TOSHIBA
Leading Innovation >>>

Monitor Upgrade Solution v1.1
Linux User's Guide

Version:1.02
Approved Date:

Security Notice

Table of Contents

Version History

Version	*Date*	*Change Description*
1.00	31/10/2013	Draft Copy
1.01	04/01/2014	Removed References section
1.02	06/01/2014	-Added kernel levels -Added UP Tasks

1 Introduction to MUS

1.1 What is Monitor Upgrade Solution

The Monitor Upgrade Solution (MUS) is a solution by Toshiba Global Commerce Solutions, Inc. to perform silent and remote updating of the Touch and Video Firmware of Toshiba Monitor types 4820_21x/51x and 4820_2Lx/5Lx .

Monitor Upgrade Solution is composed of two parts.

First is the Operational Package (OP), this is needed to be pre-installed to the system for the MUS solution to operate. This is the base mechanism for upgrading. It contains the monitor upgrade service and other support executables.

Secondly ,there will be an upgrade-specific upgrade package(UP) for the actual upgrade to be done. And this package is made when a critical firmware change is released by a vendor. So for example there may be a release of new firmware for 4820 21x/51x Video micro-controller - in this case a 4820 21x/51x Video firmware UP will be created by TGCS and tested. This will then be released to customers. Similarly another critical touch firmware change may be released by the touch vendor for 4820 2Lx/5Lx . Another UP will be created by TGCS, tested and released. Each upgrade is domain specific.

2 MUS Contents

2.2 Operational Package(OP)

This is the basic mechanism needed to perform firmware and other upgrades on a POS System with newer 4820 xLx and x1x models. It consists of Monitor Upgrade Service scripts which run at boot time in order to perform monitor upgrade tasks.

2.2.1 File format

The OP will be in an RPM in this format *<name>-<version>-<release>.<arch>.rpm*

Example: toshiba-mus_op-suse-1.1-1.noarch.rpm

2.2.2 Components of OP

The components included in the Operational Package are:

- Monitor Upgrade Service support scripts
- Video firmware update utility - **Sampo 4820MonUtil**
- Touch firmware update utilities - **elo_config and elo_download**

2.3 Upgrade Packages(UP(s))

The Upgrade Packages contain the actual Upgrade Tasks to be performed by the Monitor Upgrade Service.

Typically they provide the updated touch or video firmware files along with a manifest and any support files required. Each represents a compact atomic upgrade task.

UP Tasks are run by the Monitor Upgrade Service at system boot time.

2.3.1 File format

The UPs are also RPMs with format *name-version-release.arch.rpm*

RPM Dependency
Requires: toshiba-mus_op-suse >= 1.1

Example. toshiba-mus1.1_up_21x51x_touch-fw_010d-1.0-1.noarch.rpm

3 Pre Requisites

The following are the things that Monitor Upgrade Solution needs to work.

3.1 Linux OS Supports

- SLES 11 SP2 32-Bit
- SLED 11 SP2 32-Bit
- SLEPOS 11 SP2 32-Bit

Kernel Levels Needed:

1. For "default" kernel setup
   - kernel-default-3.0.101-0.5.1.i586.rpm
   - kernel-default-base-3.0.101-0.5.1.i586.rpm

2. For "pae" kernel setup
   - kernel-pae-3.0.101-0.5.1.i586.rpm
   - kernel-pae-base-3.0.101-0.5.1.i586.rpm

3.2 Python 2.6 Environment

Python 2.6 is a default package included with SLES 11 and SLED 11, however SLEPOS sometimes may not have included Python 2.6. So a user needs to check if the SLEPOS environment has it.

Download the latest version of Python 2.6 in the link below if needed.

http://www.python.org/download/releases/2.6.8/

3.3 Zypper command line tool

Zypper is a default package included with SLES, SLED . If this package is not installed then the user needs to install this package.

For SLEPOS Users:

This is not a default package, therefore, the user needs to include the Zypper package when they create their SLEPOS image.

4 Installing MUS

MUS 1.1 and MUS 1.0 are incompatible and cannot co-exist on the same system.

If MUS 1.0 OP is installed in the system the user MUST uninstall this first before installing the new MUS 1.1 OP rpm file. This will ensure that there will be no file or driver conflicts between the two OPs.

4.1 Cleaning the system of a previous MUS 1.0 Install

Remove MUS 1.0 install file tree and binaries by using the uninstall script provided.

```
# /opt/toshiba/UNINSTALL/MUS_Uninstall
```

Important:

Also remove the independent elofousb-kmp kernel driver package using rpm uninstall

```
# rpm -ev elofousb-kmp-pae-1.0_3.0.13_0.27-4
# rpm -ev elofousb-kmp-default-1.0_3.0.13_0.27-4
```

4.2 MUS 1.1 OP Installation

Execute the following command:

```
# rpm -ivh toshiba-mus_op-suse-1.1-1.noarch.rpm
```

This installs just the basic upgrade mechanisms. No Upgrade Tasks are installed yet.

4.3 MUS 1.1 UP Installations

Each Upgrade Task is contained in its own RPM package.

These RPMs will install UP Task files under a folder called ***opt/toshiba/mus/UpdateTasks/***. Each task (video, touch, touch configuration) will be installed into its appropriate part of the sub-tree.

Currently known UP Tasks :

- **Elo Touch Configuration Update**
  File Name: toshiba-mus1.1_up_2xx5xx_touch-config_elo-1.0-1.noarch.rpm

- **4820-2Lx/5Lx USB touch monitor Touch Firmware Upgrade**
  File required: toshiba-mus1.1_up_2Lx5Lx_touch-fw_0103-1.0-1.noarch.rpm
  Firmware Level: 0460-00-C

- **4820-2Lx/5Lx USB touch monitor Video Firmware Upgrade**
  File required: toshiba-mus1.1_up_2Lx5Lx_video-fw_0106-1.0-1.noarch.rpm
  Firmware Level: V06

- **4820-21x/51x USB touch monitor Touch Firmware Upgrade**
  File required: toshiba-mus1.1_up_21x51x_touch-fw_010d-1.0-1.noarch.rpm
  Firmware Level: 0459-00-MCS

- **4820-21x/51x USB touch monitor Video Firmware Upgrade**
  File required: toshiba-mus1.1_up_21x51x_video-fw_0132-1.0-1.noarch.rpm
  Firmware Level: V32

A user may install "by hand" with RPM or Auto-install new UP Tasks by "dropping" the RPM package into a special folder called ***/opt/toshiba/mus/RpmUpdates*** and having them installed at boot time.

4.3.1 Install by hand

#rpm -ivh toshiba-mus1.1_up_21x51x_touch-fw_010d-1.1-1.noarch.rpm

4.3.2 Install at boot time(via RpmUpdates directory).

The */opt/toshiba/mus/RpmUpdates* **directory**

This is the directory where the UP RPMs must be placed when there are new UP available. This RPMS will get installed by the Monitor Upgrade Service on the next system reboot. After uninstall the RPM package will be removed from this directory.

5 MUS 1.1 UNINSTALLATION

5.1 MUS 1.1 UP Un-installation

Tasks may be uninstalled by a user via RPM at any time. This is not done by the Monitor Upgrade Service.

5.2 MUS 1.1 OP Un-installation

Run the script "***mus_uninstall_script"*** found at the directory ***/opt/toshiba/mus***

This script takes care of dependencies created by the UP installations.

Note:
Running an rpm command to uninstall the OP rpm will fail when one or more UP(s) are installed.

(i.e. # rpm -ev toshiba-mus_op-suse-1.1-1.noarch.rpm)

6 How MUS Works

The Monitor Upgrade Service is installed as a Linux Service. It will run at boot time.

In the Normal case the Monitor Upgrade Service will run a Normal Update Cycle.

If there are recoverable failure scenarios encountered during the Normal Update Cycle the Monitor Upgrade Service will stop processing upgrades and reboot again in order to run a Recovery Cycle. A recoverable failure is one where the manufacturer has provided failure recovery as part of their supplied utility. An example of a recoverable failure scenario is when power is removed from the Monitor during the actual byte transfer update part of a video firmware update task for 4820.

Recoverable Scenarios:

1. Interruption when touch firmware flashing - 4820 2LX5LX Only
2. Interruption when video firmware flashing

Note: Configuration updates do not have any built-in recovery mechanism.

6.1 Normal Update Cycle

1. MUS will install any UP Task RPM packages it finds in RpmUpdates - if it is not already installed – and will then move the RPM files for successfully installed packages to: **/opt/toshiba/mus/ProcesssedRpms**

2. After installing the UP Task RPM a new sub-tree folder corresponding to that update level is created

   Example: ***opt/toshiba/mus/UpdateTasks/Touch/toshiba-mus1.1_up_21x51x_touch-fw_010d/***

3. MUS will then check if there are any appropriate installed update tasks to be executed for any of the currently connected monitors.

   This is done by comparing the current update level (both touch and video) of all attached monitors to the current greatest update level in all UP Task manifests.

4. MUS will then execute all the necessary update tasks in sequence (one or many).

5. Configuration Tasks will always be applied. This is much faster than querying USB controller devices and then deciding whether update is needed.

6. All tasks will be attempted and will only abort the processing if there is a task failure. If a task failed, then MUS will abort. If the task is recoverable MUS will then reboot and perform a recovery cycle – see below.

7. If there is no error then after any and all tasks are completed MUS will exit. There will be no reboot required.

6.2 Recovery Update Cycle

1. The recoverable task will be re-attempted using the specific recovery processing by the vendor support utility.

2. If recovery routine is successful, MUS will reboot the system one more time to put it back to working state

3. If the recovery fails MUS will try to attempt recovery one more time.

4. If (all) recovery attempts have failed MUS will exit the Recovery cycle and then reboot the system to Normal update cycle. RECOMMENDED PROCEDURE at this point is to unplug and remove the affected monitor. Field Support may be required.

5. If the recovery succeeds MUS will exit and reboot the system to bring it to a consistent state and boot into Normal update cycle.

7 Updating Touch Configurations

1. Install UP rpm for Touch Config
2. Modify the config file "*/opt/toshiba/mus/UpdateTasks/TouchConfig/EloTouch/eloConfigOpt.ini* " for desired settings.
3. Reboot the system
4. All attached monitors now should show the Touch configurations specify in the config file.

8 Updating Touch Firmware

1. Install UP rpm for new Touch Firmware or place this UP rpm at /opt/toshiba/mus/RpmUpdates folder for auto install on boot-time.
2. Reboot the system
3. All attached designated monitors will now have the new Touch Firmware level.

9 Updating Video Firmware

1. Install UP rpm for new Video Firmware or place this UP rpm at /opt/toshiba/mus/RpmUpdates folder for auto install on boot-time.
2. Reboot the system
3. All attached designated monitors will now have the new Video Firmware level.

10 MUS Directory Structure

Describe below are the well - known directories that the user can refer to about MUS.

10.1 MUS base directory

This will be the root directory for all of the upgrade solution functionality containing:

- OP support scripts (ex. ELO,SAMPO)
- UP RPM Directories
- Update Tasks Folder

MUS ROOT DIRECTORY

 # /opt/toshiba/mus/

10.2 Logs Directory

This directory contains the log for all MUS operations including OP Installation ,log history and the latest MUS log.

OP_INSTALLATION:

 # /var/log/toshiba/mus/op_installation/

LOG HISTORY:

 # /var/log/toshiba/mus/history/

LATEST LOG:

 # /var/log/toshiba/mus/latest/