



**Future Technology Devices
International Ltd.**

**AN232B-07 Configuring FTDI's VCP
Drivers to use Location IDs**

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1 How To Configure VCP to Use a Specific COM Port

1.1 Introduction

A common problem occurs in a manufacturing environment when it is required to test serial converter cables by installing them as COM ports. When serialized cables are plugged in for testing, the system allocates a new COM port for every cable. If the system limit of 256 COM ports is reached, the only way to continue testing is to free up COM ports by uninstalling then reinstalling.

The problem occurs because the serialized cables appear to the system as unique devices, each device identified by its serial number and the serial number is used by the VCP driver when it creates a COM port. If the serial number was not used to create the COM port, then it would be possible setup an environment where every cable installed as the same COM port. Therefore, only one COM port would be needed to test any number of cables.

Here we describe how to configure the VCP driver to achieve this goal.

1.2 Location IDs

The idea is to allocate a COM port using information derived from the cable's physical location on USB instead of the serial number. If the cables are always plugged into the same USB port, then they will appear to the system as the same COM port.

FTDIBUS.SYS can be configured to use location information and the configuration parameter Loclds has been introduced for this purpose. Loclds is an array of device locations in the USB tree. If Loclds is set up, then only devices that are plugged into these locations are supported by the driver. So, if Loclds has been set up and a device is plugged into one of the supported locations, it will be installed as a COM port. If Loclds has been set up and a device is plugged into some other location, then it will not be installed as a COM port.

1.3 Implementation

Location IDs are used to define the set of USB ports supported by FTDIBUS. The driver's default behaviour is that all USB ports are supported, but the default can be overridden via the binary value *Loclds* in the FTDIBUS service key.

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\FTDIBUS\Parameters\Loclds

Loclds is a binary value (REG_BINARY) that is interpreted as an array of Location IDs. A Location ID is a 32-bit unsigned integer (DWORD) that represents the location of the device in the USB tree. For example, if the driver creates a location string for the device of the form *a&b&c*, the Location ID will be 0x00000abc.

The driver can be installed with support for one Location ID by changing FTDIBUS.INF to include the following fragments:

```
[FtdiBus.NT.AddService]
AddReg = FtdiBus.NT.AddService.AddReg
```

```
[FtdiBus.NT.AddService.AddReg]
HKR,Parameters,"Loclds",1,23,00,00,00,00
```

Here, one USB port is supported, and Location ID 0x00000023 represents host controller 1 port 3.

The driver can be installed to support more than one Location ID by changing FTDIBUS.INF to include the following fragment:

```
[FtdiBus.NT.AddService]
AddReg = FtdiBus.NT.AddService.AddReg

[FtdiBus.NT.AddService.AddReg]
HKR,Parameters,"Loclds",1,21,00,00,00,32,00,00,00,11,00,00,00
```

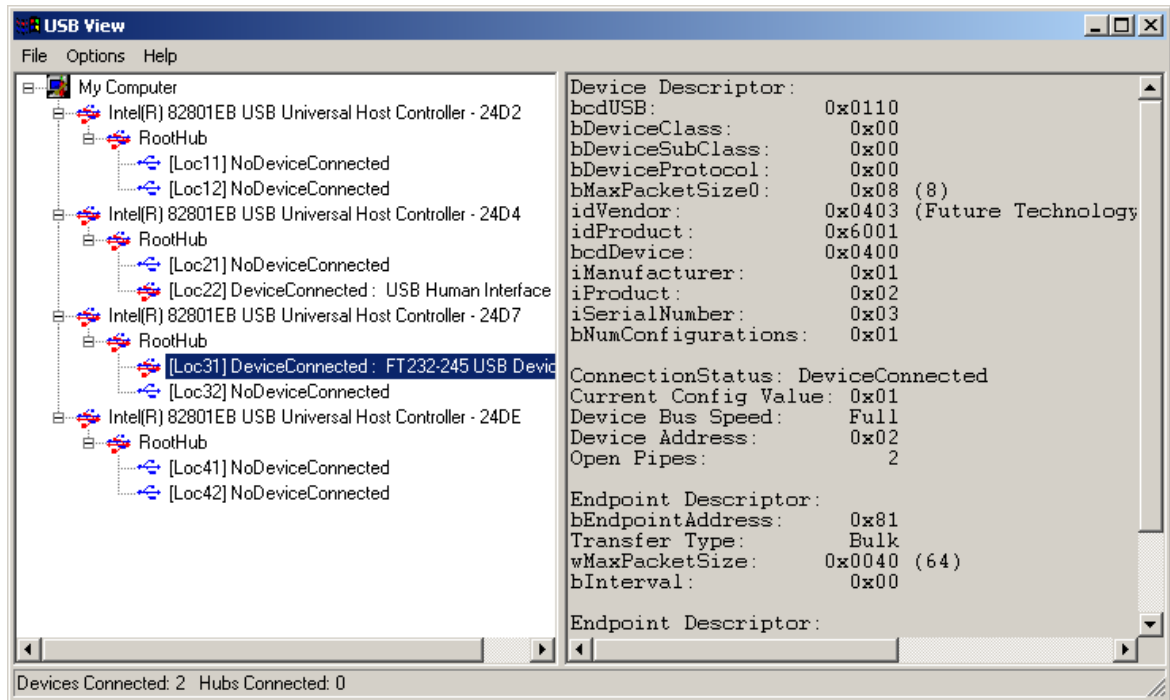
Here, three USB ports are supported. Location ID 0x00000021 represents host controller 1 port 1. Location ID 0x00000032 represents host controller 2 port 2. Location ID 0x00000011 represents host controller 0 port 1.

Note that Location IDs are represented in the *Loclds* field as 4 hexadecimal bytes and in byte-reversed order.

Note also that although on USB host controllers are indexed from 0 and ports from 1, Location IDs are calculated by adjusting the host controller number so that it is indexed from 1.

1.4 USBView

Location IDs can be obtained using the utility USBView that is available from FTDI. To get the Location ID for a specific USB port, run USBView and plug a device into the port that is required. From the menu select Options > LocationIDs. Press F5 to refresh the display and the port numbers are replaced with Location IDs of the form LocXY where X and Y are hexadecimal digits. XY is the Location ID that is used in the LocIds field as described in the previous section.



1.5 Limitations

Although this technique can be used to control the number of COM ports created in the system, it cannot prevent the installation of a new USB device for every unique device that is plugged in.

Location IDs are only supported on Windows 2000 and XP.

1.6 Requirements

The following are required to use LocIds.

- [VCP 1.00.2150 or later](#)
- [USBView](#) with Location IDs

2 History, Disclaimer, and Contact Information

2.1 Document Revision History

AN232B-07 Version 1.0 - Initial document created March 2004.

AN232B-07 Version 1.1 - Format updated, minor corrections.

AN232B-07 Version 1.2 - INF fragments updated for new driver release.

2.2 Disclaimer

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