# Oracle® Communications
# Tekelec Platform

## TVOE 2.0 Software Upgrade Procedure

**Release 2.0**

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Oracle Communications Tekelec Platform TVOE 2.0 Software Upgrade Procedure, Release 2.0

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**CAUTION: Use only the Upgrade procedure included in the Upgrade Kit.**

**Before upgrading any system, please access Oracle's Tekelec Customer Support site and review any Technical Service Bulletins (TSBs) that relate to this upgrade.**

Refer to Appendix C for instructions on accessing this site.

Contact Oracle's Tekelec Customer Care Center and inform them of your upgrade plans prior to beginning this or any upgrade procedure.

Phone: 1-888-FOR-TKLC (1-888-367-8552) or 919-460-2150 (international)
FAX: 919-460-2126

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# 1. INTRODUCTION

TVOE is a TPD based virtualization host. TVOE allows for virtualization of servers so that multiple applications can reside on one physical machine while still retaining dedicated resources. This means software solutions that include multiple applications and require several physical machines can be installed on very few (possibly one) TVOE Servers.

## 1.1 Purpose and Scope

This document contains detailed procedures for performing a software upgrade of the TVOE application running on HP server hardware. This document is not a standalone document and should be referenced by application procedures. The audience for this document is Tekelec customers and the following Tekelec groups:

- Manufacturing,
- Product Verification,
- Documentation,
- Customer Service including Software Operations and First Office Application,
- Application developers.

## 1.2 References

[1] Platform 6.x Configuration Procedure Reference, 909-2209-001, Rev A, Tekelec

## Acronyms

**Table 1. Acronyms**

| | |
|---|---|
| TVOE | Tekelec Virtualization Operating Environment |
| PM&C | Platform Management and Configuration |
| iLO | Integrated Lights Out manager |
| VSP | Virtual Serial Port |

## 1.3 Terminology

**Table 2. Terminology**

| | |
|---|---|
| **Application** | The software running on a guest of the TVOE Server that performs a service. |
| **Accept** | An action taken if the customer is satisfied with a system that has been upgraded. As part of an accept the temporary objects used to enable backout will be removed as they are no longer needed. Once an upgrade has been accepted, a reject (backout) can no longer be performed. |
| **Backout** | The process to take a system back to a Source Release after initiating an upgrade to a Target release. Includes preservation of system configuration. |
| **PM&C Application** | PM&C is an application that provides platform-level management functionality, such as the capability to manage and provision platform components of systems so they can host applications. |
| **Reject** | An action taken if the customer is not satisfied with at system that has been upgraded and wishes to backout the upgrade. |
| **Source release** | Software release to upgrade from. |
| **Target release** | Software release to upgrade to. |
| **TVOE Server** | Physical server used to host the TVOE application. |
| **Guest** | A simulated computer running on a TVOE Server. A TVOE Server can have multiple guests. |

## 1.4 Conventions

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

*Each step has a checkbox for every command within the step that the technician should check to keep track of the progress of the procedure.*

*The title box describes the operations to be performed during that step.*

*Each command that the technician is to enter is in* **`10 point bold Courier`** *font.*

| | | |
|---|---|---|
| 5 ☐ | **ServerX:**<br>Connect to the console of server | Establish a connection to the server using cu on the terminal server/console.<br>**`# cu -l /dev/ttyS7`** |

# 2. GENERAL DESCRIPTION

## 2.1 Ways to upgrade TVOE

An upgrade of a TVOE server can be performed in two different ways:

- *Stand Alone TVOE host upgrade*
- *PM&C Aided TVOE host upgrade*

The *PM&C Aided TVOE host upgrade* should be used whenever a PM&C is available. In cases where PM&C is a guest on the TVOE host that is being upgraded, the *Stand Alone TVOE host upgrade* procedure should be used.

### 2.1.1 Stand Alone TVOE host upgrade

When PM&C is not available the TVOE host will need to upgrade itself. This is performed by copying the TVOE software image to the TVOE host and then initiating an upgrade via platcfg. To perform a *Stand Alone TVOE host upgrade* please execute in order the following procedures from this document:

- Procedure 1. TVOE Pre-Upgrade Validation
- Procedure 3. Add TVOE software image to TVOE host
- Procedure 5. Stand Alone TVOE host upgrade
- Procedure 6. TVOE Post-Upgrade Validation
- Procedure 7. Stand Alone TVOE Upgrade Accept

### 2.1.2 PM&C Aided TVOE host upgrade

When PM&C is available it should be used to upgrade the TVOE host. For TVOE 1.0 to TVOE 2.0 upgrades it is required that a *PM&C Aided TVOE host upgrade* be performed. This is because of filesystem size limitations in TVOE 1.0. To perform a *PM&C Aided TVOE host upgrade* please execute in order the following procedures from this document:

- Procedure 1. TVOE Pre-Upgrade Validation
- Procedure 2. Add TVOE software image to PM&C repository
- Procedure 4. PM&C Aided TVOE host upgrade
- Procedure 6. TVOE Post-Upgrade Validation
- Procedure 8. PM&C Aided TVOE Upgrade Accept

## 2.2 Supported Upgrade Paths

The following table specifies the supported upgrade paths for TVOE 2.0:

**Table 3. Application Upgrade Paths**

| Source TVOE Application Version | Target TVOE Application Version | Supported ways to Upgrade |
|---|---|---|
| 1.0.0-X.X.X | 2.0.0-Y.Y.Y* | • *PM&C Aided TVOE host upgrade* |
| 2.0.0-X.X.X | 2.0.0-Y.Y.Y* | • *Stand Alone TVOE host upgrade*<br>• *PM&C Aided TVOE host upgrade* |

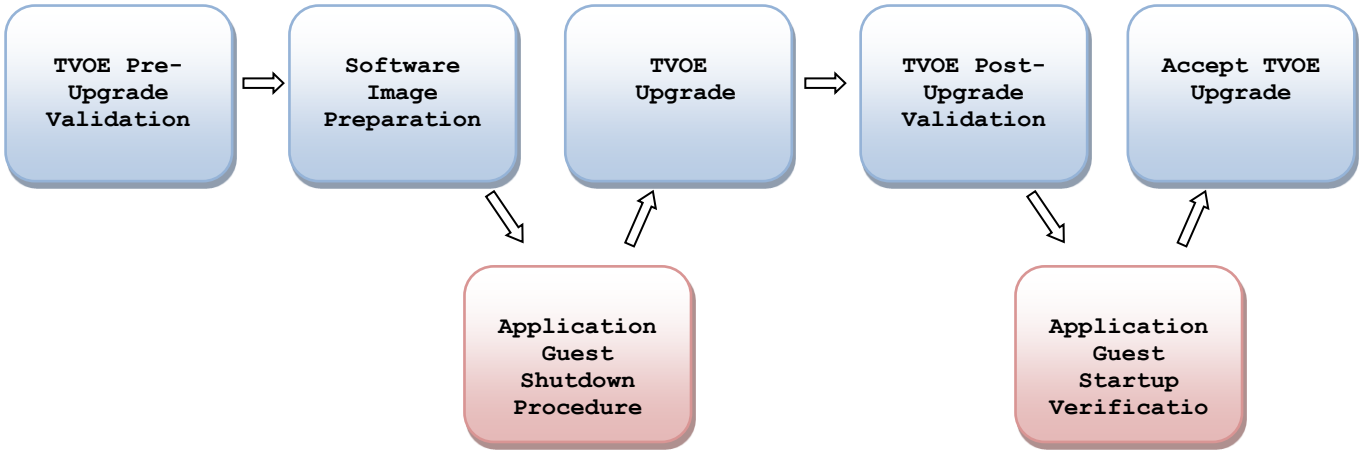
* Y.Y.Y must represent a release that is greater than X.X.X. Upgrading TVOE to an older release is NOT supported.

## 2.3 Upgrade Flow

During the upgrade of the TVOE Server, all guests will be shut down automatically. However, the order in which they will be shut down is random and will most likely not match the Application-recommended order. The script that automatically stops guests will wait a designated period of time (120 seconds by default) to allow for a graceful shutdown. After that time, the guest(s) will be stopped forcefully. The forceful shutdown is not desireable, and thus it is recommended that Applications are stopped and the guest(s) shut down prior to initiating the TVOE upgrade procedure.

After upgrade of TVOE, the guest(s) (and the related Application[s]) will need to be verified to be up and functioning correctly. This is because TVOE is unaware of the application specific startup procedures.

Considering that Application teams will be providing procedures of their own, the overall upgrade procedure will look like the flow chart shown below. The five procedures indicated by the blue boxes on the top row are the procedures detailed by this document. The two procedures indicated by the red boxes on the bottom row are procedures that should be provided by the Application teams.



# 3. UPGRADE OVERVIEW

This section provides a brief overview of the recommended method for upgrading a server from the source release to the target release of the TVOE application.

## 3.1 Required Materials

- Supported server running TVOE.
- TVOE software image of target release.
- IP address for TVOE Server.
- A valid password for root user on the TVOE Server.
- IP address for TVOE Server iLO.
- A valid user name and password for the TVOE Server iLO.
- SSH client application to connect to TVOE Server and TVOE Server iLO.
- IP address for PM&C Application.*
- Web browser to access PM&C Application. *
- A valid password for a user with admin privileges in the PM&C Application.*
- A copy of reference [1]

* Only needed if executing the *PM&C Aided TVOE host upgrade*.

## 3.2 Upgrade Execution Overview

As part of the upgrade process the health of the system will first be verified. The upgrade will then be performed using the PM&C Application or the TVOE system itself. After upgrade the system's health will again be verified. If the system health is satisfactory, the upgrade will be accepted and the process will be complete. An overview of these procedures is shown in ***Table 4***. The Pre-Upgrade Validation can be executed outside of the maintenance window. The Upgrade, Post-Upgrade Validation, and Upgrade Accept are executed in the maintenance window.

**Table 4. Upgrade Execution Overview**

| Phase | Down time (Hours: Minutes)* | Elapsed time (Hours: Minutes)* | Activity | Impact |
|---|---|---|---|---|
| Pre-Upgrade Validation | 0:00 | 0:01 | Verifying TVOE Server health. | None |
| Software Image Preparation | 0:00 | 0:01 | Add TVOE software image to TVOE or PM&C. | None |
| TVOE Upgrade | 0:50 | 0:50 | Performing TVOE application upgrade. | All guests and any applications will not be running. |
| Post Upgrade Validation | 0:01 | 0:01 | Verifying TVOE Server health. | Problems with upgrade may degrade or prevent guests and applications from running. |
| Upgrade Accept | 0:10 | 0:10 | Accepting upgrade. | A reboot may be performed during accept. |

* The provided times are lab estimates of a worst case (TVOE 1.0 to TVOE 2.0) upgrade and may vary. Additionally, these estimates do not include the amount of time it takes to shut down or start up guests and their corresponding applications.

## 3.3 Backout Execution Overview

If an error is detected during upgrade of the TVOE Application, the upgrade will automatically be backed out. After an automatic backout refer to section ***6.1 Recovery After Failed*** Upgrade.

If a manual backout becomes necessary then see section ***6.2 Manual Backout***. An overview of this procedure is shown in ***Table 5***.

**Table 5. Manual Backout Execution Overview**

| Phase | Down time (Hours: Minutes)* | Elapsed time (Hours: Minutes)* | Activity | Impact |
|---|---|---|---|---|
| Manual Backout | 0:50 | 0:50 | Performing backout of previous upgrade. | All guests and any applications will not be running. |

* The provided times are lab estimates and may vary. Additionally, these estimates do not include the amount of time it takes to shut down or start up guests and their corresponding applications.

## 3.4 Log Files

Pre and post upgrade validation steps will be captured using the script utility and stored in text files. All output from commands executed on the TVOE Server during the upgrade will be logged in the `/var/TKLC/log/upgrade/upgrade.log` file on the TVOE Server. No application logs will be affected by the TVOE upgrade.

# 4. UPGRADE PREPARATION

- Acquire TVOE software image.
- Gather and log connection information for TVOE Server.
- Gather and log connection information for PM&C Application.*
- Transfer TVOE software image to the target site.

* Only needed if executing the *PM&C Aided TVOE host upgrade*.

## 4.1 Software Upgrade Preparation

Prepare for the TVOE application upgrade by acquiring the software image of the target TVOE release. Additionally, record the connection information for the TVOE server and the PM&C Application in ***Table 6***.

**Table 6. Software Upgrade Preparation**

| Subject/Attribute | IP Address | Username | Password |
|---|---|---|---|
| PM&C Application:* | | pmacadmin | |
| TVOE Server: | | root | |
| TVOE Server iLO: | | root | |

* Only needed if executing the *PM&C Aided TVOE host upgrade* procedure.

# 5. SOFTWARE UPGRADE PROCEDURES

Call the Tekelec Customer Care Center at 1-888-FOR-TKLC (1-888-367-8552); or 1-919-460-2150 (international) prior to executing this upgrade to ensure that the proper media are available for use.

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

Do not start the upgrade process without the required information and materials described by this document.

Please read the following notes on upgrade procedures:

- Initiating this upgrade will shutdown all guests running on the TVOE host.
- After completing each step and at each point where data is recorded from the screen, the technician performing the upgrade must initial each step. A check box should be provided.
- Captured data is required for future support reference if Tekelec Technical Services is not present during the upgrade.

## 5.1 Pre-Upgrade Validation Execution

**Procedure 1. TVOE Pre-Upgrade Validation**

| S T E P # | This procedure will verify the health of the TVOE Server prior to software upgrade.<br>*Check off (√) each step as it is completed.*<br>IF THIS PROCEDURE FAILS, CONTACT TEKELEC TECHNICAL SERVICES (SEE ***1.5 Customer Care Center*** FROM [1]) | |
|---|---|---|
| 1<br>☐ | **TVOE Server:**<br>**log in and start capture** | Login as root user on the TVOE server and run the following to start capturing the output to a file in the /var/TKLC/log/upgrade directory.<br><br>**# LOGDIR=/var/TKLC/log/upgrade [↵ ]**<br>**# script $LOGDIR/TPreUV-$(date +%s).log[↵ ]**<br><br>Output similar to the following will be output to indicate that the log file has been created and the capture has started. Additionally, the prompt will be displayed as shown.<br><br>**Script started, file is /var/TKLC/log/upgrade/TPreUV-1306426872.log**<br>**#**<br><br>At this point any data input or output to the terminal window will be captured in the log file and can be viewed at a later time. |
| 2<br>☐ | **TVOE Server:**<br>**verify TVOE Server health** | Run the following command to check alarm status on the TVOE Server.<br><br>**# alarmMgr --alarmStatus [ ↵ ]**<br><br>If any output is produced, an alarm is present on the system. Contact Tekelec TAC for information about how to proceed. |

**Procedure 1. TVOE Pre-Upgrade Validation**

| | | |
|---|---|---|
| 3 ☐ | **TVOE Server:**<br>**verify device.map and system mounts are in sync** | Run the following two commands to check and make sure that the system disk and grub device map are in sync.<br><br>`# tail -n1 /boot/grub/device.map [↵]`<br>`# cat /proc/mounts \| grep boot [↵]`<br><br>The outputs will show the grub device map as well as where the boot partition is mounted.<br><br>If the output shows that boot resides on a cciss device (any cciss device) as shown below then **continue to step 5.**<br><br>`[root@host ~]# tail -n1 /boot/grub/device.map`<br>`(hd0) /dev/cciss/c0d0`<br>`[root@host ~]# cat /proc/mounts \| grep boot`<br>`/dev/cciss/c0d0p1 /boot ext3 rw,data=ordered 0 0`<br><br>If the output shows that boot resides on a scsi (sdX) device then verify that both the device map shows **sda** and the current location where boot is mounted shows **sda1**. If both are sda, as shown in the output below, then **continue to step 5**.<br><br>`[root@stoli ~]# tail -n1 /boot/grub/device.map`<br>`(hd0) /dev/sda`<br>`[root@stoli ~]# cat /proc/mounts \| grep boot`<br>`/dev/sda1 /boot ext4 rw,relatime,data=ordered 0 0`<br><br>If the output shows that the device.map is **sda** but that boot is **NOT** mounted on **sda1** then make sure all USB devices have been removed from the server and reboot the system. Note that this ***will shut down*** all applications hosted by the server. After the server has rebooted restart this procedure from the beginning. An example of output that represents this state is shown below:<br><br>`[root@stoli ~]# tail -n1 /boot/grub/device.map`<br>`(hd0) /dev/sda`<br>`[root@stoli ~]# cat /proc/mounts \| grep boot`<br>`/dev/sdb1 /boot ext4 rw,relatime, data=ordered 0 0`<br><br>If the output shows that the device.map is **NOT sda** but that boot is mounted on **sda1**, as shown below, then **continue to step 4** in order to fix the device.map file**.**<br><br>`[root@stoli ~]# tail -n1 /boot/grub/device.map`<br>`(hd0) /dev/sdb`<br>`[root@stoli ~]# cat /proc/mounts \| grep boot`<br>`/dev/sda1 /boot ext4 rw,relatime, data=ordered 0 0` |

**Procedure 1. TVOE Pre-Upgrade Validation**

| | | |
|---|---|---|
| 4 ☐ | **TVOE Server:**<br>**fix device.map file** | Run the following three commands in order to fix the device.map file. The first command removes the device.map file from its existing location while the second command runs grub-install which will reprobe the system and rebuild the device.map file.<br><br>**# mv /boot/grub/device.map /boot/grub/device.map.bkp [↵]**<br>**# grub-install hd0 [↵]**<br>**# echo $? [↵]**<br><br>The output should be similar to the following. Verify for certain that the return code from the grub-install command is '0'. If not please contact the Tekelec Customer Care Center.<br><br>`[root@stoli ~]# mv /boot/grub/device.map /boot/grub/device.map.bkp`<br>`[root@stoli ~]# grub-install hd0`<br>`Probing devices to guess BIOS drives. This may take a long time.`<br>`Installation finished. No error reported.`<br>`This is the contents of the device map /boot/grub/device.map.`<br>`Check if this is correct or not. If any of the lines is incorrect,`<br>`fix it and re-run the script `grub-install'.`<br><br>`(fd0) /dev/fd0`<br>`(hd0) /dev/sda`<br>`[root@stoli ~]# echo $?`<br>`0` |
| 5 ☐ | **TVOE Server:**<br>**stop the capture and flush all data to the file** | Run the following command to stop the capture.<br><br>**# exit [↵]**<br><br>Output similar to the following will be output to indicate that the capture has stopped and the log file has been closed. Additionally, the prompt will be displayed as shown.<br><br>`Script done, file is /var/TKLC/log/upgrade/TPreUV-1306426872.log`<br>`#` |

## 5.2 Software Image Preparation

**Procedure 2. Add TVOE software image to PM&C repository**

| S T E P # | This procedure will add the TVOE application software image to the PM&C image repository.<br>*Check off (√) each step as it is completed.*<br>IF THIS PROCEDURE FAILS, CONTACT TEKELEC TECHNICAL SERVICES (SEE ***1.5 Customer Care Center*** FROM [1]) |
|---|---|

**Procedure 2. Add TVOE software image to PM&C repository**

| | | |
|---|---|---|
| 1 ☐ | **PM&C Application:**<br>**add TVOE software image to PM&C repository** | Add the target TVOE application software by executing the following procedure from reference [1]<br><br>☐ "3.8.9 Adding ISO Images to the PM&C Image Repository" [1] |

**Procedure 3. Add TVOE software image to TVOE host**

| STEP # | This procedure will add the TVOE application software image to the TVOE system.<br>*Check off (√) each step as it is completed.*<br>IF THIS PROCEDURE FAILS, CONTACT TEKELEC TECHNICAL SERVICES (SEE ***1.5 Customer Care Center*** FROM [1] | |
|---|---|---|
| 1 ☐ | **Customer PC:**<br>**add TVOE software image to TVOE host** | Place a copy of the TVOE software image into the /var/TKLC/upgrade/ directory on the TVOE host by utilizing scp.<br><br>— **Linux**<br>• From the command line of a Linux machine please use the following command to copy the Backup ISO image to the TVOE host:<br><br>**#scp <path_to_image> root@<TVOE_ip>:/var/TKLC/upgrade/**<br><br>Where **<path_to_image>** is the path to the TVOE ISO image local to the Customer PC and **<TVOE_ip>** is the TVOE IP address.<br><br>— **Windows**<br>• Please use WinSCP to copy the TVOE ISO image to the TVOE host. Refer to '**Appendix A: Using WinSCP**' from reference [1] for help using WinSCP. |

## 5.3 Software Upgrade Execution

***Warning***

***This Procedure will forcefully shut down all guests on the TVOE Server! Guests should be shut down gracefully prior to executing this procedure by executing the appropriate application procedure. "virsh list --all" can be executed on the TVOE host to see a list guests and their state.***

**Procedure 4. PM&C Aided TVOE host upgrade**

| S T E P # | This procedure will upgrade the TVOE application on the server from the source release to the target release.<br>*Check off (√) each step as it is completed.*<br>IF THIS PROCEDURE FAILS, CONTACT TEKELEC TECHNICAL SERVICES (SEE ***1.5 Customer Care Center*** FROM [1]) | |
|---|---|---|
| 1<br>☐ | **PM&C Application:**<br>**perform upgrade of TVOE application using PM&C** | Upgrade TVOE application by following steps 1-8 from the procedure below from reference [1].<br><br>*** NOTE: Do not perform step 9. *** Step 9 includes accepting the upgrade, which will be performed after upgrade verification steps.<br><br>☐ "3.8.11 `Install/Upgrade Applications Using PM&C`" [1]<br><br>As part of the upgrade process the server will reboot.<br><br>**If the upgrade fails as described by the procedure**, refer to ***6.1 Recovery After Failed* Upgrade.** |

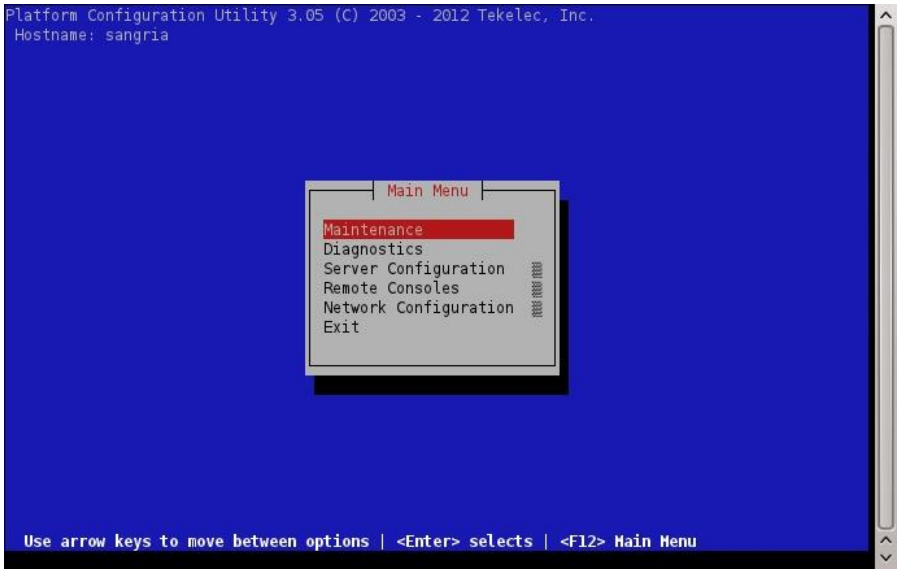
***Warning***

***This Procedure will forcefully shut down all guests on the TVOE Server! Guests should be shut down gracefully prior to executing this procedure by executing the appropriate application procedure. "virsh list --all" can be executed on the TVOE host to see a list guests and their state.***

**Procedure 5. Stand Alone TVOE host upgrade**

| S T E P # | This procedure will upgrade the TVOE application on the server from the source release to the target release.<br>*Check off (√) each step as it is completed.*<br>IF THIS PROCEDURE FAILS, CONTACT TEKELEC TECHNICAL SERVICES (SEE ***1.5 Customer Care Center*** FROM [1]) | |
|---|---|---|
| 2<br>☐ | **TVOE Server iLO:**<br>**Log in to iLO** | Using the sections listed below from reference [1], log in to the iLO by using a ssh client to connect to the IP address of the TVOE server iLO.<br><br>☐ "`3.5.4 Accessing the c-Class iLO Virtual Serial Port`" [1] |

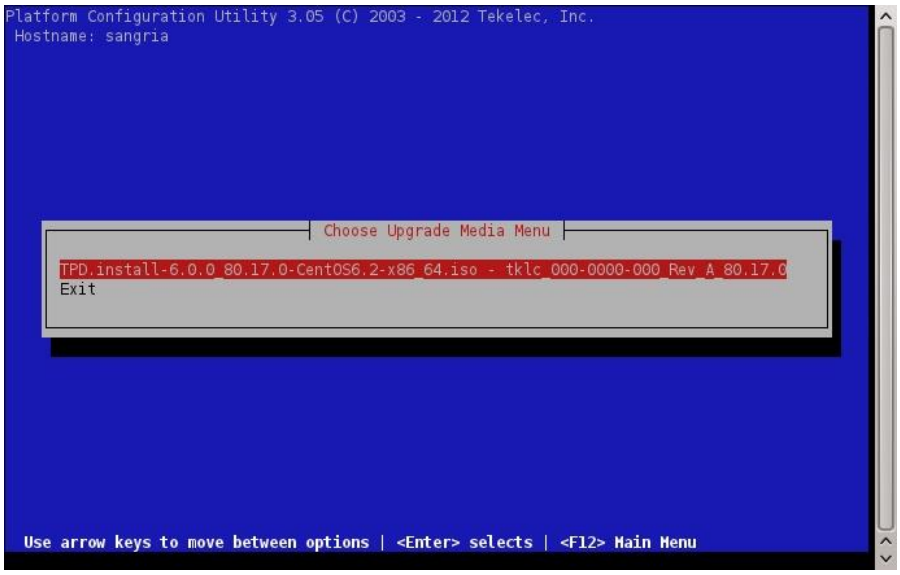
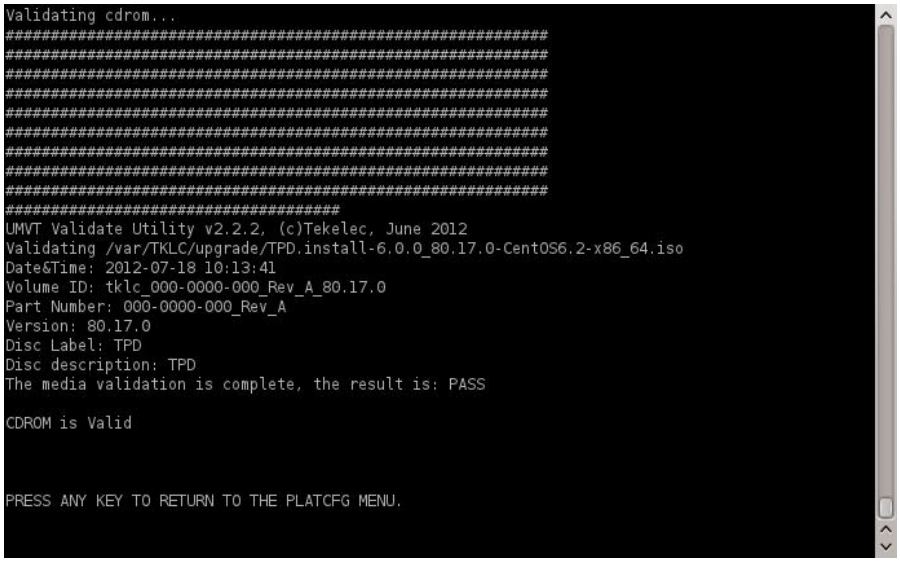
**Procedure 5. Stand Alone TVOE host upgrade**

| | | |
|---|---|---|
| 3 ☐ | **TVOE Server iLO:**<br>**start platcfg** | Log in as root user and run the following to start platcfg:<br>`# su - platcfg [↵]` |
| 4 ☐ | **TVOE Server iLO:**<br>**Select "Maintenance"** |  |
| 5 ☐ | **TVOE Server iLO:**<br>**Select "Upgrade"** | |

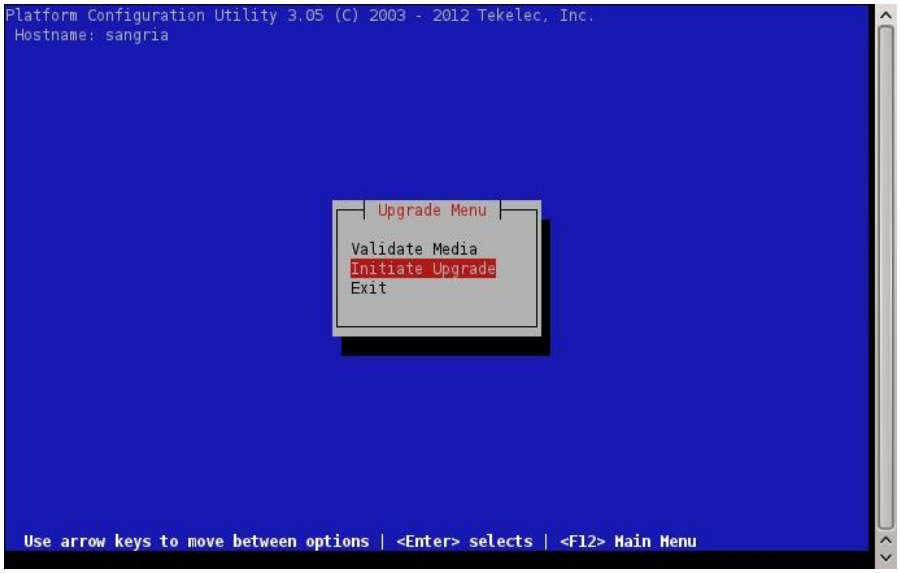
**Procedure 5. Stand Alone TVOE host upgrade**

| | | |
|---|---|---|
| 6 ☐ | **TVOE Server iLO:**<br>**Select "Validate Media"** | |

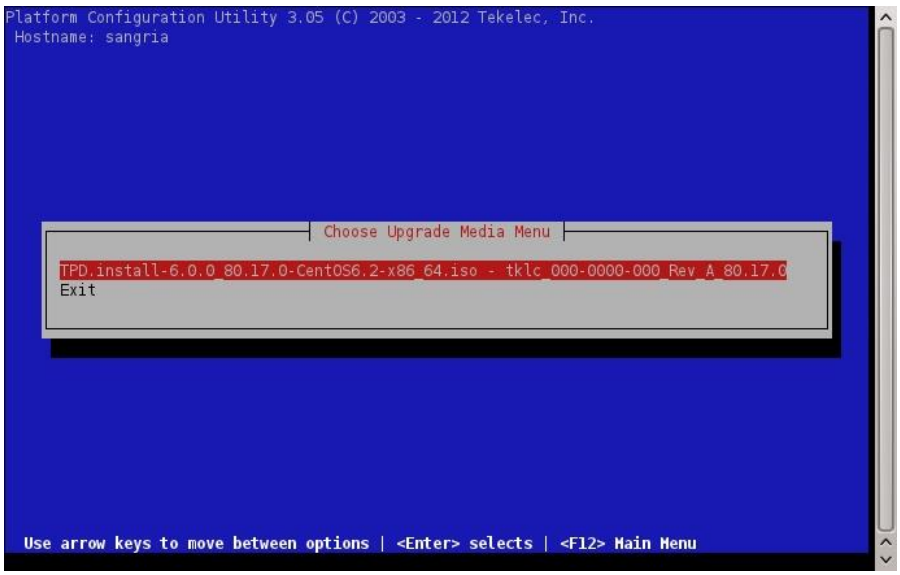
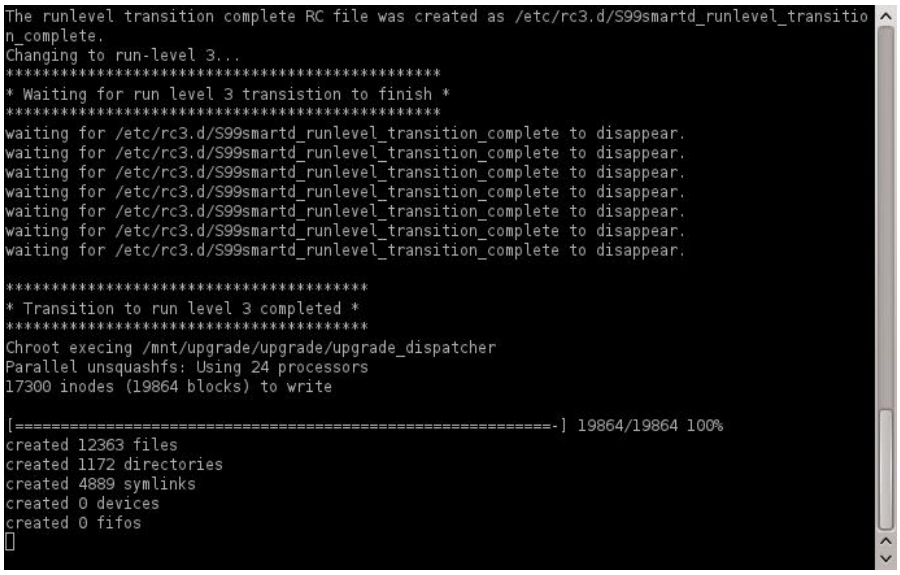
**Procedure 5. Stand Alone TVOE host upgrade**

| | | |
|---|---|---|
| 7 ☐ | **TVOE Server iLO:**<br>**Validate TVOE software image.** | Select the TVOE ISO image like is shown in the following screenshot:<br>  <br>The image will be validated and output similar to the following will be shown:<br>  <br>**If the image validation fails**, this procedure should be stopped. The image should be retransferred to the TVOE host (see 5.2) and this procedure should be started from the beginning. |

**Procedure 5. Stand Alone TVOE host upgrade**

| | | |
|---|---|---|
| 8 ☐ | **TVOE Server iLO:**<br>**Return to "Upgrade Menu" and select "Initiate Upgrade"** | Press **ENTER** to return to the "Choose Upgrade Media Menu" and then select "Exit" to return to the "Upgrade Menu". Finally, select "Initiate Upgrade" as shown in the following screenshot:<br>  |

**Procedure 5. Stand Alone TVOE host upgrade**

| | | |
|---|---|---|
| 9 ☐ | **TVOE Server iLO:**<br>**Start upgrade by selecting the TVOE software image to upgrade from** |  <br>After selecting the image by pressing **ENTER** the upgrade will start and log messages will be output. Some of the very first log messages are shown in the following picture:<br>  |
| 10 ☐ | **TVOE Server iLO:**<br>**Upgrade is complete** | Once the upgrade process is finished the TVOE host will be rebooted and will finally come back to the login prompt. At this point the upgrade is complete. |
| 11 ☐ | **TVOE Server iLO:**<br>**Log out of TVOE iLO.** | Using the sections listed below from reference [1], log out of the iLO.<br>☐ "3.5.4 Accessing the c-Class iLO Virtual Serial Port" [1] |

## 5.4 Post-Upgrade Validation Execution

**Procedure 6. TVOE Post-Upgrade Validation**

| S T E P # | This procedure will verify the health of the TVOE Server after the software upgrade.<br>*Check off (√) each step as it is completed.*<br>IF THIS PROCEDURE FAILS, CONTACT TEKELEC TECHNICAL SERVICES (SEE ***1.5 Customer Care Center*** FROM [1]) | |
|---|---|---|
| 1<br>☐ | **TVOE Server:**<br>**Log in and start capture** | Log in as root user on the TVOE server and run the following to start capturing the output to a file in the /var/TKLC/log/upgrade directory.<br><br>**# LOGDIR=/var/TKLC/log/upgrade [↵ ]**<br>**# script $LOGDIR/TPostUV-$(date +%s).log[↵ ]**<br><br>Output similar to the following will be output to indicate that the log file has been created and the capture has started. Additionally, the prompt will be displayed as shown.<br><br>**Script started, file is /var/TKLC/log/upgrade/TPostUV-1306426872.log**<br>**#**<br><br>At this point any data input or output to the terminal window will be captured in the log file and can be viewed at a later time. |
| 2<br>☐ | **TVOE Server:**<br>**check TVOE revision** | Run the following command to check the application revision of the server:<br><br>**# appRev [ ↵ ]**<br><br>The command should produce a Product Release that reflects the Target release of the system that was upgraded.<br><br>**# appRev**<br>**Install Time: Fri Jul 13 16:08:33 2012**<br>**Product Name: TVOE**<br>**Product Release: 2.0.0_80.17.0**<br>**Part Number ISO: 872-2290-104**<br>**Part Number USB: 872-2290-104**<br>**Base Distro Product: TPD**<br>**Base Distro Release: 6.0.0_80.17.0**<br>**Base Distro ISO: TPD.install-6.0.0_80.16.0-CentOS6.2-x86_64.iso**<br>**OS: CentOS 6.2**<br><br>**If the Product Release does not match the Target release then the upgrade was not successfull**. Contact Tekelec TAC for information about how to proceed. |

**Procedure 6. TVOE Post-Upgrade Validation**

| | | |
|---|---|---|
| 3 ☐ | **TVOE Server:**<br>**verify TVOE upgrade logs** | Run the following command to verify the upgrade was successful.<br><br>**# verifyUpgrade [ ↵ ]**<br><br>If any error output is produced, the upgrade was not successfull. Contact Tekelec TAC for information about how to proceed. |
| 4 ☐ | **TVOE Server:**<br>**verify TVOE Server health** | Run the following command to check alarm status on the TVOE Server.<br><br>**# alarmMgr --alarmStatus [ ↵ ]**<br><br>The "tpdServerUpgradePendingAccept" alarm should be present, but no other alarms should exist. An example of acceptable alarm ouptput is shown below:<br><br>**# alarmMgr --alarmStatus**<br>**SEQ: 1 UPTIME: 52 BIRTH: 1342633142 TYPE: SET ALARM: TKSPLATMI33\|tpdServerUpgradePendingAccept\|1.3.6.1.4.1.323.5.3.18.3.1.3.33**<br><br>If any alarm other than the "tpdServerUpgradePendingAccept" is present contact Tekelec TAC for information about how to proceed. |
| 5 ☐ | **TVOE Server:**<br>**stop the capture and flush all data to the file** | Run the following command to stop the capture.<br><br>**# exit [↵]**<br><br>Output similar to the following will be output to indicate that the capture has stopped and the log file has been closed. Additionally, the prompt will be displayed as shown.<br><br>**Script done, file is /var/TKLC/log/upgrade/TPostUV-1306426872.log**<br>**#**<br><br>The Post-Upgrade Validation is now complete. Application Guest Startup Verification procedures can now be run. |

## 5.5 Accepting TVOE upgrade.

**Procedure 7. Stand Alone TVOE Upgrade Accept**

| S T E P # | This procedure will accept the upgrade. After this procedure is performed the server will **not be able to be backed out** to the pre-upgrade state. Please do not execute this procedure unless the health of the TVOE server and each guest has been verified<br>*Check off (√) each step as it is completed.*<br>IF THIS PROCEDURE FAILS, CONTACT TEKELEC TECHNICAL SERVICES (SEE ***1.5 Customer Care Center*** FROM [1]) | |
|---|---|---|
| 1 ☐ | **TVOE Server iLO:**<br>**Log in to iLO** | Using the sections listed below from reference [1], log in to the iLO by using a ssh client to connect to the IP address of the TVOE server iLO.<br>☐ "3.5.4 Accessing the c-Class iLO Virtual Serial Port" [1] |
| 2 ☐ | **TVOE Server iLO:**<br>**accept upgrade** | Run the following command to accept the upgrade:<br>**# /var/TKLC/backout/accept [ ↵ ]**<br>As part of the accept the system may reboot if it is required. If no reboot is required the accept script will simply return. Example output from the accept is shown below:<br>**# /var/TKLC/backout/accept**<br>**Called with options: --accept**<br>**Loading Upgrade::Backout::RPM**<br>**Accepting Upgrade**<br>**Setting POST_UPGRADE_ACTION to ACCEPT in upgrade info.**<br>**Cleaning backout directory.**<br>**Clearing Upgrade Accept/Reject alarm.**<br>**Cleaning message from MOTD.**<br>**Cleaning up RPM config backup files...**<br>**Checking /**<br>**Checking /boot**<br>**Checking /tmp**<br>**Checking /usr**<br>**Checking /var**<br>**Checking /var/TKLC**<br>**Starting cleanup of RCS repository.**<br>**INFO: Removing '/var/lib/prelink/force' from RCS repository**<br>The upgrade accept is now complete. |
| 3 ☐ | **TVOE Server iLO:**<br>**Log out of TVOE iLO.** | Using the sections listed below from reference [1], log out of the iLO.<br>☐ "3.5.4 Accessing the c-Class iLO Virtual Serial Port" [1] |

**Procedure 8. PM&C Aided TVOE Upgrade Accept**

| S T E P # | This procedure will upgrade the TVOE application on the server from the source release to the target release.<br>*Check off (√) each step as it is completed.*<br>IF THIS PROCEDURE FAILS, CONTACT TEKELEC TECHNICAL SERVICES (SEE ***1.5 Customer Care Center*** FROM [1]) | |
|---|---|---|
| 1<br>☐ | **PM&C Application:**<br>**perform an accept of TVOE upgrade using PM&C** | Accept the TVOE upgrade by following the procedure below from reference [1].<br><br>☐ "`3.8.18 Accepting Upgrades Using PM&C`" [1]<br><br>As part of the accept the system may reboot if it is required. |

# 6. RECOVERY PROCEDURES

Upgrade procedure recovery issues should be directed to the Tekelec Customer Care Center. Before executing any of these procedures, contact the Tekelec Customer Care Center (see ***1.5 Customer Care Center*** from [1]).

## 6.1 Recovery After Failed Upgrade

If the TVOE upgrade fails, the upgrade will be backed out automatically and rebooted several times. After the final reboot the guest(s) should be running and the system should be at the same state it was before the upgrade. Please contact the Tekelec Customer Care Center (see ***1.5 Customer Care Center*** from [1]) to determine the cause of the failure before attempting a new upgrade.

## 6.2 Manual Backout (Reject)

A manual backout, also known as a reject, will revert the TVOE Server back to the original version of the software. No setup is required in order to execute a manual backout of an incremental upgrade.

NOTE: A reject cannot be performed after an upgrade has been accepted.

### 6.2.1 Manual Backout Execution

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

***Warning***

***Do not attempt to perform these backout procedures without first contacting the Tekelec Customer Care Center at* 1-888-FOR-TKLC (1-888-367-8552); or 1-919-460-2150 (international).**

***This Procedure will forcefully shut down all guests on the TVOE Server! Any guests should have been shut down gracefully prior to executing this procedure by executing the appropriate application procedure. "virsh list --all" can be executed on the TVOE host to see a list guests and their state.***

**Procedure 9. TVOE Manual Backout**

| S T E P # | This procedure will backout the most recent upgrade.<br><br>*Check off (√) each step as it is completed.*<br><br>IF THIS PROCEDURE FAILS, CONTACT TEKELEC TECHNICAL SERVICES (SEE ***1.5 Customer Care Center*** FROM [1]) | |
|---|---|---|
| 1 ☐ | **TVOE Server iLO:**<br><br>**Log in to iLO** | Using the sections listed below from reference [1], log in to the iLO by using a ssh client to connect to the IP address of the TVOE server iLO.<br><br>☐ "3.5.4 Accessing the c-Class iLO Virtual Serial Port" [1] |

**Procedure 9. TVOE Manual Backout**

| | | |
|---|---|---|
| 2 ☐ | **TVOE Server iLO:**<br>**verify backout is possible** | Login as root user on the TVOE server console and run the following command to check that satus of the logical volumes that will be used for backout:<br><br>`# lvs -o lv_name,snap_percent @upgrade [ ↵ ]`<br><br>Typical output will look something like the following:<br><br>`# lvs -o lv_name,snap_percent @upgrade`<br>`  LV                 Snap%`<br>`  plat_root_snap     27.52`<br>`  plat_usr_snap       7.70`<br>`  plat_var_snap       5.08`<br>`  plat_var_tklc_snap  19.14`<br><br>***** NOTE:** If any of the snapshot percentages are at 100.00% then stop this procedure. It is not possible to backout this machine. Contact Tekelec TAC for information about how to proceed. |
| 3 ☐ | **TVOE Server iLO:**<br>**manually backout upgrade** | Initiate the backout by running the following command:<br><br>`# /var/TKLC/backout/reject --noprompt [ ↵ ]`<br><br>The system will undergo a backout. As part of the process the system will reboot several times.<br><br>After completing the final reboot the login prompt will be presented. Some of the final startup output along with an example of the login prompt is shown below:<br><br>`CentOS release 6.2 (Final)`<br>`Kernel 2.6.32-220.17.1.el6prerel6.0.0_80.16.0.x86_64 on an x86_64`<br>`hostname1342210584 login:` |

**Procedure 9. TVOE Manual Backout**

| | | |
|---|---|---|
| 4 ☐ | **TVOE Server iLO:**<br>**check server health** | Log in as root user and run the following:<br><br># **appRev** [↵]<br><br>The command should produce a Product Release that reflects the Source release of the system that was upgraded.<br><br>**# appRev**<br>**Install Time: Fri Jul 13 16:08:33 2012**<br>**Product Name: TVOE**<br>**Product Release: 2.0.0_80.16.0**<br>**Part Number ISO: 872-2290-104**<br>**Part Number USB: 872-2290-104**<br>**Base Distro Product: TPD**<br>**Base Distro Release: 6.0.0_80.16.0**<br>**Base Distro ISO: TPD.install-6.0.0_80.16.0-CentOS6.2-x86_64.iso**<br>**OS: CentOS 6.2**<br><br>If the product release does not match the Source release then the backout was not successful. Contact Tekelec TAC for information about how to proceed. |
| 5 ☐ | **TVOE Server iLO:**<br>**check server health** | Run the following command to check the health of the server:<br><br>**# alarmMgr --alarmStatus [ ↵ ]**<br><br>If any output is produced, an alarm is present on the system. Contact Tekelec TAC for information about how to proceed.<br><br>Backout is complete. Application Guest Startup Verification procedures can now be run. |
| 6 ☐ | **TVOE Server iLO:**<br>**Log out of TVOE iLO.** | Using the sections listed below from reference [1], log out of the iLO.<br><br>☐ "3.5.4 Accessing the c-Class iLO Virtual Serial Port" [1] |

## APPENDIX A. SWOPS SIGN OFF.

### Discrepancy List

| Date | Test Case | Description of Failures and/or Issues. Any CSR's / RMA's issued during Acceptance. Discrepancy | Resolution and SWOPS Engineer Responsible | Resolution Date: |
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# APPENDIX B. CUSTOMER SIGN OFF

## Sign-Off Record

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

Sign your name, showing approval of this procedure, and fax this page and the above completed matrix to Tekelec, FAX # 919-460-3669.

**Customer: Company Name:_____ Date: _____**

**Site: Location:_____**

**Customer:(Print)_____ Phone:_____**

**Fax: _____**

**Start Date: _____ Completion Date: _____**

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

**Tekelec Signature: _____ Date: _____**

**Customer Signature: _____ Date: _____**

# APPENDIX C. ACCESSING ORACLE'S TEKELEC CUSTOMER SUPPORT SITE

Access to Oracle's Tekelec Customer Support site is restricted to current Tekelec customers only. This section describes how to log into Oracle's 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 Oracle's Tekelec new Customer Support site at support.tekelec.com.

   **Note:** If you have not registered yet for this new site, click the **Register Here** link. Have your customer number available. The response time to registration requests is 24 to 48 hours.

2. Click the Product Support tab.
3. Use the Search field to locate quickly 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**.