Star TSP100 FuturePRNT USB Serial Numbers

Introduction
All USB devices are identified by the operating system (such as Windows XP) using a unique serial number, some hardware will have specific serial numbers built-in by the manufacturer but most do not. In the case that a device does not provide its own serial number, one is provided by the operating system when the device is connected. The Star TSP100 supports both options as both have advantages and disadvantages and either may be the most suitable for a particular customer.

The operating system (OS) will always use this serial number to identify the device, if the serial number is changed at any time, then the OS will see that as a completely new device. This way, many devices of the same type can be connected to one PC, for example 5 (or more) TSP100 receipt printers may be connected to a single PC and each may be configured and printed to separately.

Using OS Assigned Serial Numbers
If a USB device with no built-in USB serial number is connected to a host PC, the operating system will choose a serial number for it. There is no standard way to write such a serial number back to the device, so the OS will generally use the address/serial number of the USB port to which the device is physically connected. Ordinarily this system will work well; each device (in this case TSP100) can be uniquely identified and used by the host OS as long as it is remains connected to the same USB port. If the device is disconnected and re-connected to a different USB port then its serial number has effectively changed, and the OS will believe it to be a new device, in the case of Windows this would cause a new printer driver/queue to be installed.

TSP100 devices, as a default, do not have a fixed serial number and so operate in the way described above as it is considered to be the easiest to use in most cases and has a side effect that devices can be very easily swapped out in the field, a very attractive feature to larger customers.

Advantages
• Every device can be uniquely identified as long as it is left connected to the same USB port
• Faulty devices can be replaced simply by connecting a new printer to the same USB port, as all TSP100 printer configurations is stored PC side there is no need to pre-store logos, select emulation etc. This means that no special training is required for field engineers.
• No special printer configuration is required.

Disadvantages
• In rare cases, some USB hubs, and even some PC's have been known to vary their serial number each time they are initialised (such as when the PC is restarted). This means that the OS will see the printer as a new device (because it appears to have a new serial number). In this case, it is recommended that an alternative HUB is tried if possible, or (if the PC is at fault) that an attempt is made to update the USB controller drivers first, since this issue is likely to affect most USB devices such as mice, keyboards, disk drives. The problem can be avoided if using a TSP100 by setting a fixed serial number.

Using a Fixed USB Serial Number
Some USB devices can provide their own USB serial number; in this case the OS will be able to identify that particular device even if it is connected to a different USB port, directly or via any USB hub. The Star TSP100 does not have a serial number by default, but it does support the option to fix one using a freely available utility.

Advantages • The printer can be disconnected and re-connected to a different USB port without the PC considering it to be a new device (i.e. Under Windows, no new printer driver will be installed).
• Avoid issues with problematic USB controllers or hubs.
• If a TSP100 has a fixed serial number then it will be displayed on the configuration utility screen and can be read by software. It may be a useful way to track printers for service or maintenance reasons. Please note that the USB serial number is not necessarily the same as the printer serial number, although it is fixed to the device (unless changed using the Star utility) and can, therefore, potentially be used to uniquely identify printers.

Disadvantages
• To replace an existing printer, the replacement device must either first be configured to have the same USB serial number as the original, or installed using a new serial number and then all configuration options, OPOS/JavaPOS device names etc. assigned to the new printer. This means that field engineers will need training in the procedure and some technical ability.
• It is not safe to connect two identical devices with the same USB serial number and care must be taken to avoid doing this. Connecting two identical devices with the same serial number will cause unpredictable behaviour (usually a fatal crash).
• Each printer must be configured before installation, to set-up its USB serial number.

Using the Star USB Serial Number Tool
A small, simple utility is available which makes it simple to set a serial number in a Star TSP100 printer; it can also be used to revert the printer back to using an OS assigned serial number.
To use the utility, first download it from: http://www.stareu.net/techfiles/SetUSBSerial.exe
Next follow these steps:

1. Install the TSP100 FuturePRNT software onto a PC running a supported Windows operating system (currently Windows 2000 or XP).

2. Connect your printer to the PC, it will be automatically detected and a printer queue will be installed.

3. Make sure that some paper is installed, go to "Control Panel" -> "Printers", right click on the newly installed printer and select "Properties" from the menu. Print a Windows test page to verify that the printer and driver are working correctly.

4. In the printer properties dialog, select the "Ports" tab, and then make sure that "Enable bidirectional" support is un-checked. Please note, **never** uncheck this option for normal operation, only when following special instructions directly from Star.

5. Click on "OK" to accept the changes.

6. Run the USB serial number utility "SetUSBSerial.exe"

7. Using the "Printer" drop down list, select the name of the newly connected printer

8. If you wish to set a new serial number: enter the new serial number into the "New USB Serial Number" field, it should be eight digits long and may contain upper case alphanumeric characters only, then click on "Enable Custom USB Serial Number".

9. If you wish to disable the printers USB serial number (so that in the future it will use an OS assigned number, simply click "Disable Custom USB Serial Number".

10. Switch off your TSP100 and wait for the POWER LED to go out, and then switch it back on. As the serial number of your printer has been changed, Windows will detect it as a new device and install a new printer queue.

11. Enter "Control Panel" -> "Printers", right click on the printer queue that was originally installed (in step 2) and select delete.

12. Print a Windows test page on the new printer to ensure that it is working correctly.

13. Verify your serial number change by printing a printer self-test (switch it on with the FEED button held). Additionally you may verify the change by running the TSP100 configuration utility, if your printer has a fixed USB serial number then it will be shown on the "Information" panel, if it does not have a fixed USB serial number then no number will be shown.