



Print Wizard

Print Processing Engine, LPD, DLL, OCX

Technical Description
(Version 3.2, October 2008)

Capsule Description

Print Wizard is a family of software products from Rasmussen Software, Inc., that processes and prints text. It exists in several forms, in several products. It runs on a Windows PC, but in many cases prints files that originate on Unix/Linux systems.

Print Wizard takes **plain text** print files and prints them intelligently, automatically fitting them to the page. It prints existing print files/jobs but with modifications, including adding form overlays. It can also take text files that contain **PWML** markup tags (similar to HTML), process that input, and create the printout as directed. And it can take **PCL** data and translate it.

Print Wizard can accept files that contain international characters as Unicode data (in UTF-8 form), and print them correctly. It can automatically select fonts that contain the needed characters.

In addition to **printing** its output, Print Wizard can output to **fax**, with no user intervention. It can create **PDF** files, optionally viewing and/or emailing them. And it can create **TIFF** output.

The Need

- Legacy reports, designed for particular printers, won't print correctly on other printers.
- PCL print jobs have to be printed on non-PCL printers.
- Print jobs must be distributed over networks, even around the world, even with dynamic IP assignment.
- End users may need to customize output formats.
- Web browsers have problems printing, especially wide reports.
- Users may need to superimpose form images, to eliminate preprinted forms.
- Developers using some programming languages may need to create fancier printout than those languages provide, with font changes, line drawing, pictures, etc.
- Most printers can't handle Chinese, Arabic, etc.
- Print files may use backspaces for underlining or bolding, tabs, and other conventions.
- Any of this output may need to be faxed or emailed, automatically, with attachments.
- Users may need to generate, view, and email PDF files.
- Continuous label data may need to be converted to full-sheet label stock.
- The report designer may not know the kind of printer that will be used.
- Send some sub-jobs to fax, some to PDF, some to print



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The Solution

Print Wizard exists as a) embedded logic in AnzioWin, a Windows-based terminal emulation (telnet, SSH) program; b) a freestanding Windows program; c) a Windows DLL; and d) an ActiveX object. Other supporting programs may be included.

In every case, Print Wizard receives as input a text or PCL file containing data to be printed, and writes out to the Windows printer driver (or in some cases directly to the spooler or the port), or to a fax driver, or to a PDF or TIFF file. The text file can be in the Windows character set, in the DOS character set, or in Unicode UTF-8. Print Wizard always tries to render the data in a logical manner, without user intervention.

When Print Wizard receives print jobs containing either PostScript or embedded escape codes, it passes them on transparently to the Windows spooler. However, if escape codes constitute PCL-5, Print Wizard can translate that PCL-5 and render it on any output device (including PDF, TIFF, and fax).

When Print Wizard receives print jobs with plain text (possibly including tabs, backspaces, and formfeeds), it analyzes the print job, determines the number of rows and columns in the job, and scales the printing separately in the horizontal and vertical dimensions in order to automatically fit the job to the page. Special logic handles very short pages on continuous feed printers, making the page only as long as is needed. Optionally, Print Wizard can automatically print wide format jobs in landscape orientation.

Print Wizard defaults to using the Courier New font. It can be configured to use any other font, including printer-resident fonts for speed. While printing, Print Wizard checks to make sure every character exists in the font being used. If not, Print Wizard will search the installed fonts on the PC for any that contain the necessary coverage. Thus you can switch from English to Chinese, for instance, automatically. Print Wizard also has special logic to handle combining diacritics and line-drawing characters.

If the print job contains HTML or PWML (Print Wizard Markup Language), Print Wizard will parse those tags and print accordingly. Not all of HTML is covered; however, additional tags not found in HTML provide added features, such as paper control, barcodes, and forms overlays.

Output of Print Wizard can go to any printer that has a Windows printer driver. Special provisions allow the output to be faxed to a specified phone number, using WinFax Pro, the Windows MAPI interface, or the built-in fax support in recent versions of Windows. And Print Wizard can create PDF files, using its built-in PDF generator, and optionally view and/or email them.

All control of Print Wizard can be accomplished using ASCII characters (plus return, linefeed, etc.), so print

output can be generated in virtually any programming or scripting language.

Operation

Because Print Wizard exists in several forms, there are several ways to operate it. **Features vary by product.**

Passthrough print in AnzioWin	Any character-based application on the host that has passthrough print support can print through AnzioWin's Print Wizard module. Host routines that perform passthrough print are available from Rasmussen Software.
Backchannel printing in AnzioWin	When AnzioWin is connected using SSH, a separate print channel can be opened for printing. This print data is encrypted during transmission.
Command-line driven	With a Windows command string, tell Print Wizard to run and print a certain file from the local disk, networked disk, FTP server, or web server.
Despooler mode	Run Print Wizard so it watches a particular directory for files to appear, then prints and deletes each file. The directory can be on any file system visible to Windows, including via Samba or similar.
FTP despooler mode	Print Wizard can query an FTP location for files to be printed, print them, and delete them or avoid printing them again.
Listen (JetDirect) mode	Print Wizard emulates an HP JetDirect device, capturing and printing whatever comes in on a specified IP port (e.g., 9100). Various host-side utilities can send this data out.
Follow-me printing	The provided "netprint" utility on the host can send print data in JetDirect protocol to the same IP address as a telnet or SSH session is coming from. So printout goes to the same PC the user is logged in from.
LPD	Print Wizard Server Edition includes PWLPD, an LPD server. Configure the host to have a "remote" printer installed at a particular IP address, and the host will send print jobs to PWLPD at that location.
Windows Services	Despooler mode, Listen mode, and LPD can all be run as Windows Services, so they can to run when no one is logged in to the PC.
Localhost mode	A Windows printer driver can be configured to send via raw TCP/IP to the same machine, where Print Wizard will receive it.
DLL	The PrintWiz.DLL module can be called from a variety of languages, with as few as 3 calls.
Registered print handler	Print Wizard can configure Windows to invoke Print Wizard when you need to print files with certain file extensions.

Drag-and-drop	Drop a file on the Print Wizard program to print the file.
Smart Print	Print Wizard can send .DOC files through Word to a printer, for instance.
Secure printing	Print Wizard can fetch a file from an https server, using encryption. Passthrough print and backchannel print can also be encrypted.
OCX (ActiveX)	Web Print Object (WēPO) is an ActiveX object that can be installed on a PC and invoked by a web page..

Altering Existing Reports

A “print initialization” text can be used to set printing conditions for the primary file. Typically, it contains markup codes to configure the printing, specifying such things as font, character size, paper size, margins, orientation, and form overlay, etc.

It can also tell Print Wizard to reformat single-column label data into multi-column, multi-row, full sheet labels.

Finally, it can tell Print Wizard to do certain search/replace operations, on all lines or on a certain line number in each page or label.

General Features

Following are some features and capabilities of Print Wizard. The methods for initiating these features will vary depending on how you are running Print Wizard.

Printer independence	<ul style="list-style-type: none"> Render consistent output on any Windows-supported printer, even Windows-only printers
Paper control	<ul style="list-style-type: none"> Control input bin, paper size, orientation, margins, duplexing, gutters, copies
Bin cycling	<ul style="list-style-type: none"> Input bin, paper size, etc. can be varied or cycled within a print job
Auto orientation	<ul style="list-style-type: none"> Wide reports can be switched automatically to landscape
Auto-fit	<ul style="list-style-type: none"> Fit plain text reports to the page
Character sets	<ul style="list-style-type: none"> ISO, OEM, or Unicode UTF-8
Auto font support	<ul style="list-style-type: none"> Automatically find and use appropriate fonts for non-Latin characters
Linage guessing	<ul style="list-style-type: none"> Files without formfeeds are paginated using pattern analysis
Label printing	<ul style="list-style-type: none"> Single-column output, such as labels, can be converted to multi-column output Labels can be printed in row order or column order Partial label sheets can be reused
Mini-pages (receipts, labels)	<ul style="list-style-type: none"> For short print files on continuous feed printers, create an appropriate page length; used for receipts, one-up labels, etc.
PCL-5 printer control	<ul style="list-style-type: none"> Store and use PCL overlays in a PCL-5 printer

PCL-5 translation	<ul style="list-style-type: none"> Files in PCL-5/PJL/HPGL can be translated and output on any printer or other output Color text and graphics Embedded fonts
Tabbed file handling	<ul style="list-style-type: none"> Tab-separated values files can be aligned automatically
Backspace handling	<ul style="list-style-type: none"> Backspace-bolding and backspace-underlining are recognized and converted
Full-page printing	<ul style="list-style-type: none"> Bitmap and meta files are printed at full-page size
Form overlays	<ul style="list-style-type: none"> Use a BMP, GIF, TIF, JPG, WMF, EMF, SPL, or PCL file as a form, combined with a print file
Overlay cycling	<ul style="list-style-type: none"> Different overlays can be used on different pages
PDF generation	<ul style="list-style-type: none"> Built-in PDF generator allows all these features to be rendered to PDF Overlays are stored once, for smaller file size PDF can be encrypted PDF can contain attachments PDF can contain an index Specify title, author, etc. Digitally sign the PDF
Email support	<ul style="list-style-type: none"> PDF files can be emailed Specify main message, attachments
Fax output	<ul style="list-style-type: none"> Output to fax, with specified target phone number Specify attachments Specify cover sheet Supports Windows fax Supports Windows fax server
TIFF output	<ul style="list-style-type: none"> Print to a multi-page TIFF Specify density, dimensions
Print preview	<ul style="list-style-type: none"> Preview a print job Adjust margins, etc. before printing
Annotating print preview with “ink”	<ul style="list-style-type: none"> On TabletPC (and some Windows XP or Vista systems), draw on the Preview window, or sign a form Annotations can be printed on first page of printout, or all pages
Scanner support	<ul style="list-style-type: none"> Scanner input can be used as form overlay or other image Scan and print, fax, or email Scan to image PDF
Barcode printing	<ul style="list-style-type: none"> Generated internally; no fonts needed
Sub-jobs	<ul style="list-style-type: none"> One input job can contain many sub-jobs, each specifying a print job, a fax, a PDF generation, etc.
Search/replace	<ul style="list-style-type: none"> Incoming lines can be filtered with regular expression search and replace Replacements can apply to certain line numbers
Graphical front end	<ul style="list-style-type: none"> Allows ad hoc printing Configure all services
Manifests	<ul style="list-style-type: none"> Print a list of files as a set.
Logging	<ul style="list-style-type: none"> Log operations in user file or system log

PWML Features

Print Wizard Markup Language (PWML) is derived from HTML. Some features of HTML, such as frames and style sheets, are not supported. In other areas, PWML extends HTML. Supported features:

Paper size	<ul style="list-style-type: none"> Letter, legal, etc. X by Y, in inches, cm., etc.
Orientation	<ul style="list-style-type: none"> Portrait, landscape, auto
Paper bin	<ul style="list-style-type: none"> Upper, lower, tractor, etc.
Media	<ul style="list-style-type: none"> Kind of paper to be used
Page margins	<ul style="list-style-type: none"> Top, left, bottom, right
Gutter	<ul style="list-style-type: none"> Provides binding space
Copies	<ul style="list-style-type: none"> Number of copies to be printed
Length	<ul style="list-style-type: none"> Assumed lines per page (if no formfeeds) Linage guessing occurs if not specified
Linespacing	<ul style="list-style-type: none"> Vertical increment between lines
Duplex	<ul style="list-style-type: none"> Long edge, short edge, left, top
Bitmap overlay	<ul style="list-style-type: none"> Stretched to full page BMP, GIF, TIF, JPG, etc.
PCL-5 overlay	<ul style="list-style-type: none"> On PCL-5 printers, using printer's macro capability On any printer, PDF, or fax using PCL translation
Multi-page overlays	<ul style="list-style-type: none"> Multi-page PCLs, TIFs Pages are cycled Usage pattern can be specified
Metafile overlay	<ul style="list-style-type: none"> EMF, WMF, SPL
PWML overlay	<ul style="list-style-type: none"> PWML describes pages to be used as overlays
Multi-column	<ul style="list-style-type: none"> Convert single-column print data into multi-column format
Labels (multi-column, multi-row)	<ul style="list-style-type: none"> Convert continuous label format to multi-column, full-sheet format
Font	<ul style="list-style-type: none"> Face="name" Face="name1, name2, ..., auto" for auto font selection
Font size	<ul style="list-style-type: none"> In inches, cm, points, etc.
Font pitch (horizontal)	<ul style="list-style-type: none"> In inches, cm, points, etc. Zero for variable-spaced fonts
Text layout	<ul style="list-style-type: none"> Preformatted Free-form HTML style tables (limited)
Text sizes (HTML style)	<ul style="list-style-type: none"> SMALL, BIG, H1, etc. Sizes 1 through 7
Text rotation	<ul style="list-style-type: none"> Any angle
Text effects	<ul style="list-style-type: none"> Bold, italic, underline
Text positioning	<ul style="list-style-type: none"> Subscript, superscript
Text color	<ul style="list-style-type: none"> Black, white, red, GrayXX, etc. By hex RGB value
Background color	<ul style="list-style-type: none"> As in text color
Tabbed alignment	<ul style="list-style-type: none"> Create columnar reports with variable-pitch fonts
Text alignment	<ul style="list-style-type: none"> Left, right, centered, filled
Wrap options	<ul style="list-style-type: none"> Word wrap, break on character Squeeze to fit
Horizontal lines and rectangles	<ul style="list-style-type: none"> Size (height) and width Color Outline
Line	<ul style="list-style-type: none"> Horizontal, vertical, diagonal Width, color

Image types	<ul style="list-style-type: none"> BMP, JPG, GIF, TIF, etc. WMF, EMF, SPL
Image source	<ul style="list-style-type: none"> Local or network disk FTP, HTTP, or HTTPS server
Image size	<ul style="list-style-type: none"> In inches, cm., etc.
Image placement	<ul style="list-style-type: none"> Aligned with text, or in precise location relative to the edge of the paper
Image alignment	<ul style="list-style-type: none"> Top, middle, bottom
Barcode styles	<ul style="list-style-type: none"> UPCA, UPCE, EAN13, EAN8, 2OF5, CODABAR, CODE11, CODE39, CODE93, CODE128 (a, b, c), PostNet, MaxiCode, PDF417
Barcode options	<ul style="list-style-type: none"> Bearer bars, tall guard bars, caption, guard characters, etc.
Barcode size	<ul style="list-style-type: none"> In inches, cm., etc.
Barcode rotation	<ul style="list-style-type: none"> 0, 90, 180, 270
Character entities	<ul style="list-style-type: none"> By name By decimal or hex value
Arc text	<ul style="list-style-type: none"> Print text along an arc
Placement of text, images, barcodes, etc.	<ul style="list-style-type: none"> Inline Precisely placed, in inches, cm, etc. Relative to edge of page Relative to margins
Tail	<ul style="list-style-type: none"> Specify text and tags to be added at end of document
Low level print codes	<ul style="list-style-type: none"> Pass printer-specific codes, such as for paper cutter, stapler

Platform Support

Print Wizard is a 32-bit Windows program. It runs on Windows 98SE2 through Vista. Host-end modules are available for most Unix/Linux platforms.

Licensing and Pricing

Print Wizard Personal Edition includes the user interface, the Print Wizard executable, and the DLL. It is licensed on a per-PC basis, with each license supporting up to 3 printers. It can not be run on servers supporting Terminal Server or Citrix clients. It starts at \$99 per PC.

Print Wizard Server Edition contains all the features of Personal Edition, and adds the PWLPD program, despool support, and JetDirect emulation ("listen mode"). It is licensed per server. A license supporting 3 printers is \$300. Higher levels are available.

AnzioWin, the Windows-based terminal program, contains **Print Wizard Embedded** for use in passthrough print. AnzioWin starts at \$150 per PC.

The **Web Print Object** (ActiveX module), also called WēPO, for web-based printing, is licensed per server, starting at \$1500.

More Information

More details, including volume pricing and educational/library discounts, demos, and sample documents are available at www.anzio.com.