disks:

Prim	Size (MB)	Host Pool	Host Vol Name	Guest Dev Name
	10240	vgguests	pmacU14-1_logs.img	logs
	30720	vgguests	pmacU14-1_images.img	images
	2048	vgguests	pmacU14-1_netbackup.img	netbackup
- Virtual NICs:** A table listing three network interfaces:

Host Bridge	Guest Dev Name	MAC Addr
cntrl49	control	52-54:00:22-86:cb
mgmt31	management	52-54:00:c6-98:de
netbackup	netbackup	52-54:00:ab-7a:d4

The interface also includes a "Save" button and a "Cancel" button at the bottom.

5. **PM&C GUI:** Confirm the PM&C application guest edit.
A confirmation dialog will be presented with the message, "Changes to the PMAC guest: <pmacGuestName> will not take effect until after the next power cycle. Do you wish to continue?". Click "OK" to continue.
6. **PM&C GUI:** Confirm the Edit VM Guest task has completed successfully.
Navigate to the Background Task Monitoring view. Confirm the guest edit task has completed successfully.
7. **TVOE Management server iLO:** Shutdown the PM&C application guest.

Note: In order to configure the PM&C application with the new NetBackup virtual disk the PM&C application guest needs to be shut down and restarted. Refer to *PM&C 5.0 Incremental Upgrade, 909-2207-01, Appendix F. Shutdown PM&C Guest*.

8. TVOE Management Server iLO: Start the PM&C application guest.

Note: In order to configure the PM&C application with the new isoimages virtual disk the PM&C application guest needs to be shut down and restarted.

Using virsh utility on TVOE host of PM&C guest, start the PM&C guest. Query the list of guests until the PM&C guest is "running".

```
$ sudo /usr/bin/virsh
virsh # list --all
Id Name State
-----
20 pmacU14-1 shut off

virsh # start pmacU14-1
Domain pmacU14-1 started

virsh # list --all
Id Name State
-----
20 pmacU14-1 running
```

9. Return to the procedure that invoked this procedure.

3.7.22 PM&C Guest Migrate NetBackup Client to New File System

If the Netbackup client software was installed on a PM&C application guest prior to the "NetBackup" virtual disk being required for a PM&C deploy with NetBackup, execute [3.7.21 Configure PM&C application guest NetBackup virtual disk](#).

Note: The procedure above will create a new NetBackup virtual disk for the PM&C guest. The PM&C guest will be shut down and restarted. The content of the "/usr/opencv" directory will be moved to the new NetBackup virtual disk, and mounted at "/usr/opencv".

3.7.23 Initialize PM&C Application using CLI

Prerequisites:

- PM&C has been deployed and is not initialized or fully configured.

Note: The installer must be knowledgeable of the network and application requirements. The final step will configure and restart the network and the PM&C application; network access will be briefly interrupted.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. TVOE Management Server iLO: Login with PM&C admusr credentials

Login to the TVOE as admusr using Appendix G [How to Access a Server Console using the iLO](#)

Login to iLO in IE using password provided by application:

```
http://<management_server_iLO_ip>
```

Click in the **Remote Console** tab and launch the Integrated Remote Console on the server.

Click **Yes** if the Security Alert pops up.

2. Login with PM&C admusr credentials

Note: On a TVOE host, If you launch the virsh console, i.e., "\$ **sudo /usr/bin/virsh console X**" or from the virsh utility "virsh # **console X**" command and you get garbage characters or output is not quite right, then more than likely there is a stuck "virsh console" command already being run on the TVOE host. Exit out of the "virsh console", then run "**ps -ef |grep virsh**", then kill the existing process "**kill -9 <PID>**". Then execute the "virsh console X" command. Your console session should now run as expected.

Login using virsh, and wait until you see the login prompt:

```
virsh # list --all
Id Name State
-----
13 myTPD running
20 pmacdev7 running

virsh # console pmacdev7
Connected to domain pmacdev7
Escape character is ^]

CentOS release 6.2 (Final)
Kernel 2.6.32-220.17.1.el6prere16.0.0_80.14.0.x86_64 on an x86_64

pmacdev7 login:
```

3. PM&C: Initialize the PM&C Application with the PM&C profile.

Note: The example below uses the default PM&C profile named TVOE

```
$ sudo /usr/TKLC/smac/bin/pmacadm applyProfile --fileName=TVOE
Profile successfully applied.
$ sudo /usr/TKLC/smac/bin/pmacadm finishProfileConfig
Initialization has been started as a background task
```

4. Wait for the background task to successfully complete. The command will show "IN_PROGRESS" for a short time.

Run the following command until a "COMPLETE" or a "FAILED" response is seen similar to the following:

```
$ sudo /usr/TKLC/smac/bin/pmaccli getBgTasks
1: Initialize PM&C COMPLETE - PM&C initialized
Step 2: of 2 Started: 2012-07-13 08:23:55 running: 29 sinceUpdate: 47
taskRecordNum: 2 Server Identity:
Physical Blade Location:
Blade Enclosure:
Blade Enclosure Bay:
Guest VM Location:
Host IP:
Guest Name:
```

```

TPD IP:
Rack Mount Server:
IP:
Name:

```

5. Perform a system healthcheck on PM&C:

```

$ sudo /usr/TKLC/plat/bin/alarmMgr --alarmStatus
This command should return no output on a healthy system.
$ sudo /usr/TKLC/smac/bin/sentry status
All Processes should be running, displaying output similar to the following:
PM&C Sentry Status
-----
sentryd started: Mon Jul 23 17:50:49 2012
Current activity mode: ACTIVE
Process          PID      Status      StartTS          NumR
-----
smacTalk         9039    running    Tue Jul 24 12:50:29 2012    2
smacMon          9094    running    Tue Jul 24 12:50:29 2012    2
hpiPortAudit    9137    running    Tue Jul 24 12:50:29 2012    2
snmpEventHandler 9176    running    Tue Jul 24 12:50:29 2012    2
eclipseHelp     9196    running    Tue Jul 24 12:50:30 2012    2
Fri Aug 3 13:16:35 2012
Command Complete.
.

```

6. Logout of the virsh console

Exit the virsh console session using *Appendix I, How to Exit a Guest Console Session on an iLO*.

7. Management Server iLO: Exit the TVOE console.

Run:

```
$ logout
```

3.7.24 Initialize PM&C Application using the GUI

Note: You must be logged in as the Admin user to access this page.

1. PM&C GUI: Load GUI and navigate to the Configuration view

Open web browser and enter:

```
https://<pmac_management_network_ip>
```

Login as pmacadmin user.



Tekelec System Login Wed May 25 19:48:59 2011 UTC

Log In
Enter your username and password to log in

Username:

Password:

Change password

Unauthorized access is prohibited. This Tekelec system requires the use of Microsoft® Internet Explorer 7.0 or 8.0 with support for JavaScript and cookies.

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2. **PM&C GUI:** Select the appropriate PM&C initialization profile.
The "PM&C Initialization" view will be presented to the operator. Select the appropriate profile.

The screenshot displays the Tekelec Platform Management & Configuration (PM&C) web interface. The browser window shows the URL `https://10.240.17.97`. The page header includes the Tekelec logo and version information: "Platform Management & Configuration 5.0.0-50.10.5". A user is logged in as "pmacadmin".

The interface is divided into a left sidebar and a main content area. The sidebar, titled "Main Menu", contains a tree view of navigation options: Hardware, System Configuration, Software, Software Inventory, Manage Software Images, VM Management, Storage, Administration, Users, Groups, GUI Sessions, GUI Site Settings, PM&C Application, PM&C Backup, PM&C Configuration, Task Monitoring, and Logout.

The main content area is titled "PM&C Initialization" and shows a "Profiles" table. The table has three columns: "File Name", "Name", and "Comment". One profile is listed:

File Name	Name	Comment
TVOE	PM&C TVOE Guest	Manage systems from a TVOE hosted PM&C

At the bottom of the main content area, there is an "Initialize" button.

3. PM&C GUI: Select and enable, appropriate PM&C Features, and if required add new Roles.

Note: In this example the Features view was used to create a "NetBackup" role, and the NetBackup Feature was enabled.

Enable the appropriate feature and role, and click "Next".

PM&C Initialization

Features

Feature	Description	Role	Enabled
DEVICE.NETWORK.NETBOOT	Network device PXE initialization	management	<input checked="" type="checkbox"/>
DEVICE.NTP	PM&C as a time server	management	<input checked="" type="checkbox"/>
SERVER.IPM	Server Initial Product Manufacturing	control	<input checked="" type="checkbox"/>
PMAC.MANAGED	Remote management of PM&C server	management	<input type="checkbox"/>
PMAC.REMOTE.BACKUP	Remote server for backup	management	<input checked="" type="checkbox"/>
PMAC.NETBACKUP	NetBackup client	netbackup	<input checked="" type="checkbox"/>

Add Role

Cancel Next

4. PM&C GUI: Provision the PM&C application Networks.

Note: In the example below the NetBackup network was provisioned and added. Provision the appropriate networks and click "Next".

PM&C Initialization

Networks

Network IP	Network Mask
169.254.135.0	255.255.255.0
10.240.17.0	255.255.255.0
192.168.253.0	255.255.255.0

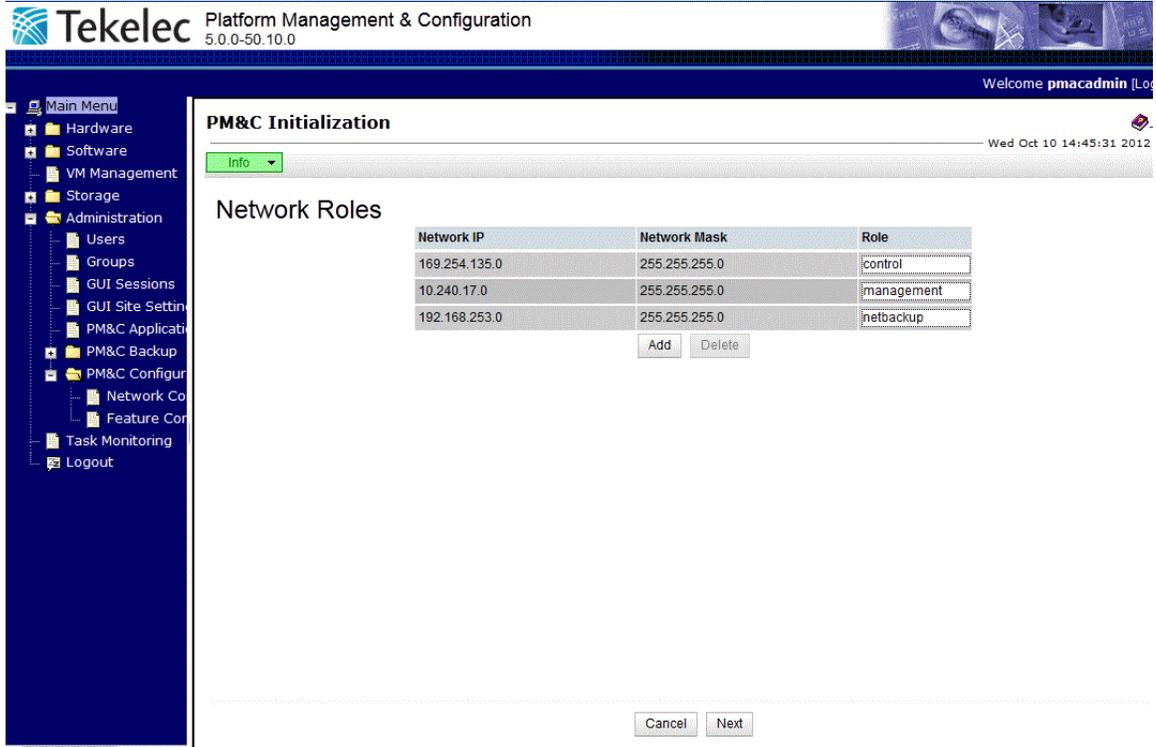
Add Delete

Cancel Next

5. **PM&C GUI:** Provision the PM&C application Network Roles.

Note: In the example below the NetBackup role was provisioned and added.

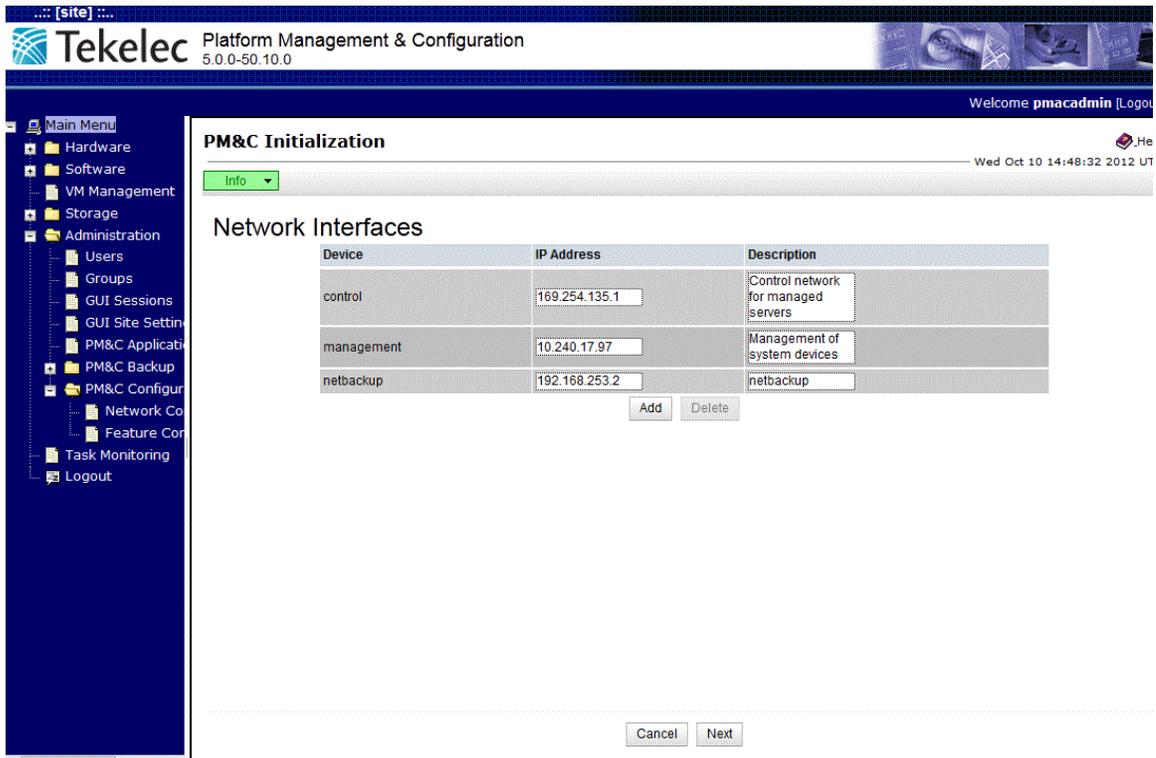
Provision the appropriate network role and click "**Next**".



6. **PM&C GUI:** Provision the PM&C application Network Interfaces.

Note: In the example below, the NetBackup interface was provisioned and added.

Provision the appropriate interface and click "**Next**".



7. PM&C GUI: Provision the PM&C application Routes.

Note: In the following example the default route and NetBackup routes were provisioned. Provision the appropriate routes and click "Next".

Tekelec Platform Management & Configuration 5.0.0-50.10.0

Welcome pmacadmin [Log out]

PM&C Initialization

Info

Wed Oct 10 14:50:38 2012

Routes

Device	Destination IP	Network Mask	Gateway IP
management	0.0.0.0	0.0.0.0	10.240.17.1
netbackup	192.168.253.1	255.255.255.255	192.168.253.1

Add Delete

Cancel Next

- PM&C GUI: Provision the PM&C application DHCP Ranges.
Provision the appropriate DHCP ranges.

Tekelec Platform Management & Configuration 5.0.0-50.10.0

Welcome pmacadmin [Log out]

PM&C Initialization

Wed Oct 10 14:51:53 2012

DHCP Ranges

Start DHCP	End DHCP
169.254.135.2	169.254.135.254

Add Delete

Cancel Next

9. **PM&C GUI:** Finish the PM&C application initialization.

Verify the PM&C application initialization is correct on the "Configuration Summary" view and click **Finish**.

The screenshot shows the PM&C GUI Configuration Summary page. The left sidebar contains a navigation menu with categories like Hardware, Software, VM Management, Storage, Administration, Users, Groups, GUI Sessions, GUI Site Settings, PM&C Application, PM&C Backup, PM&C Configuration, Network Configuration, Feature Configuration, Task Monitoring, and Logout. The main content area is titled "Configuration Summary" and includes a "Welcome pmacadmin [Logout]" header and a "Help" link. The page displays the following configuration details:

Network Description

Network IP	Network Mask
169.254.135.0	255.255.255.0
10.240.17.0	255.255.255.0
192.168.253.0	255.255.255.0

Network and Roles Description

Network IP	Network Mask	Role
169.254.135.0	255.255.255.0	control
10.240.17.0	255.255.255.0	management
192.168.253.0	255.255.255.0	netbackup

Network Interface Description

Device	IP Address	Description
control	169.254.135.1	Control network for managed servers
management	10.240.17.97	Management of system devices
netbackup	192.168.253.2	netbackup

Route Configuration

Device	Destination IP	Network Mask	Gateway IP
management	0.0.0.0	0.0.0.0	10.240.17.1
netbackup	192.168.253.1	255.255.255.255	192.168.253.1

DHCP Configuration

Start DHCP	End DHCP
169.254.135.2	169.254.135.254

Buttons: Cancel, Finish

10. **PM&C GUI:** Verify the PM&C application initialization.

Navigate to the Background Task Monitoring view and verify the "Initialize PM&C" task was successful.

3.7.25 Updating the TVOE Host SNMP Community String from the GUI

This section details how to use the PM&C GUI interface to update the Read Only or Read/Write SNMP Community String on all TVOE hosting servers and the PM&C Guest which are known to the PM&C control network.

Note: You must be logged in as the Admin user to access this page.

1. **PM&C GUI:** Load GUI and navigate to the Configuration view

Open web browser and enter:

```
https://<pmac_management_network_ip>
```

Login as pmacadmin user.




Tekelec

Tekelec System Login Wed May 25 19:48:59 2011 UTC

Log In

Enter your username and password to log in

Username:

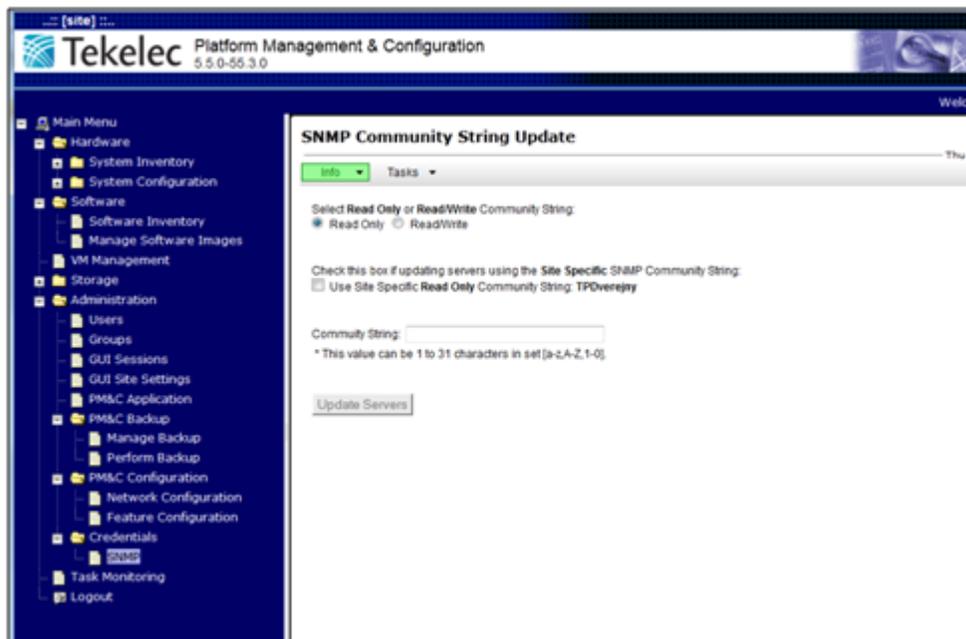
Password:

Change password

Unauthorized access is prohibited. This Tekelec system requires the use of Microsoft® Internet Explorer 7.0 or 8.0 with support for JavaScript and cookies.

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Copyright © 2011 [Tekelec, Inc.](#) All Rights Reserved.*

2. PM&C GUI: Navigate to **Main Menu > Administration > Credentials > SNMP**.



3. PM&C GUI: Select the Read Only or Read/Write radio button depending on which SNMP Community String is to be updated.

Note: In this example the Read Only radio button is selected.

4. **PM&C GUI:** If this the first time the SNMP Community Strings have been updated for this PM&C, leave the Use Site Specific checkbox unchecked. If this is an attempt to update one or more servers hosting the TVOE application “after” the Read Only and/or Read/Write Community String has already been updated, then select the Use Site Specific checkbox. This will disable the Community String textbox and enable the Update Servers button because the string to be used is the one stored in the PM&C database (or the one given in the GUI indicated next to the checkbox). Proceed to [Step 6](#).

5. **PM&C GUI:** Enter a new Read Only Community String into the Community String textbox.

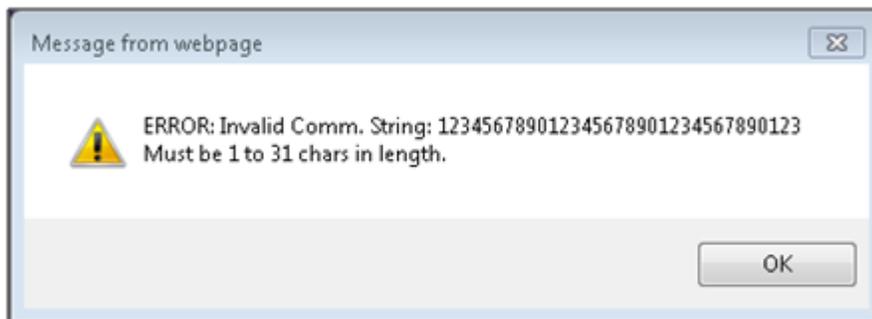
Note: The string may only contain 1 to 31 characters in the set a-z, A-Z, and 0-9.

Once the first character has been entered, the Update Servers button will become enabled.

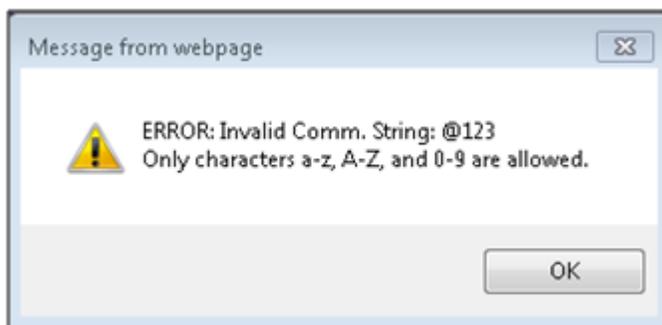
6. **PM&C GUI:** Click on the “Update Servers” button.

The following error or warning messages may be displayed depending on the Community String entered into the textbox after the user clicks on the Update Servers button:

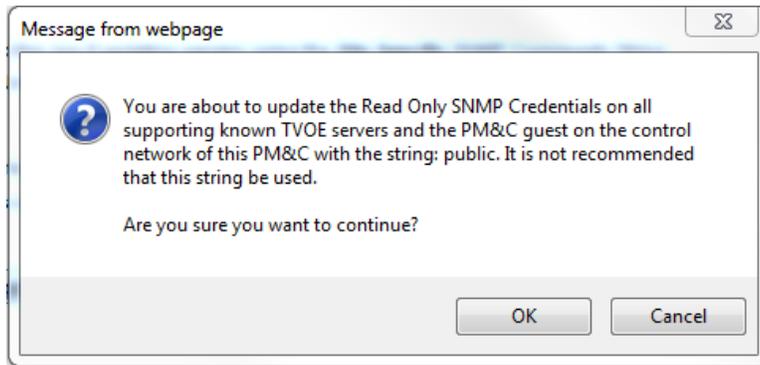
- Invalid string length (over 31 characters)



- Invalid characters (must be a-z, A-Z, 0-9)

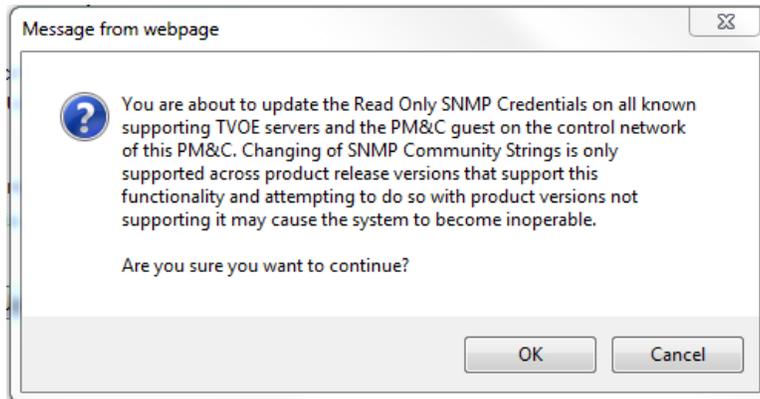


- Use of non-recommended Community String (any mixed case combination of “public”, “private”, “password”, or “snmp-trap”).



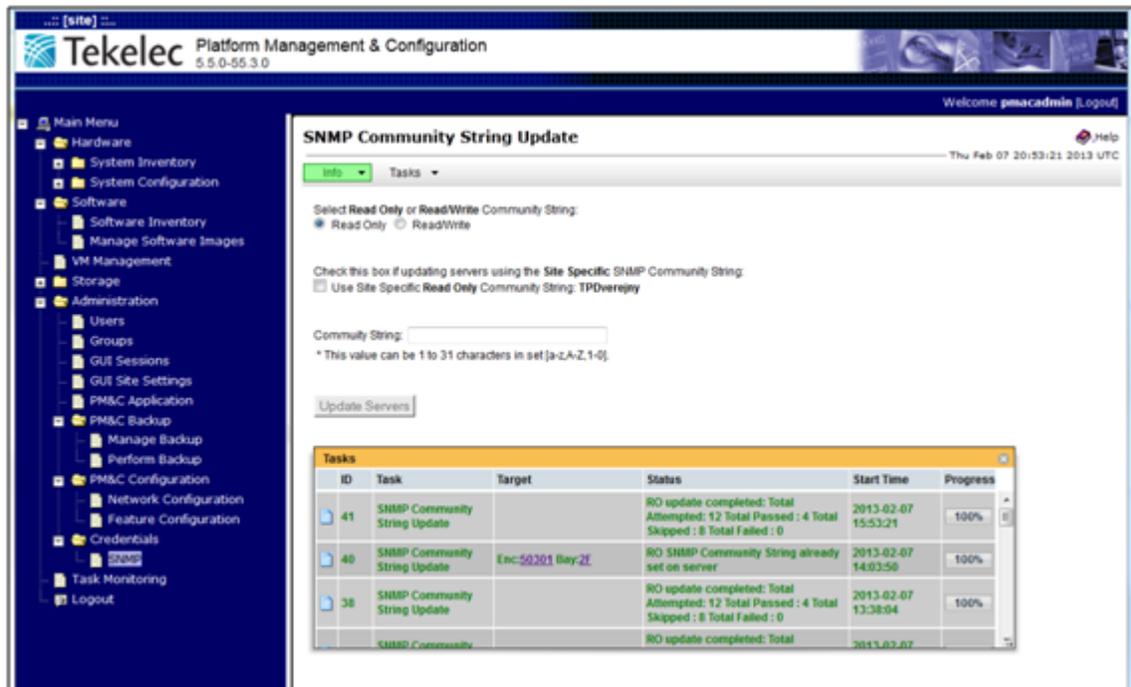
These whole words are not recommended as a standard Community String but the user is allowed to override the controls and allow these string to be set.

- Valid Community String general warning.



This general warning is always displayed after the Community String validation is performed to make sure the user is aware that changing these TVOE host Community Strings can cause their system to become in-operable if other components are not changed to reflect what is entered here.

Note: When this operation is initiated, all supporting TVOE hosting servers and the PM&C guest on the PM&C control network will be updated. All those servers that match the existing Site Specific Community String will not be updated again until the string name is changed. Once validation is complete and the user selects OK on the general warning, a background task is created which can be monitored at the SNMP GUI page from the Tasks button or from the main menu Task Monitoring page.



The Info button can also be displayed which indicates a successful or failed update operation:



- If the update needs to be validated, the user can enter the pmaccli command `getCommStrStatus` at a SSH terminal connection to the PM&C to display the status of the Community Strings on all servers on the PM&C control network.

Execution loops over all known servers on the PM&C control network and attempts to retrieve the Read Only and Read/Write Community String. It displays the IPv4 and IPv6 for each server, the TPD release, the Application name and version, whether the servers supports the update functionality, and the status of the Community Strings for that server. All servers whose TPD instance is greater than 6.5.0_82.4.0 will be queried. It uses the values set in the PM&C database to determine the status of each Community String. The status can be either of the following:

- **Query Failed** - Unable to retrieve the Read Only and Read/Write Community Strings from a given server.
- **Site Specific** - Matches the current (the non-default) Read Only or Read/Write Community String stored in the PM&C database.
- **Default** - Matches the default (non-editable) Read Only or Read/Write Community String stored in the PM&C database.
- **Unknown** - Was able to retrieve the Read Only or Read/Write Community String but it does not match what is maintained in the PM&C database. Usually indicates the Community String was updated manually from an interface other than the PM&C.
- **Not Applicable** - This indicates the server does not support the Update functionality and therefore the status cannot be determined. It is assumed this server matches the default values since they cannot be updated. Usually the server release is an older TPD and Application or a TVOE of < 2.5.0-82.4.0.

The output of the command includes “Server Update Supported” with a value indicating if the Update is actually supported or not. The possible values for support are:

- **Supported** - This indicates the TPD release is $\geq 6.5.0_82.4.0$ and the Application name is TVOE or PMAC.
- **Supported for Query Only** - This indicates the TPD release is $\geq 6.5.0_82.4.0$ and the Application name is unknown or something other than TVOE or PMAC. The Community Strings will not be updated via the PM&C but they can be queried from this command or the getHostCommStr command.
- **Not Supported** - This indicates the TPD release is $< 6.5.0_82.4.0$ and cannot be queried. In this case the Community String is set to the default values and the status is indicated as Not Applicable.

Example output:

```

pmaccli getCommStrStatus

SNMP Credentials Status Info:
=====
Server IP Address (IPv4 - IPv6) : 169.254.131.6 - fe80::b699:baff:fea8:b860
Server Release Info (Host - App): TPD: 6.0.0-80.28.1 - Unknown: Unknown
Server Update Supported          : Not Supported
SNMP Read Only Community String : TPDverejny - Status: Not Applicable
SNMP Read Write Community String: TPDsoukromy - Status: Not Applicable

Server IP Address (IPv4 - IPv6) : 169.254.131.7 - fe80::1ecl:deff:fe75:df00
Server Release Info (Host - App): TPD: 6.5.0-82.4.0 - TVOE: 2.5.0_82.4.0
Server Update Supported          : Supported
SNMP Read Only Community String : newtestrol - Status: Site Specific
SNMP Read Write Community String: newtestrwl - Status: Site Specific

Server IP Address (IPv4 - IPv6) : 169.254.131.12 - fe80::5054:ff:feee:850
Server Release Info (Host - App): TPD: 6.0.0-80.28.0 - Unknown: Unknown
Server Update Supported          : Not Supported
SNMP Read Only Community String : TPDverejny - Status: Not Applicable
SNMP Read Write Community String: TPDsoukromy - Status: Not Applicable

Server IP Address (IPv4 - IPv6) : 169.254.131.14 - fe80::5054:ff:fe07:ea61
Server Release Info (Host - App): TPD: 5.0.0-72.44.0 - Unknown: Unknown
Server Update Supported          : Not Supported
SNMP Read Only Community String : TPDverejny - Status: Not Applicable
SNMP Read Write Community String: TPDsoukromy - Status: Not Applicable

Server IP Address (IPv4 - IPv6) : 169.254.131.8 - fe80::1ecl:deff:fe75:fca0
Server Release Info (Host - App): TPD: 6.5.0-82.4.0 - TVOE: 2.5.0_82.4.0
Server Update Supported          : Supported
SNMP Read Only Community String : newtestrol - Status: Site Specific
SNMP Read Write Community String: newtestrwl - Status: Site Specific

Server IP Address (IPv4 - IPv6) : 169.254.131.5 - fe80::2e76:8aff:fe50:3974
Server Release Info (Host - App): TPD: 6.5.0-82.4.0 - TVOE: 2.5.0_82.4.0
Server Update Supported          : Supported
SNMP Read Only Community String : newtestrol - Status: Site Specific
SNMP Read Write Community String: newtestrwl - Status: Site Specific

Server IP Address (IPv4 - IPv6) : 169.254.131.2 - fe80::3ed9:2bff:fef6:3e38
Server Release Info (Host - App): TPD: 6.5.0-82.4.0 - TVOE: 2.5.0_82.4.0
Server Update Supported          : Supported
SNMP Read Only Community String : testro - Status: Unknown
SNMP Read Write Community String: newtestrwl - Status: Site Specific

```

3.7.26 Configure PM&C application guest Isoimages virtual disk

This procedure allows the user to expand PM&C temporary area for importing software images using sftp in cases where PM&C already exists and larger ISO images need to be imported. The preferred method is to designate the extra space during PM&C deployment, refer to [3.7.4 Deploy PM&C Guest](#).

1. **PM&C GUI:** Determine if the PM&C application guest is configured with a "isoimages" virtual disk.

Navigate to "**Virtual Machine Management**" view and select the PM&C application guest from the "VM Entities" list.

2. **PM&C GUI:** Determine if the "Virtual Disks" list contains the "isoimages" device.

If the "isoimages" device exists for the PM&C application guest then return to the procedure that invoked this procedure. Otherwise continue with this procedure.

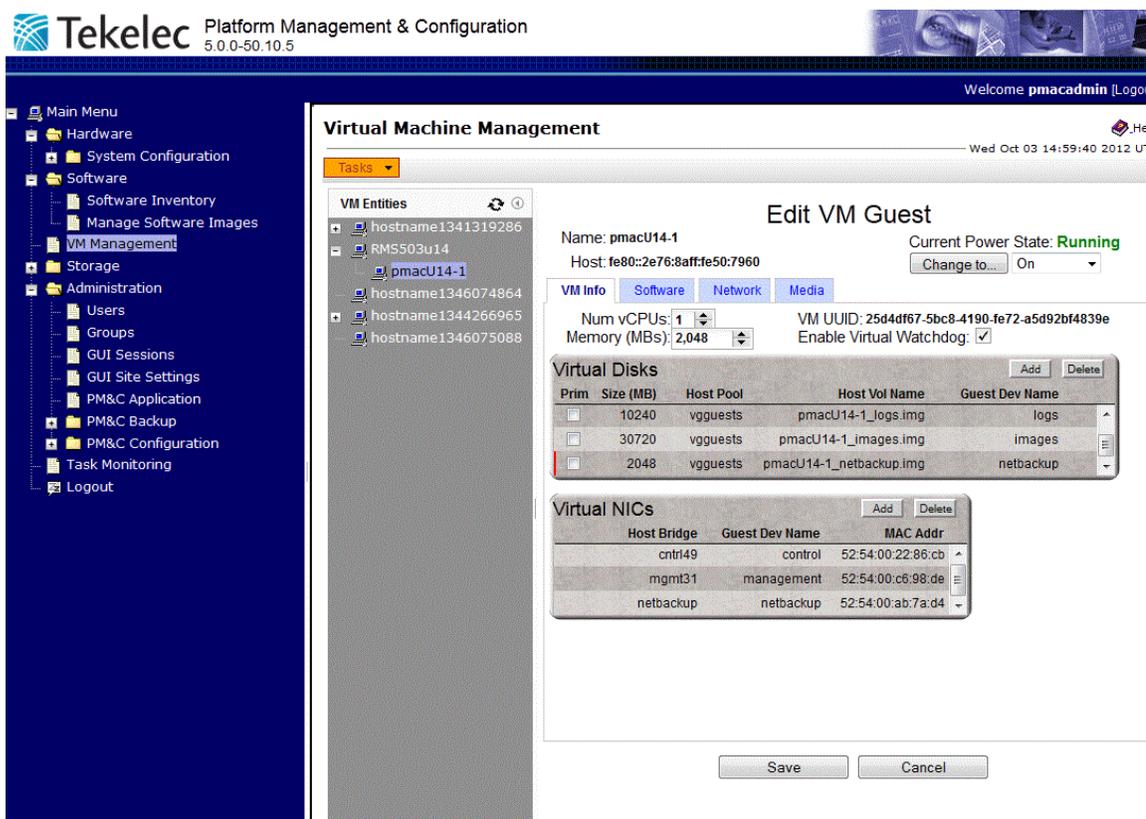
3. **PM&C GUI:** Edit the PM&C application guest to add the "isoimages" virtual disk.

Click "Edit" and then click the "Add" button in upper corner of Virtual Disks grid. Then enter the following data for the new isoimages virtual disk.

- Size (MB): "20480"
- Host Pool: "vgguests"
- Host Vol Name: "<pmacGuestName>_isoimages.img"
- Guest Dev Name: "isoimages"

Note: The "Guest Dev Name" must be set to "isoimages" for the PM&C application to mount the appropriate host device. The <pmacGuestName> variable should be set to this PM&C guest's name to create a unique volume name on the TVOE host of the PM&C.

4. **PM&C GUI:** Verify the new isoimages virtual disk data and save.



5. **PM&C GUI:** Confirm the PM&C application guest edit.

A confirmation dialog will be presented with the message, "Changes to the PMAC guest: <pmaGuestName> will not take effect until after the next power cycle. Do you wish to continue?". Click "OK" to continue.

6. **PM&C GUI:** Confirm the Edit VM Guest task has completed successfully.

Navigate to the Background Task Monitoring view. Confirm the guest edit task has completed successfully.

7. **TVOE Management server iLO:** Shutdown the PM&C application guest.

Note: In order to configure the PM&C application with the new NetBackup virtual disk the PM&C application guest needs to be shut down and restarted. Refer to *PM&C 5.0 Incremental Upgrade, 909-2207-01, Appendix F. Shutdown PM&C Guest*.

8. **TVOE Management Server iLO:** Start the PM&C application guest.

Note: In order to configure the PM&C application with the new isoimages virtual disk the PM&C application guest needs to be shut down and restarted.

Using virsh utility on TVOE host of PM&C guest, start the PM&C guest. Query the list of guests until the PM&C guest is "running".

```
$ sudo /usr/bin/virsh
virsh # list --all
Id Name State
-----
20 pmaU14-1 shut off
```

```

virsh # start pmacU14-1
Domain pmacU14-1 started

virsh # list --all
Id Name State
-----
20 pmacU14-1 running

```

- Return to the procedure that invoked this procedure.

3.7.27 Certificate Management

3.7.27.1 Set the PM&C Domain Name

For instructions on how to set the Domain Name, refer to procedure [3.7.30 Configuring PM&C Domain Name System](#).

3.7.27.2 Generate a New Certificate Signing Request

This procedure will generate a new self-signed HTTPS certificate and a Certificate Signing Request to be submitted to the customer's Certificate Authority. The CA will then provide a signed certificate that can be used to replace the self-signed certificate using the procedure [3.7.27.3 Update an HTTPS Certificate](#).

Prerequisite: Procedure [3.7.27.1 Set the PM&C Domain Name](#)

Use this procedure if the customer does not already have an HTTPS certificate to install. Such a certificate may have been generated by a previous use of this procedure, by another Tekelec application, or by using the customer's own procedure. If the customer already has a certificate to install, use [3.7.27.4 Import an HTTPS Certificate](#) or [3.7.27.3 Update an HTTPS Certificate](#) instead.

- Login to the PM&C GUI as the pmacadmin user.
- Navigate to **Main Menu > Administration > Access Control > Certificate Management**

This page will display any certificates already present on the PM&C system. A certificate currently in use by PM&C will be shown in green text.

Main Menu: Administration -> Certificate Management Help
Tue Mar 26 21:16:25 2013 UTC

Info ▾

Certificate Name	Certificate Type	Certificate Subject	Certificate Issuer	Valid Dates
pmacU16-4.labs.tekelec.com	HTTPS Server	Common Name: pmacU16-4.labs.tekelec.com Organization: Tekelec	Self-Signed	From: March 22, 2013, 2:37 pm To: April 21, 2013, 2:37 pm

Create CSR Import Delete Report

Click the **Create CSR** button.

- On the resulting **Create CSR** page, modify any fields as necessary to describe the system for which the new certificate will be generated. All fields are required.

Main Menu: Administration -> Certificate Management [Create HTTPS CSR]  Help

Tue Mar 26 21:17:52 2013 UTC

Create CSR

Distinguished Name		
Field	Value	Description
Country	US *	The 2-letter country code of which the entity being described lives in. [Range = Allowed characters are A-Z.]
State or Province	North Carolina *	The state or province (full name) which the entity being described lives in. [Range = Allowed characters are A-Z, a-z.]
Locality	Morrisville *	The locality name (eg. city) of the entity being described. [Range = Allowed characters are A-Z, a-z.]
Common Name	*.labs.tekelec.com *	The common name of the entity being described. Replacing a certificate marked visible or active will result in the browser connection errors - which may then require a reload or restart of the browser to restore connectivity. The list includes only those entities that do not already have an associated certificate.
Organization	Tekelec *	The name of the organization which the entity belongs to. [Range = Allowed characters are A-Z, a-z, 0-9.]
Organizational Unit	AppWorks *	The organizational unit name (eg. section) which the entity belongs to. [Range = Allowed characters are A-Z, a-z, 0-9.]
Email Address	support@tekelec.com *	The email address of the entity being described. [Range = Allowed characters are A-Z, a-z, 0-9, '.', and '@']

⇐⇐⇐

Generate CSR Back

The Common Name field will determine whether the new certificate will apply only to this PM&C host (e.g. "pmac1.office.company.com") or to any host in the same domain (e.g. "*.office.company.com"). Use the host-specific option unless there are other hosts in the same domain sharing a single certificate.

The Common Name field will only offer names for which no certificate is already present on this PM&C. To replace an existing certificate, first delete it as instructed in [3.7.27.5 Delete an HTTPS Certificate](#).

- Click the **Generate CSR** button.

This will create and install a new (self-signed) HTTPS certificate in PM&C and write the related Certificate Signing Request to a file. This file will be available immediately via the **Main Menu > Status and Manage > Files** screen (refer to [3.7.27.3 Update an HTTPS Certificate](#)).

Because a new self-signed certificate is in use now, the user will need to re-establish the GUI session and accept the certificate.

3.7.27.3 Update an HTTPS Certificate

This procedure is used to replace a self-signed certificate generated by PM&C with a CA-signed certificate provided by the customer's Certificate Authority. This will be done after these steps have been taken:

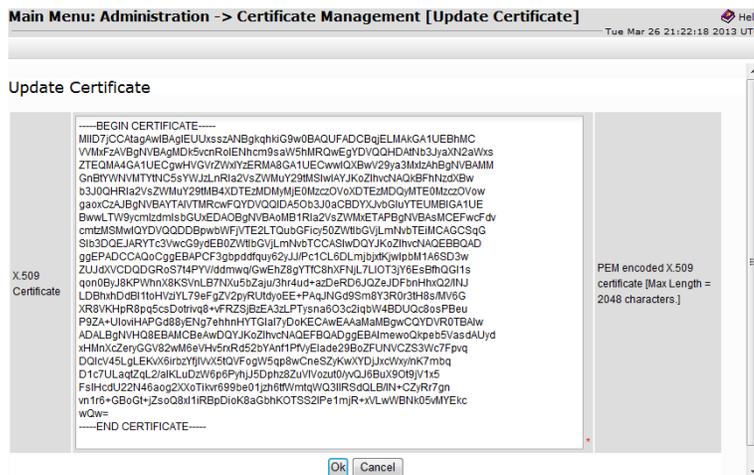
- The Procedure "Generate a new Certificate Signing Request" has been used to generate a new self-signed certificate and CSR
- The CSR has been submitted to a Certificate Authority

- The CA has provided a signed certificate
1. Login to the PM&C GUI as the pmacadmin user.
 2. Navigate to **Main Menu > Administration > Access Control > Certificate Management**.
 3. Select the certificate to be updated.

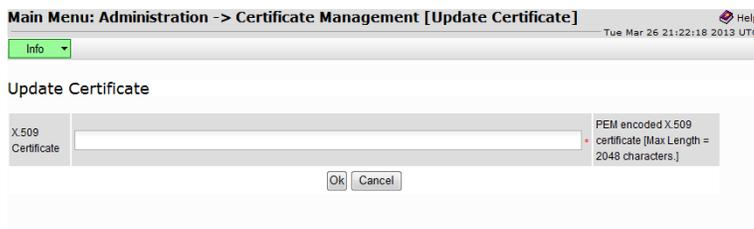
The Import button will change to an Update button.



4. Click the Update button.
- This will display the certificate currently installed.



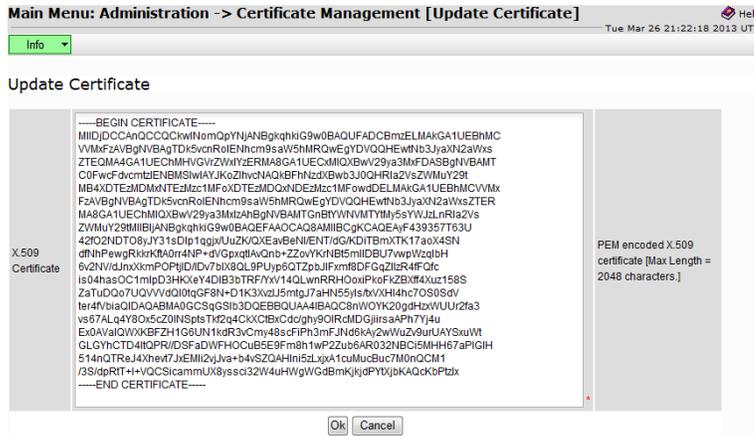
5. Select this text and delete it, but do not click the OK button yet.



6. Using an ASCII text editor on the PC, open the signed certificate provided by the Certificate Authority.
7. Copy the certificate from the editor to the "X.509 Certificate" field on the PM&C screen.

Include the BEGIN and END lines and everything between:

```
-----BEGIN CERTIFICATE-----
<encoded certificate data>
-----END CERTIFICATE-----
```



8. Click the Ok button.

The PM&C web server will be restarted immediately to put the updated certificate into effect. If the signing CA is not known to the browser or the PM&C was not accessed by DNS name, the user will have to re-establish the GUI session and accept the new certificate.

Users will now be able to access the PM&C GUI without having to acknowledge and accept the server's certificate if the following conditions are met:

- The PM&C is accessed by DNS name, not by IP address. This will require either a DNS server provided by the customer or configuration of the PM&C host name in the client PC's hosts file.
- The browser recognizes the CA's signature on the certificate. This requires that the certificate be signed by a Certificate Authority known to the browser. Browsers are shipped with well-known CAs already installed, but certificates for additional CAs, such as customer-operated CAs, can be installed manually.

3.7.27.4 Import an HTTPS Certificate

This procedure is used to install a certificate and private key provided by the customer. If the key is encrypted, the customer's passphrase for the key must also be provided.

Note: The customer's passphrase is used only once to decrypt the customer's private key. The key is then re-encrypted by PM&C using its own passphrase. The customer's passphrase is not retained by PM&C.

1. Login to the PM&C GUI as the pmacadmin user.
2. Navigate to **Main Menu > Administration > Access Control > Certificate Management**.
3. Click the Import button.

Main Menu: Administration -> Certificate Management [Import Certificate] Help
Tue Mar 26 21:27:23 2013 UTC

Import Certificate

X.509 Certificate	<input type="text"/>	PEM encoded X.509 certificate [Max Length = 2048 characters.]
Private Key	<input type="text"/>	PEM encoded Private Key [Max Length = 2048 characters.]
Passphrase	<input type="text"/>	The passphrase used to protect the Private Key

- Using an ASCII text editor on the PC, open the certificate to be imported.
- Copy the certificate from the editor to the "X.509 Certificate" field on the PM&C screen.

Include the BEGIN and END lines and everything between:

```
-----BEGIN CERTIFICATE-----
<encoded certificate data>
-----END CERTIFICATE-----
```

Main Menu: Administration -> Certificate Management [Import Certificate] Help
Tue Mar 26 21:27:23 2013 UTC

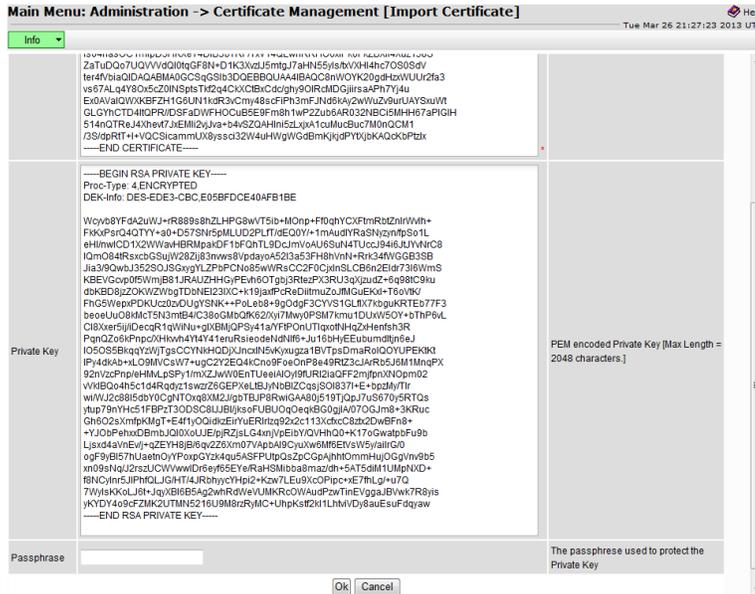
Import Certificate

X.509 Certificate	<pre>-----BEGIN CERTIFICATE----- MIIDjCCANQCCQckwINomQpYnJANBgkqhkiG9w0BAQUFAwEaMBMGA1UEBjMC VVMmFzAVBgNVBAGTDk5vcmRoenhcm9saW5hMRQwEgYDVQOHewN3JyaXN2aWxs ZTEQM4GA1UEChMHVGVZVWlyZERM8GA1UECmMlOXBwV29ya3MFDASBgnVNBAMT C0FwF0vcmZlENBMSWlAYJkoZihvcNAQkEFhNzXzBw3J0QHRlRzVzZWMuY29l MB4XDTE2MDMwMTEzMTc1MjF6NDI0EjMDCAQDEjMz1MFowdEELMAkGA1UEBhMCVWxk FzAVBgNVBAGTDk5vcmRoenhcm9saW5hMRQwEgYDVQOHewN3JyaXN2aWxsZTER MA8GA1UEChMIQXBwV29ya3MxZAhBgNVBAMTGNBYWVWNTY1MyYsYWJlLnRlR2Vs ZWMuY29lMIBIjANBgkqhkiG9w0BAQEFAAQCAQ8AMIIBCgKCAQEAf439357T63U 42fO2NDT08yJY31sDlp1qgjUuzK0XEavBeNIENT/dgKdITBmXTk17aoX4SN dRnHfPewgRkxkRk0nRNP+dvGpxqtAvQnb+ZZovYkNBfmlDBU7wppVzqloH 62Nv/iJuxXmP0PDIIDv7b3QL9Plyj6GTzptJfmmBDF9qZiR4FQlc is04hasOC1mpD3Hk0eY4DIB3bTRFYv14QLwnRRHOoxPkoFKZBx4uz158S ZaTU0o7UQVVvQl0tqGF8N+D1K3vzU5mtgJ7aHN55ysKvXhI4hc7O50SdV ter4VbiaQIDAQABMA0GCSqSsGSIb3DQEBAQUAA4IBAQC8nWOYK20gdHzWUUr2fa3 vs67ALq4Y8Ox5cZ0lNspTsT42q4CkXCIBxCdcgth90IRcMDGjirsAph7Y4u Ex0AVaQWkKBFZ1G6UN1kR3vCmY488sCFPh3mFJN06kAyZwWuZ99urUAYsuWt GLGhCTD4IBPRVDF9aDVFfOCcuB5E9fm8n1wP2Zu6rR032NBcISMH467aPIG/H 514nOTRJeJ4xhev7LnEMl2sJva+b4vSQAHni5LxjA1cuMucBuc7M0nQCMI1 /3S/dpRTt+VQCSicammUX8yssg32W4uHwGwgdBmKjJdPYVjBKAQckbPtzx -----END CERTIFICATE-----</pre>	PEM encoded X.509 certificate [Max Length = 2048 characters.]
Private Key	<input type="text"/>	PEM encoded Private Key [Max Length = 2048 characters.]
Passphrase	<input type="text"/>	The passphrase used to protect the Private Key

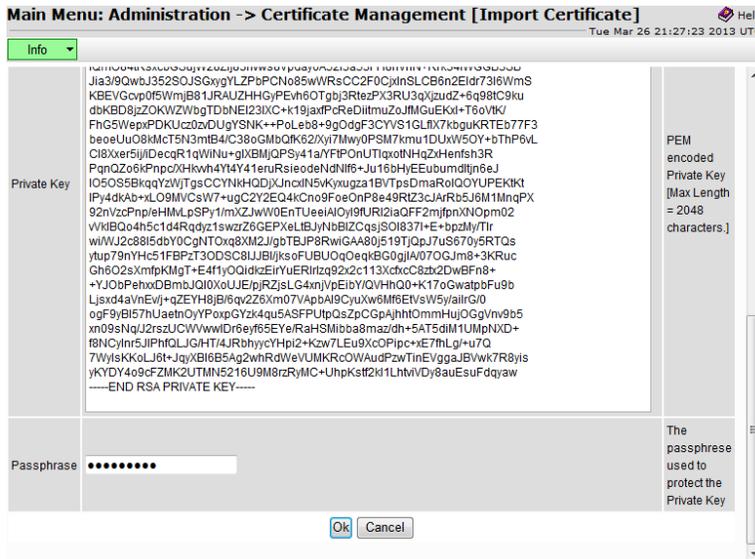
- Using an ASCII text editor on the PC, open the private key file.
- Copy the private key from the editor to the "Private Key" field on the PM&C screen.

Include the BEGIN and END lines and everything between:

```
-----BEGIN RSA PRIVATE KEY-----
<encoded key data>
-----END RSA PRIVATE KEY-----
```



- If the private key is encrypted, type or paste the passphrase into the "Passphrase" field.



- Click the Ok button.

The PM&C web server will be restarted immediately to put the new certificate into effect. If the signing CA is not known to the browser or the PM&C was not accessed by DNS name, the user will have to re-establish the GUI session and accept the new certificate.

Users will now be able to access the PM&C GUI without having to acknowledge and accept the server's certificate if the following conditions are met:

- The PM&C is accessed by DNS name, not by IP address. This will require either a DNS server provided by the customer or configuration of the PM&C host name in the client PC's hosts file.
- The browser recognizes the CA's signature on the certificate. This requires that the certificate be signed by a Certificate Authority known to the browser. Browsers are shipped with well-known CAs already installed, but certificates for additional CAs, such as customer-operated CAs, can be installed manually.

3.7.27.5 Delete an HTTPS Certificate

This procedure is used to remove a certificate from PM&C. PM&C will then revert to using the default HTTPS certificate. This will require that the user acknowledge and accept the certificate when accessing the PM&C GUI.

1. Login to the PM&C GUI as the pmacadmin user.
2. Navigate to **Main Menu > Administration > Access Control > Certificate Management**.
3. Select the certificate to be deleted.



4. Click the Delete button.

The PM&C web server will be restarted immediately to put the default certificate into effect.

Users will now have to acknowledge and accept the certificate when accessing the PM&C GUI.

For this reason the current session might need to be re-established.

3.7.28 Using the PM&C File Management System

This section details how to use the PM&C GUI interface to manage files on the PM&C server. These files are stored locally in the /var/TKLC/db/filemgmt/csr directory (considered to be the FMA or File Management Area). Any files added to the FMA will be visible from the **Main > Status and Management > Files** menu on the PM&C GUI interface. Up to 20 files are visible on the page. After that, scrollbars are enabled to view the remaining files.

Note: Do not manually copy files to the FMA. Currently only Certificate Signing Request (CSR) files are stored in the FMA when Certificates are created (see [3.7.27 Certificate Management](#)).

There are three possible actions which can be invoked on a file:

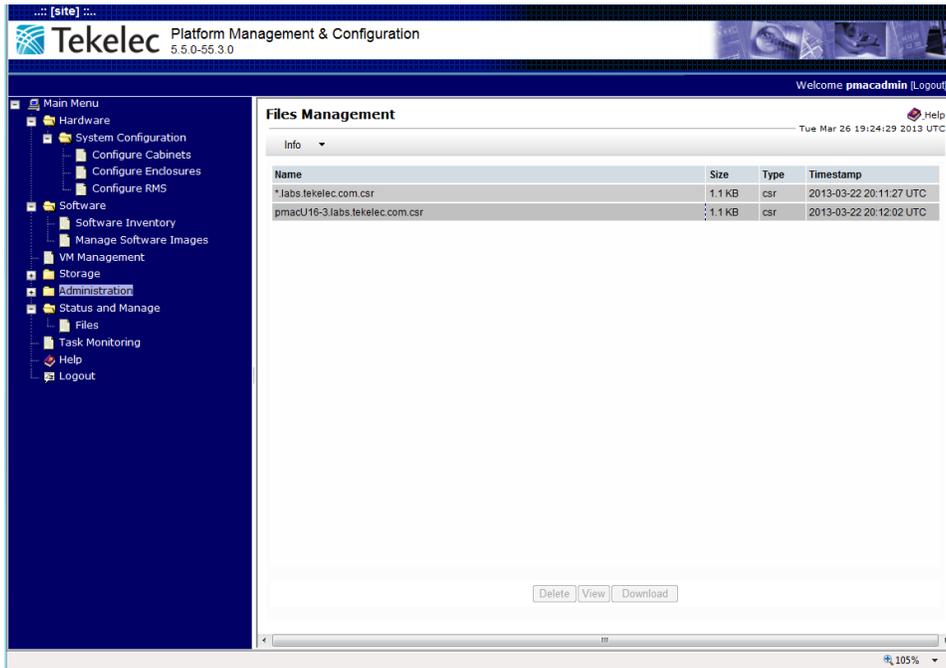
- **Delete** - Select one or more files to be deleted.

- **View** - View a single selected file.
- **Download** - Download to the client browser a single selected file.

Note: The user must be logged in as the Admin user to access this page.

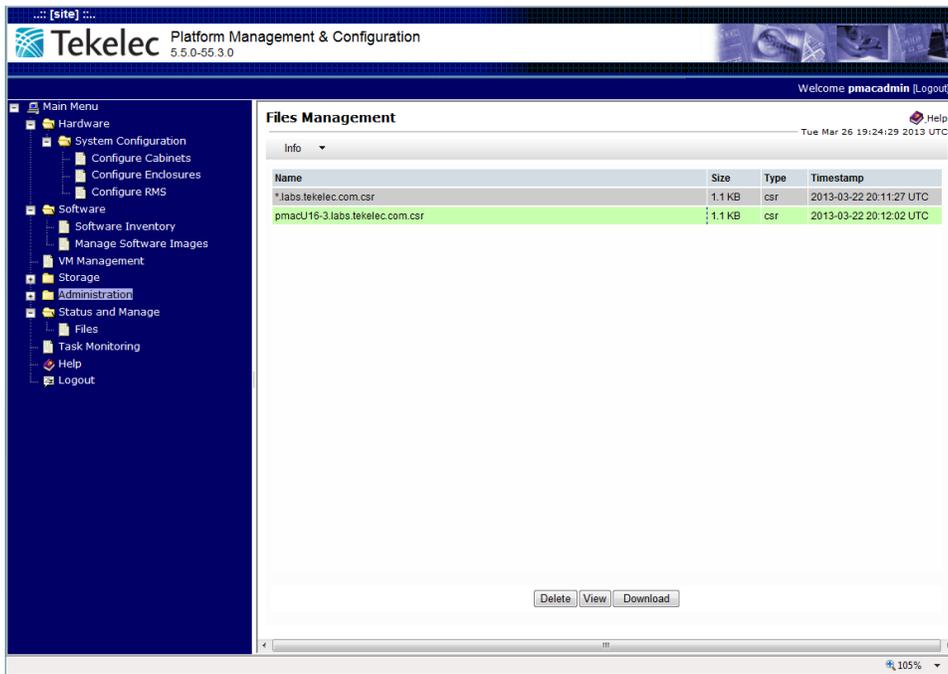
1. Delete one or more files:

a) **PM&C GUI:** Navigate to **Main Menu > Status and Management > Files**.



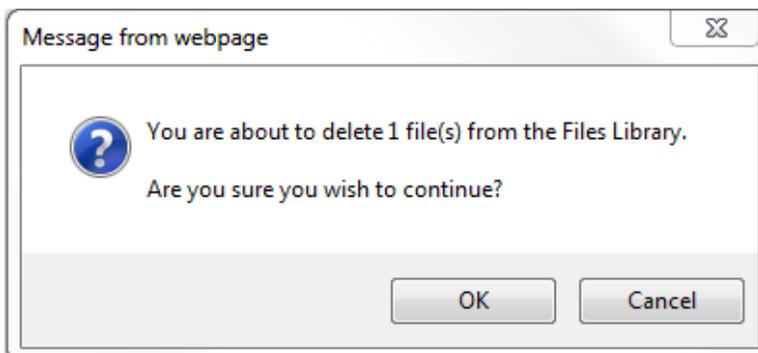
b) **PM&C GUI:** Select one or more files to be deleted.

Note: Upon initial display of the Files Management page, all available files located within the FMA will be visible. If no files are located within the FMA, "There are no files present" is displayed. No files will be selected and all buttons will be visible but disabled. If a single file is selected all buttons will be enabled. If more than one file is selected, the View and Download buttons will be disabled.



- c) **PM&C GUI:** Select the Delete button.
- d) The user is prompted to acknowledge that the selected files are to be deleted.

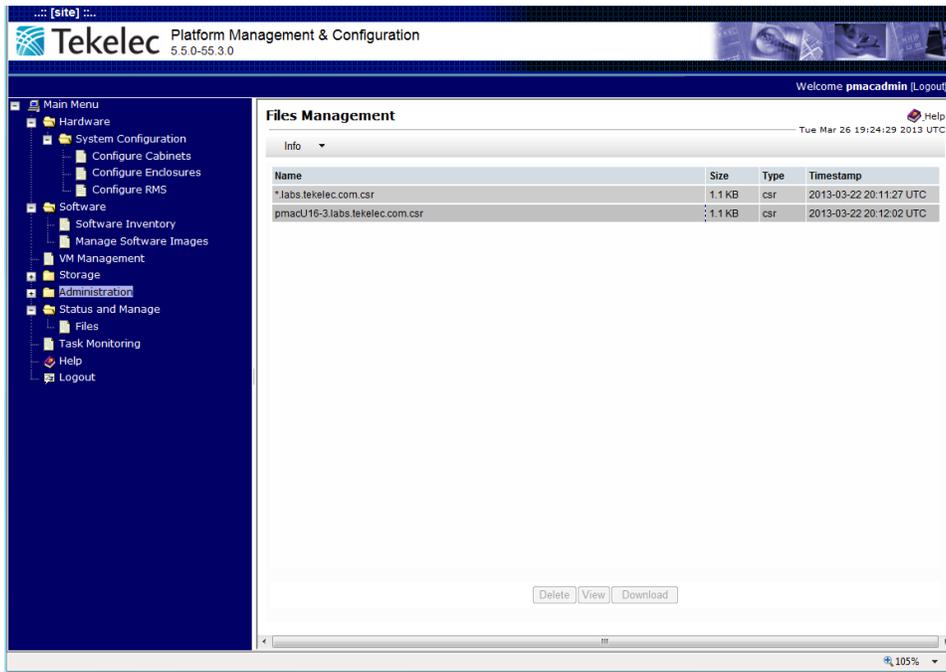
The user should click on the OK button (or click on the Cancel button if the operation is to be cancelled).



- e) **PM&C GUI:** If the OK button is selected, the user is returned to the Files Management page with the selected file(s) no longer displayed and a status info box (which can be selected) indicating the action was successful.

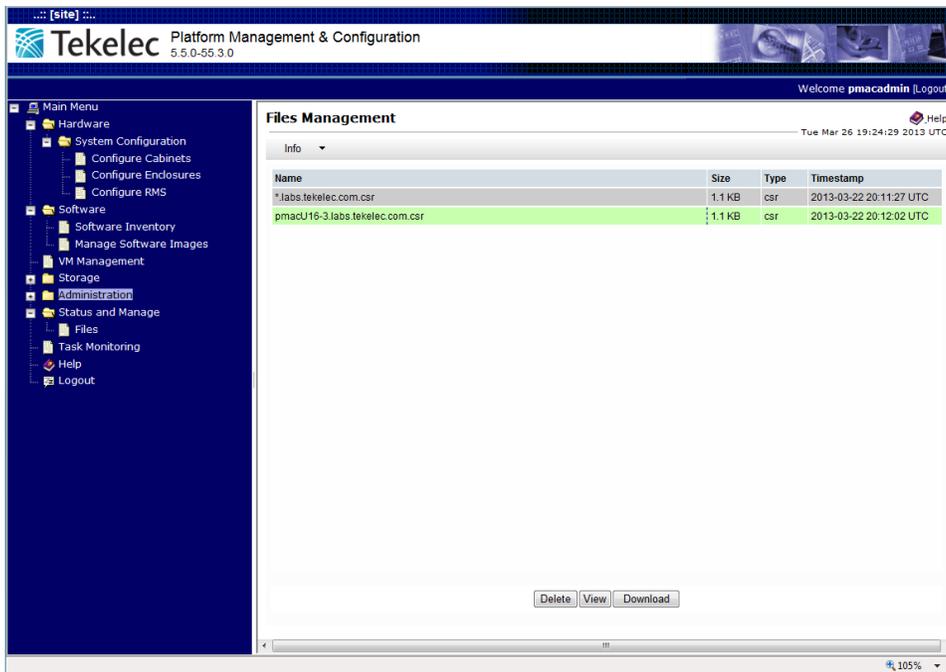


- 2. View a single file:
 - a) **PM&C GUI:** Navigate to **Main Menu > Status and Management > Files.**

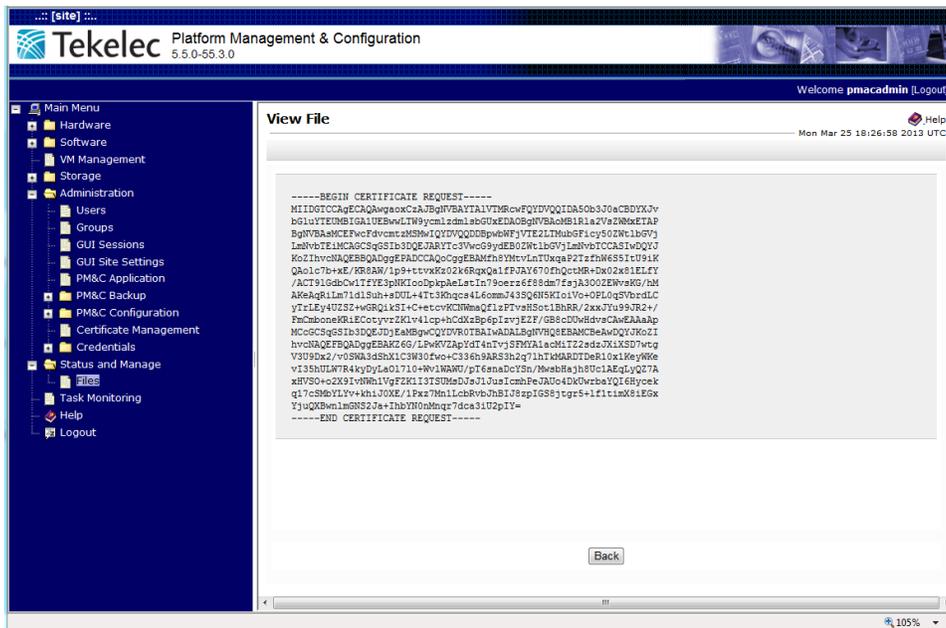


b) PM&C GUI: Select a single file to be viewed.

Note: Only one file may be selected for viewing. If more than one file is selected the View button is disabled.



c) PM&C GUI: The following View File page is displayed which includes the contents of the file.

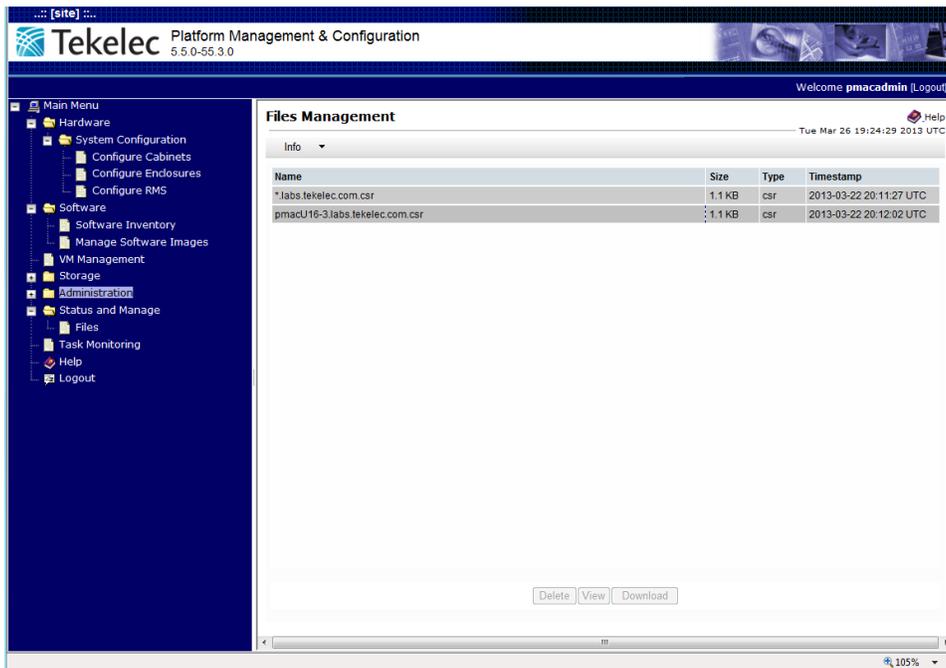


d) **PM&C GUI:** Once the file has been viewed the user can click on the Back button to return to the original Files Management page (no files will be selected).

3. Download a single file:

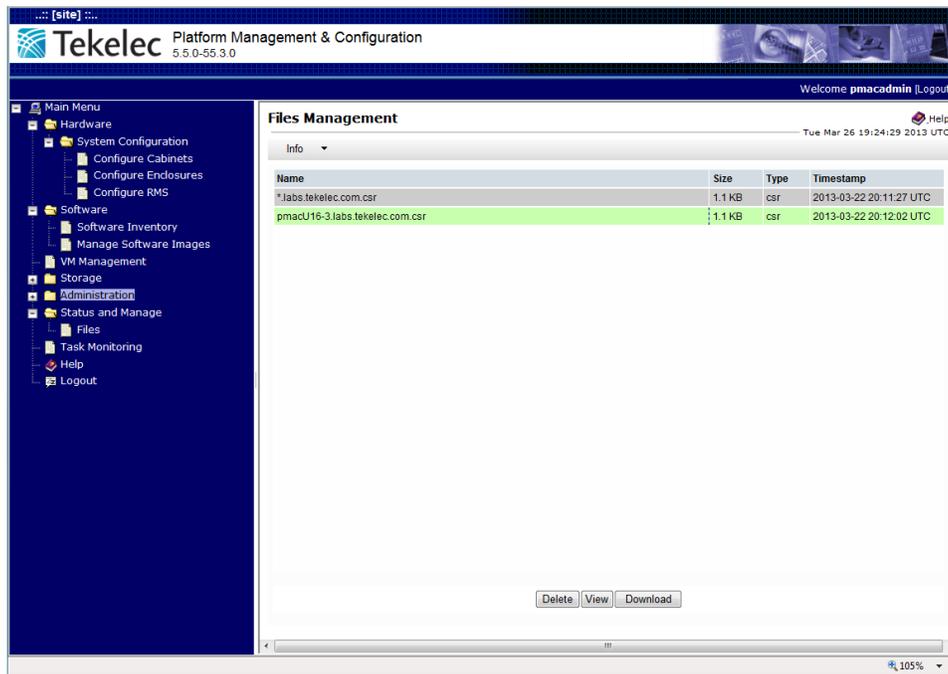
Note: These download steps are browser specific. In this case these instructions apply to Internet Explorer 9 only.

a) **PM&C GUI:** Navigate to **Main Menu > Status and Management > Files**.



b) **PM&C GUI:** Select a single file to be downloaded

Note: Only one file may be selected for downloading. If more than one file is selected the Download button is disabled.



- c) **PM&C GUI:** The Download button should be enabled. Select the Download button.
- d) **PM&C GUI:** Depending on the browser, the user is prompted to save or open the file. The user can choose to open the file or save the file to disk.

Note: The default editor program (usually set to Notepad which does not format files completely) used by Internet Explorer can be changed (as of IE 9) by going to **Tools > Internet Options > Programs > Set Programs > Associate a file type or protocol with a program** and choosing the desired default editor for the given file type.

3.7.29 Deleting ISO Images From the PM&C Image Repository

This procedure provides the steps for deleting ISO images from the PM&C repository.

Prerequisite: [3.7.9 Adding ISO Images to the PM&C Image Repository](#) has been completed.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. PM&C GUI: Login

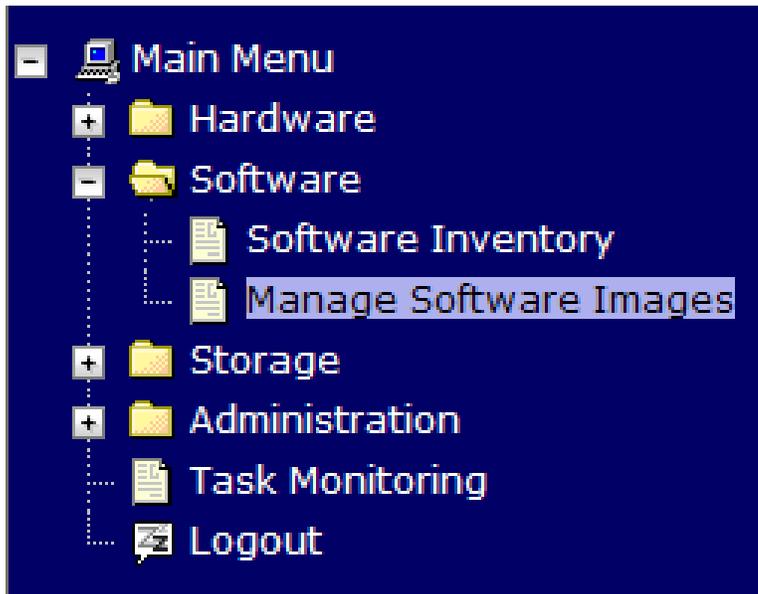
Open web browser and enter:

```
https://<pmac_management_network_ip>
```

Login as pmacadmin user.

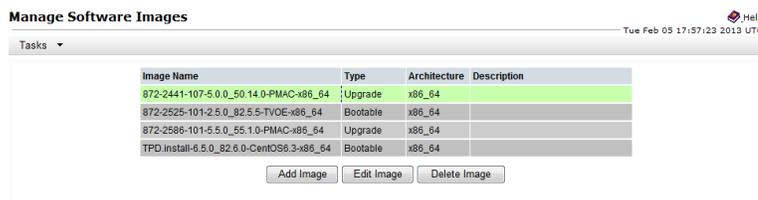
2. PM&C GUI: Navigate to Manage Software Images

Navigate to **Main Menu > Software > Manage Software Images**



3. **PM&C GUI:** Select image to delete.

Select a software image to delete.



4. **PM&C GUI:** Delete the image.

Press the **Delete Image** button. Confirm that you wish to delete the image by pressing OK in the popup dialog.

5. **PM&C GUI:** Confirm Delete Image finishes successfully.

The Manage Software Images page is then redisplayed with a new Info button displayed in green above the image list. Press **Info** and confirm that the correct image name appears in the info popover.



3.7.30 Configuring PM&C Domain Name System

This procedure provides the steps to configure the PM&C Domain Name System (DNS).

1. Update the Domain Server only

a) **PM&C GUI:** Go to **Main Menu->Administration->Remote Servers->DNS Configuration**.

The screenshot shows the 'DNS Configuration' window. At the top right, it displays the time 'Tue May 14 17:59:53 2013 U'. Below the title bar is a dropdown menu set to 'Info'. The main content area is divided into two sections. The first section, 'System Domain', has a 'Domain Name' label above a text input field and a 'Description' label above a text area containing the text: 'System Domain Name. [May only contain alphanumeric, hyphen and decimal characters. Length must be 1 to 255 chars.]'. The second section, 'External DNS Name Servers', has a table with three columns: 'Name Server', 'Address', and 'Description'. There are three rows for 'Name Server 1', 'Name Server 2', and 'Name Server 3', each with an empty text input field for the address and a text area for the description: 'Address of a DNS name server. [Must be a valid ipv4 or ipv6 address or blank.]'. At the bottom of the window is a button labeled 'Update DNS Configuration'.

- b) **PM&C GUI:** On initial setup, all fields should be empty. Enter the required Domain Name into the Domain text box. This should be a valid domain name consisting of 1 to 255 alpha numeric characters plus the "." and "-" characters.
- c) **PM&C GUI:** Leave all Name Server text boxes blank.
- d) **PM&C GUI:** Click on the **Update DNS Configuration** button.

Note: This action will save the Domain Name into the PM&C database. It will not update the DNS `/etc/resolv.conf` file nor enable DNS for the PM&C. After the update, the DNS Configuration page is reloaded and the domain name will be displayed in the Domain text box.

This screenshot is similar to the previous one but shows the 'Domain Name' field populated with the text 'labs.tekelec.com'. The time at the top right is now 'Tue May 14 18:12:19 2013 U'. All other elements, including the 'Update DNS Configuration' button and the empty name server fields, remain the same.

- Upon success, the following Info popup displays:



Note: The `/etc/resolv.conf` file will **not** be updated from the textbox fields in this case. This file will be in the following format (TPD Default):

```
# Generated by NetworkManager

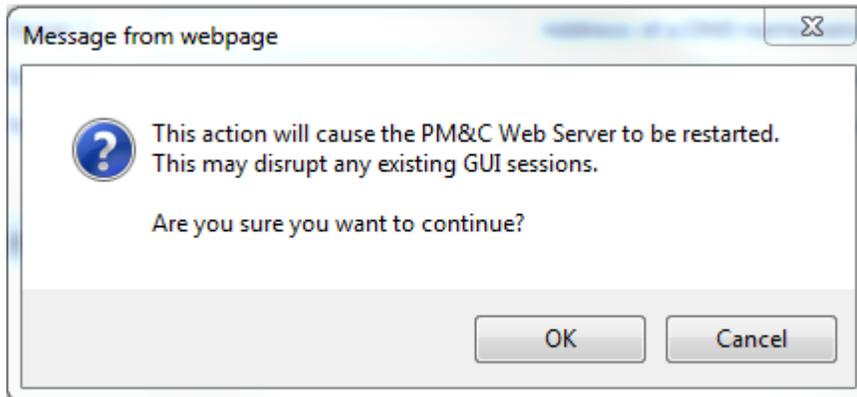
# No nameservers found; try putting DNS servers into your
```

```
# ifcfg files in /etc/sysconfig/network-scripts like so:
#
# DNS1=xxx.xxx.xxx.xxx
# DNS2=xxx.xxx.xxx.xxx
# DOMAIN=lab.foo.com bar.foo.com
$ cat /etc/resolv.conf
# Generated by NetworkManager
```

- Upon Domain Name validation failure, the following error popup displays:



- e) A user prompt is displayed indicating that this action will cause the PM&C Web Server to be restarted. This action can disrupt any existing GUI sessions in progress. The user must respond with "OK" or "Cancel". If the user hits "OK", the action continues. If the user hits "Cancel", the action is stopped and the user is returned back to the DNS Configuration page.



- f) When the update is complete, the DNS Configuration page must be refreshed due to the Web Server restart.

2. PM&C GUI: Update the full DNS Configuration.

- a) PM&C GUI: Go to Main Menu->Administration->Remote Servers->DNS Configuration.



- b) **PM&C GUI:** On initial setup, all fields should be empty. Enter the required Domain Name into the Domain text box. This should be a valid domain name consisting of 1 to 255 alpha numeric characters plus the "." and "-" characters.
- c) **PM&C GUI:** Enter a valid IPv4 or IPv6 address into each Name Server text box. Note that it is not required to enter an IP into all three Name Server text boxes.
- d) **PM&C GUI:** Click on the **Update DNS Configuration** button.

Note: This action will save the Domain Name into the PM&C database. It will also update the DNS `/etc/resolv.conf` file and enable DNS for the PM&C. After the update, the DNS Configuration page is reloaded and the domain name and all servers entered will be displayed in the appropriate text box.

- Upon success, the following Info popup displays:



Note: The `/etc/resolv.conf` file will be updated from the textbox fields. This file will be in the following format (TPD Default):

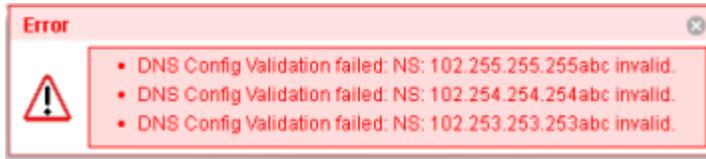
```
# PM&C DNS Configuration File
# -----
# WARNING: Do not make manual changes to this file. This file
#           is auto generated by the PM&C GUI Application at
#           Administration->Remote Servers->DNS Configuration.

domain labs.tekelec.com
nameserver 102.255.255.255
nameserver 102.255.255.254
nameserver 102.255.255.253
```

- Upon Domain Name validation failure, the following error popup displays:



- Upon Server Name validation failure, the error popup may contain a failure message for each Name Server if it was entered incorrectly.



3. PM&C GUI: Remove the current DNS Configuration.

- a) PM&C GUI: Go to **Main Menu->Administration->Remote Servers->DNS Configuration**.

DNS Configuration Tue May 14 18:01:56 2013 U

System Domain

Domain Name	<input type="text" value="labs.tekelec.com"/>	Description
		System Domain Name. [May only contain alphanumeric, hyphen and decimal characters. Length must be 1 to 255 chars.]

External DNS Name Servers

	Address	Description
Name Server 1	<input type="text" value="102.255.255.255"/>	Address of a DNS name server. [Must be a valid ipv4 or ipv6 address or blank.]
Name Server 2	<input type="text" value="102.255.255.254"/>	Address of a DNS name server. [Must be a valid ipv4 or ipv6 address or blank.]
Name Server 3	<input type="text" value="102.255.255.253"/>	Address of a DNS name server. [Must be a valid ipv4 or ipv6 address or blank.]

- b) PM&C GUI: Delete all entries from all Name Server fields. This is assuming that the Domain Name must remain defined for use by the Certificates Management page at **Main Menu->Administration->Access Control->Certificate Management**.
- c) PM&C GUI: Click on the **Update DNS Configuration** button.

Note: This action will save the Domain Name into the PM&C database. It will also update the DNS `/etc/resolv.conf` file to the TDP default value and disable DNS for the PM&C. After the update, the DNS Configuration page is reloaded and the Domain Name will be displayed in the **Domain** text box. The Name Servers will be blank.

DNS Configuration Tue May 14 18:12:19 2013 U

Info ▾

System Domain

Domain Name	<input type="text" value="labs.tekelec.com"/>	Description
		System Domain Name. [May only contain alphanumeric, hyphen and decimal characters. Length must be 1 to 255 chars.]

External DNS Name Servers

	Address	Description
Name Server 1	<input type="text"/>	Address of a DNS name server. [Must be a valid ipv4 or ipv6 address or blank.]
Name Server 2	<input type="text"/>	Address of a DNS name server. [Must be a valid ipv4 or ipv6 address or blank.]
Name Server 3	<input type="text"/>	Address of a DNS name server. [Must be a valid ipv4 or ipv6 address or blank.]

Note: The `/etc/resolv.conf` file will be updated from the text box fields. This file will be in the following format (TPD Default):

```
# Generated by NetworkManager

# No nameservers found; try putting DNS servers into your
# ifcfg files in /etc/sysconfig/network-scripts like so:
#
# DNS1=xxx.xxx.xxx.xxx
# DNS2=xxx.xxx.xxx.xxx
# DOMAIN=lab.foo.com bar.foo.com
$ cat /etc/resolv.conf
# Generated by NetworkManager
```

3.8 Configuring SAN

3.8.1 Configure SAN Storage Using PM&C Application

This procedure will configure a SAN storage using the PM&C application. The end user will be able to configure the SAN controller and corresponding host volumes using XML files uploaded by the PM&C application. The XML files will allow the end user to: add virtual disks, delete virtual disks without an associated volume, add global spares, delete global spares and delete volumes on the SAN controller and/or host volume. Refer to the instructions provided by the application to obtain or create XML files used in this procedure.

Prerequisite:

- [3.5.2 Configure initial OA settings via configuration wizard](#) and
- [3.7.6 Configure PM&C application](#) have been completed.
- [3.3.3 Configuring Advanced Settings on MSA2012fc Fibre Channel Disk Controllers](#) or
- [3.3.4 Configuring Advanced Settings on P2000 Fibre Channel Disk Controllers](#) have been completed for given SAN storage type.
- [3.2.3 Configure Zones in Brocade Switches](#) has been completed

Note: When a disk fails, the system looks for a dedicated spare first. If it does not find a properly sized dedicated spare, it looks for a global spare. A best practice is to designate spares for use if disks fail. Dedicating spares to vdisks is the most secure method, but it is also expensive to reserve spares for each vdisk. Alternatively, you can assign global spares. A properly sized spare is one whose capacity is equal to or greater than the largest disk in the vdisk.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Handle failed SAN configuration

Note: If any attempt to add SAN storage components have failed, a partial configuration may exist. This needs to be cleaned-up before attempting again.

Note: If an attempt to add SAN storage components fails before any configuration is done, such as an invalid XML file or a wrong disk name, then correct the XML file error and attempt the SAN storage configuration again.

If a partial configuration exists, follow the instructions provided by application to obtain/create XML files that will delete the partial configuration and clear the SAN controller or host volume. Note that after a host volume is deleted or cleared, PM&C will automatically reboot the server blade. Once the XML file is obtained, continue following [3.8.1 Configure SAN Storage Using PM&C Application](#) to correctly upload and execute the XML file using the PM&C application. If the end user desires to IPM the blade server to cleanup host volumes, refer to [3.7.10 IPM Servers Using PM&C Application](#).

2. PM&C server: Provide SAN configuration xml files

Log in to the management server as user 'admusr' by following *Appendix G How to Access a Server Console using the iLO*.

Copy all SAN configuration xml files into `/usr/TKLC/smac/etc/storage` directory.

3. PM&C server: Update SANcontroller password in PM&C

If default password has been changed on SAN controllers, then the stored password in PM&C must be changed to match. Run this script on PM&C and set the SAN controller password for the manage user:

```
$ sudo /usr/TKLC/smac/bin/updateCredentials --type=msa
```

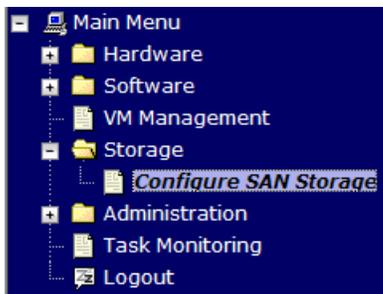
4. PM&C GUI: Login

If needed, open web browser and enter: `https://<pmac_management_network_ip>`

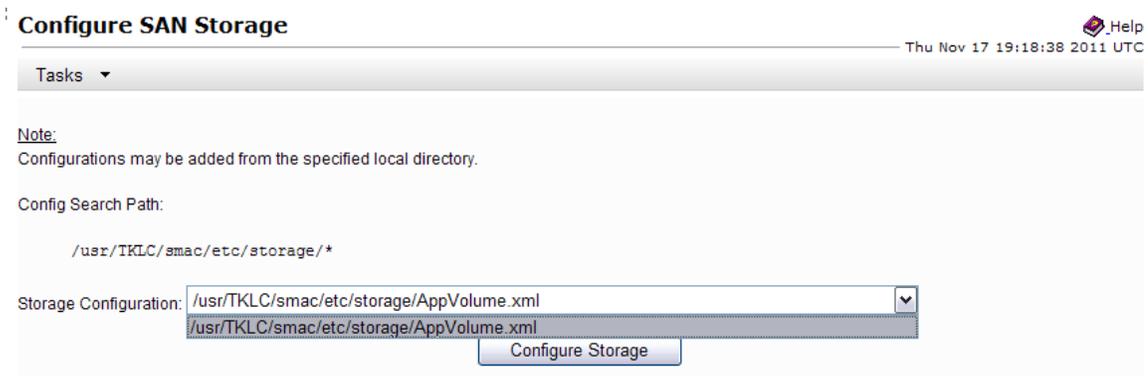
Login as pmacadmin user.

5. PM&C GUI: Configure SAN

Navigate to **Main Menu > Storage > Configure SAN Storage** .



From the **Storage Configuration** drop down menu choose SAN configuration file and press **Configure Storage**.

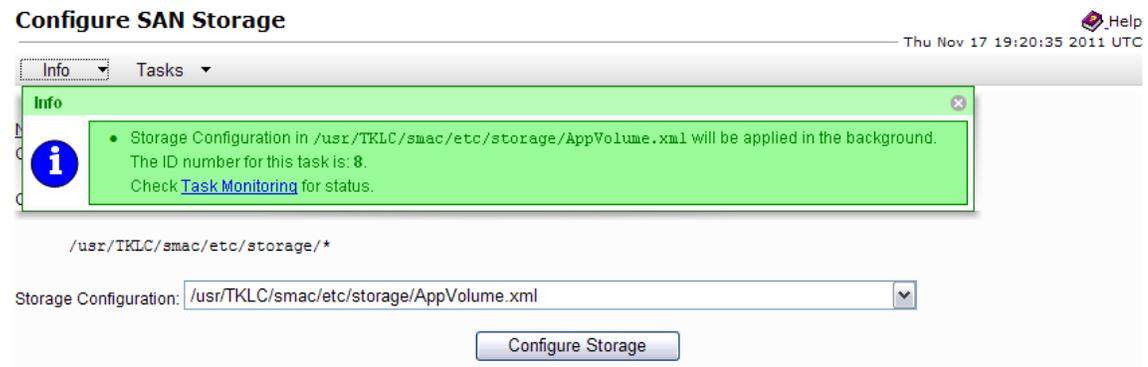


Note: Concurrent execution of SAN configuration files is supported. Do not run configuration files at the same time if the xml files configure either the same bladeserver or the same MSA storage system, otherwise a failure may occur. Additionally, configuration on a serverblade is being cleared, or if a host volume is being deleted, then execution may take longer since PM&C will automatically reboot the serverblade after configuration removal.

If any errors occur with this procedure, collect logs from the affected blade in `/var/TKLC/log/tpdProvd/tpdProvd.log`

6. **PM&C GUI:** Monitor the configuration status

The Configure SAN Storage page is then redisplayed with a new background task entry in the table at the bottom of the page:



7. Recovery from configuration errors

If PM&C is able to successfully parse the XML configuration file, the actual configuration process is executed. If any error is encountered, the processing is aborted, and the state is left as it was at the point of failure. For recovery suggestions, refer to step 1: Handle failed SAN Configuration.

3.8.2 Remove SAN Volume from Blade Server Without Preserving Existing TPD Installation

This procedure describes how to remove volumes from the partially installed SAN. This can happen if the SAN configuration fails. Blade servers are IPMed again.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Management server: Update SANcontroller password

If default password has been changed on SAN controllers, then the stored password in the PM&C must be changed to match. Run this script on PM&C and set the SAN controller password for the manage user:

```
$ sudo /usr/TKLC/smac/bin/updateCredentials --type=msa
```

2. Log into the Fibre Channel Controller GUI as manage

https://<controller_IP_address>

a) For MSA2012 Dual Controller Array configuration:

1. Navigate to **Manage > Volume Management > Delete volume** and select the volume to delete.

Repeat for all volumes.

2. Navigate to **Virtual Disk Config > Delete a vdisk** and select the vdisk to delete.

Repeat for all vdisks.

3. Navigate to **Virtual Disk Config > global spares menu > delete global spares**.

Select all of the global spare disks and click **Delete Global Spares** button.

Repeat this step for second controller.

b) For P2000 MSA Dual Controller Array configuration:

1. Navigate to **Provisioning > Delete volumes** and select all volumes to delete.

2. Navigate to **Provisioning > Delete vdisks** and select all vdisks to delete.

3. Navigate to **Provisioning > Manage Global Spares** and unselect all the global spare disks, then click **Modify Sapres** button.

Repeat this step for second controller.

3. OAGUI: Login to active OA

Navigate to the IP address of the active OA, using Appendix C ([C.1 Determining Which Onboard Administrator is Active](#)). Login as an administrative.

4. OAGUI: Delete zones from Brocade switches

Select one of the Brocade switches and click on **Management Console**

Login as an administrative user.

Select **Zone Admin** and click on **Clear All**.

Wait for success message in bottom left of window and `Effective zone Config: Default, All Access` in bottom right of window.

Click **Save Config**.

Repeat for the second switch.

5. Run IPM on the blade servers

Run IPM on blade servers following [3.7.10 IPM Servers Using PM&C Application](#) application.

Note: A new IP address will be assigned to bond0 of each blade at the end of the IPM process, so the .xml files will need to be updated accordingly.

3.9 Virtualization Procedures

3.9.1 Create guest server using PM&C application

This procedure provides the steps for creating a virtualized guest server on a TVOE host, using the PM&C web GUI.

Prerequisites:

- Enclosure containing the TVOE host blade server to host the guest has been configured using [3.7.7 Add Cabinet and Enclosure to the PM&C system inventory](#).
- The TVOE host has been installed using [3.7.10 IPM Servers Using PM&C Application](#).

Note: PM&C will not prevent over-subscription of memory or CPU resources.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. PM&C GUI: Login

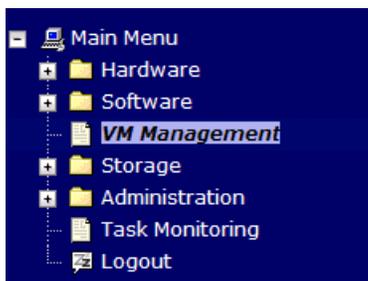
If needed, open web browser and enter:

```
https://<pmac_management_network_ip>
```

Login as **pmacadmin** user.

2. PM&C GUI: Navigate to VM Management

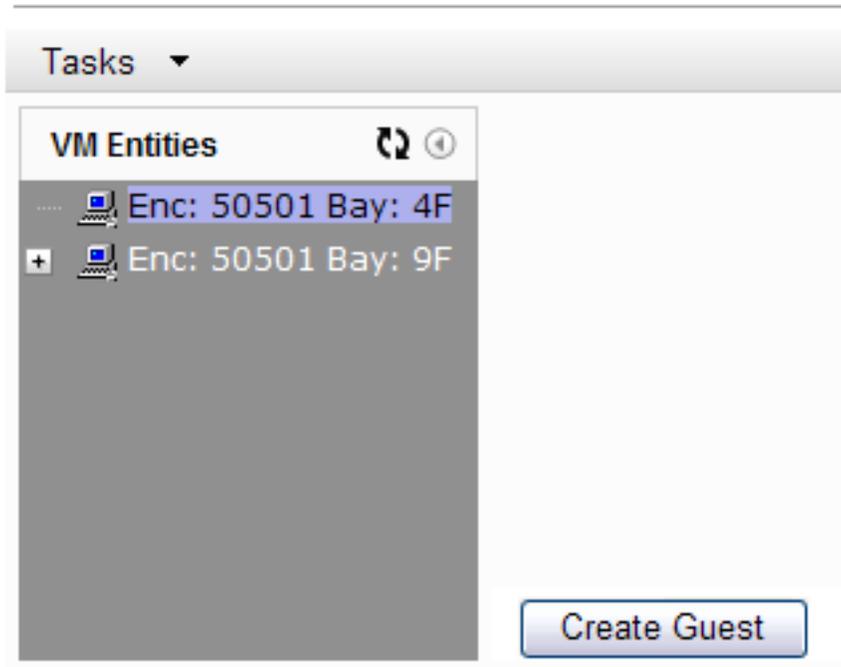
Navigate to **Main Menu > VM Management**.



3. PM&C GUI: Click the "Create Guest" button.

On the Virtual Machine Management page, click the **Create Guest** button

Virtual Machine Management



4. PM&C GUI: Enter guest name

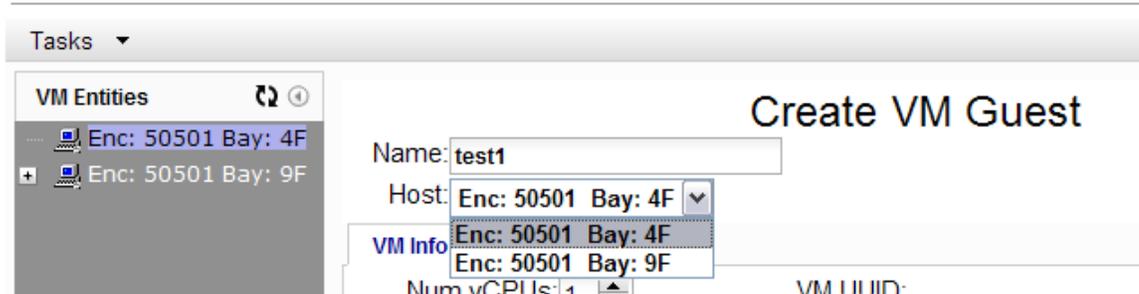
Fill in the **Name** field with something unique to the TVOE host. The name can be identical to a guest on a different host.



5. PM&C GUI: Select the TVOE Host for the new guest.

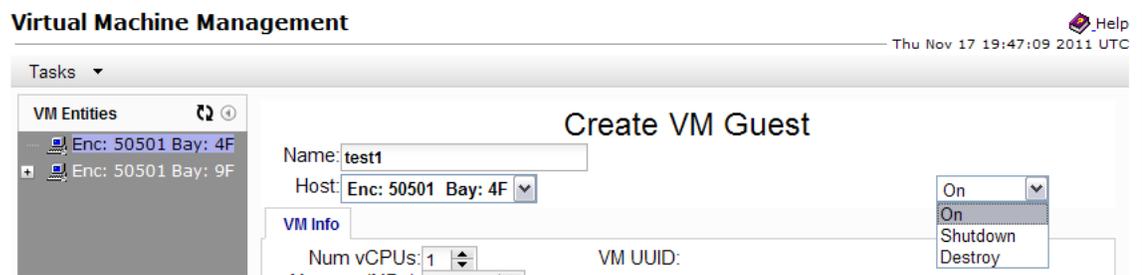
Using the dropdown Host field, select the TVOE host on which to create the guest.

Virtual Machine Management



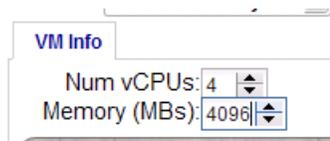
6. PM&C GUI: Select the desired initial power state

Using the dropdown field to the right, select the initial power state for the guest. In this context, **Shutdown** and **Destroy** both behave the same, the guest will not be powered on upon creation.



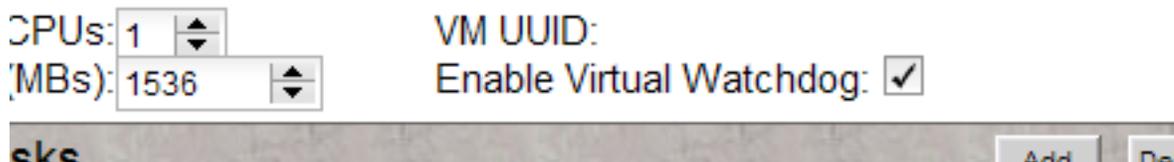
7. **PM&C GUI:** Edit the vCPU count and Memory size.

Using the arrows to the right of the fields, adjust the number of virtual CPUs and the amount of memory (in MBs) to use for the guest. These fields are also manually editable test fields. *PM&C will not prevent over-subscription of these resources.*



8. **PM&C GUI:** Edit the Watchdog setting (if available)

If this Guest is being created on a version of TVOE having support for virtual guest watchdogs, the Enable Virtual Watchdog item will be present. Set this checkbox according to whether or not watchdog support is desired for this Guest.



9. **PM&C GUI:** Edit the primary virtual disk

A primary disk is specified by default. Changes can be made to the details of the primary disk as desired. The primary disk will be used to install the OS. See the application requirements for the desired settings.

Size (MB) : By default, a primary disk is specified with the minimum size supported by TPD, click on the number to adjust the size via arrow or the keyboard.

Host Pool: The default vgguests storage pool is selected. Using the dropdown box, other pools that have been configured on the TVOE can be selected.

Host Vol Name: For the primary disk, this will be filled in automatically based on the guest name provided above. It can be modified manually if needed.

Guest Dev Name: For the primary disk, this value is not set.



10. PM&C GUI: Add extra virtual disks

If the application requires extra virtual disks to be specified, repeat this step for each extra disk.

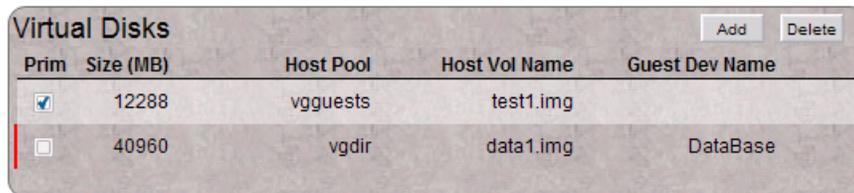
Click on the **Add** button at the top-right corner of the Virtual Disks pane

Size (MB): Click on the number to adjust the size via arrow or the keyboard.

Host Pool: The default vgguests storage pool is selected. Using the dropdown box, other pools that have been configured on the TVOE can be selected.

Host Vol Name: Fill in this value. It must be unique among all disks on all guest hosted on the TVOE.

Guest Dev Name: This is the alias that will be used inside of the TPD instance running on the guest. It will help the application identify the disk.



Repeat, as needed, for all extra disks.

11. PM&C GUI: Add virtual NICs.

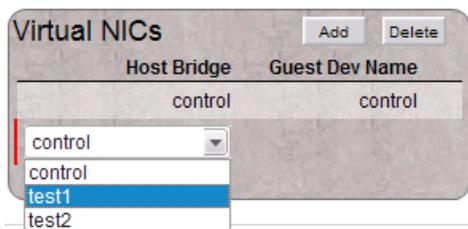
By default, the control network is configured, and is required for PM&C to install and upgrade the guest. If this is removed, one will be added during the guest creation.

To add additional NICs, repeat this step using the instructions below for each virtual NIC.

Click on the **Add** button at the top-right corner of the Virtual NICs pane

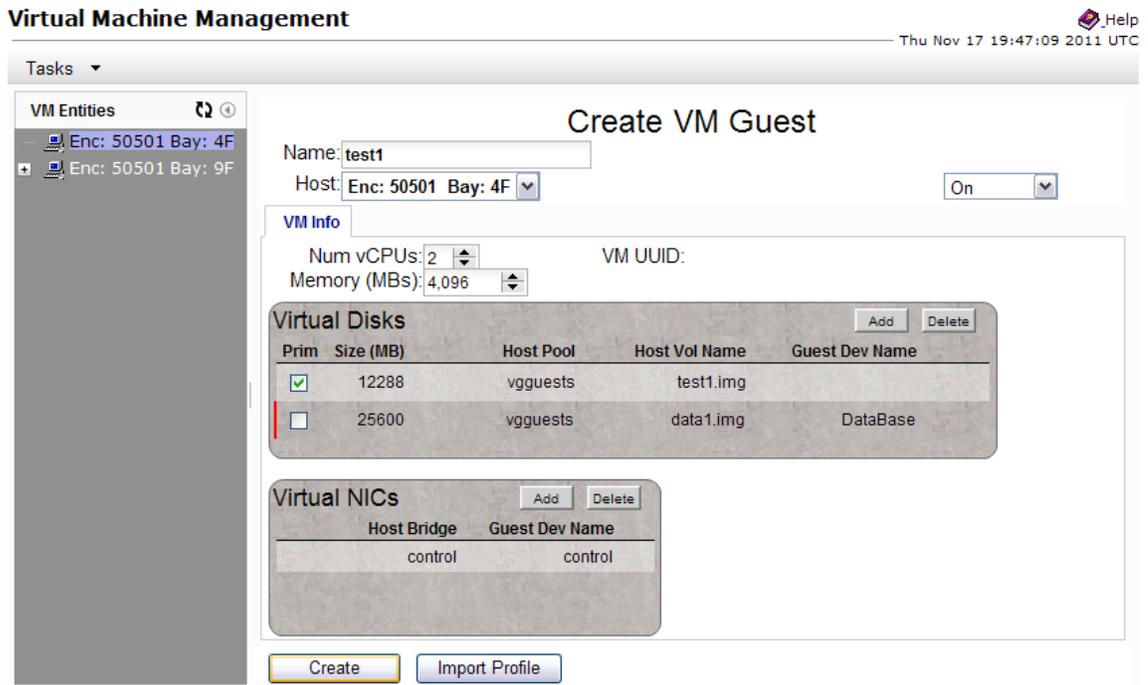
Host Bridge: Using the dropdown box, select the desired bridge that has been previously configured on the TVOE.

Guest Dev Name: This is the alias that will be used inside of the TPD instance running on the guest. It will help the application identify the network.



Repeat, as needed, for all vNICs.

12. **PM&C GUI:** Create the guest.
Verify the guest configuration.



Click on the **Create** button.

13. **PM&C GUI:** Verify guest creation started.
If there was an immediate problem, an alert box will report the error, and the values can be corrected and retried. Otherwise, the alert box will confirm the creation of a Background Task.



14. **PM&C GUI:** Monitor guest create
Navigate to **Main Menu > Task Monitoring** to monitor the progress of the "VirtAction: Create" background task.

Background Task Monitoring _Help
Thu Nov 17 19:58:26 2011 UTC

Filter ▾

ID	Task	Target	Status	Running Time	Start Time	Progress
10	VirtAction: Create	Enc:50501 Bay:4F Guest: test1	Creating vdisks	0:00:01	2011-11-17 14:55:13	22%
9	Install OS	Enc:50501 Bay:4F	Done: TVOE--1.0.0_72.24.0--872-2290-101--x86_64	0:17:01	2011-11-17 14:23:14	100%
8	Configure Storage		Storage configuration successful for /usr/TKLC/smac/etc/storage/AppV	0:00:01	2011-11-17 14:20:34	100%
7	Upgrade	Enc:50501 Bay:4F	Success	0:09:46	2011-11-17 14:08:46	100%
6	Install OS	Enc:50501 Bay:4F	Done: TPD--5.0.0_72.24.0--i386	0:16:43	2011-11-17 13:47:25	100%
5	Add Image		Done: 872-2290-101-1.0.0_72.24.0-TVOE-x86_64	0:00:05	2011-11-17 13:31:19	100%
4	Delete Image		TVOE--1.0.0_72.24.0--872-2290-101--x86_64	0:00:00	2011-11-17 13:26:18	100%
3	Add Enclosure	Enc:50501	Enclosure added - starting monitoring	0:01:52	2011-11-17 13:23:47	100%
2	Add Enclosure	Enc:50501	Enclosure added - starting monitoring	0:01:59	2011-11-17 13:18:55	100%
1	Initialize PM&C		PM&C initialized	0:00:36	2011-11-14	100%

When the task is complete, the text will change to green and the Progress column will indicate "100%".

3.9.2 Delete guest server using PM&C application

This procedure provides the steps for deleting a virtualized guest server on a TVOE host, using the PM&C web GUI.

Prerequisites:

- Enclosure containing the host blade server hosting the guest has been configured using [3.7.7 Add Cabinet and Enclosure to the PM&C system inventory](#).

Note: All data belonging to this guest server will be lost in the execution of this procedure.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. PM&C GUI: Login

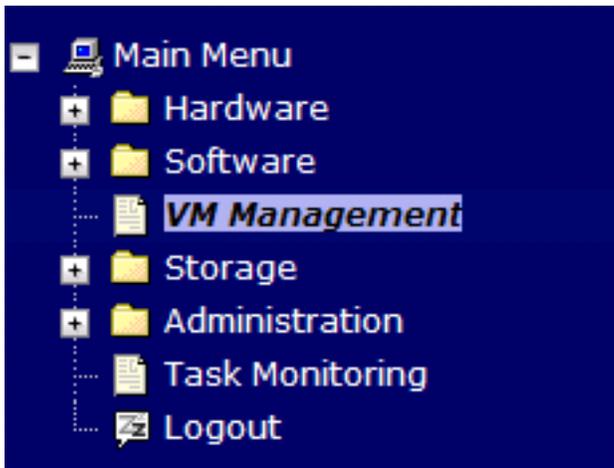
If needed, open web browser and enter:

```
https://<pmac_management_network_ip>
```

Login as **pmacadmin** user.

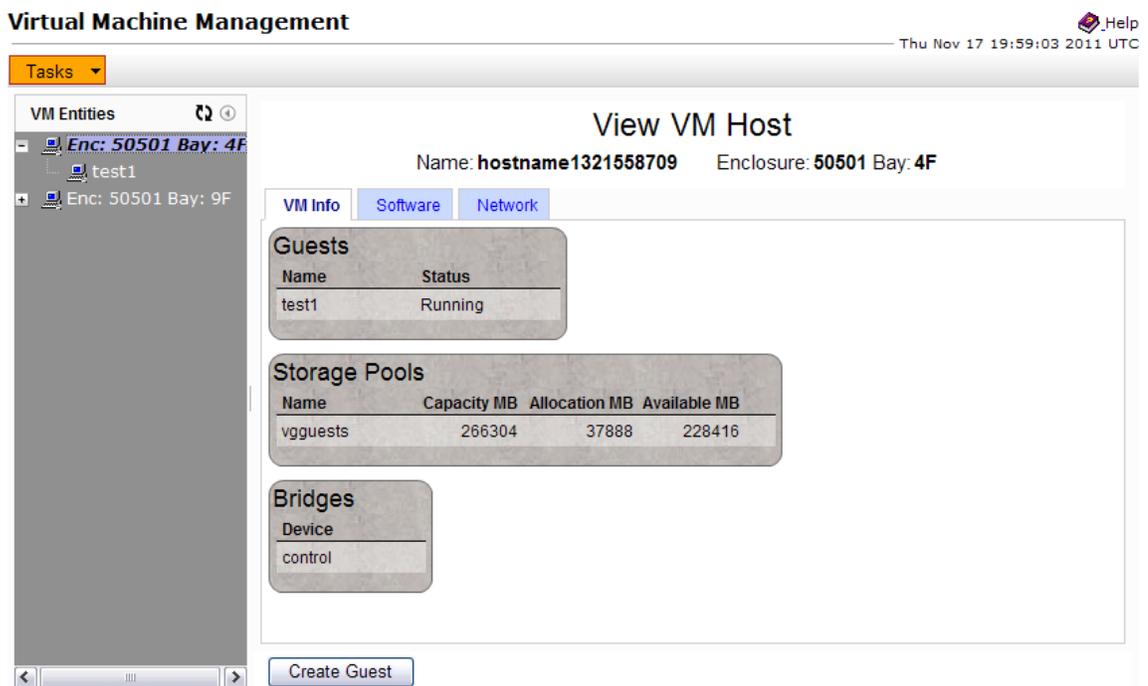
2. PM&C GUI: Navigate to VM Management

Navigate to **Main Menu > VM Management**.



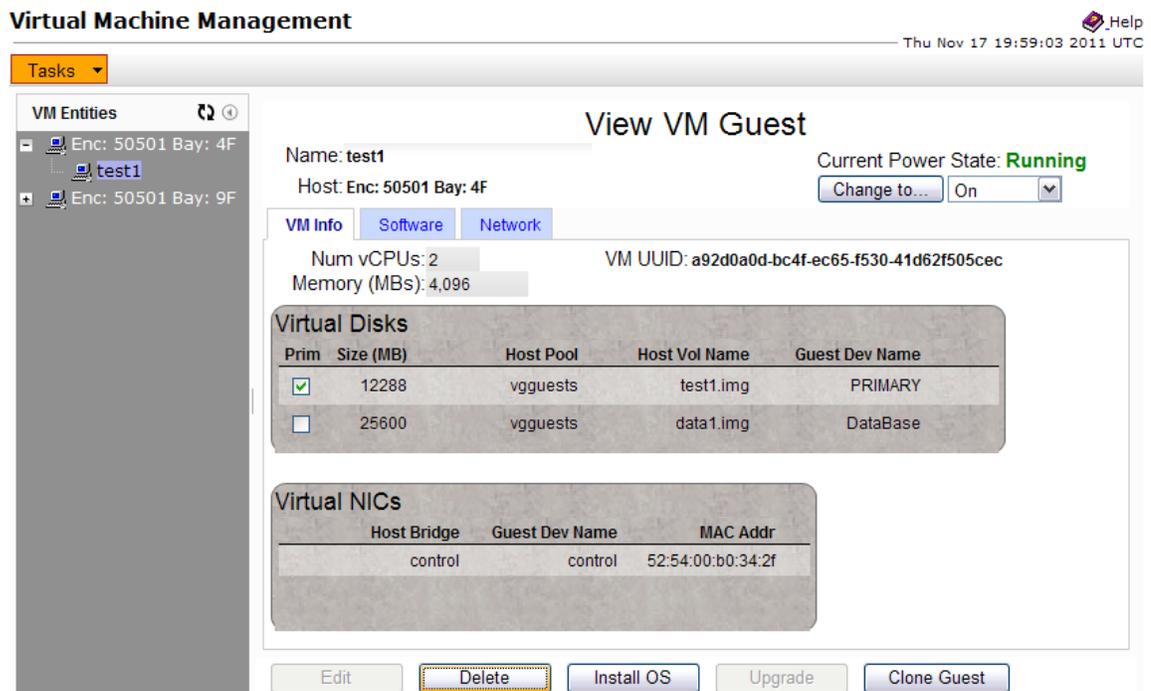
3. PM&C GUI: Select TVOE hosting the guest

Click on the  to the left of the TVOE host that contains the guest server to delete. This will expand the tree to make the guests hosted on the selected TVOE visible.



4. PM&C GUI: Select the guest and delete

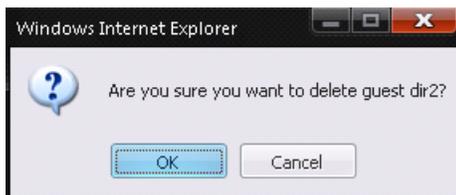
The left side of this screen shows the guest servers on the TVOE host. Select the desired guest and the guest details will be displayed on the right.



Then press the **Delete** button.

5. PM&C GUI: Confirm delete

Take a moment to double-check that the guest name is correct. There will be no further confirmation and the delete will be final.



Click on the **OK** button to confirm the delete.

6. PM&C GUI: Monitor guest delete

Navigate to **Main Menu > Task Monitoring** to monitor the progress of the "VirtAction: Delete" background task.

Background Task Monitoring

Thu Nov 17 20:03:37 2011 UTC  Help

ID	Task	Target	Status	Running Time	Start Time	Progress
11	VirtAction: Delete	Enc:50501 Bay:4F Guest: test1	Delete volumes.	0:00:07	2011-11-17 15:00:59	60%
10	VirtAction: Create	Enc:50501 Bay:4F Guest: test1	Guest creation completed (test1)	0:00:04	2011-11-17 19:55:13	100%
9	Install OS	Enc:50501 Bay:4F	Done: TVOE--1.0.0_72.24.0--872-2290-101--x86_64	0:17:01	2011-11-17 14:23:14	100%
8	Configure Storage		Storage configuration successful for /usr/TKLC/smac/etc/storage/AppV	0:00:01	2011-11-17 14:20:34	100%
7	Upgrade	Enc:50501 Bay:4F	Success	0:09:46	2011-11-17 14:08:46	100%
6	Install OS	Enc:50501 Bay:4F	Done: TPD--5.0.0_72.24.0--i386	0:16:43	2011-11-17 13:47:25	100%
5	Add Image		Done: 872-2290-101-1.0.0_72.24.0-TV OE-x86_64	0:00:05	2011-11-17 13:31:19	100%
4	Delete Image		TVOE--1.0.0_72.24.0--872-2290-101-- x86_64	0:00:00	2011-11-17 13:26:18	100%
3	Add Enclosure	Enc:50501	Enclosure added - starting monitoring	0:01:52	2011-11-17 13:23:47	100%
2	Add Enclosure	Enc:50501	Enclosure added - starting monitoring	0:01:59	2011-11-17 13:18:55	100%

When the task is complete, the text will change to green and the Progress column will indicate "100%".

3.9.3 Create guest server from guest archive using PM&C application

This procedure provides the steps for creating a virtualized guest server from a guest archive image on a TVOE host, using the PM&C web GUI.

Prerequisites:

- Enclosure containing the TVOE host blade server to host the guest has been configured using [3.7.7 Add Cabinet and Enclosure to the PM&C system inventory](#).
- The TVOE host has been installed using [3.7.10 IPM Servers Using PM&C Application](#)
- The ISO image providing the guest archive image and profile has been provisioned using [3.7.9 Adding ISO Images to the PM&C Image Repository](#)

Note: PM&C will not prevent over-subscription of memory or CPU resources.

Note: The guest archive profiles might not contain values for all required fields.

Note: The values provided by the guest archive profile can be overridden before the guest is created.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

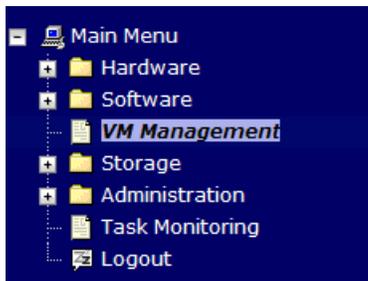
1. PM&C GUI: Login

If needed, open web browser and enter:

```
https://<pmac_management_network_ip>
```

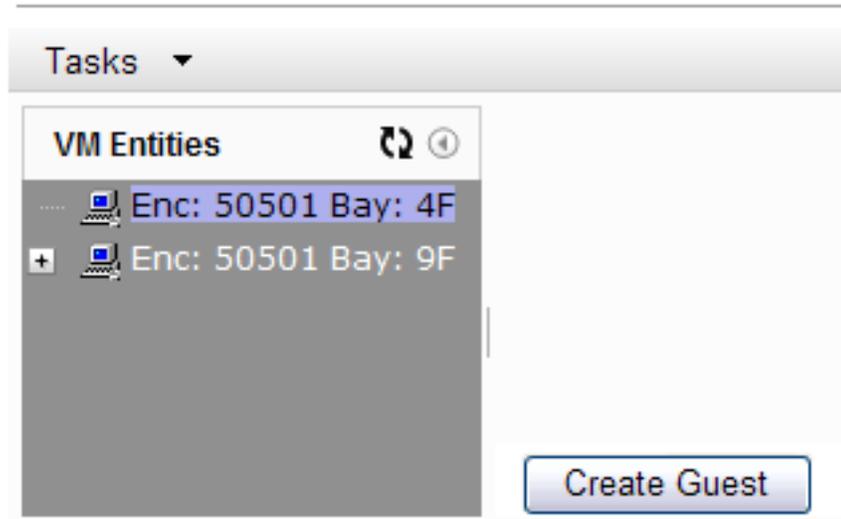
Login as **pmacadmin** user.

2. **PM&C GUI:** Navigate to VM Management
Navigate to **Main Menu > VM Management**.



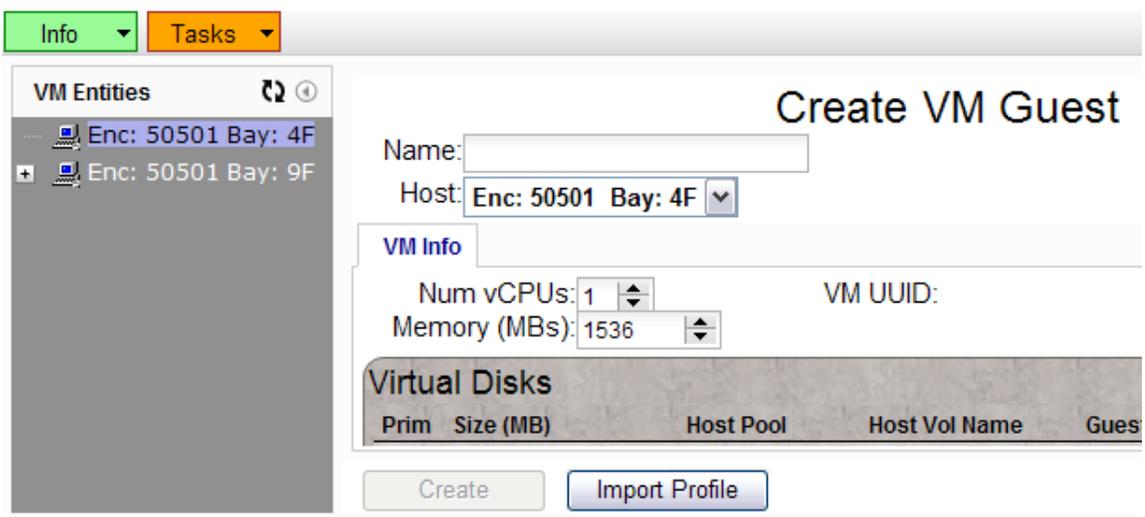
3. **PM&C GUI:** Click the **Create Guest** button.
On the Virtual Machine Management page, click the **Create Guest** button.

Virtual Machine Management



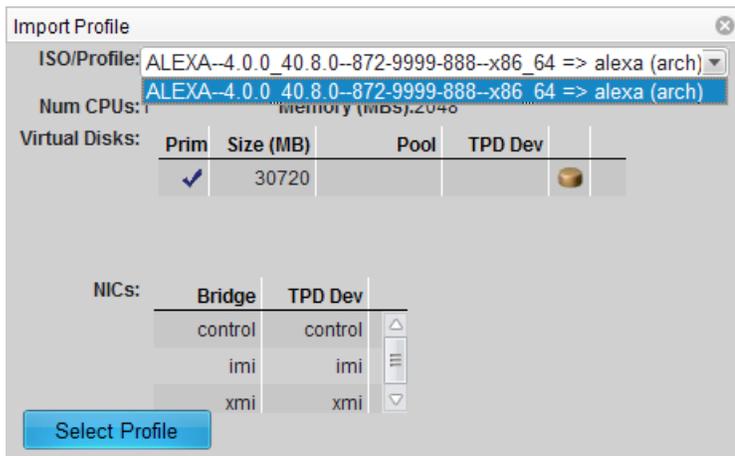
4. **PM&C GUI:** Click the **Import Profile** button
Select the **Import Profile** button to bring up the pop-in dialog box

Virtual Machine Management



5. **PM&C GUI:** Select the desired profile, and click the **Select Profile** button

Using the drop-down menu, select the desired ISO/Profile (It is possible there will be multiple profiles on an ISO). Verify the details, then select the **Select Profile** button.



6. **PM&C GUI:** Enter guest name

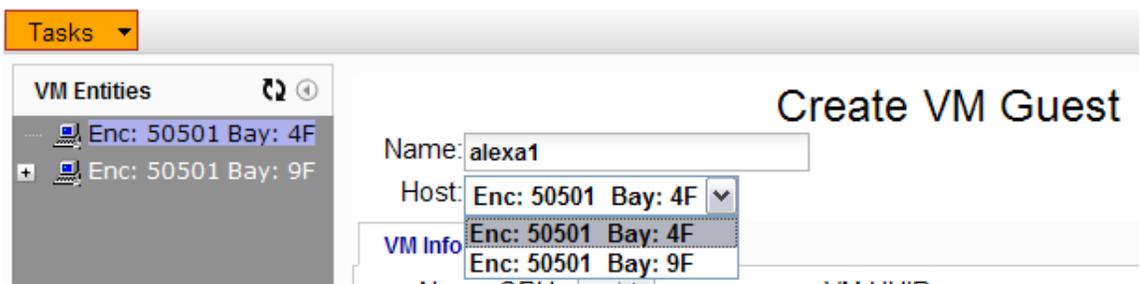
The profile fills in the default name. If a different name is desired, fill in the "Name" field with something unique to the TVOE host. The name can be identical to a guest on a different host.

Virtual Machine Management



7. **PM&C GUI:** Select the TVOE Host for the new guest
Using the dropdown "Host" field, select the TVOE host on which to create the guest.

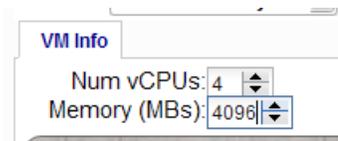
Virtual Machine Management



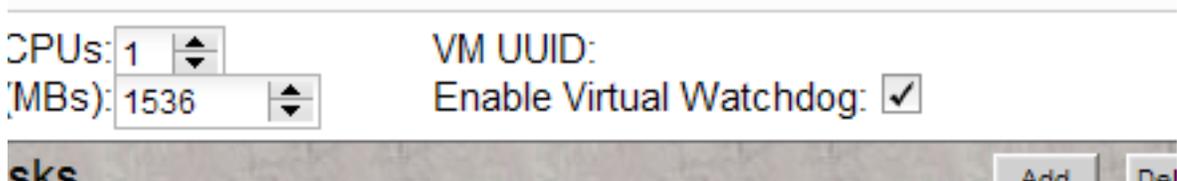
8. **PM&C GUI:** Select the desired initial power state.
Using the dropdown field to the right, select the initial power state for the guest. In this context, Shutdown and Destroy both behave the same, the guest will not be powered on upon creation.



9. **PM&C GUI:** Edit the vCPU count and Memory size
The profile inserted the profile's vCPUs and Memory settings. These can be adjusted using the arrows to the right of the fields, adjust the number of virtual CPUs and the amount of memory (in MBs) to use for the guest. These fields are also manually editable test fields. *PM&C will not prevent over-subscription of these resources.*



10. **PM&C GUI:** Edit the Watchdog setting (if available)
If this Guest is being created on a version of TVOE having support for virtual guest watchdogs, the Enable Virtual Watchdog item will be present. Set this checkbox according to whether or not watchdog support is desired for this Guest.

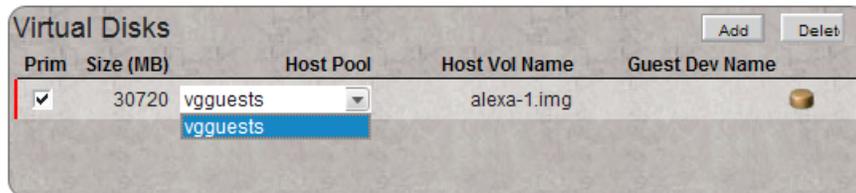


11. **PM&C GUI** Edit the primary virtual disk

The primary disk is specified by the profile. The disk image at the left shows how the disk will be populated with the archive's image. The only fields that should be modified are the Host Pool, and Host Vol Name columns.

Host Pool: The desired storage pool can be selected here. It is possible that the profile did not specify a value for the storage pool. The GUI will not allow you to continue until one is selected.

Host Vol Name: For the primary disk, this will be filled in automatically based on the guest name provided above. It can be modified manually if needed.



12. PM&C GUI: Modify extra virtual disks

If the profile provides extra virtual disks to be specified they will show up below the primary disk. If needed, extra virtual disks may be added at this time, as well.

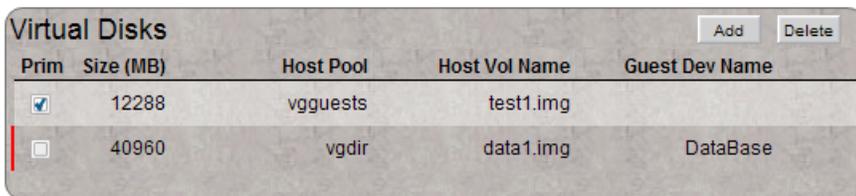
Click on the **Add** button at the top-right corner of the Virtual Disks pane

Size (MB) : Click on the number to adjust the size via arrow or the keyboard.

Host Pool: The default vgguests storage pool is selected, but using the dropdown box, other pools that have been configured on the TVOE can be selected.

Host Vol Name: Fill in this value. It must be unique among all disks on all guests hosted on the TVOE.

Guest Dev Name: This is the alias that will be used inside of the TPD instance running on the guest. It will help the application identify the disk.



Repeat, as needed, for all extra disks.

13. PM&C GUI: Edit virtual NICs

The required networks should be defined by default, the control network is configured, and is required for PM&C to install and upgrade the guest. If this is removed, one will be added during the create.

If additional NICs are required, repeat this step for each virtual NIC.

Click on the **Add** button at the top-right corner of the Virtual NICs pane

Host Bridge: Using the dropdown box, select the desired bridge that has been previously configured on the TVOE.

Guest Dev Name: This is the alias that will be used inside of the TPD instance running on the guest. It will help the application identify the network.

Virtual NICs	
Host Bridge	Guest Dev Name
control	control
imi	imi
xmi	xmi

Repeat, as needed, for all vNICs

- PM&C GUI:** Create the guest
Verify the guest configuration.

Virtual Machine Management Help
Mon Aug 29 17:58:42 2011 UTC

Tasks ▾

VM Entities

- Enc: 50501 Bay: 5F

Create VM Guest

Name: alexa-1
Host: Enc: 50501 Bay: 5F On ▾

VM Info

Num vCPUs: 1
Memory (MBs): 2,048

VM UUID:

Virtual Disks				
Prim	Size (MB)	Host Pool	Host Vol Name	Guest Dev Name
<input checked="" type="checkbox"/>	30720	vsguests	alexa-1.img	

Virtual NICs	
Host Bridge	Guest Dev Name
control	control
imi	imi
xmi	xmi

Click on the **Create** button.

- PM&C GUI:** Verify guest creation started
If there was an immediate problem, an alert box will report the error, and the values can be corrected and retried. Otherwise, the alert box will confirm the creation of a Background Task.



- PM&C GUI:** Monitor guest create

Navigate to **Main Menu > Task Monitoring** to monitor the progress of the "VirtAction: Create" background task.

Background Task Monitoring Mon Aug 29 18:02:25 2011

Filter ▾

ID	Task	Target	Status	Running Time	Start Time	Progress
10768	VirtAction: Create	Enc:50501 Bay:5F Guest: alexa-1	Creating vdisks	0:00:03	2011-08-29 14:01:54	20%

When the task is complete, the text will change to green and the Progress column will indicate "100%".

3.10 General TPD Based Application Procedures

3.10.1 Backup Procedure for TVOE

This procedure will backup system files which can be used at a later time to restore a failed system

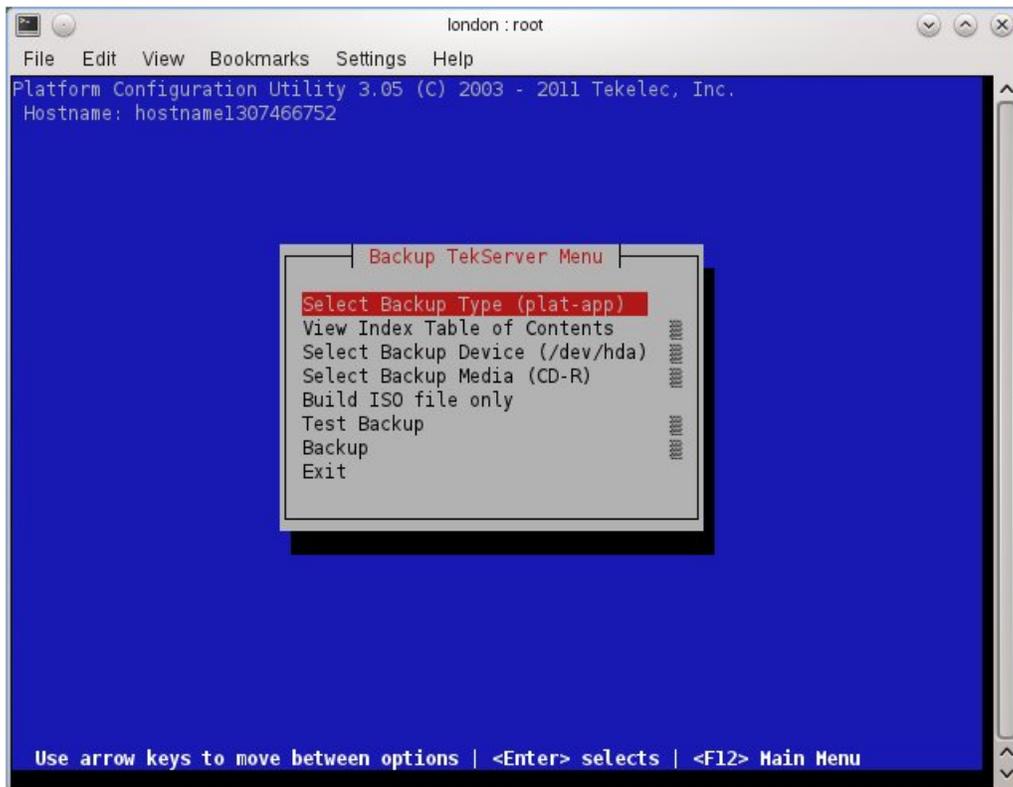
Note: The backup image is to be stored on a customer provided medium.

1. **TVOE Host:** Login as platcfg user.

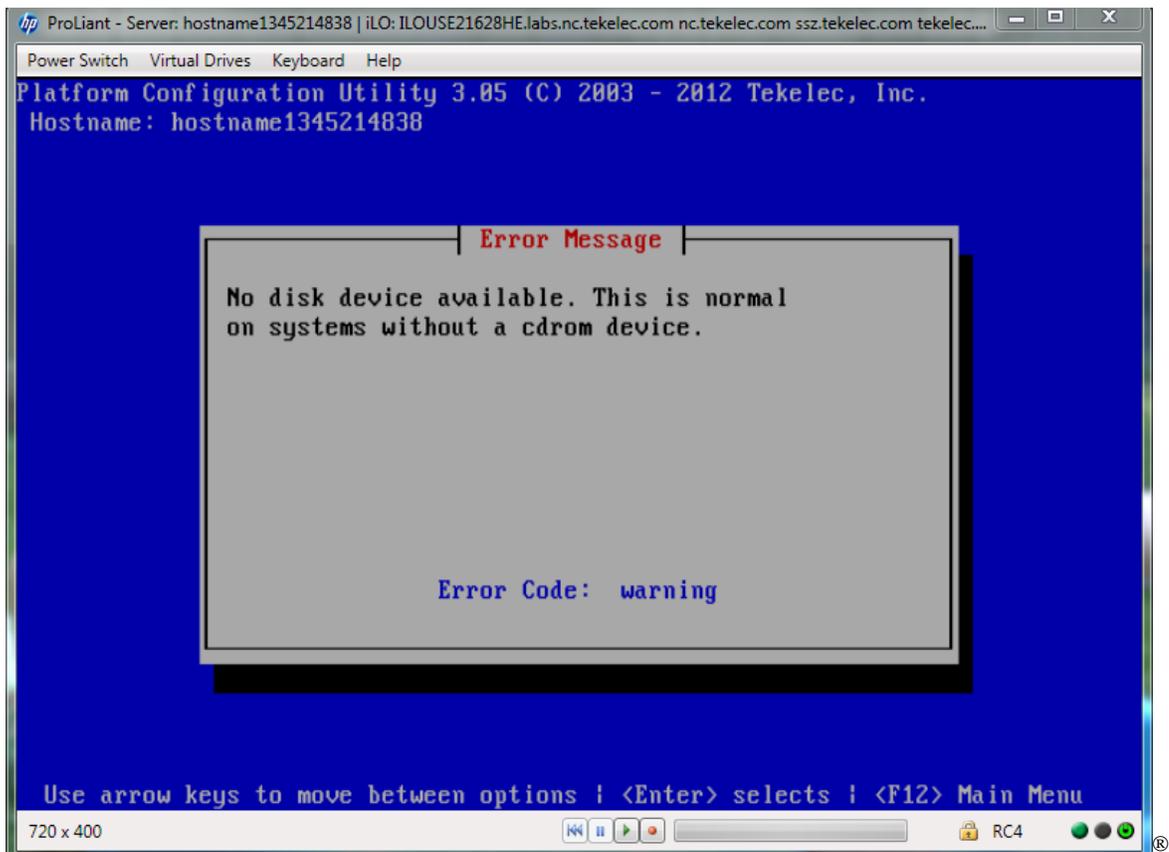
Login as platcfg user on the server. The platcfg main menu will be shown.

2. **TVOE Host:** Navigate to the Backup TekServer Menu page

Select the following menu options sequentially: **Maintenance > Backup and Restore > Backup Platform (CD/DVD)**. The 'Backup TekServer Menu' page will now be shown.



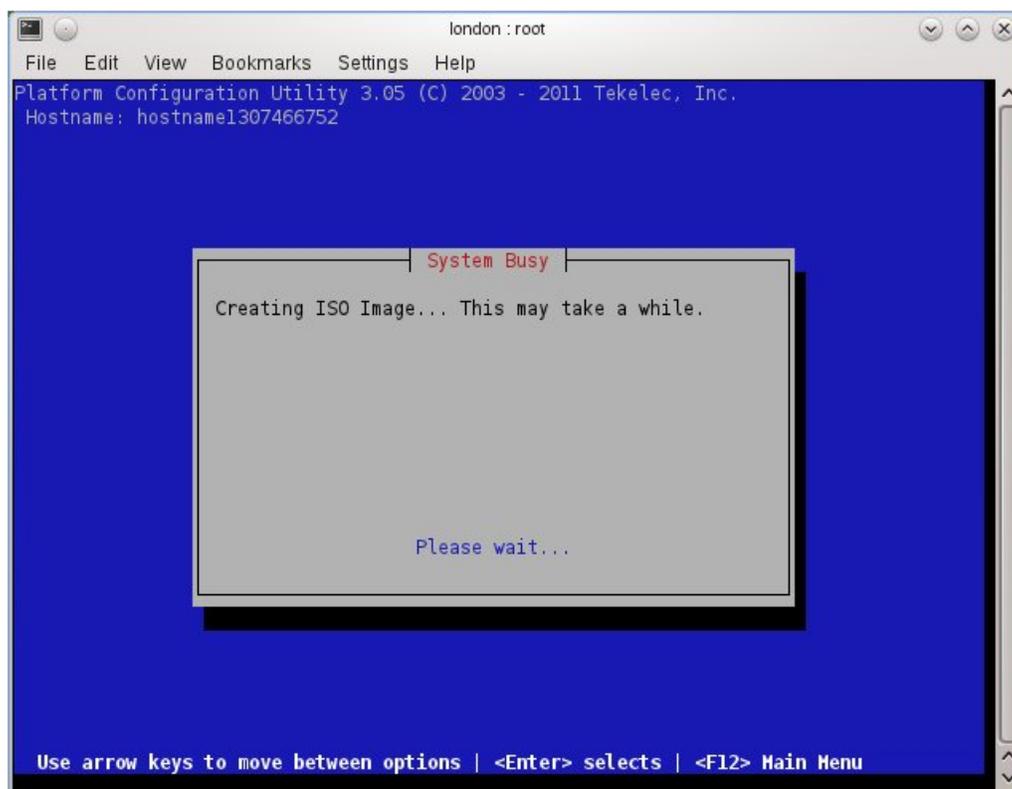
Note: If this operation is attempted on a system without a CD-ROM drive, the following message will appear:



3. **TVOE Host:** Build the backup ISO image.

Select **Build ISO file only**. The following screen will display:

Note: Creating the ISO image may happen so quickly that this screen may only appear for an instant.



After the ISO is created, platcfg will return to the Backup TekServer Menu as shown in step 2. The ISO has now been created and is located in the `/var/TKLC/bkp/` directory. An example filename of a backup file that was created is: "hostname1307466752-plat-app-201104171705.iso"

4. TVOE Host: Exit platcfg

Select **Exit** on each menu until platcfg has been exited. The SSH connection to the TVOE server will be terminated.

5. Customer Server: Login to the customer server and copy backup image to the customer server where it can be safely stored.

If the customer system is a Linux system, execute the following command to copy the backup image to the customer system.

```
# scp tvoexfer@<TVOE IP Address>:backup/* /path/to/destination/
```

When prompted, enter the tvoexfer user password and press **Enter**.

An example of the output looks like:

```
# scp tvoexfer@<TVOE IP Address>:backup/* /path/to/destination/
tvoexfer@10.24.34.73's password:
hostname1301859532-plat-app-301104171705.iso      100% 134MB 26.9MB/s 00:05
```

If the Customer System is a Windows system refer to Appendix A Using WinSCP to copy the backup image to the customer system.

The TVOE backup file has now been successfully placed on the Customer System.

3.10.2 Configure NTP on TPD based Application

This procedure will configure NTP servers for a server based on TPD.

1. Server: Login as platcfg user

Login as platcfg user on the server. The platcfg main menu will be shown.

2. Server: Navigate to Time Servers configuration page. Select the following menu options sequentially: **Network Configuration > NTP**. The 'Time Servers' page will now be shown, which shows the configured NTP servers and peers.

```

Platform Configuration Utility 3.08 (C) 2003 - 2013 Tekelec, Inc.
Hostname: pmac033-1

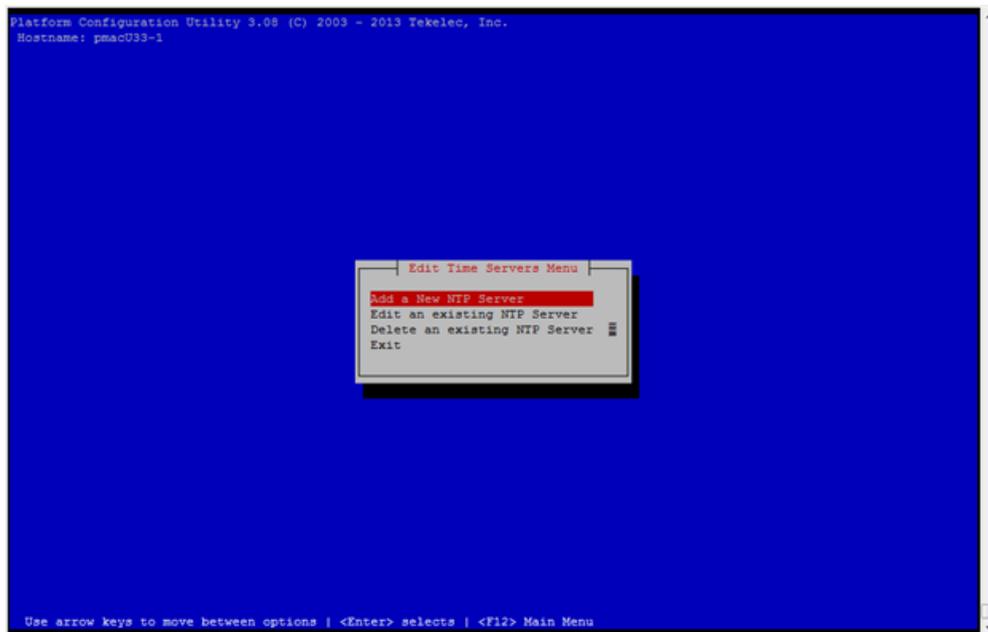
                                Time Servers

-----
NTP Servers
Address:                          Hostname:      Options:
-----
10.240.4.90                       ntpserver1   iburst dynamic iburst
                                   ntpserver2   iburst dynamic iburst
                                   ntpserver3   iburst dynamic iburst
-----

Use arrow keys to move between options | <Enter> selects
  
```

3. Server: Update NTP Information

Select **Edit**. The **Edit Time Servers Menu** is displayed.



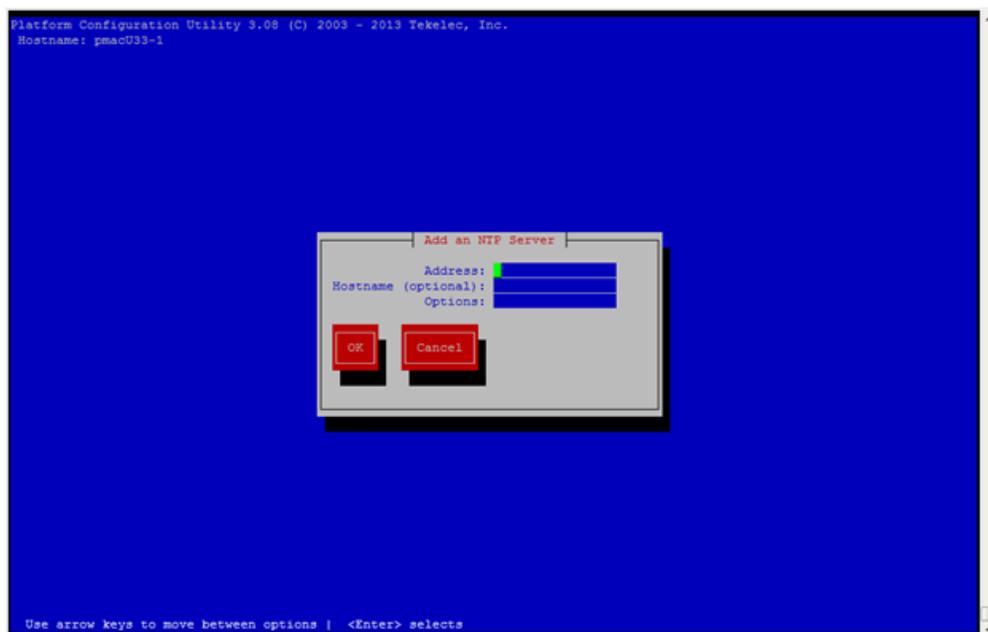
4. Server: Edit NTP Information

Select the appropriate **Edit Time Servers Menu** option. When all Time Server actions are complete exit the **Edit Time Servers Menu**.

a. Adding an NTP Server

- a. **Server:** If adding a new NTP server select **Add a New NTP Server**.

The **Add an NTP Server** window is displayed.



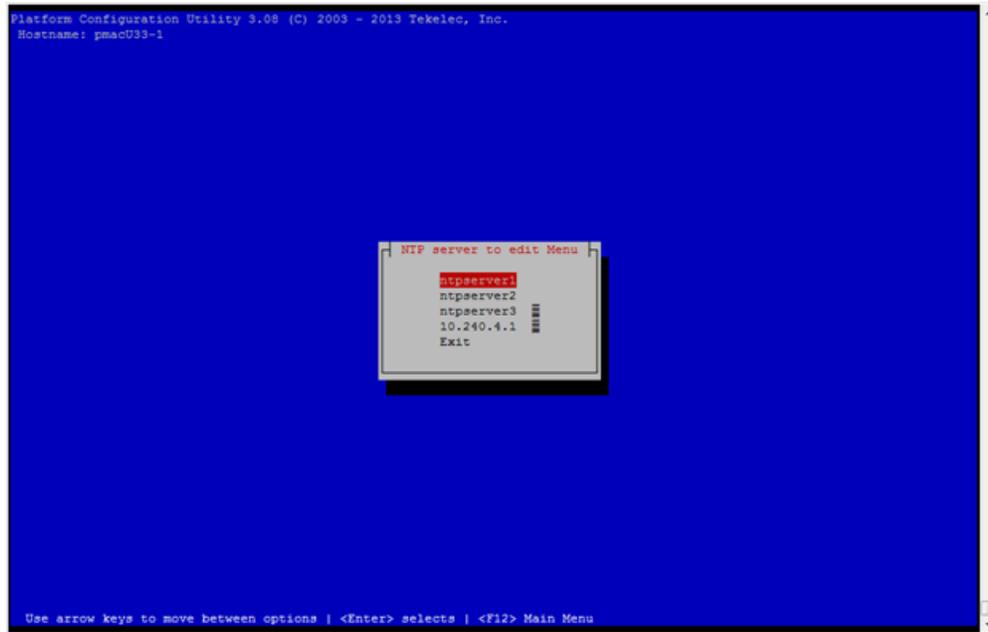
- b. **Server:** Enter Appropriate data, and select **OK**

The NTP server is added. The **Edit Time Servers Menu** is displayed.

b. Editing an NTP Server

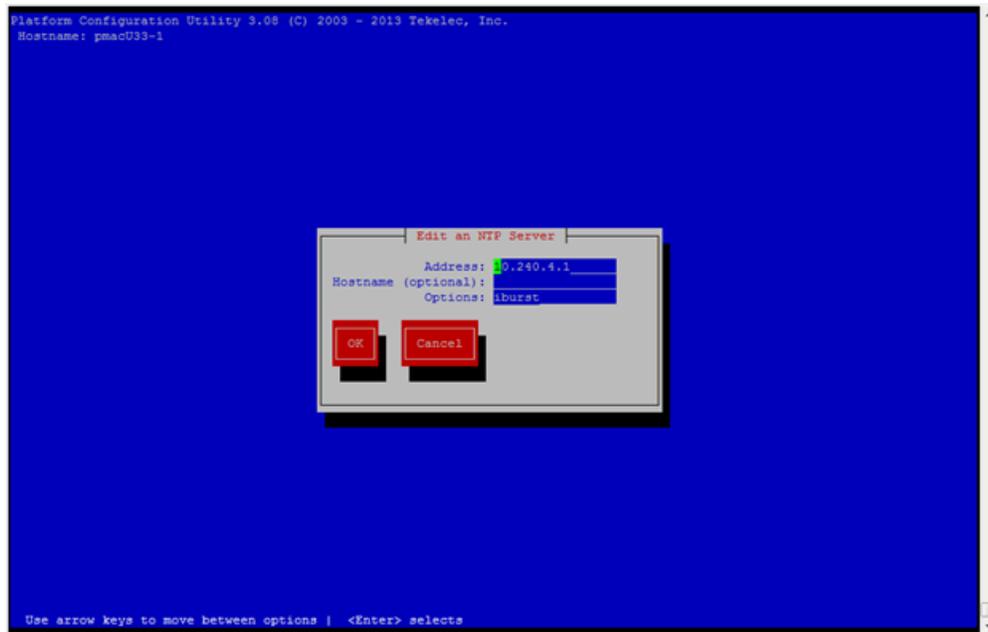
- a. **Server:** If editing an existing NTP server select **Edit an existing NTP Server**.

The **NTP Server to edit Menu** window is displayed.



- b. **Server:** Select appropriate NTP server.

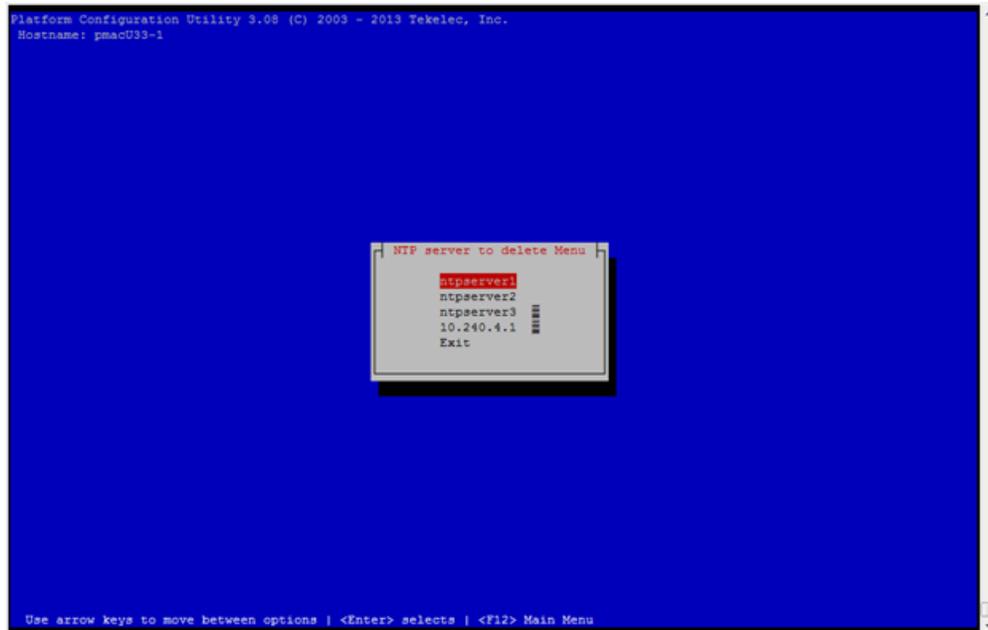
The **Edit an NTP Server** window is displayed.



c. **Deleting an existing NTP Server**

- a. **Server:** If deleting an existing NTP server, select **Delete an existing NTP Server**.

The **NTP server to delete Menu** is displayed.

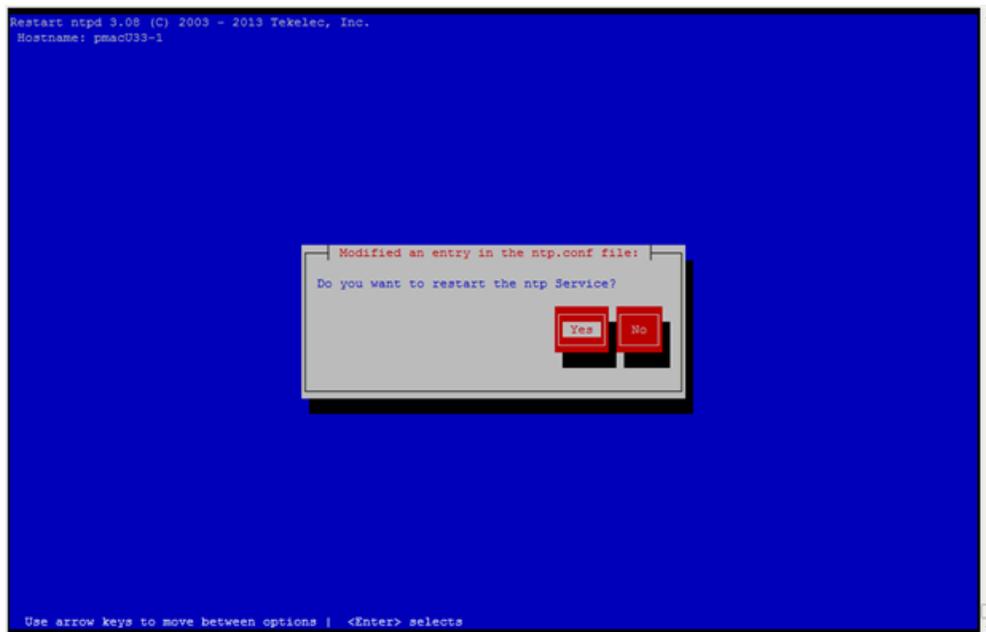


- b. **Server:** Select appropriate NTP server.

The NTP server is deleted. The **Edit Time Servers Menu** is displayed.

5. **Server:** Restart the NTP server

Upon exit from the **Edit Time Servers Menu** the **Modified an entry in the ntp.conf file** is displayed.

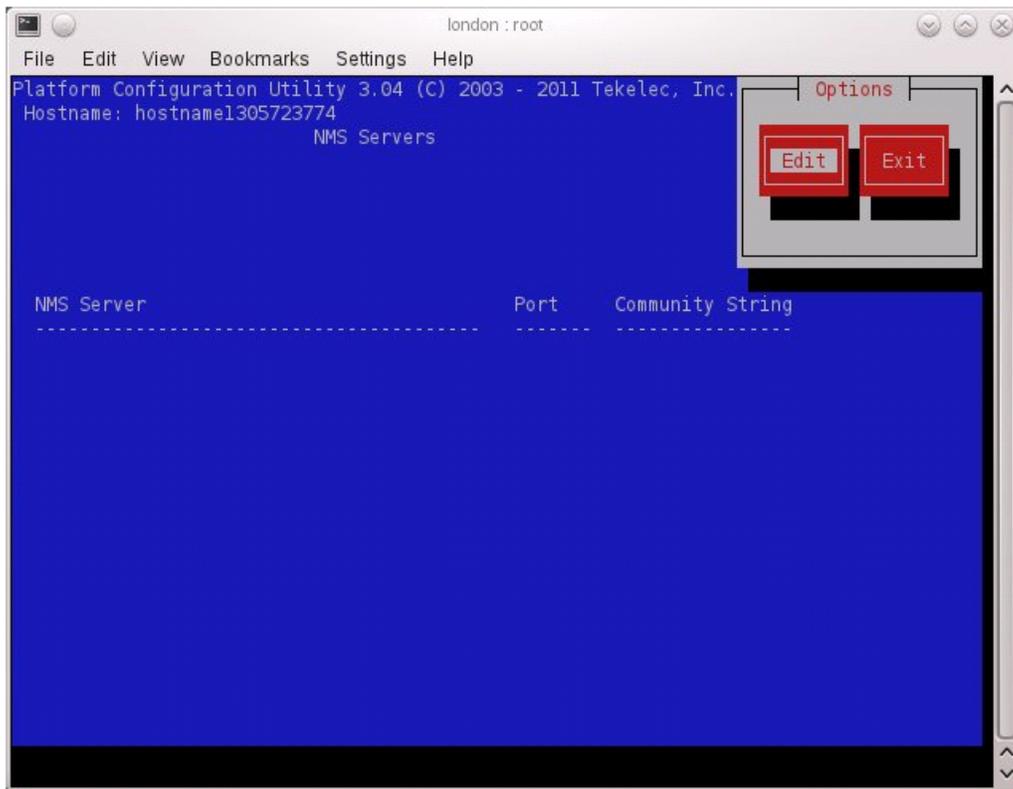


- a. **Server:** Restart the NTP service by selecting **Yes**. The **Network Configuration Menu** is displayed.
6. **Server:** Exit platcfg.
Select **Exit** on each menu until platcfg has been exited.

3.10.3 Add SNMP trap destination on TPD based Application

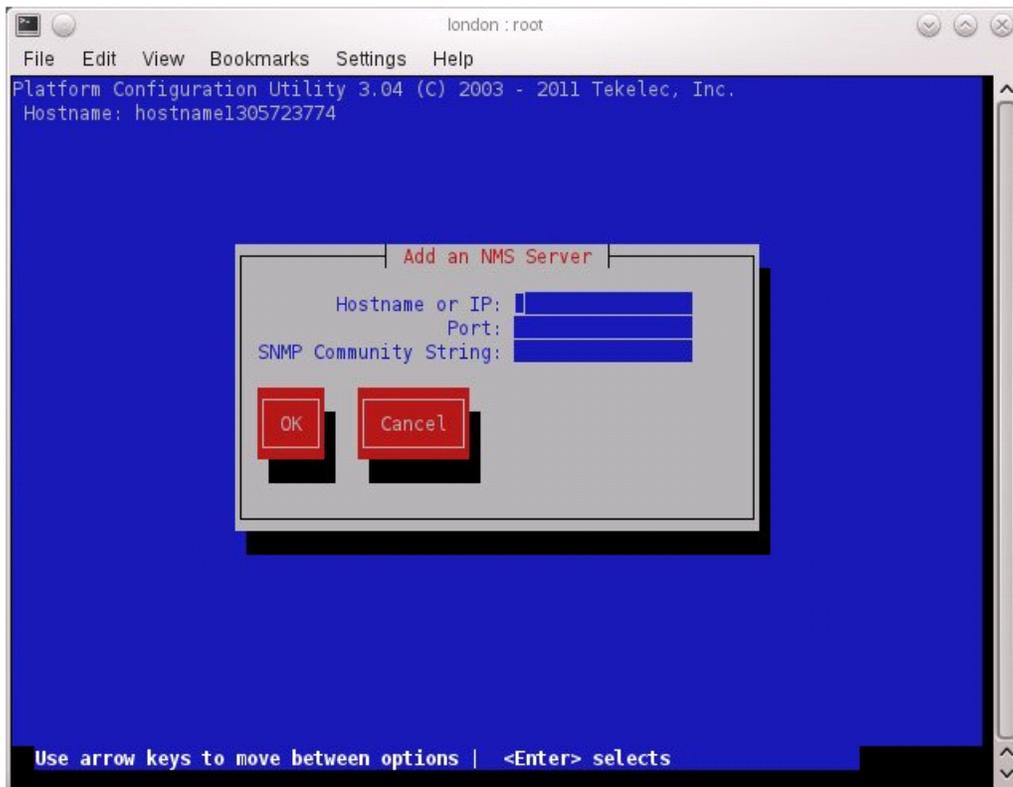
This procedure will add an SNMP trap destination to a server based on TPD. All alarm information will then be sent to the NMS located at the destination.

1. **Server:** Login as platcfg user
Login as platcfg user on the server. The platcfg main menu will be shown.
2. **Server:** Navigate to NMS server configuration page
Select the following menu options sequentially: **Network Configuration > SNMP Configuration > NMS Configuration**. The 'NMS Servers' page will be shown, which displays all configured NMS servers for the server.



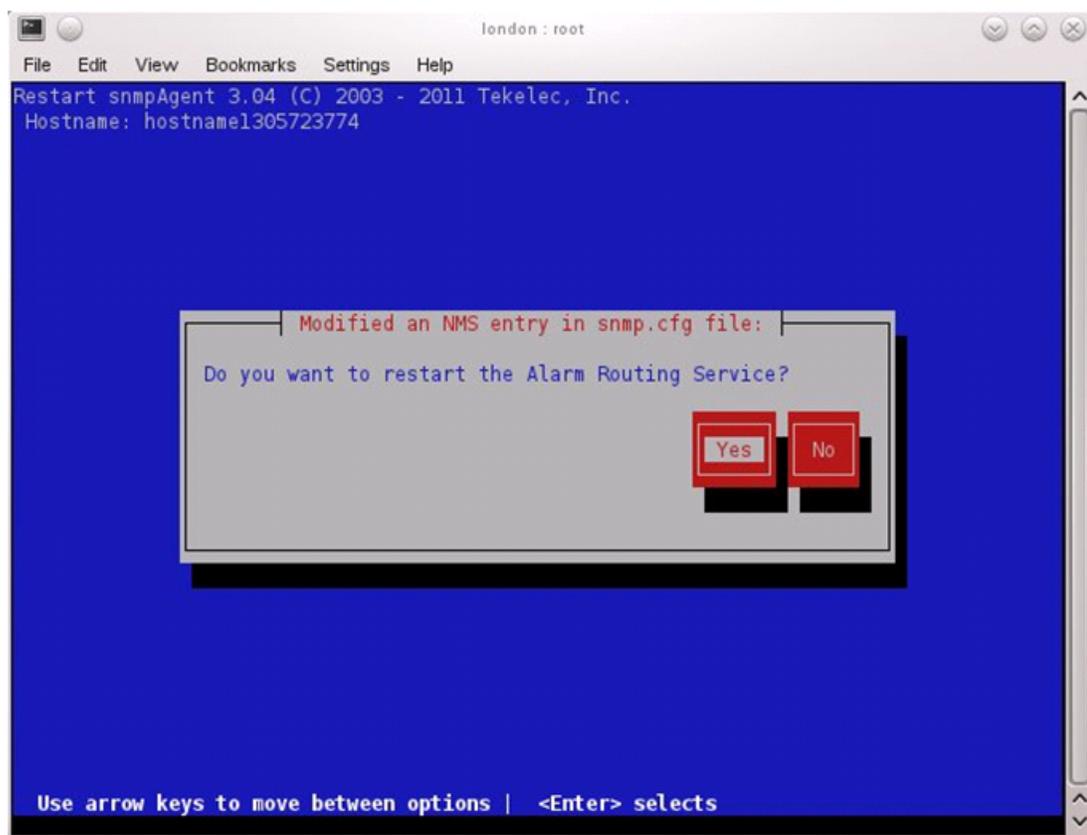
3. **Server:** Add the SNMP trap destination

Select **Edit** and then choose **Add a New NMS Server**. The 'Add an NMS Server' page will be displayed.



Complete the form by entering in all information about the SNMP trap destination. Select **OK** to finalize the configuration.

The 'NMS Server Action Menu' will now be displayed. Select **Exit**. The following dialog will then be presented.



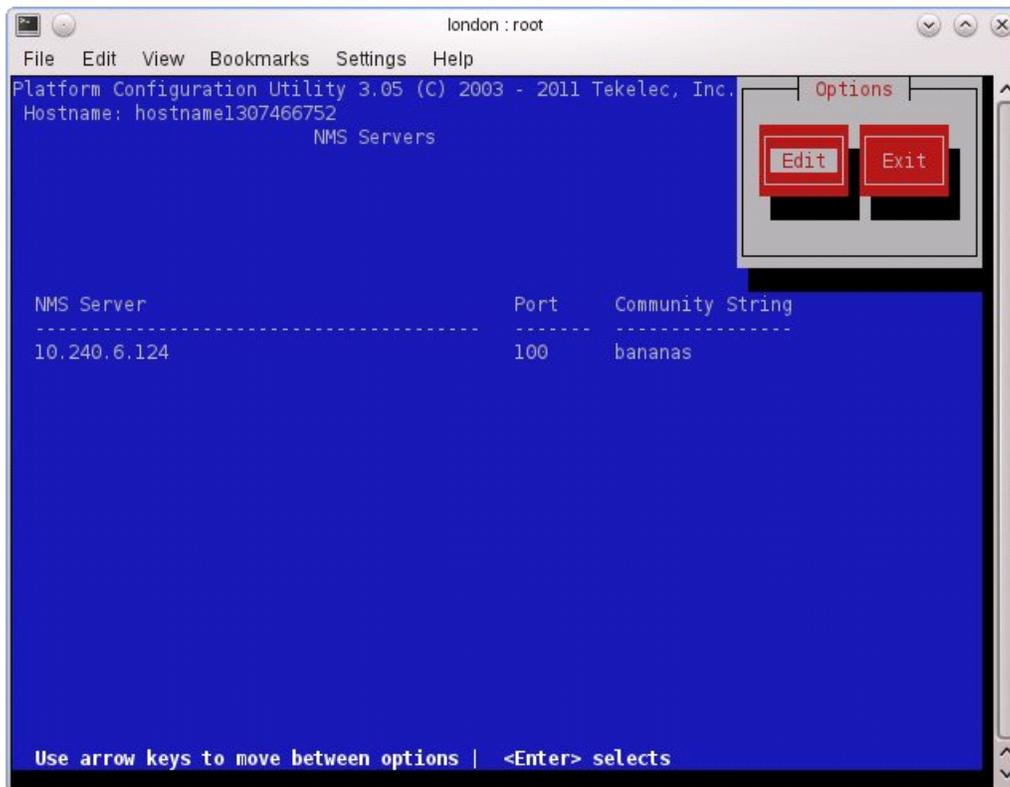
Select **Yes** and then wait a few seconds while the Alarm Routing Service is restarted. At that time the SNMP Configuration Menu will be presented.

4. **Server:** Exit platcfg
Select **Exit** on each menu until platcfg has been exited.

3.10.4 Delete SNMP trap destination on TPD based Application

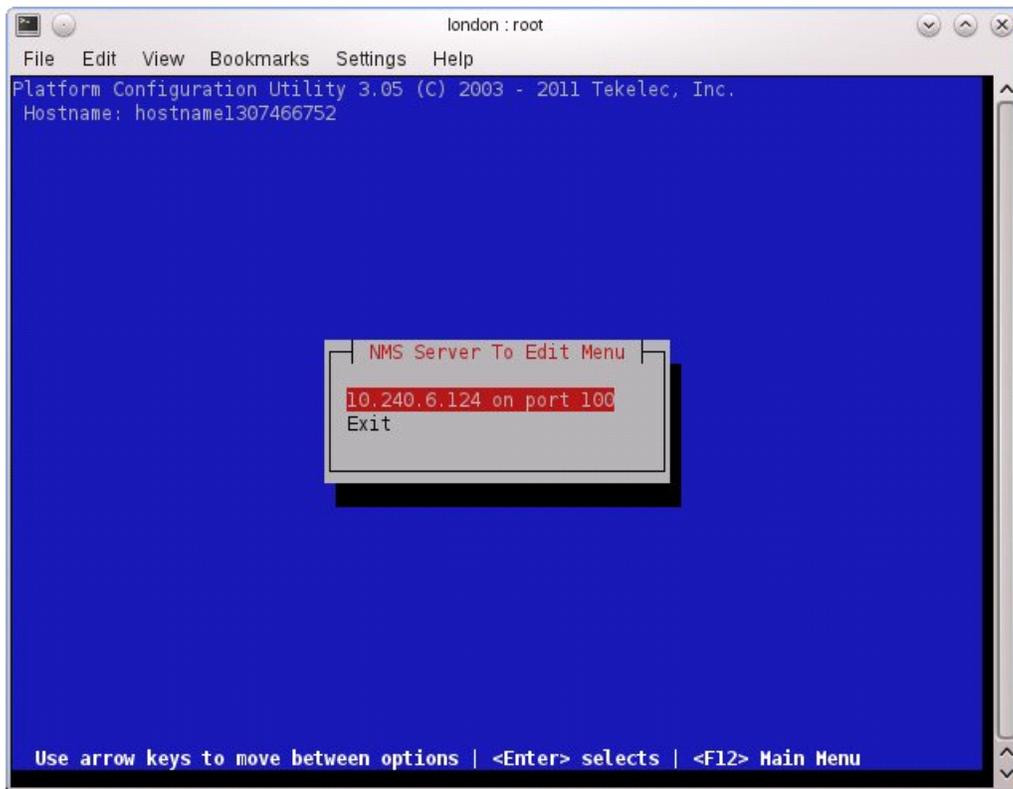
This procedure will remove an SNMP trap destination on a server.

1. **Server:** Login as platcfg user
Login as platcfg user on the server. The platcfg main menu will be shown.
2. **Server:** Navigate to NMS server configuration page.
Select the following menu options sequentially: **Network Configuration > SNMP Configuration > NMS Configuration**. The 'NMS Servers' page will now be shown, which displays all configured NMS servers for the server.



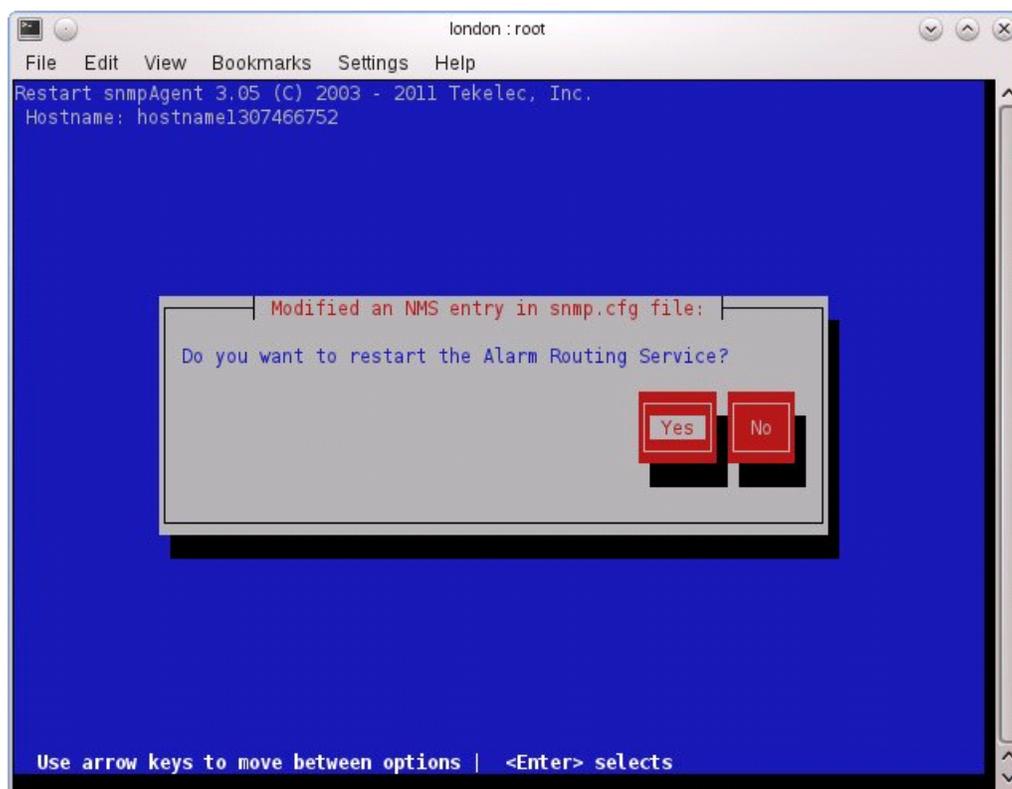
3. **Server:** Remove the SNMP trap destination

Select **Edit** and then choose **Delete an Existing NMS Server**. The 'NMS Server to Edit' page will be displayed as shown below.



Select the server to remove from the configuration and press **ENTER**. A confirmation dialog will appear. Select **Yes** to confirm the removal of the NMS server.

The 'NMS Server Action Menu' will now be displayed. Select **Exit**. The following dialog will be presented.



Select **Yes** and then wait a few seconds while the Alarm Routing Service is restarted. At that time the SNMP Configuration Menu will be presented.

4. **Server:** Exit platcfg

Select **Exit** on each menu until platcfg has been exited.

3.10.5 Application NetBackup Client Install/Upgrade Procedures

NetBackup is a utility that allows for management of backups and recovery of remote systems. The NetBackup suite is for the purpose of supporting Disaster Recovery at the customer site. This procedure provides instructions for installing or upgrading the Netbackup client software on an application server.

Disclaimer: Currently only the NetBackup 7.1 and NetBackup 7.5 clients are supported. If the NetBackup Client that is being installed is not supported, contact customer support for guidance on creating a config file that will allow for install of unknown NetBackup Clients. [3.10.12 Create NetBackup Client Config File](#) can be used once the contents of the config are known.

Disclaimer: Failure to install the NetBackup Client properly (i.e., by neglecting to execute this procedure) may result in the NetBackup Client being deleted during a Tekelec software upgrade.

Prerequisites:

- Application server platform installation has been completed.

- NAPD has been completed to determine the network requirements for the application server, and interfaces have been configured.
- NetBackup server is available to copy, sftp, the appropriate Netbackup client software to the application server.
- Filesystem for Netbackup client software has been created ([3.10.10 Create LV and Filesystem for Netbackup Client Software](#))

Note: For PM&C Application deployed with NetBackup Volume option "--netbackupVol" the guest virtual disk will be created by deploy.

- Config file has been created if the version of NetBackup Client is not supported ([3.10.12 Create NetBackup Client Config File](#)).

1. Choose NetBackup Client Install Path

There are two different ways to install NetBackup Client. The following is a guide to which method to use:

- If a customer has a way of transferring and installing the NetBackup client without the aid of TPD tools then use [3.10.8 Netbackup Client Install/Upgrade with nbAutoInstall](#). This is not common and if the answer to the previous question is not known then do not use [3.10.8 Netbackup Client Install/Upgrade with nbAutoInstall](#).
- If you don't use [3.10.8 Netbackup Client Install/Upgrade with nbAutoInstall](#), use [3.10.9 NetBackup Client Install/Upgrade with platcfg](#).

Chosen Procedure: _____

2. Execute the procedure chosen in Step 1

3. **Application Console:** Use platform configuration utility (platcfg) to modify hosts file with NetBackup server alias.

Note: If NetBackup Client has successfully been installed then you can find the NetBackup server's hostname in the "/usr/opensv/netbackup/bp.conf" file. It will be identified by the "SERVER" configuration parameter as is shown in the following output:

List NetBackup servers hostname:

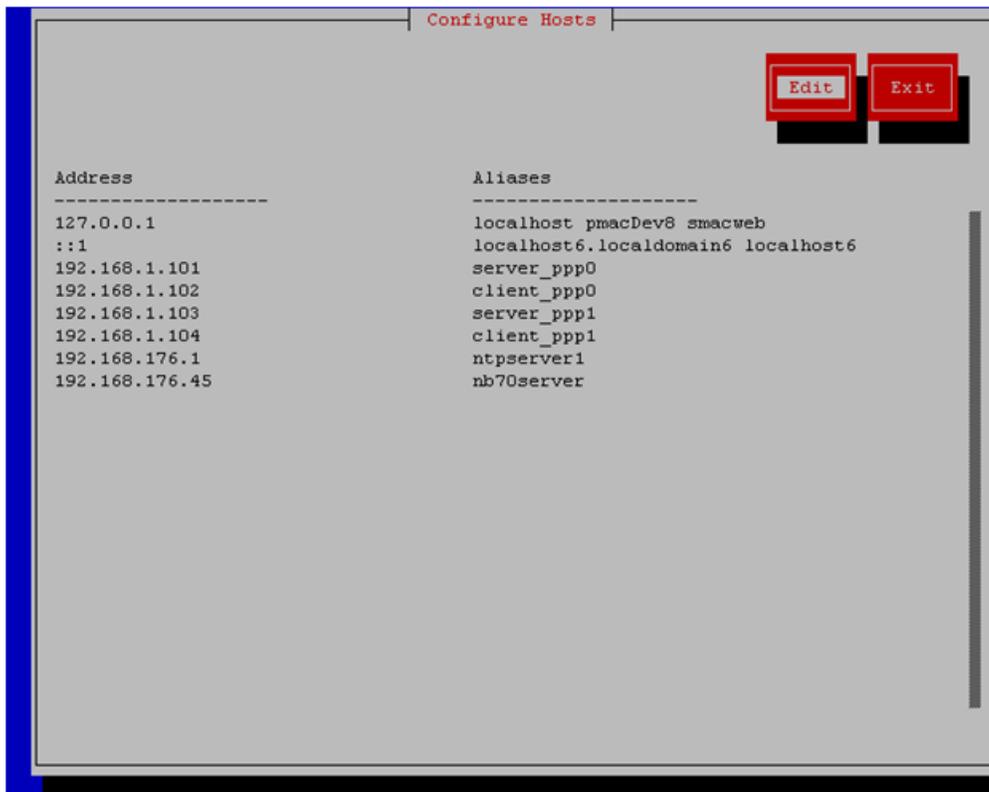
```
$ sudo cat /usr/opensv/netbackup/bp.conf
SERVER = nb70server
CLIENT_NAME = pmacDev8
```

Note: : In the case of nbAutoInstall NetBackup Client may not yet be installed. For this situation the "/usr/opensv/netbackup/bp.conf" cannot be used to find the NetBackup server alias.

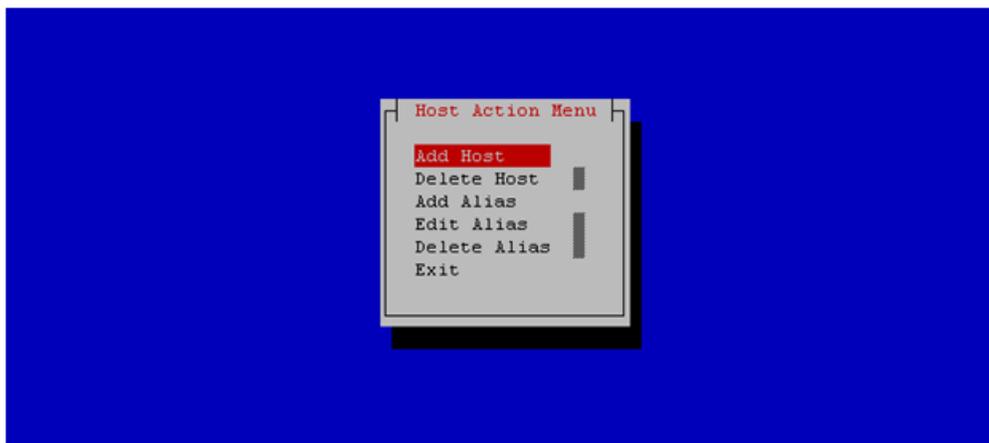
Use platform configuration utility (platcfg) to update application hosts file with NetBackup Server alias.

```
$ sudo su - platcfg
```

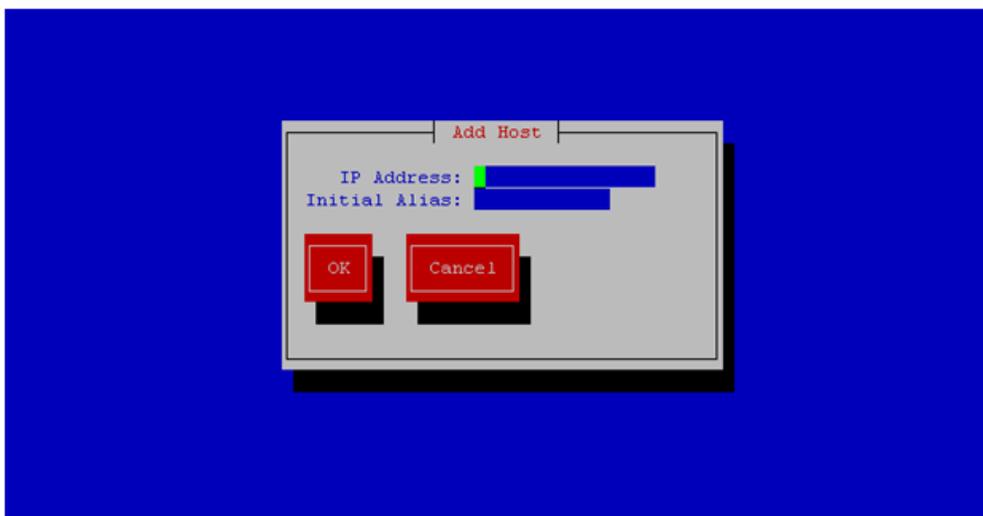
Navigate to **Network Configuration > Modify Hosts File**



Select **Edit**, the Host Action Menu will be displayed.



Select "**Add Host**", and enter the appropriate data



Select "OK", confirm the host alias add, and exit Platform Configuration Utility

4. **Application Console:** Create a link for the application provided NetBackup client notify scripts to path on application server where NetBackup expects to find them.

Note: Link notify scripts from appropriate path on application server for given application.

```
$ sudo mkdir -p /usr/opensv/netbackup/bin/
$ sudo ln -s <path>/bpstart_notify /usr/opensv/netbackup/bin/bpstart_notify
$ sudo ln -s <path>/bpend_notify /usr/opensv/netbackup/bin/bpend_notify
```

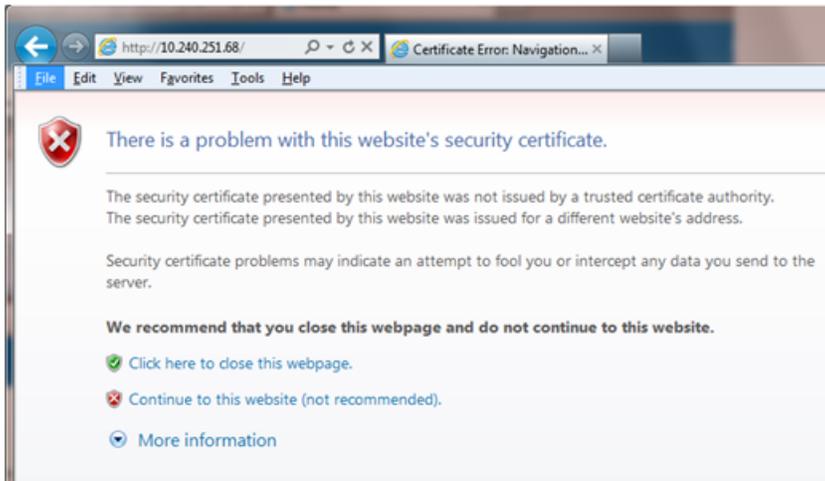
5. **Application Console:** Netbackup client software installation complete; if applicable return to calling procedure.

3.10.6 Changing SNMP Configuration settings for iLO2

This procedure provides instructions to change the default SNMP settings for the HP ProLiant iLO 2 devices.

Perform this procedure for every iLO 2 device on the network. For instance, for every HP ProLiant G1/G5/G6 Blade and Rack Mount server.

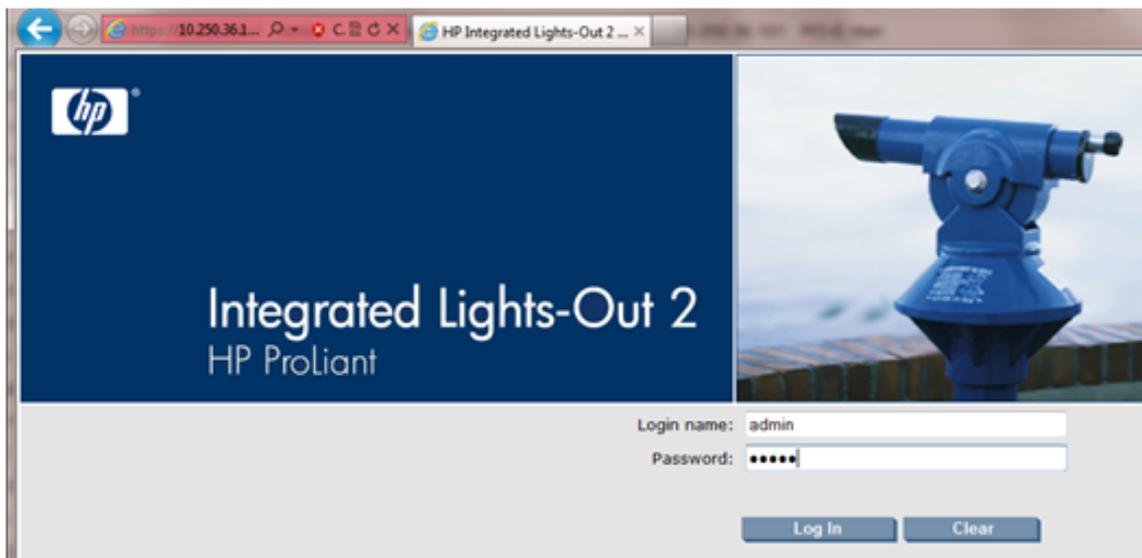
1. **From Workstation:** Launch Internet Explorer 7.x or higher and connect to the iLO2 device using "https://"



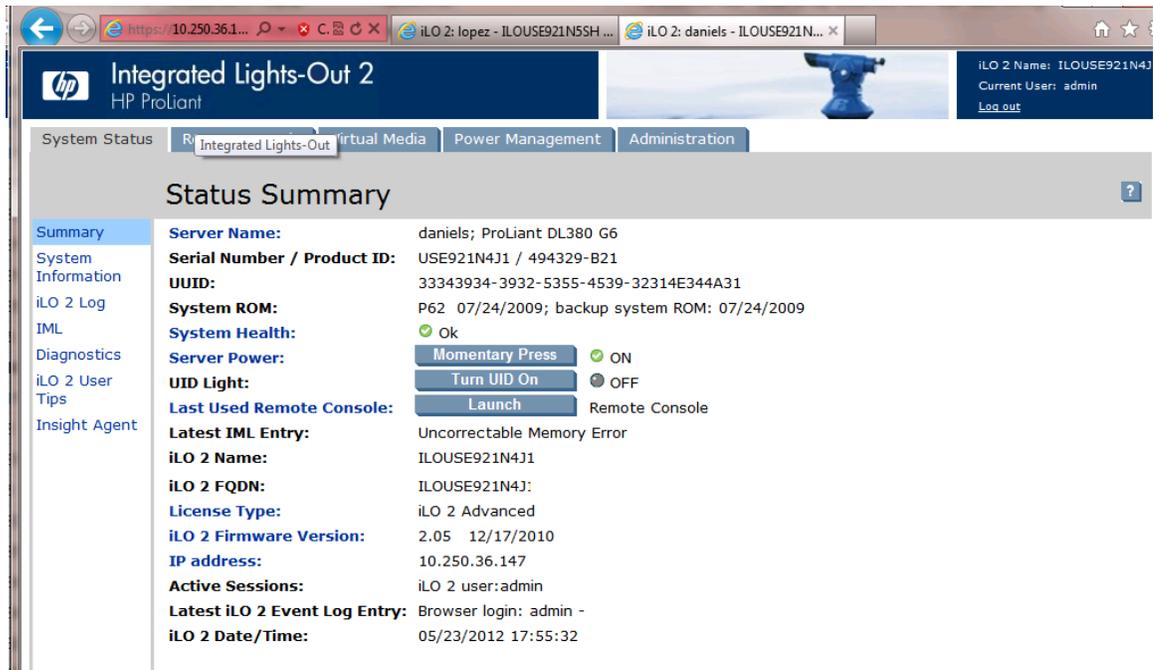
2. iLO2 Web UI:

The user should be presented the login screen shown below.

Login to the GUI using an Administrator account name and password.

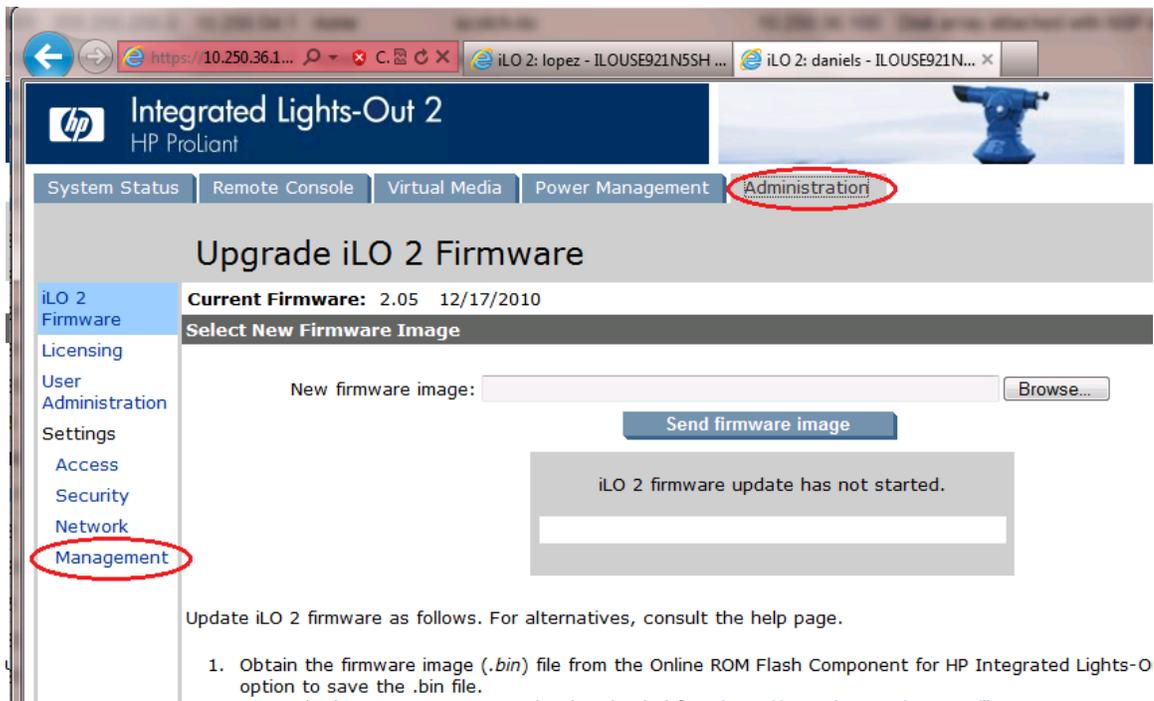


3. iLO2 Web UI: The user should be presented the iLO2 System Status page as shown on the right



4. iLO 2 Web UI:

1. Select the [Administration] tab on the top navigation bar.
2. Select the [Management] menu item on the left navigation bar to display the SNMP Settings page.

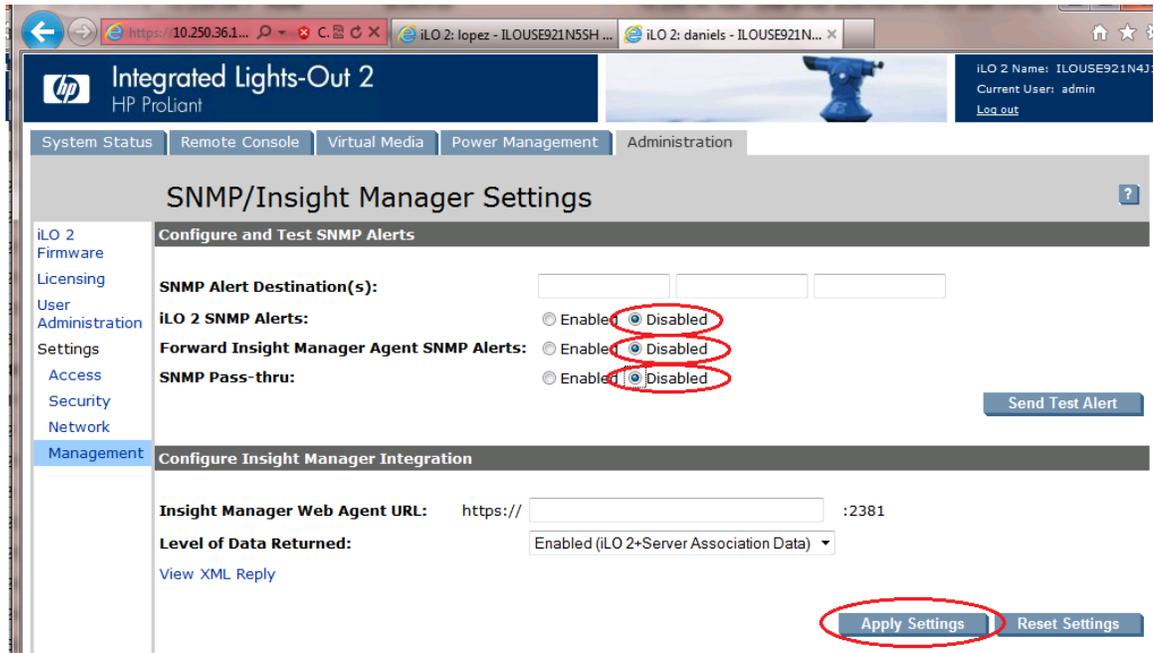


5. iLO2 Web UI:

The user should be presented the SNMP/Insight Manager Settings page.

1. Select option [Disabled] for each of the 3 SNMP settings as shown to the right
2. Click [Apply Settings] to save the change.

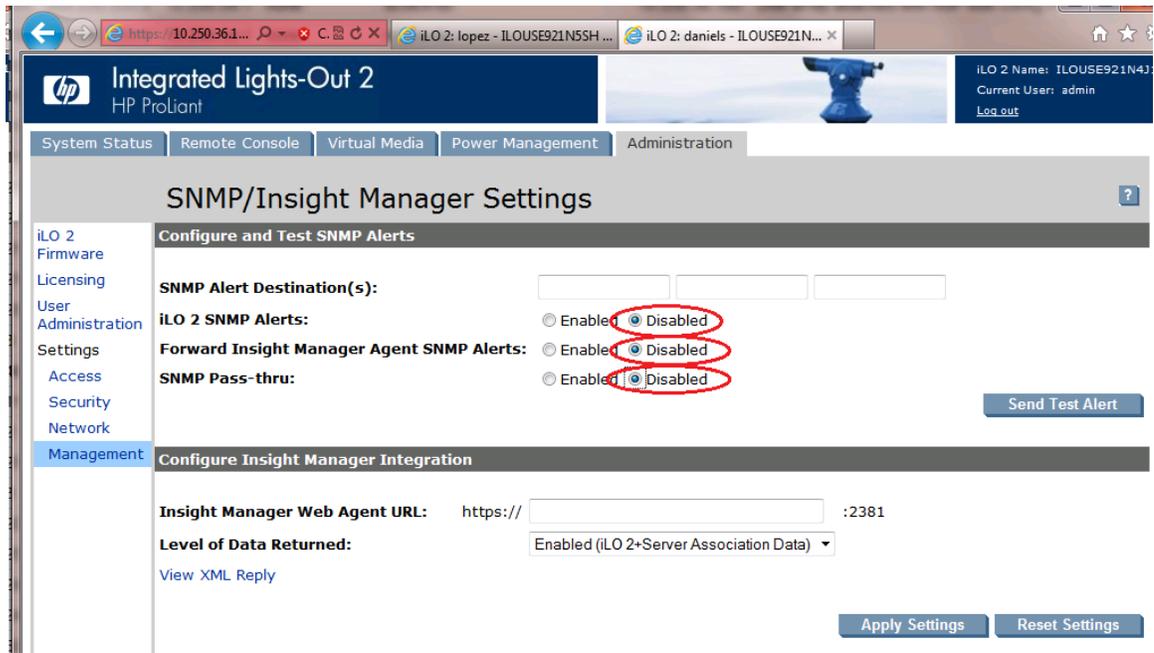
The web page will refresh but no specific indication will be given that settings have been saved.



6. iLO 2 Web UI:

To verify the setting change navigate away from the SNMP/Insight Manager Settings page and then go back to it to verify the SNMP settings as shown on the right.

1. Click [Log out] link in upper right corner of page to log out of the iLO Web UI.



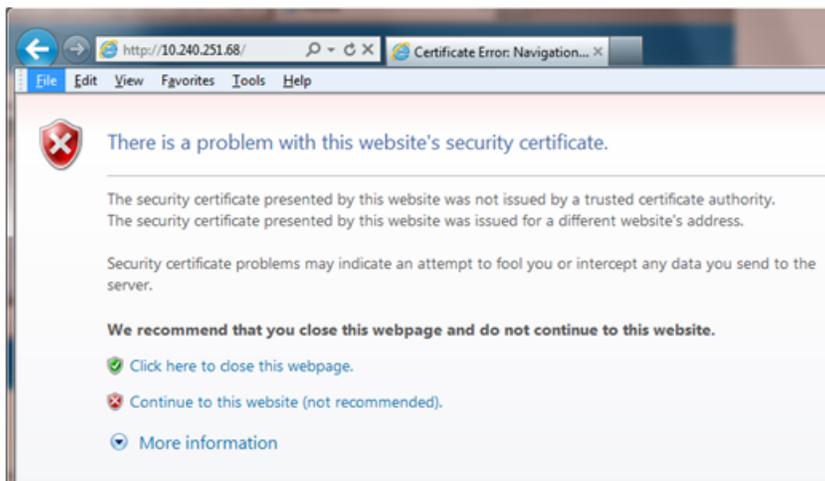
7. Complete for remaining iLO2 devices
Repeat this procedure all remaining iLO 2 devices on network.

3.10.7 Changing SNMP Configuration Settings for iLO 3 and iLO4

This procedure provides instructions to change the default SNMP settings for the HP ProLiant iLO 3 devices.

Perform this procedure for every iLO 3 device on the network. For instance, for every HP ProLiant G7 Blade and Rack Mount server.

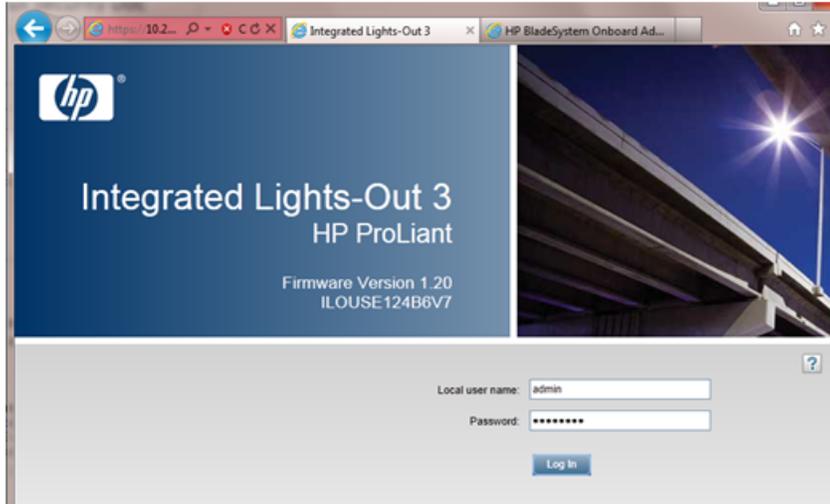
1. **From Workstation:** Launch Internet Explorer 7.x or higher and connect to the iLO 3/iLO 4 device using "https://"



2. iLO 3/iLO 4 Web UI:

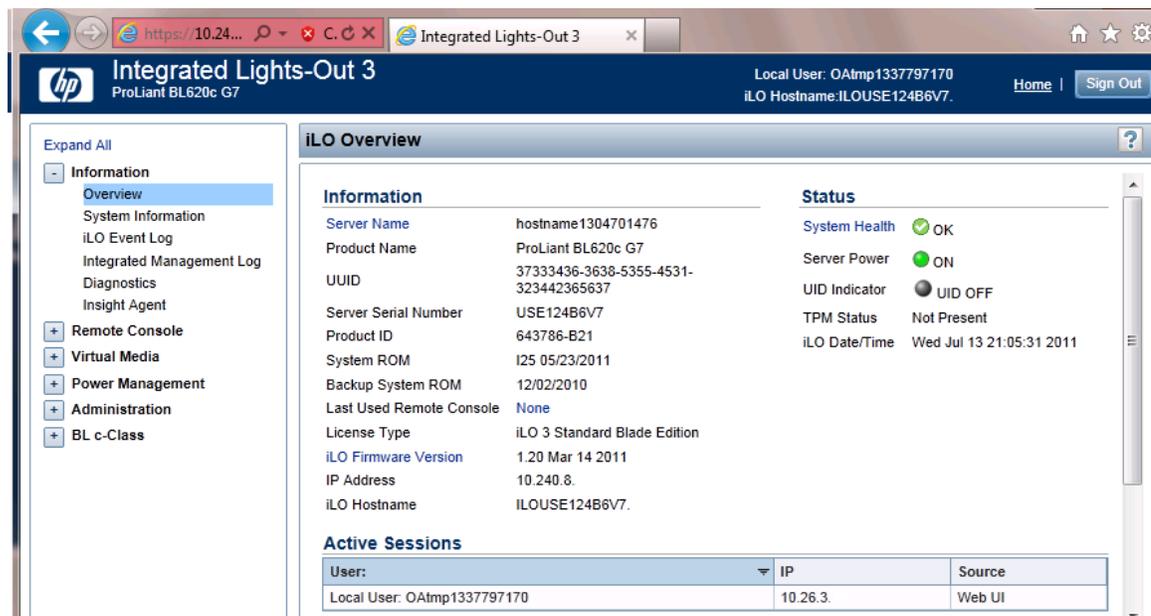
The user should be presented the login screen shown below.

Login to the GUI using an Administrator account name and password.



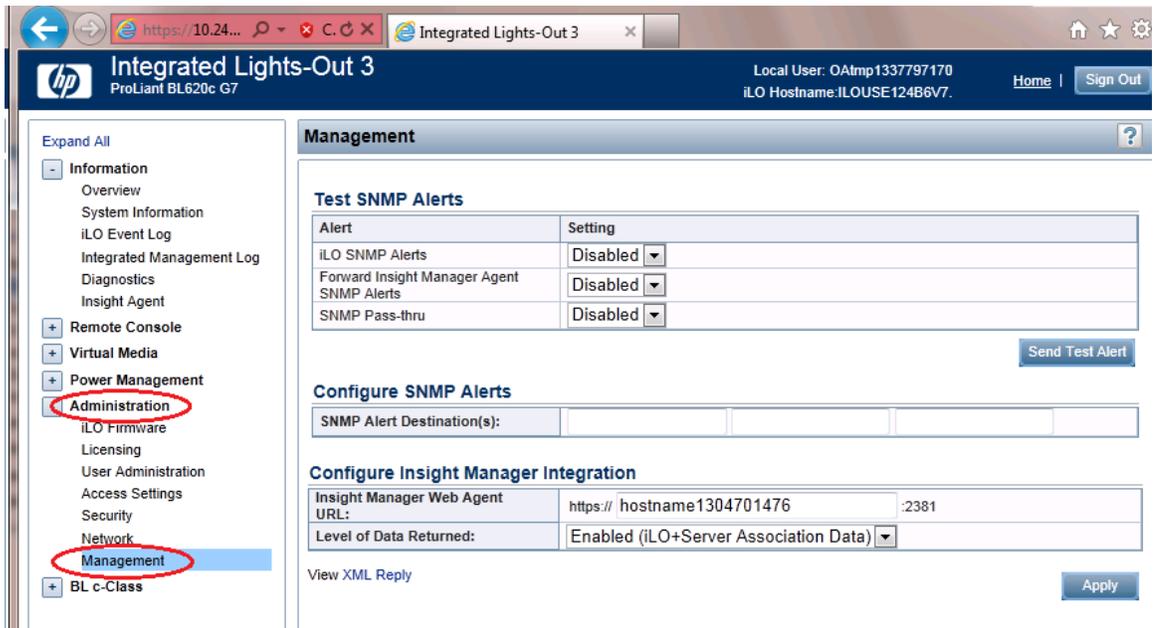
3. iLO 3/iLO 4 Web UI:

The user should be presented the iLO 3/iLO 4 Overview page as shown below.



4. iLO 3/iLO 4 Web UI:

1. Expand the [Administration] menu item in the left hand navigation pane.
2. Select the [Management] sub-menu item to display the Management configuration page.



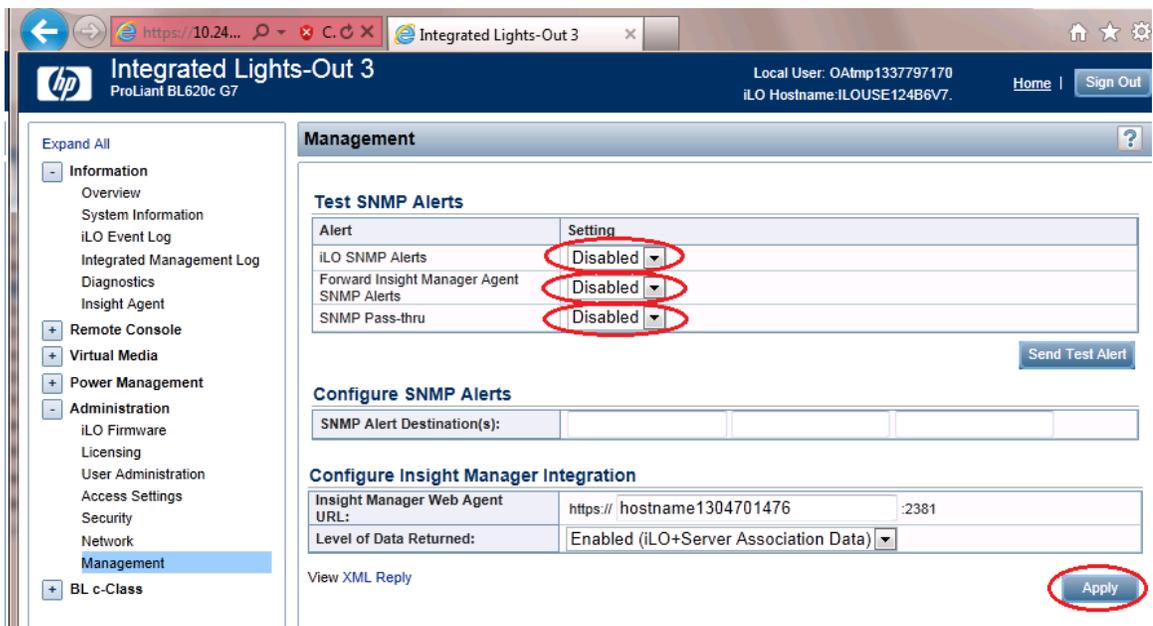
5. iLO 3/iLO 4 Web UI:

The user should be presented the Management configuration page as shown on the right.

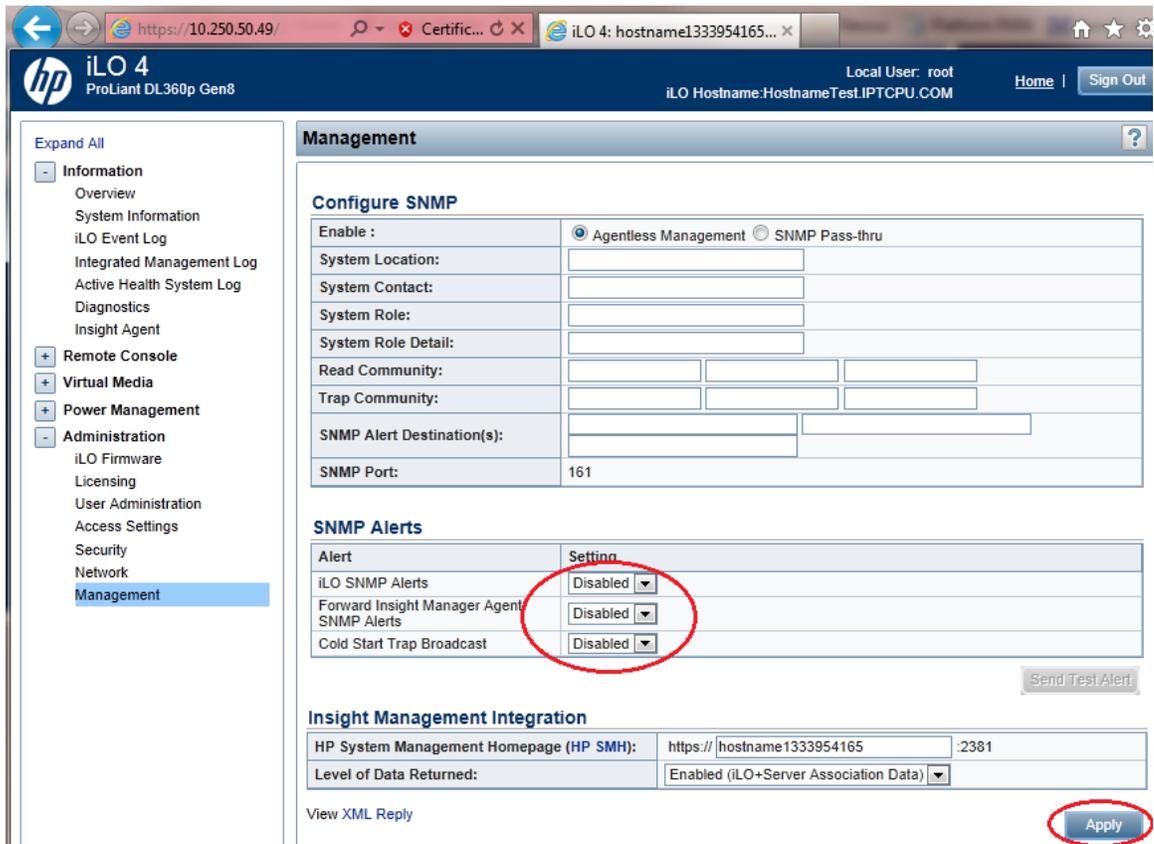
1. Select setting [Disabled] for each of the 3 SNMP Alerts options as shown to the right.
2. Click [Apply] to save the change.

On the iLO 3 the web page will refresh but no specific indication will be given that settings have been saved.

iLO3 Web UI:



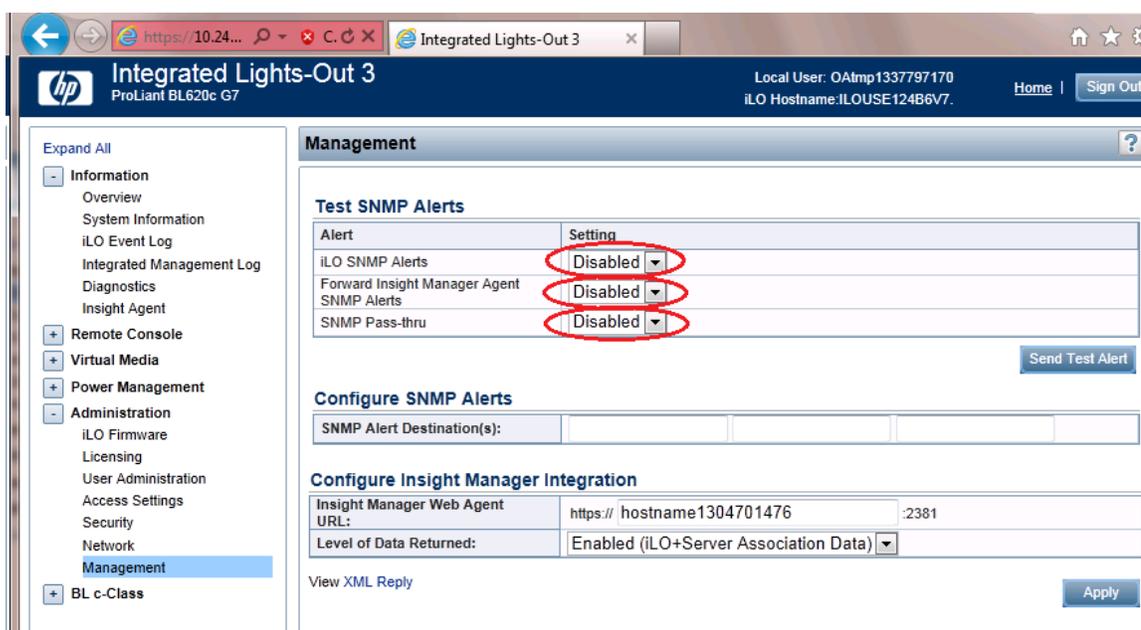
iLO4 Web UI:



6. iLO 3/iLO 4 Web UI:

To verify the setting changes navigate away from the Management configuration page and then go page back to it to verify the SNMP settings as shown on the right.

1. Click [Sign Out] link in upper right corner of page to log out of the iLO Web UI.



7. Complete for remaining iLO3/iLO 4 devices
Repeat this procedure all remaining iLO 3/iLO 4 devices on network.

3.10.8 Netbackup Client Install/Upgrade with nbAutoInstall

Executing this procedure will enable TPD to automatically detect when a Netbackup Client is installed and then complete TPD related tasks that are needed for effective Netbackup Client operation. With this procedure, the Netbackup Client install (pushing the client and performing the install) is the responsibility of the customer and is not covered in this procedure.

Note: If the customer does not have a way to push and install Netbackup Client, then use [3.10.9 NetBackup Client Install/Upgrade with platcfg](#).

Note: It is required that this procedure is executed before the customer does the Netbackup Client install.

Prerequisites:

- Application server platform installation has been completed.
- NAPD has been completed to determine the network requirements for the application server, and interfaces have been configured.
- NetBackup server is available to copy, sftp, the appropriate Netbackup client software to the application server.
- Filesystem for Netbackup client software has been created ([3.10.10 Create LV and Filesystem for Netbackup Client Software](#))
- Contact Tekelec to determine if the version of Netbackup Client being installed requires workarounds."

1. Follow Tekelec Provided Workarounds

Follow Tekelec provided procedures to prepare the server for Netbackup Client install using nbAutoInstall.

2. Enable nbAutoInstall:

Execute the following command:

```
$ sudo /usr/TKLC/plat/bin/nbAutoInstall --enable
```

The server will now periodically check to see if a new version of Netbackup Client has been installed and will perform necessary TPD configuration accordingly.

At any time, the customer may now push and install a new version of Netbackup Client.

3. Return to calling procedure if applicable.**3.10.9 NetBackup Client Install/Upgrade with platcfg**

Executing this procedure will push and install NetBackup Client via platcfg menus.

Prerequisites:

- Application server platform installation has been completed.
- NAPD has been completed to determine the network requirements for the application server, and interfaces have been configured.
- NetBackup server is available to copy, sftp, the appropriate Netbackup client software to the application server.
- Filesystem for Netbackup client software has been created Execute [3.10.10 Create LV and Filesystem for Netbackup Client Software](#) if the application installed on server does not provide an alternative to creating the NetBackup logical volume.
- Config file has been created if the version of NetBackup Client is greater than 7.5.0.0.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. Application server iLO: Login and launch the integrated remote console

Log in to iLO in IE using password provided by application

```
http://<management_server_iLO_ip>
```

Click in the **Remote Console** tab and launch the **Integrated Remote Console** on the server.

Click **Yes** if the Security Alert pops up.

2. TVOE Application Server iLO: If the application is a guest on a TVOE host: Log in with application admusr credentials. If the application is not a guest on a TVOE host continue to step 3.

Note: On a TVOE host, If you launch the virsh console, i.e., "# **virsh console X**" or from the virsh utility "virsh # **console X**" command and you get garbage characters or output is not quite right, then more than likely there is a stuck "virsh console" command already being run on the TVOE host. Exit out of the "virsh console", then run "**ps -ef |grep virsh**", then kill the existing process "**kill -9 <PID>**". Then execute the "virsh console X" command. Your console session should now run as expected.

Login to application console using virsh, and wait until you see the login prompt:

```
$ virsh
virsh $ list --all
Id Name State
```

```

-----
13 myTPD running
20 applicationGuestName running

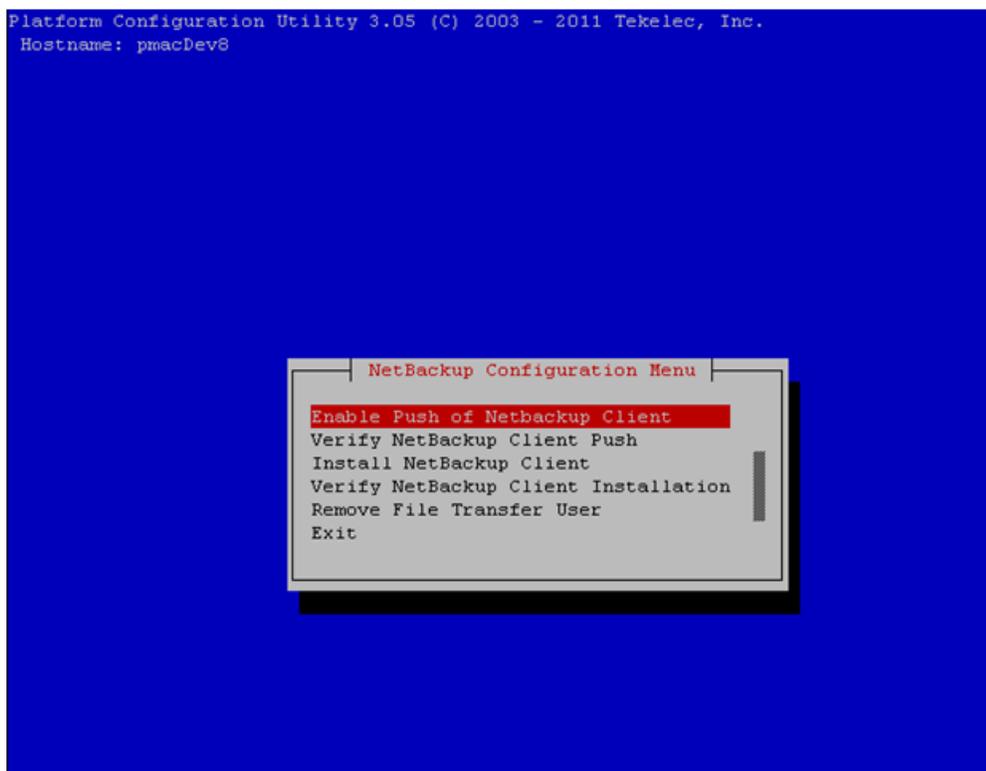
virsh $ console applicationGuestName
[Output Removed]
Starting ntdMgr: [ OK ]
Starting atd: [ OK ]
'TPD Up' notification(s) already sent: [ OK ]
upstart: Starting tpdProvd...
upstart: tpdProvd started.
CentOS release 6.2 (Final)
Kernel 2.6.32-220.17.1.el6prere16.0.0_80.14.0.x86_64 on an x86_64
applicationGuestName login:

```

3. Application Console: Configure NetBackup Client on application server

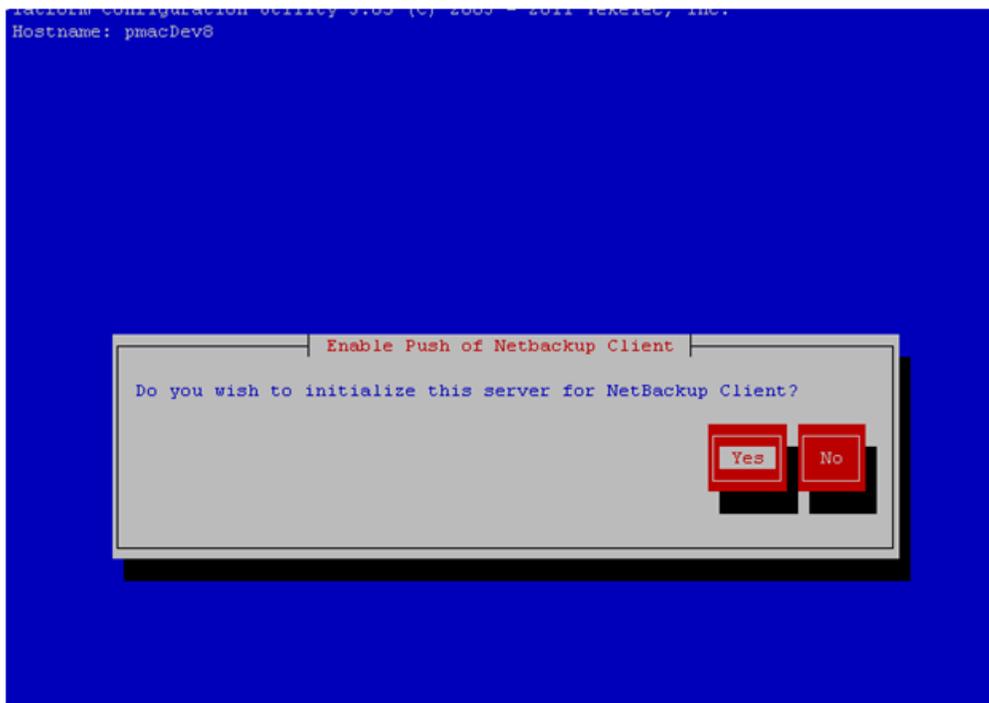
```
$ sudo su - platcfg
```

Navigate to **NetBackup Configuration**



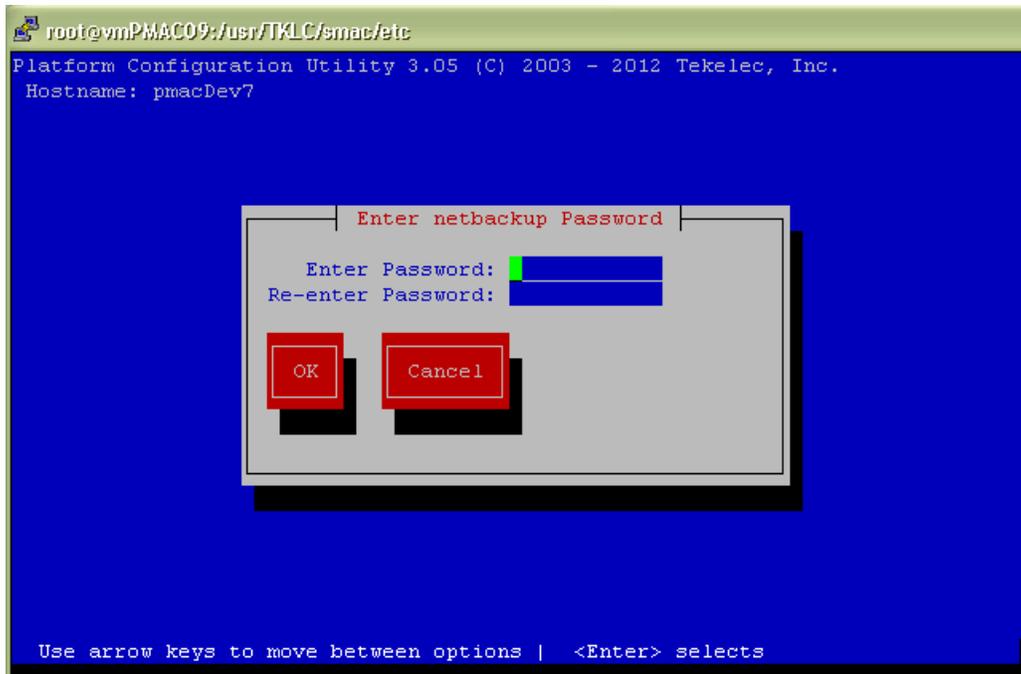
4. Application Console: Enable Push of NetBackup Client

Navigate to **NetBackup Configuration > Enable Push of NetBackup Client**



Select **Yes** to initialize the server and enable the Netbackup client software push.

5. **Application Console** Enter NetBackup password and select OK.



6. If the version of NetBackup is greater than 7.5.0.0, follow the Tekelec provided procedure for the version of NetBackup that is being pushed.
7. **Application Console:** Verify Netbackup client software push is enabled.

Navigate to **NetBackup Configuration > Verify NetBackup Client Push**

```

Platform Configuration Utility 3.05 (C) 2003 - 2011 Tekelec, Inc.
Hostname: pmacDev8
Verify NetBackup Client Environment
[OK] - User acct set up: netbackup
[OK] - User netbackup shell set up: /usr/bin/rssh
[OK] - Home directory: /home/rssh/home/netbackup
[OK] - Tmp directory: /home/rssh/tmp
[OK] - Tmp directory perms: 1777

```



Verify list entries indicate "OK" for Netbackup client software environment.

Select "Exit" to return to NetBackup Configuration menu.

8. NetBackup server: Push appropriate Netbackup client software to application server

Note: The NetBackup server is not an application asset. Access to the NetBackup server, and location path of the Netbackup client software is under the control of the customer. Below are the steps that are required on the NetBackup server to push the Netbackup client software to the application server. These example steps assume the NetBackup server is executing in a Linux environment.

Note: The backup server is supported by the customer, and the backup utility software provider. If this procedural STEP, executed at the backup utility server, fails to execute successfully, STOP and contact the Customer Care Center of the backup and restore utility software provider that is being used at this site.

Log in to the NetBackup server using password provided by customer:

Execute the `sftp_to_client` NetBackup utility using the application IP address and application NetBackup user;

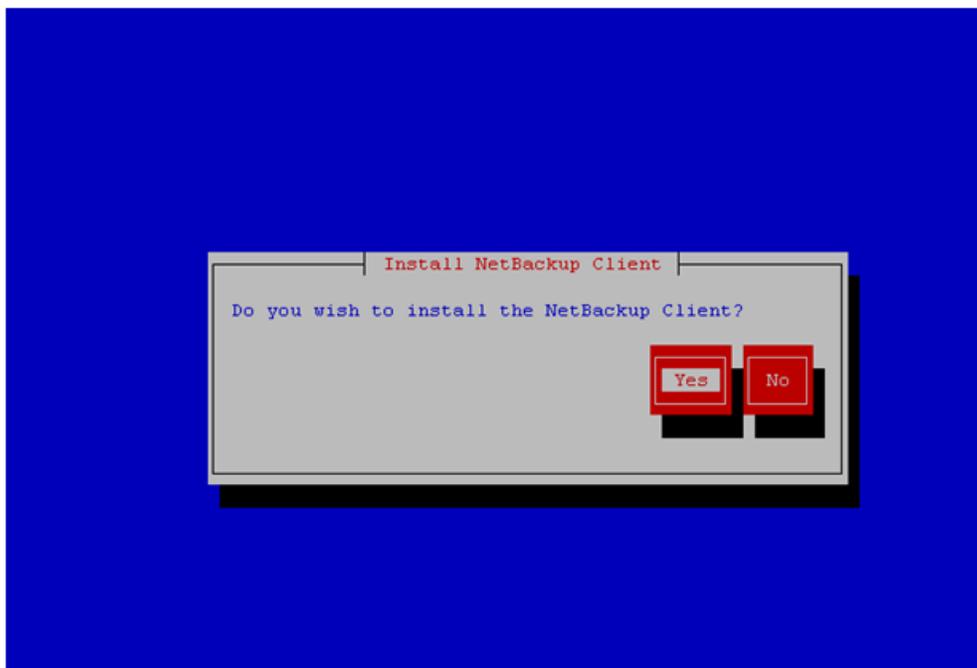
```
$ ./sftp_to_client 10.240.17.101 netbackup
Connecting to 10.240.17.101...
The authenticity of host '10.240.17.101 (10.240.17.101)' can't be established.
RSA key fingerprint is 9a:e6:fc:55:16:3b:94:b2:7d:9f:30:b2:3c:e6:65:a9.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '10.240.17.101' (RSA) to the list of known hosts.
netbackup@10.240.17.101's password:

sftp completed successfully.
```

Enter application server NetBackup user password; the following NetBackup software output is expected but may vary from this example, **observe the sftp completed successfully**:

```
The root user on 10.240.17.101 must now execute the command
"sh /tmp/bp.15030/client_config [-L]". The optional argument, "-L",
is used to avoid modification of the client's current bp.conf file.
#
```

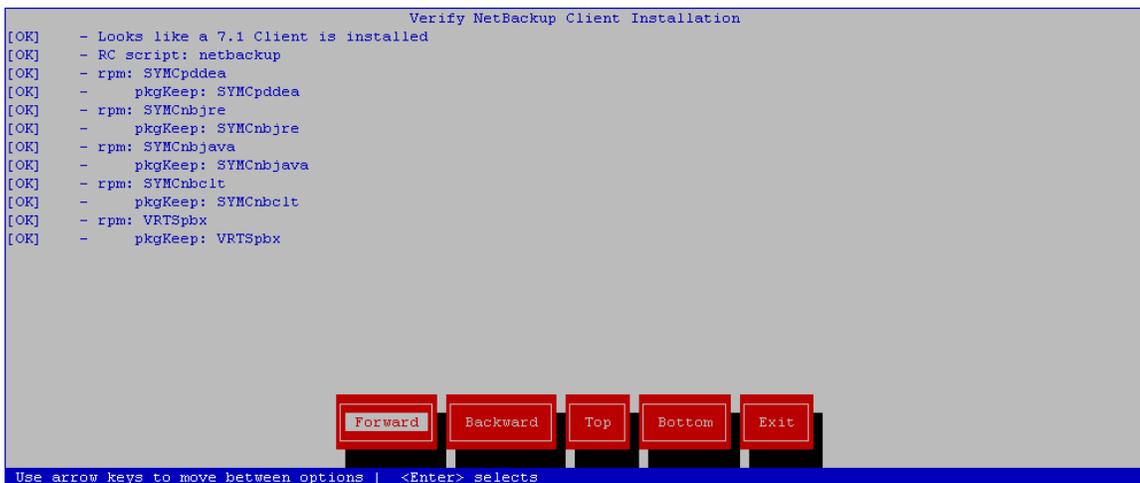
- 9. Application Console:** Install Netbackup client software on application server.
Navigate to **NetBackup Configuration > Install NetBackup Client**



Select **Yes** to install the Netbackup client software.

Select "Exit" to return to NetBackup Configuration menu.

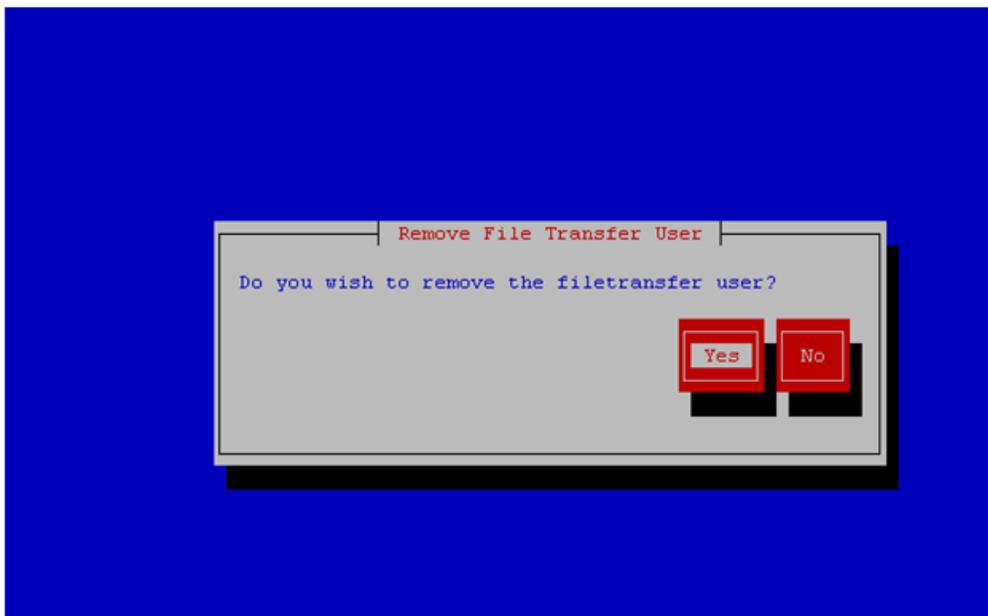
- 10. Application Console:** Verify Netbackup client software installation on the application server.
Navigate to **NetBackup Configuration > Verify NetBackup Client Installation**.



Verify list entries indicate "OK" for Netbackup client software installation.

Select "Exit" to return to NetBackup Configuration menu.

11. **Application Console:** Disable Netbackup client software transfer to the application server.
 Navigate to **NetBackup Configuration > Remove File Transfer User**



Select "Yes" to remove the NetBackup file transfer user from the application server.

- 12. Application Console:** Verify that the server has been added to the `/usr/opensv/netbackup/bp.conf` file

```
$ sudo cat /usr/opensv/netbackup/bp.conf
CLIENT_NAME = 10.240.34.10
SERVER = NB71server
```

- 13. Application server iLO:** Exit platform configuration utility (platcfg)
14. Return to calling procedure if applicable.

3.10.10 Create LV and Filesystem for Netbackup Client Software

This procedure will carve out storage for the NetBackup Client to reside on. This is necessary so that the NetBackup Client does not lead to disk shortage in the `/usr/` filesystem.

Prerequisites:

- The volume group that the NetBackup logical volume will reside in has been previously determined. You can determine what space is available in each volume group by running the 'vgs' command and looking at the 'VFree' column. Ultimately applications should decide what volume group that the NetBackup LV should reside in.
- 1. Server:** Login as admusr user.
 - 2. Server:** Create a storageMgr configuration file that defines the LV to be created.

```
$ sudo echo "lv --mountpoint=/usr/opensv --size=2G --name=netbackup_lv --vg=$VG"
> /tmp/nb.lvm
```

The above example uses the \$VG as the volume group. Replace \$VG with the desired volume group as specified by the application group.

- 3. Server:** Create the LV and filesystem by using storageMgr.

```
$ sudo /usr/TKLC/plat/sbin/storageMgr /tmp/nb.lvm
```

This will create the LV, format it with a filesystem, and mount it under `/usr/opensv/`. Example output is shown below:

```
Called with options: /tmp/nb.lvm
VG vgguests already exists.
Creating lv netbackup_lv.
Volume netbackup_lv will be created.
Success: Volume netbackup_lv was created.
Creating filesystem, this may take a while.
Updating fstab for lv netbackup_lv.
Configuring existing lv netbackup_lv.
```

The LV for NetBackup has been created!

3.10.11 Migrate NetBackup Client to New Filesystem

This procedure will migrate the installed files for NetBackup Client from the `/usr/` filesystem into a filesystem dedicated to NetBackup Client.

1. **Server:** Login as admusr user.
2. **Server:** Stop the NetBackup services using the following two commands:

```
$ sudo service netbackup stop
$ sudo service vxpbx_exchanged stop
```

3. **Server:** Bind mount /usr/opensv to a temporary mount point

```
$ sudo mkdir /tmp/opensv
$ sudo mount --bind /usr/opensv /tmp/opensv
```

4. **Server:** Follow [3.10.10 Create LV and Filesystem for Netbackup Client Software](#) to create the LV and filesystem.
5. **Server:** Move all contents of /tmp/opensv to /usr/opensv

```
$ sudo mv /tmp/opensv/* /usr/opensv
```

6. **Server:** Unmount bind mount and remove mount point

```
$ sudo umount /tmp/opensv
$ sudo rmdir /tmp/opensv
```

7. **Server:** Start the NetBackup services.

```
$ sudo service vxpbx_exchanged start
$ sudo service netbackup start
```

3.10.12 Create NetBackup Client Config File

This procedure will copy a NetBackup Client config file into the appropriate location on the TPD based application server. This config file will allow a customer to install previously unsupported versions of NetBackup Client by providing necessary information to TPD.

The contents of the config file should be provided by Tekelec. Contact Tekelec if you are attempting to install an unsupported version of NetBackup Client.

Prerequisites:

- The TPD-NetBackup RPM has been installed on the server.
- The contents of the NetBackup Client config file are known.

1. **Server:** Create NetBackup Client Config File

Create the NetBackup Client config file on the server using the contents that were previously determined. The config file should be placed in the /usr/TKLC/plat/etc/netbackup/profiles directory and should follow the following naming conventions:

NB\$ver.conf

Where \$ver is the client version number with the periods removed. For the 7.5 client the value of \$ver would be 75 and the full path to the file would be:

```
/usr/TKLC/plat/etc/netbackup/profiles/NB75.conf
```

Note: The config files must start with "NB" and must have a suffix of ".conf". The server is now capable of installing the corresponding NetBackup Client.

The server is now capable of installing the corresponding NetBackup Client.

2. **Server:** Create NetBackup Client config file script.

Create the NetBackup Client config script file on the server using the contents that were previously determined. The config script file should be placed in the /usr/TKLC/plat/etc/netbackup/scripts directory. The name of the NetBackup Client config script file should be determined from the contents of the NetBackup Client config file. As an example for the NetBackup 7.5 client the following is applicable:

NetBackup Client config:

```
/usr/TKLC/plat/etc/netbackup/profiles/NB75.conf
```

NetBackup Client config script:

```
/usr/TKLC/plat/etc/netbackup/scripts/NB75
```

3.11 TVOE Host Procedures

3.11.1 Enable Virtual Guest Watchdogs as appropriate for the application

This procedure provides instructions for using the PM&C application on the management server to enable the Virtual Guest Watchdog on VM Guests after upgrading a TVOE VM Host to a version that adds watchdog support (TVOE version 2.0.0_80.11.0 or later).

Prerequisites:

- One or more installations of TVOE have been upgraded to TVOE version 2.0.0_80.11.0 or higher.

Note: If a procedural STEP fails to execute successfully, STOP and contact the Customer Care Center by referring to the [1.4 Customer Care Center](#) section of this document.

1. On the PM&C managing each newly upgraded TVOE server, navigate to the **Main Menu > VM Management** page of the PM&C GUI.
2. In the "VM Entities" list, locate the Host that was just upgraded and click its '+' icon to expand its list of VM Guests.
3. Using the VM Entities list, for each VM Guest on the TVOE Host that was upgraded, select the VM Guest and do the following:

If virtual watchdog support is not desired for the current VM Guest, no further action is needed for this guest. Proceed to the next VM Guest on this TVOE Host.

To enable virtual watchdog support for the current Guest:

- a) Shut down the VM Guest by setting its power state to "**Shutdown**" and clicking the adjacent "**Change to...**" button. Wait for the shutdown to complete, as indicated by the Current Power State field of the GUI.
- b) Click the **Edit** button to enter edit mode for this VM Guest. Click the "**Enable Virtual Watchdog**" checkbox to enable the watchdog, and then click **Save**. Wait for the Edit operation to finish.

- c) Start the VM Guest by setting the Current Power State back to On and clicking the "Change to..." button.
- d) When the VM Guest's power state indication shows "Running", proceed to the next VM Guest on this Host.

3.11.2 TVOE NetBackup Client Configuration

This procedure will setup and install NetBackup Client on a TVOE host.

Note: Once the NetBackup Client is installed on TVOE, the NetBackup Master should be configured to backup the following files from the TVOE host:

- /var/TKLC/bkp/*.iso

1. **TVOE Server:** Login as admusr user
2. **TVOE Server:** Open firewall ports for NetBackup using the following commands:

```
$ sudo ln -s /usr/TKLC/plat/share/netbackup/60netbackup.ipt
/usr/TKLC/plat/etc/iptables/
$ sudo /usr/TKLC/plat/bin/iptablesAdm reconfig
```

3. **TVOE Server:** Enable platcfg to show the NetBackup Menu Items by executing the following commands:

```
$ sudo platcfgadm --show NBConfig
$ sudo platcfgadm --show NBInit
$ sudo platcfgadm --show NBDeInit
$ sudo platcfgadm --show NBInstall
$ sudo platcfgadm --show NBVerifyEnv
$ sudo platcfgadm --show NBVerify
```

4. **TVOE Server:** Create LV and filesystem for Netbackup client software.
Using the **vgguests** volume group, use [3.10.10 Create LV and Filesystem for Netbackup Client Software](#) to create an LV and filesystem for the Netbackup client software.
5. **TVOE Server:** Install the Netbackup client software.
Install the Netbackup client software by executing [3.10.5 Application NetBackup Client Install/Upgrade Procedures](#).
Note: Skip any steps relating to copying NetBackup "notify" scripts to /usr/openv/netbackup/bin. The TVOE NetBackup notify scripts are taken care of in the next step.
6. **TVOE Server:** Create softlinks for TVOE specific NetBackup notify scripts.

```
$ sudo ln -s /usr/TKLC/plat/sbin/bpstart_notify
/usr/openv/netbackup/bin/bpstart_notify
$ sudo ln -s /usr/TKLC/plat/sbin/bpend_notify /usr/openv/netbackup/bin/bpend_notify
```

Appendix

A

Using WinSCP

Topics:

- [A.1 Using WinSCP.....360](#)

A.1 Using WinSCP

The following is an example of how to copy a file from the management server to your PC desktop

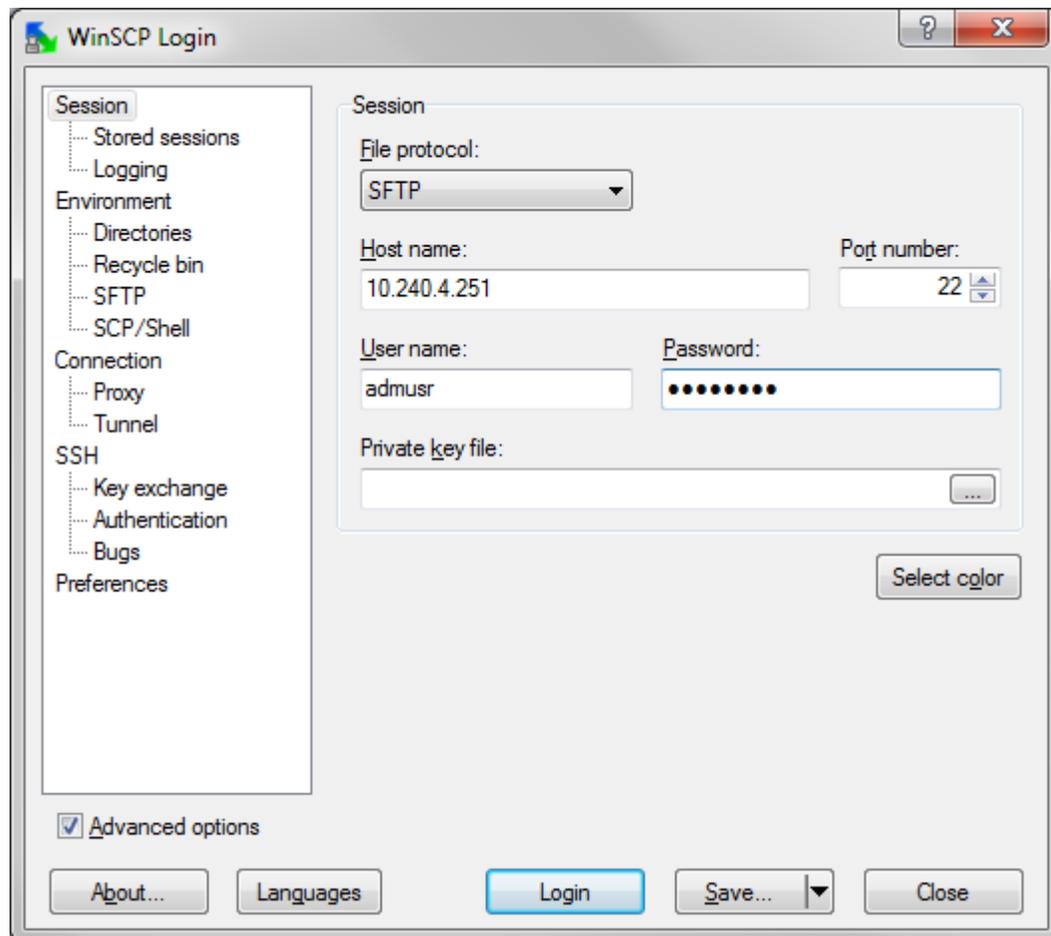
1. Download the WinSCP Application

Download the WinSCP application:

<http://winscp.net/eng/download.php>

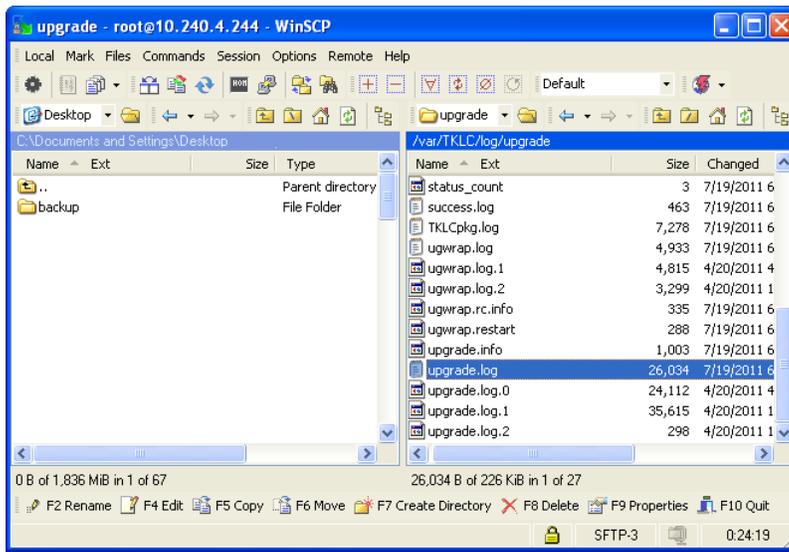
2. Connect to the management server

After starting this application, navigate to Session and enter: <management_server_IP> into the Host name field, **admusr** into the User name field, and <admusr_password> into the Password field. Click **Login**.



3. Copy the target file from the management server

On the left side is your own desktop filesystem. Navigate within it to Desktop directory. On the right side is the management server file system. Within it, navigate into the location of the file you would like to copy to your desktop. Highlight the file in the management server file system by pressing the insert key and press **F5** to copy the file.



4. Close the WinSCP application

Then close application by pressing **F10** and confirm to terminate session by pressing **OK**.

Appendix B

P2000 MSA USB Driver Installation

Topics:

- [B.1 P2000 MSA USB Driver Installation.....363](#)

B.1 P2000 MSA USB Driver Installation

The P2000 USB Driver allows Microsoft Windows to recognize the USB Port on HP StorageWorks P2000 G3 MSA Controllers. This appendix describes how to install the driver on your laptop.

Prerequisite: [3.7.9 Adding ISO Images to the PM&C Image Repository](#) has been completed using Misc. Firmware DVD.

Note: If you are unable to detect the P2000 array after installing the USB driver, power cycle the P2000 array once.

Needed material:

- HP Misc. Firmware DVD
- HP Solutions Firmware Upgrade Pack Release Notes [3]

1. Management Server: Obtain the USB driver executable

Copy the following file form the management server to your PC using an scp client:

```
/usr/TKLC/smac/html/TPD/HPFW--872-2488-XXX--HPFW/files/<USB_Driver>.exe
```

Windows users:

Refer to Appendix A ([A.1 Using WinSCP](#)) to copy the zip file to your PC.

Note: Refer to the Release Notes [3] to select the correct file to copy.

2. Microsoft Windows Laptop: Initiate the setup wizard.

Click the USB Driver executable on your laptop. If a security window pops up asking whether to run the executable, click **Run**.

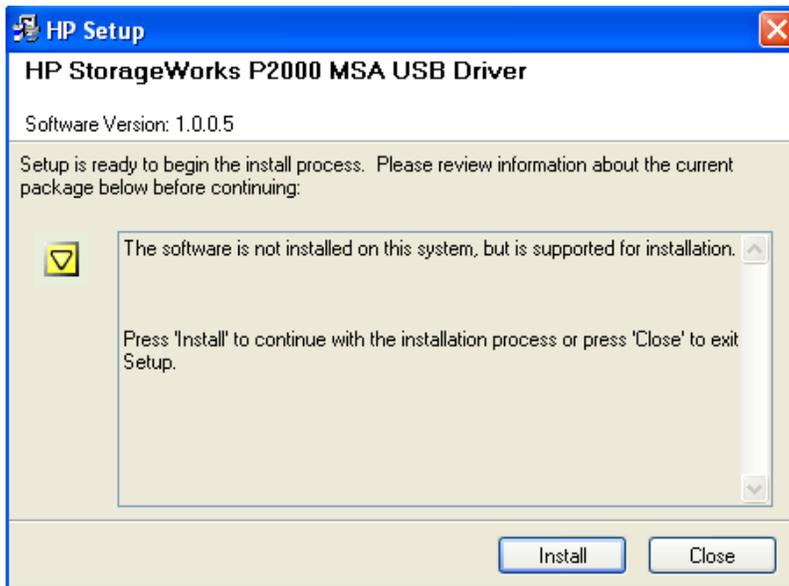
The following window should appear:



Click **Install**

3. Microsoft Windows Laptop: Agree to install

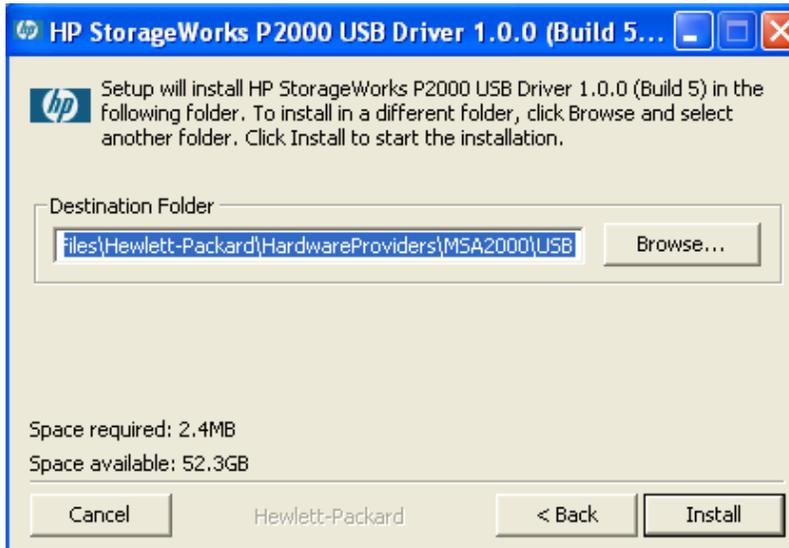
After brief content extraction, the following window will present itself:



Click **Install**. In the next window, click **I agree** to proceed with the installation

4. Microsoft Windows Laptop: Select installation directory

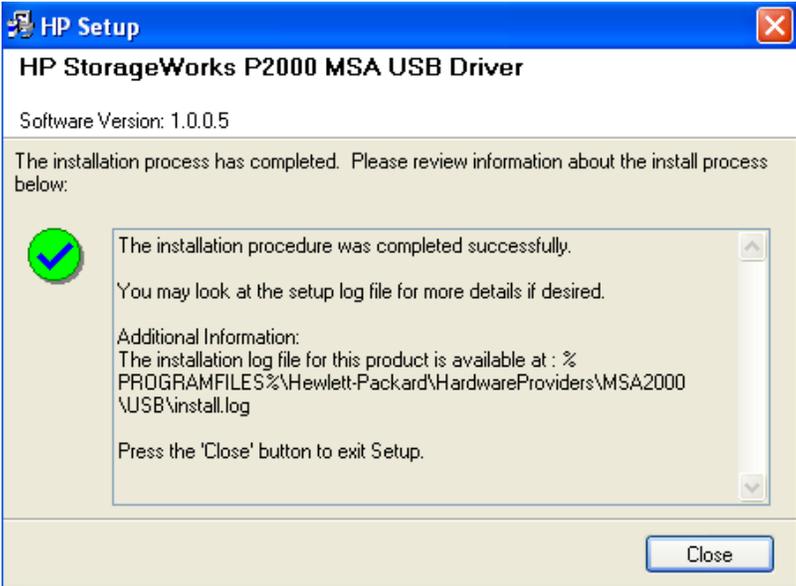
Then use the **Browse** button to select the folder where to install



Click **Install**

5. Microsoft Windows Laptop: Verify the installation

The success confirmation window concludes the installation. Click the **Close** button



Appendix C

Determining which Onboard Administrator is Active

Topics:

- [C.1 Determining Which Onboard Administrator is Active.....367](#)

C.1 Determining Which Onboard Administrator is Active

This appendix describes how to determine which Onboard Administrator is active in an enclosure with two OAs.

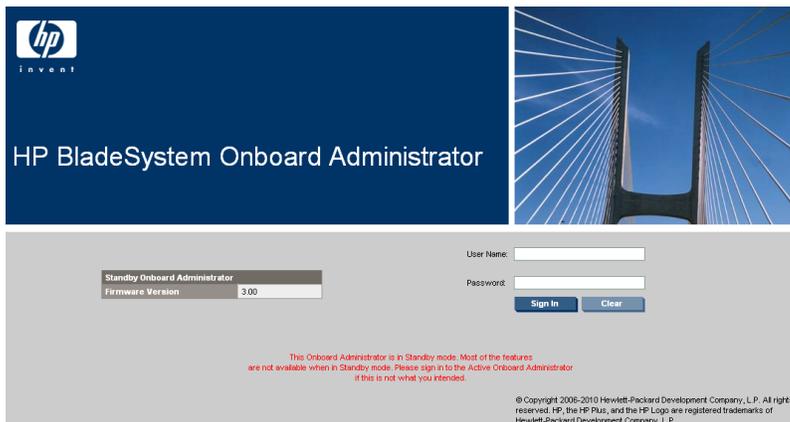
Prerequisite: [3.5.2 Configure initial OA settings via configuration wizard](#) has been completed.

OA GUI: Determine which OA is Active

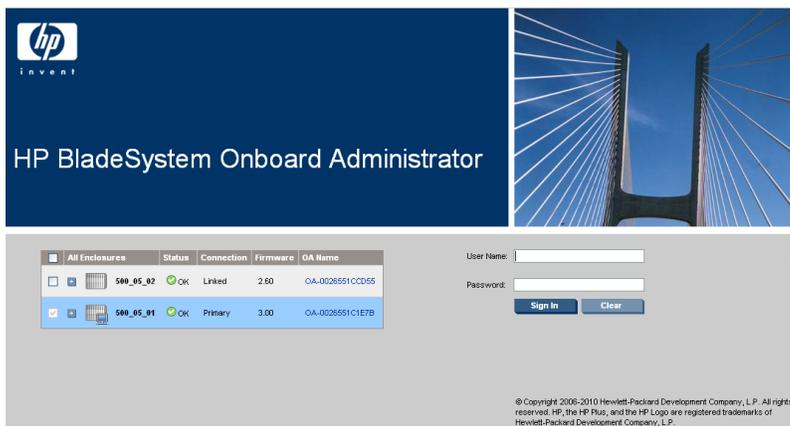
Open your web browser and navigate to the IP address of one of the Administrators:

`http://<OA_ip>`

If you see the following page, you have navigated to a GUI of the Standby Onboard Administrator as indicated by the red warning. In such case, navigate to the other Onboard Administrator IP address.



If you navigate the GUI of active Onboard Administrator GUI, the enclosure overview table is available in the left part of the login page as below.



Appendix D

Accessing Tekelec Customer Support Site

Topics:

- [D.1 Accessing Tekelec's Customer Support Site.....369](#)

D.1 Accessing Tekelec's Customer Support Site

Access to Tekelec's Customer Support site is restricted to current Tekelec customers only. This section describes how to log into the Tekelec Customer Support site and locate a document. Viewing the document requires Adobe Acrobat Reader, which can be downloaded at www.adobe.com.

1. Log into the *Tekelec Customer Support* site.

Note: If you have not registered for this new site, click the **Register Here** link. Have your customer number available. The response time for registration requests is 24 to 48 hours.

2. Click the **Product Support** tab.
3. Use the Search field to locate a document by its part number, release number, document name, or document type. The Search field accepts both full and partial entries.
4. Click a subject folder to browse through a list of related files.
5. To download a file to your location, right-click the file name and select **Save Target As**.

Appendix E

Worksheet: netConfig Repository

Topics:

- [E.1 Worksheet: netConfig Repository371](#)

E.1 Worksheet: netConfig Repository

For each additional enclosure switch(6120XG, 6125XG, or 3020):

Variable	Value
<switch_hostname>	
<enclosure_switch_IP>	
<switch_platform_username>	
<switch_platform_password>	
<switch_enable_password>	
<switch_hostname>	
<enclosure_switch_IP>	
<switch_platform_username>	
<switch_platform_password>	
<switch_enable_password>	
<switch_hostname>	
<enclosure_switch_IP>	
<switch_platform_username>	
<switch_platform_password>	
<switch_enable_password>	
<switch_hostname>	
<enclosure_switch_IP>	
<switch_platform_username>	
<switch_platform_password>	
<switch_enable_password>	
<switch_hostname>	
<enclosure_switch_IP>	
<switch_platform_username>	
<switch_platform_password>	
<switch_enable_password>	
<switch_hostname>	
<enclosure_switch_IP>	
<switch_platform_username>	

Variable	Value
<switch_platform_password>	
<switch_enable_password>	
< switch_hostname >	
<enclosure_switch_IP>	
<switch_platform_username>	
<switch_platform_password>	
<switch_enable_password>	
< switch_hostname >	
<enclosure_switch_IP>	
<switch_platform_username>	
<switch_platform_password>	
<switch_enable_password>	
<OA1_enX_ip_address>	X=the enclosure #
<OA password>	
<io_bay>	

Appendix F

PM&C Features Configuration

Topics:

- [F.1 PM&C Feature Configuration.....374](#)

F.1 PM&C Feature Configuration

Overview

PM&C configuration allows users to manage identified software features. Features implemented by PM&C may be defined as "editable" in profiles that are used during PM&C Initialization. This is typically decided and specified in profiles by developers. When a feature is defined as "editable" it may be managed by authorized users via the PM&C GUI or CLI. Features may be enabled or disabled, and their associated role may be changed (used for features that expose or configure services on a network interface basis).

Enabling Features

Enabling features may impact available APIs (i.e., fail the requests), configure services (e.g., configure TFTP), or configure the host firewall. From the CLI, you may "administratively" disable a feature to temporarily block actions. This is useful for NetBackup to prevent actions affecting the backup images, or netConfig to prevent conflicts with TFTP services. Administratively disabled services are either enabled manually or enabled when PM&C is restarted.

Editing Roles

Feature roles are used to associate a feature with a particular set of interfaces. This is used to manage the host firewall or configure services. New roles may be defined and applied to dedicated interfaces. For instance, NetBackup is often provided a unique role.

You should understand the network and product before changing roles. The "control", "management" and "NetBackup" roles are currently used by products. PM&C was designed to be flexible, so you are able to create roles and map them to interfaces as desired (e.g., expanding a system may need to add new non-contiguous networks for control or management).

Features

Features are declared as user editable by profiles. The current Platform 6.0 TVOE profile exposes the following features:

- "PMAC.NETBACKUP" is an optional feature that should be enabled if NetBackup is used.
- "PMAC.REMOTE.BACKUP" is another optional feature.
- "DEVICE.NETWORK.NETBOOT" is used to allow netConfig to initialize Cisco 3020 switches that uses TFTP. It is typically enabled on the "management" role. *Pre-Platform 6.5, no TFTP service was defined or configured.*
- "DEVICE.NTP" allows devices to use PM&C as an NTP server. By default, the port is blocked by the firewall.
- "PMAC.MANAGED" allows remote systems to access the SNMP service on PM&C
- "SERVER.IPM" may be used to either enhance security (to block the TFTP service at the firewall), or in manual netConfig procedure to prevent TFTP resource conflicts. This would typically be administratively disabled then enabled. It will prevent any attempt to install an OS. (Feature not user editable in Platform 6.5 and beyond)

To add features as editable, they must be declared in the profile during PM&C Initialization. If PM&C is in service, you must use the CLI to reset and re-initialize PM&C. To prevent profile changes from

being lost during upgrade, you should avoid modifying profiles delivered with PM&C. Best practice is to copy the profile and edit this version.

GUI Usage

From the PM&C GUI, navigate with: **Main Menu > Administration > PM&C Configuration > Feature Configuration.**

The platform will be reconfigured when the **Apply** button is pressed.

CLI Usage

The `pmacadm` CLI allows features to be modified also. This is the only interface to administratively disable a feature. The options on the `pmacadm` command map to integers for the enable/disable states (see `man pmacadm`).

For example, to disable the `DEVICE.NETWORK.NETBOOT` feature:

```
$ sudo /usr/TKLC/smac/bin/pmacadm editFeature --featureName=SERVER.IPM --enable=0
```

to do the same temporarily, until the next restart of PM&C (here 1 = true, 2 = false):

```
$ sudo /usr/TKLC/smac/bin/pmacadm editFeature --featureName=DEVICE.NETWORK.NETBOOT  
--adminEnable=2
```

For short procedures, such as `netConfig`, one may administratively allow TFTP with a command like:

```
$ sudo /usr/TKLC/smac/bin/pmacadm editFeature --featureName=SERVER.IPM  
--adminEnable=2
```

Appendix G

How to Access a Server Console using the iLO

Topics:

- [G.1 How to Access a Server Console using the iLO.....377](#)

G.1 How to Access a Server Console using the iLO

1. Access the iLO GUI

Using a laptop or desktop computer connected to the customer network, navigate with Internet Explorer to the IP address of the iLO of the Management Server. Log in to the iLO as the user "Administrator".

2. If the iLO is an iLO 2, configure Hot Keys

The iLO GUI will indicate the iLO version as iLO 2 ("Integrated Lights-Out 2"), iLO 3, iLO 4, etc. If this is an iLO 2, perform the following Hot Key configuration:

- a) Click the **Remote Console** tab
- b) Click the **Settings** menu item and then the **Hot Keys** sub-tab
- c) In the row starting with **Ctrl-T** change the first dropdown to **L_CTRL** and the second dropdown to **]** (right bracket). The rest of the dropdowns in the row should be **NONE**.
- d) Click **Save Hot Keys**

As a result, pressing **Ctrl-T** rather than **Ctrl-]** will now exit the console of a TVOE guest and return to the console of the TVOE host.

3. Launch the Remote Console Window

Navigate to **Remote Console > Remote Console** to launch the remote console in a new window.

4. Log in to the Console

In the Remote Console window, log in to the console as user "admusr":

```
login as: admusr
Password:
Last login: Wed Jun  5 17:52:28 2013
[admusr@tvoe ~]$
```

5. Return to the referencing procedure

Return to the procedure which referenced this appendix.

Appendix H

How to Attach an ISO Image to a Server Using the iLO

Topics:

- [H.1 How to Attach an ISO Image to a Server Using the iLO.....379](#)

H.1 How to Attach an ISO Image to a Server Using the iLO

1. Local Workstation: Access the iLO Web GUI

Access the ProLiant Server iLO Web Login Page from an Internet Explorer® session using the following URL:

```
https://<iilo_IP>/
```

2. iLO Web GUI: Log in to iLO as an "administrator" user.

Username = <iilo_admin_user>

Password = <iilo_admin_password>



3. Determine which steps to take based on the iLO version

If the iLO GUI indicates "Integrated Lights-Out 2", continue at the next step.

If the iLO GUI indicates "Integrated Lights-Out 3" or "Integrated Lights-Out 4", continue at step 12.

4. iLO 2 Web GUI:

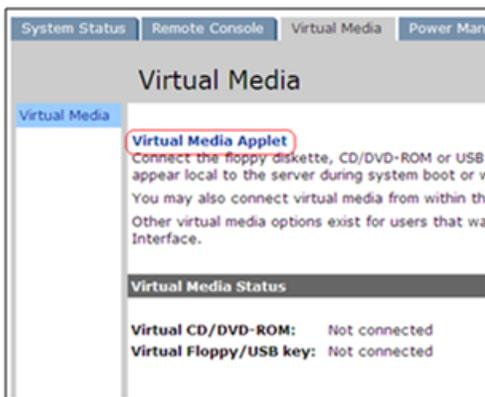
- a) Select the **Virtual Media** page.
- b) Click the **Virtual Media** tab on the **System Summary** page.

How to Attach an ISO Image to a Server Using the iLO



5. iLO 2 Web GUI:

- a) Click on the **Virtual Media Applet** link to launch the Virtual Media application. The iLO GUI should open to the **Virtual Media** page.



6. iLO 2 Web GUI - Java Security Prompt: Acknowledge Security Warning

If a security dialog is presented, click **Yes** to acknowledge the issue and proceed.

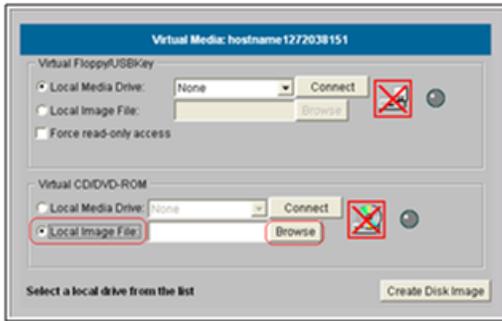


If other warning dialogs are presented, acknowledge them as well to proceed to the Virtual Media applet.

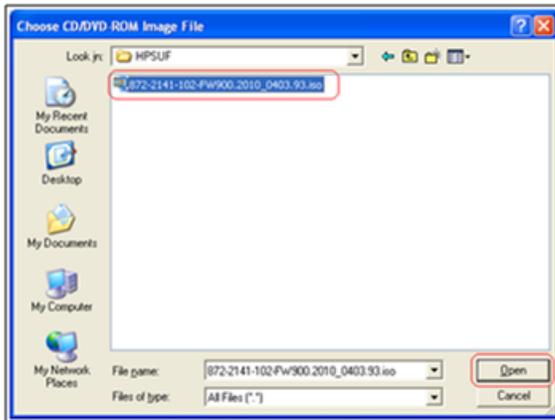
7. iLO 2 VM Applet: Select the specified ISO file.

In the Virtual CD/DVD-ROM Panel, select the **Local Image File** option and click the **Browse** button. Navigate to the ISO image file specified by the procedure which referenced this appendix.

How to Attach an ISO Image to a Server Using the iLO



Select the ISO image file and click **Open**.



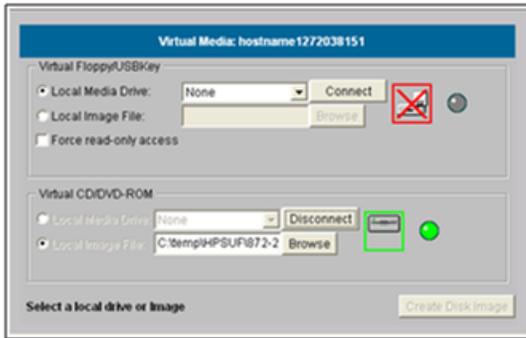
8. iLO 2 VM Applet: Create a Virtual Drive Connection

Click the **Connect** button to create a virtual DVD-ROM connection to the ISO image file.



When create the LED Light icon should be green.

How to Attach an ISO Image to a Server Using the iLO



At this point, **DO NOT** close the applet but rather return to the browser window containing the iLO Web GUI.

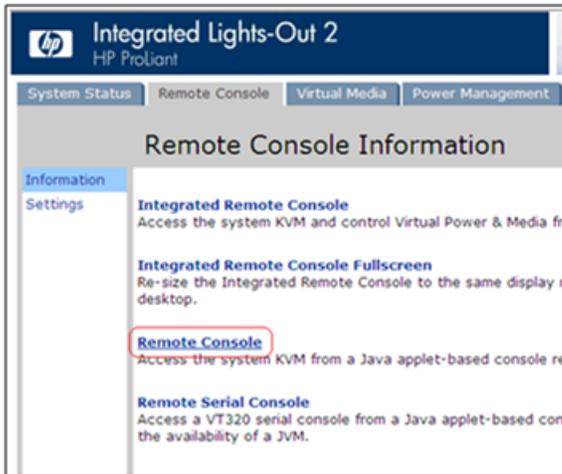
9. iLO 2 Web GUI: Access the Remote Console Page.

At the iLO 2 Web GUI, click on the **Remote Console** tab.



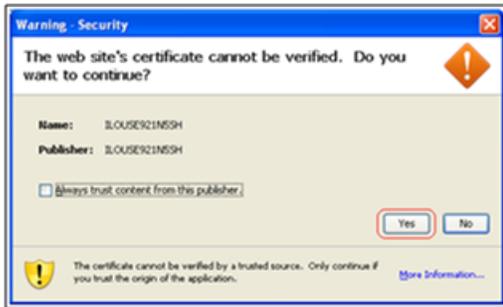
10. iLO 2 Web GUI: Launch the Remote Console Applet.

On the Remote Console page, click on the **Remote Console** link to launch the console applet.



11. iLO 2 Web GUI - Java Security Prompt: Acknowledge Security Warning.

If a dialog similar to the one below is presented, click **Yes** to acknowledge the issue and proceed.

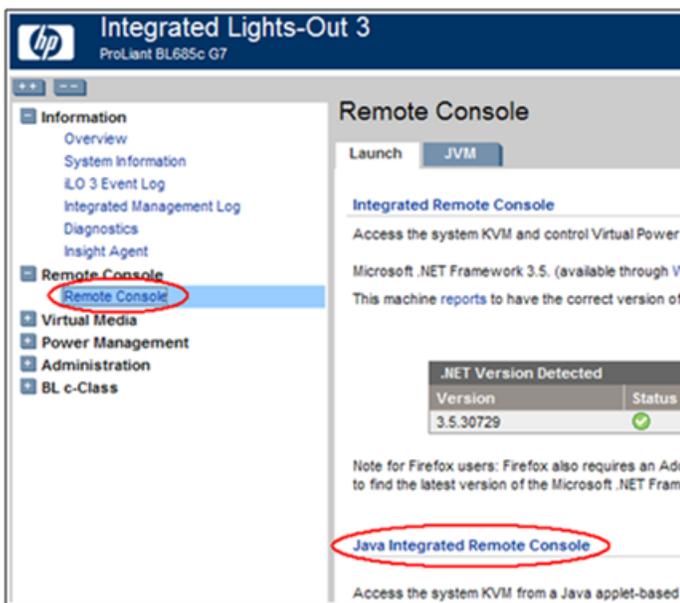


If other warning dialogs are presented you may also acknowledge them as well to proceed to the Java Integrated Remote Console applet.

Skip to step 16

12. iLO 3 / iLO 4 Web GUI: Launch the Java Integrated Remote Console applet.

On the menu to the left navigate to the Remote Console page. Click on the **Java Integrated Remote Console** to open it.



13. iLO 3 / iLO 4 - Java Security Prompt: Acknowledge Security Warning.

If a dialog similar to the one below is presented, click **Yes** to acknowledge the issue and proceed.

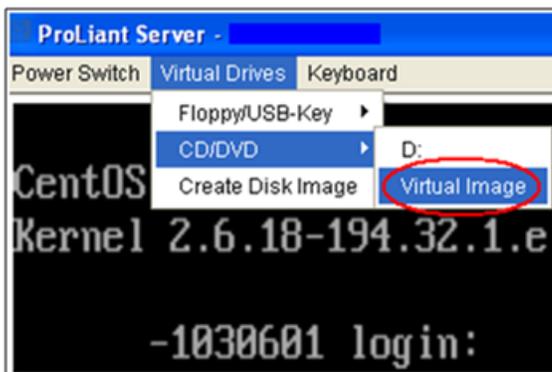
How to Attach an ISO Image to a Server Using the iLO



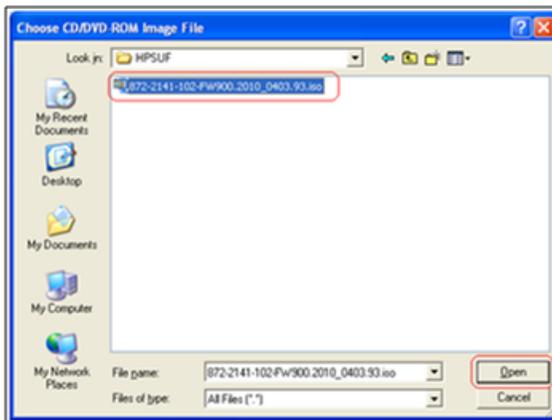
On the menu to the left navigate to the Remote Console page. Click on the **Java Integrated Remote Console** to open it.

14. iLO 3 / iLO 4 - Remote Console: Create Virtual Drive Connection

Click on the **Virtual Drives** drop down menu. Go to CD/DVD, then click on Virtual Image.



Navigate to the location of the ISO image file specified by the procedure which referenced this appendix.



Select the desired file and click **Open**.

15. iLO 3 / iLO 4 - Remote Console: Verify Virtual Image Connection.

At the bottom of the remote console window, there should now be a green highlighted drive icon and "Virtual M" written next to it.



16. Return to the referencing procedure

Return to the procedure which referenced this appendix.

Appendix I

How to Exit a Guest Console Session on an iLO

Topics:

- [I.1 How to Exit a Guest Console Session on an iLO.....387](#)

I.1 How to Exit a Guest Console Session on an iLO

1. **Enter the appropriate control sequence for the iLO version**

If the main iLO GUI window indicates that this is an iLO 2 ("Integrated Lights-Out 2"), press **Ctrl-T**. Otherwise, press **Ctrl-I**.

This corresponds to the configuration of iLO 2 Hot Keys performed in *Appendix G: How to Access a Server Console using the iLO*.

2. **Return**

Return to the procedure which referenced this appendix.