

Future Technology Devices International Ltd

Application Note AN_104

FTDI Drivers Installation guide for Windows XP

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Acronyms and Abbreviations

Terms	Description
CDM	Combined Driver Model. FTDI's Windows driver that supports both D2XX and VCP interfaces.
VCP	Virtual COM Port. Emulation of a legacy RS232 COM port.

Table 1.1 Acronyms and Abbreviations

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1 Introduction

This document is intended to guide the reader through the process of installing FTDI's combined driver model (CDM) driver for the Microsoft Windows XP operating system. The CDM driver provides access to both virtual COM port (VCP) and FTDI's proprietary "direct" (D2XX) interfaces.

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2 Installing CDM Drivers

2.1 Installing Via The Found New Hardware Wizard

To install CDM drivers for an FTDI device under Windows XP, 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 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.
- If you are running Windows XP or Windows XP SP 1, temporarily disconnect your PC from the Internet. This can be done by either removing the network cable from your PC or by disabling your network card by going to the "Control Panel\Network and Dial-Up Connections", right-clicking on the appropriate connection and selecting "Disable" from the menu. The connection can be re-enabled after the installation is complete. This is not necessary under Windows XP SP 2 if configured to ask before connecting to Windows Update. Windows XP SP 2 can have the settings for Windows Update changed through "Control Panel\System" then select the "Hardware" tab and click "Windows Update".
- Connect the device to a spare USB port on your PC. If the device is based on the FT2232, the Microsoft composite device driver is automatically loaded in the background. Once the composite driver has been installed Windows Found New Hardware Wizard will launch. If there is no available Internet connection or Windows XP SP 2 is configured to ask before connecting to Windows Update, the screen shown in Figure 2.1 is displayed. Select "No, not this time" from the options available and then click "Next" to proceed with the installation. If there is an available Internet connection, Windows XP will silently connect to the Windows Update website and install any suitable driver it finds for the device in preference to the driver manually selected.



Figure 2.1

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- Select "Install from a list or specific location (Advanced)" as shown in Figure 2.2 below and then click "Next".

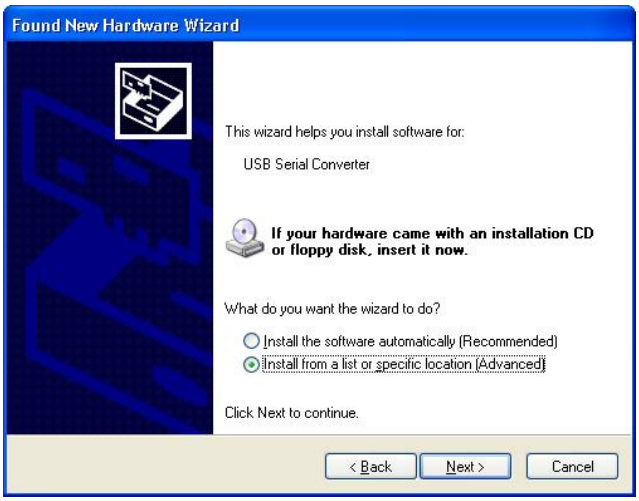


Figure 2.2

- Select "Search for the best driver in these locations" and enter the file path in the combo-box ("C:\CDM 2.02.04" in Figure 2.3 below) or browse to it by clicking the browse button. Once the file path has been entered in the box, click next to proceed.



Figure 2.3

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- If Windows XP is configured to warn when unsigned (non-WHQL certified) drivers are about to be installed, the message dialogue shown in Figure 2.4 will be displayed unless installing a Microsoft WHQL certified driver. Click on "Continue Anyway" to continue with the installation. If Windows XP is configured to ignore file signature warnings, no message will appear.



Figure 2.4

- The screen shown in Figure 2.5 will be displayed as Windows XP copies the required driver files.



Figure 2.5

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- Windows should then display a message indicating that the installation was successful (Figure 2.6). Click "Finish" to complete the installation for the first port of the device.



Figure 2.6

- If the device is based on the FT2232, the Found New Hardware Wizard will continue by installing the USB Serial Converter driver for the second port of the FT2232 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. This is done automatically if the driver is Microsoft WHQL certified. If the device is not based on the FT2232, the COM port emulation driver is loaded as indicated in the following steps.

- The Found New Hardware Wizard will launch automatically to install the COM port emulation drivers. As above, select "No, not this time" From the options and click "Next" to proceed with the installation (Figure 2.7).



Figure 2.7

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- Select "Install from a list or specific location (Advanced)" as shown in Figure 2.8 below and then click "Next".

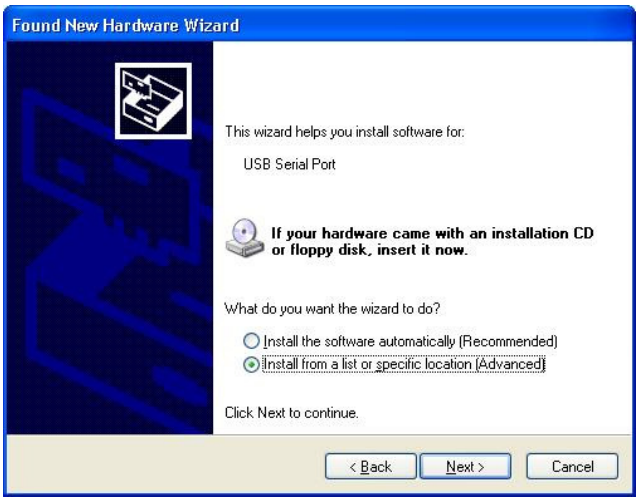


Figure 2.8

- Select "Search for the best driver in these locations" and enter the file path in the combo-box ("C:\CDM 2.02.04" in figure 2.9 below) or browse to it by clicking the browse button. Once the file path has been entered in the box, click next to proceed.

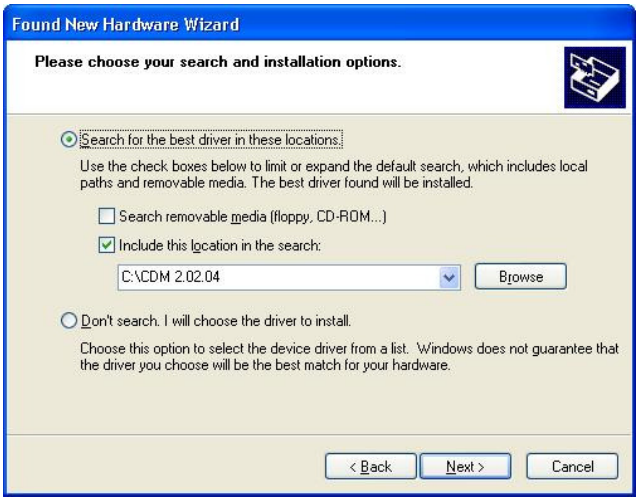


Figure 2.9

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- If Windows XP is configured to warn when unsigned (non-WHQL certified) drivers are about to be installed, the message dialogue shown in Figure 2.10 will be displayed unless installing a Microsoft WHQL certified driver. Click on "Continue Anyway" to continue with the installation. If Windows XP is configured to ignore file signature warnings, no message will appear.



Figure 2.10

- The screen shown in Figure 2.11 will be displayed as Windows XP copies the required driver files.



Figure 2.11

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- Windows should then display a message indicating that the installation was successful (Figure 2.12). Click "Finish" to complete the installation for the first port of the device.



Figure 2.12

- If the device is based on the FT2232, the second port must also be installed. 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 for the USB Serial Port device. If the driver is Microsoft WHQL certified, this is done automatically.

- Open the Device Manager (located in "Control Panel\System" then select the "Hardware" tab and click "Device Manger") and select "View > Devices by Connection", the device appears as a "USB Serial Converter" with an additional COM port with the label "USB Serial Port" (Figure 2.13). If the device is based on the FT2232, two ports will be available from a composite USB device.

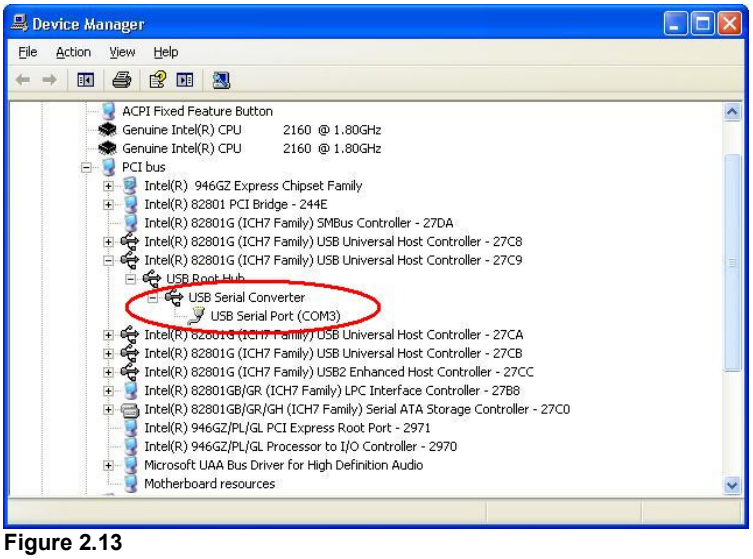


Figure 2.13

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- In the case of the FT2232, port A of the FT2232 will be installed as COMX and port B will be installed as COMX+1 where COMX is the first available COM port number.

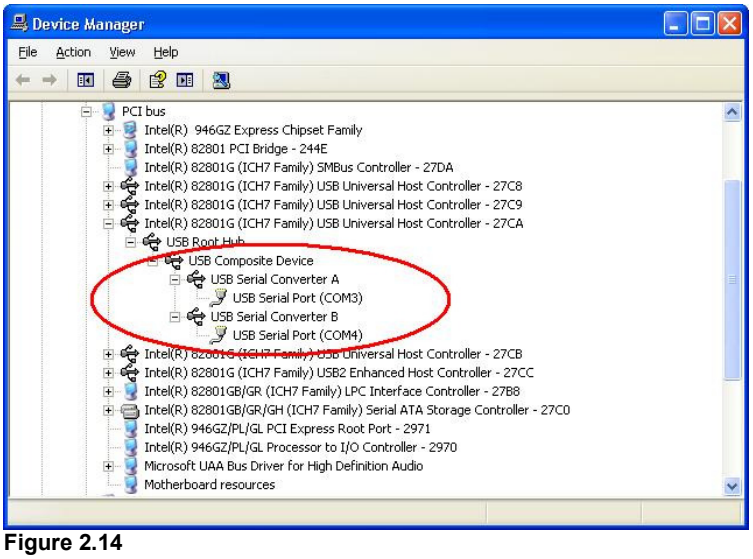


Figure 2.14

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2.2 Installing Using DPInst

In the case of a Microsoft WHQL certified driver package, it is possible to pre-install the driver package using the Microsoft Driver Install Frameworks (DIFx) tools. The simplest tool provided is the Driver Package Installer (DPInst). When placed in the same directory as the INF files for the driver package, simply run DPInst.exe and the certified driver package will be installed on the machine.

The current FTDI CDM driver package supports 32-bit and 64-bit systems through common INF files. DPInst has separate executables for 32-bit and 64-bit installation. This means that if a single solution is desired for 32-bit and 64-bit systems, the developer must be able to detect which version of DPInst is required for the system the driver is being installed on.

For more information on DPInst, see the FTDI Windows Driver Pre-Installation application note.

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2.3 Installing From Windows Update

If a certified driver is available for the target operating system, it is possible to install the driver from the Windows Update web site.

Directions to install the driver from Windows Update are very similar to those outlined in 2.1 Installing Via The New Hardware Wizard, except that the “Yes, this time only” or “Yes, now and every time I connect a device” option should be selected on the first screen of the wizard when asked if Windows Update should be checked for a driver. If the wizard finds a matching driver on Windows Update, the driver will be automatically downloaded and installed for the device.

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3 Uninstalling CDM Drivers

FTDI no longer supply an uninstaller program as part of the driver package. Consequently, a new method for uninstalling has to be used. Devices can be removed using the Device Manager by simply right-clicking on the device and selecting "Uninstall". This will delete the associated registry entries for that device only.

Under Windows XP, driver files and OEM INF and PNF files must be removed manually or by using a custom application. OEM INF and PNF files are located in the Windows\Inf directory and can be identified by searching for a VID and PID string matching the device installed e.g. VID_0403&PID_6001. Once the matching OEM INF files are found (e.g. oem10.inf for FTDIBUS.INF and oem11.inf for FTDIPORT.INF), the corresponding PNF files must also be removed (e.g. oem10.pnf and oem11.pnf). Driver files are located in the Windows\System32 and Windows\System32\Drivers directories.

Some points to note about this un-installation method:

- In the case of FT2232 devices, a composite device is also installed. This can also be removed by right-clicking on the composite device in the Device Manager and selecting "Uninstall".
- If the VCP driver has been installed, the COM port driver should be removed before the bus driver. If the bus is removed first, the COM port will no longer appear in the Device Manager.
- If the driver files are deleted while other installed devices still require them those devices will not work correctly. This can be fixed by right clicking the device and selecting "Reinstall Driver" which will replace the missing files.
- If a device to be uninstalled is not connected to the PC, the device can still be removed by setting the device manager to show phantom devices. This can also allow a virtual COM port to be uninstalled if the bus layer has been removed first. Instructions on how to display phantom devices are given in the Advanced Driver Options application note.

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4 Troubleshooting

4.1 Windows XP 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.

End customers should obtain modified drivers from the OEM of the device, and not necessarily edit the files themselves.

4.2 Windows XP 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.

4.3 Driver Installation Fails And Windows XP 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.

4.4 Windows XP Displays An Error And Then Terminates Installation

If the following screen is displayed with this message, Windows XP has been configured to block the installation of any drivers that are not WHQL certified.

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Figure 4.1

Two options are available to successfully install the device. Either a certified version of the driver can be installed (if available) or the driver signing options can be changed to either warn or ignore to allow the installation to complete.

To change the current driver signing setting, go to "Control Panel\System", click on the "Hardware" tab and then click "Driver Signing". The desired signing option may then be selected.

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Appendix A – Revision History

Version 0.1	First Draft	08/09/2008
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