

Future Technology Devices International Ltd.

Windows 2000 Installation Guide

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1 Welcome to the Windows 2000 Installation Guide

The purpose of this document is to provide users of FTDI chips with a simple procedure for installing drivers for their devices under Windows 2000.

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2 Installing FTDI Device Drivers

FTDI have previously provided two types of driver for Windows: a D2XX direct driver and a virtual COM port (VCP) driver. Previously, these drivers were mutually exclusive and could not be installed at the same time. The new Windows combined driver model (CDM) allows applications to access FTDI devices through either the D2XX DLL or a COM port without having to change driver type. However, it should be noted that an application can only communicate through one of these interfaces at a time and cannot send commands to the D2XX DLL and the associated COM port at the same time.

The CDM driver comes in two parts. The bus layer provides D2XX style functionality and is always installed. The CDM driver will determine whether a COM port should be exposed by reading the EEPROM of FT232R, FT245R and FT2232C devices. In the case of FT232BM, FT245BM, FT8U232AM and FT8U245AM devices, the CDM driver will default to always installing a COM port. This behaviour can be changed and EEPROM settings ignored by changing the driver INF files as detailed in AN232B-10 Advanced Driver Options. Please note that modifying the INF files of a Microsoft WHQL certified driver will invalidate the certification.

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2.1 Installing CDM Drivers via the Found New Hardware Wizard

To install CDM drivers for an FTDI device under Windows 2000, follow the instructions below:

- If a device of the same type has been installed on your machine before and the drivers that are about to be installed are different from those installed already, the original drivers need to be uninstalled. Please refer to the Uninstalling CDM Drivers 14 section of this document for further details of this procedure.
- Download the latest available CDM drivers from the FTDI web site and unzip them to a location on your PC.
- Connect the device to a spare USB port on your PC. If the device is based on the FT2232C, the Microsoft composite device driver is automatically loaded first.



- Once the composite driver has been installed the Found New Hardware Wizard will launch. Click "Next" to proceed with the installation.



- Select "Search for a suitable driver for my device (recommended)" as shown below and then

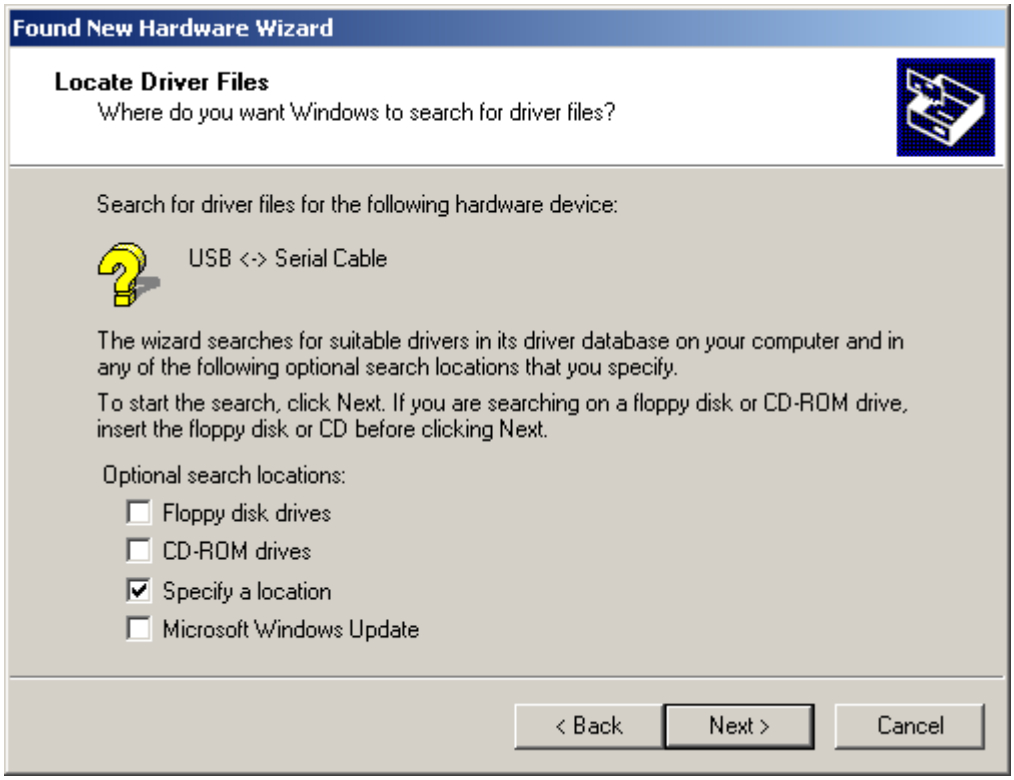
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click "Next".

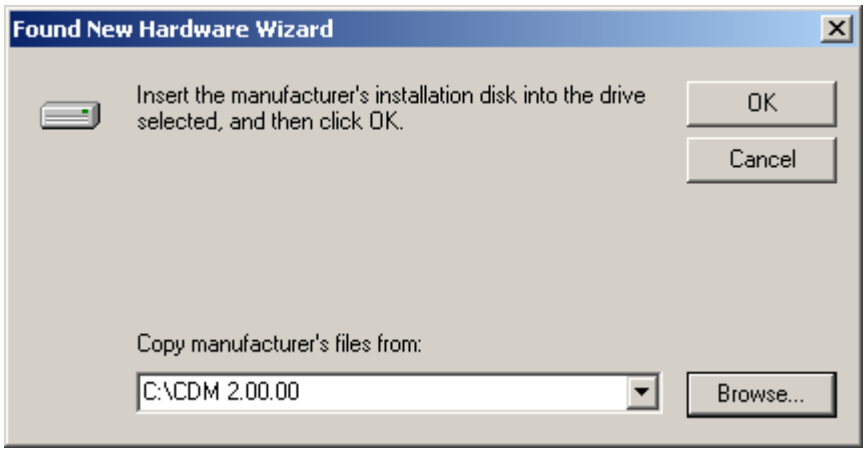


- Check the box next to "Specify a location" and uncheck all others as shown below.

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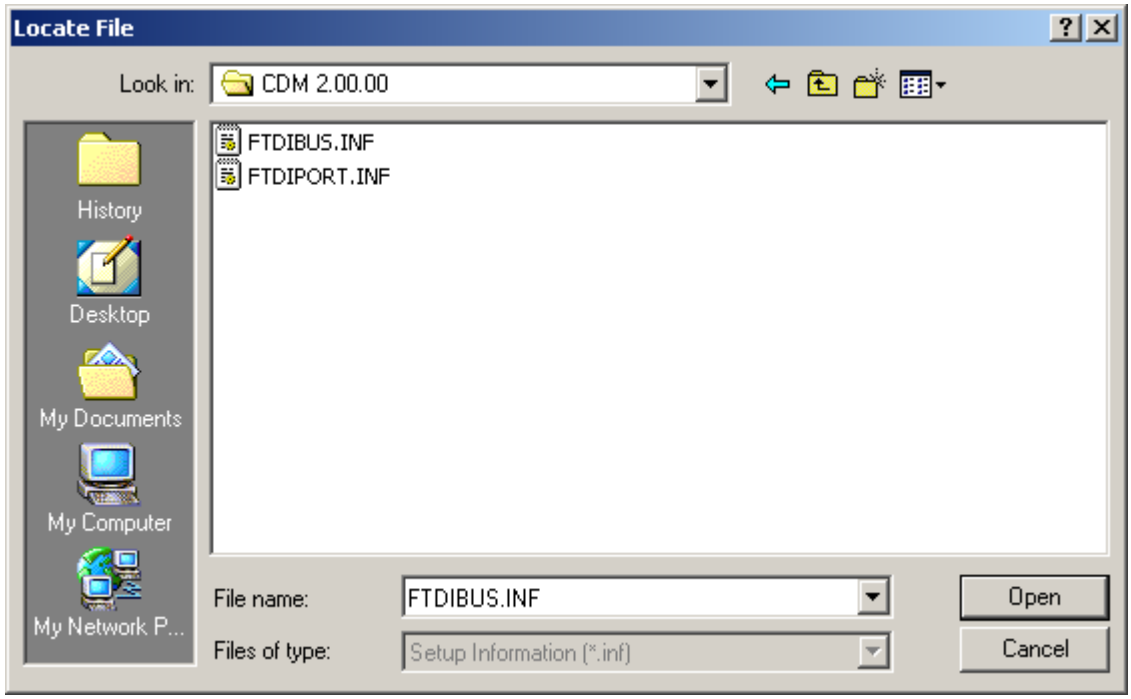


- Clicking "Next" displays a dialog box for you to enter to the location of the drivers.

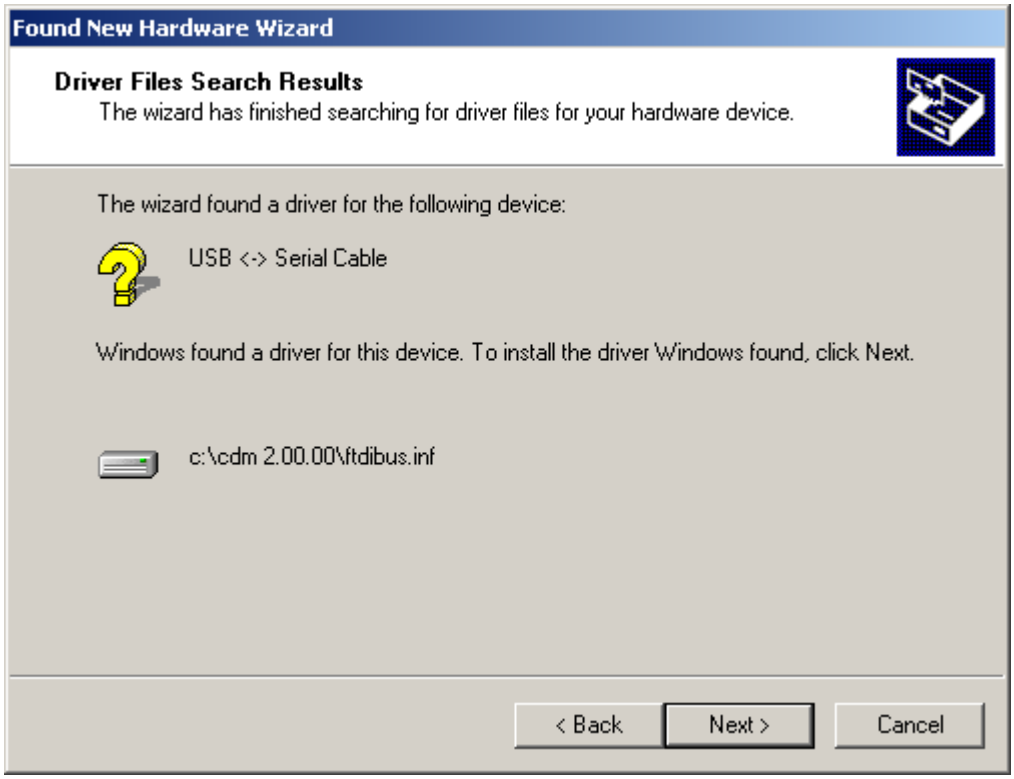


- Click "Browse" to display an open file dialog box.

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- Locate the folder containing the latest drivers downloaded from the FTDI web site above and click "Open", then click "OK". The PC autoselects the correct INF file, in this case FTDIBUS.INF. Once Windows has found the required driver .INF file, click "Next" to proceed.



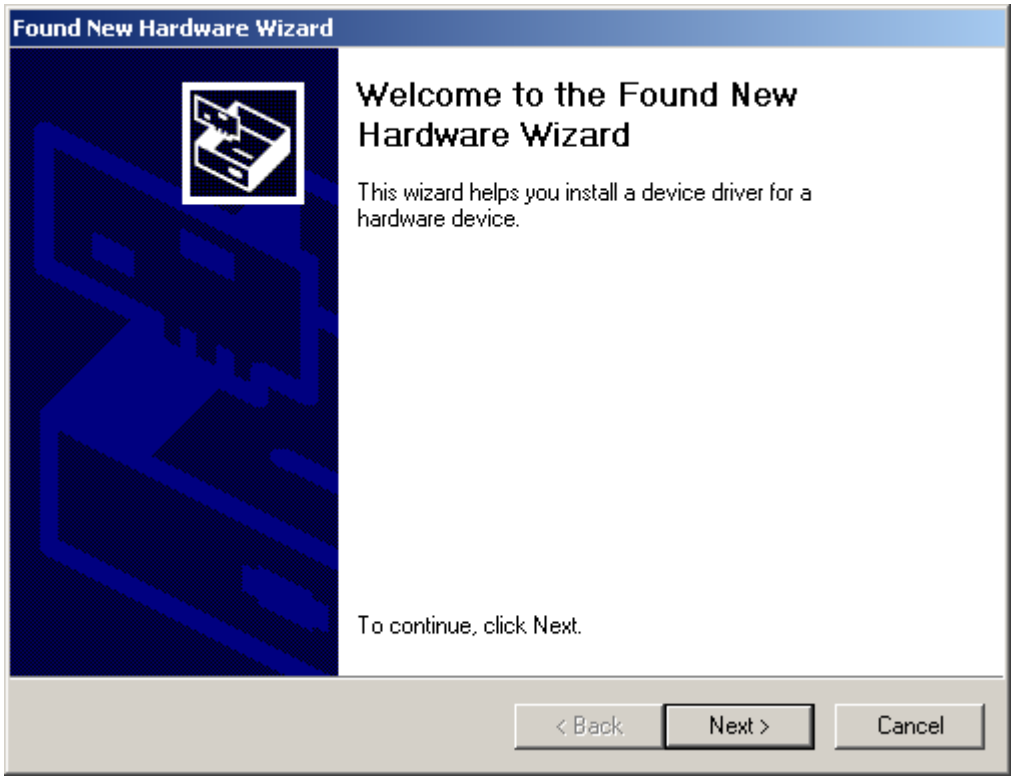
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- Windows should then display a message indicating that the installation was successful. Click "Finish" to complete the installation for the serial converter driver for this port of the device. The COM port emulation driver must be installed after this has completed.



- If the device is based on the FT2232C, the Found New Hardware Wizard will continue by installing the USB Serial Converter driver for the second port of the FT2232C device. The procedure for installing the second port is identical to that for installing the first port from the first screen of the Found New Hardware Wizard. If the device is not based on the FT2232C, the COM port emulation driver is loaded as indicated in the following steps. Click "Next" to proceed with the serial port installation.

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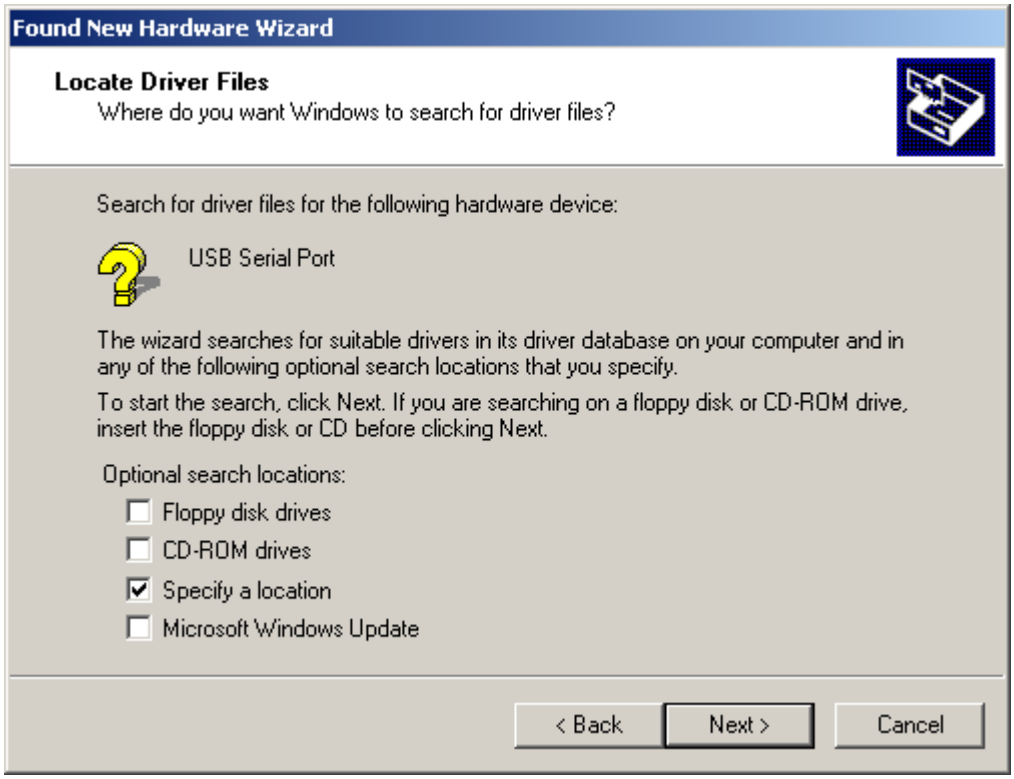


- Select "Search for a suitable driver for my device (recommended)" as shown below and then click "Next".

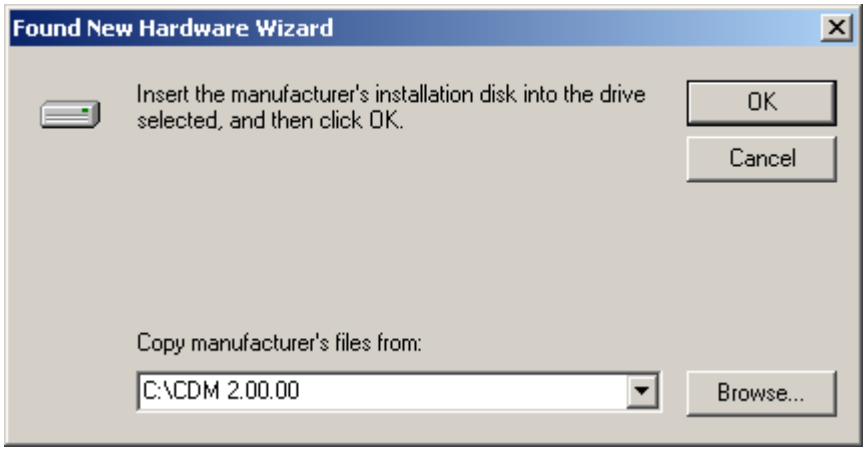


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- Check the box next to "Specify a location" and uncheck all others as shown below.

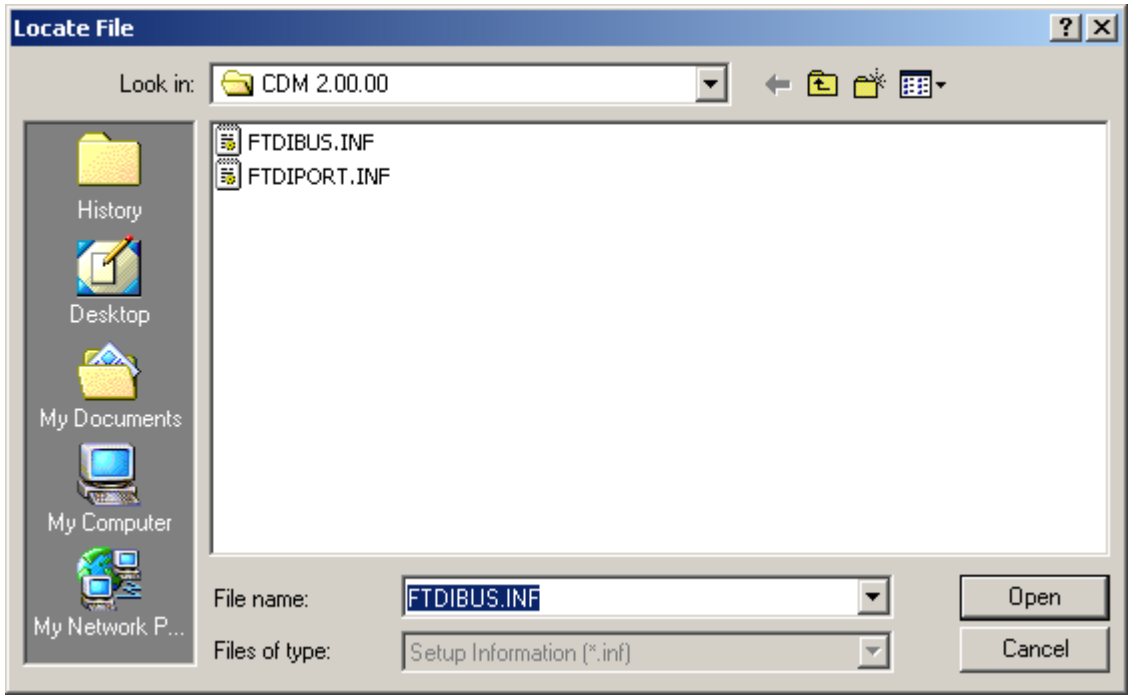


- Clicking "Next" displays a dialog box for you to enter to the location of the drivers.

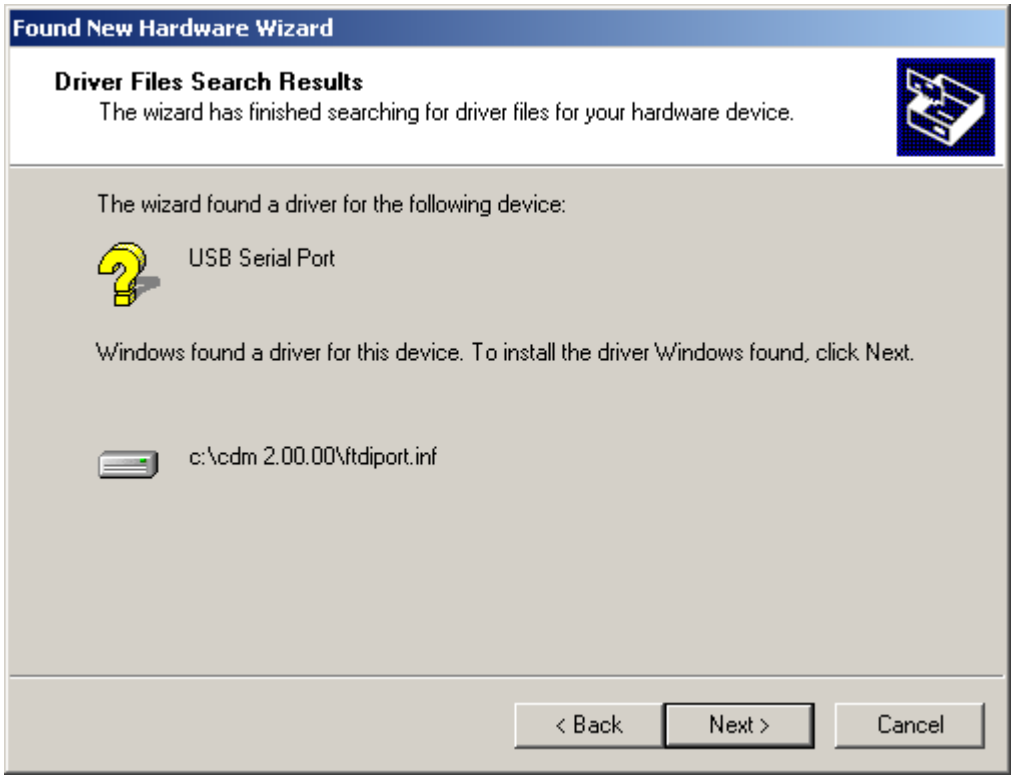


- Click "Browse" to display an open file dialog box.

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- Locate the folder containing the latest drivers downloaded from the FTDI web site above and click "Open", then click "OK". The PC autoselects the correct INF file, in this case FTDIPORT.INF. Once Windows has found the required driver .INF file, click "Next" to proceed.



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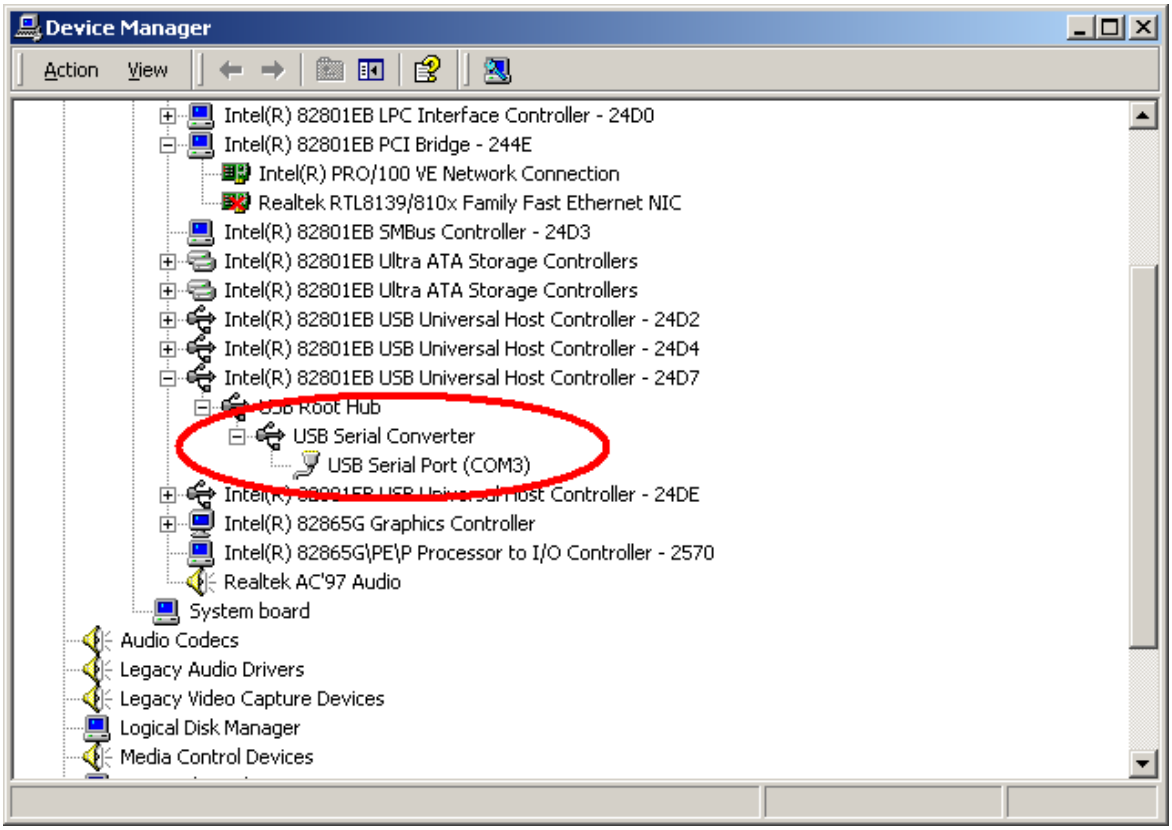
- Windows should then display a message indicating that the installation was successful. Click "Finish" to complete the installation for this port of the device.



- If the device is based on the FT2232C, the second port must also be installed. Under Windows 2000, this will occur automatically.

- By examining the Device Manager (located in "Control Panel\System" then select the "Hardware" tab and click "Device Manger…") and viewing by connection ("View > Devices by connection"), the device appears as a "USB Serial Converter" with an additional COM port with the label "USB Serial Port". If the device is based on the FT2232C, two ports will be available from a composite USB device.

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- In the case of the FT2232C, port A of the FT2232C will be installed as COMX and port B will be installed as COMX+1 where COMX is the first available COM port number.

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3 Uninstalling FTDI Devices

When uninstalling devices from Windows 2000, it should always be done through the Add/Remove Programs utility as this uses the FTDI driver uninstaller program to remove files and registry entries to leave a clean system. Other methods may leave fragments of the driver that may interfere with future installations.

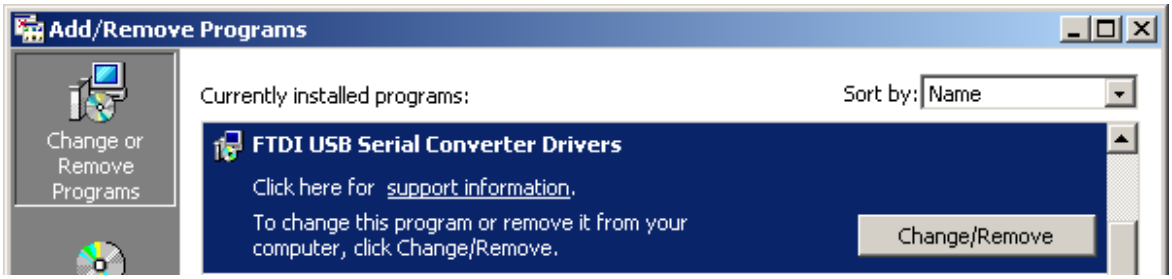
The FTDI uninstaller willl also remove drivers which were pre-installed using DPInst.

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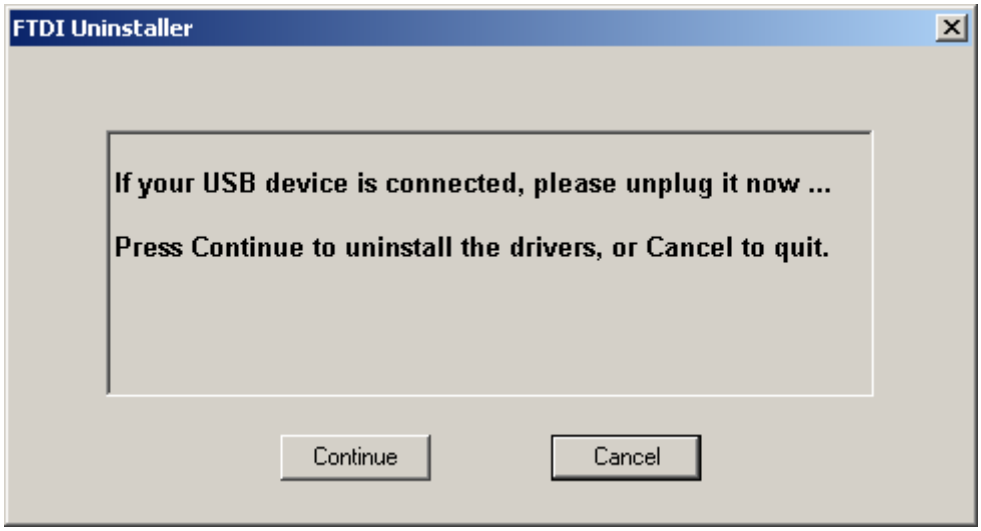
3.1 Uninstalling CDM Drivers

To uninstall CDM drivers for FTDI devices, follow the instructions below:

- Disconnect any FTDI devices that are attached to the PC.
- Open the Add/Remove Programs utility located in "Control Panel\Add/Remove Programs". Select "FTDI USB Serial Converter Drivers" from the list of installed programs.

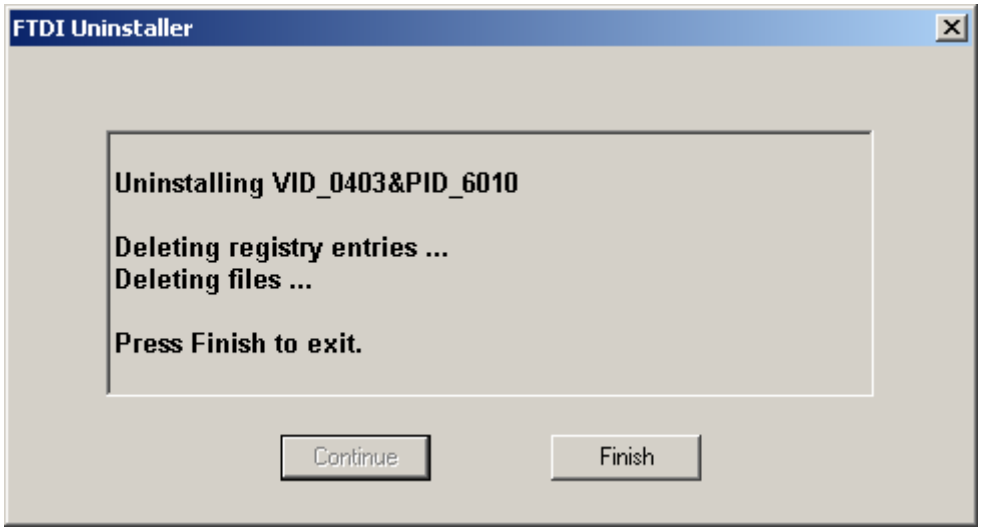


- Click the "Change/Remove" button. This will run the FTDI uninstaller program. Click "Continue" to run the uninstaller or "Cancel" to exit.



- When the uninstaller has finished removing the device from the system, the caption on the "Cancel" button will change to "Finish". Click "Finish" to complete the process.

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4 Troubleshooting

4.1 Windows 2000 cannot find drivers for my device

This error can occur if the VID and PID programmed into the device EEPROM do not match those listed in the INF files for the driver. The VID and PID programmed into the device EEPROM may be found by using the USBView utility from the FTDI web site. These can then be checked against the VID and PID entries in the driver INF files. If they do not match, that driver cannot be installed for that device without either re-programming the device EEPROM or modifying the list of VID and PID numbers in the INF files.

Please note that only your own company VID and PID or FTDI's VID (0x0403) and FTDI PID issued for use by your company should be used in the EEPROM and INF/INI files.

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4.2 Windows 2000 forces a reboot after installing a device

This problem can occur if an application is accessing a file while the New Hardware Wizard is trying to copy it. This usually occurs with the FTD2XX.DLL file. Selecting not to restart the computer then unplugging and re-plugging the device may allow the device to function properly without restarting. Restarting the machine will allow the device to work correctly.

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4.3 Driver installation fails and Windows 2000 gives error code 10

Windows error code 10 indicates a hardware error or failed driver installation. This error may appear if a device has insufficient power to operate correctly (e.g. plugged into a bus powered hub with other devices), or may indicate a more serious hardware problem. Also, it may be indicative of USB root hub drivers being incorrectly installed.

Please refer to the example schematics on the FTDI web site for standard device configurations. If the error persists, please contact the FTDI support department.

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4.4 FT232BM or FT245BM device hangs randomly during operation under Windows 2000

This is not caused by the driver, but is a hardware compatibility problem. Some newer USB 2.0 hubs and host controllers can be susceptible to noise and can cause random device failures. This can be overcome by fitting 47pF capacitors to ground on the USBDP and USBDM lines on the USB connector side of the 27Ω series resistors.

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5 Revision History

Version	Release Date	Comments
1.0	January 2005	Initial release
2.0	June 2006	Modified to reflect new driver model

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This document provides preliminary information that may be subject to change without notice.

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