Future Technology Devices International Ltd.

AN232R-03 FTDI Windows Driver Pre-Installation

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1   FTDI Windows Driver Pre-Installation

1.1   Overview

Device driver installation via the Found New Hardware Wizard has been the standard route to reliable device operation for a number of years. However, it can be frustrating to end users and developers who want to make software and hardware installation as painless as possible for their customers.

Microsoft have recognised this and have made a collection of device driver installation tools available for Windows 2000 and later, Driver Install Frameworks (DIFx). The tools included in DIFx cater for pre-installing drivers, that is installing drivers before the hardware is available in the system. This can allow drivers to be available on the PC for loading when a matching device is connected for the first time. If the driver pre-installed with DIFx has been Microsoft WHQL certified, the driver can be loaded silently with no input required from the user.

The tools available in DIFx are:

Driver Package Installer (DPInst)
This is an executable file with an XML configuration file that is read when it is run. By placing DPInst.exe and DPInst.xml in the same directory as the driver package (or having the driver package in a subdirectory below the DPInst files), the driver package can be installed by running DPInst.exe.

Driver Install Frameworks for Applications (DIFxApp)
This allows drivers to be installed at the same time as application software the driver is associated with using MSI. This is intended for use by developers who provide an application in an MSI package already, or who intend to provide one.

Driver Installation Frameworks API (DIFxAPI)
This provides access to functions for including in a developer's own code and can be used for a highly customised installation. The supplied functions are:

- DriverPackagePreinstall()
- DriverPackageInstall()
- DriverPackageUninstall()
- DriverPackageGetPath()

The DIFx tools and documentation are available for free download from www.microsoft.com and are available for x86, x64 and IA64 processors.

This document will only cover pre-installation using the DPInst tool as this is the simplest and most generic method.

1.2   DIFx Driver Package Requirements

DPInst can be used to pre-install drivers with Windows 2000 and later, provided that the driver package meets the requirements outlined in "Requirements for Driver Packages That Are Used with the Driver Install Frameworks (DIFx) Version 2.0 Tools" which is provided with the DIFx documentation.

The requirements can be summarised as a standard Windows driver package plus a few additional INF entries and Microsoft WHQL certification. FTDI's latest certified VCP driver (R2176) meets these requirements.

It is important to note that if a product uses a custom VID and/or PID (i.e. any VID and PID combination other than one of the defaults listed in a certified driver INF), modifying the INF files to include the required VID and PID combination will invalidate the certification. This problem can be overcome by obtaining reseller rights for the driver.

FTDI can grant customers reseller rights for their certified drivers, provided the customer has a Microsoft Winqual account. Once the customer is granted reseller rights by FTDI and pays a small fee to Microsoft, the customer can be provided with a certified driver package with the required VID and PID combination. For details on how to obtain a Winqual account, please contact Microsoft or visit their Winqual pages.

1.3   Sample DPInst.xml File

DPInst.exe reads the DPInst.xml configuration file on execution to determine how DPInst should execute.

To use DPInst to perform a silent install, DPInst.xml could contain the following code:

```
<?xml version="1.0"?>
<dpInst>
        <suppressWizard/>
        <quietInstallStrict/>
</dpInst>
```

This would require that the driver package be in the same directory as DPInst.exe and DPInst.xml.

Alternatively, DPInst can be used to provide an installation wizard with an optional end user license agreement:

```
<?xml version="1.0"?>
<dpInst>
   <language code="0x0409">
      <dpinstTitle>VCP Driver Installer</dpinstTitle>

      <welcomeTitle>Welcome to the VCP Driver Installer!</welcomeTitle>
      <welcomeIntro>This wizard will install VCP drivers for your FTDI USB device.</welcomeIntro>

      <eulaHeaderTitle>End User License Agreement</eulaHeaderTitle>
      <eulaYesButton>I &amp;accept this EULA</eulaYesButton>
      <eulaNoButton>I do &amp;not accept this EULA</eulaNoButton>

      <installHeaderTitle>Installing the software for your FTDI device...</installHeaderTitle>

      <finishTitle>Congratulations! You are finished installing your FTDI device.</finishTitle>
      <finishText>VCP drivers are now installed for your FTDI USB device.</finishText>

      <eula type="txt" path="eula.txt" />
   </language>
   <icon>ftdismall.ico</icon>
   <watermarkPath>FTDI.bmp</watermarkPath>
</dpInst>
```

Once DPInst has been configured, it is possible (and convenient) to create a setup executable or self-extracting zip file containing DPInst.exe, DPInst.xml and the driver package. This can be set to run DPInst.exe immediately after extraction and this will provide a simple way for the user to install the drivers.
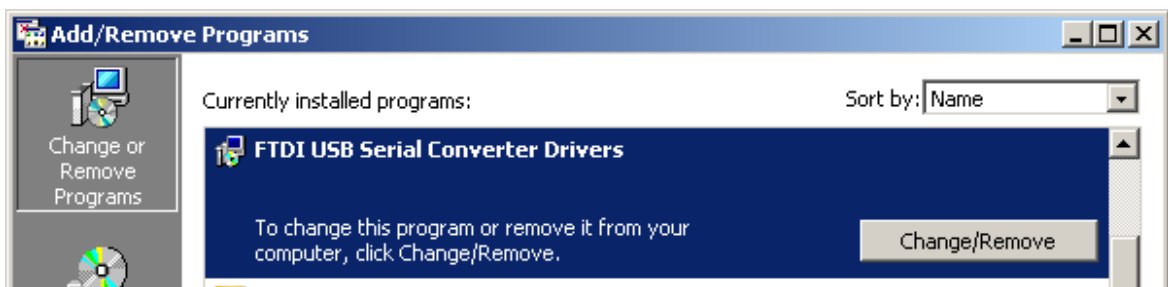
1.4   Uninstalling Drivers

DPInst also creates entries in the Add/Remove Programs utility for removing device drivers. One entry is created for each device driver installed, so in the case of the FTDI VCP driver two entries will be created. These are named "Windows Driver Package" appended with driver details (see example below).

Removing the driver using these entries will remove files from the driver store and uninstall any device which are connected during the uninstall, but other "phantom" devices (i.e. installed on the system but not connected) will not be uninstalled.

The regular Add/Remove Programs entry for the FTDI driver will also be present (see below).

This will remove phantom devices and ensure that all remnants of the driver and registry settings are deleted. Version 4.0.3 of the FTDI uninstaller and later will also check for pre-installed drivers in the driver store. By doing this, only the regular FTDI driver entry is required in the Add/Remove Programs window. The DPInst entries can be suppressed by including the <suppressAddRemovePrograms/> switch in the <dpInst> section of the DPInst XML file 4 .

1.5   References

Microsoft Driver Install Frameworks Page
Microsoft DPInst Documentation
Microsoft Winqual Page

2   History, Disclaimer, Contact

2.1   Document Revision History

AN232R-03 Version 1.0 - Initial document created January 2006.

2.2   Disclaimer

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