



Future Technology Devices International Ltd.

Technical Note TN_104

**Guide to Debugging Customers Failed
Driver Installation**

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This document provides a standard process for debugging the reasons behind a driver installation failure.

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1 Introduction

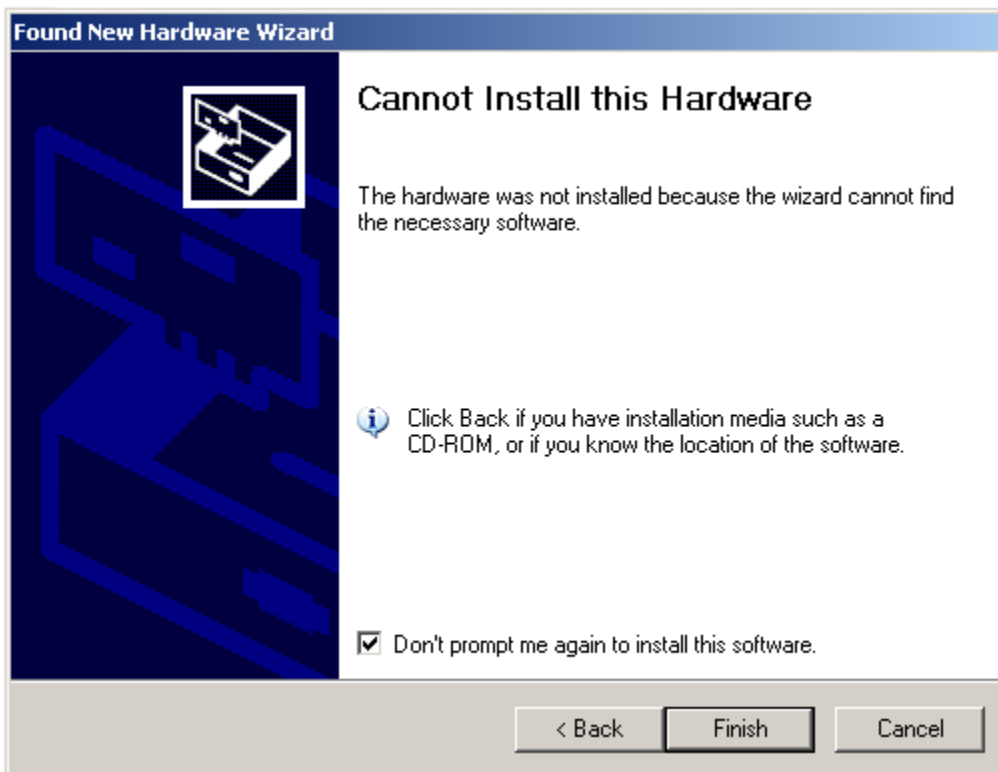
FTDI devices require royalty free drivers written by FTDI to be installed on a PC to operate. Occasionally the user is unable to install the driver and some basic debugging steps are required to identify and rectify the problem. The purpose of this document is to give some guidance on the basic steps to identifying the problem on a Windows OS

2 Gathering Information

The first question to ask when an installation seems to have failed is, why do I think the driver failed to install? What messages are displayed on the screen? The pop up messages can be very helpful.

2.1 Wrong PID

The message shown in the screenshot below indicates the hardware was not installed because the wizard cannot find the necessary software.

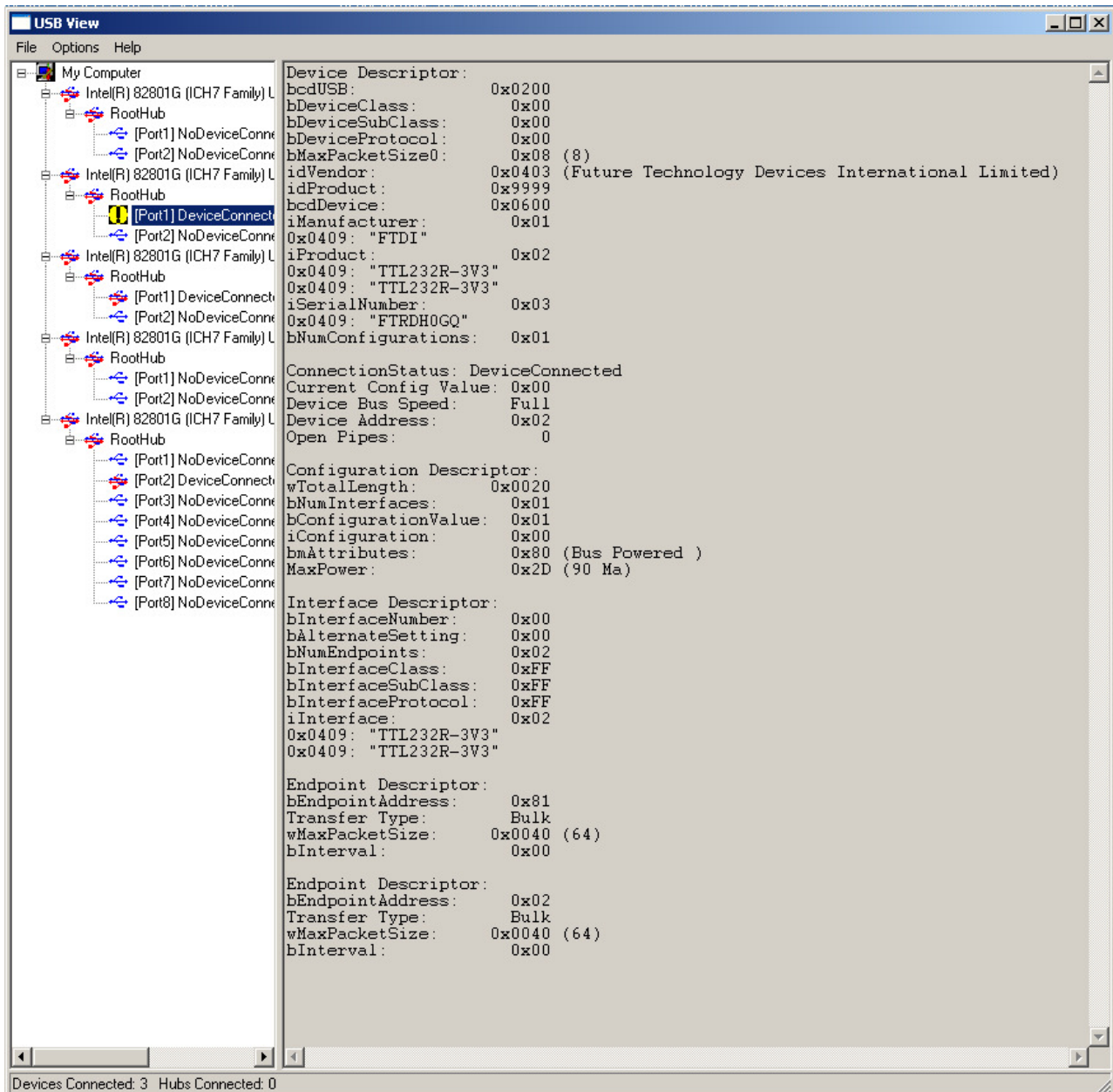


The meaning of this message implies the VID/PID in the driver inf file does not match the VID/PID of the hardware.

NOTE: The default VID/PID in the driver is 0403/6001 for the 'AM, 'BM and 'R chips, 0403/6010 for the FT2232D and FT2232H chips and 0403/6011 for FT4232H chips. Other combinations will require an edited driver that should be supplied by the product manufacturer.

To debug this you use USBVIEW which is a free tool downloadable from the FTDI website. USBVIEW is a tool that will read the descriptors without the need for a driver being installed.

2.2 USBVIEW



Under the options tab select "Config Descriptors"

Select the device in the left hand pane with the black/yellow warning symbol. The warning symbol indicates the driver is not installed and should match the device that has failed to install.

Selecting the device brings up the details in the right hand pane.

The key parameters are idVendor (VID) and idProduct (PID). The above screenshot shows idVendor is 0x0403 and idProduct is 0x9999 which would not install with the default driver.

If the device type is not known then check the bcdDevice parameter to get an idea of what generation device is in use. The example above shows bcdDevice = 0x0600 which indicates an 'R chip'.

Other valid bcdDevice values are:

0x0200 = FT232/245AM

0x0400 = FT232/245BL

0x0500 = FT2232D

0x0700 = FT2232H

0x0800 = FT4232H

Also note the serial number in case there are issues with installing multiple devices.

It is not possible to install 2 devices at the same time on the same PC if the VID, PID and Serial Number all match.

2.3 SetupAPI.log

As a last resort the 3rd source of installation information is the setupapi.log file which can be found in the system32 folder on the PC.

This can be compared with a log taken from a working installation to try to identify the failing step.

It may be necessary to contact FTDI support for a log of a working installation.

3 Corrective Action

Step 1 is always to run FT_Clean (unless using VISTA – where uninstalling must be done via device manager). This is a free utility on the FTDI website that will clean out all FTDI drivers and ensure the installation is being done on a clean machine. XP and prior systems may also require deletion of the appropriate oemxx.inf and oemxx.pnf files in %windor%\inf.

Step 2 is to edit the driver by following the instructions in AN_107 Advanced Driver Options before attempting to install again.

One exception to this is when all the descriptors returned by USBVIEW = 0x0000. In this instance there is most likely a hardware problem preventing the correct values being returned. In this case request the customer's schematic. 99% of the time the problem is related to the USB connector shield being connected directly to GND. Remove that link to fix the problem. Two other common problems in new designs is having DP and DM swapped and adding termination resistors when not needed with FT2xxR and FTx232H.

If a customer has more than one FTDI device installed and they use different VID/PID, then all VID/PID should be added to the one set of driver files. This will ensure the devices all use the same driver revision.

Now install the edited driver.

4 Contact Information

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Appendix A - References

AN_103 FTDI Driver Installation Guide for VISTA

AN_104 FTDI Driver Installation Guide for XP

AN_107 Advanced Driver Options

Appendix B - Revision History

Revision History

Version 1.00	Initial Release of draft for comment	October, 2008
Version 1.00	Released on Web	27/11/08
Version 1.01	Minor changes to Section 3 – changed AN_106 to AN_107	22/05/09