Print Wizard

Print Processing Engine, LPD, DLL, OCX
Technical Description
(Version 4.1, April 2013)

Capsule Description

Print Wizard is a family of software products from Rasmussen Software, Inc., that process and print text and do other document handling. Print Wizard 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. It can take **PCL** data and translate it. And it can read and process several other file formats.

In addition to **printing** its output, Print Wizard can output to **fax**, with or without user intervention. It can create **PDF** files, optionally viewing and/or emailing them. And it can create **TIFF** output.

The Need

Print Wizard addresses a wide range of document handling problems:

- Legacy reports, designed for particular printers, won't print correctly on other printers.
- Text reports may be in a different character set than the printer natively supports.
- 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.
- A form image may be too big for the printable area of a particular printer, so it may need to be shrunk. Once shrunk, the text doesn't align with the form.
- 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.
- Any of this output may need to be faxed or emailed, automatically, with attachments.
- Users may need to generate, view, and email PDF files.
- The designer of the report may not know the kind of printer that will be used.
- Dot matrix printers may need to be replaced.
- Multi-part preprinted forms may need to be replaced.
- Sensitive information (such as costs) may need to be suppressed on certain copies of report.

- Documents may need a "terms and conditions" page printed on the back.
- Users may want to staple sets of invoices.
- Users may need to markup documents before printing.
- Users may need to keep archive copies of all documents.
- Different types of documents may need to go to different printers.
- Users may need to have recipients sign on-screen for proof of receipt.
- Organizations may want to watermark all documents.

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 file representing a document, and outputs it to a Windows printer driver, or to an outgoing fax, or to a PDF or TIFF file. Depending on the type of input file, Print Wizard can do different tasks.

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.

If the print job contains escape codes representing HP PCL-5, Epson, or IBM Proprinter control sequencing, Print Wizard can interpret them and print them on any printer or other output as below.

Print Wizard can also receive as input PDF files, Windows spooler files, image files (in several formats), and scans coming directly from a scanner.

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 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**.

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 service	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 service	Print Wizard can query an FTP location for files to be printed, print them, and delete them or avoid printing them again.
Listen (JetDirect) service	Print Wizard emulates an HP JetDirect device, capturing and printing whatever comes in on a specified IP port (e.g., 9100).
LPD service	Print Wizard acts as an LPD server. Configure the host to have a "remote" printer installed at a particular IP address and queue.
Localhost mode	A Windows printer driver can be configured to send via raw TCP/IP or LPR to the same machine, where Print Wizard will receive it.
DLL	The Print Wizard 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.
Smart Print	Print Wizard can send .DOC files through Word to a printer, for instance.
OCX (ActiveX)	Web Print Object (WēPO) is an ActiveX object that can be installed on a PC and invoked by a web page.
PWUI	Print Wizard User Interface allows ad hoc printing, drag-and-drop printing.
Spool Wizard	Intercept Windows printer output, feed to Print Wizard.

Differentiating Print Jobs

A user-written script can inspect the beginning of a print job, determine what kind of job it is, and choose a different "profile". This can switch how the job is handled, such as what printer it is printed on or what overlay is used.

Or, Print Wizard can recognize a command line at the start of the job, causing it to change behavior. For instance, instead of printing, it could generate and email a PDF. Later commands in the job can also be recognized.

LPR/LPD jobs can be differentiated by queue. "Listen" jobs can be differentiated by socket number. Jobs launched by command line can be differentiated by command line parameters.

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.

Form Overlays

A key feature of Print Wizard is its ability to add form images (called overlays, although they're technically underlays). Typically, an overlay represents what was previously on a preprinted form. The overlay is printed along with the main print job, on plain paper, or rendered to PDF or fax.

Overlays can be in multiple formats. There can be multi-page overlays, or multiple separate overlays. These separate overlays can be printed in various sequences (patterns) along with the main job. When combined with page repeats and job repeats, this can mimic and replace multi-part preprinted forms.

Overlay files can be produced by scanning existing paper forms. Existing PDF or PCL overlays can be used directly. Other file formats can be converted to PCL, PDF, SPL, or EMF for use by Print Wizard.

Degrees of Interactivity

Print Wizard operations can be totally automated. These operations are generally performed by a Print Wizard service, which might run in the foreground or as a Windows service. These services might run on an unattended server.

Or, they can be totally interactive, so that the user decides how each job should be handled. Or they might be semi-interactive – a job might be converted to PDF and brought up in Outlook to be emailed, where the user would indicate who to send it to, what attachments to include, etc. These jobs need to run on the PC the user is using, so that PC needs a Print Wizard license.

General Features

Following are some features and capabilities of Print Wizard:

Printer independence	• Render consistent output on any Windows-supported printer, even Windows-only printers
Paper control	• Control input bin, paper size, orientation, margins, duplexing, gutters, copies
Bin cycling	• Input bin, paper size, etc. can be varied or cycled within a print job
Overlay cycling	• Different overlays can be used on different pages or copies
Auto orientation	• Wide reports can be switched automatically to landscape
Auto-fit	• Fit plain text reports to the page
Character sets	• ISO, OEM, or Unicode UTF-8 • Many others
Auto font support	• Automatically finds and uses appropriate fonts for non-Latin characters
Linage guessing	• Files without formfeeds are paginated using pattern analysis
PCL-5 translation	• Files in PCL-5/PJL/HPGL can be translated and output on any printer or other output • Color text and graphics • Embedded fonts
Full-page image printing	• Bitmap and meta files are printed at full-page size
Form overlays	• Use a BMP, GIF, TIF, JPG, WMF, EMF, SPL, PCL, PWML, or PDF file as a form, combined with a print file
Security	• Print job can pulled from an HTTPS server, and thus encrypted. • Password can be supplied to web server. • Documents on server can be viewed without being stored locally on PC. • Documents on server can pulled and printed without being stored locally.

PDF generation	• 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 (certify) the PDF • PDF can contain embedded fonts of only the characters needed.
Email support	• Generated PDF files can be emailed • Specify main message, attachments • Email via Outlook, SMTP, MAPI, CDO
Fax output	• Output to fax, with specified target phone number • Specify attachments • Specify cover sheet • Supports Windows fax • Supports Windows fax server
TIFF output	• Print to a multi-page TIFF • Specify density, dimensions
Print preview	• Preview a print job on the screen • Adjust margins, etc. before printing • Adjust overlay placement, report placement • Zoom and pan to see reports clearly • Mark up report with mouse, finger, or stylus (depending on platform support) • Test print a single page
Scanner support	• Scanner input can be used as form overlay or other image • Scan and print, fax, or email • Scan to image PDF • Control scanning parameters such as density, color format • Automatic or manual duplexing • Detect separator documents, break job into separate output files.
Barcode printing	• Generated internally; no fonts needed
Logging	• Log operations in user file or system log
Debugging	• Generate details about processing for determining what went wrong.
Kiosk and Interactive modes	• Provide user a limited set of options for dealing with each print job.
Attachments	• Attachments to a print job can be printed as a contiguous set. • Attachments to a make-PDF-and-email job will be attached to the email. • Attachments to a fax job will be rendered separately into faxable form, and merged into one fax.
SNMP support	• Services will respond to SNMP polling from sending computer.

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	• Letter, legal, etc. • X by Y, in inches, cm., etc.
Orientation	• Portrait, landscape, auto
Paper bin	• Upper, lower, tractor, etc.
Media	• Kind of paper to be used
Page margins	• Top, left, bottom, right
Copies	• Number of copies to be printed
Length	• Assumed lines per page (if no formfeeds) • Linage guessing occurs if not specified
Linespacing	• Vertical increment between lines
Duplex	• Long edge, short edge, left, top
Bitmap overlay	• Stretched to full page or to printable page • BMP, GIF, TIF, JPG, etc.
PCL-5 overlay	• On any printer, PDF, or fax using PCL translation
Multi-page overlays	• Multi-page PDFs, PCLs, TIFs • Usage pattern can be specified
Metafile overlay	• EMF, WMF, SPL
PWML overlay	• PWML describes pages to be used as overlays
Multi-column	• Convert single-column print data into multi-column format
Labels (multi-column, multi-row)	• Convert continuous label format to multi-column, full-sheet format
Font	• Face="name" • Face="name1, name2, …, auto" for auto font selection
Font size	• In inches, cm, points, etc.
Font pitch (horizontal)	• In inches, cm, points, etc. • Zero for variable-spaced fonts
Text layout	• Preformatted • Free-form • HTML style tables (limited)
Text sizes (HTML style)	• SMALL, BIG, H1, etc. • Sizes 1 through 7
Text sizes (absolute)	• Specified in inches, points, etc.
Text rotation	• Any angle
Text effects	• Bold, italic, underline
Text positioning	• Subscript, superscript
Text color	• As in HTML
Background color	• As in HTML • Or transparent background
Tabbed alignment	• Create columnar reports with variable-pitch fonts
Text alignment	• Left, right, centered, filled
Wrap options	• Word wrap, break on character • Squeeze to fit
Horizontal lines and rectangles	• Size (height) and width • Color • Outline
Line	• Horizontal, vertical, diagonal • Width, color
Image types	• BMP, JPG, GIF, TIF, etc. • WMF, EMF, SPL

Image source	• Local or network disk • FTP, HTTP, or HTTPS server
Image size	• In inches, cm., etc.
Image alignment	• Top, middle, bottom
Barcode styles	• UPCA, UPCE, EAN13, EAN8, 2OF5, CODABAR, CODE11, CODE39, CODE93, CODE128 (a, b, c), PostNet, MaxiCode, PDF417
Barcode options	• Bearer bars, tall guard bars, caption, guard characters, etc.
Barcode size	• In inches, cm., etc.
Barcode rotation	• 0, 90, 180, 270
Character entities	• By name • By decimal or hex value
Arc text	• Print text along an arc
Placement of text, images, barcodes, etc.	• Inline • Precisely placed, in inches, cm, etc. • Relative to edge of page • Relative to margins
Tail	• Specify text and tags to be added at end of document
Low level print codes	• Pass printer-specific codes, such as for paper cutter, stapler
Replace	• Regular expression specifies search-and-replace
Mask	• Prevent certain rectangular areas from printing
Textbox	• Allows user input during preview
Text field	• Extracts data from document, copies to clipboard
Sign here	• Location for user signature during preview

Platform Support

Print Wizard is a 32-bit Windows program. It runs on Windows XP through Windows 8 and Server 2012. It runs well on 64-bit 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 output destinations. It can not be run on servers supporting Terminal Server or Citrix clients. It starts at $120 per PC.

Print Wizard Service Edition contains all the features of Personal Edition, and adds the ability to run services (LPD, Listen, Despool, FtpDespool, Spool Wizard). It is licensed per PC it runs on. A license supporting 3 destinations is $300. Higher levels are available.

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

More Information

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