

**Future Technology Devices  
International Ltd.**

## **Windows CE Installation Guide**

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# **1 Welcome to the Windows CE Installation Guide**

The purpose of this document is to provide users of FTDI chips with a simple procedure for installing drivers for their devices on PDAs and targets running Windows CE 4.2 and later.

## **2 Installing FT2232C, FT232BM, FT245BM, FT8U232AM and FT8U245AM Devices**

FTDI's 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> generation of USB UART and USB FIFO chips can be installed with one of two sets of drivers under Windows CE.

The first driver type is the D2XX direct driver. This provides direct access to the device via a dynamic link library (DLL) supplied with the driver. Applications can then be written which use the functions available in the DLL to directly control the device.

The second driver type is the virtual COM port (VCP) driver. The VCP drivers emulate a standard COM port. These can be communicated with in the same manner as any other COM port on the PC.

## 2.1 Installing D2XX Drivers

To install D2XX drivers for an FT2232C, FT232BM, FT245BM, FT8U232AM or FT8U245AM device under Windows CE 4.2 or later, follow the instructions below:

- Download the latest available D2XX drivers for the required processor model from the [FTDI website](#) and unzip them. If your processor model is not listed, please e-mail [FTDI support](#) with your target processor model. The critical files in the driver package are:
  - ftdi\_d2xx.dll - the D2XX driver file
  - ftd2xx.dll - application interface to the D2XX driver
  - ftd2xx.inf - user changeable file to allow devices with custom VID and PID combinations to be installed
- Copy all of the unzipped files to the \\Windows directory on the PDA.
- If the PDA requires a host adaptor (e.g. USB host cable, presentation pack or Compact Flash host card), make sure that it is connected and installed **before** proceeding.
- Connect the FTDI device to a host USB port on the PDA. This will provide a dialog box to direct Windows CE to the driver files.
- Type the full name of the D2XX driver file into the dialog box as shown below. If the file name is incorrect, the driver will not be found and the device will not function.



- The device installation is now complete. The installation may be verified using the D2XXAccess test program available from the [Code Examples](#) page of the [FTDI website](#). D2XXAccess is available written in [C++](#), [C#](#) and [VB.NET](#).

## 2.2 Installing VCP Drivers

To install VCP drivers for an FT2232C, FT232BM, FT245BM, FT8U232AM or FT8U245AM device under Windows CE 4.2 or later, follow the instructions below:

- Download the latest available D2XX drivers for the required processor model from the [FTDI website](#) and unzip them. If your processor model is not listed, please e-mail [FTDI support](#) with your target processor model. The critical files in the driver package are:
  - ftdi\_ser.dll - the VCP driver file
  - FTDIPORT.inf - user changeable file to allow devices with custom VID and PID combinations to be installed
- Copy all of the unzipped files to the \\Windows directory on the PDA.
- If the PDA requires a host adaptor (e.g. USB host cable, presentation pack or Compact Flash host card), make sure that it is connected and installed **before** proceeding.
- Connect the FTDI device to a host USB port on the PDA. This will provide a dialog box to direct Windows CE to the driver files.
- Type the full name of the VCP driver file into the dialog box as shown below. If the file name is incorrect, the driver will not be found and the device will not function.



- The device installation is now complete. The installation may be verified using the [VCPTTest](#) test program available from the [Utilities](#) page of the [FTDI website](#).

## **3 Troubleshooting**

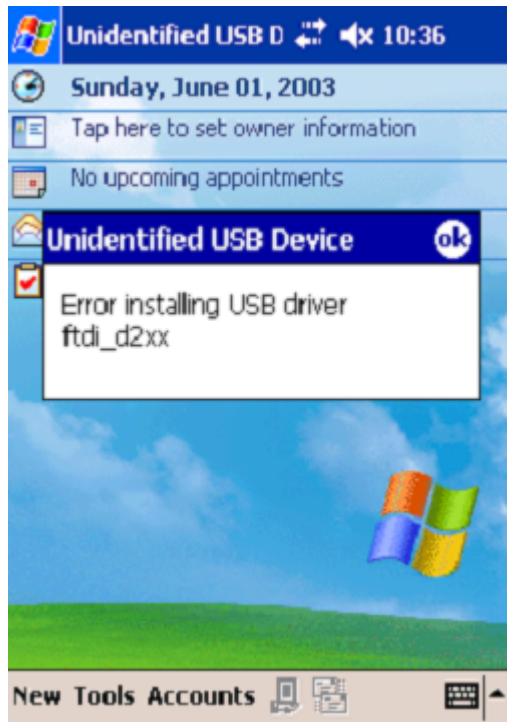
### **3.1 "Unidentified USB Device" dialog is not displayed when device is connected for the first time**

If the "Unidentified USB Device" dialog is not displayed when the device is connected for the first time, it is likely that the PDA does not have a USB host capability or that the host is not installed correctly.

Many PDAs require some form of adaptor (USB host cable, presentation pack or Compact Flash USB host card) to provide the USB host capability that FTDI devices require.

### 3.2 "Error installing USB driver ftdi\_d2xx.dll" message

The following installation error may be displayed for a number of reasons:



- The driver name has been misspelt
- The ".dll" file extension may be required for some platforms
- The required driver files are not in the \\Windows directory
- The driver file is in the wrong binary format



### 3.3 "Error installing USB driver ftdi\_ser.dll" message

The following installation error may be displayed for a number of reasons:



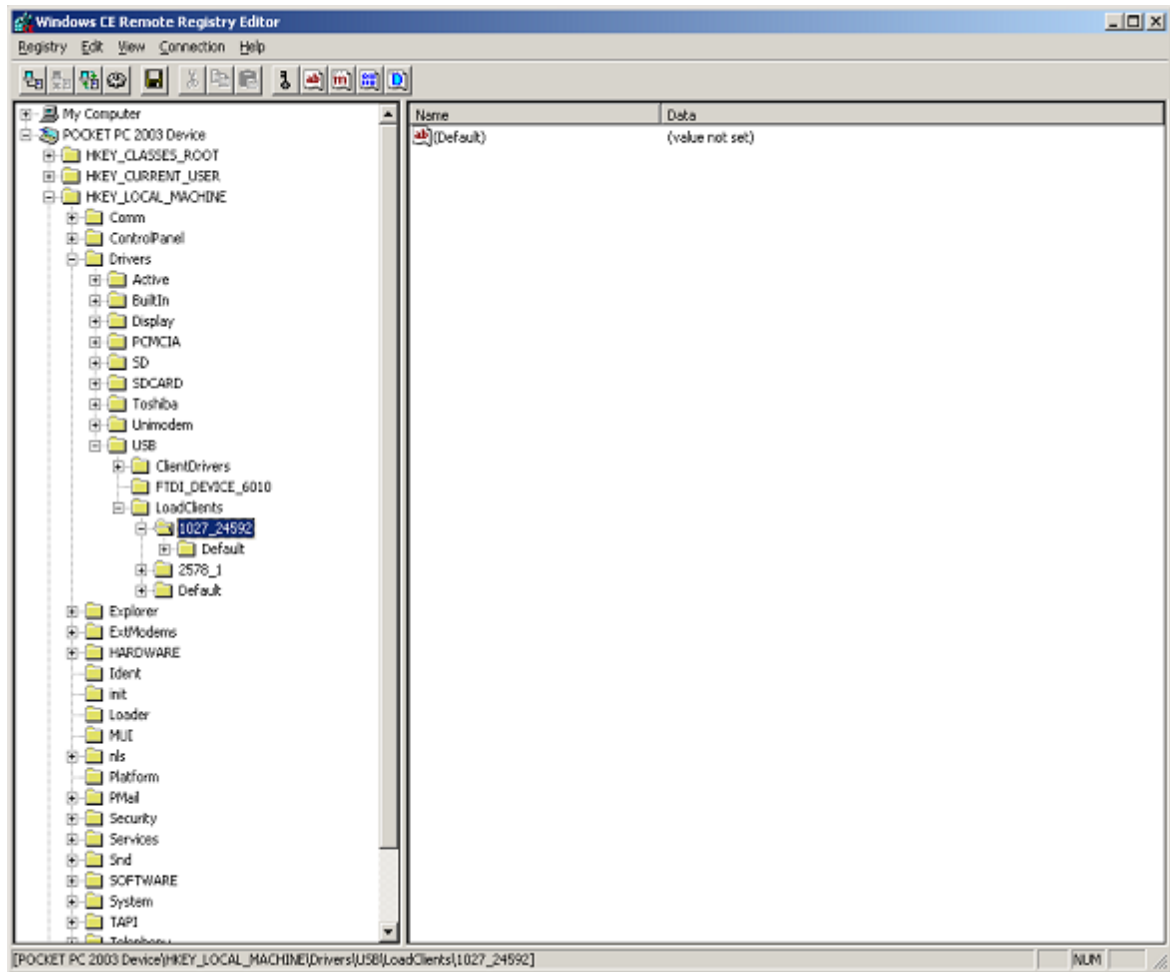
- The driver name has been misspelt
- The ".dll" file extension may be required for some platforms
- The required driver files are not in the \\Windows directory
- The driver file is in the wrong binary format

### 3.4 "Unidentified USB Device" appears each time the driver name is entered

This error can be caused when the VID and PID listed in the INF file does not match the VID and PID combination programmed into the device. It can also be caused if the INF file has not been copied to the \\Windows directory.



One way to check this is to use the Registry editor that comes with Embedded Visual C++ (or a suitable registry editor on the Windows CE device itself) to check for the registry settings (Tools > Remote Registry Editor). With ActiveSync running, connect to your device then look at the registry setting `HKEY_LOCAL_MACHINE\Drivers\USB\LoadClients\`



In this case, the entry is 1027\_24592, which corresponds to a VID of 0x0403 (1027) and a PID of 0x6010 (24592) device. If this is not the device to be installed, the message will recur.

To solve the problem, the INF files must be edited to accommodate the required VID and PID. For the D2XX drivers, edit the bold red entries in the following line in the ftd2xx.inf file:

```
[FtdiHw]
"FTDI Dual device"=FTDI,USB\&VID_0403&PID_6010
```

For the VCP drivers, edit the bold red entries in the following line in the FTDIPTORT.inf:

```
[FtdiHw]
%VID_0403&PID_6010.DeviceDesc%=FtdiPort232,FTDIBUS\COMPORT&VID_0403&PID_6010
```

### 3.5 Device can write but cannot read

If the hardware does not work correctly under Windows 2000 or Windows XP then the problem is most likely a hardware issue. Windows CE is not very tolerant of noisy hardware, so even "good" designs for Windows 2000 and XP may experience problems with Windows CE.

Another issue that has arisen with Windows CE is that different host devices support different bulk transfer sizes. One method to attempt to resolve this is to reduce `InTransferSize` to 64. This is the smallest possible transfer size and will have a severe effect on performance, but should resolve most other issues. Larger values may be tried to improve performance.

If a USB host CF card is being used, it may help to set the `Ratoc` bit in the configuration settings.

If the problems persist, please contact [FTDI Support](#).

### 3.6 Bytes missing or data corrupt

This can occur when a host driver fails to send vendor commands properly which can result in the device running at a different Baud rate to the one intended. The Baud rate can be verified easily by transferring data from PDA/target to HyperTerminal.

Some host device drivers have been seen to lose packets of data which would also cause this problem.

### 3.7 Driver isn't sending or receiving any data

Sending and receiving data can be tested with an application such as [VCPTTest](#). However, this will not highlight problems due to incorrect Baud rates. To check for the wrong Baud rate being set, try to transfer data from the PDA/target to and from HyperTerminal.

## 4 Revision History

Version	Release Date	Comments
1.0	June 2005	Initial release

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