



DTLink Inc. - White Paper

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PIA-Service Manager & PIA-NetSpooler printing solution

The PIA-Service Manager is the DTLink Inc. building broadband software that will allow Internet access in public places. The PIA-NetSpooler is an Internet/Intranet universal printing solution for the Windows environment with advanced authentication features.

1. The End-user Printing Needs

It Was Time To Simplify Remote Printing For Mobile Users. Printing when on the road has always been a hassle because of many aspects like: printer driver, paper format, security, speed, authentication methods. The NetSpooler solution will provide an all-in-one solution that will combine a unique driver for the Windows environment and authentication methods that may be adapted to any configuration. No membership or centralized list of available printers.. A direct on-line connection between the client and the server that will ensure speed, security and reliable authentication.

2. NetSpooler Client

A universal Windows printer driver used by the client PCs to print documents in b&w or color to printers around the world. The NetSpooler Client will install within minutes and will include : printer driver, authentication module, document proofer and archive manager for a complete printing operation.

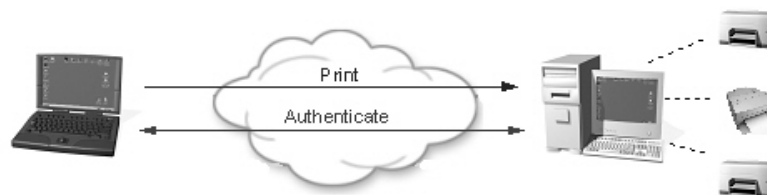


The NetSpooler Client is a free software that can be downloaded from popular sites like: www.download.com or directly from: www.arrowlink.com.

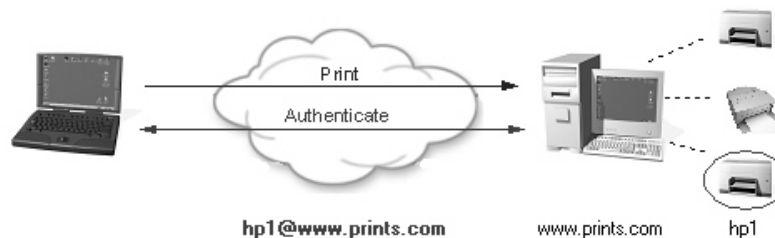
The software installation is completely automated and will not require any specific configuration. Power users and system administrators will be able to get an in-depth knowledge on the software through the User's Guide manual available in the www.arrowlink.com site.

3. NetSpooler Server

A Windows print server that will provide the means to access printers thereby giving it an intranet, extranet, and Internet presence. As Net-enabled printers, your Windows printers can be located by a Web-based address so you can access them through Net-connected Windows computer. The NetSpooler Server will include a communication, a printing and an authentication server under an all-in-one architecture giving a great deal of power and flexibility to system administrators in designing printer solutions.



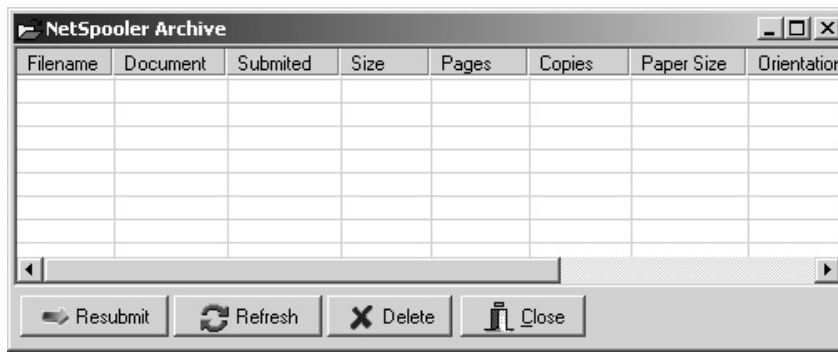
Web-based Printer Addressing. The name of every printer follows a web-based syntax and is composed by the Windows printer name and the NetSpooler Server DNS name or IP address. The printer addressing is unique and does not require any centralised printer listing.



Security, High Printing Speed. Every aspect of the communication and authentication between the client and the server will follow the highest industry standards on communication security. All authentication screens will follow the https standard and every print job before transmitted to the NetSpooler Server will be compressed and encrypted using a unique private long key that can be decrypted only by the destination server. This end-to-end control over the operation provides a flexible and secure way for the deployment of printing solutions of any size.

Unlimited Authentication Methods. DTLINK NetSpooler is the only printing solution to provide an unlimited number of authentication methods per printer. System administrators will be able to apply authentication methods to a printer depending on the users that will be sending jobs to the device. Imagine a hotel printer that will be configured to accept printing jobs from the administration staff providing a user id and password, hotel guests that will be able to charge a room account and visitors that will be using their Credit Card for occasional printing. There is no limit to the number of authentication methods per printer including the Free access and a basic authentication through a list of users/passwords. DTLINK NetSpooler uses the External Authentication Methods feature that will allow the development of new authentication methods and the integration of any legacy system like : RADIUS server, LDAP server, NDS directory, Windows Directory, Internal Databases etc..

Print Job Preview, Archive Management. DTLINK NetSpooler Client will provide a preview possibility of all documents before sent to the remote printer and archiving possibility of all printed jobs with the possibility to resend a job to the same or a different printer. The archiving feature will include complete information on the printing job like: Filename, Document, Submission datetime, File size, Pages, Copies, Paper Size, Orientation, Printer, Server along with the actual print job in a compressed format.



End User Cannot Alter Printer Configuration. DTLINK NetSpooler printing system will not allow end users to alter the printer's. The NetSpooler client will check all inconsistencies between the client document and the printer settings and will inform the end user; in case of a sever mismatch the NetSpooler Client will hold the document and inform the user to change the settings within the application. This will keep the printer running smoothly even in heavily solicited environments.

Operation Adapted To Internet Kiosks. DTLINK NetSpooler printing system incorporated all the necessary features for public/unattended operation like: Public Kiosks, Internet Kiosks, Wireless HotSpots etc..

- Default/Restricted list of NetSpooler printers
- Administrator menus may be password protected
- Preview option may be disabled
- Delayed delivery option may be disabled
- Archive option may be disabled
- Unlimited External Authentications
- Credit Card payment support
- Prepaid Card payment support

4. Planning Your Installation

Before installing the NetSpooler Server and the target printers you should consider the following:

NetSpooler Server location.

All target printers will be accessed through the NetSpooler Server machine. Internal users will access the server through a name that can be freely defined. If you wish to access the server from the Net you may want to consider a second access to an ADSL connection or any other Internet connection. Depending on the server resources you can have the same machine hosting the NetSpooler Server and the PIA-Service Manager.

Printer location.

Printers may be placed at any place within the location and can be accessed by the NetSpooler Server directly or through the network.

Printer naming.

The printer names can be selected freely by the system administrators and can be descriptive of the printer and the location.

Attended/Non-attended printers.

The NetSpooler printing system will allow you to configure public unattended printers for business centers or printers attended by local employees that will deliver the printouts against payment.

Payment/Authentication methods.

You should define how the end-users would pay for the printed jobs and prepare whatever integration with legacy systems.

Printer configuration.

Prepare and test the printer configurations as they will be provided to the end-users. Consider that the printer configuration cannot be modified by the end-users.

Pricing.

System administrators will be able to charge for printing or have the users being authenticated before they can send a job to a printer. Every printer will be configured with a price per page and a minimum price per print job.

Kiosk Configuration.

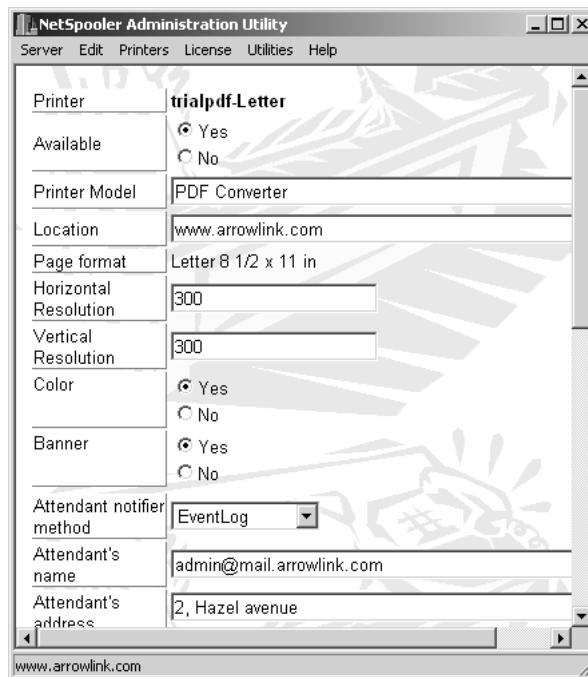
If you operate Internet kiosks you will be able to configure the NetSpooler Client software for public usage and provide a secure printing from public devices.

5. Local DNS Definition

Internal users and devices connected to the location managed by the PIA-Service Manager will be able to access the NetSpooler Server through an entry in the *Gateway Names.txt* files under the Internet Gateway Server directory. Every entry in this file has a precedence for the locally connected devices. See the Internet Gateway Server manual for more details on how to add a DNS entry in this file.

6. NetSpooler Printer Configuration

Using the NetSpooler Administration Utility you will be able to define the printers that will be available for the local users.



The screenshot shows the NetSpooler Administration Utility window with the following configuration for the printer 'trialpdf-Letter':

Printer	trialpdf-Letter
Available	<input checked="" type="radio"/> Yes <input type="radio"/> No
Printer Model	PDF Converter
Location	www.arrowlink.com
Page format	Letter 8 1/2 x 11 in
Horizontal Resolution	300
Vertical Resolution	300
Color	<input checked="" type="radio"/> Yes <input type="radio"/> No
Banner	<input checked="" type="radio"/> Yes <input type="radio"/> No
Attendant notifier method	EventLog
Attendant's name	admin@mail.arrowlink.com
Attendant's address	2, Hazel avenue

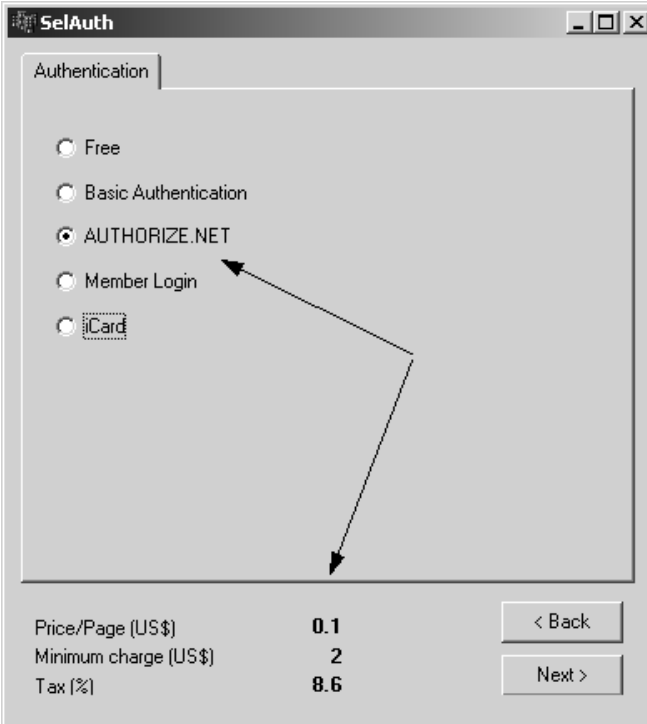
The window title is 'NetSpooler Administration Utility' and the menu bar includes 'Server', 'Edit', 'Printers', 'License', 'Utilities', and 'Help'. The status bar at the bottom shows 'www.arrowlink.com'.

Note that some of the printers' properties as defined here will be communicated to the end user like: location, page format, resolution, attendant coordinates etc..

7. Authentication/Payment Methods

After the technical configuration of the NetSpooler printers, you should define and install the authentication/payment methods that should be used by the system. Customers with PMS software will be able to interface the NetSpooler with their system through customized web pages using the External Authentication Methods feature.

Note that you can have the same printer used by external and internal users using different authentication methods.



The screenshot shows a window titled "SelAuth" with a tab labeled "Authentication". Inside the window, there are five radio button options for authentication methods: "Free", "Basic Authentication", "AUTHORIZE.NET", "Member Login", and "iCard". The "AUTHORIZE.NET" option is selected. Below the options, there is a table with pricing information:

Price/Page (US\$)	0.1
Minimum charge (US\$)	2
Tax (%)	8.6

At the bottom right of the window, there are two buttons: "< Back" and "Next >". A black arrow points from the "AUTHORIZE.NET" radio button to the "Next >" button.

Credit Card Payment. The NetSpooler will provide a default credit card clearing through the Authorize.net system. Additional credit card authentication may be added through customized methods for both domestic and international cards.

Customized Authentication Methods. The NetSpooler may interface with specific legacy systems through customized methods for authentication going beyond the scope of pay-per-print. System administrators will be able to configure authentication methods that will point on a unique external source for multiple printers. You may have for example a single server interfacing with a global PMS system and have all the printers use this server for billing print jobs to the guests' accounts.

DTLink Inc. will provide certified consultants for the development of customized authentication methods: admin@mail.arrowlink.com

iCard. iCard is a prepaid card that you can use as a quick and easy way to charge for pay-per-print at your own pricing and currency. The iCard was initially developed for public Internet usage and is labeled in minutes/hours etc.. A customized page in the DTLINK Inc. will provide you with information on how to accept iCards and convert total print job amount to iCard minutes. This is especially useful if you already use the iCard in the PIA-Service Manager environment.

8. Attended Printers. On-Hold Option. Pay At The Counter.

Expensive laser color printers are usually placed behind concierge or reception desks where attendants will be able to monitor incoming print jobs, receive payment and release the job to the printer.

You can configure any NetSpooler for this type of operation as follows:

On-Hold Option. When configuring the printer through the NetSpooler Administration Utility you should check the On-Hold option.

Attendant Interface. Attendants should use the Administration interface for monitoring incoming jobs. The customer will be advised to proceed to a specific location, and pay for the print job before the job is released to the printer.

More sophisticated configurations may provide printer services like: stapling, binding and delivery that the user will be able to pay directly through a customized authentication method.

9. Inform The End-User

You can provide clear and accurate information to the end-user at any time on the printing facilities of the location through the WebHeaders option of the PIA-Service Manager. You can create links to the printing function description, download sites for the NetSpooler client software, the printer names and user guides that will help the end-user print with confidence.



10. Additional Information

For additional information on the product features please visit the site: www.arrowlink.com, the product Knowledgebase forum and manuals.