VID & PID - and Other Necessary Evils

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Vendor ID's and Product ID's may not be evil, but they are necessary. All USB devices have them. Even USB-based keyboards and mice have them even though you don't have to load USB drivers when you plug them in. These ID's tell Windows what drivers need to be loaded. The VID identifies the manufacturer of the USB silicon used in the hardware that is connecting to the USB port. In the case of all DLP Design products, the VID is 0403 because we use FTDI's USB silicon exclusively to implement our USB interface. The PID is a value that is typically assigned to a particular product or, in some cases, a family of products if all of the products in the family will operate happily with all of the parameters in that driver file set.

When a USB device is connected to a PC, the PC's operating system requests these values in a process known as enumeration. The USB target device sends the values over, then the operating system locates the driver file set that matches those values, loads the drivers and the system is ready to roll. When the USB target device is connected to the PC for the first time, a Wizard is presented to assist the user in locating and selecting the correct driver set. After this initial driver-loading session, the PC will quickly and automatically find the drivers the next time that product is connected.

It is possible to acquire your own VID. You can register with www.usb.org to get your own VID for a one-time fee of $2,000--or you can become a member for $4,000 per year and they will waive the $2,000 USB-IF Trademark License Agreement administrative fee. Another option is to use FTDI's VID and request a block of PID's directly from FTDI. They will provide you with a block of eight PID values that you can use with FTDI silicon. If you get your own VID, then you can select any PID value you like for your product. Note: If you want your product to work with Windows 7, then you will need to read the following section.

WHQL (pronounced "whickle") Certification is a relatively recent requirement for USB drivers that will be used with 64-bit Windows operating systems. If you try to use USB drivers that do not have WHQL Certification on a 64-bit machine, Windows will flat out refuse to load them. (Windows XP does not have this issue.) One obtains WHQL Certification on their driver file set by sending it to Microsoft along with a wad of cash. Microsoft will then test the drivers for proper Windows etiquette and send back a file set that will properly load on a 64-bit machine.

While you are developing your USB-based product, you can use FTDI's WHQL-Certified driver set. If you are using your product purely in house, then you can use their drivers indefinitely. However, if you intend to sell your product, then you need to either request a block of PID's from FTDI or register your own VID. If you want customers who buy your product to be able to

use Windows 7, then you must obtain WHQL Certification on the driver file set that contains either your own VID or FTDI's.

The VID and PID values reside in two locations: (1) In the USB chip (or a memory device connected to it) and (2) in the *.inf files that are part of the driver file set. To change the values stored in the USB chip, FTDI provides the older MPROG and the newer FT_PROG utilities. Both work well with all versions of FTDI's USB target IC's, but FT_PROG is also able to initialize FTDI's Vinculum USB Host IC's. The MPROG utility and its User's Guide are available for download from the bottom of the page at www.dlpdesign.com.

*The entries in the *.inf files look something like this:*

%VID_0403&PID_6010.DeviceDesc%=FtdiPort.NT,FTDIBUS\COMPORT&VID_0403&PID_6010

%VID_0403&PID_6011.DeviceDesc%=FtdiPort.NT,FTDIBUS\COMPORT&VID_0403&PID_6011

USB\VID_0403&PID_6001.DeviceDesc="USB Serial Converter"

USB\VID_0403&PID_6010&MI_00.DeviceDesc="USB Serial Converter A"

(Note that PID 6001 is used for single-channel USB IC's, and 6010/6011 are used for dual-channel IC's in the default FTDI driver set.)

If you want to add a new PID value (ex: FBF9) to a driver file set, you would simply copy and paste a new line into the file and change the four-digit PID as shown here:

%VID_0403&PID_FBF9.DeviceDesc%=FtdiPort.NT,FTDIBUS\COMPORT&VID_0403&PID_FBF9

USB\VID_0403&PID_FBF9.DeviceDesc="USB Serial Converter"

(Making this type of change to the *.inf files will kill the WHQL Certification, and the files will not load on a 64-bit Windows computer.)

If anything goes wrong with the driver file installation process, or if you would like to start over with a clean slate on a PC that may have had an older set of drivers installed, then you can run the CDM Uninstaller utility. This utility is also available for download from the bottom of the page at www.dlpdesign.com.

These are the high points on the topic of VID and PID. A plethora of additional information is also available from FTDI's Application Notes page at: www.ftdichip.com/Support/Documents/AppNotes.htm.

Remember that the VID and PID values in the *.inf files must match those found in the USB IC's memory. If you accidentally change the values in the IC with MPROG or FT_PROG, then you must also change them in the *.inf files or your drivers will not load. If you have changed the values in the IC and don't know what the new values are, then you can run the USBView utility to read them (also available from

www.dlpdesign.com). Once you know the new values, you can then edit the *.inf files to include the new values and then the drivers will load…so long as you are not on a Windows 7 PC!
