BarSTORM
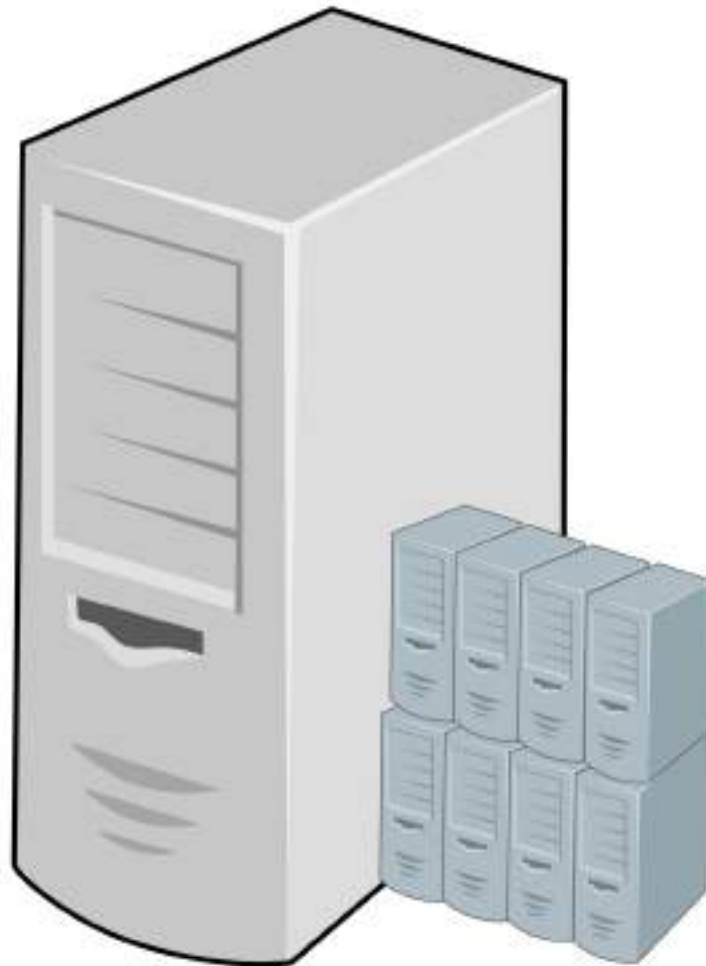## Network Barcode Printing

Setup & Configuration Guide
DataSTORM Platform & BarSTORM Application

Manual Version TH-2.0

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Table of Contents   Page

This manual is intended for use to setup the DataStorm Plus Platform and use with BarSTORM application and to connect to input and output devices on the network.

Please also refer to other relevant applications manuals, to review and understand any specific methods for printing required output.

BarSTORM - for Barcode printing – refer to BarDIMM programming guide.
PrePrint – for Prescribe printing – refer to Preprint guide.
PDFPlus – for PDF Overlays and data mapping – refer to PDFPlus guide.

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Introduction to BarSTORM

BarSTORM is an application for printing Barcodes, and is delivered via DataSTORM Plus, a powerful Document Delivery Platform. DataSTORM Plus can be enabled with differing and optional applications and can be delivered in a number of different formats.

Applications available:

BarSTORM – Barcode Printing
PrePrint – Prescribe Emulation Printing
PDFPlus – PDF overlays and data mapping
Other specialist products: please contact us.

Delivery Formats:

a VMware Virtual machine Image for Workstation, ESXi, v-Sphere
a Virtual image for Hyper-V
a Linux KVM Virtual machine Image
Virtualisation can provide possible extended power, memory, disk space, and resilience.

BarSTORM
This application has the capability of translating standard PCL5, PCL5e escape sequences to print the most commonly used industry barcodes. The barcodes are generated internally by the BarSTORM's on board software. The application uses **"BarDIMM inside"** technology so is compatible with the most commonly used applications that support PCL5 bar code printing.

Additional PCL fonts and form overlays can be stored in the system and can be associated with each output port using a control list.

The system by default comes with 1 network connection and can be licensed to add additional Network ready PCL5e printers.

PrePrint
This application has the capability of translating industry standard PRESCRIBE print language sequences and to print standard PCL /PS printers.

PDFPlus
This application can process a variety of input data format and intelligently apply PDF overlays.

Connection to the Interface

The DataSTORM Plus Print Server Virtual Image can be connected to any 10/100 Ethernet network that supports TCP/IP Raw port or LPR printing.

To setup this unit you must initially connect to the box from an attached screen and keyboard or a network client within the IP range 192.0.0.??? Via DHCP or a valid static IP address for your network has been set the unit will be available on the network and can be further configured via a browser.

The Virtual Machine

Virtualised appliance disk files are distributed either as VMWare images (.vmdk files), (Workstation or ESXi files), Hyper-V images (.vhd files), or Linux Kernel Virtual Machine (KVM) compatible images (.qcow2 files).

Follow the procedure given by the vendor of your virtualization infrastructure to create a new virtual machine using the Virtualized appliance disk file as the virtual disk.

Configuration

The application can be configured via a built in Web page which can be accessed from a browser on a suitable network or from the Virtual boot screen command prompt. Once an IP address is established, then all settings can additionally be fully configured from a browser.

Boot screen example:

Screen Setup Administration

A way to setup the Network configuration details is access the boot screen in the Virtual appliance and go to the command prompt which will show boot information and end up with a "device login" prompt.

Enter the user "admin"
Enter the password "blankdoc" or previously set password. (case sensitive)

The system will allow several options:
"q" to quit and return, your system will now have any new settings applied.

"manual" will allow you to enter the IP Address, Subnet Mask, and Gateway info.

Enter IP address: enter in the format xxx.xxx.xxx.xxx and return
Enter Subnetmask: enter in the format xxx.xxx.xxx.xxx and return

(The Gateway address will be set to the IP address at this stage, so the Gateway is local, you can then change it via the browser later as required).

then enter "q" to quit
you can now access the unit via a browser with the new IP address.

"dhcp" will select a DHCP connection and ignore previously set static IP information.
The unit will scan for a DHCP server, if one is found it will receive a network IP address and gateway, it will confirm the network settings on screen.

You can now access the unit via a browser with the new IP address, and continue with further setup.

If a DHCP Server is not found, the unit will revert to the previously set IP address and gateway or to the Factory defaults if one had not previously been set.

When the unit is setup fully the screen can be disconnected and is not required, it will operate as a "black box"
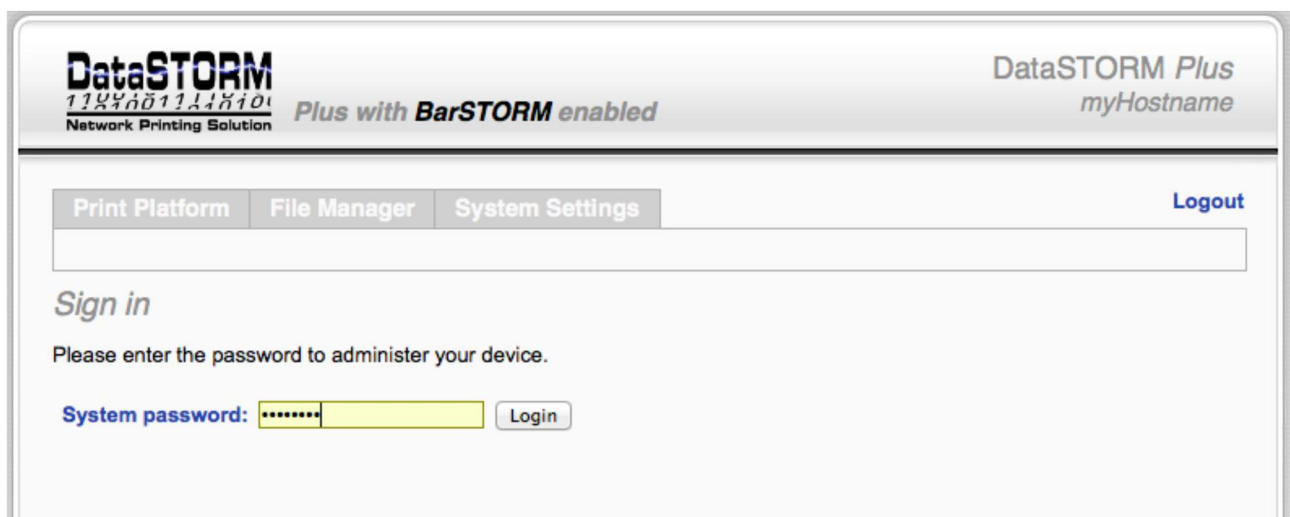
Web Interface Administration

A browser can be used to monitor and configure the unit. Once the unit is communicating then a browser can be used for all aspects of configuring the system.

To initially configure the unit from Factory defaults, access the Administration Web page of the unit by entering `http://192.0.0.192` this will display the password page of the web administration.

If your network is in the range `192.0.0.xxx` you should be able to connect to the unit via a browser.

If your network is not in the `192.0.0.xxx` range, then you can either use the screen setup method for the initial network configuration or you will need to isolate the configuring PC, disable you current Network connection that uses your current IP range and setup a new network connection using the `192.0.0.xxx` range, this will allow you to connect to the device, change the IP address and network settings to the ones you require. Once done revert your PC connection back to its normal settings.

Once you have established a connection you can now use a browser for further setup and can enter the **Sign in Page.**

The default System password is **"blankdoc"**
Type **password** into the System Password field and click on **Login**.

The available tabs, which are application dependant, will be displayed.

BarSTORM application Tabs as follows:

Print Platform
Control Print Queues, all Inputs and Outputs

File Manager
Administer Files

System Settings
Administer System Settings

System Settings – Sub tabs
Network Settings - Tab

This screen will allow you to change the units Hostname, IP address, Netmask and Gateway information where necessary.

If you select to use a DHCP connection, the system will ignore previously set static IP information.

Once you select "update" the unit will scan for a DHCP server, if one is found it will receive a network IP address and gateway.

If a DHCP Server is not found, the unit will revert to the previously set IP address and gateway or to the Factory defaults if one had not previously been set.

If you wish to use a hostname on your network, it can be set from this page also.
Options allow for Primary and Secondary DNS servers.
The DNS Domain field allows entry of your DNS Domain name used for searching, and optionally a search order can be entered if you have main Domains.

When you are happy with the settings, click the Update setting button.

Licence Tab

From this page a user can view the Mac address of device, Enter and View the current Licence Key, View the current licence credits in use and their associations.

Licence Key

This is the credit unlocking licence key specific to this unit, and is matched only with the unique MAC address of the unit. It can only be used with the specific unit it is meant for.
It is used to unlock all/any available features:

In the example above there are 5 Credits with 5 Used;
The application is BarSTORM
1 Host IP Credit (Input from Host system)
2 Output Credits (to 2 different printer IP addresses)
1 Input Credit – for Hotfolder monitoring for input data (perhaps from another system)
1 Output credit for file archive, to save output data (perhaps to another system)

Evaluation Licence.

There are evaluation Licence Keys which can be used on the BarStorm system for testing and evaluations and also for mission critical backup units.
The evaluation version has all BarSTORM options open, however it has a limited use timer running.

This version uses special Licence keys. The screen will show "Evaluation Version" in the header and the amount of evaluation time set, and how much is used before the timer expires.

Password Tab

From this page the user can define and update the Admin Password.

Password

The password will be case sensitive. If you forget the password, you will **NOT** be able to log in to the unit.

Firmware Tab

This option allows the user to upgrade the systems firmware.

From time to time Fontware may release upgrades or later revisions of the firmware.

The current system firmware version is shown on this page. New Firmware can be updated from this page. The user can browse the network and select the required update file, the file can first be uploaded to the system, once done, press the Update firmware button and the box will automatically update and then reboot. This may take up to 45 seconds and you may have to log into the Web page after an update has been completed.

The Revert Firmware button will allow the user to Revert to the previous Firmware, as a copy of the previous firmware is kept within the unit.

Note: Uploading the same Firmware twice will mean that you will lose the previous version of the Firmware.

Whilst firmware upload should not often be required, it does allow for unknown bugs to be tackled, firmware to be upgraded, new features to be added.

Status Control Tab

This option shows system counters, values, and gives access to logs.
Options to Shut down, reboot and to allow a remote access for High level OS config support if required and configured.

Backup Tab

Will compile all the settings and save to a specified output file in *.tar format, which is then saved outside the unit. There is also a corresponding Restore option that will allow the user to browse for a backup file and reload it back into the unit.

Within this page is also the option for a reset to **Factory Defaults.**
Resetting factory defaults will return the units network settings and passwords to its delivery defaults.

Remember the IP address will return to `192.0.0.192`.
Any queue settings will be removed, be sure to use the "backup" option first.
Licence Keys will stay in place.

Other Tabs

There are a number of other tabs to control other functions:
Time, Location, Logs, Email.

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Print Queues

The BarSTORM unit can serve Barcodes, fonts and form overlays to up to 50 network ready PCL printers, depending on how the unit is licensed.

Select the print queues page on the web interface, from this page you can create, view and manage how each input data stream or system queue will be configured to each output printer or folder..

In this example BSTPlus01, BSTPlus02 are queue names.

The page allows options to view print progress, enable, open/accept and share each queue.
Further icons will allow
Update info
Copy Queues
Configure Queue info further
Delete Queue

Additional options to set queues to a class / group.

When setting queue info there are several fields:

Parameters for Input (from Host)
Queue Name   description for Queue Name and name used from Input host if LPR is used.

Input Port   9100, Port number used, (often a default) if Raw Port printing is used

Parameters for Output (to device)
Output Protocol   raw, lpd, (also, ipp, hp, share, null)

Network Name   IP address of device or Device Host name

Output Port / Queue   "Passthru" or Output Device port or Output Device name,

Action   use Icon, to Set and edit information

Queue name or port number: (Output to printer information)
If Raw port is selected in the Output protocol field the port number should be entered for that specific network printer, normally this is 9100 for most network printers or print servers.

If Lpd is selected in the Output protocol field the print server queue should be entered for the network printer, normally for many network printers or Jetdirect print servers this would be **passthru**.

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File Manager Tab

Any files used are configured / loaded here:
Most sub tab options are little used for the BarSTORM application.

Form Files
Log Files
Archive Files
PPD Files – BarSTORM uses a specific preset PPD file and can not be changed.
Font Files
BarSTORM Files
All User Files

Files displayed on these pages can be viewed and downloaded as required.

Additional Fonts and Form Overlays can be added to the BarSTORM and assigned to be used with specific output ports.

BarStorm contains a number of default fonts and overlays that are activated and can be deactivated if required.

From this page you have the option to store any file including, Fonts, Logos, Signatures and Form overlays for any of the output ports set up on the unit.

The specific information controlling what fonts or Form Overlays are sent to what printer port and when, is defined in the configuration file **CONTROL.txt**, and this is then loaded to the BarSTORM, via this browser page.

All information in this file is **Case sensitive !!!!,** please check the information entered.

Fonts or Form Overlays files are loaded to the printer at a time specified in the control.txt file.
This may be once or before every print job.
An obvious example of an overlay would be a company letter head this is a file that remains constant.

Browse and upload to install the required custom font or Form overlay files and the Control.txt file.
Each font or Form overlay that has been uploaded will be displayed. A delete option will appear beside each uploaded file so that it can be removed if required.

Core Resource Files

There are a number of Core fonts and forms stored on the BarSTORM unit. These form part of the standard configuration of the unit, If required they can be de-configured and not used.

The Core font names if needed can be re-configured in a control file, **core.txt** file as described.

Control.txt and core.txt are configured and work in the same way.

The file names used in **core.txt** are:

JM2dpost.bin – Required only if using UPS Maxicode, or 4 State Postal Barcodes

JMsymocr.bin – Required for using OCR fonts, or Manufacturing symbols, or Euros as described in Programming manual.

JM6forms.bin – Required for using BarDIMM Odette forms.

BSbcplus.bin – Required if using legacy barcode font sets.

The fonts and form use specific ID's, if you are using these resources, then the incoming data should not contain the same ID's:

Fonts ID's 370 – 396

Form Overlay ID's 300, 301, 302, 303, 304, 311, 312

Once re-configured the new **core.txt** file must be uploaded to the unit and tested.

Form Overlay Creation

If you have a simple way of creating an overlay, or have existing overlays, then you should be able to use them simply.

Using forms assumes that the overlays are tried, tested and known to work with the intended output printer first.

These filenames should use 8.3 filename format, an 8-character alpha numeric file name plus a 3-character extension i.e. Letter01.prn

Printing the output to file and trying to edit the output is not a good method, unless you have expertise in that technique.

TypeHaus, Inc. provides a service to create overlay files as required. We generally accept Word and PDF master files as input for conversion.

Freescape

This setting is found in Print Platform > BarSTORM Config:

The Freescape option shows a selection of available Alternate Escape characters to use. The default is hex1b, ASCII Escape. A new character can be selected from the list and will be active across all ports.

This is used here the host, or the host data can not easily send an ASCII Escape Character, hex1b. An alternate character can be selected from the list and used. The selected character and the ESCAPE character hex1b can both be used at the same time.

The available characters are:

```
Dec   Hex  Char
 27 - 1b - [!]
 34 - 22 - [~]
 35 - 23 - [#]
 36 - 24 - [$]
 47 - 2f - [/]
 63 - 3f - [?]
 92 - 5c - [\]
123 - 7b - [{]
124 - 7c - [|]
125 - 7d - [}]
126 - 7e - [~]
```

This setting will apply to all jobs.

The software is sophisticated enough to not replace these characters within ordinary data.

The alternate character can also be set via a control code sent in the data:
```
<ESC or AEC>**#J
```

Where # is the ASCII Decimal value of the required character.
i.e.
```
ESC**126J will use and set the "~" tilde character.
```

Diagnostics

This setting is found in Print Platform > Queue Config: OUTPUT Tab, activate the Diagnosis option.

The Diagnostics option will allow data capture, pre and post incoming data filtering. This option is set with a check box, and set apply button. When this option is set the unit will write the incoming data to disk, and also write the filtered output data to disk.

Two files are created, prefilter_<queuename>_fwfilter.bin, and postfilter_<queuename>_fwfilter.bin.

These 2 files will then appear in File Manager All User Files within any existing file list. An option will appear to download these files from the box.

Click on download to get each file and save to new folder on local host.

These files can then be used for analysis.

This option should be normally switched off.
If the item is selected and switched on, only 1 set of input and output files will be kept and overwritten with every printjob.
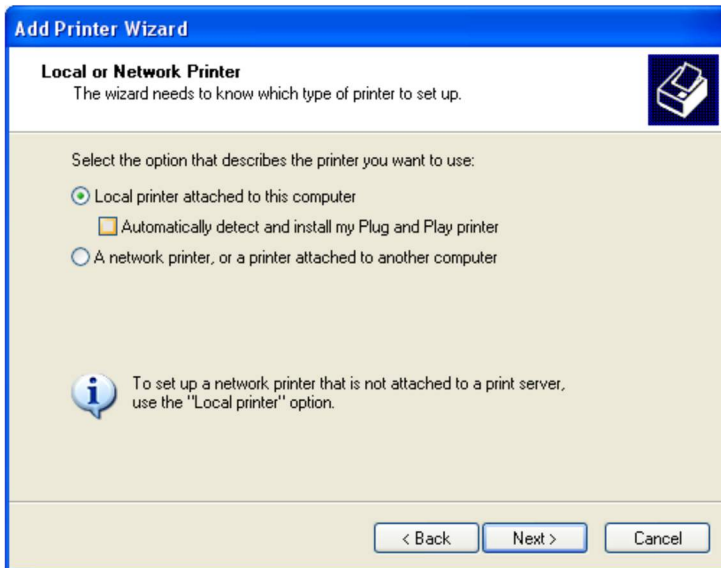
If the unit is set in Diagnostic mode, then all other printing to the unit should be held off.
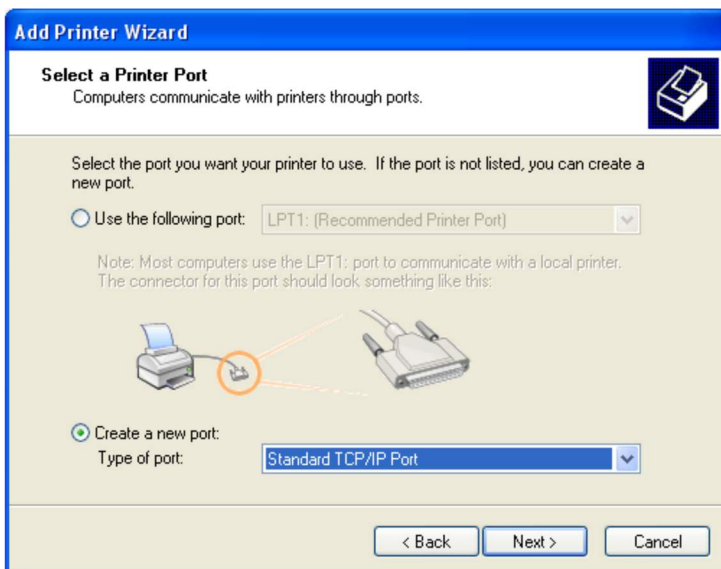
Windows Printer Setup

If Windows is used as the printing host, then you can use Windows print queues to send data to the printer via the DataStorm ports.
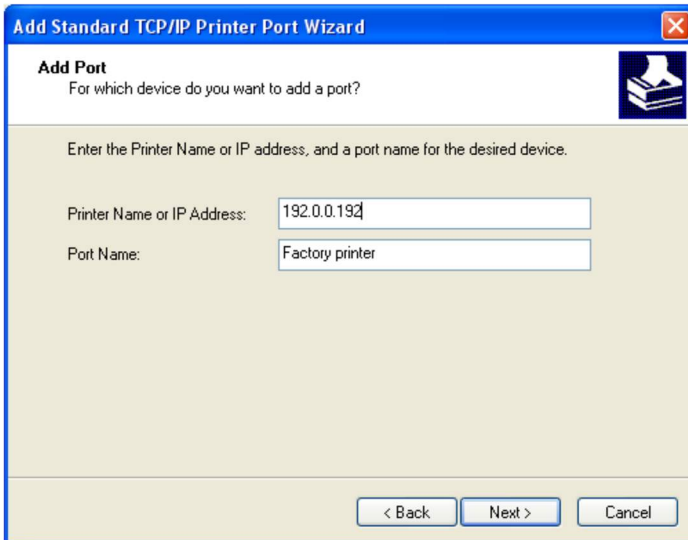
In Windows:

From the **Control Panel** window select **Printers and Faxes**, from Printer tasks menu select **Add Printer.**
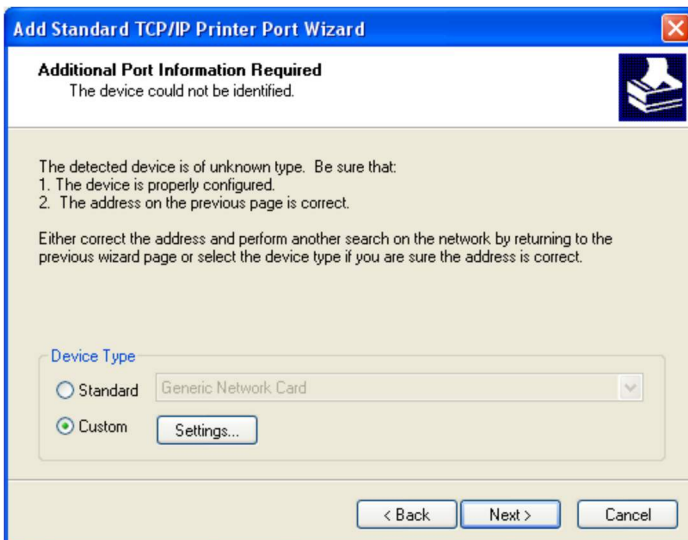

Select **Local Printer** and click **Next**

Click **Create a new port** and select **Standard TCP/IP Port** from the drop-down menu

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Input the Units IP address or Printer name that you have previously selected. Any descriptive printer name can be used. Click **Next**

Select **Custom** and Click **Settings**
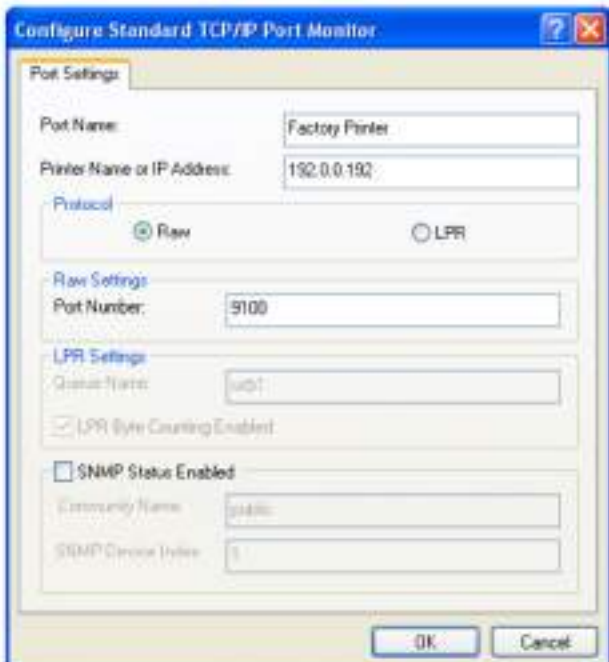Click **Next**

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The DataSTORM will support RAW port or LPR settings.

If you select LPR each port on the unit is defined with a different queue name as configured queue.

Select **LPR byte counting** and Click **OK**

If you whish to use raw port printing, Select **RAW**
If you select Raw port output then add the Port number set within the queue, first one will normally be 9100.

The following Port numbers can be used to print from each physical output port or printer set up on the unit.
Ports 9101 - 9150 = printers 1 - 50

This completes the port setup and you can select your printer type and driver as normal.

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Test Data Files for BarSTORM application

Test data is available for the applications. These files are Host formatted files that will show you the capabilities of the DataSTORM Plus applications.

The testfiles are PCL files as supplied by Fontware, these are named BS files BS*.pcl files.

There are many ways to send data to the unit once configured depending on the system attached to.

The easiest way to send this data to a connected PCL5 printer on the DataSTORM is to use:

```
DOS/UNIX
lpr -S <ipaddress> -P <portname> -o l <filename> -J Testfilename
i.e.
lpr -S 192.189.60.110 -P BSTPlus01 -o l bspdf417.pcl -J Testfile01
or
lpr -S 192.189.60.110 -P BSTPlus02 -o l bspdf417.pcl -J Testfile01
```

In UNIX there are different versions of LPR which use a different syntax, these generally are similar and have similar features and options, you will need to check your specific system.

```
Also, if queue names have been configured then use:
copy/b bspdf417.pcl \\servername\queuename
i.e.
copy/b bspdf417.pcl \\Server_1\printer_queue_1
```

Support Information

DataSTORM Plus / BarSTORM Supplier:

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