



**Future Technology Devices  
International Ltd.**

**Mac OS-X Installation Guide**

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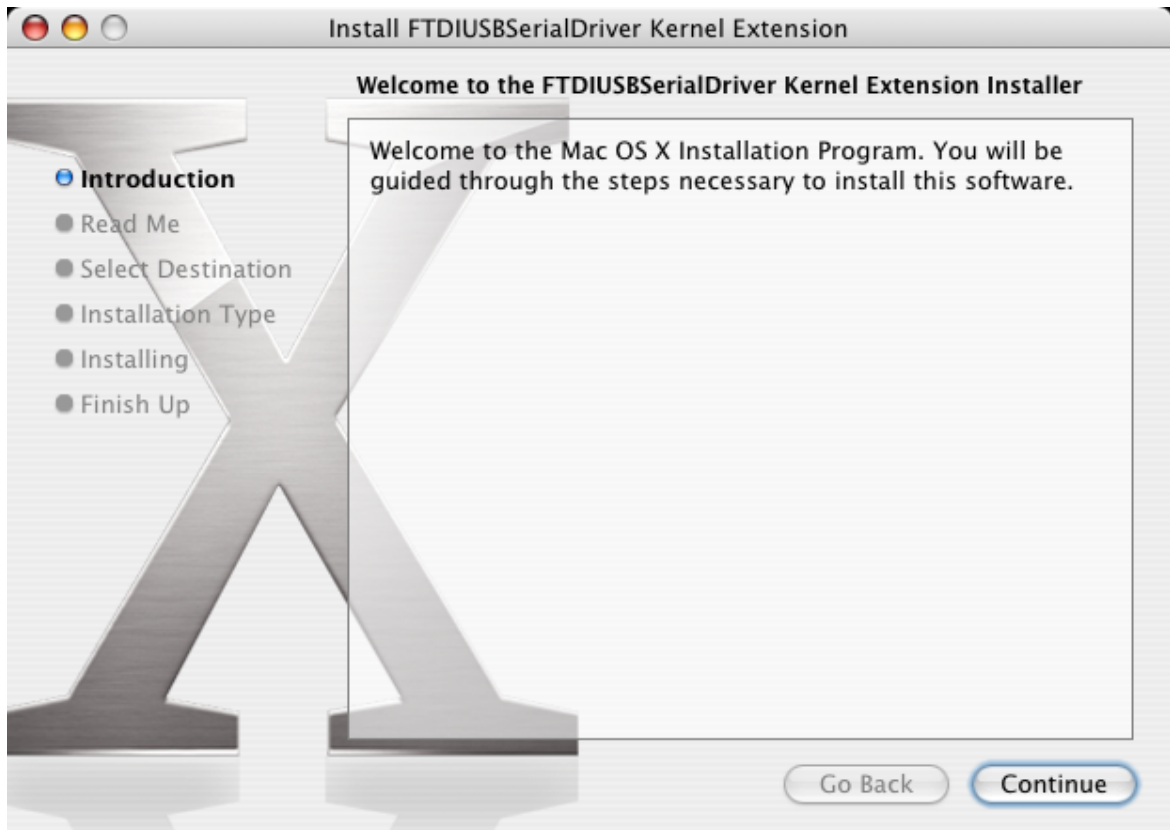
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## 1 Welcome to the Mac OS-X Installation Guide

This document describes the procedure for installing the Mac OS-X FTDIUSBSerial driver for FTDI's FT232BM, FT245BM, FT8U232AM and FT8U245AM devices. The installation procedure for the Mac OS-X FT2232CUSBSerialDriver for the FT2232C device is also described. These drivers are available for free download from the [Drivers](#) section of the [FTDI website](#).

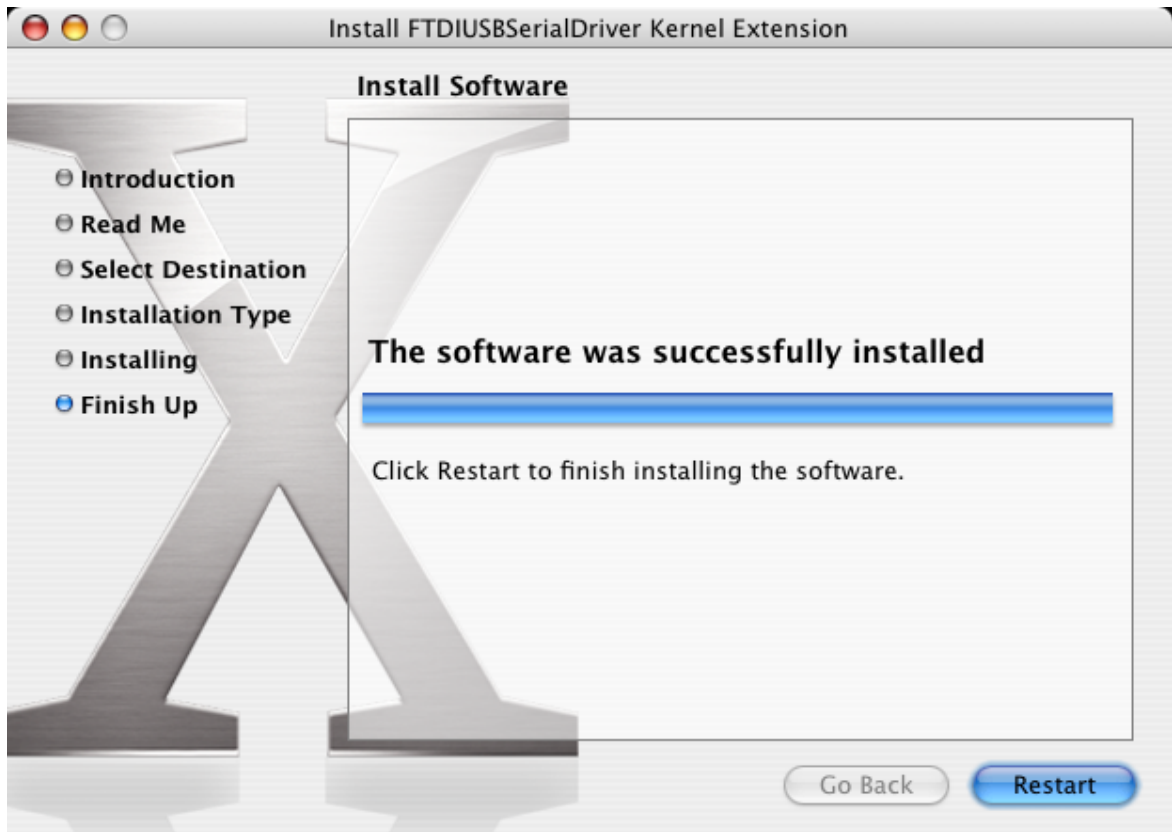
## 2 Installing FTDIUSBSerialDriver for FT232BM, FT245BM, FT8U232AM and FT8U245AM Devices

Download the driver from the [Drivers](#) section of the [FTDI website](#) and save it to the hard disk. If using OS 10.3, expand the archive using the expander utility that comes as part of the OS. For OS 10.2 and earlier, an extraction tool may need to be downloaded (e.g. Stuffit Expander). Once expanded, run the installer by double clicking on the FTDIUSBSerialDriver.pkg icon.



Click Continue to proceed with the installation and follow the instructions on screen.

When the installation is complete, reboot the computer.



When the computer has rebooted, plug in the device. If the device is installed properly, you will see entries in the `/dev` directory:

```
/dev/cu.usbserial-xxxxxxx
/dev/tty.usbserial-xxxxxxx
```

where `xxxxxxx` 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.

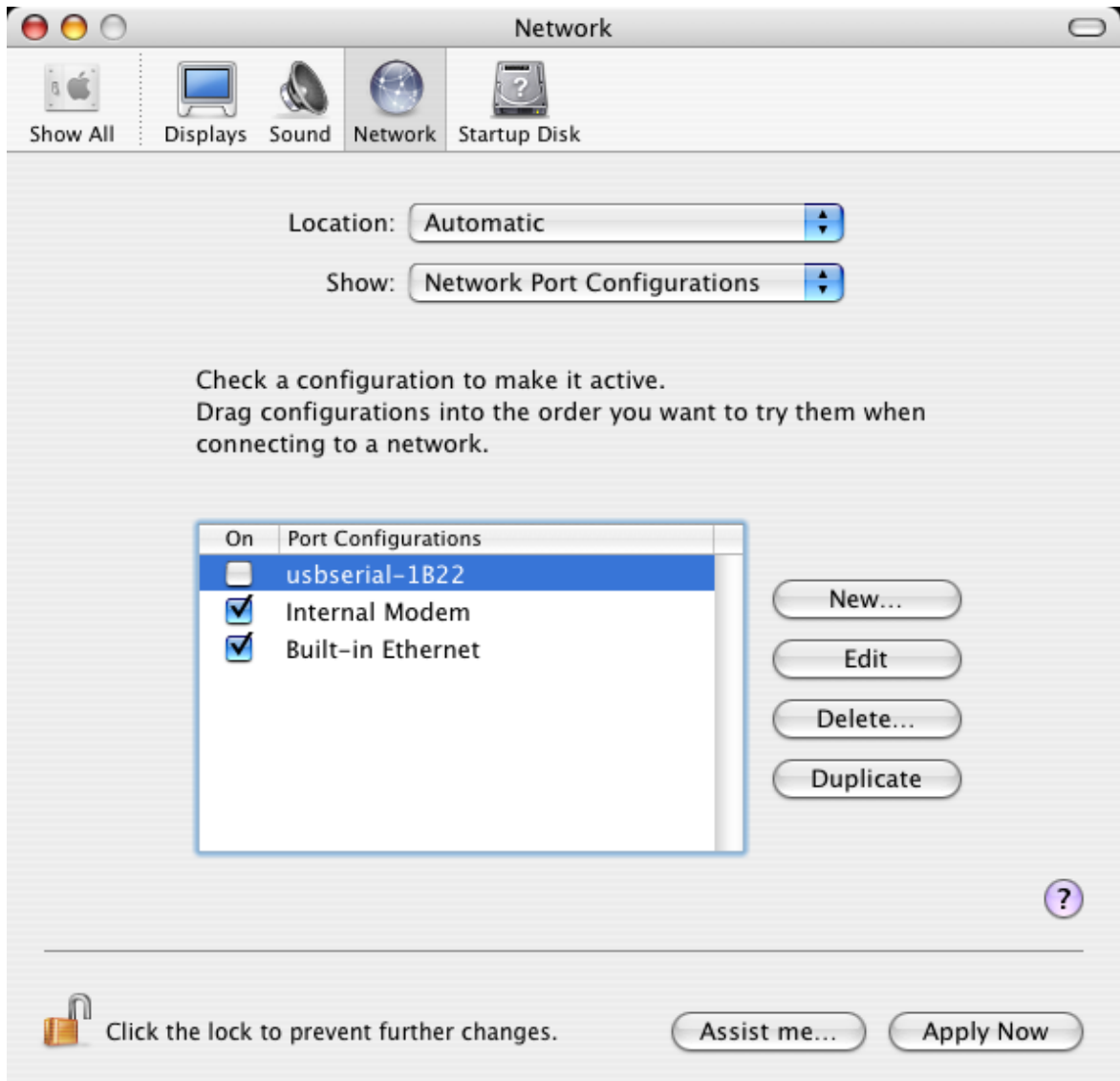
`/dev` can be accessed through the Terminal application. The Terminal application can be launched by selecting `Go > Applications > Utilities > Terminal`. Type the following lines in the Terminal window to produce the file list:

```
cd /dev
ls-l
```

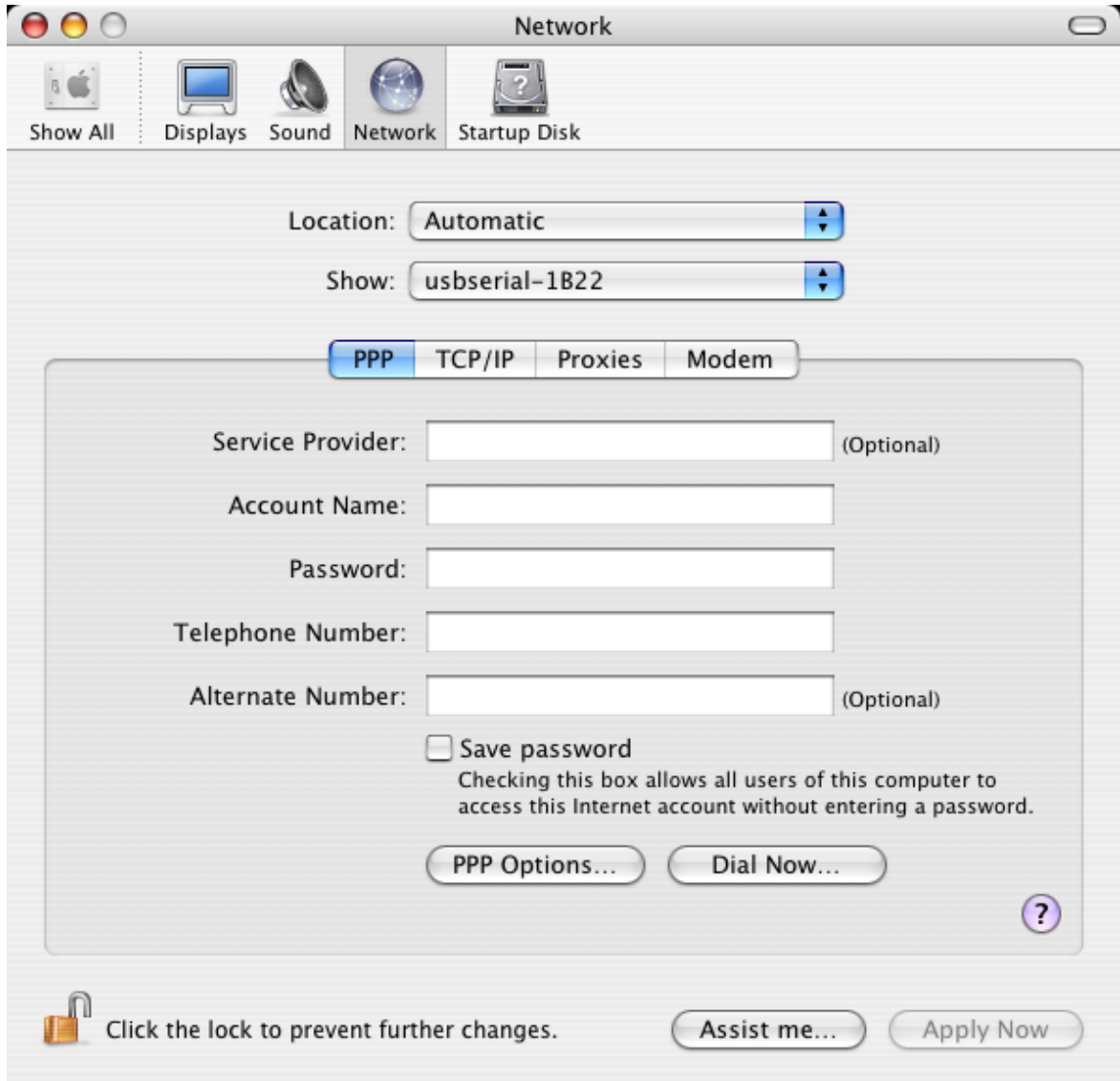
If you run the application System Preferences and select Network (`Go > Applications > System Preferences > Network`), you should see the text "New Port Detected".



Click OK and select Network Port Configurations from the Show list. The new port can be enabled from this screen by checking the On box and clicking Apply Now.



At this point, it is possible to exit Network and use the device as a COM port. If you wish to set the device up as a modem for an Internet connection, select the new port from the Show list to display the window below.

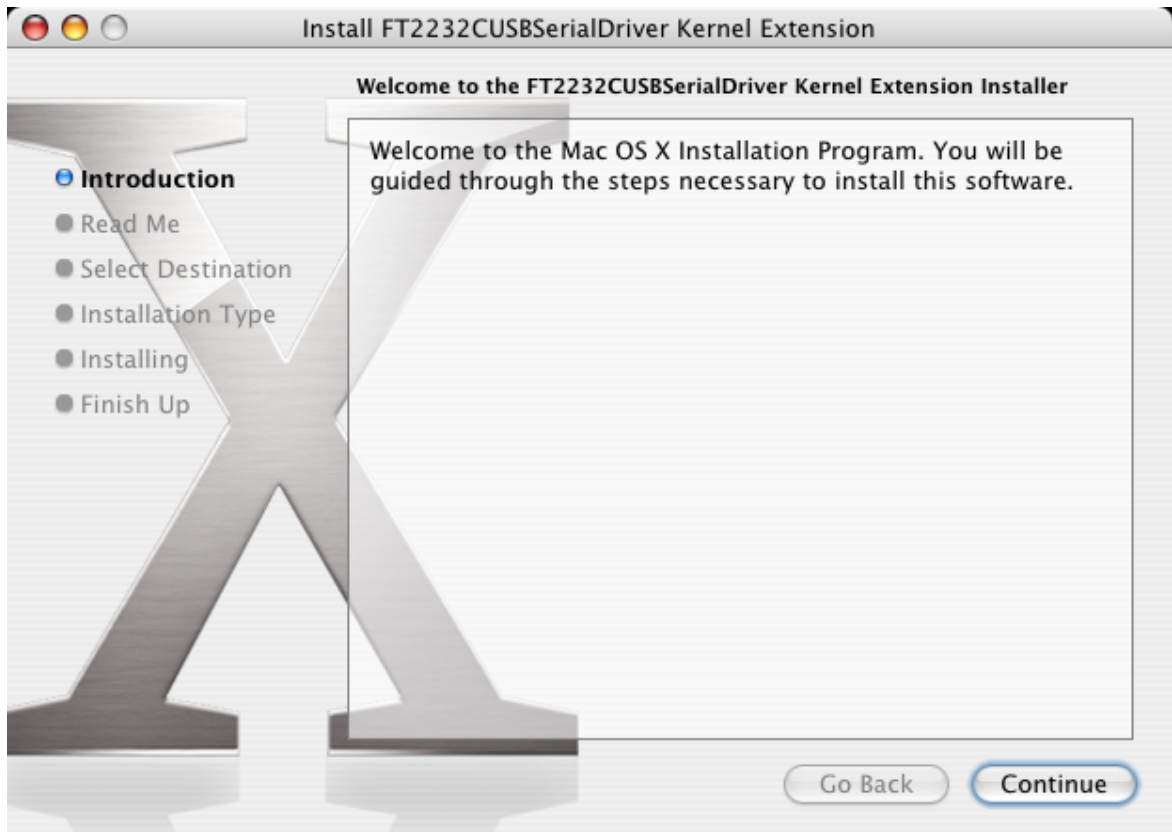


Entries for this screen are specific to the Internet account for each user. If you do not know the required details, contact your Internet service provider.



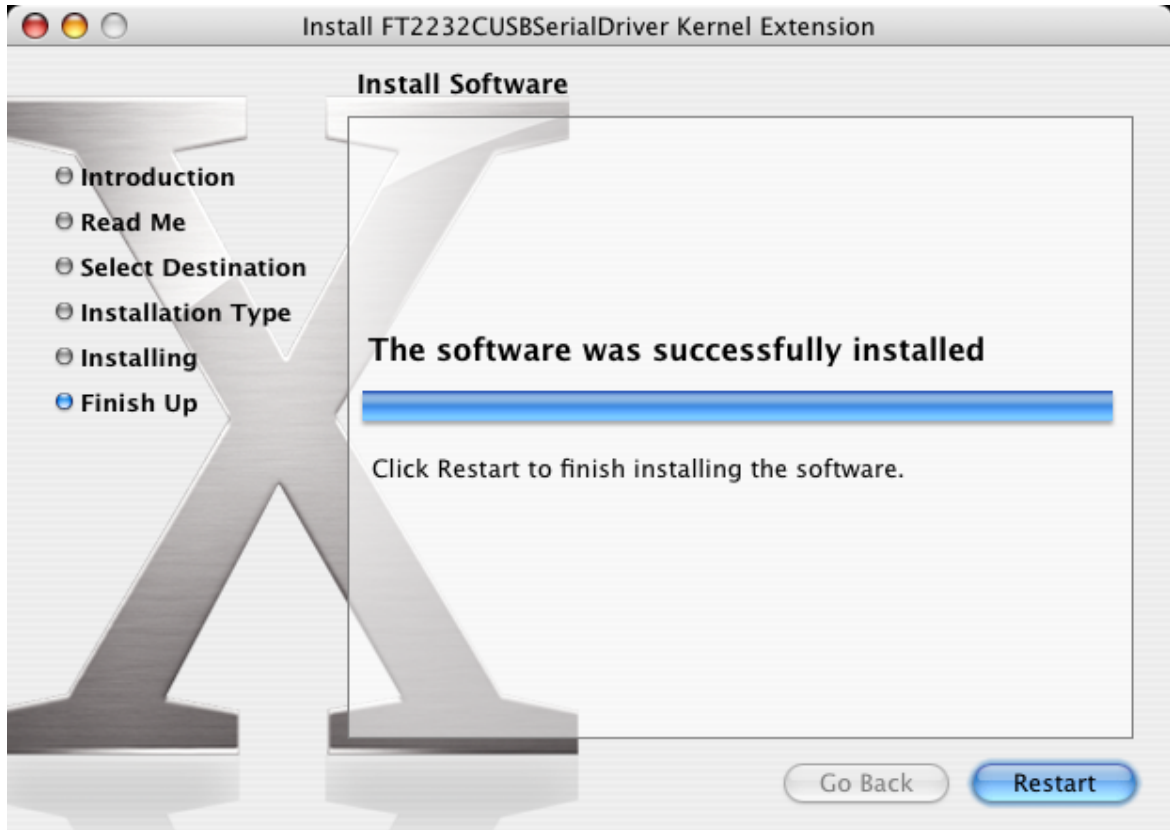
### 3 Installing FT2232CUSBSerialDriver for FT2232C Devices

Download the driver from the [Drivers](#) section of the [FTDI website](#) and save it to the hard disk. If using OS 10.3, expand the archive using the expander utility that comes as part of the OS. For OS 10.2 and earlier, an extraction tool may need to be downloaded (e.g. StuffIt Expander). Once expanded, run the installer by double clicking on the FT2232CUSBSerialDriver.pkg icon.



Click Continue to proceed with the installation and follow the instructions on screen.

When the installation is complete, reboot the computer.



When the computer has rebooted, plug in the device. If the device is installed properly, you will see entries in the `/dev` directory:

```
/dev/cu.usbserial-xxxxxxxA
/dev/tty.usbserial-xxxxxxxA
/dev/cu.usbserial-xxxxxxxB
/dev/tty.usbserial-xxxxxxxB
```

where `xxxxxxx` 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 port A of the FT2232C device is denoted by the serial number appended with "A" and port B is designated by the serial number appended with "B".

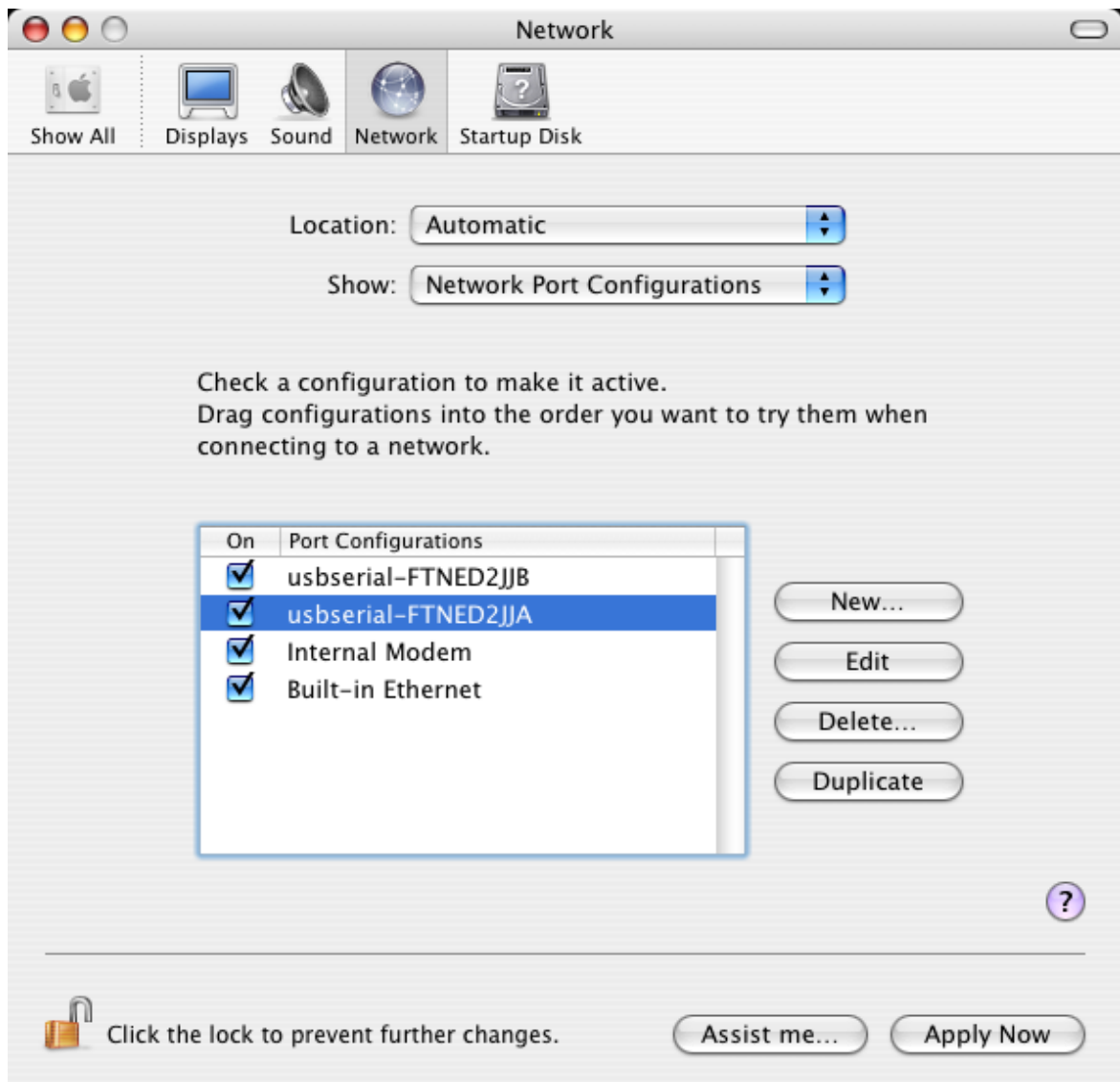
`/dev` can be accessed through the Terminal application. The Terminal application can be launched by selecting `Go > Applications > Utilities > Terminal`. Type the following lines in the Terminal window to produce the file list:

```
cd /dev
ls-l
```

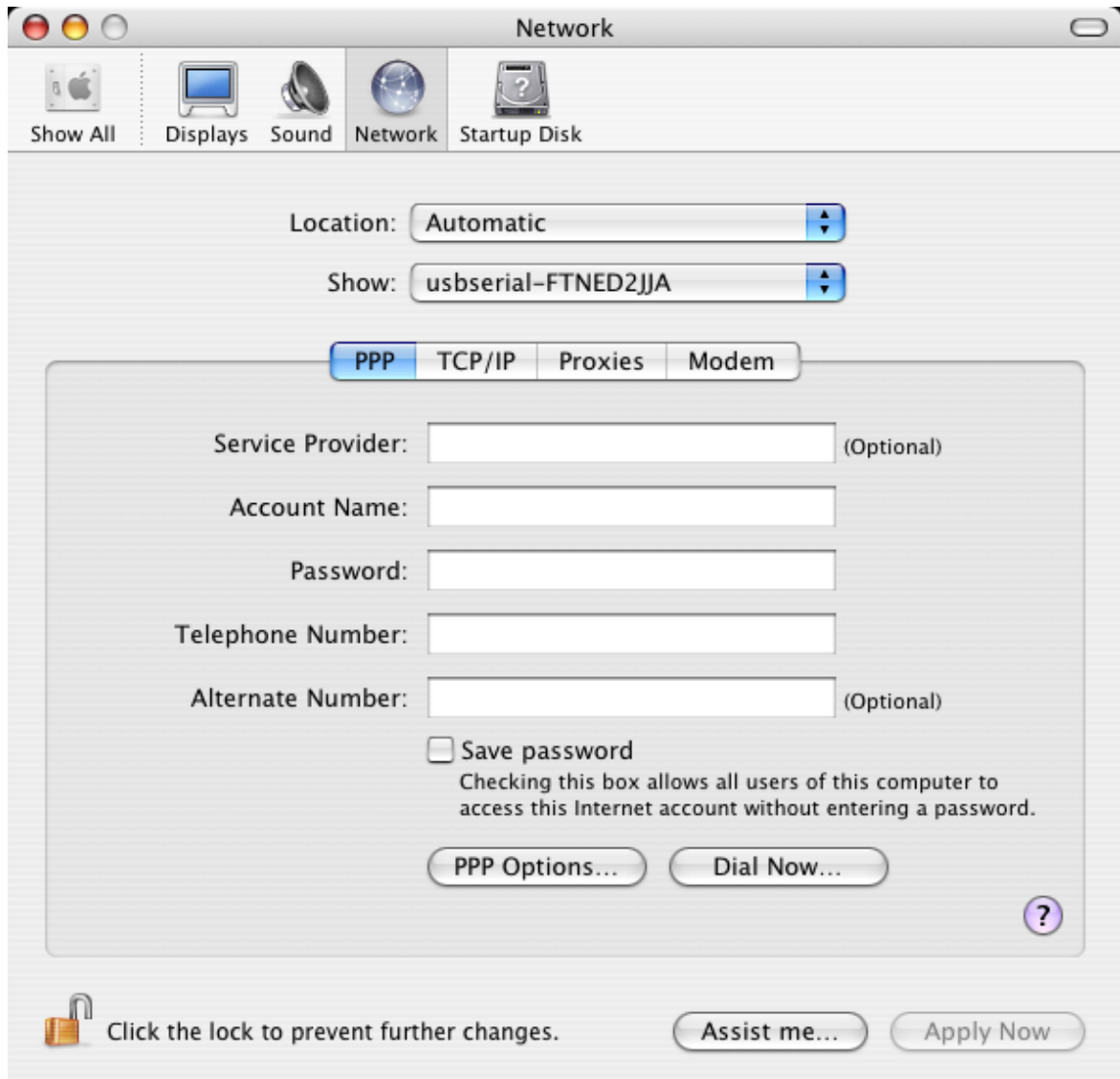
If you run the application System Preferences and select Network (`Go > Applications > System Preferences > Network`), you should see the text "New Ports Detected".



Click OK and select Network Port Configurations from the Show list. The new ports can be enabled from this screen by checking the On boxes and clicking Apply Now.



At this point, it is possible to exit Network and use the device as a COM port. If you wish to set the device up as a modem for an Internet connection, select the new port from the Show list to display the window below. Please note that the FT2232C device has two ports available and these must be configured separately.



Entries for this screen are specific to the Internet account for each user. If you do not know the required details, contact your Internet service provider.

## 4 Uninstalling FTDIUSBSerialDriver for FT232BM, FT245BM, FT8U232AM and FT8U245AM Devices

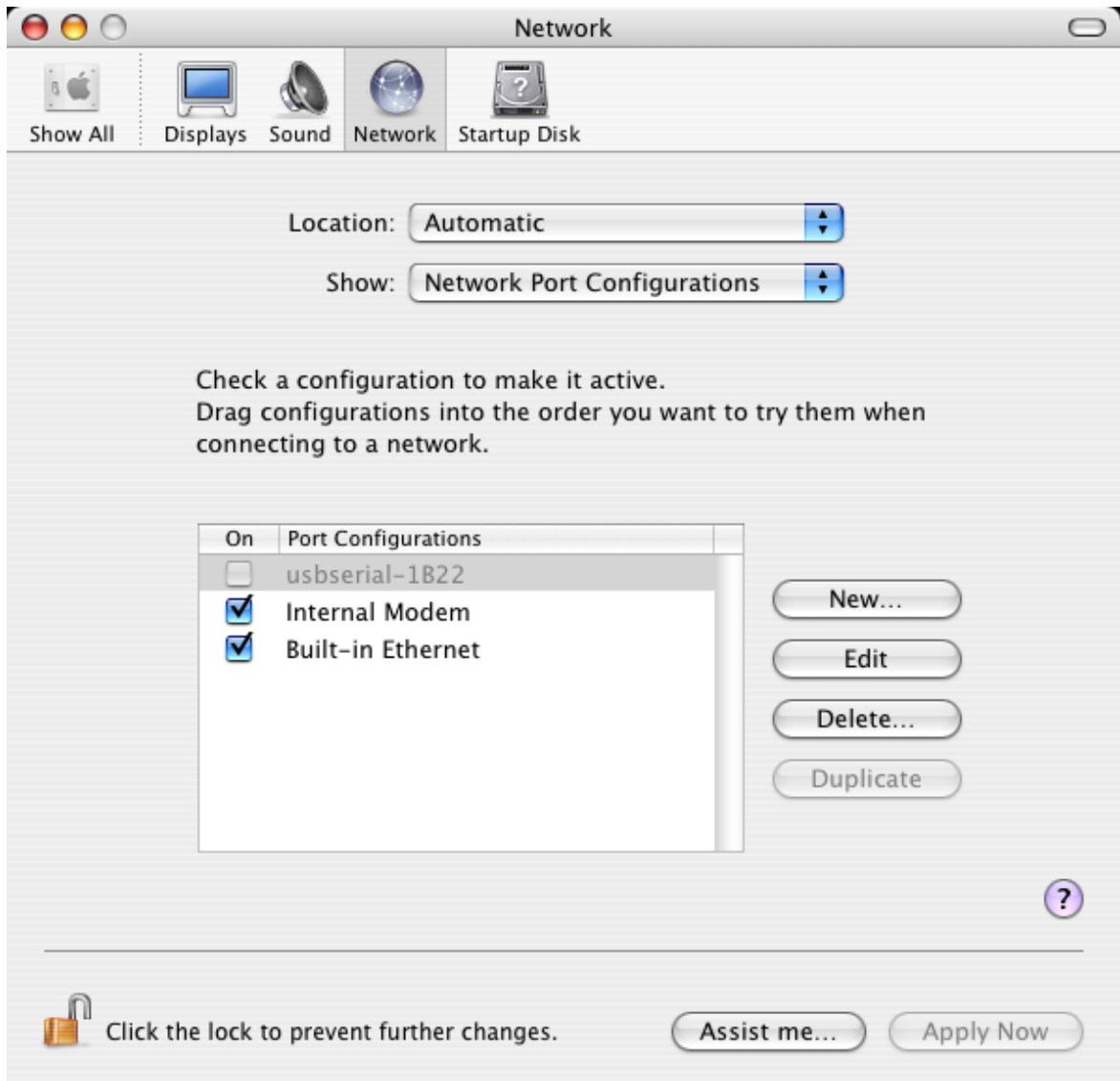
To remove the drivers from Mac OS-X, the user must be logged on as root. Root is a reserved username that has the privileges required to access all files.

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/StartupItems
rm -r FTDIReEnumerate
```

The driver will then be removed from the system.

To remove the port from the system, run the application SystemPreferences and select Network. Selecting Network Port Configurations from the Show menu will display the port as greyed out. Select the uninstalled port and click Delete. Confirm the deletion to remove the port.



## 5 Uninstalling FT2232CUSBSerialDriver for FT2232C Devices

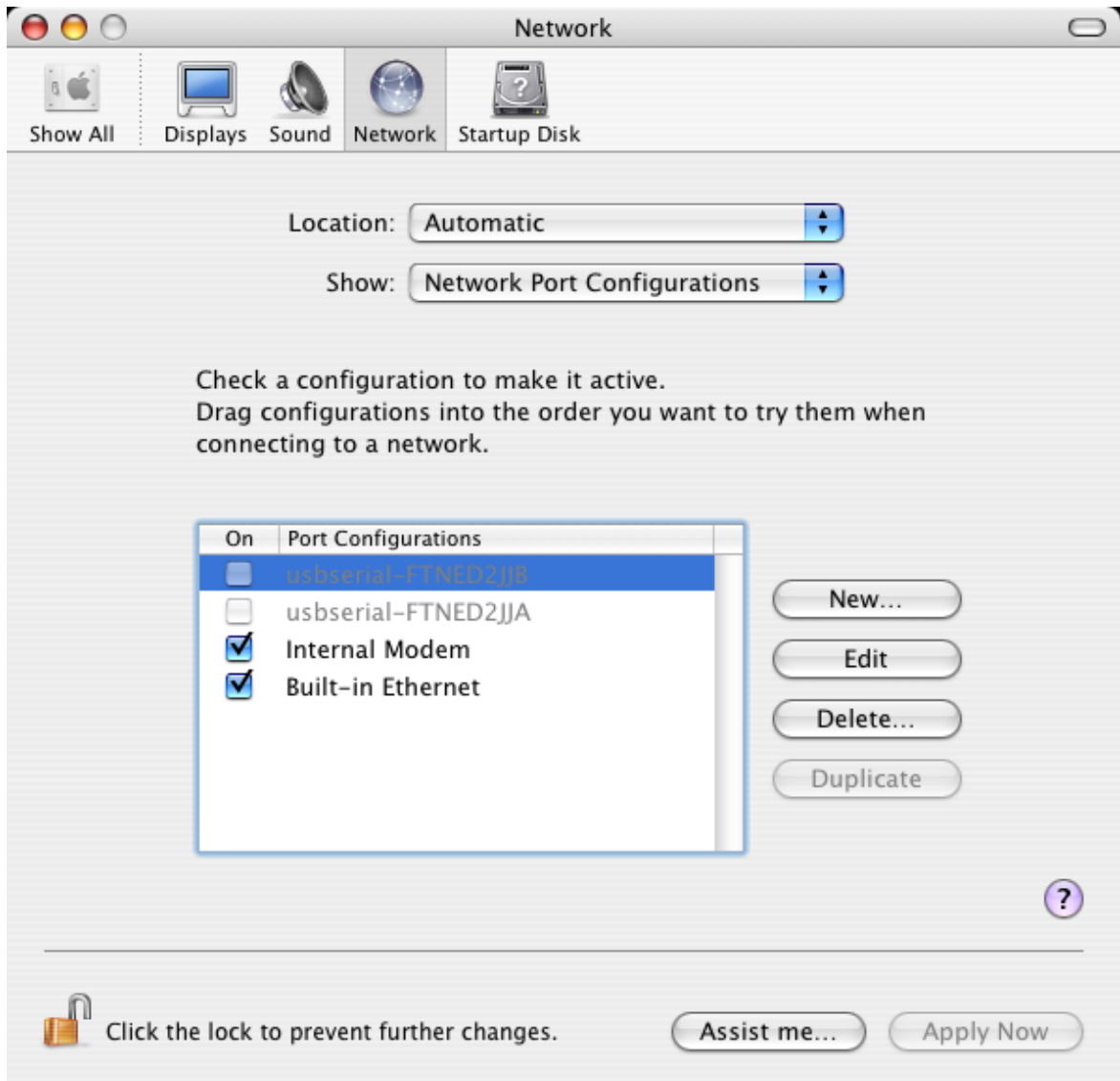
To remove the drivers from Mac OS-X, the user must be logged on as root. Root is a reserved username that has the privileges required to access all files.

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

```
cd /System/Library/Extensions
rm -r FT2232CUSBSerialDriver.kext
cd /Library/StartupItems
rm -r FTDIREnumerate
```

The driver will then be removed from the system.

To remove the ports from the system, run the application SystemPreferences and select Network. Selecting Network Port Configurations from the Show menu will display the port as greyed out. Select the uninstalled port and click Delete. Confirm the deletion to remove the port. Repeat the deletion for the second port.





## 6 Troubleshooting

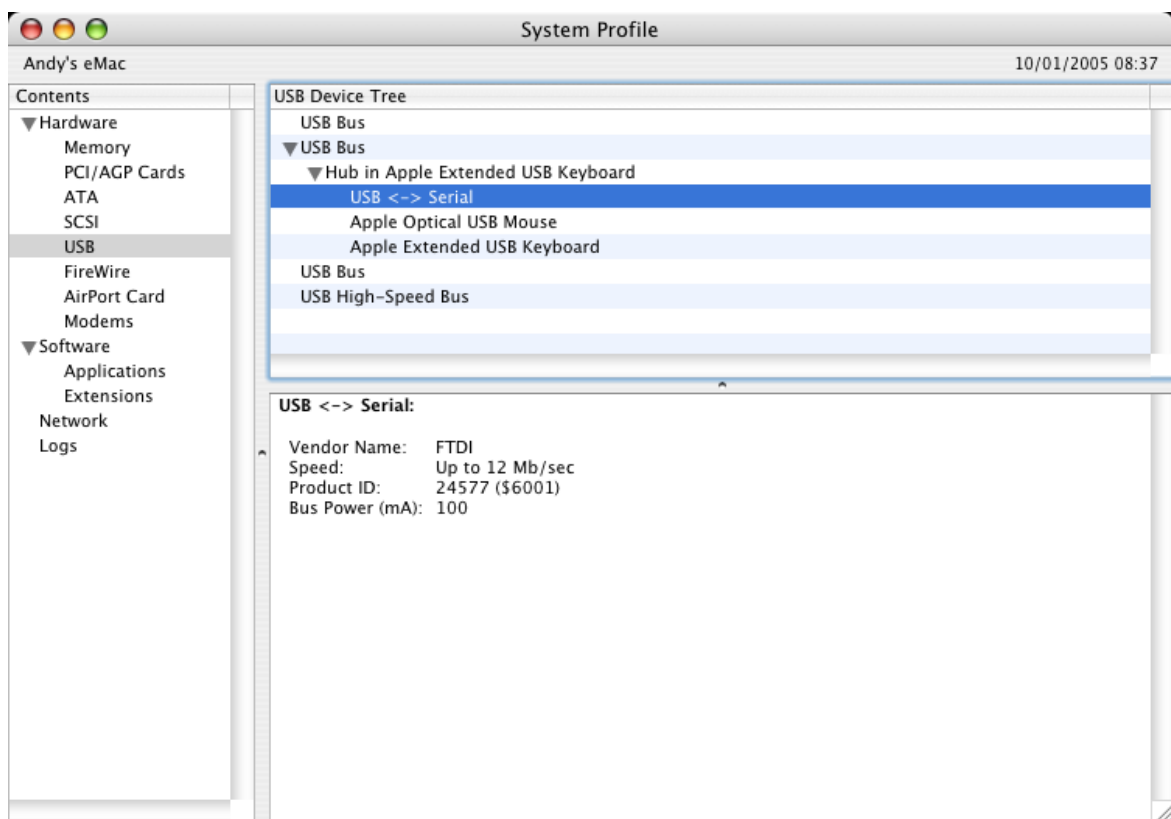
### 6.1 How do I know what my deviceID is?

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 pane to the left and then select the appropriate device from the USB Device Tree. In the screen shot below (from OS 10.3), the device has a deviceID given by:

Vendor Name: FTDI  
 Product ID: 24577 (\$6001)

A Vendor Name of FTDI is equivalent to a Vendor ID of 1027 (\$0403).



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 FTDI Support with the PID that needs to be added to the driver. If the VID is not 0x0403, it is likely that the device is not an FTDI device and we cannot support it.

## **6.2 The device does not appear in the /dev directory or the text "New Port Detected" is not displayed in SystemPreferences-Network**

FTDIUSBSerialDriver (or FT2232CUSBSerialDriver for FT2232C devices) 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 (or FT2232CUSBSerialDriver for FT2232C devices), contact FTDI quoting your deviceID and a description of your device.

## 6.3 The device cannot be accessed after the computer has rebooted

Unplug the device and then re-plug it to force a re-enumeration and allow the device to be accessed. However, this will need to be done each time the computer is rebooted. For a description of the root cause of the problem and a permanent fix, please see below.

FTDIReEnumerate is not setup correctly for your deviceID. The background to this problem is that FTDIUSBSerialDriver (or FT2232CUSBSerialDriver for FT2232C devices) has a dependency on com.apple.iokit.IOSerialFamily. This is an Apple driver and it is not a Root driver. This means that at "root" (boot) time, the driver's dependencies cannot be satisfied, and the driver does not participate in the extension loading process.

Apple's position on this problem is as follows:

"Apple will not (for the foreseeable future) be able to provide a root version of com.apple.iokit.IOSerialFamily. It depends on other components that are not available at boot time."

However, there is a workaround. A script that forces the device to re-enumerate is installed in the startup items folder so that it runs every time the system is booted. The script is called FTDIReEnumerate, and it supports FTDI's deviceID by default, but it can be changed to support any other deviceID.

Log in as root, then go to the directory at /Library/StartupItems/FTDIReEnumerate and edit FTDIReEnumerate. This can be done by selecting Go > Home > Library > Statrup Items > FTDIReEnumerate. Click on the file to edit it. Move to the line containing the text:

```
/Library/StartupItems/FTDIReEnumerate/ReEnumerate -v0403 -p6001
```

or for FT2232C devices,

```
/Library/StartupItems/FTDIReEnumerate/ReEnumerate -v0403 -p6010
```

-v introduces 4 hexadecimal digits that represent the vendorID (VID)  
-p introduces 4 hexadecimal digits that represent the productID (PID)

Replace 0403 with your device's VID, and replace 6001 (or 6001 for FT2232C devices) with your device's PID. For example:

```
/Library/StartupItems/FTDIReEnumerate/ReEnumerate -v1234 -pFEDC
```

Save FTDIReEnumerate and close the file.

## 6.4 Only one device can be accessed after the computer has rebooted

Unplug the device and then re-plug it to force a re-enumeration and allow the device to be accessed. However, this will need to be done each time the computer is rebooted. For a description of the root cause of the problem and a permanent fix, please see below.

If you have different devices using FTDIUSBSerialDriver (or FT2232CUSBSerialDriver for FT2232C devices), then FTDIReEnumerate is not setup correctly for your deviceIDs. The background to this problem is that FTDIUSBSerialDriver (or FT2232CUSBSerialDriver for FT2232C devices) has a dependency on com.apple.iokit.IOSerialFamily. This is an Apple driver and it is not a Root driver. This means that at "root" (boot) time, the driver's dependencies cannot be satisfied, and the driver does not participate in the extension loading process.

Apple's position on this problem is as follows:

"Apple will not (for the foreseeable future) be able to provide a root version of com.apple.iokit.IOSerialFamily. It depends on other components that are not available at boot time."

The solution is to edit FTDIReEnumerate so that it supports all devices.

Log in as root, then go to the directory at /Library/StartupItems/FTDIReEnumerate and edit FTDIReEnumerate. This can be done by selecting Go > Home > Library > Startup Items > FTDIReEnumerate. Click on the file to edit it. Add a line of the following format for every deviceID that has to be supported:

```
/Library/StartupItems/FTDIReEnumerate/ReEnumerate -vhhhh -phhhh
```

-v introduces 4 hexadecimal digits that represent the vendorID (VID)

-p introduces 4 hexadecimal digits that represent the productID (PID)

For example, to support three devices,

```
/Library/StartupItems/FTDIReEnumerate/ReEnumerate -v0403 -p6001  
/Library/StartupItems/FTDIReEnumerate/ReEnumerate -v1234 -pFEDC  
/Library/StartupItems/FTDIReEnumerate/ReEnumerate -v1234 -pBA98
```

or to support three FT2232C devices,

```
/Library/StartupItems/FTDIReEnumerate/ReEnumerate -v0403 -p6010  
/Library/StartupItems/FTDIReEnumerate/ReEnumerate -v1234 -pFEDC  
/Library/StartupItems/FTDIReEnumerate/ReEnumerate -v1234 -pBA98
```

Save FTDIReEnumerate and close the file.

## 6.5 The device cannot be accessed even although 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 (or FT2232CUSBSerialDriver for FT2232C devices) 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
```

or for FT2232C devices,

```
cd /system/library/extensions
chgrp -R wheel FT2232CUSBSerialDriver.kext
```

Reboot for the change to take effect.

## 6.6 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.

## 7 Revision History

<b>Version</b>	<b>Release Date</b>	<b>Comments</b>
1.0	December 2004	Initial release
1.1	January 2005	Screen shots added Root username explained Expander information added Uninstallation section added FT2232C device driver added
1.2	March 2005	DeviceID topic added under Troubleshooting Additional explanations included for Terminal application and port configuration Terminal topic added in Troubleshooting

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