



Mac Latency

The standard latency on the FTDI driver is 16milli-Seconds this is too slow for serial control. On Windows the FTDI driver allows you to set the latency, on Mac the latency is fixed. We provide a low latency FTDI Driver for MAC OSX. On OS X Mavericks and later you also have to disable the Mac X default FTDI driver

First download the MACLOW Driver from

<http://www.colinbroad.com/cbsoft/usb422/usb422.html>

Then install the Low latency driver as follows

- 1) Download and install "Kext Drop", this will be used to install the new driver, you will find a link on the USB422 product page
- 2) Download and unzip the low latency driver
- 3) Open "Kext Drop" (Applications Folder)
- 4) Drag and drop the low latency driver onto Kext Drop.
- 5) When Finished Close "Kext Drop"

OS X Mavericks and Yosemite

Apple have added their own FTDI driver which also has a 16 milli-Second Latency, this must be disabled before the FTDI driver can be used as follows. For Yosemite the driver must be certified!

- 1) Open the Terminal and enter the following (You can cut and paste from this document)
- 2) `cd /System/Library/Extensions/IOUSBFamily.kext/Contents/PlugIns`
- 3) `sudo mv AppleUSBFTDI.kext AppleUSBFTDI.disabled` – You will be asked for the password – type in and hit return
- 4) Restart the computer and connect

```
Plugins -- bash -- 122x24
Last login: Fri Feb 20 13:13:07 on ttys000
colins-MacBook-Air:~ colinNewAir$ cd /System/Library/Extensions/IOUSBFamily.kext/Contents/PlugIns
colins-MacBook-Air:PlugIns colinNewAir$ sudo mv AppleUSBFTDI.kext AppleUSBFTDI.disabled
colins-MacBook-Air:PlugIns colinNewAir$
```

OS X El Capitan

It may be necessary to boot using the Recovery partition to change the name of the AppleUSBFTDI.kext directory.

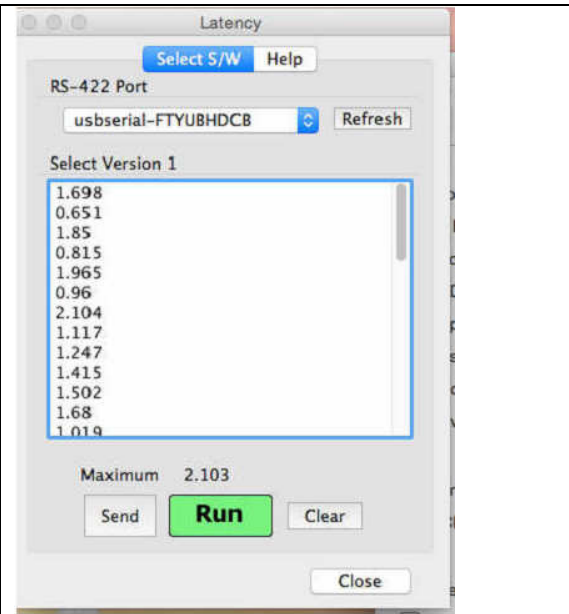
The Driver is called AppleUSBFTDI.kext and is located in /System/Library/Extensions

Checking the Latency

The best way to check the latency is with a dual beam oscilloscope, trigger on the Tx data and look at the difference between the tx and rx. The latency is also determined by the program you are running, not just the driver.

You can also check the Latency with our latency check program available from the USB422 page.

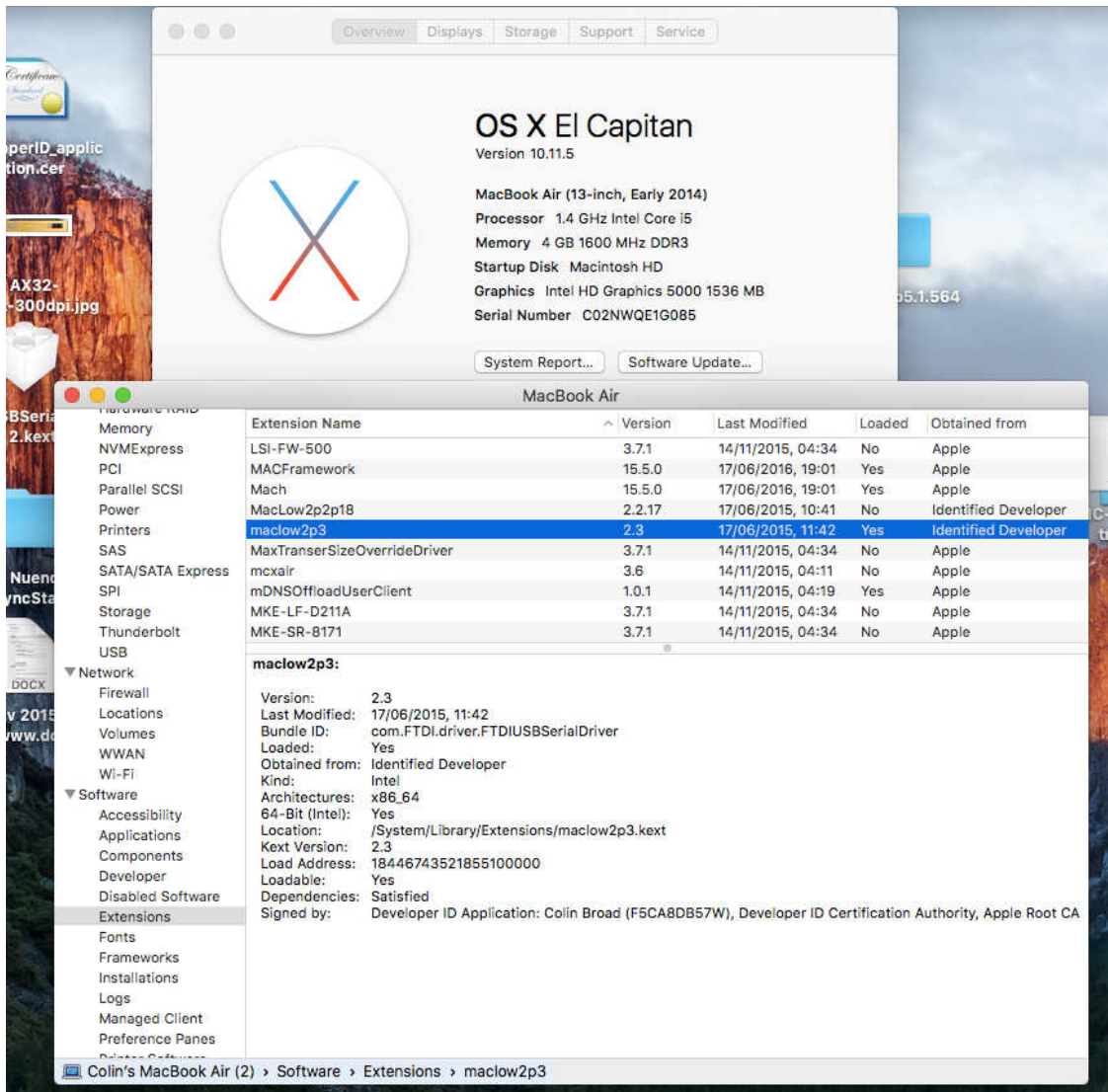
The instructions to make a special test plug are on the help page of the program!



You can use the “ls” command to list the Directory showing the new FTDIUSB driver

```
colins-MacBook-Air-2:~ colinNewAir$ cd /System/Library/Extensions/IOUSBFamily.kext/Contents/PlugIns
colins-MacBook-Air-2:PlugIns colinNewAir$ ls
AppleUSBCDC.kext                AppleUSBMergeNub.kext
AppleUSBCDCACMControl.kext      AppleUSB0HCI.kext
AppleUSBCDCACMData.kext         AppleUSB0OpticalMouse.kext
AppleUSBCDCDMM.kext             AppleUSB0HCI.kext
AppleUSBCDCECMControl.kext      AppleUSBVideoSupport.kext
AppleUSBCDCECMData.kext         AppleUSBXHCI.kext
AppleUSBCDCEEM.kext             IOUSBCompositeDriver.kext
AppleUSBCDCWCM.kext             IOUSBHIDDriver.kext
AppleUSB0HCI.kext               IOUSBHIDDriverSafeBoot.kext
AppleUSBFTDI.disabled           IOUSBLib.bundle
AppleUSBFTDI.kext               IOUSBUserClient.kext
AppleUSBHub.kext
colins-MacBook-Air-2:PlugIns colinNewAir$
```

Check that the correct driver is loaded by looking in /Apple/About this Mac/More Info/system report/Software/Extensions to see if the MacLow Driver is loaded, you may have to restart to see this.



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