

POS Monitor Upgrade Solution for Windows User's Guide

Version: 2.0

June 2014

This edition applies to Version 2.0 of the POS Monitor Upgrade Solution for Windows and to all subsequent releases and modifications until otherwise indicated in new editions.

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1 Introduction to the Monitor Upgrade Solution (MUS)

The Monitor Upgrade Solution (or MUS) is the new solution by Toshiba Global Commerce Solutions to perform *silent and unattended* updates of the touch and video firmware for Toshiba SurePoint Display 4820 (21x, 51x), SurePoint Display 4820 (2Lx, 5Lx), TCxWave 6140 (Model 10x, E1x, 12x, E2x), TCxWave 6140 (Model A3x, E3x) and TCx Display 6149 (Model 5Cx) touch monitors. The solution is packaged as an InstallScript(MSI) executable. The MUS uses a Windows Win32 service (the Monitor Upgrade Service) to assist with touch and video firmware updates.

The MUS does not include touch and video drivers for the supported monitors. These drivers may be considered pre-requisites or optional to MUS installation.

2 MUS Overview

The Monitor Upgrade Solution is composed of two installation packages. The first is the Operational Package (OP) which installs the software and utilities required to perform touch and video firmware upgrades. The second is the Upgrade Package (UP) which contains the files used for updating touch and video firmware.

2.1 Windows OS Support

The following are the Microsoft Windows operating systems supported by the MUS:

- POSReady 2009 – 32Bit
- Windows 7 – 32/64 Bit
- POSReady 7 -32/64 Bit
- Windows Embedded 8.1 Industry Pro 64 Bit

2.2 Operational Package (OP)

The Operational Package will install the software and utilities required to perform touch and video firmware upgrades.

2.2.1 File format

The Operational Package is an InstallScript(MSI) executable file.

File: **Monitor Upgrade Solutions 2.0.exe**

2.2.2 Components of the OP

The components included in the Operational Package are:

1. Utilities used to upgrade video and touch firmware
2. The Toshiba Monitor Upgrade Service

2.2.3 OP Installation Requirements

The installation of the OP requires:

1. The user must have Administrator authority.
2. If not TCxWave 6140 (Model 10x, E1x, 12x, E2x) machine, related touch drivers are optional before installing OP:
 - ELO Touch Driver (for SurePoint Display 4820)
 - Ocular Touch Driver (for TCx Display 6149)

NOTE: SurePoint Display 4820 monitors' firmware update will not work unless the ELO touch drivers are installed.

3. If TCxWave 6140 (Model 10x, E1x, 12x, E2x) machine, related touch drivers are optional before installing OP:
 - 3M Touch Driver (install this driver only with TCxWave 6140 (Model 10x, E1x, 12x, E2x))
 - ELO Touch Driver (for SurePoint Display 4820)
 - Ocular Touch Driver (for TCx Display 6149)

NOTE: TCxWave 6140 touch firmware update will not work unless 3M Touch Driver is installed.

4. If TCxWave 6140 (Model A3x, E3x) machine, related touch drivers are optional before installing OP:
 - ELO Touch Driver (for SurePoint Display 4820)
 - Ocular Touch Driver (for TCxWave 6140 and TCx Display 6149)

NOTE: TCxWave 6140 (Model A3x, E3x) touch firmware update will still work even without the driver installed.

5. The machine needs to be enabled for automatic login. The installation of the OP requires at least a single system reboot with processing performed on the restarting of the machine.

2.3 Upgrade Package (UP)

The Upgrade Package will provide the updated touch and video firmware files along with needed configuration files to enable the firmware upgrades.

2.3.1 File format

The Upgrade Package is a self-extracting executable file.

Example: **Toshiba_4820_21x51x_VideoFW_UP_vx.xx.exe** (where x.xx is the version and release of the UP)

2.3.2 Components of the UP

Depending upon the firmware upgrade package type (video or touch firmware upgrade), one or two of the following will be included in the UP:

1. Video firmware update file
2. Video firmware update configuration file
3. Touch firmware update file
4. Touch firmware update configuration file

There will be separate touch and video firmware UPs for monitors supported. These UPs will be available to the customer upon request. The following are the UPs available:

1. **Toshiba 4820 21x51x TouchFW UP vx.xx.exe**
 - SurePoint Display 4820 (21x, 51x) Touch
2. **Toshiba 4820 21x51x VideoFW UP vx.xx.exe**
 - SurePoint Display 4820 (21x, 51x) Video
3. **Toshiba 4820 2Lx5Lx TouchFW UP vx.xx.exe**
 - SurePoint Display (4820 2Lx, 5Lx) Touch
4. **Toshiba 4820 2Lx5Lx VideoFW UP vx.xx.exe**
 - SurePoint Display (4820 2Lx, 5Lx) Video
5. **Toshiba 6140 TouchFW UP vx.xx.exe**
 - TCxWave 6140 (Model 10x, E1x, 12x, E2x)
6. **Toshiba 6140A30Ocular TouchFW UP vx.xx.exe**

- TCxWave 6140 (Model A3x, E3x) Touch FW and Configuration
- 7. Toshiba 6140A30Ocular TouchCfg UP vx.xx.exe
 - TCxWave 6140 (Model A3x, E3x) Touch Configuration only
- 8. Toshiba Ocular TouchFW UP vx.xx.exe
 - TCx Display 6149 (Model 5Cx) Touch
- 9. Toshiba 6149 VideoFW UP vx.xx.exe
 - TCx Display 6149 (Model 5Cx) Video

NOTE: x.xx is the release version of the UP.

Example:

Toshiba_4820_21x51x_TouchFW_UP_v2.01.exe

2.3.3 UP Installation Requirements

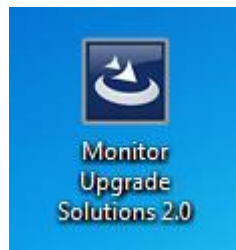
The installation of the UP requires:

1. The user must have Administrator authority.
2. The machine needs to be enabled for automatic login. The firmware upgrade process will only proceed when rebooting the system after UP installation.

3 Using the MUS

3.1 OP Installation

The OP can be downloaded from the Toshiba Global Commerce Solutions support Web site. Once the OP has been downloaded it can be run by double clicking on the file (executing the file requires Administrator authority).



Related touch drivers, please refer to OP installation requirements, need to be installed prior to installing the OP. After installing the OP, there is no possible update yet. The possible update happens once the system is rebooted. The system should not be used once the OP has been started until the OP has finished running. For Windows Embedded 8.1 Industry Pro x64, please refer to section 8.

3.2 OP Installation Sequence

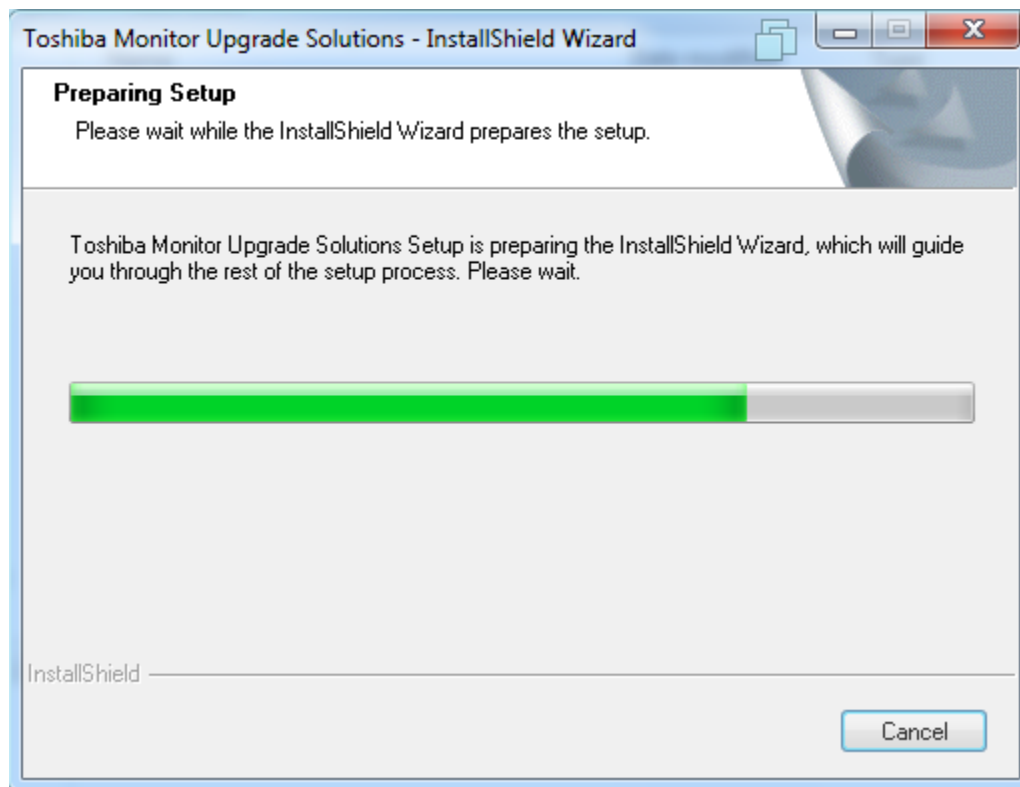


Figure 1: Preparation message when installing Monitor Upgrade Solutions

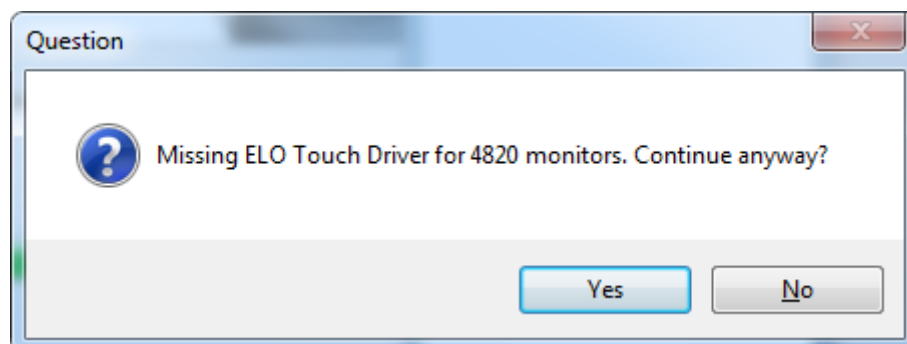


Figure 2: Message about missing component; just click Yes.

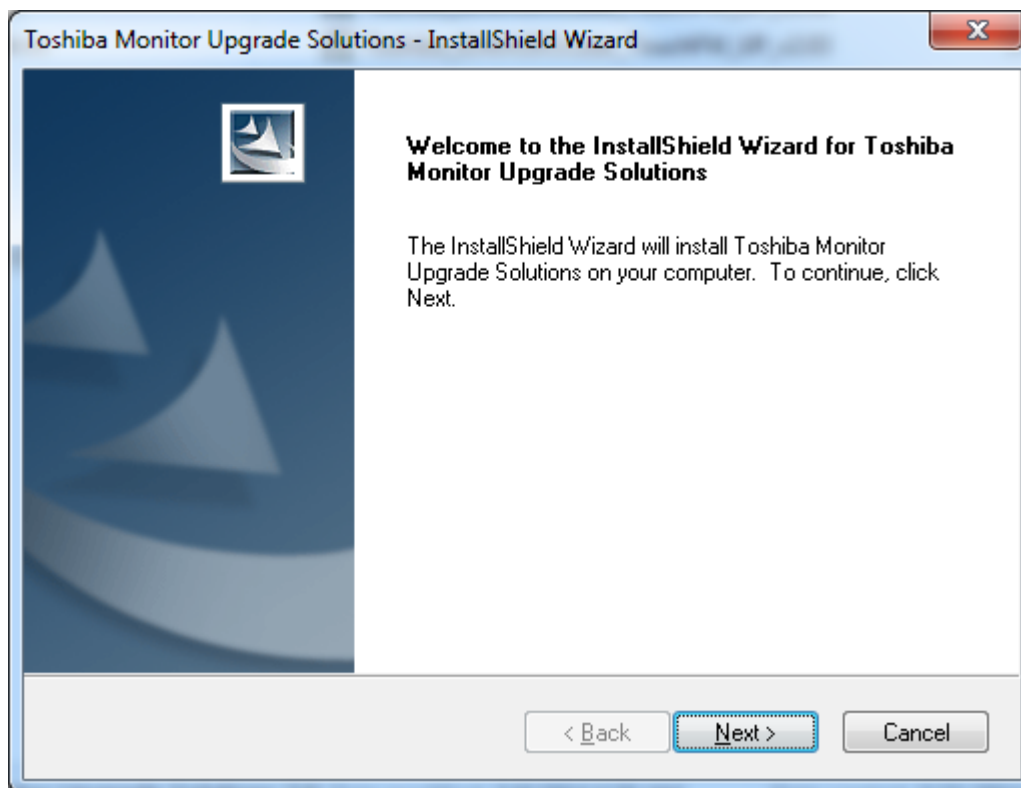


Figure 3: InstallShield wizard announcement; just click Next

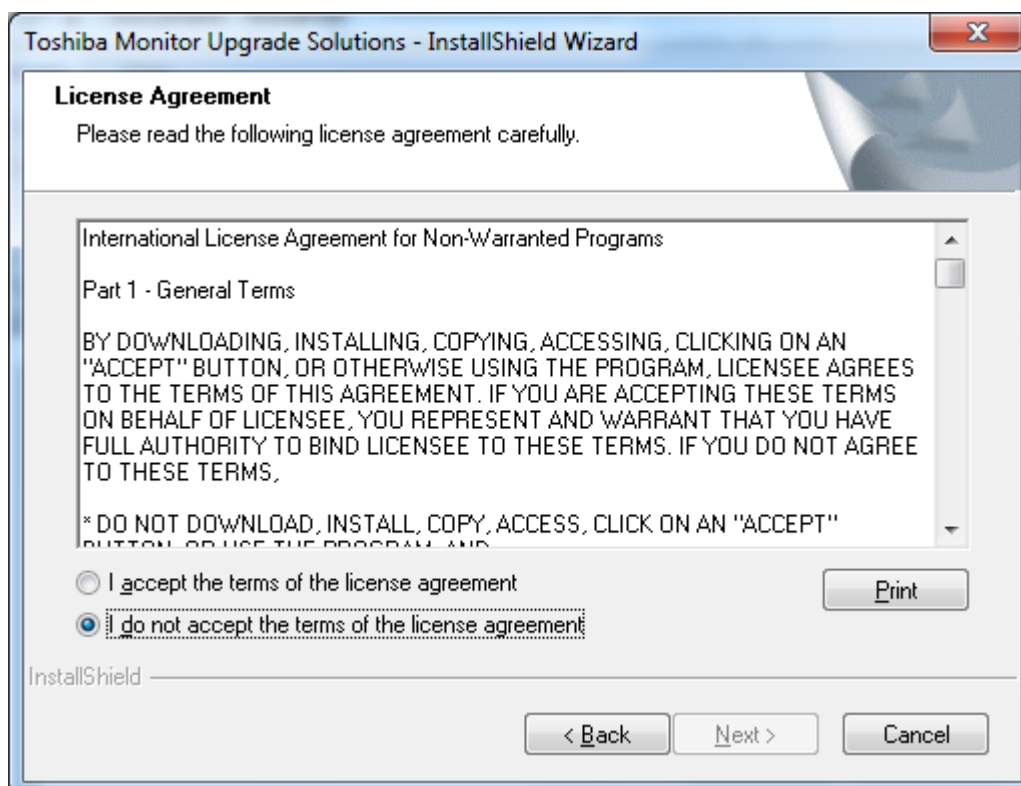


Figure 4: License agreement panel. Click on accept radio button and then Next to continue

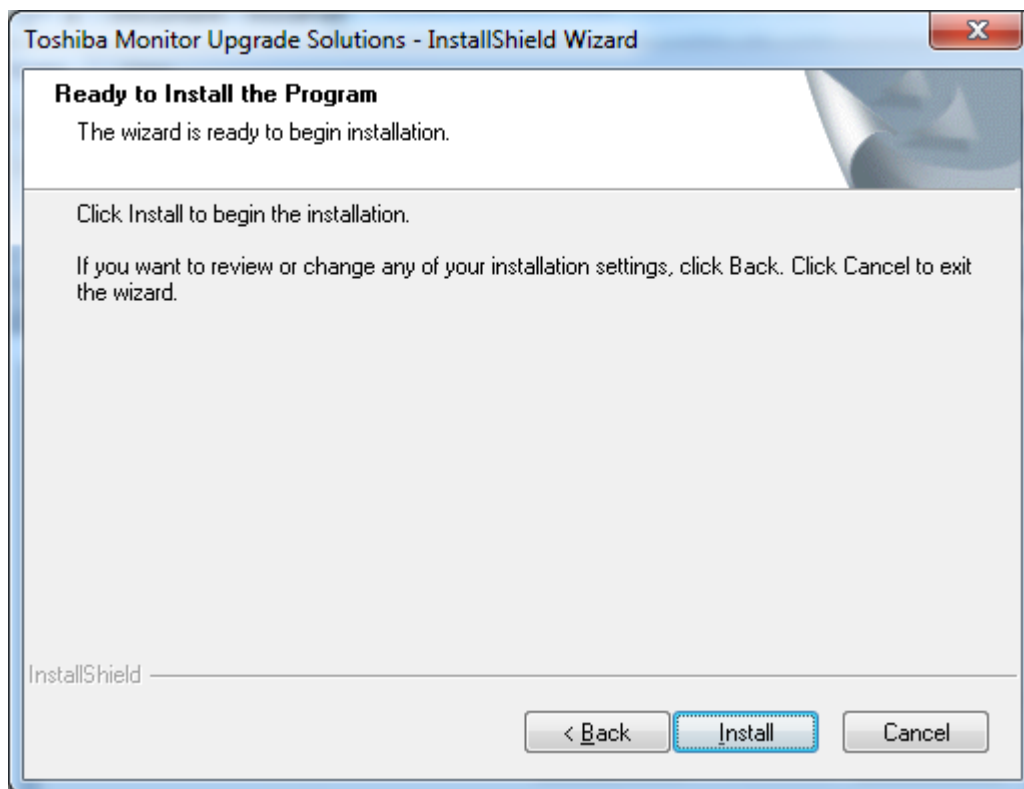


Figure 5: Ready to install; click Install

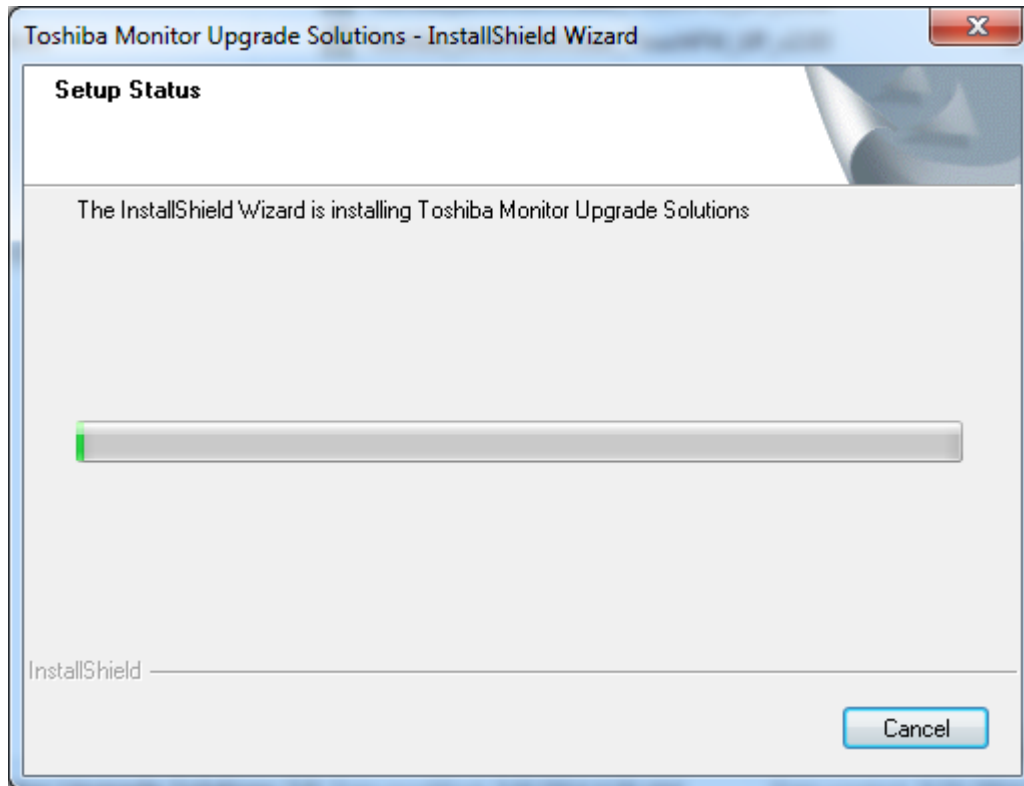


Figure 6: Setup Status bar

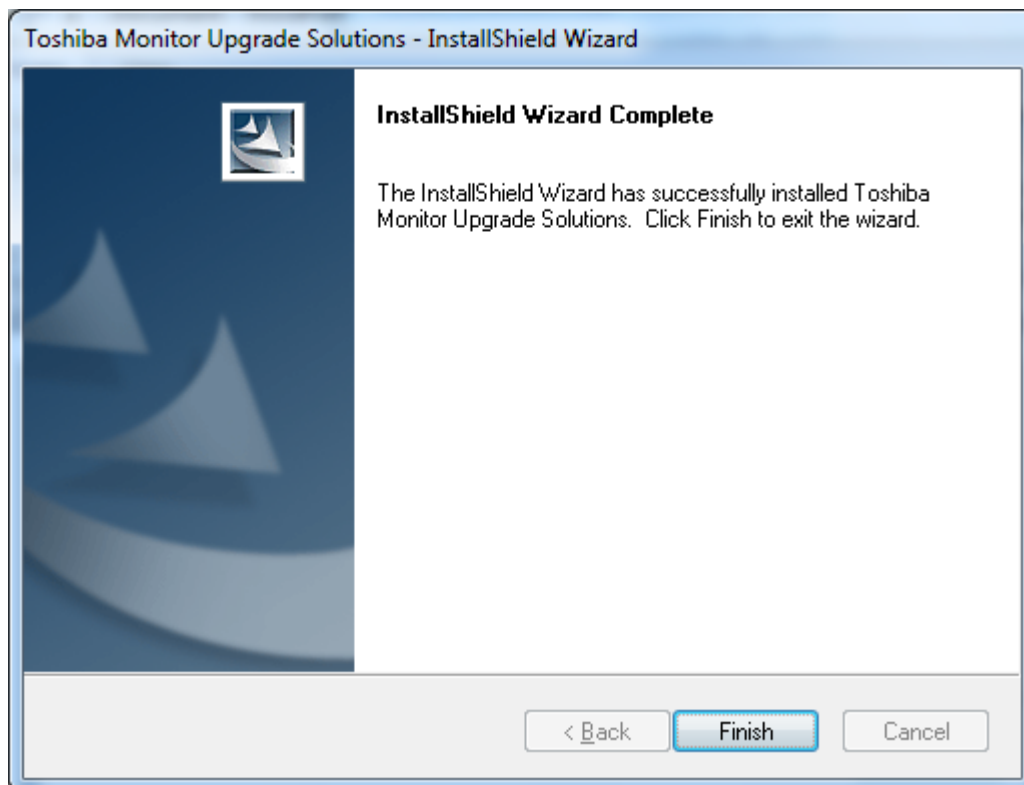


Figure 7: Install complete; click Finish

3.3 OP Installation Verification

After the OP has completed execution, installation of the software can be verified by viewing the list of installed software on Windows (the Add or Remove Programs panel on POSReady 2009 or the Programs and Features panel on Windows 7 and POSReady 7). The following software should be included in the list of installed programs:

- Toshiba Monitor Upgrade Solutions

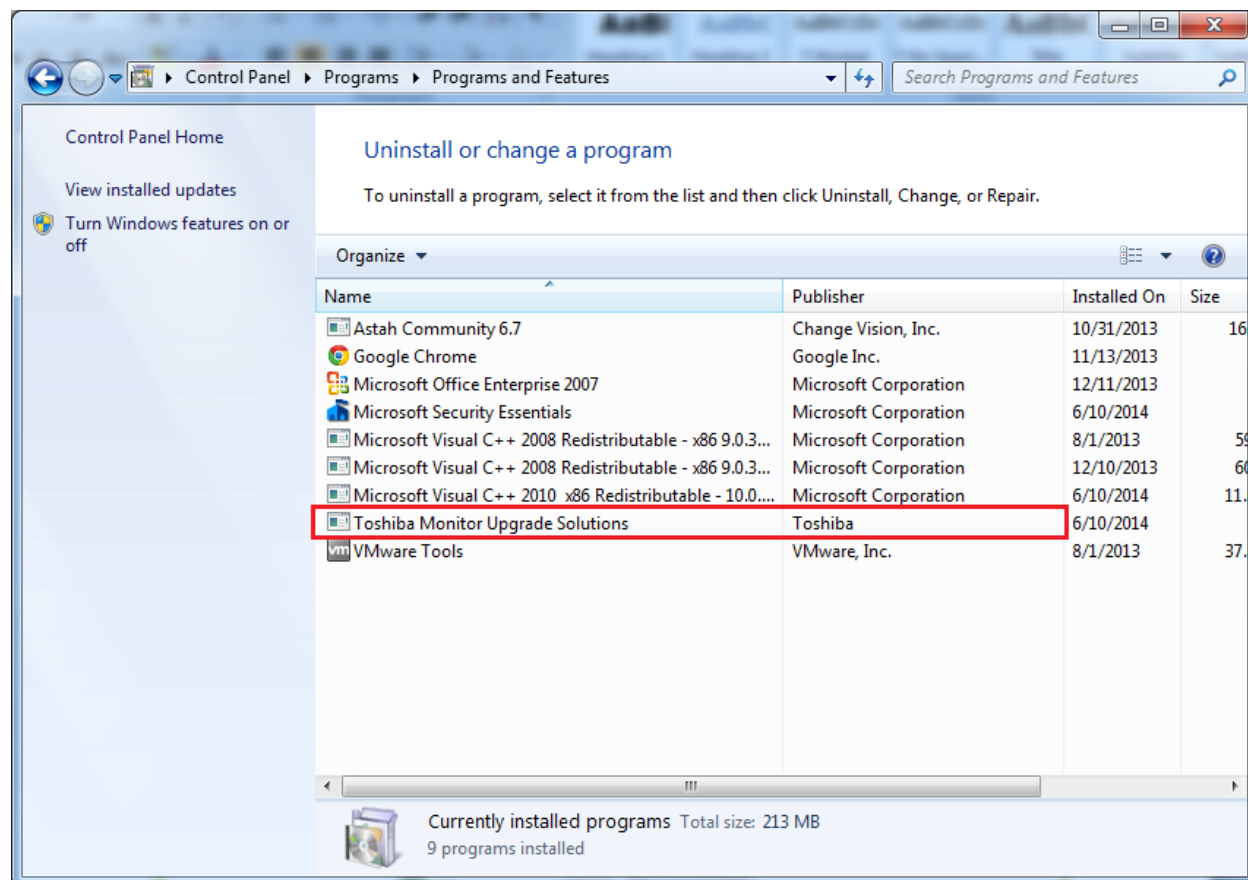


Figure 8: Installed MUS

Installation of the Monitor Upgrade Service can be verified by viewing the list of Windows services as shown in Figure 9.

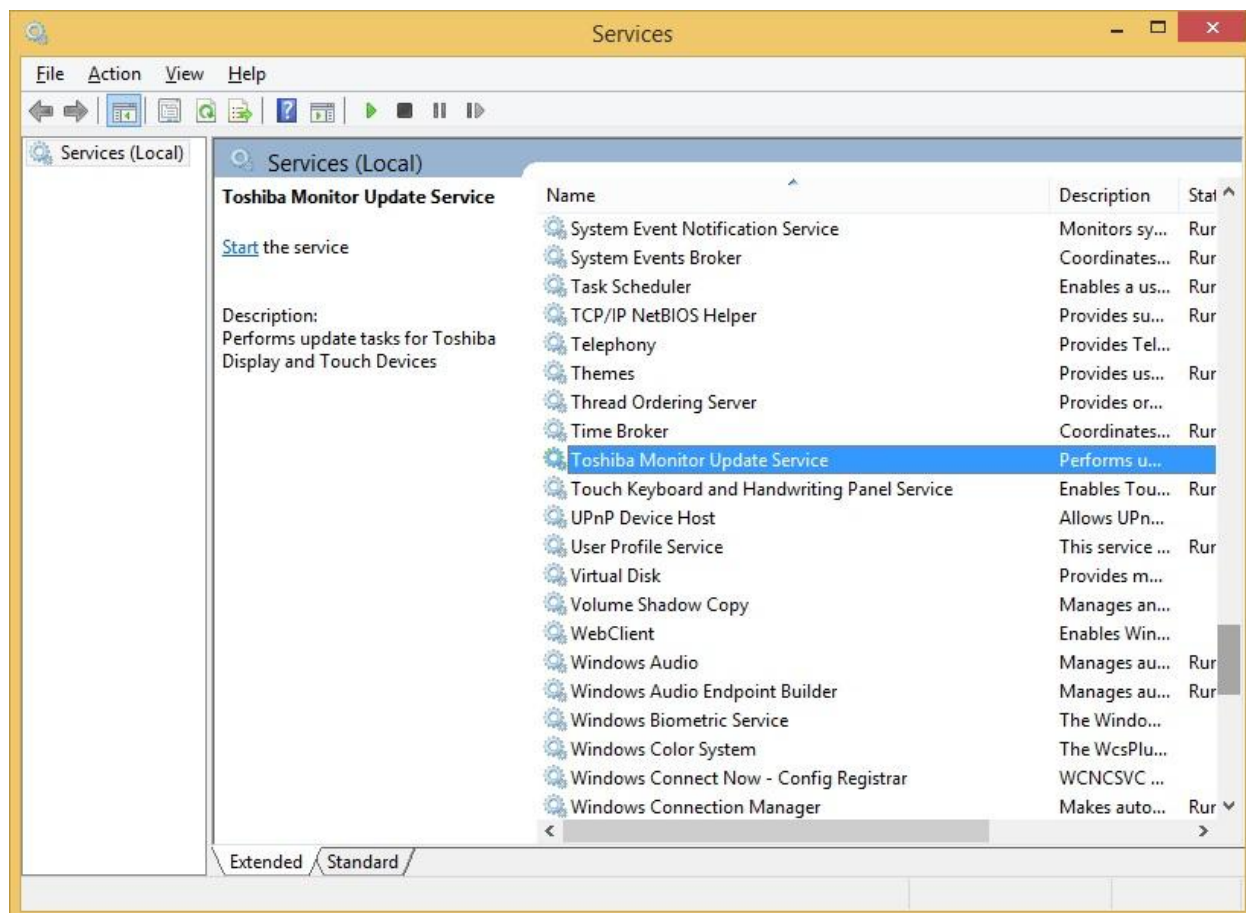


Figure 9: MUS Windows Service

3.3 UP Installation

The UPs can be downloaded from the Toshiba Global Commerce Solutions support Web site. It is only available per customer's request. Once UP is downloaded, always run the installer as Administrator. To do this, right-click on the UP installer .exe file then select "Run as administrator" as shown in Figure 10.

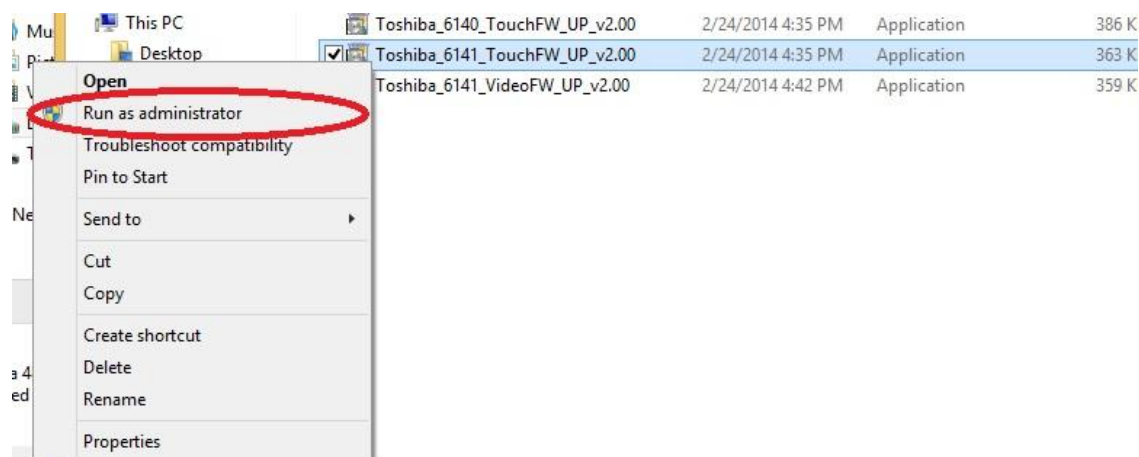


Figure 10: How to insall a UP

After installing the UP, firmware update mechanism will not run until the system is rebooted. So, it is necessary to reboot the system at least once after UP installation.

NOTE: In the case of updating a UP, run the new UP installer (see section 3.3 on how to install UP), and a backup of the existing Firmware directory will be created. There is no option to uninstall a UP unless OP is removed.

3.4 Log Files

Log files are created by the MUS which can be found at <**PROGRAM FILES**>\Toshiba\Monitor Upgrade Solutions\Logs as shown in Figure 11:

- AppState
 - Touch or video update utility logs.
 - Example: (TCx Display 6149 (Model 5Cx) Video Firmware Update)

```
Toshiba Firmware Update Utility

Version 1.0.0.8 (x64)
Licensed Materials - Property of Toshiba Global Commerce Solutions, Inc.

Copyright (C) 2013,2014 Toshiba Global Commerce Solutions, Inc., All Rights Reserved
=====
USB Flash Started at Fri Jun 06 11:30:48 2014

  Reading 'aipfwupdate.cfg' for flash configuration
Firmware files:
  AIP467A1_0_0122.dat          PID: 467a COMP: 0 TYPE: FW   EC=0122, Version='1'
VID=0f66:467a: Serial=41-00AK
  Caps      Usage=a000, UsagePage=ff45 InputReportByteLength=9
OutputReportByteLength=264 FeatureReportByteLength=262
  Input     UsagePage=ff45, ReportID=0, ReportCount=8 Usage=a002, DataIndex=0000
  Output    UsagePage=ff45, ReportID=0, ReportCount=263 Usage=a001, DataIndex=0000
  Feature   UsagePage=ff45, ReportID=0, ReportCount=261 Usage=a003, DataIndex=0000
VID=0f66:467a: Serial=41-00AK
  Caps      Usage=a000, UsagePage=ff45 InputReportByteLength=9
OutputReportByteLength=264 FeatureReportByteLength=262
  Input     UsagePage=ff45, ReportID=0, ReportCount=8 Usage=a002, DataIndex=0000
  Output    UsagePage=ff45, ReportID=0, ReportCount=263 Usage=a001, DataIndex=0000
  Feature   UsagePage=ff45, ReportID=0, ReportCount=261 Usage=a003, DataIndex=0000

Found 1 device with update interface
Found 1 device to check for updating
PID: 467a COMP: 00 TYPE: FW   EC: 0109 (SN='41-00AK')
PID: 467a COMP: 01 TYPE: CFG  EC: 0100 (SN='41-00AK')
PID: 467a COMP: 02 TYPE: FW   EC: 0104 (SN='41-00AK')
PID: 467a COMP: 03 TYPE: FW   EC: 0103 (SN='41-00AK')

Firmware file found: .\AIP467A1_0_0122.dat
  File - PID: 467a COMP: 00 TYPE: FW   EC: 0122
  Device - PID: 467a COMP: 00 TYPE: FW   EC: 0109 (SN='41-00AK')
  Starting firmware update of Product ID 467a COMP: 0
  EC level when complete should be 0122
VID=0f66:467a: Serial=41-00AK
  Caps      Usage=a000, UsagePage=ff45 InputReportByteLength=9
OutputReportByteLength=264 FeatureReportByteLength=262
  Input     UsagePage=ff45, ReportID=0, ReportCount=8 Usage=a002, DataIndex=0000
  Output    UsagePage=ff45, ReportID=0, ReportCount=263 Usage=a001, DataIndex=0000
  Feature   UsagePage=ff45, ReportID=0, ReportCount=261 Usage=a003, DataIndex=0000
Erase completed, now sending 442 firmware update records from file
..... %10 complete
..... %20 complete
..... %30 complete
..... %40 complete
..... %50 complete
..... %60 complete
..... %70 complete
..... %80 complete
..... %90 complete
..... %100 complete
Main part of firmware update done, now sending checksum
Checksums written
Reset to be done for PID 467a
Firmware update of Product ID 467a COMP: 0 finished, rc=0
Main component (0) of device 467a updated.
Sleeping for 2000 milliseconds before using device again
Updated 1 device
USB Flash ended at Fri Jun 06 11:30:58 2014
=====
```

- OP
 - MUS service log.
 - Example:

```

10/06/2014 10:59:13.446 P[0e68] T[0c9c] Trace >> _tmain
10/06/2014 10:59:13.448 P[0e68] T[0c9c] Info Starting 'Toshiba
POS Boot Task Service for Windows 2.0.0018' service
10/06/2014 10:59:13.448 P[0e68] T[0c9c] Debug Process - Creating
Task Manager
10/06/2014 10:59:13.448 P[0e68] T[0c9c] Debug TaskManager
Constructed
10/06/2014 10:59:13.448 P[0e68] T[0c9c] Debug RssHidDisplayList
Constructed
10/06/2014 10:59:13.448 P[0e68] T[0c9c] Debug HidDisplayManager
Constructed
10/06/2014 10:59:13.448 P[0e68] T[0c9c] Debug HidLib::initialise -
hid library ready
10/06/2014 10:59:13.448 P[0e68] T[0c9c] Trace RssHidDisplayList
Destroyed::getAllFirmwareLevels
10/06/2014 10:59:13.449 P[0e68] T[0c9c] Debug
RssHidDisplayList::clear()
10/06/2014 10:59:13.459 P[0e68] T[0c9c] Debug
RssHidDisplayList::enumerateHid - found supported flash chip -
vid=0x0f66, pid=0x467a, usage page=0xff45, usage=0xa000
10/06/2014 10:59:13.459 P[0e68] T[0c9c] Debug
RssHidDisplayList::isDeviceOnSupportedMonitor - ! ((vid==ELO_VENDOR_ID)
&& (pid==YANAK_TOUCH_PID_0030))
10/06/2014 10:59:13.459 P[0e68] T[0c9c] Debug
RssHidDisplayList::addRssHidFlash
10/06/2014 10:59:13.459 P[0e68] T[0c9c] Debug RssHidFlash
Constructed
10/06/2014 10:59:13.478 P[0e68] T[0c9c] Debug MCU: FF0001
Informational Record Bytes:
10/06/2014 10:59:13.479 P[0e68] T[0c9c] Debug 00 01 20 10 ff 00 01
00
10/06/2014 10:59:13.479 P[0e68] T[0c9c] Debug 22 01 00 01 07 01 01
02
10/06/2014 10:59:13.479 P[0e68] T[0c9c] Debug 10 01 00 03 07 01 00
00
10/06/2014 10:59:13.480 P[0e68] T[0c9c] Debug 00 00 00 00 00 00 00
00
10/06/2014 10:59:13.609 P[0e68] T[0c9c] Debug
RssHidDisplayList::enumerateUsb - cannot parse dev path for device ids,
it may be a root hub anyway error=0x00000000 - continuing ...
10/06/2014 10:59:13.609 P[0e68] T[0c9c] Debug
RssHidDisplayList::enumerateUsb - cannot parse dev path for device ids,
it may be a root hub anyway error=0x00000000 - continuing ...
10/06/2014 10:59:13.610 P[0e68] T[0c9c] Debug Port: 1 - Device:
0000:0000 0000 - Connection Status = 0
10/06/2014 10:59:13.617 P[0e68] T[0c9c] Debug
RssHidDisplayList::addRssUsbFlash
10/06/2014 10:59:13.618 P[0e68] T[0c9c] Debug RssUsbFlash
Constructed
10/06/2014 10:59:13.618 P[0e68] T[0c9c] Debug Port: 4 - Device:
0000:0000 0000 - Connection Status = 0
10/06/2014 10:59:13.715 P[0e68] T[0c9c] Debug
TaskManager::Initialise - Initialised Ok
10/06/2014 10:59:13.715 P[0e68] T[0c9c] Debug HidDisplayManager
Destroyed
10/06/2014 10:59:13.715 P[0e68] T[0c9c] Debug
RssHidDisplayList::clear()
10/06/2014 10:59:13.715 P[0e68] T[0c9c] Debug
***** HidIo::terminate
*****

```

- UP
 - Logs captured after installing a UP.
 - Example: (Toshiba_4820_2Lx5Lx_TouchFW_UP_v2.01.exe)

```

2013:09:04 2:25:36 Starting OP Installation Package stage script...
2013:09:04 2:25:36 Running on a 64-bit system...
2013:09:04 2:25:36 C:\Program Files (x86)\Toshiba\Monitor Upgrade
Solutions\Results
2013:09:04 2:25:36 C:\Program Files (x86)\Toshiba\Monitor Upgrade
Solutions\Updates\Touch\Elo\4820_2Lx5Lx
2013:09:04 2:25:36 C:\Program Files (x86)\Toshiba\Monitor Upgrade
Solutions\Updates\Touch\Elo\4820_2Lx5Lx\Firmware
2013:09:04 2:25:36 HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Toshiba\Monitor
Upgrade Solutions
HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Toshiba\Monitor Upgrade Solutions\2.0
2013:09:04 2:25:36 errorCode: 0
2013:09:04 2:25:36 Staging firmware files...
2013:09:04 2:25:36 Firmware Path: "C:\Program Files (x86)\Toshiba\Monitor
Upgrade Solutions\Updates\Touch\Elo\4820_2Lx5Lx\Firmware"
2013:09:04 2:25:36 Logging the results after staging the firmware files...
2013:09:04 2:25:36 Check the result file "C:\Program Files
(x86)\Toshiba\Monitor Upgrade
Solutions\Results\4820_2Lx5Lx_EloTouch_UP_v2.01.status"
2013:09:04 2:25:36 v2.01

```



Figure 11: MUS Log Directory

3.6 OP Uninstall

The OP can be uninstalled from the Add or Remove Programs panel (POSReady 2009) or the Programs and Features panel (Windows 7 and POSReady 7). For Windows 8.1, the OP can be uninstalled from the Control Panel-> Uninstall Programs. The program to uninstall is the Toshiba Monitor Upgrade Solutions. Uninstall will remove all MUS related binaries and utilities.

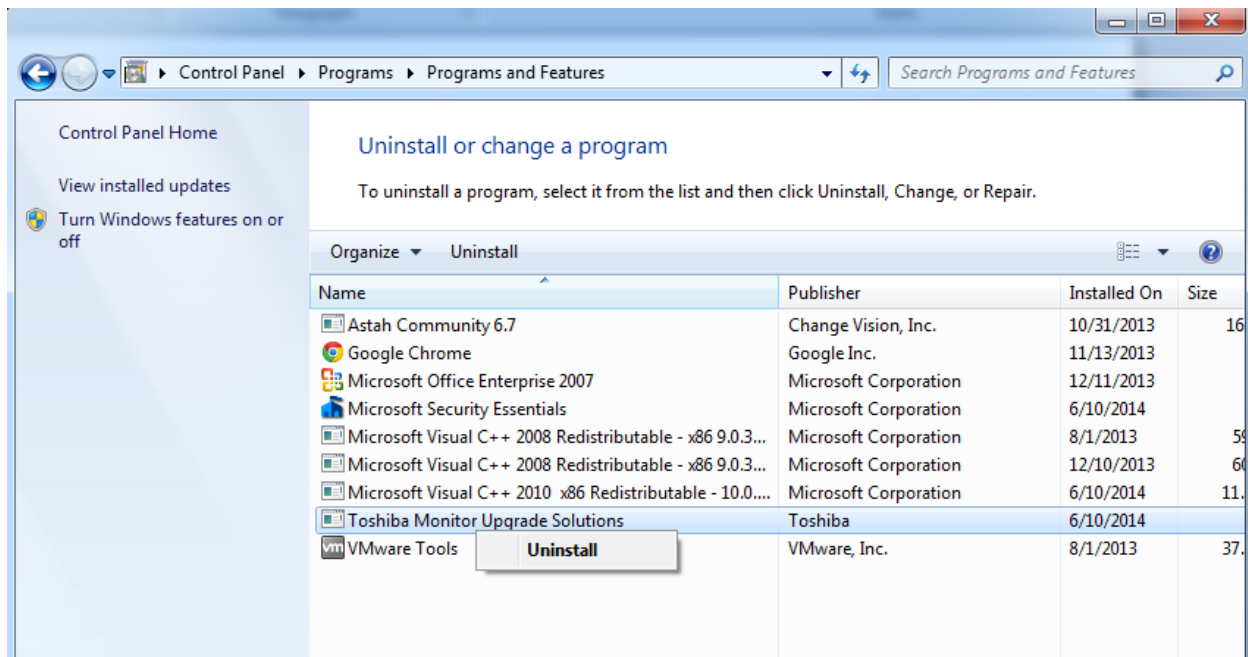


Figure 12: MUS Uninstall

4 MUS Directory Structure

The MUS installation directory can be found under <PROGRAM_FILES>\Toshiba\Monitor Upgrade Solutions as shown in Figure 13:

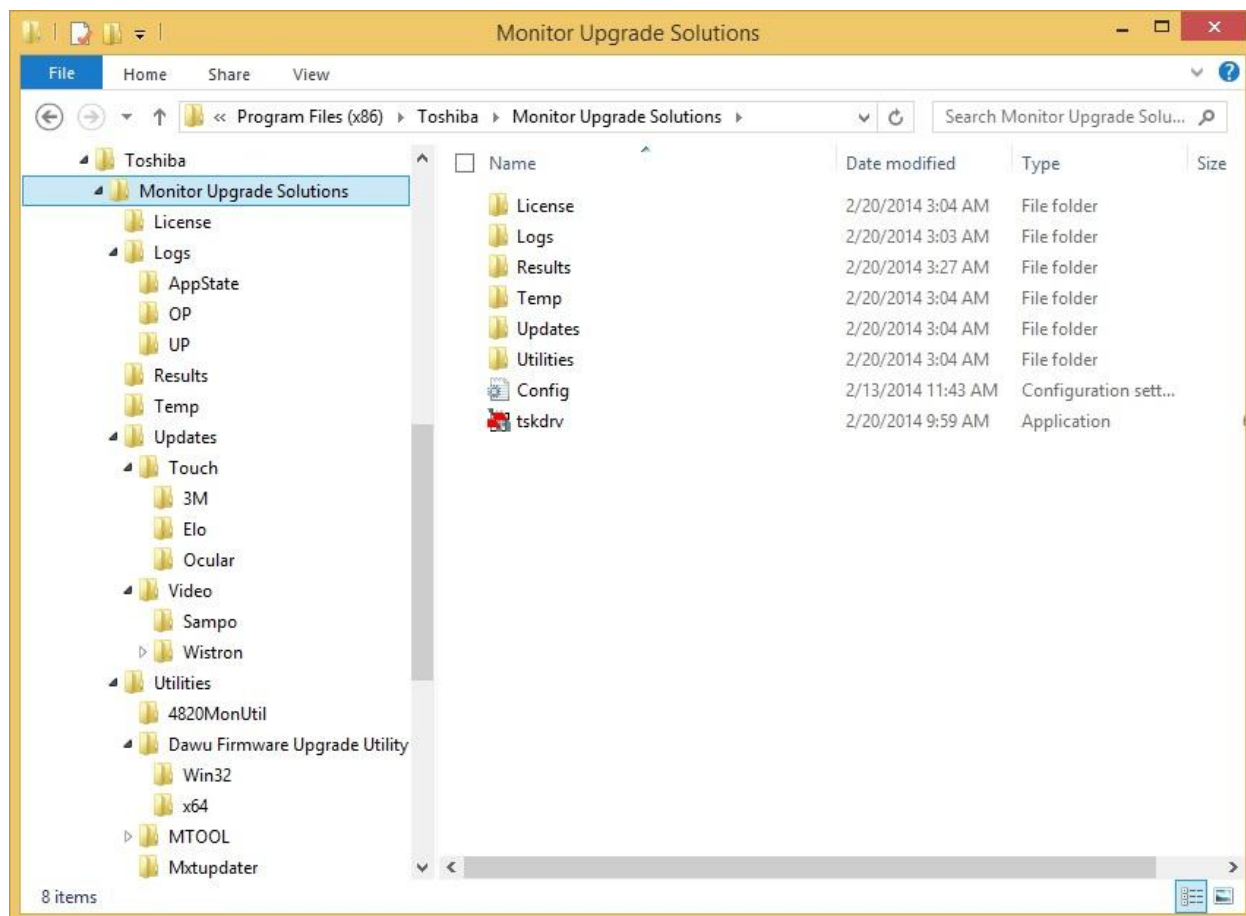


Figure 13: MUS Install Directory

5 Firmware Update

This is a sample update sequence of a TCx Display 6149 (Model 5Cx) Touch Firmware. It is very **IMPORTANT** not to touch or use the monitor when MUS is performing an update.

Figure 14 is the first notification shown by MUS when the system boots up from a reboot. Device initialization will take a minute.

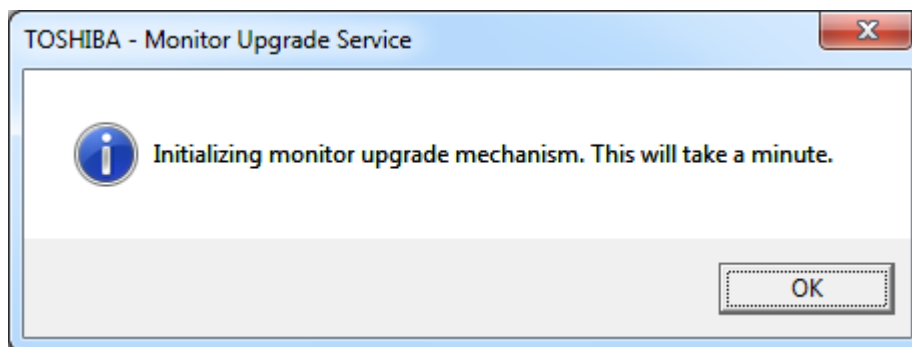


Figure 14: MUS initializes

Figure 15 shows the notification when there is a touch firmware update needed to be done for the TCx Display 6149 (Model 5Cx) device. The user notification will show up only for 10 seconds but the firmware update process is still on-going. It is very **IMPORTANT** not to touch or user the monitor at this stage. The firmware update process is only when Figure16 shows up.

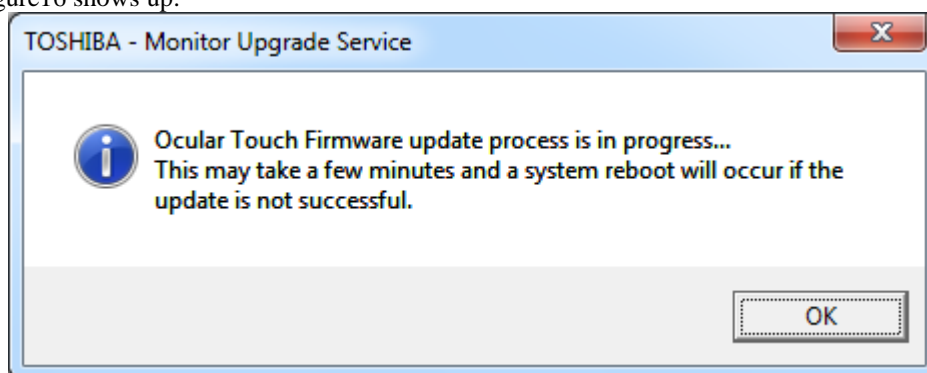


Figure 15: Firmware update

Figure 16 shows the notification when the firmware update is done and without issues.

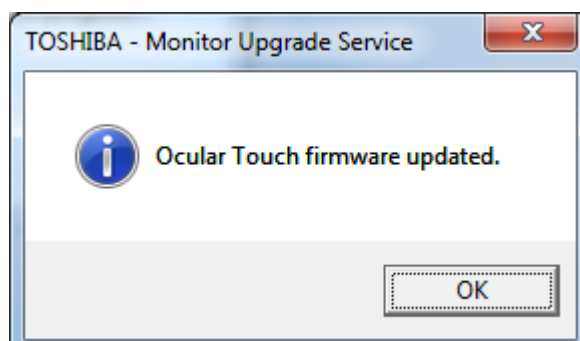


Figure 16: Done updating firmware

Figure 17 shows the notification when all firmware update is done.

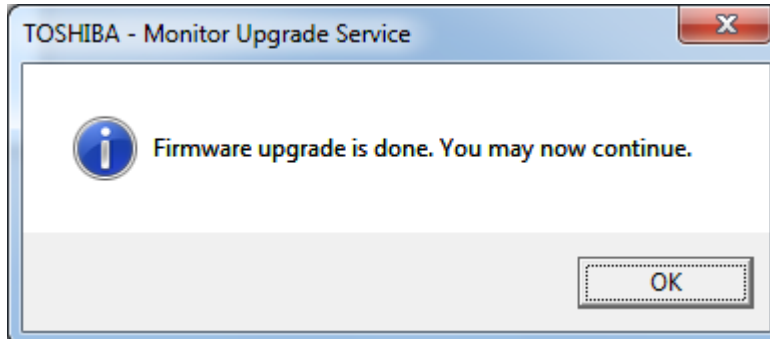


Figure 17: MUS is done

IMPORTANT: Please do not touch or use the monitor when MUS is performing an update.

6 Recovery

There are instances where the firmware update fails for some reason. The MUS is able to perform a recovery in such conditions. The following is the sequence when recovery occurs:

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.
5. RECOMMENDED PROCEDURE at this point is to unplug and remove the affected monitor. Field support may be required for TCxWave 6140 (Model 10x, E1x, 12x, E2x) and TCxWave 6140 (Model A3x, E3x). Please contact Toshiba Global Commerce Solutions support group.
6. If the recovery succeeds, MUS will exit and reboot the system to bring it to a consistent state and boot into normal update cycle.

NOTE: The duration of a single recovery, 1 firmware update, is approximately 10 minutes. The time may vary from system to system depending on its speed. The approximated time is from attempting to reboot the system, do the recovery routine, reboot the system again and boot to normal user session.

7 Ocular Firmware Update in Windows 7

When using the Ocular touch driver on a system with Windows 7 and the Intel USB 3.0 driver installed, updating the touch firmware requires some extra steps to complete. There are some incompatibilities in the dynamic load libraries between the two drivers that cause the Ocular ConfigUtil utility to not run.

7.1 Procedure

1. Open the Ocular Configuration Utility control panel and note the settings
 - a. Event Generation (Mouse/Drag, Click on Touch, or Click on Release)
 - b. Double-click speed
 - c. Double-click area
2. Un-install the Ocular driver
 - a. Under “All Programs” select Ocular and then the “Uninstall” option, or

- b. In the Control Panel under “Uninstall a program” select the Ocular driver
3. Install the MUS OP package
4. Install the MUS UP package for the device
5. Reboot for the update to take place
 - a. There will be an initial message indicating that firmware updates are in progress
 - b. When the update has finished a message will pop up indicating such (may take a few minutes)
6. Uninstall the MUS by going to the control panel and under “Uninstall a program” select the Monitor Upgrade Solutions
7. Reinstall the Ocular driver
8. Open the Ocular Configuration Utility control panel and set the parameters as noted in step #1
 - a. Event Generation
 - b. Double-click speed
 - c. Double-click area

8 Windows Embedded 8.1 Industry Pro x64 and MUS

In Windows 8.1, the default shutdown setting is different from earlier versions of Windows. By default, the "**Turn on fast startup (recommended)**" option is checked (enabled) and this option affects the behavior of Windows Win32 services when starting after a Shutdown.

The MUS Win32 service will not start on boot coming from a system shutdown if the fast startup is enabled. Figure 18 shows how to turn off the fast startup from the Power Options -> System Settings.

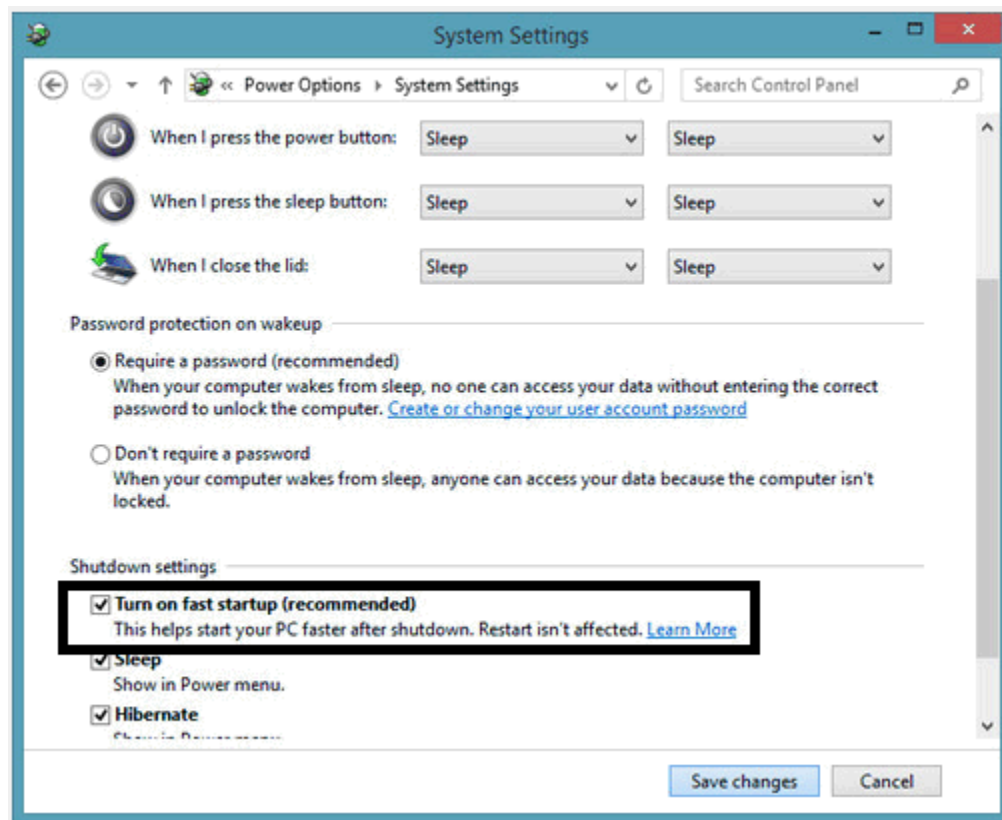


Figure 18: Turn off fast startup.

9 Known limitations and workarounds

1. MUS does not support unplugging of power USB cable from the attached TCx Display 6149 (Model 5Cx) monitor while a firmware update is ongoing. Doing so will cause undesirable damage to the firmware and perhaps to the monitor itself.