Future Technology Devices International Ltd.

Application Note AN_134

FTDI Drivers Installation guide for MAC OSX

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The purpose of this application note is to provide users of FTDI chips with a simple procedure for installing FTDI drivers for FTDI devices used under MAC OSX.

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Table of Contents

1 Introduction

The purpose of this application note is to provide users of FTDI chips with a simple procedure for installing FTDI drivers for their devices under MAC OSX.

2 Getting FTDI Device Drivers

FTDI drivers may be obtained from the FTDI website.

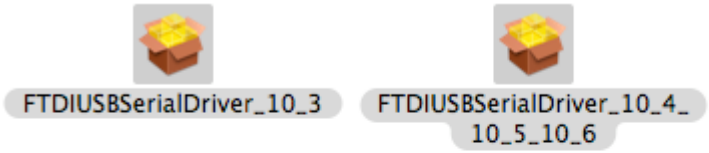
There are two versions. The first one is the Virtual Com Port driver (VCP) which creates a virtual com port on the MAC and allows applications that use the POSIX programming interface to communicate with the device. This is effectively the same us using a legacy com port.

The download is at: http://www.ftdichip.com/Drivers/VCP/MacOSX/FTDIUSBSerialDriver_v2_2_14.dmg

This is for the current version at the time of writing (version 2.2.14) The same instructions should apply for any future updates.

Clicking the weblink starts a download.

Inside the FTDIUSBSerialDriver_v2_2_14.dmg there are 2 package files.



FTDIUSBSerialDriver_10_3.pkg which is specific to OSX 10.3 (Panther)

FTDIUSBSerialDriver_10_4_10_5_10_6.pkg which is specific to OSX 10.4 (Tiger), OSX 10.5 (Leopard) and 10.6 (Snow Leopard).

The second driver version is the D2xx driver and uses FTDI's D2xx programming interface.

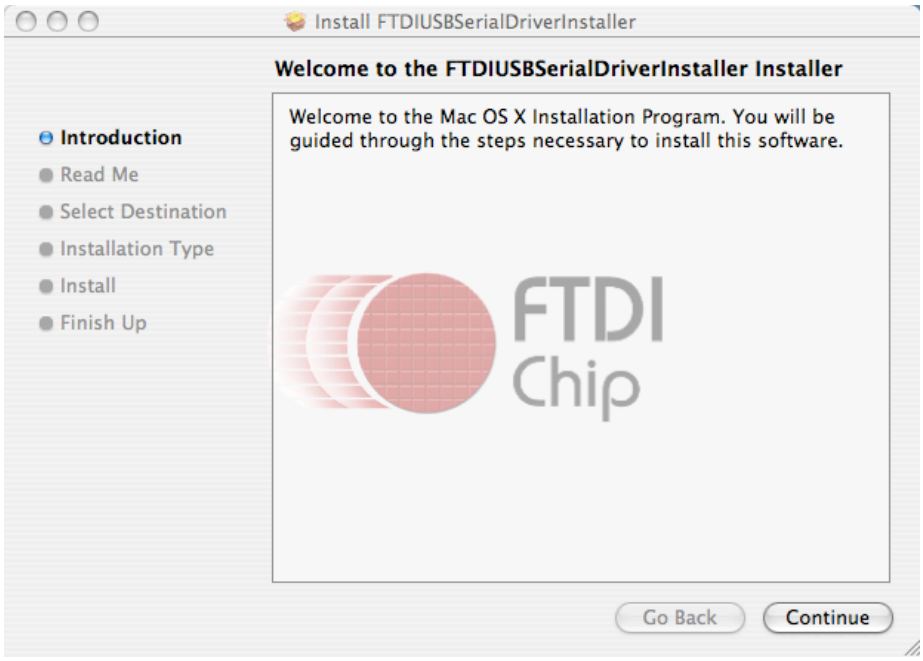
The download is at: http://www.ftdichip.com/Drivers/D2XX/MacOSX/UniBin/D2XX0.1.7.dmg

This is for the current version at the time of writing (version 0.1.7) The same instructions should apply for any future updates.

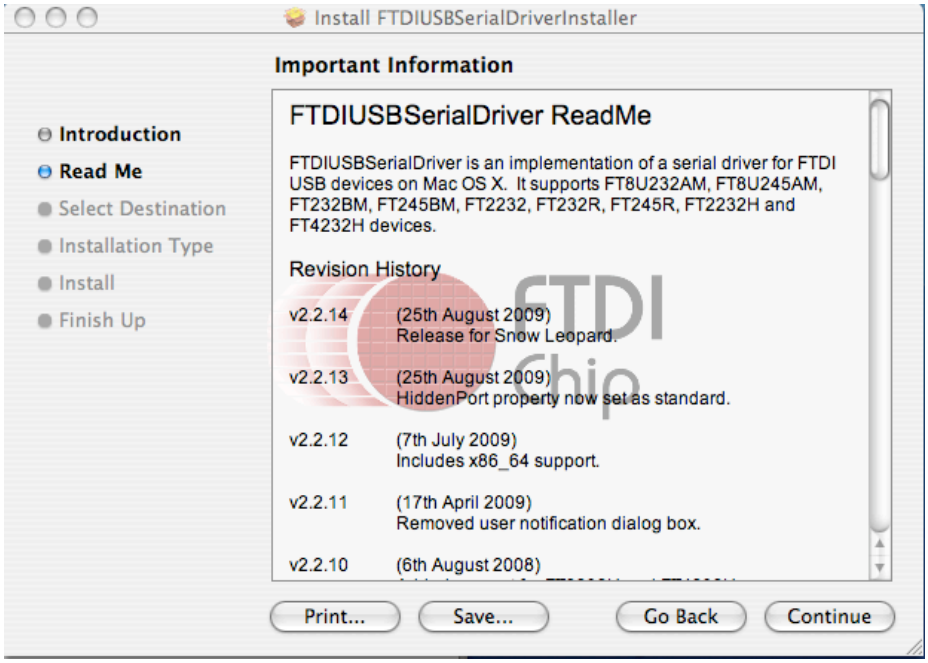
3 Installing Drivers

3.1 Installing VCP Drivers

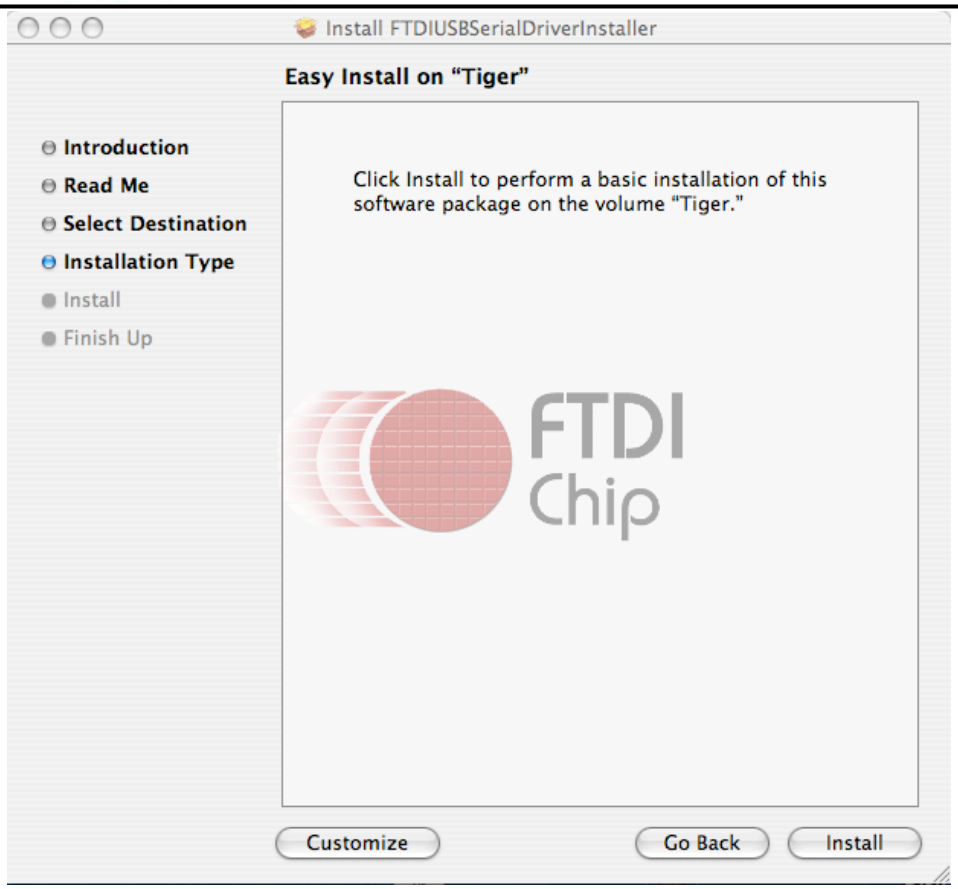
To install the driver on the MAC you simply click on the .pkg that matches your version of OSX.
(Note screenshots are taken from a Tiger OSX version but the same screens apply to other variants).



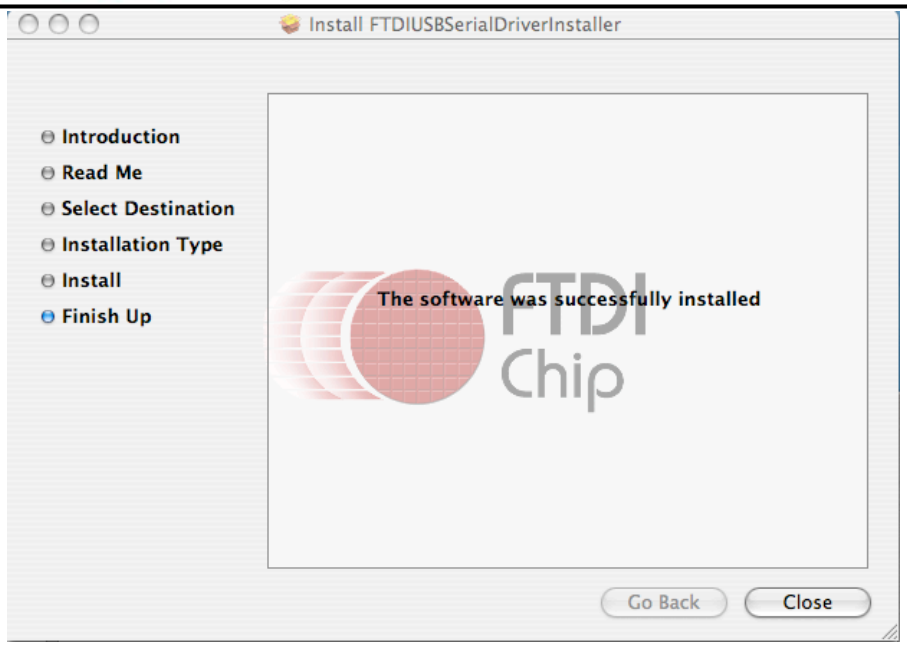
Select continue to install the driver.



Select continue at the ReadMe screen.



Select Install. At this point you may be asked for your password to authenticate the installation. This is just the same as you would do to log into the machine to begin using it.



After authentication select close to complete the installation.

Now plug the device in.

If the device is installed properly, you will see entries in the /dev directory:
/dev/cu.usbserial-xxxxxxxx
/dev/tty.usbserial-xxxxxxxx

where xxxxxxxx is either the device's serial number or, for unserialized devices, a location string that depends on which USB port your device is connected to. Note that for FT2232D devices port A is denoted by the serial number appended with "A" and port B is designated by the serial number appended with "B".

/dev can be accessed through the Terminal application. The Terminal application can be launched by selecting Go > Applications > Utilities > Terminal. Type the following lines in the Terminal window to produce the file list:

cd /dev
ls-l

3.2 Installing D2xx Drivers

Download the driver to the MAC as per section 2 of this document.

Start a Terminal session (Go > Applications > Utilities > Terminal)

Copy libftd2xx.0.1.7.dylib to the /usr/local/lib directory (cp Desktop/D2XX/bin/libftd2xx.0.1.7 /usr/local/lib)

Change directory to the /usr/local/lib (cd /usr/local/lib)

Create a symbolic link to the library (ln -sf libftd2xx.0.1.7.dylib libftd2xx.dylib)

The driver is now installed.

Samples written in C are provided to show how to use the library and verify the installation. These are command line based applications that must be executed from the Terminal window. To compile and run the samples perform the following steps (these assume you have copied all of the distribution files to the desktop and installed the library as per the Installation section above):

Open a Terminal window (Go > Applications > Utilities > Terminal).

Change directory to the root samples directory (cd Desktop/D2XX/Samples).

Build the samples by typing "make" then return. If you have issues at this stage revisit the installation section above to ensure the library is correctly installed. Read the error messages and try to determine the source of the problem. If you still have issues then contact support detailing your issue with as much information as possible.

To run an application, have a suitable FTDI device with default VID (0x0403) and PID (0x6001) and change to the Simple directory (cd Simple) then type "./simple" followed by return (make sure the dot and the forward slash precede the simple command).

If you have issues at this stage then consult the troubleshooting section later in this document. If the troubleshooting section doesn't help then contact support with your problem details.

4 Uninstalling Drivers

Follow the procedures below idf you wish to remove the drivers from your MAC.

4.1 Uninstalling VCP Drivers

To remove the drivers from Mac OS X, the user must be logged on as root.
Root is a reserved username that has the privileges required to access all files.

Start a Terminal session (Go > Applications > Utilities > Terminal) and enter the following commands at the command prompt:

```
cd /System/Library/Extensions
rm -r FTDIUSBSerialDriver.kext

cd /Library/Receipts
rm -r ftdiusbserialdriver.pkg
rm -r ftdiusbserialdriverinstallerPostflight.pkg
rm -r ftdiusbserialdriverinstallerPreflight.pkg
```

To temporarily operate as the root user you can use sudo at the beginning of the command

e.g.

```
 cd /System/Library/Extensions
sudo rm -r FTDIUSBSerialDriver.kext

cd /Library/Receipts
sudo rm -r ftdiusbserialdriver.pkg
sudo rm -r ftdiusbserialdriverinstallerPostflight.pkg
sudo rm -r ftdiusbserialdriverinstallerPreflight.pkg
```

The driver will then be removed from the system.

4.2 Uninstalling D2XX Drivers

To uninstall the D2XX driver, simply delete the library and the symbolic link:

Start a Terminal session (Go > Applications > Utilities > Terminal)

Change directory to the /usr/local/lib (cd /usr/local/lib)

Delete the library (rm libftd2xx.0.1.7.dylib)

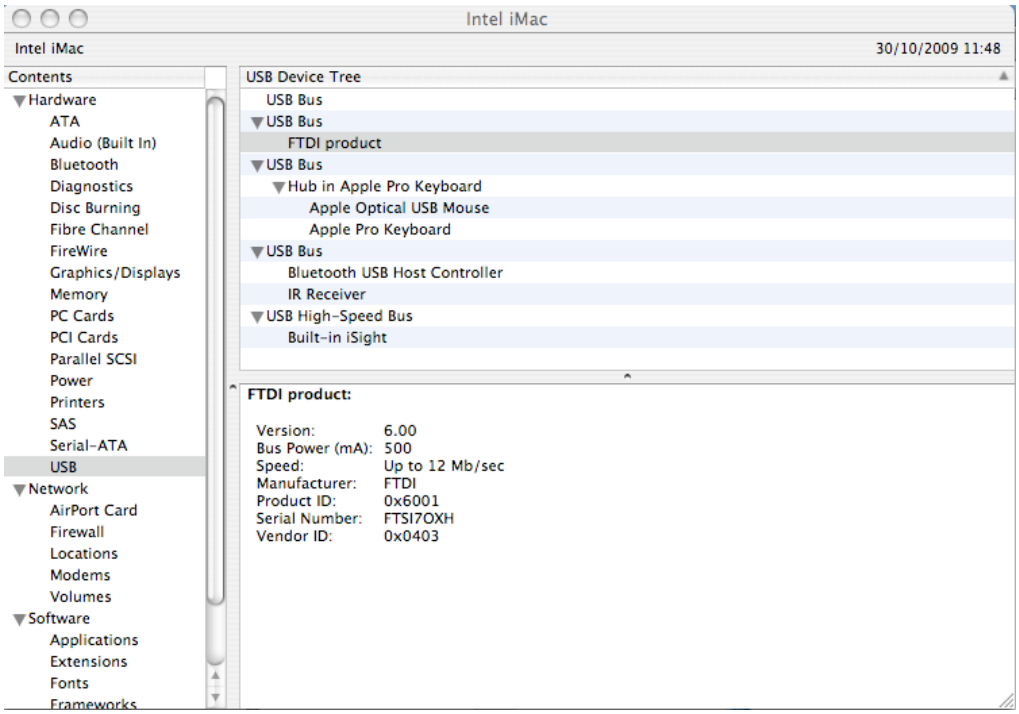
Delete the symbolic link (rm libftd2xx.dylib)

5 VCP Troubleshooting

5.1 How do I know what my deviceID is?

Launch the System Profiler utility, or Apple System Profiler for earlier versions of OS X. This can be accessed by going to the Finder and selecting Applications from the Go menu, then open the Utilities folder.

Select USB under Hardware in the panel to the left and then select the appropriate device from the USB Device Tree.
In the screen shot below (from OS 10.4), the device has a deviceID given by:
Vendor ID: 0x0403
Product ID: 0x6001



If the device does not work after installing the driver, it is likely to be because the PID is not supported by the driver. If this is the case, contact the vendor of your product to determine if they provide an edited driver to support their product. If they do not provide an edited driver you can make the edits yourself by following the instructions in TN_105 Adding Support for New Devices to MAC Driver from the FTDI website
http://www.ftdichip.com/Documents/TechnicalNotes/TN_105%20Adding%20Support%20for%20New%20FTDI%20Devices%20to%20Mac%20Driver.pdf

If the VID is not 0x0403, it is likely that the device is not an FTDI device and we cannot support it.

5.2 The device does not appear in the /dev directory

FTDIUSBSerialDriver does not support your deviceID (VID and PID).

Disable the EEPROM so that the device reverts to its default deviceID, then replug.

To get support for your deviceID built into FTDIUSBSerialDriver, contact the vendor of your product to determine if they provide an edited driver to support their product. If they do not provide an edited driver you can make the edits yourself by following the instructions in TN_105 Adding Support for New Devices

to MAC Driver from the FTDI website
http://www.ftdichip.com/Documents/TechnicalNotes/TN_105%20Adding%20Support%20for%20New%20FTDI%20Devices%20to%20Mac%20Driver.pdf

5.3 The text "NewPort Detected" is not displayed in System Preferences-Network

The device does not show in the System Preferences Networok window as Apple requested we remove this.

5.4 The device cannot be accessed even though the deviceID is supported in FTDIUSBSerialDriver

An ownership or permissions problem is preventing the system from making the device accessible.

Check that the driver is owned by root and wheel. The most common symptom is the group for FTDIUSBSerialDriver is not wheel.
To change the group, login as root and perform the following script in a Terminal window (Go > Applications > Utilities > Terminal):

```
cd /system/library/extensions
chgrp -R wheel FTDIUSBSerialDriver.kext
```

Reboot for the change to take effect.

5.5 How do I open a Terminal window?

A Terminal window can be started by selecting
Go > Applications > Utilities > Terminal

The terminal window is equivalent to a DOS prompt in Windows.

6 D2XX Troubleshooting

6.1 I can't open a port even though the installation has been Successful

This is possibly due to the FTDI serial driver holding the port with your VID and PID.

Solution is to uninstall the serial driver . To completely eradicate the possibility of this occurring in future, it is recommended a new VID and PID is used to distinguish between devices.

Another possibility is an incorrect VID/PID. Try changing your application to use the FT_SetVIDPID API call to quickly determine if this is the case.

6.2 After running an application two or three times, communication stops

It is always recommended that you close a file handle obtained by FT_Open/FT_OpenEx before exiting an application. Side effects of not closing the handle with the multithreaded setting (as illustrated above) can be future communication with the device fails (always test this prior to enabling this setting).

The Sample applications demonstrate a method of trapping an abnormal exit (control C operation) and closing each handle in turn.

If you cannot find a work around then try setting the USB Reset After Open bit in the ftd2xx.cfg file but only as a last resort.

6.3 Problems upgrading to the latest D2XX driver

Upgrading the D2XX library can cause problems, such as a reported bug fix does not appear to be fixed. This is most likely related to the application executable pointing to a previous version of the library.

To determine which D2XX library your application is using perform the following steps (examples in brackets assume you have copied all of the files to the desktop and successfully compiled the samples as described in the Samples section):

Open a Terminal window (Go > Applications > Utilities > Terminal).

Change directory to the application executable folder (cd Desktop/D2XX/Samples/Simple)

Use otool to determine the library path (otool -L simple).

The following text is an example of what is displayed

simple:
    /usr/local/lib/libftd2xx.0.1.7.dylib (compatibility version 0.1.7, current version 0.1.7)
    /usr/lib/libSystem.B.dylib (compatibility version 1.0.0, current version 88.1.6)

As illustrated the, simple application is pointing to libftd2xx.0.1.7.dylib.

To alter the library so that the simple sample points to use the install_name_tool (e.g install_name_tool -change /usr/local/lib/libftd2xx.0.1.7.dylib /usr/local/lib/libftd2xx.dylib simple).

Please note you may need to change user mode to perform this function depending on the file permissions set on the executable.

Run the otool (illustrated in step 3 above) to confirm that the library pointed to by the application has changed and is correct.

7 Contact Information

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Distributor and Sales Representatives

Please visit the Sales Network page of the FTDI Web site for the contact details of our distributor(s) and sales representative(s) in your country.

Appendix A – Abbreviations

Terms	Description
PID	Product ID, a unique product identification issued by the holder of the
VID	Vendor ID, a unique vendor identification number issued by the USB
USB	USB Universal Serial Bus
WHQL	WHQL Microsoft Windows® Hardware Quality Labs
OS	Operating System

Appendix B – Revision History

Version 0.1	First Draft	21/08/2009
Version 1.0	First Release	06/11/2009

