

# SuperMUTT

## Firmware Update Procedure

Revision 1.00

### Purpose

This document will go over how to update a SuperMUTT Super Speed compliance device including how to downgrade it and recover it from a corrupted state.

Revision	Date	Description	Contributors
1.00	7/28/2021	Initial Draft	Aaron Chan

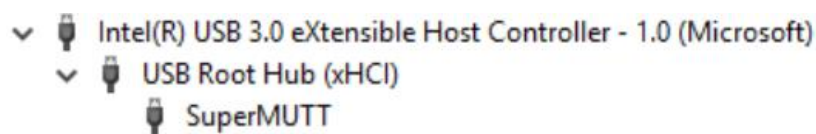
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## Update Procedures

These are the procedures for updating and downgrading the SuperMUTT firmware. If you are not able to find the SuperMUTT in Device Manager, please check the **Corrupted SuperMUTTs** section of this document.

### Upgrade SuperMUTT Firmware

1. Get the provided files necessary for updating the firmware from USB-IF or Microsoft.
2. Plug in SuperMUTT to your computer and check in Device Manager that it is loaded. It should be loaded as SuperMUTT under the USB port you plugged it into.



- a. If you have installed drivers for dealing with the corrupt SuperMUTT, it may be listed under USBTestDevice as MUTT WinUSB:



3. Open Command Prompt and change directories to the folder that has the firmware you want to update to.

**cd** <path/to/firmware/folder>

4. Update firmware. Depending on the revision, it may have different prerequisites and different commands for updating the SuperMUTT:

Firmware Revision	Prerequisites	Command
rev50	Make sure the following files are in the same directory: <ul style="list-style-type: none"><li>- FX3TestFirmware.img</li><li>- MuttUtil64.exe</li><li>- load_usb_if_firmware.cmd</li></ul>	load_usb_if_firmware.cmd
rev55 and higher	MuttUtil.exe (the executable provided to upgrade firmware)	MuttUtil.exe -updatefirmware

When the command is run, you should see the following on command prompt:

- a. List of devices before firmware update (Detect SuperMUTT's current version). Notice it says REV\_0055
- b. Output from firmware update (erasing EEPROM, flashing, etc)
- c. List of devices after firmware update (Detect SuperMUTT's newly flashed version). Notice it now says REV\_0056

```
C:\Users\AaronChan\Downloads\SuperMUTT firmware\rev56>MuttUtil.exe -updatefirmware
Looking for MUTT devices
List of devices before firmware update
:      : HARDWARE ID      : PROBLEM CODE : DRIVER
DEVICE : 0 : USB\VID_045E&PID_078F&REV_0055 :      0 : WinUSB
0: Updating device firmware from version 55 to version 56
Erasing EEPROM -- this takes approx 30 seconds
Writing core firmware image
Writing Table at sector 0x09
Writing Table at sector 0x0A
Writing Table at sector 0x0B
Writing Table at sector 0x0C
Writing Table at sector 0x0D
Writing Table at sector 0x0E
Writing Table at sector 0x0F
Writing Table at sector 0x10
Writing Table at sector 0x11
Writing Table at sector 0x12
Writing Table at sector 0x13
Writing Table at sector 0x14
Writing Table at sector 0x15
Writing Table at sector 0x08
0: Resetting device
List of devices after firmware update
:      : HARDWARE ID      : PROBLEM CODE : DRIVER
DEVICE : 0 : USB\VID_045E&PID_078F&REV_0056 :      0 : WinUSB
Return value: 0
```

5. Firmware is now updated. Check with USB3CV or XHCI CV using Device Summary to confirm the revision number.

## Downgrade SuperMUTT Firmware

If you want to go to a lower revision of the firmware, you will not be able to downgrade using the instructions above because the current firmware is a higher revision and treated as “up-to-date”.

The provided firmware does have the option to force-update the firmware, which will erase what is on the SuperMUTT and flash the firmware regardless of what is on it. **Note that doing this will potentially corrupt the SuperMUTT.**

Below is an example of downgrading from rev56 to rev55 using “forceupdatefirmware” but ends up corrupting the SuperMUTT. Notice that the revision number after the update does not match what we were trying to downgrade to. When this happens, please refer to the *Corrupted SuperMUTTs* section.

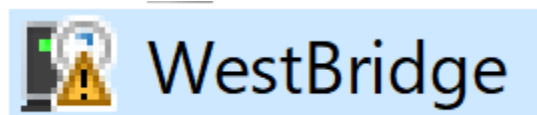
```
C:\Users\AaronChan\Downloads\SuperMUTT firmware\rev55>MuttUtil_v55.exe -forceupdatefirmware
Looking for MUTT devices
List of devices before firmware update
: : HARDWARE ID : PROBLEM CODE : DRIVER
DEVICE : 0 : USB\VID_045E&PID_078F&REV_0056 : 0 : WinUSB
0: Updating device firmware from version 56 to version 51
Erasing EEPROM -- this takes approx 30 seconds
Writing core firmware image
Writing Table at sector 0x09
Writing Table at sector 0x0A
Writing Table at sector 0x0B
Writing Table at sector 0x0C
Writing Table at sector 0x0D
Writing Table at sector 0x0E
Writing Table at sector 0x0F
Writing Table at sector 0x10
Writing Table at sector 0x11
Writing Table at sector 0x12
Writing Table at sector 0x13
Writing Table at sector 0x14
Writing Table at sector 0x15
Writing Table at sector 0x08
0: Resetting device
List of devices after firmware update
: : HARDWARE ID : PROBLEM CODE : DRIVER
DEVICE : 0 : USB\VID_04B4&PID_00F3&REV_0100 : 0 : WinUSB
Return value: 0
```

## Corrupted SuperMUTTs

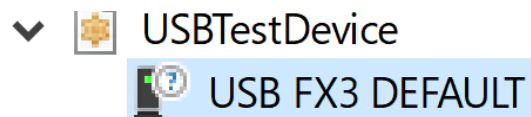
Corrupted SuperMUTTs will appear in two forms in Device Manager depending on whether or not the computer you are using has installed the drivers from already having dealt with a corrupt SuperMUTT before.

### Under Device Manager:

- a. On computers that have not dealt with corrupt SuperMUTTs, it appears as High Speed device “WestBridge”



- b. If computer has dealt with corrupted SuperMUTTs, it should have drivers installed and the SuperMUTT should appear as USB FX3 DEFAULT:



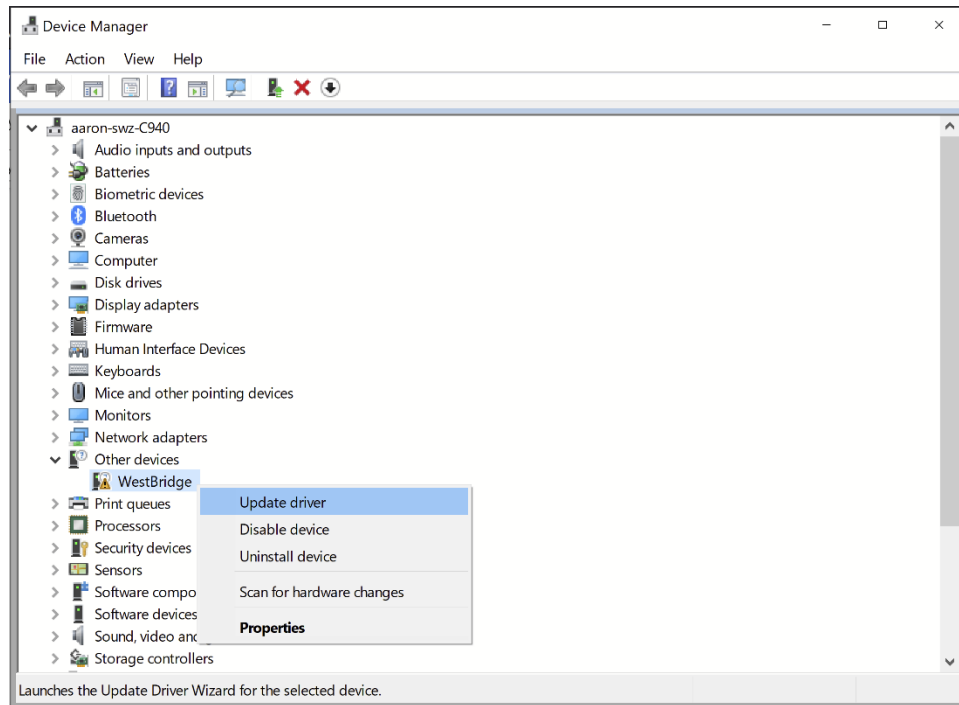
Using Device Summary on xHCI CV or USB3CV, you will see the following output for the corrupted SuperMUTT:

```
INFO      Host VEN = 1b21h
INFO      Host DEV = 2142h
INFO      Host Revision number = 0h
INFO      Host HCI Version = 110
INFO      Device is attached to port 4
INFO      USB Version: 2.00
WARNING   Couldn't open vendor name file usbif.json.
WARNING   Failed to get vendor information for Vendor ID : 04B4.
INFO      Device Product ID : 243 (0xf3)
INFO      Device Revision (bcdDevice) : 0x0100
INFO      Checking iProduct String Descriptor: index = 0x02.
INFO      String Descriptor : "WestBridge " (ENGLISH_US)
INFO      Device Type : unknown
INFO      Device Speed : High Speed
INFO      Number of configurations device supports : 1
INFO      Got configuration descriptor for config index : 0
INFO      Full length of configuration descriptor is 18 bytes
INFO      Max Power : 200mA
INFO      Self-powered : No
INFO      Remote Wakeup : No
INFO      Number of interfaces device supports : 1
INFO      Descriptor for interface 0
INFO      Interface descriptor bInterfaceClass is vendor-specific
```

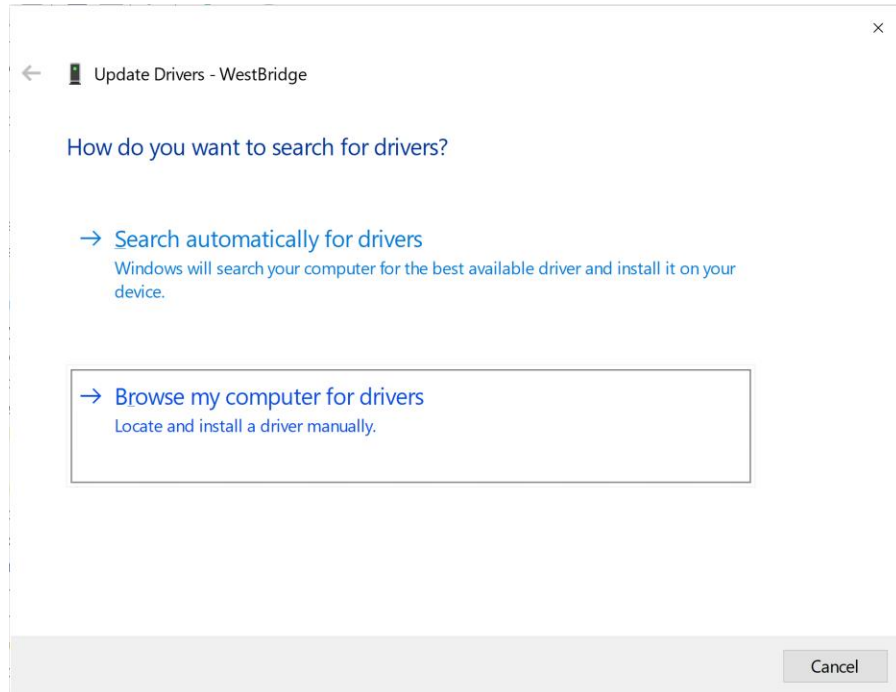
## Install Driver for SuperMUTT

If the computer has not fixed corrupted SuperMUTTs before, you will need to install the drivers first.

1. Get the SuperMUTT software package, which the download link can be found here:  
<https://docs.microsoft.com/en-us/windows-hardware/drivers/usbcon/microsoft-usb-test-tool--mutt--devices>
2. From there, open Device Manager and right click on the Westbridge device and **Update driver**.

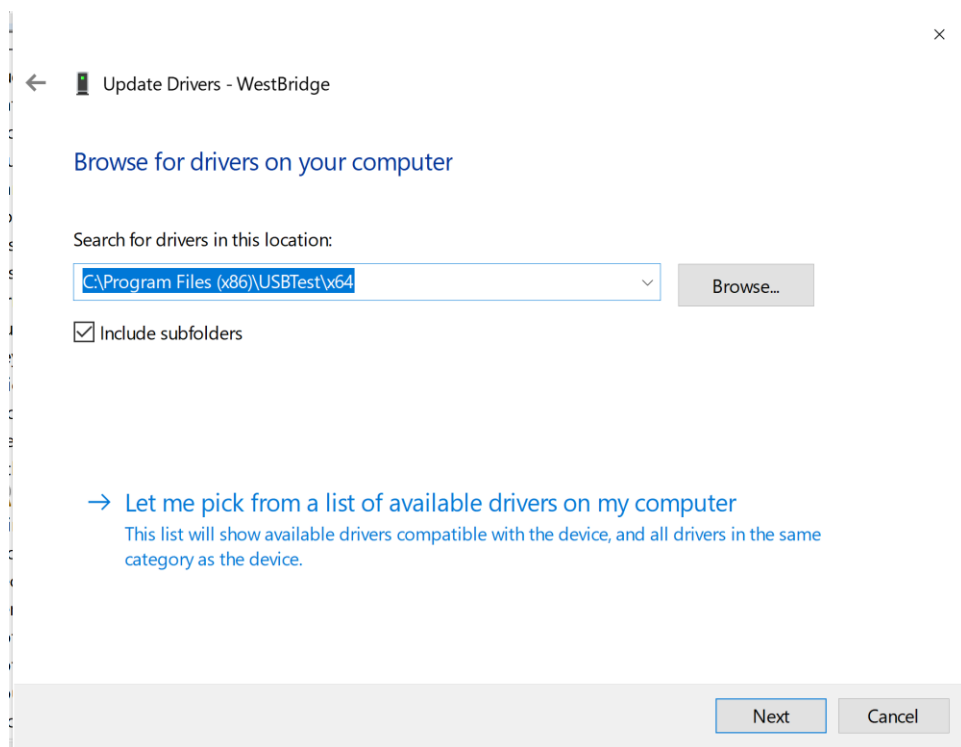


### 3. Browse my computer for drivers

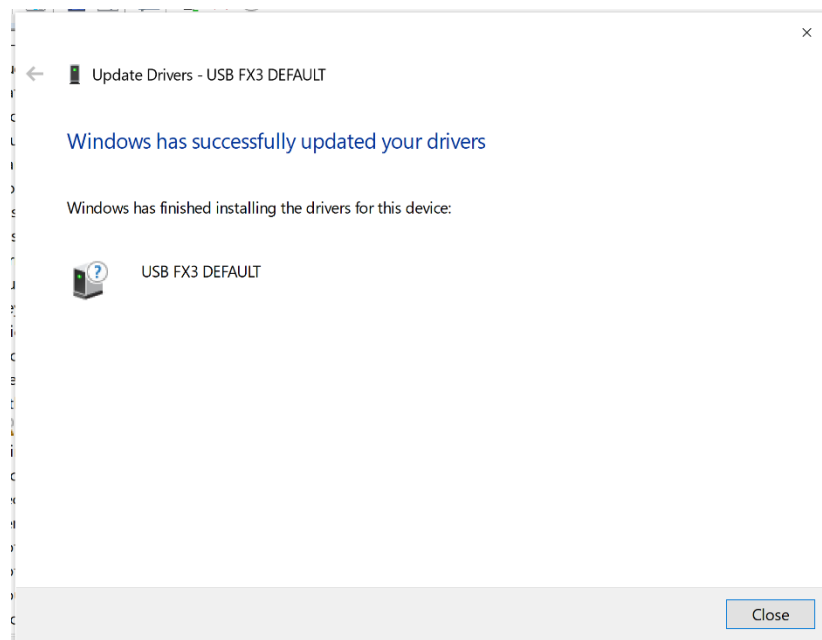


### 4. Set the driver path to where the SuperMUTT software package was installed:

**C:\Program Files (x86)\USBTest\x64.**



5. Then you should get a confirm message that the driver was installed for the device USB FX3 DEFAULT.

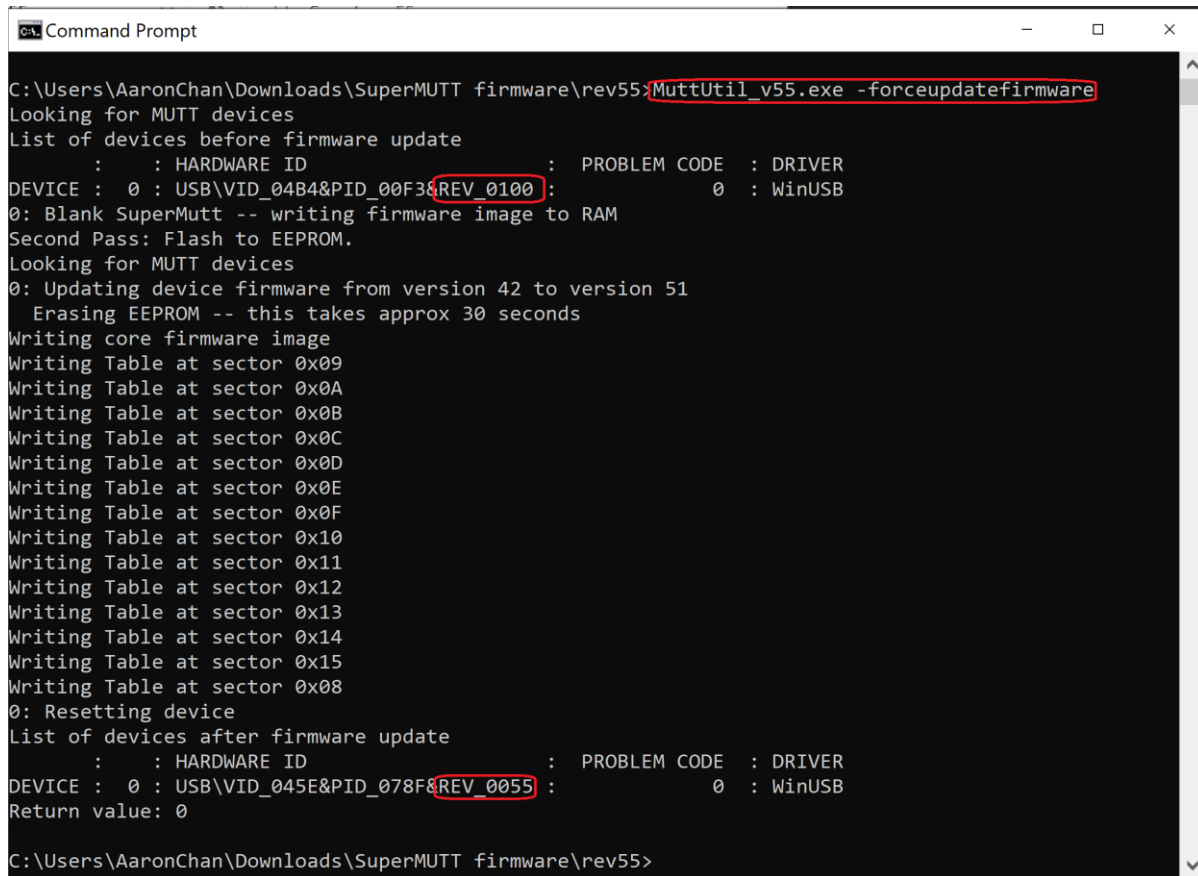




## Force-update the SuperMUTT

Now that the drivers have been installed, open Command Prompt and go to the folder with the desired SuperMUTT firmware. Follow the steps under “Downgrade SuperMUTT firmware” to force-update the corrupted SuperMUTT.

Below is an example of successfully updating the SuperMUTT from a corrupt state to the desired firmware rev55.



```
Command Prompt
C:\Users\AaronChan\Downloads\SuperMUTT firmware\rev55>MuttUtil_v55.exe -forceupdatefirmware
Looking for MUTT devices
List of devices before firmware update
: : HARDWARE ID : PROBLEM CODE : DRIVER
DEVICE : 0 : USB\VID_04B4&PID_00F3&REV_0100 : 0 : WinUSB
0: Blank SuperMutt -- writing firmware image to RAM
Second Pass: Flash to EEPROM.
Looking for MUTT devices
0: Updating device firmware from version 42 to version 51
Erasing EEPROM -- this takes approx 30 seconds
Writing core firmware image
Writing Table at sector 0x09
Writing Table at sector 0x0A
Writing Table at sector 0x0B
Writing Table at sector 0x0C
Writing Table at sector 0x0D
Writing Table at sector 0x0E
Writing Table at sector 0x0F
Writing Table at sector 0x10
Writing Table at sector 0x11
Writing Table at sector 0x12
Writing Table at sector 0x13
Writing Table at sector 0x14
Writing Table at sector 0x15
Writing Table at sector 0x08
0: Resetting device
List of devices after firmware update
: : HARDWARE ID : PROBLEM CODE : DRIVER
DEVICE : 0 : USB\VID_045E&PID_078F&REV_0055 : 0 : WinUSB
Return value: 0
C:\Users\AaronChan\Downloads\SuperMUTT firmware\rev55>
```