Virtual Serial Port over USB For PC43t, PC43d and PC23d

Introduction

Physical serial ports are becoming less common on new PCs and laptops. Most computers are equipped only with USB or network connections for communication with our printers.

This trend is creating problems for printer users from two main perspectives:
- PC software that only communicates to a COM port.
- No proper terminal application exists for USB connected printers for troubleshooting/printing.

One solution to these problems is to create a virtual serial port over the USB interface and use the printer as if it had a serial connection.

This technology brief describes how to install and use a virtual serial port Windows driver for our new PC series of printers.

Supported Printers

The virtual serial port requires hardware dependent implementation and is only supported in these printers:
- PC43t, PC43d and PC23d

Supported Command Languages

Even though the PC will see the printer connection as a serial port the actual interface in the printer is USB. All languages that support and are configured to listen for USB data can make use of the virtual connection.

In a Fingerprint application the data sent from the host will be available on the "usb1:" channel.

Supported Windows Versions

The driver provided by Intermec is defined to support Windows 2000 and newer Windows versions.

The scope of this technology brief only covers validation, installation guides and testing in Windows 7 and Windows XP.

Configure Printer

Before the printer can be used as a virtual serial port the virtual COM setting in the printer must be enabled followed by rebooting of the printer: Settings->System Settings->Manage I/O->Virtual COM

For LCD printers the easiest configuration method is through the LCD interface and for icon printers either PrintSet or the printer's web page.

Required Driver Files

To use the printer via virtual serial port a driver description profile (.inf) as well as driver file (.sys) must be available in the computer:

intermec-virtual-serial-port.inf	Intermec specific driver description
usbser.sys	Standard Windows system driver

(Note: the usbser.sys file may or may not exist in all Windows systems. If it is not automatically found it should be available either in the PC file system, on the Windows CD or on the Microsoft driver download page.)

Driver Download

Download the virtual serial port driver from the download section for your printer from www.intermec.com.

Driver Installation

For simple instructions on how to install the driver, follow the step by step instructions in the section 'Driver Installation' below.

If the printer has previously been connected to the PC using the default USB Printing profile, then follow the steps in the 'Un-installing Driver' section first.
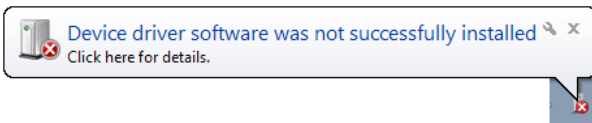
Intermec®

Printers & Media

Known Issues

A few known issues related to Windows and how it handles virtual serial ports are listed here:

Issue/Problem	Work-around
COM port enumeration for different printers and different USB ports	Avoid by uninstalling one printer before connecting a new printer
Keeping the connection open in terminal while re-connecting the USB cable	Disconnect the terminal, re-insert the USB cable to reset
If connecting the printer to your PC without enabling the virtual serial port setting the printer is recognized as a USB printing class	Once this has been detected the printer must be uninstalled before it can be successfully added as a virtual serial port

Windows 7 Driver Installation

1. Enable Virtual COM setting on the printer and reboot it.
2. Download the driver from www.intermec.com
3. Extract the .inf file to a folder on the PC
4. Connect the USB printer to the PC. Windows will attempt to install a driver but will fail.

Device driver software was not successfully installed
Click here for details.

5. Open Devices and Printers, locate the 'Unspecified device' with your printer model number, right-click and choose Properties.
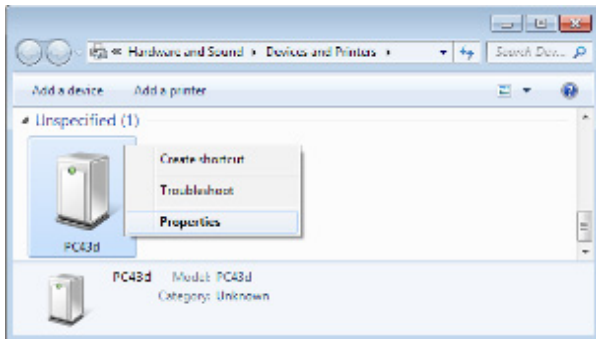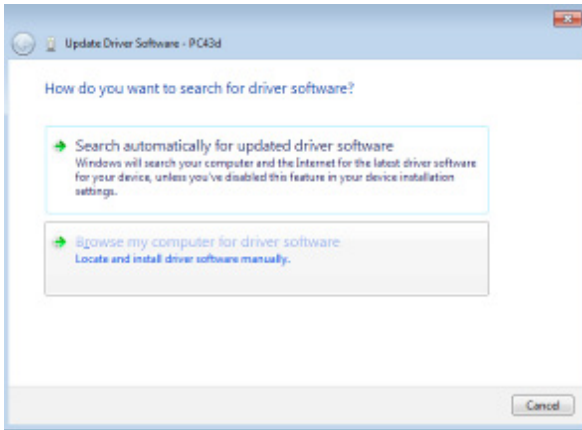

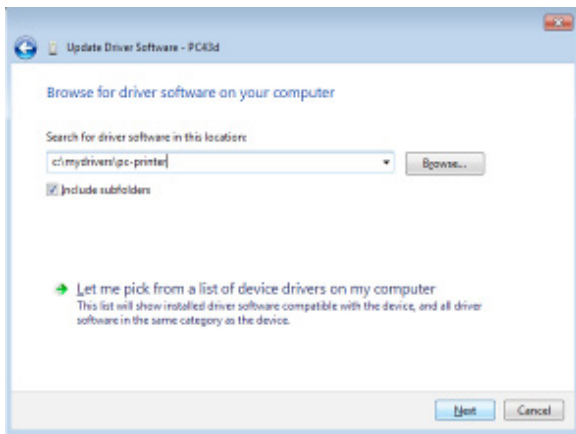6. Click the Hardware tab, and then click the Properties button.
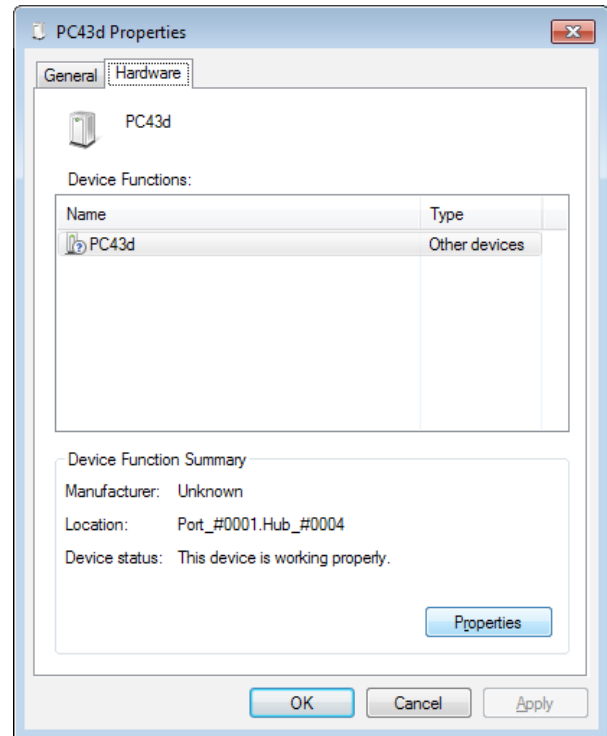
7. Click the Change Settings button, then click the Driver tab, then click the Update Driver ... button.
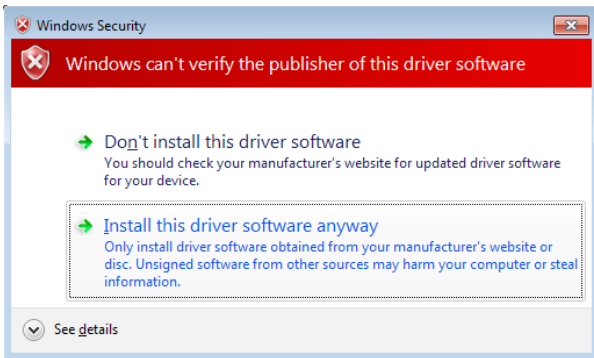

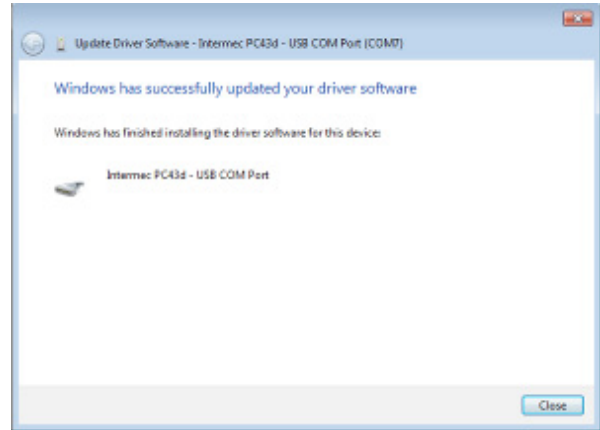**Intermec**®
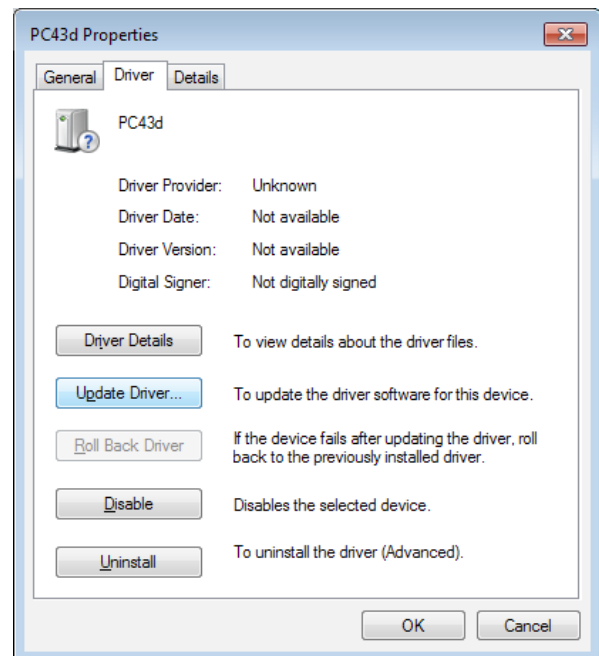
8. Choose manual option:

9. Choose the folder where the driver file (.inf file) is located on the hard drive.
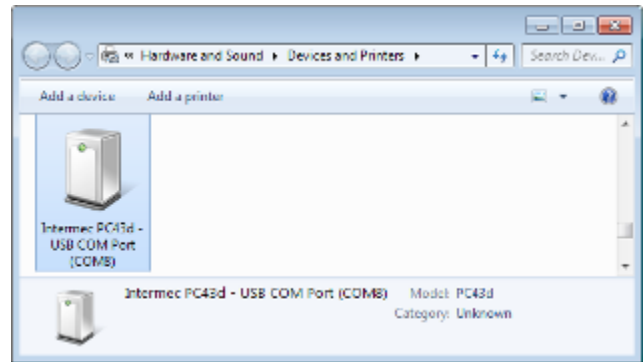

10. Ignore verification of driver; just click install driver software anyway. Note that you will not see which driver is being installed.

11. After driver is installed successfully the message below will be shown

12. Validate the COM port assigned to the printer by its name in the Devices and Printers list.

13. Use your favorite terminal application, connect to the assigned COM port and send a command to the printer to verify that the virtual COM port is communicating with the printer.

Intermec®

Windows XP Driver Installation

1. Enable Virtual COM setting on the printer and reboot it.
2. Download the driver from www.intermec.com
3. Extract the .inf file to a folder on the PC.
4. Connect the USB printer to the PC
5. Turn on and connect the printer via USB. When the Found New Hardware Wizard starts select "No, not this time" and click Next
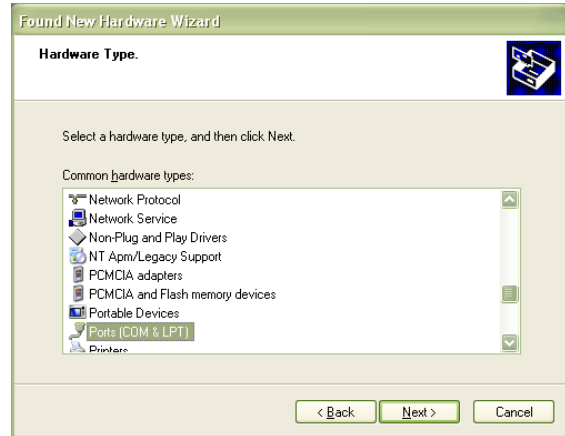

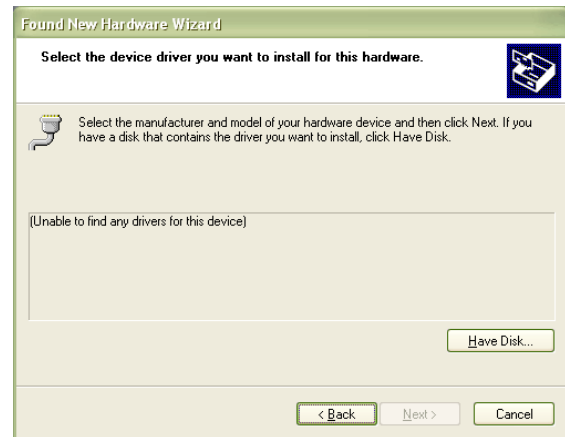6. Select "Install from a list or specific location (Advanced)" and click Next
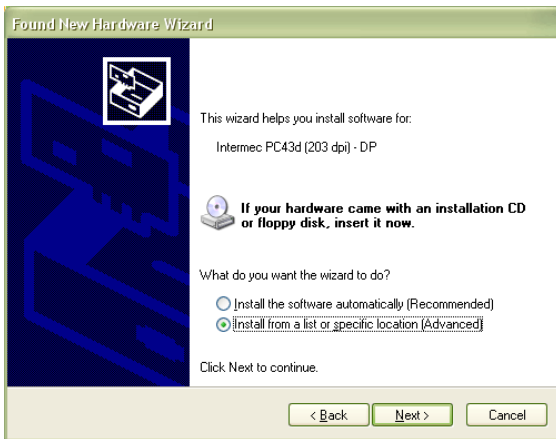
7. Select "Don't search, I will choose the driver to install" and click Next
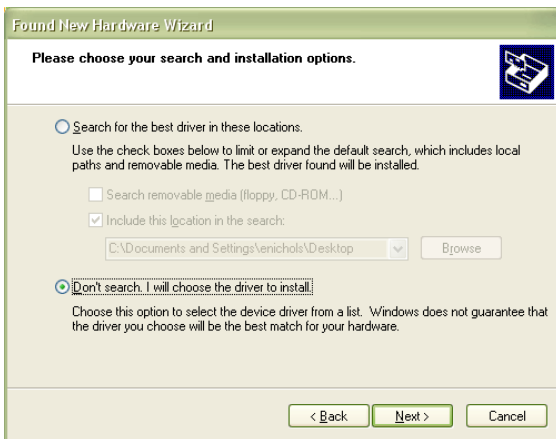
8. Select Ports (COM & LPT) and click Next

9. Click Have Disk...

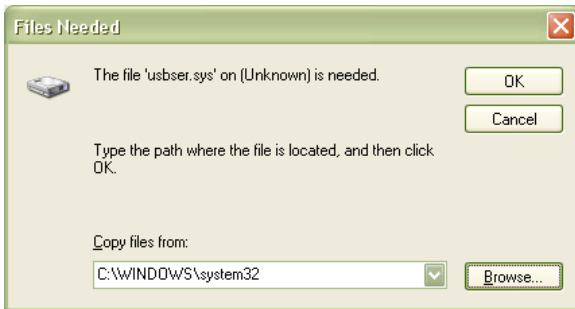10. Choose the folder where the driver file (.inf file) is located on the hard drive.

11. Click Next

Intermec®
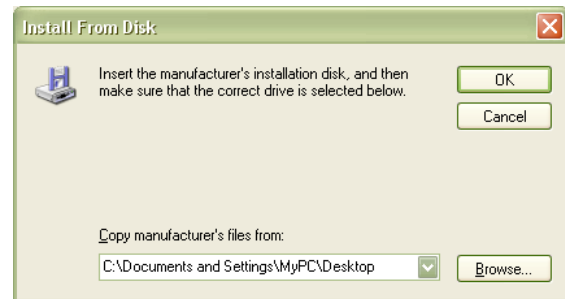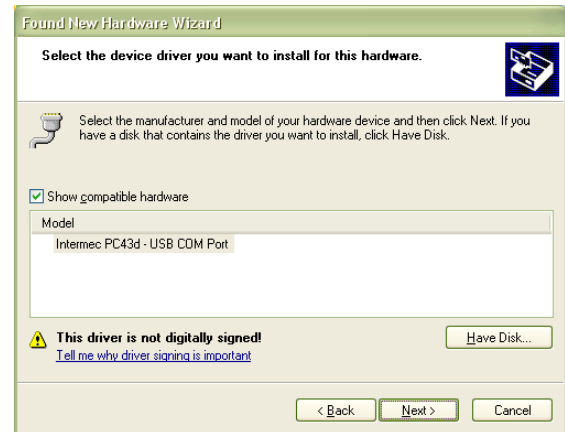
12. Ignore verification and click "Continue Anyway"
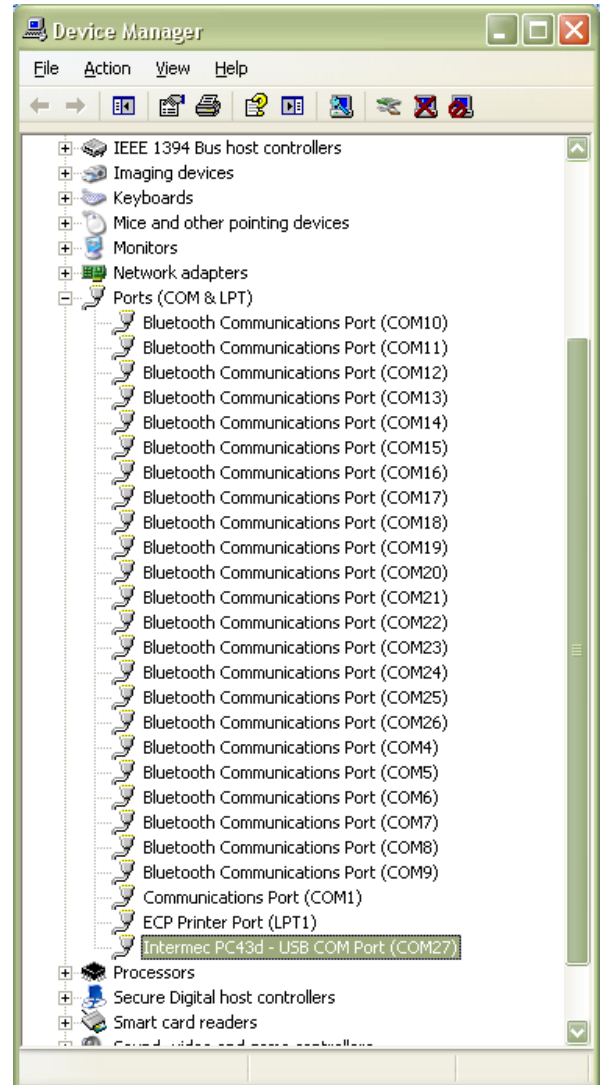

1

3. If the usbser.sys file is needed, browse to the file and click OK


14. Click Finish to complete the installation

15. In Device Manager, open Ports (Com & LPT) and identify your new printer and its COM port

Un-installing Driver

If the printer has ever been connected to the PC when the virtual COM port setting was disabled it has been identified as a USB Printing device. In this case the previous profile must be uninstalled in Windows before a virtual serial port driver can be installed.

If the printer is already installed as a USB printer then remove it from 'Devices and Printers'. Right click on the printer and follow these steps to uninstall old driver.
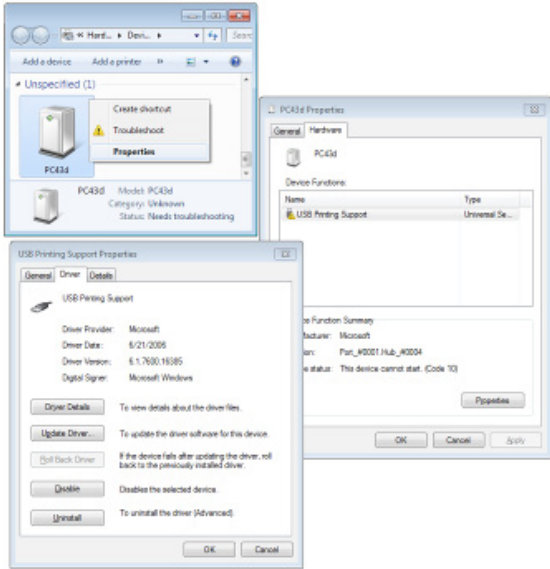
If the printer is not listed in 'Devices and Printers' then uninstall the printer directly from the Device Manager.
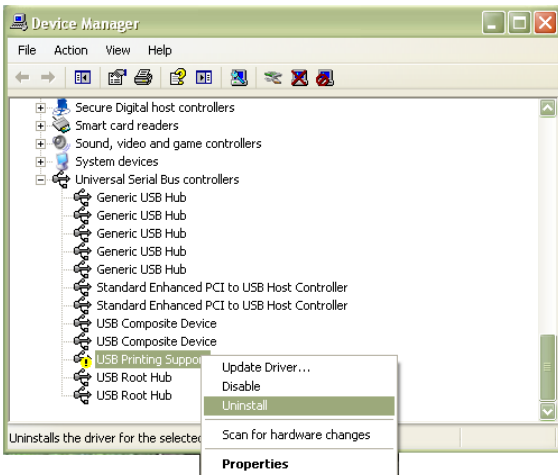
Re-connecting the Printer

Once the virtual COM driver has been successfully installed it will be remembered and associated with the printer. Upon each printer start-up the driver will be automatically recognized and COM port assigned.

Configuring a Terminal Application

Once the driver is installed the printer is ready to use and any application that normally is used for serial port can be used for USB.

One configuration setting that may be useful is line breaks and how responses are shown in a simple terminal application.

In the screen shot below the first part of the terminal show line breaks which does not start from the beginning of the row. The bottom most commands are properly aligned and easy to read.

The setting that controls this is 'Receive', which by default is normally set to CR+LF. When changing it to LF the behavior will improve.
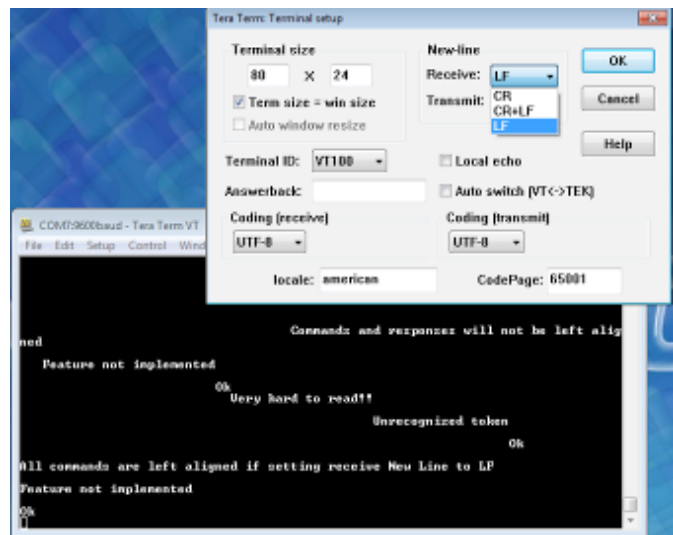
Conclusion

As you seen here, using a virtual COM port is a convenient way of using a legacy application that requires a serial port connection when a physical serial port is not available.

A virtual COM port is also a very convenient means to communicate with the printer using a terminal application over a USB interface.

Serial port settings such as baud rate are ignored even though the driver in the PC will show them as configurable.

Intermec®