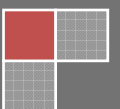


2010

Print2PC User's Guide

2nd Edition

This document describes in detail the contents, functionality, and configuration of RedTitan's Print2PC Capture Parallel Port System.



[Introduction](#)

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Thank you for choosing RedTitan's Print2PC Parallel Port Capture System. This system was developed as a universal capture utility designed to interface with any legacy device that prints via a standard 25 pin parallel port. If you cannot change "type approved" or "black box" hardware then PRINT2PC can provide a safe replacement for the printer that can create both a printed record and an electronic document. Some common applications for this product are:

- EMR ophthalmology, medical diagnostic equipment - make medical records into electronic documents.
- Data loggers - create both a printed and electronic record.
- Engineering control equipment - eliminate mistakes re-keying data from printout.
- Replace legacy printer with electronic data storage.

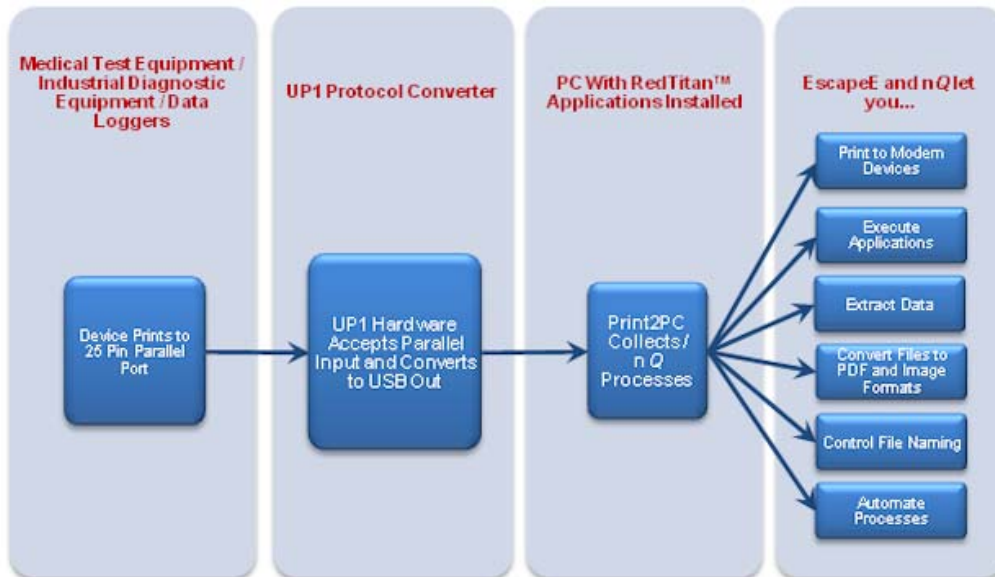
This package includes the hardware and software components necessary for:

- Capturing of a parallel print stream and conversion of the signal to USB
- Interpreting incoming USB print stream and managing file capturing process / segregation of incoming data
- Parsing of incoming data stream for key elements to be used
- Dynamic file name generation
- Conversion of data stream to various formats (PDF, PS, TIFF, PNG, JPG, and more)
- Automation of file capture, data parsing and conversion

Minimum System Requirements:

- PC compatible Computer, 200 MHz CPU or above
- 32-bit Windows™ Platform
- Memory: 64 MB or above, 128 MB recommended
- Available USB Port
- Windows™ TCP/IP Services
- Internet Explorer 5 or higher

The chart below gives a Functional Overview of the RedTitan Print2PC Capture Parallel Port Utility:



Components

Hardware Components

The RedTitan Print2PC package utilizes various hardware components in its operation. These hardware components are included with all retail packages:

IEEE -1284 DB25 M/F 6 foot Parallel Printer Extension Cable - This cable is used to connect the parallel port of the host device to the RedTitan UP1 Hardware

Standard 6 foot Shielded USB 2 A - B Cable - This cable is used to connect the RedTitan UP1 device to a 32-bit Windows™ class machine

RedTitan Print2PC UP1 Protocol Converter - A protocol converter for capturing printer output via parallel interfaces. A fast microprocessor negotiates an appropriate protocol with the host computer and sends the data to the capture station (32-bit Windows system) using a USB interface.



Installation CD

Software Components

The Print2PC suite includes applications designed for the capture, conversion, text extraction, naming and automation of your file capture process. The applications used in this package are:



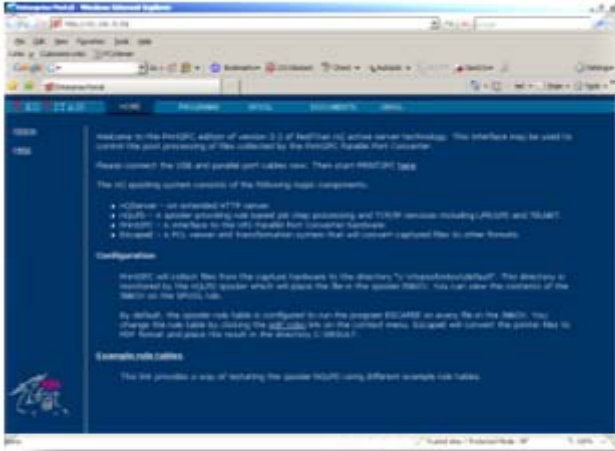
Print2PC.exe

This application maintains an active connection with the UP1 hardware via an established Virtual COM Port. It is responsible for interpreting the incoming USB signal and rendering a raw PCL print file for downstream processing. This application is also used to define the criteria by which files are opened and closed during the capture process, and the applications behavior upon completion of a file capture. Configuration options are saved as named entries in an initialization file, and multiple instances can be run concurrently to support multiple UP1 devices connected. **This application MUST be running for any file capture to occur.**



EscapeE.exe

EscapeE is an industry leading PCL conversion / interpretation utility. EscapeE is used in the Print2PC suite to convert captured files into various file / image formats including PDF, TIFF, JPG, PNG, and more. EscapeE also gives the user the ability to extract textual data from the print file to be used either in file naming, or to be logged into XML, TEXT, or CSV formats. EscapeE supports full batch automation via a series of command line switches. Simply configure your jobs and invoke the necessary files / settings via a command line call from our nQ automation utility.



nQ

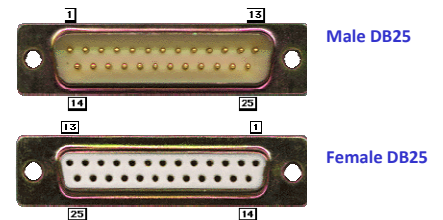
Redtitan's E(n)terprise (Q)ueue is an HTML based TCP/IP spooling application that automates the Print2PC suite of applications. nQ controls the post processing of files collected by the Print2PC Parallel Port Converter by executing a set of user defined XML rules. This rules based process allows for the splitting of input files into various directories for separate processing, the running of applications upon completion of pre-requisite steps, and provides full LPR/LPD and Telnet support for network printing. This application can be configured to pass command line variables to the EscapeE program, in order to invoke configuration options during file processing. nQ utilizes an advanced HTTP server (nqserver.exe), and a rule based job step processing application (nqlpd.exe) in its file processing, and tracks job progress using standard UNIX like control / data file pairs.

Installation

Step 1 - Hardware Connection

Follow these instructions to attach the Print2PC UP1 Device

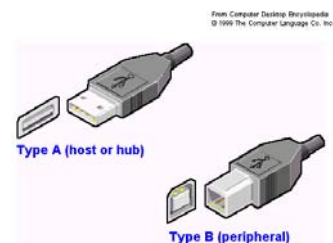
- 1) Power off the originating host device from which you are sending print files. Connect the male (top) end of the IEEE 1284 Parallel Cable to the host device. Connect the Female (bottom) end of the IEEE 1284 Parallel Cable to the Print2PC UP1 hardware. Power the host device back on.



**Note: Disconnecting live parallel cables may damage delicate components. Devices should always be powered down when Parallel cables are disconnected / connected*

- 2) Attach the USB Type B connection to the Print2PC UP1 Device

**Note: USB devices are sensitive to static electricity which can damage delicate components. Always discharge electricity by touching a metal chassis of your PC, or other metal object before connecting the device*



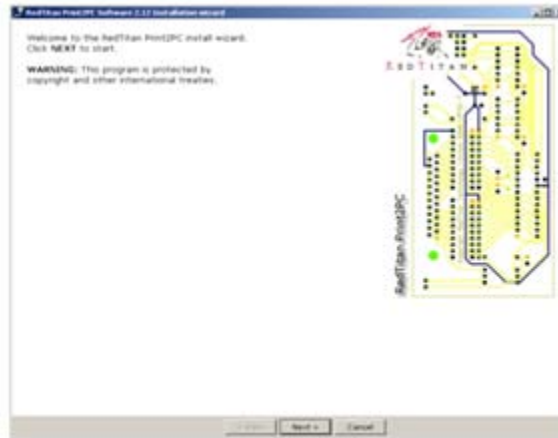
- 3) **DO NOT** connect the USB Type A connection to the PC until prompted by the Software Install Wizard.

Proceed to [Software Installation](#)

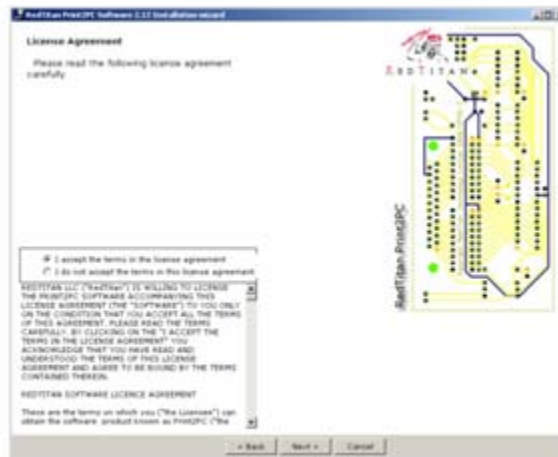
Step 2 - Software Installation (32-bit Windows™ Systems Only)

To install the software for Print2PC, follow the instructions below

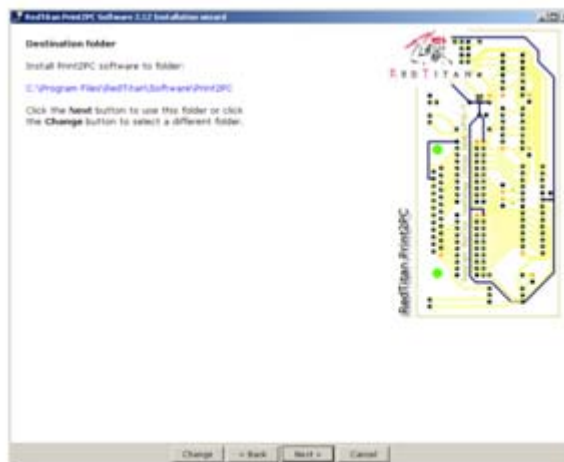
- 1) Insert the software installation CD into your PC's CD-ROM drive
- 2) The "Print2PC Install Wizard" appears, click "Next" to continue



- 3) Choose "I accept the terms in the license agreement" to accept license agreement. Click "Next to Continue.



- 4) Specify the location you would like to install the Print2PC related files. It is recommended that you install the software in the default directory "C:\Program Files\RedTitan\Software". The "Change" option allows you to change default settings. Click "Next" to continue.



- 5) Specify the location where Print2PC will collect its files. This value will be the “spool” folder monitored by nQ. This folder should be a sub-directory of the root. It is recommended that you install the software in the default directory “C:\RTSpool”. The “Change” option allows you to change default settings.

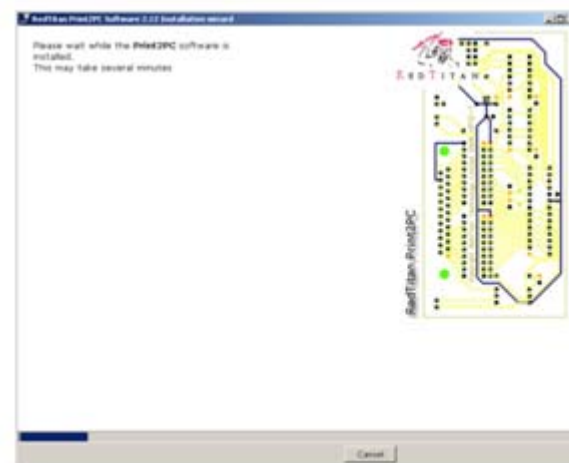
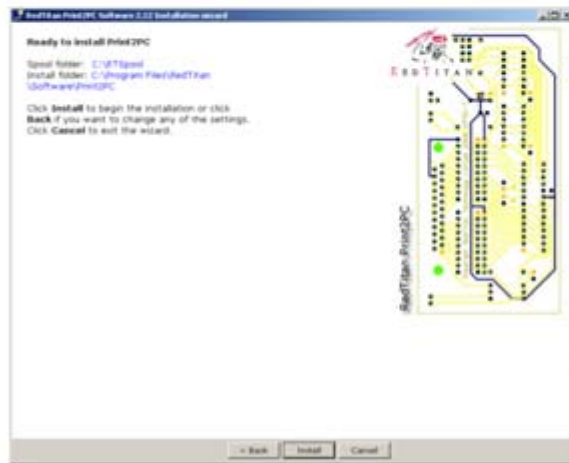
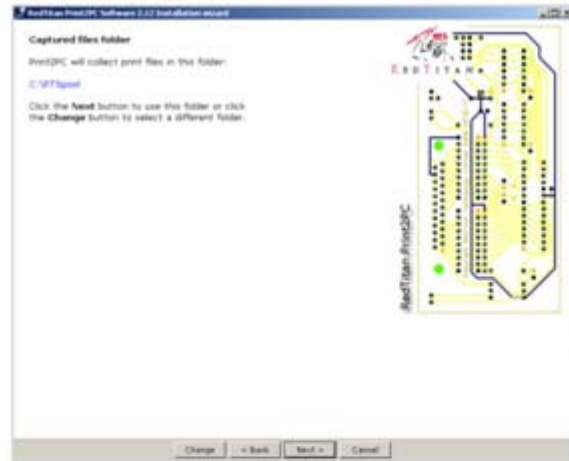
**Note: Do NOT use directory names containing anything other than alphanumeric characters*

Click “Next” to continue

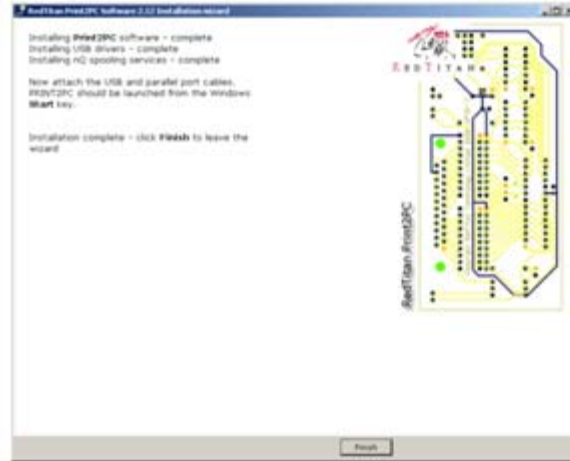
- 6) Confirm install locations and select “Install”

***Note: The Print2PC hardware should NOT be connected at this time**

- 7) The install wizard will begin installing Print2PC related files, this may take several minutes



- 8) Upon completion, you will note that the wizard instructs you to “attach the USB cable” and run Print2PC from the start menu. This should be done **BEFORE** clicking “Finish”.



See the preceding section pertaining to [Hardware Connection](#) for further details.

- 9) Once cables have been connected, and the Print2PC application launched from the start menu, Click “Finish” to complete the Installation Wizard

Upon completing this install wizard you should be taken to the RedTitan Enterprise Queue Web Portal. This is the interface for configuring the nQ application. It is recommended that you add the page displayed in your browser to your “favorites” for easy return.



If given the option, this page should be unblocked by firewalls. If your browser does not display this page...add the page (local IP address) to your trusted sites.

The diagram below illustrates how a system should be set up following installation of all software and connection of all hardware.



Installation Results

This installation will provide:

- Driver support for parallel to USB device (FTDI™'s Virtual COM Port Driver)
- Print2PC capture and file creation software
- P2PC version of EscapeE Software
- nQ spooling software

The process builds the folder structures for the applications as well as the collection / spooling folders. This install results in a handful of registry changes:

- The process nqprint2pc.exe (calls all necessary nQ spooling components) is added to the "HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\Current Version\Run" section to ensure spooling operation begins when the machine is booted up
- Entries that control various aspects of nQ's functionality are created in the "HKEY_LOCAL_MACHINE\Software\REDTITAN" section of the registry. In most cases, these entries should not be edited.

Modifications - OEM Distributors

By creating a CD image of this installation, it is possible to edit various components in order to tailor the install to your specific needs. Images and text displayed during the install wizard, all configuration files, settings, XML rules files for automated processing can all be updated / modified and included in their native install location within the "delivery" folder of the install CD (the "delivery" folder is exactly the folder structure installed by the wizard).

Ex: By replacing the NQRULES.XML file in the delivery folder with one from your development system...you can create an install that installs your custom XML rules for job step processing. By housing all your specific configuration files within the installed folder structure, you can develop your systems on a single workstation and roll them out with all the necessary resources installed and configured "out of the box".

For more information about building custom install sets please contact us at help@redtitan.com.

Configuration

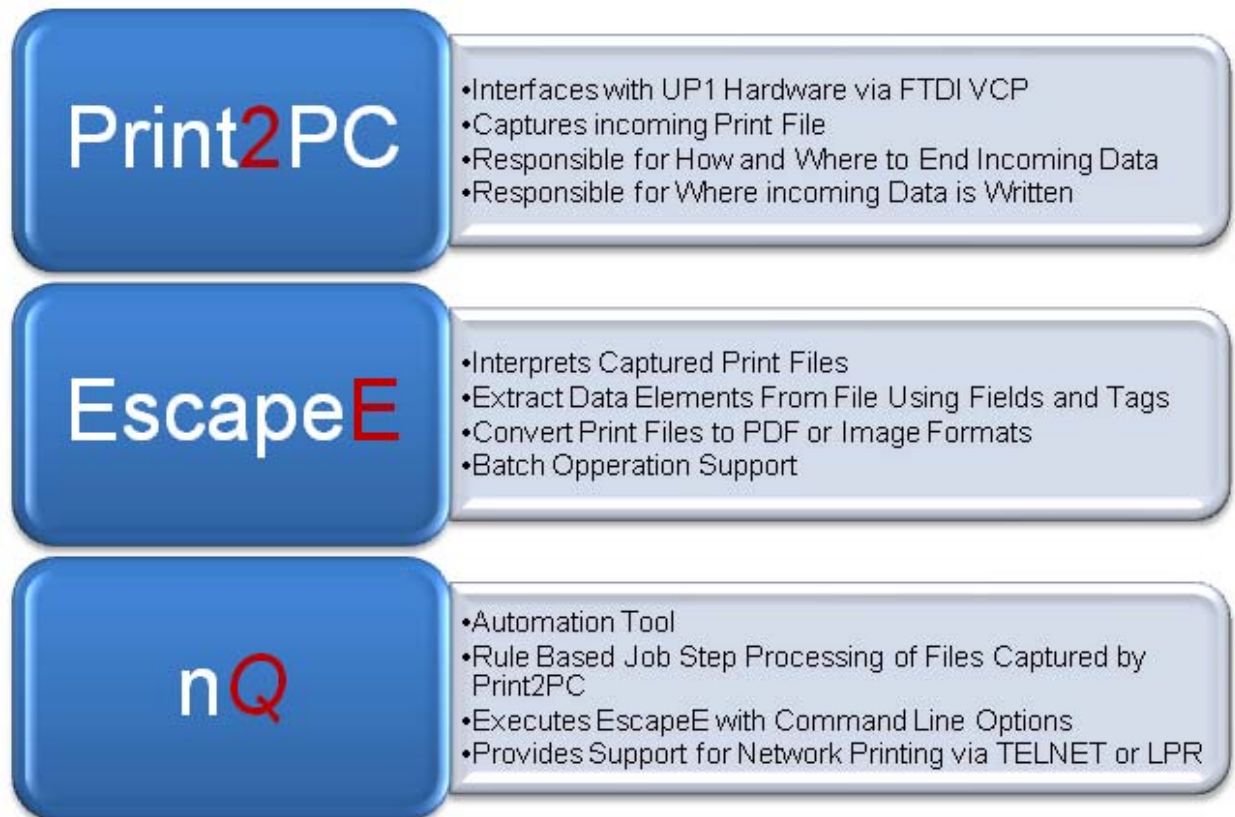
Overview

The complete suite of Redtitan products associated with the Print2PC Capture Parallel Port system provides the user with nearly endless possibilities to control the capture, processing, printing, and naming of data from the host systems parallel port. To better understand each individual software component's role, we should first examine the process as a whole and how the applications interrelate.

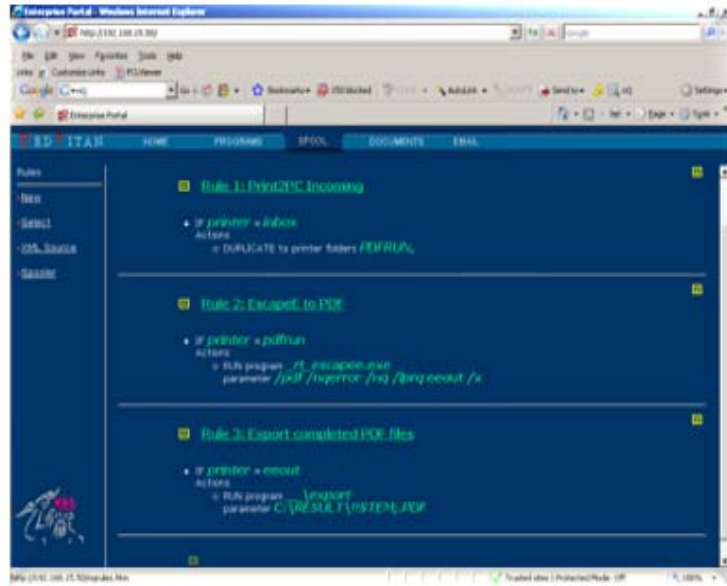
The Print2PC Capture Parallel Port system consists of:

- nQServer - An extended HTTP server.
- nQLPD - A spooler providing rule based job step processing and TCP/IP services including LPR/LPD and TELNET.
- Print2PC - An interface to the UP1 Parallel Port Converter hardware.
- EscapeE - A PCL viewer and transformation system that will convert captured files to other formats, and has the ability to extract textual information from processed files for data log files or file naming.

The chart below shows the primary applications and their core functions in the Print2PC Capture Parallel Port Package



To the right is a view of the nQ interface for viewing, creating, editing, and deleting the XML “Rules” used to govern the processing of captured files. This XML file, called “NQRULES.XML” contains a series of Boolean type expressions that test for the presence of a file in a “queue” folder, and perform an action when that file is found. The “Rules” shown are the default rules installed, and are explained in the section below.



By default, Print2PC will collect files from the capture hardware to the directory "c:\rtspool\inbox\default". This directory is monitored by the nQLPD spooler, which references a user defined XML file called "NQRULES.XML" for details about what it should do with files that enter the INBOX. Because the software uses the architecture of a print spooler, the term "PRINTER" indicates a print queue folder within nQ's "RTSPOOL" structure. By default, the spooler "rule table" (Graphical interface for editing NQRULES.XML) has been configured so that **RULE 1** says: "DUPLICATE" every input file that lands in the inbox to a queue folder called "PDFRUN".

**Note: When configuring complex rules where multiple process are being performed on a single input file...the first step is always to split that input file into individual folders from which further processing can be performed. This alleviates possible errors due to overlapping processes.*

The default XML rules have been configured so that **RULE 2** says: "RUN" the program "EscapeE" every time a file lands in the queue folder "PDFRUN". EscapeE is issued a set of command line options, included as "parameters" in the rule which runs the application. The default "parameters" tell EscapeE to generate a PDF document ("/PDF") and place it in the queue folder "EEOUT" ("/lprq eeout"). A final rule is executed upon EscapeE's completion of its process.

**Note: EscapeE functions as a completely command line driven application, meaning that virtually anything that can be done within the GUI environment can be done using a command line switch in the call to the application*

The final rule, **RULE 3**, tests for a file in the "EEOUT" folder, and when found executes an nQ native application called Export.exe. Export creates the final output file in the folder "C:\RESULT" with a file name of the Time/Date ("!!STEM;") that the file was captured by the Print2PC application.

**Note: Export.exe's only function is to move a completed file out of the "EEOUT" folder, and issue it a filename based on a parameter. Its purpose in this package is twofold:*

- To provide a simple, unique filename to users who were not concerned with elaborate file naming
- To provide an example of how users could interface their own applications with nQ's automation

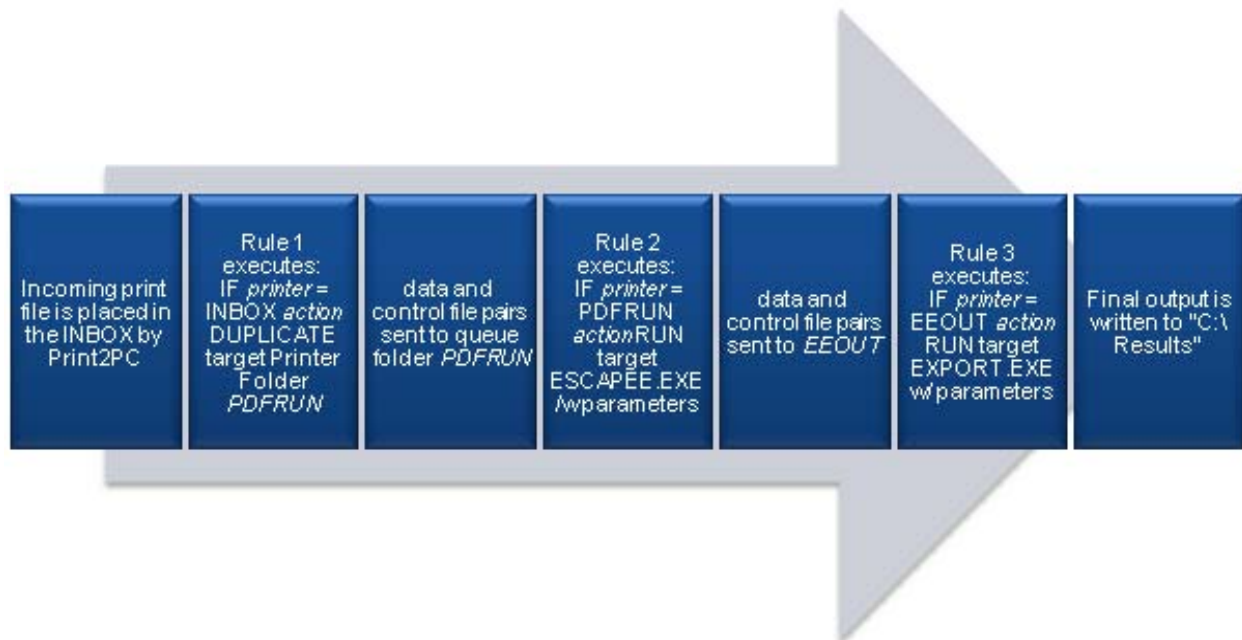
The EscapeE application can also write files directly out to your desired output location. In cases where detailed file naming is required, it is typically used and the rule to run Export.exe is discarded.

Understanding the big picture of how these applications interact with one another will make configuration much easier. Although each of these components has quite a few configuration options available, nearly all Print2PC jobs will be set up based on the simple structure provided as the default setting.

For example: If you simply wanted to change the output file format, all you would need to do is edit the parameter in rule 2 to be the appropriate slash command for your output type (“TIFF” or “TEXT” in place of “PDF”) and change the file extension in Rule 3’s parameters. You would probably also want to edit rule names and queue folder names to be indicative of your changes...but this would not affect file processing.

Having a solid understanding of the XML job step processing of nQ, and the options available in the EscapeE application and their associated command line switches, will allow you to configure very complex jobs with ease.

The chart below illustrates this process in another way. Consider that the large arrow in the background is the nQ spooling process...constantly monitoring its queue folders for incoming data to process. The boxes show the individual processes which occur as a result of a file capture.



Print2PC

The application, Print2PC.exe, is the portion of this software suite that is tasked with the capture of incoming data. This application maintains an active connection with the UP1 hardware via a Virtual Com Port link, controlled by FTDI's VCP driver. When incoming data is detected (file is printed from host device), Print2PC.exe opens a file in a specified location within the nQ spooling folder structure and writes the incoming data to that file. The application then uses a series of user defined values to determine when a file ends, and closes the file. This allows the nQ spooling system to take over and process it. The Print2PC application then prepares to receive another file, or resets the port connection, or closes depending on what the user has defined. Print2PC.exe is a customizable interface that allows the user to define configurations and save them to individual "profiles". All configuration information is found in the Print2PC.ini file (found in the same folder as Print2PC.exe). This section describes the operation and configuration of Print2PC.exe.

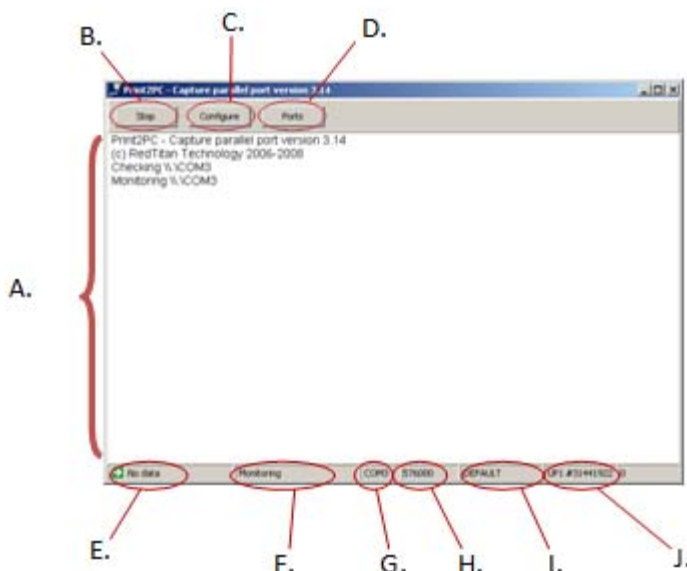
Launching Print2PC

During installation, a shortcut to Print2PC.exe will be placed on the Windows™ Start Menu. The application can always be launched manually from this location (unless removed by the user). Subsequently, the executable itself can be found in the "c:\Program Files\Redtitan\Software\Print2PC" folder. By default, Print2PC.exe DOES NOT configure itself to run when an import station is booted...but the application can be run on system start up via any of the standard Windows™ utilities, such as the Startup group or the "RUN" section of the Windows™ registry.

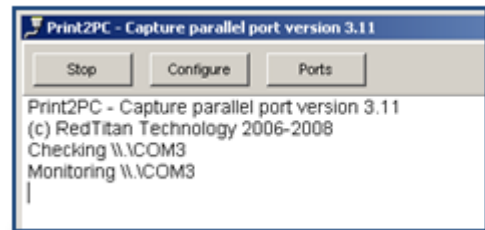
Print2PC Profiles can be launched by appending the application target string with the name of the profile: "c:\program files\redtitan\software\print2pc\print2pc.exe" **Profile1**

When the application opens, the user will see a series of console messages describing the state of the application. The console will indicate which Virtual Com Port is being used (also viewed in, and inform the user that the COM port is being "Monitored" for incoming data. When the Print2PC console window indicates that it is "Monitoring" a COM port, it is in its ready state, and poised to receive incoming print files (assuming parallel cables are connected).

The diagram illustrates components of the Print2PC application:

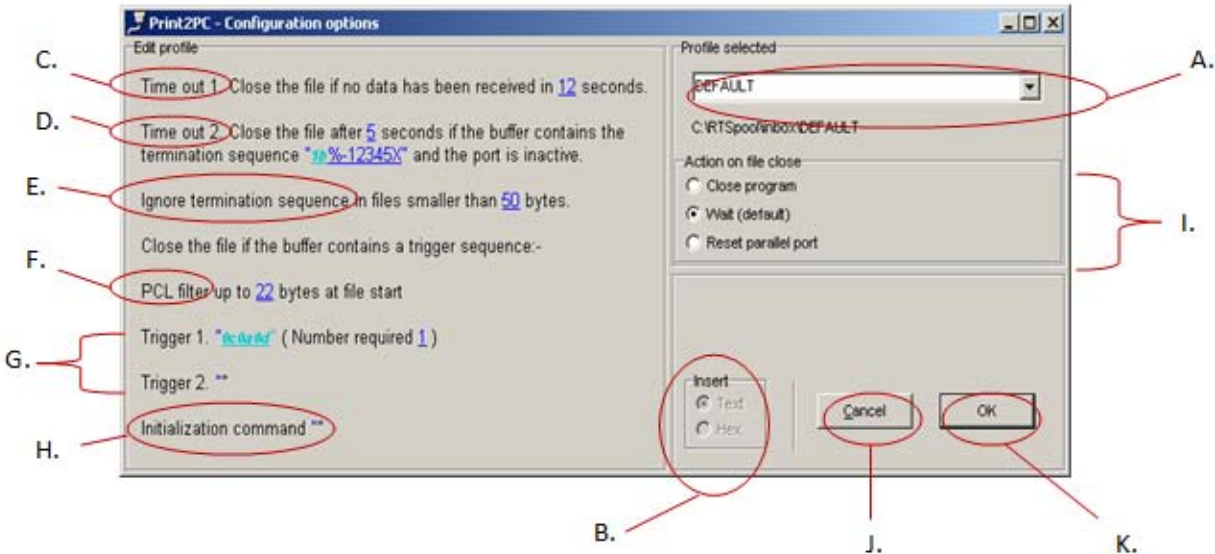


- A) **Print2PC Console Window** – Window where application activity is displayed
- B) **Stop/Start Button** – Gives ability to manually stop or start Print2PC's COM port monitoring
- C) **Configure Button** – Open Print2PC Configuration Options window
- D) **Ports Button** – Displays all COM ports present on current system, and driver details
- E) **Capture Status/Byte Counter** – Shows the status of active file captures, includes byte count during files capture
- F) **Print2PC Status Indicator** – Shows state of Print2PC's VCP connection or size of last captured file
- G) **COM Port Indicator** – Shows COM Port that Print2PC is using
- H) **Speed Indicator** – Shows baud rate of file capture...Print2PC automatically detects fastest setting
- I) **Profile Indicator** – Shows active Profile of Print2PC configurations
- J) **UP1 Signature** – Shows UP1 hardware serial number



Configuring Print2PC

Print2PC can be configured by clicking the “Configure” Button at the top of the application. From this interface, the user can define the values used to determine how the UP1 hardware initializes, when a file has been captured completely, where that file is stored, and what action the application is to perform upon completion. Here is a diagram of Print2PC’s configuration window; each item is described in detail below.



- A) **Profile Selected** - This drop down text box displays the profile you are editing. Any changes to the configurations of Print2PC will be applied only to the profile selected. You can create new profiles by clicking in the text box and simply typing the name of the profile you want to create and clicking “OK”. You can select already created profiles to edit by using the dropdown list. Profiles in Print2PC serve three functions:
- o They allow differing preset configurations to exist on a single system or for
 - o They allow multiple instances of the Print2PC application to be run concurrently, each monitoring a varying COM ports

**Note: to call Print2PC using a specific profile, the profile name must be appended to the target of the application...this is done by editing the properties of the shortcut, or by adding the entire string to the RUN section of the registry,*

Ex: “c:\Program Files\Redtitan\Software\Print2PC\Print2PC.exe” Profile1

- o They define which subfolder of the “c:\RTSpool\inbox” Print2PC will collect its files (files are always saved into a subfolder of inbox named after the profile – profile “Default” creates input files in c:\RTSpool\inbox\Default – this folder is displayed below the profile drop down box). This information is retained and passed to downstream processes as the “CLASS” or “lprc” value.
- B) **Insert Selection** - These selectable buttons become active whenever a value is being entered in any of the following configuration sections. Many of the values that you configure in Print2PC can either be entered as ASCII text, or as hex values. These buttons allow you to alternate between the two. Text entries will appear as dark blue, regular fonts...while hex values will appear as cyan, italicized fonts.



- C) **Time Out 1** - This is the first option in a series of configuration options used to determine when Print2PC should close a file it is writing, allowing downstream processes to take over. This first timeout value simply allows the user to define how long (in seconds) the application should wait, after it stops receiving bytes of data, before it closes its current file. The Time Out 1 counter will begin ANY TIME there is a break in data transmission. There are often lulls in data transmission, and for this reason this value should never be set below 3 seconds...as this can result in truncating files.
- D) **Time Out 2** - This is the second option used by Print2PC to test if a file is ready to be closed. This option looks for a defined PCL end of file signature, "(12345X" is a standard PCL EOF signature). If this signature is found then the file closes in the amount of time specified in this option. Time Out 2 provides users who are capturing files containing standard EOF sequences, and users who know the EOF sequence of the files they are capturing, with a tool to close files more reliably and efficiently than Time Out 1.
- E) **Ignore Termination Sequence Option** - This option simply allows you to ignore the termination sequence defined in Time Out 2 if the captured file does not meet a specific byte count. This is handy if your host device generates many very small files...each of which has an EOF signature...and you prefer to consolidate multiple original reports into single captured files.
- F) **PCL Filter** - This option allows the user to define the first number of bytes that occur before an escape e reset command (hex 1b 45) that are to be discarded. This is a rather advanced feature which is not typically called for. It can be used for cleaning up files sent from some types of machines which may contain blank pages or spurious bits of data at the beginning of the file.
- G) **Trigger 1 / Trigger 2** - Trigger options are used in Print2PC to split an incoming print stream into segments based on user defined criteria. These can be text values or hex commands in the print stream. For example, if your host device sends multi-page print files, and you want each page to be collected as a separate entity, you would use the trigger values. Or if your host system simply streams data constantly, and you want to provide rational file breaks, you would use trigger values. If you determine that each page or section of your incoming print stream ends with the same series of hex commands (0a0d0c), or the same string of text (End of Statement), you can input these values as triggers and the Print2PC software will split the input when those values are encountered.
- H) **Initialization Command** - This option allows the user to pass coded commands to the UP1 device, engaging various firmware operating modes. "CP91" is the setting to input here if the device does not work by default. This initialization command makes the UP1 behave like an older centronics printer using ACK handshaking. Later model printers handshake using BUSY which is much faster.
- I) **Action on File Close** - This set of options allows the user to define what the Print2PC application should do after it closes a file it is writing. Options include:
- o Close Program - Closes the Print2PC application
 - o Wait - Returns Print2PC to its "Monitoring" (ready) state
 - o Reset Parallel Port - Cycles power to the UP1 device...re-establishing all connections
- J) **Cancel Button** - Closes the Print2PC configuration window without applying any changes
- K) **OK Button** - Closes the Print2PC configuration window and applies all changes. Print2PC should be closed and re-opened to apply changes.

**Note: As with any application that uses an initialization file to load settings... Print2PC.exe must be closed and re-opened in order to complete the process of writing new information to and calling information from its .ini file*

Print2PC.INI

All of the profiles created and configuration options selected are saved into Print2PC's initialization file, Print2PC.INI. This file is found in the same folder as the Print2PC executable (c:\Program Files\Redtitan\Software\Print2PC" by default). You can view the contents of the Print2PC.INI file in any text editor. This file can be replaced in a CD image of the Print2PC installation, in order to deliver pre-configured settings and profiles for Print2PC.

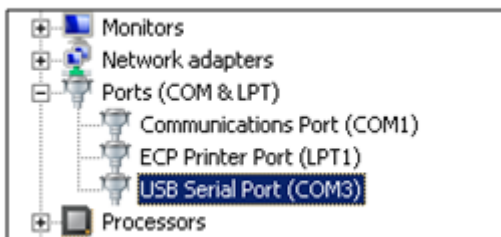
The image below shows a sample of the Print2PC.INI file in a text editor. This INI file illustrates two active profiles, "X" and "Default". The values contained in this file are explained to the right and below:

```

[ X ]
TIMEOUT1=15
TIMEOUT2=5
PREFPORT=0
TRIGGER=1B/25/2D/31/32/33/34/35/58/
INIT=0D/0A/
[ DEFAULT ]
TIMEOUT1=12
TIMEOUT2=5
PREFPORT=
TRIGGER=1B/25/2D/31/32/33/34/35/58/
INIT=
TRIGGER1=0C/0A/0D/
TRIGGER2=
CLOSEACTION=1
MFS=50
NOISE=22
NUMBERREQUIRED=1
  
```

"Prefport=" - This option is used to tell a Print2PC profile to monitor a UP1 device attached to a specific com port. The COM port opened by a UP1 device can also be viewed using the Windows Device Manager (see image below). This option defaults to no value, meaning that the profile will simply monitor the first available COM port. This option is very important when multiple UP1 devices are attached to a single import workstation. This option can ONLY be edited using a text editor.

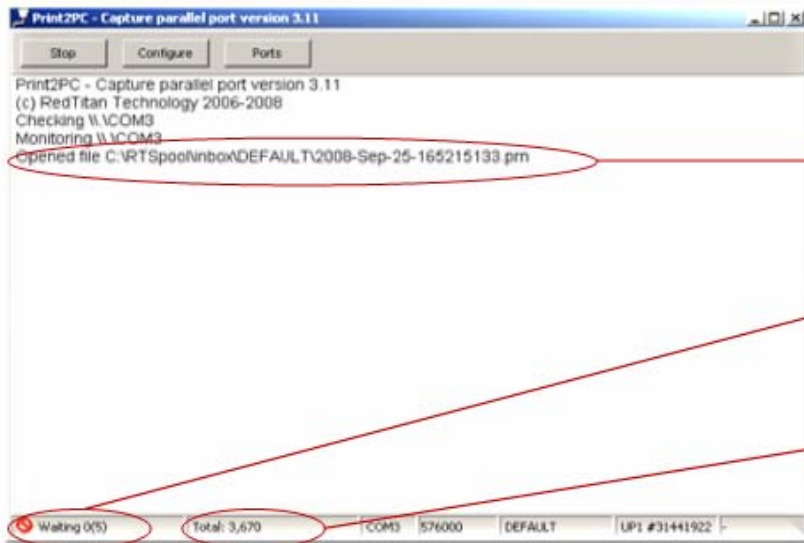
From Device Manager



- **[X] / [DEFAULT]** - Bracketed entries in the Print2PC.INI file indicate Profiles, the options for these profiles are found in the sections following the bracketed value
- **"Timeout1="** - Defines Time Out 1 setting configured in Print2PC for current profile (seconds)
- **"Timeout2="** - Defines Time Out 2 setting configured in Print2PC for current profile (seconds)
- **"Trigger="** - Defines the End Of File Sequence ,configured by the user, to be used in conjunction with the Time Out 2 option
- **"Init="** - Defines Initialization string value set by user. This entries will not appear as standard ASCII text, and should only be edited using the Print2PC Configure GUI
- **"Trigger1="** - Defines Trigger1 string value set by user. This entries will not appear as standard ASCII text, and should only be edited using the Print2PC Configure GUI
- **"Trigger2="** - Defines Trigger2 value set by user. This entries will not appear as standard ASCII text, and should only be edited using the Print2PC Configure GUI
- **"Closeaction="** - This entry defines the "Action on File Close" option set by the user. There may be one of three values here
 - o 0 - Close Program
 - o 1- Wait (Default)
 - o 2- Reset Parallel Port
- **"MFS="** - Defines the Minimum File Size. The entry represents the value set to ignore files to a certain number of bytes
- **"Noise="** - Defines the number of bytes that precede an escape e sequence to be discarded
- **"NUMBERREQUIRED="** refers specifically to the "Trigger 1" value and indicates the number of times the trigger value should be repeated in the print stream before being applied

Capturing a File

Once the Print2PC application has been configured to your specifications, capturing a file from your host device is as simple as printing from it. Follow the same steps you would to print to your external parallel printer and watch Print2PC work. When a file capture initiates, you will see a few things happen within the Print2PC application:



You will see a console message indicating a file has been opened. The file is always written to the c:\RTSpool\inbox\

The Capture Status/Byte Count will show an active bytes/second transfer rate, followed by a counter (the counter is what is used to invoke Time Out 1 & 2 values)

The Print2PC Status Indicator will display a count of the total number of bytes collected

Upon completion of a capture you will see:

```
Opened file C:\RTSpool\inbox\DEFAULT\2008-Sep-25-165215133.prn
Closed file (timeout2) C:\RTSpool\inbox\DEFAULT\2008-Sep-25-165215133.prn 3670. bytes
```

The "Closed file" console message indicates which Time Out value was used (timeout2), where the input files was written to (C:\RTSpool\inbox\DEFAULT\2008-Sep-25-165215133.prn), and what the total file size was (3670 Bytes).

Print2PC assembles an incoming print stream and produces an output just as a printer would, thus users can expect file captures to take approximately as long as those files would take to print to their native printer.

Now that Print2PC has been configured to capture files...let's examine what happens when after a file capture occurs.

nQ

Redtitan's E(n)terprise (Q)ueue is a HTML based TCP/IP spooling application that automates the Print2PC suite of applications. nQ controls the post processing of files placed in its "Inbox" by the Print2PC application. The "Inbox" provides a very easy way for Print2PC to submit files to the spooler. Any file placed in a sub-directory of the "Inbox" will automatically be given a "control file", and be processed by the nQLPD rule table from the **INBOX** spooler printer folder.

Most users need not be concerned about the content of control files, but during this data file's life within the spooler, the control file and the data file travel around together. Each line of the control file consists of a symbol followed by a parameter, and the data in this file can be referenced by nQ for complex processing of files if needed (*see section on [Connecting Multiple UP1 Devices](#) and the nQ technical reference for more details on "control files"*).

When a file arrives in the "Inbox", nQLPD responds by executing a set of user defined XML rules. This rules based processing allows for the splitting of input files into various directories for separate processing, the running of applications upon completion of pre-requisite steps, and provides full LPR/LPD and Telnet support for network printing. This application can be configured to pass command line variables to the EscapeE program, in order to invoke configuration options during file capture/conversion. nQ utilizes an advanced HTTP server (nqserver.exe), and a rule based job step processing application (nqlpd.exe) as its spooler; and tracks progress using standard UNIX like control/data file pairs.

Remember the chart from the **Overview** section of this document...



The chart above illustrates the default set of rules installed with this package. The information contained in this portion will assist you with editing, creating, deleting, and saving your own custom set of rules for processing of captured files. The nQ application as a whole is a very powerful virtual print spooler and can be configured to do many complex tasks...many of which will VERY RARELY be used while configuring nQ to work with the Print2PC package. For the sake of brevity, those topics are not discussed in great length in this document. You can view the entire technical reference for nQ by clicking the "HELP" link in any of the nQ browser windows.

This document will contain excerpts from the nQ documentation that are relative.

nQ Requirements

- Internet Explorer 5 or higher is recommended. Other browsers may be used with restricted function
- A static TCP/IP address is required
(*Microsoft Loopback Adapter may be installed on systems without TCP/IP capability...see "loopback.PDF" on your install CD if your system has no TCP/IP support*)

The nQ Portal

Following the installation of the Print2PC software package, your web browser will open to display the interface for nQ. This page gives a brief description of the nQ application and its spooling process. This page uses your PC's local IP address, and can be accessed by typing "localhost" in the URL bar.

In the default system 3 processes are running after system start-up.

1. nQPrint2PC - This program installs the nQPrint2PC tray icon and launches the other two processes.
2. nQServer - This is the extended HTTP server.
3. nQLPD - This is the XML rules based spooling application.

The first two processes listed are always active when the machine is running. nQLPD is the process which executes your defined XML rules file, and can be controlled via the nQ portal.

**Note: Once XML Rules have been configured for a job, they execute as part of an automated process...user interaction with nQ is strictly limited to the configuration of new jobs or editing of processes*

To shut down these services and all other nQ client programs right click on the tray icon and select "Shutdown". If these processes are shut down in this manner – the PC should either be rebooted, or the "nQPrint2PC.exe" file should be run from the "c:\Program Files\Redtitan\Software\Print2PC\nQ_nQ\Software" folder.

If nQserver reports a failure when starting, see the [Troubleshooting](#) section of this document.

Navigating the nQ Portal



The three sections of the nQ Portal Interface that will primarily be used in configuring Print2PC systems are:

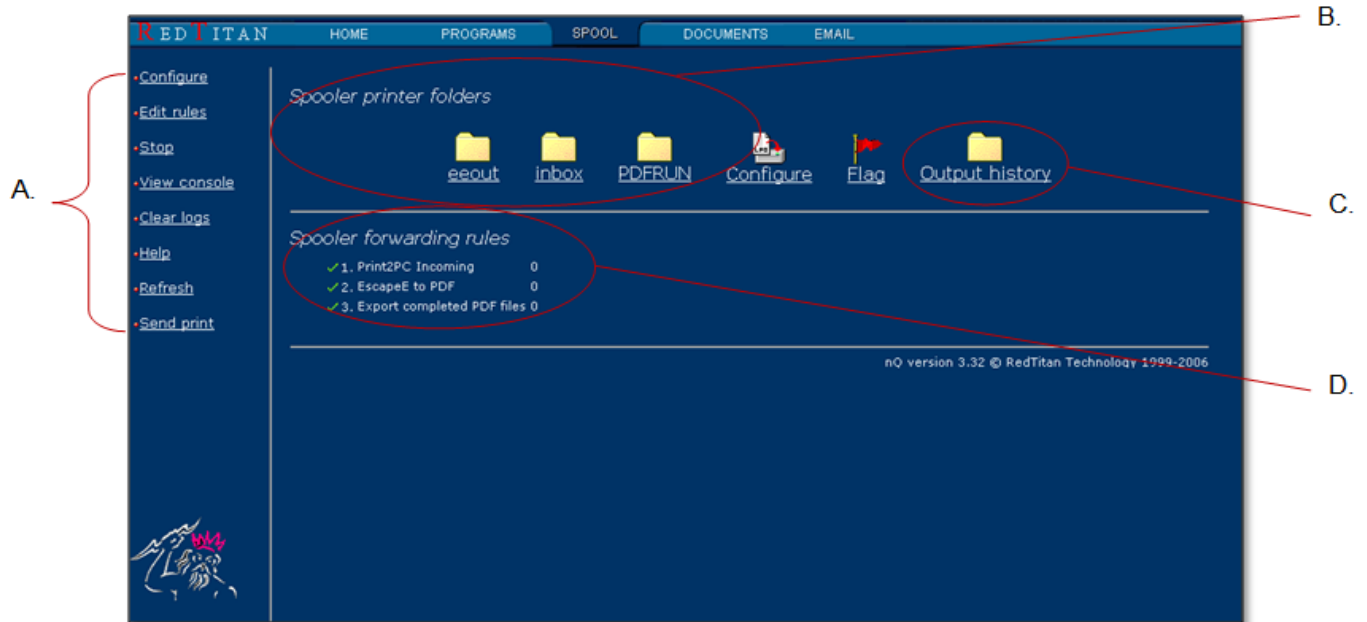
- **Home** - This is the home page for the extended HTTP server installed as part of nQ. This will be the first page you see following a successful installation of the software. This page gives a brief description of the nQ application and its spooling process. This page uses your PC's local IP address, and can be accessed by typing "localhost" in the URL bar. Other pages may be refreshed by navigating "Home", and then returning to them.
- **Spool** - This is the most important component of configuring the Print2PC system. The "Spool" tab controls the process nQLPD, and provides the wizard and interface for creating, editing, and viewing the contents of NQRULES.XML.
- **Programs** - This shows a list of the active programs nQ interfaces with. If all applications are actively running, this tab will include Print2PC.exe, EscapeE.exe, and Spooler (nqlpd.exe).

**Note: In most cases...the Programs tab is only ever merely viewed...when the nQLPD spooler is stopped and started*

The "Documents" and "Email" tabs are not commonly used features of the Print2PC package...see nQ technical documentation for details.

nQLPD Console - The Spool Tab

The most important function performed by nQ in conjunction with the Print2PC suite of applications is the running of nQLPD, and the execution of the NQRULES.XML file for post-processing. The “Spool Console” of the nQ portal is the section where the nQLPD.exe process is controlled, and the NQRULES.XML file is configured. To access this section of the portal, simply click on the “Spool” tab from any page. Doing this will display the following page, a detailed description of “Spool Console” contents is given below:



A) **Spool Options Links** - This section of the “Spool” Console gives a set of links which allow for easy navigation through the various functions of the nQ Spooler. With these links you can access the NQRULES.XML editing interface, stop the spooler, return to the home spool console page, refresh the page, access the nQ help documentation, or access nQLPD configuration (advanced users only). The “Send Print” option is rarely used with Print2PC (see nQ documentation).

B) **Spooler Printer Folders** - This section provides a complete list of all “printer queue folders” found within nQLPD’s “spool” folder (C:\RTSpool). nQLPD will process any file that is placed in any one of these folders. Folders are automatically created by nQ and Print2PC when necessary; there is no need to create them. You can view the contents of these folders by clicking on them from the “Spool Console”.

C) **Output History** - This gives you a detailed summary of jobs that have been processed, including time they occurred, filenames associated, various “control” elements (i.e. job, class, host), and status of processes run.

Output history

Spooler folder=

Id	Time	User	Class	Job	Host	File	Status
eeout\000Local	Thu 25.09.2008 22:04:15		DEFAULT	2008-Sep-25-165215133.pm	___leapport(-)	INBOX_2008-Sep-25-165215133.pm	Export completed PDF files Complete
PDFRUN\000Local	Thu 25.09.2008 16:52:24		DEFAULT	2008-Sep-25-165215133.pm	__rt_escapee.exe (-)	INBOX_2008-Sep-25-165215133.pm	EscapeE to PDF complete - job moved to eeout

D) **Spooler Forwarding Rules** - This section provides a glimpse of the current NQRULES.XML rule set that is in place. This display only indicates the name of the rule, and whether or not it is active. This display also indicates the number of times each rule has been executed since the last spooler restart. You can suspend/activate rules that are already contained in your NQRULES.XML file from this window by simply left clicking the rule title. You will see the Icon preceding the rule name change:

✘ - Indicates the rule has been suspended

✔ - Indicates an active rule

Controlling nQLPD - Stopping and Starting the Spooler

There are only two reasons that the nQLPD process would be stopped or restarted:

- **Editing/Creating Rules** - The spooler must ALWAYS be stopped and restarted to apply changes to the NQRULES.XML file
- **Collecting Raw Print Files for Development** - The spooler may be stopped in order to terminate post-processing of captured files. This allows the user to collect raw print files in the "c:\RTSpool\Inbox\<Print2PC Profile Name>" folder. These files will have a Time/Date filename and .prn extension. These raw print files are needed to configure more complex jobs, as they can be read into the EscapeE application.

**Note: Once the nQLPD spooling process has been restarted, any file left in the "Inbox" folder will be processed by whatever rules are active. It is advised that you move these raw print files into a folder outside of the "c:\RTSpool" structure prior to working with them*

To stop the nQLPD Spooling process, click the "Stop" link on the Spool Options Links



This will open the "Programs" section of the nQ Portal - from this console you can terminate nQ controlled processes.

You will see an icon called "Spooler".

Click on the "X" in the top right corner of the Spooler icon to stop the nQLPD process - the page should refresh and the "Spooler" icon should no longer be present on the "Programs" console. nQLPD is now stopped.



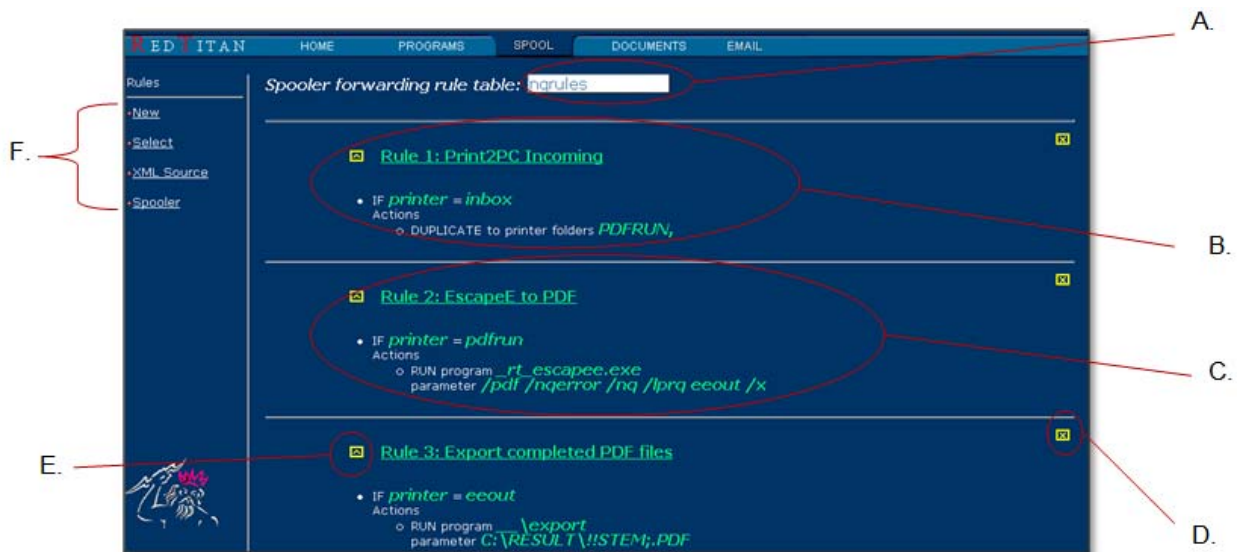
**Note: This action may execute and refresh automatically after clicking the "Stop" link depending on your browser settings*

To restart the nQLPD Spooling process, all you have to do is simply navigate to the "Spool" tab. Opening the "Spool Console" in nQ will re-launch the application nQLPD.exe.

**Note: nQLPD.exe will launch any time the "Spool Console" is accessed. If you are doing development work, it is best to just simply close or minimize your browser once you have successfully stopped the nQLPD spooling process*

NQRULES.XML - The Rule Table

The NQLPD Spooling process's primary function is to execute a set of user defined XML rules which govern the processing of files that are collected in its "printer" folder "inbox". The rules that define what "Actions" are to be taken when a file enters the "inbox" are configured by selecting the "Edit Rules" link from the Spooler Console. Changes and additions to these rules are written in XML format to the "NQRULES.XML" file found in the "c:\Program Files\Redtitan\Software\Print2PC\InQ" folder. When the "Edit Rules" link is selected, the user will see the page below. This page is called the "Rule Table", and it displays the active NQRULES.XML files contents. Its components are outlined in the following diagram.



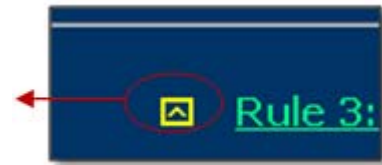
- A) **Active Rule File** - This dialog shows the name of the XML rule file being read by the nQLPD spooler
- B) **Example "DUPLICATE" Rule** - This section shows an example of the "DUPLICATE" Action being performed when a file enters the "printer" folder "inbox". Duplicating incoming files into their own folder for further downstream processing is ALWAYS the first step in any process. Multi UP1 installations may DUPLICATE based on additional criteria (control file contents), to account for files written by different Print2PC profiles into differing sub-folders of "inbox" that require different processing. Note that the target folder, "PDFRUN," of the DUPLICATE Action is followed by a comma. You can DUPLICATE to multiple folders in order to perform differing downstream processes, and avoid overlapping them (see [Creating/Editing Rules](#), [Connecting Multiple UP1 Devices](#) sections)
- C) **Example "RUN" Rule** - This section shown an example of the "RUN" Action being performed when a file enters the "printer" folder "pdfrun". When a file is placed in this folder, the "RUN" command allows nQLPD to execute an application and issue it a set of parameters. In the case of Print2PC, the first application to typically be is called is the application used to process the raw captured print file. This application is called EscapeE.exe. EscapeE accepts the parameters delivered to it by nQLPD when called, these parameters instruct EscapeE what actions it is to perform. Parameters are optional when running applications, but essential when running EscapeE.
- D) **Delete Rule Button** - This button is used to delete the corresponding rule
- E) **Create New Rule Button** - This button inserts a new rule and launches the rule creation wizard. The new rule will be positioned above the arrow you select, however, it is important to note that nQLPD is constantly polling its "printer" folders for data. The nQLPD spooler does not process rules in the order they are entered in the XML file, it simply processes a rule when its requirement has been met
- F) **Rule Table Option Links** - These links allow you to "Select" previous saved versions of your NQRULES.XML file, view the "XML Source" of your current rules file, or return to the Spooler Console. The "New" option allows you to create entirely new rules tables when none exists, however, because the Print2PC system installs with an active rule file (NQRULES.XML), this option is not typically used.

Creating and Editing Rules

The default set of NQRULES.XML rules installed with the Print2PC package can be easily changed, removed or appended to. This section describes these procedures.

Creating a New Rule

New rules can be created the New Rule Wizard portion of nQ portal. To create a new rule...simply click on the "Create New Rule" button on the "Rule Table".



Upon clicking the "Create New Rule" button, your browser will ask you if you wish to add a new rule to the NQRULES.XML file, select "OK" to continue. This will launch the New Rule Wizard.

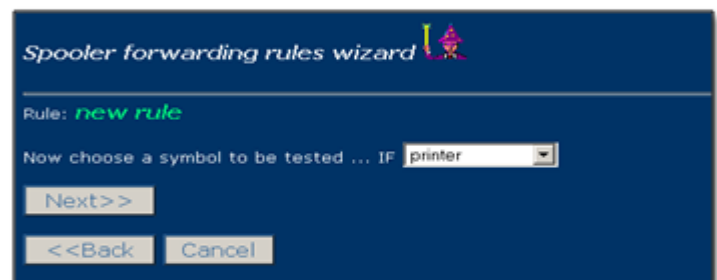


The New Rule Wizard is designed to walk you through the steps to create a new set of XML structured rules in the NQRULES.XML file. This section of the document will walk through each of the sections of the New Rule Wizard

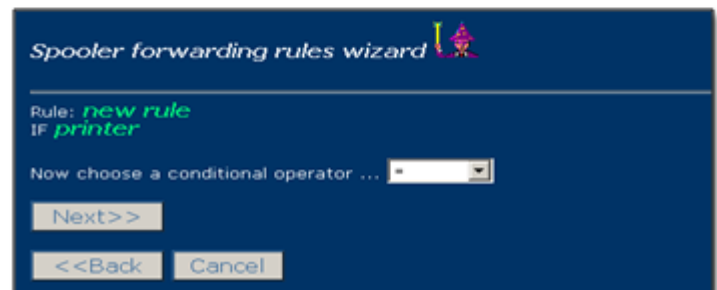
- 1) The first step in the Wizard is naming your rule. It is advised that you choose a name that is indicative of the process the rule will perform, for the sake of organization. Rule names DO NOT have any impact on their processing. Type a rule name in the text box and click "Next>>" to proceed



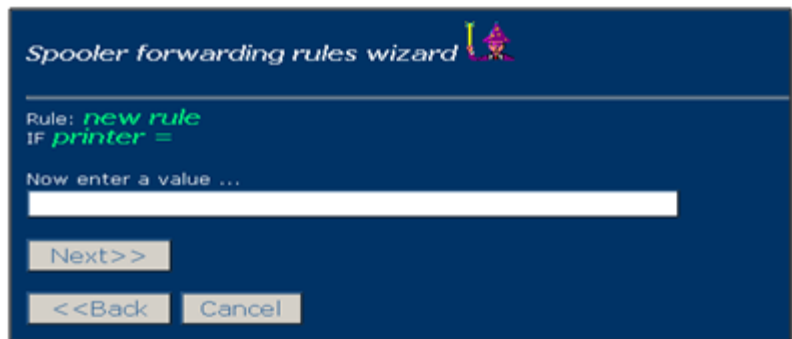
- 2) The second step in the Wizard allows you to choose the symbol that is tested by the rule. This is the first part of a standard IF / THEN statement. In nearly every case where Print2PC is in use, the tested value will be "printer". "Printer" represents a queue folder in nQ's "Inbox". Select a symbol and click "Next>>" to proceed



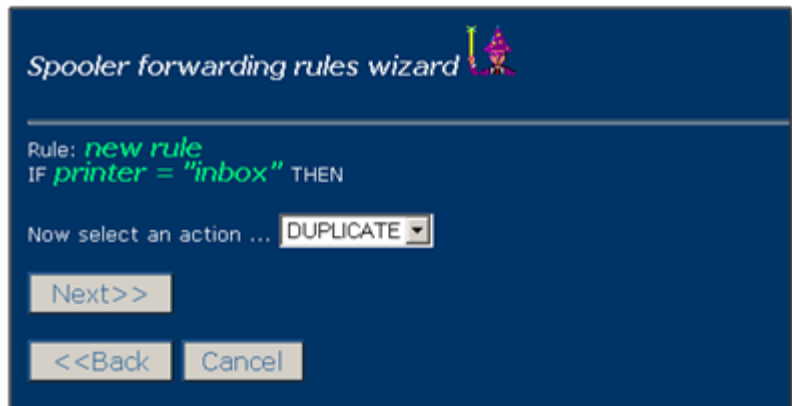
- 3) The third step in the Wizard allows you to choose the conditional operator for the rule. This indicates the test that is performed. The "=" operator tests for simple equality, and will be used in nearly every rule written for Print2PC. Other operators, however, are available. Select an operator and click "Next>>" to proceed



- 4) The fourth step in the Wizard allows the user to define the Value that the rule is testing for. This would be the **name** of the "printer" folder that nQLPD was to look for a file in (if *printer* = **inbox**), or whatever value was relevant to your symbol and conditional operator. Type the value in the text box and click "Next>>" to continue.



- 5) The fifth step in the Wizard allows you to select which action is performed when the IF/THEN statement you have created is met. The most commonly used actions are "DUPLICATE", "RUN" and "LPR". The excerpt from the nQ technical reference below illustrates available actions and how they are defined. Select the action you wish to use and click "Next>>" to continue.



Actions include

- RUN a specified program, the data filename is passed on the command line.
- TELNET output to a specified host
- DELETE the job
- DUPLICATE the job to a number of named folders
- LPR the data to a target printer

Each rule has a similar format...
IF <condition> Actions <action>

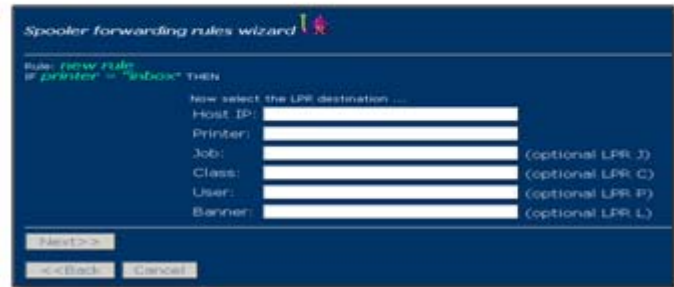
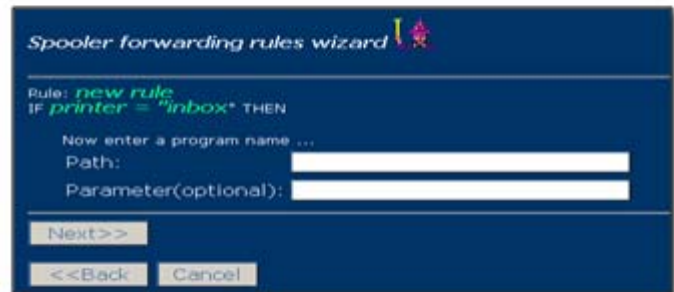
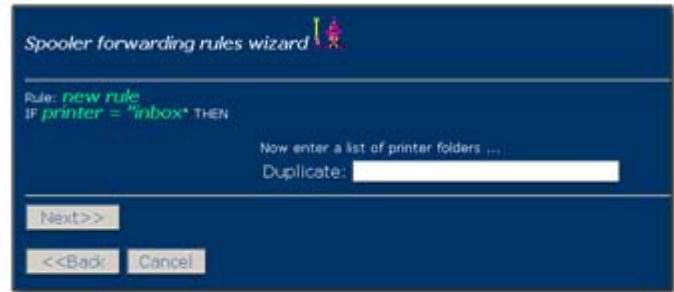
- 6) The sixth and final step in the Wizard defines the target of the Action you select. This step will vary depending on which Action the user selected in step 5. The examples to the right show the Wizard steps following the use of the "DUPLICATE", "RUN", and "LPR" Actions.

The DUPLICATE action (top right) will prompt you to define a target printer folder, or folders, to which the input file will be sent. nQLPD can only DUPLICATE files to queue folders within its "c:\RTSpool" root folder...thus no path needs to be defined, simply the folder name.

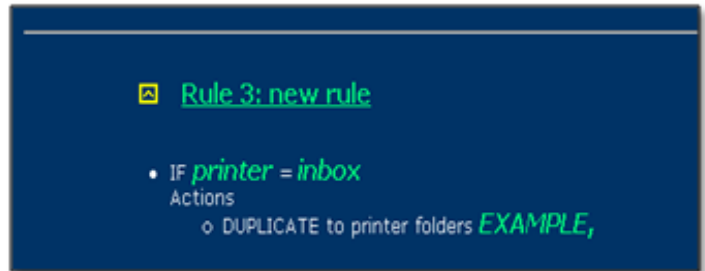
The "RUN" Action (middle right) will prompt you to enter the entire path to an executable file you wish to run, and will give you the option of passing parameters to that application. This application will be launched when a file arrives, the file will be sent to the application, and any specified parameters will be delivered.

The "LPR" Action (bottom right) allows you to send a file directly to a network printer via LPR. The Host IP address of the printer, and its name are required, all additional sections are optional.

For each of these Wizard windows, simply input the appropriate values in the text boxes and click "Next>>" to continue.



- 7) The New Rule Wizard is now complete. Upon completion you will be returned to the "Rule Table" page, and should see that your newly created rule appears on the table.



**Note: Changes are not complete until the nQLPD process has been stopped and restarted, calling the newly modified NQRULES.XML file. (See [Applying Rule Changes](#))*

```

Example of rule expressed
in XML format
(from NQRULES.XML)
- <RULE name="new rule">
- <CONDITION type="IF">
  <EXPRESSION type="SYMBOL">printer</EXPRESSION>
  <OPERATOR>=</OPERATOR>
  <EXPRESSION type="LITERAL">inbox</EXPRESSION>
</CONDITION>
- <ACTION type="DUPLICATE">
  <PRINTER>EXAMPLE</PRINTER>
</ACTION>
</RULE>

```

Modifying Existing Rules

The New Rule Wizard is not always the appropriate tool for configuring the rules contained in NQRULES.XML. Existing rules can be modified very easily to change any of the values defined during the Wizard. In some cases, like in the case where multiple values are being tested in a single rule, a rule must be configured using the rule editing procedure. The New Rule Wizard, for the sake of simplicity, does not make accommodations for multiple conditions in a rule. If you want to modify an existing rule, you simply need to left-click on the title of the rule on the “Rule Table” (note that rule titles appear as hyperlinks). When you click the title of the rule, the “Rule Editing” page will be displayed.



The “Rule Editing” page provides singular access to all of the various elements you defined during the New Rule Wizard. You can simply click your mouse into any text box and type in changes to the rule. From here you can also add additional conditional values to be tested along with IF, such as “AND”, “NOT” & “OR”. You can easily change rule titles, folders checked for files, folders files are sent to, applications called, and application parameters from this interface. Click “apply” to return to the “Rule Table” and accept any changes you make, “cancel” returns you to the “Rule Table” and applies no changes.

Applying Rule Changes

Whether you use the New Rule Wizard to create rules, or the Rule Editor to change existing rules, no change to the NQRULES.XML file will be active until the nQLPD process has been stopped and restarted. The reason for this is that the process nQLPD.exe must read the NQRULES.XML file on startup in order to invoke that set of rules. If the spooler (nQLPD.exe) was running while you were creating/modifying rules...then it has not had the opportunity to open, referencing the changes you make, until it is stopped and restarted. When the spooler must be restarted, the “Spool Console” window will always display this:



This procedure is outlined in the “[Controlling nQLPD – Stopping/Starting the Spooler](#)” section of this document you can easily stop and restart the nQLPD spooling process and apply changes to your system.

Now that you have an understanding of how nQ and nQLPD work to send collected files down a user defined path, and how rules can be added, changed, and saved, you are ready to begin configuring your system to process files according to your personal specifications.

The next topic addressed by this document is the configuration of EscapeE.

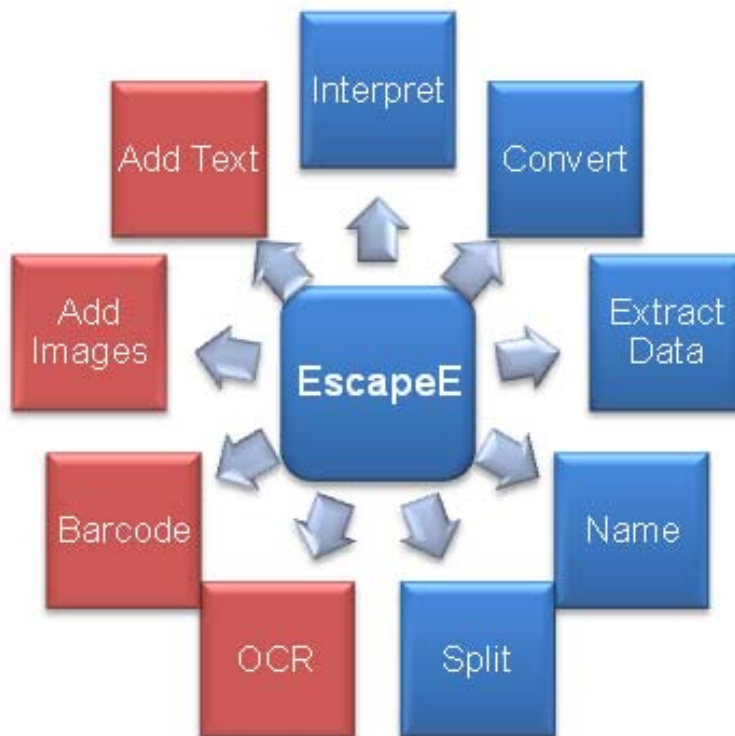
All nQ related topics not discussed in this document may be viewed at <http://www.pclviewer.com/nq/document.htm>.

EscapeE

EscapeE Overview

EscapeE is an industry leading PCL conversion / interpretation utility. EscapeE is used in the Print2PC suite to convert captured files into various file / image formats including PDF, TIFF, JPG, PNG, and more. EscapeE also gives the user the ability to extract textual data from the print file to be used either in file naming, or to be logged into XML, TEXT, or CSV formats. EscapeE supports full batch automation via a series of command line switches it accepts as a "parameter" from the nQLPD process. Once jobs are configured they can be invoked via a command line call from the nQ automation utility and no user interaction is required. EscapeE is an extremely versatile piece of software, and not all of its functionality is applicable in Print2PC installations. Its license has been limited to processing single files of **no more than 10 pages**. Also, the UP1 hardware MUST be connected to the PC via USB and the Print2PC application open in order for EscapeE to be licensed. This document will touch briefly on the key elements of EscapeE's use that relate to the Print2PC system. Full documentation on all components of EscapeE can be found within the application's Help file.

The chart below illustrates the file processing capabilities of the EscapeE application. The red processes indicate plug-in modules available for the EscapeE product...for more information on these plug-in components please contact help@redtitan.com or visit us online at www.pclviewer.com.



Interpreting Print Files - EscapeE is a fully customizable application capable of interpreting many inputs including HP PCL, PS, Epson, and Cannon print languages. The application provides a true “print preview” of the file in its development interface. Configuration work begins with collecting raw print files while the nQLPD spooling process is stopped, these files can then be opened using the EscapeE application, and job development done.

Extracting Data - EscapeE makes the contents of the print file work for you by allowing you to use the data in many ways. EscapeE allows the user to simply draw around the data elements on the file you wish to capture and create Data “Fields”. The values found in these fields can be extracted to XML, CSV, or Text format, used for naming, or used for advanced searching functions.

Converting Data - EscapeE has the ability to export files to a myriad of file formats including PDF, TIFF, JPEG, PNG, BMP, TEXT, XML, and CSV.

Naming Output Files - EscapeE gives you full control over the name of the exported file. From a simple static name to a composite string comprised of data elements from within the file, originating file information, dates, times, etc...EscapeE does the job.

Splitting Input Files - EscapeE allows you to easily key off sections of the file, or defined fields, to split single input files into user defined segments.

EscapeE Configuration - The Command Line, RT.INI, Fields, and Tags

The very first step in EscapeE configuration is obtaining samples of your print files. This is done by using Print2PC to capture files while the nQLPD spooling system is stopped (*refer to the [“Controlling nQLPD – Stopping/Starting the Spooler”](#) section of this document*). These captured files can be opened in EscapeE either by double clicking and selecting EscapeE from a list; or by launching the EscapeE application, using the “File | Open” option, and selecting your file. Once you have harvested raw samples of your input files...you are ready to begin developing your EscapeE configurations.

The Command Line

Configuring EscapeE to work in conjunction with Print2PC and nQ in a broad sense is very simple. It is important to remember HOW EscapeE is interfaced with these applications...it is called by nQ, passed a file, and issued a set of PARAMETERS. These parameters are command line switches appended to the end of the application call which tell EscapeE what to do.



Any configuration option available in EscapeE has an associated command line switch

In a sense, the most important part of configuring the EscapeE application is identifying what **you** want the application to do.

The command line options show above do the following:

- /pdf – Tells EscapeE to create a PDF of the input file
- /nqerror – Tells nQ to create an error log if an error occurs
- /nq – Identifies nQ as the calling application (required when /lprq option is used)
- /lprq eeout – Tells EscapeE to use its LPR ability to send the completed file to the nQ queue folder (sub-folder of “c:\RTSpool”) “eeout”.
- /x – Tells the EscapeE application to close

The “Command Line Index” section of the EscapeE Help file gives a list of all available options; the “Command Line Syntax” section of the EscapeE help file describes the meaning and use of each option. These two sections of the EscapeE documentation are arguably the most important to users configuring Print2PC jobs. Once you have a clear understanding of what your objective is, you can simply reference these sections of the EscapeE help document for the appropriate command line options.

For the complete documentation on Command Line use and syntax see the EscapeE Help file

RT.INI and Custom Configurations Files

The EscapeE application, like the Print2PC application stores its settings in an .INI file in the same folder as its executable. This file is called when the application launches. The default INI file called by EscapeE is called RT.INI. This file contains all of the default configuration options, and will retain all new settings that a user saves to it. Users can also create their own named INI files, separate from the RT.INI file, which can be used to quickly load a set of pre defined configurations. These INI files can be called explicitly from the command line using the command line option: /ini “x” where x = the path and name of the INI file you wish to use.

Ex: /ini “c:\MyINIFiles\Job1.INI” /x

**Note: INI File names should not contain spaces, or anything other than alphanumeric characters. It is advised that you designate a development folder and keep your important files there*

For the complete documentation on INI files see the EscapeE Help file

Fields

Fields, which are essential pieces of many EscapeE configurations, are user defined segments of a print file that can be used to do many things. Fields are most commonly used to capture data off the page, but can also perform other actions such as splitting input files, or concatenating multiple known elements (including other fields) together.

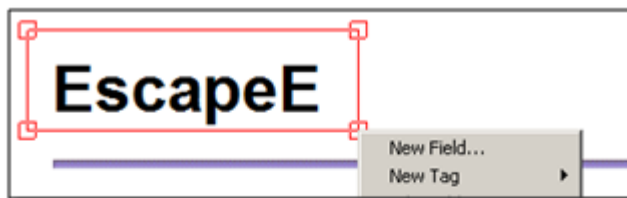
All Field information is stored in “Field Definitions Files” (.EE extension). A Field Definitions File is created by EscapeE the first time the user creates a field, and stores all of the field configurations the user makes DURING THAT SESSION. The file will be automatically saved into the same directory as the raw print file you are viewing upon close of the “Fields Menu” or the EscapeE application, but depending on how the EscapeE application, the same “Field Definitions File” may not be called into action.

Field Definitions files can be invoked by name on the command line by using the option: /fields “x”...where x = the path and name of the .EE Field Definitions File

Ex: /pdf /fields “c:\My EE Files\PDF_fields.EE” /x

**Note: Field Definitions File names should not contain spaces, or anything other than alphanumeric characters. Again...It is advised that you designate a development folder and keep your important files there.*

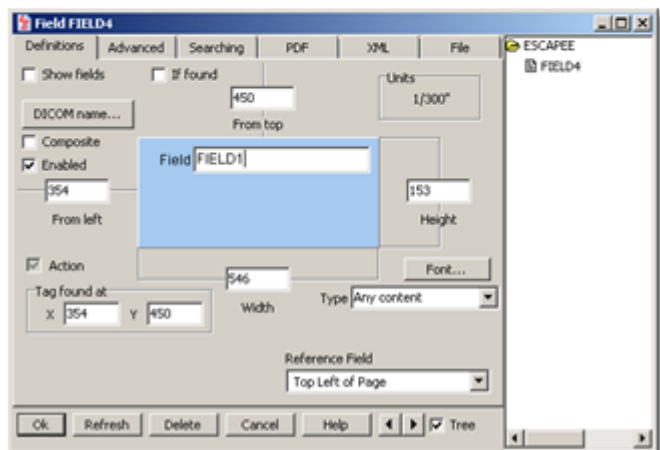
To create a field, start by opening your file. Simply left click and drag the mouse cursor around the area of the file you would like to use. A dialogue box will appear, giving you the option to make that area a "New Field".



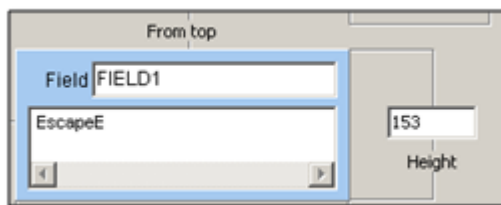
Select the "New Field" option and the "Fields Menu" window will open

This interface is used to configure field details. From the "Fields Menu" fields can:

- Be saved and loaded
- Be named
- Be mathematically positioned (fields can also be dragged and shrunk in the GUI by using the mouse while viewing the print file),
- Reference other fields for data or position,
- Be configured to perform advanced operations for various output formats
- Be arranged in a hierarchical structure.



Once a field has been created, you can use the "Refresh" button to display the value that the field is capturing. After creating the above field, and following a refresh, the "Field Menu" window should show the value being recovered by the field:

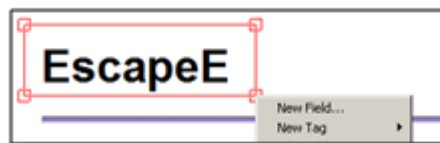


You now have a field which is capturing whatever data element it finds in that position in the file. This data is now known by the EscapeE application, and associated with the name "FIELD1". It can be included in an XML, CSV, or Text data log file, used as a filename or part of a filename, used to mark the end or beginning of file segments, used as a reference for the positioning of other fields, used to create a PDF table of contents, or used to force an EscapeE action.

Search Tags

Fields, in a more sophisticated form, can be configured to exactly MATCH the data that they find in their defined area.

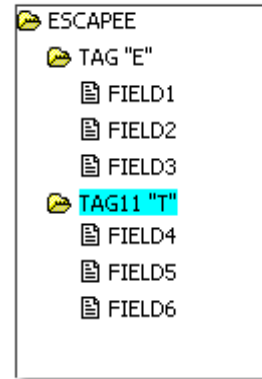
"Search Tags" can recognize specific strings of text and match elements down to the font weights and styles. Tags are created just like Fields, only when the area is defined, "New Tag" is selected. You then have the ability to configure your matching criteria. These matched data tags are often used to tell EscapeE to look for other, subordinate fields ONLY when the original field is found. This is a very common way of generating a single "Field Definitions File" to deal with multiple document types. By loading the same "Field Definitions File" while working with two separate input files, you can generate a set of fields that deal appropriately with both files. Once a field or tag is created it will appear in the tree structure on the right side of the "Fields Menu". With this interface you can easily drag and drop fields onto their appropriate tags. By setting fields below a tag, you tell EscapeE to only look for the presence of the fields associated with that tag.



The following illustration shows how this process would look:

Assume you have 2 types of reports:

- Report 1 always begins with an "E" in a fixed position (*search strings length is editable*)
- Report 2 always begins with a "T" in a fixed position
- Report 1 has 3 elements you wish to extract/use
- Report 2 has 3 different elements you wish to extract/use
- Each report is opened in EscapeE and the same Filed Definitions File is loaded (EscapeE.EE)
- Tags are created to match the string that will identify the report types
- Fields for each report are subordinated to the appropriate reports Tag on the tree structure



Using these Field Definitions, Fields 1, 2, and 3 would ONLY be found on Report type 1; while Fields 4, 5, 6 were only found on Report 2

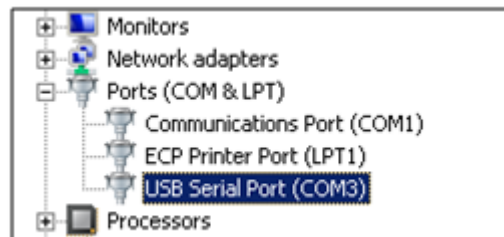
For the complete documentation on Fields and Tags see the EscapeE Help file.

Configuring Multi UP1 Systems

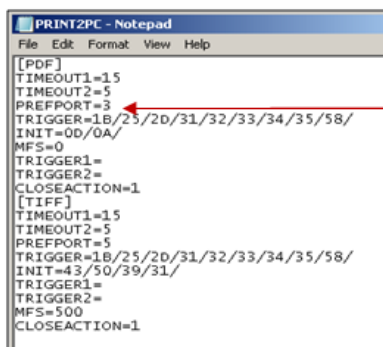
Knowing what you now know about the Print2PC system and its Ports and Profiles, the nQ system and its nQLPD spooling process, and executing EscapeE from the command line to perform a specific task, it is easy to map how multiple UP1 devices would be interfaced with a single import station.

Imagine you have 2 systems that you would like to harvest data from. The data from System 1 is to be converted to PDF, and the data from System 2 is to be converted to TIFF images.

Each UP1 device, when connected to the host PC, would open a COM port. The COM Port number opened by each device can be viewed in the Windows™ Device Manager when the UP1 is connected. It is recommended when attaching multiple devices that you use the device manager to determine which port is opened by each UP1 device, thus which "PREFPORT=" value should be added to the appropriate Print2PC



At the same time, 2 copies of the Print2PC application must be running and listening for incoming data (configured using the PREFPORT= value in the Print2PC.INI file) in its own profile with its own set of configurations. This profile would be used to call the Print2PC.exe application with the profile name. This can be done either by using the "PREFPORT=" string, or by including the entire string if running from the registry.



We have called the Print2PC Profile listening to the device we intend to make PDFs from [PDF], and the Print2PC Profile listening to the device we intend to make TIFFs from [TIFF]". To call these profiles we use the strings:

- "C:\program files\redtitan\software\print2pc\print2pc.exe" **PDF**
- "C:\program files\redtitan\software\print2pc\print2pc.exe" **TIFF**

Because of their Profile names, these 2 instances of Print2PC will deliver files into the "c:\RTSpool\Inbox\PDF" folder and the "c:\RTSpool\Inbox\TIFF" folders respectively. Each

The subfolder of Inbox that the data file nQ processes originated in is noted in and retained by that data file's accompanying "control file". Thus, if a file is captured by the PDF profile, the value "PDF" is included in that file's control file as the "CLASS" parameter. That information can be tested in the nQ rules structure as the "lprc" value.

```

cfA0001Local - Notepad
File Edit Format View Help
HLocal
!-
NINBOX_Incoming_Sample_Name.prn
JSample.prn
CPDF
UdfA0001Local
;Duplicated to PDFRUN
@

```

Files placed in the directory C:\SPOOL\INBOX\PDF, by the Print2PC profile "PDF", are to be converted to PDF format. Files placed in the directory C:\SPOOL\INBOX\TIFF, by the Print2PC profile "TIFF" are to be converted to TIFF format. The following rules, along with the proper Print2PC Profile configurations do the job...

Rule 1: Print2PC Incoming (PDF Profile)

- IF *printer* = *inbox*
- AND *lprc* = *PDF*

Actions

- DUPLICATE to printer folders *PDFRUN*,

Rule 2: EscapeE to PDF

- IF *printer* = *pdfrun*

Actions

- RUN program *c:\Program Files\Redtitan\software\Print2PC\escapee.exe* parameter */pdf /mkdir /to "c:\MyOutput\PDFS\=.PDF" /X*

Rule 3: Print2PC Incoming (TIFF Profile)

- IF *printer* = *inbox*
- AND *lprc* = *TIFF*

Actions

- DUPLICATE to printer folders *TIFFRUN*,

Rule 4: EscapeE to TIFF

- IF *printer* = *tiffrun*

Actions

- RUN program *c:\Program Files\Redtitan\Software\Print2PC\escapee.exe* parameter */tiff /mkdir /to "c:\MyOutput\TIFFS\=.tiff" /X*

Troubleshooting Guide

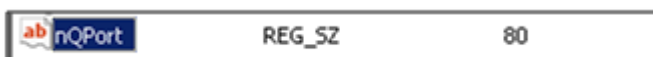
This section outlines common issues users may encounter. If this section is not effective in helping you resolve your issue, please contact us at help@redtitan.com for support.

Resolving Port Conflicts

Other host applications may also be using your system TCP/IP services in their operation, IBM's ISS for example. These other applications will use ports on your system to perform their operations, and it is possible that the default port used by nQ (port 80) is already in use by another process when the system is installed. The nQSERVER will inform the user of a port conflict stating that the "port is already in use".

The port used by nQ can be easily changed to another port, or its port can be pre-configured prior to installation for reseller packages.

The nQ Port is controlled by a registry entry:



in the...



Section of the Windows [™] Registry

To change nQ's port, simply modify this setting and reboot the PC to effect changes. The recommended alternate port for nQ is "5001"; this port should very rarely be in use. Ensure you select a port that is not already being used.

Common Issues

The chart in this section illustrates common issues users may encounter while connection and configuring the Print2PC system.

Symptom	Suggestion
Following an installation of hardware and software, Print2PC.exe displays that the "UP1 device could not be detected"	<ul style="list-style-type: none"> - Ensure USB Cable is connected properly - Ensure USB Cable is not damaged or faulty (does cable work with other USB devices?) - Ensure USB Port on the import workstation is not faulty (do other peripherals work when connected to this BUS?) - Ensure USB Cabling does not exceed 5 meter limit set by USB standard (installations requiring longer cable runs will need to implement a 3rd party powered USB hub in order to provide ample power of long cable runs)
The Software installed, but the web browser cannot display the nQ portal page	<ul style="list-style-type: none"> - Ensure your system has TCP/IP support (see loopback.pdf on the install CD if it does not) - Add your local IP address to your list of trusted site

Symptom	Suggestion
The nQ portal page displays, but when I try to navigate all I see is blank pages	<ul style="list-style-type: none"> - Enable "Navigate sub-frames across different domains" in your Advanced Internet Options.
All the software seems to be functioning, but when I print a file from my host device, NOTHING happens on the Print2PC.exe console	<ul style="list-style-type: none"> - Ensure your host device IS configured appropriately to print to its parallel port - Ensure all connections are secure - Ensure that you observed proper shutdown procedure for the host device prior to removing/connecting parallel cables - Ensure that you are using an appropriate parallel extension cable...not a null modem or crossover cable - Ensure the parallel cable you are using is not damaged or faulty (does it work when connected to the Printer?)
The software is functioning, but Print2PC is only capturing 1 or 2 byte files...these files just have a single character in the top left of the page	<ul style="list-style-type: none"> - Replace your Null Model cable with an approved IEEE – 1284 DB25 M to F Parallel Extension Cable
The Print2PC application begins to capture a file, but only gets 1 or 2 bytes at 1byte/second and then just sits...never closing the file	<ul style="list-style-type: none"> - Your host device uses ACK protocol and should be configured to issue the "Initialization Command" CP91, in the Print2PC configuration options
Files are being captured, but it seems very slow	<ul style="list-style-type: none"> - This can be a result of ACK protocols as well, CP91 should be tried - This could be an indicator of failing cables, USB and Parallel cables should be checked - This could simply be a result of the host device. This is not an electronic file transfer in the traditional sense. The Print2PC applications must collect, interpret, and render the print file in the same manner a printer would...thus the time processes take can be compared to the time the file would take to print.
Files are being captured by Print2PC in a folder other than "C:\RTSpool" <i>(unless specifically pre-configured or configured by the user)</i>	<ul style="list-style-type: none"> - The version of the software installation you are using has been corrupted. Contact help@redtitan.com or the person who manages your install set.
When I try and open the EscapeE application to do development work, it tells me that it is running "In demonstration mode"	<ul style="list-style-type: none"> - Ensure that the UP1 device is connected to the import workstation via its USB cable - Ensure that the Print2PC application is running

Symptom	Suggestion
When I change the rules on my Rule Table in nQ, files I capture don't reflect those changes	<ul style="list-style-type: none"> - Ensure you have successfully stopped and started nQLPD's spooling process (see the section on Controlling nQLPD – Stopping/Starting the Spooler)
When I try and open Print2PC it tells me that the COM port is "already in use"	<ul style="list-style-type: none"> - If connecting a single UP1, confirm that you have only 1 copy of the Print2PC application open - If connecting multiple UP1 devices, ensure that your Print2.PC.INI file contains the proper [PROFILE] and "PREFPORT=" entries, and that you are launching those applications appropriately. (see Configuring Multi UP1 Systems section)
I capture a file fine, but the document EscapeE generates is not correct	<ul style="list-style-type: none"> - EscapeE does its best to interpret PCL print files...but as it is a user written language that is always changing...at times the application may interpret data incorrectly - If possible, install and use any standard PCL 5 or better print driver (HP Laser Jet driers are recommended) - If you are using an Epson printer driver, EscapeE must be configured to read the input appropriately - Contact help@redtitan.com for further support
Is there a way to run these processes silently, so that a user cannot close them?	<ul style="list-style-type: none"> - Print2PC.exe can be run silently by appending its target string with the word "silent" following the profile name (ex: "c:\Program Files\Redtitan\Software\Print2PC\print2pc.exe" profile1 silent) - EscapeE presence can be minimized to taskbar during operation by using the "/window 1" option on the command line - Export indicator (shows file writing if Export.exe is used) can be silenced by running the Export2.exe application from nQ in replace of Export.exe - This operation may require file patches from Redtitan depending on the product package type, contact help@redtitan.com for details if you have additional trouble