![Source Technologies — Thermal Printing. Redefined.]

Document Management and Barcode Printing with SAP

Table of Contents

About This Whitepaper

Today's global organizations embrace SAP® ERP and (Supply Chain Management) SAP®SCM systems to streamline all areas of business. The movement of goods and people demands accurate, detailed and timely data and communications at every level. In addition, the world's competitive economic environment demands that this improved ability to share data between systems, organizations and customers brings lower operational costs and improved customer relationships.

Because printer hardware and software manufacturers recognize the stabilizing and profitable effect SAP software has on organizations to meet these global obligations, they offer their product device types to leverage the SAP development environment to provide solutions to SAP users. These device types can include everything from back-office software applications to frontline print systems. Source Technologies uses SAP's development environment to bring cost effective printer systems for document and barcode management to its users.

This paper will explain why Source Technologies printer control language or PCL-enabled – thermal printers let SAP users bring specific competitive advantages to their organizations by eliminating costly and complex middleware applications in their printer networks.

PCL Gives SAP Users Operational Flexibility and Unprecedented Thermal Printer Control

PCL was first introduced in HP's LaserJet series printers in 1990 and quickly became the standard protocol language for desktop and commercial laser printers. However, in the enterprise thermal printing environment, where proprietary programming languages are commonplace, the transition to standardization has been slow.

The reason for this is, in large part, due to the commitment global organizations make to implement and maintain their vast, intricate printing networks. A significant portion of this cost comes from purchasing middleware that must be customized, maintained, upgraded and recertified over the lifespan of the printers on a network.

Along with its heavy operation costs, middleware can also limit a printer network's speed and ability to process language characters not found in the English character set.

PCL-enabled thermal printers remove operational complexity in enterprise printing environments and meet global requirements by:

- **Being standardized to run on a variety of operating systems: Microsoft®, .Mac® and Linux®.** PCL is also designed to operate independently of any application software running on a computer. This ensures faster and easier plug-play integration, getting your printer systems up and running sooner.

- **Supporting 50 standard scalable fonts with the ability to add more.** This eliminates the need for customized middleware interfaces needed to decipher fixed-width fonts and prevents the possibility of an unsuitable font from being substituted. Having standardized font formatting on every barcode or document type ensures scanning accuracy and reduces operating costs.

- **Supporting localization of dozens of languages including Hebrew, Arabic, Chinese, Japanese, and Korean.** With the flexibility of PCL, Source Technologies' device type can be customized to include a Unicode data stream capable of producing more than 65,000 characters. Being able to

---

[1] PCL supports text formatting for these languages, however, the fonts used must be added as an option or provided by the user in TrueType format

immediately print international pallet and package barcode labels and pick lists, with no custom coding required, greatly increases global inventory and traceability responsiveness.

- **Centralizing all resources (fonts, barcodes and forms) internally on the printer.** This ability allows PCL-enabled printers to maximize all the latest capabilities of SAP® Smart Forms to create barcode labels within SAP and send them directly to a designated printer. This functionality allows SAP users to cut costs when generating barcodes because no third-party DIMM (Dual In-line Memory Module) modules or hardware is required. However, if users already have a label developed in another application, PCL makes it possible for users to upload the label file directly to a printer for output.
- **Increasing data parsing speed. Because PCL allows data and characters to be processed internally, printing speeds and response are accelerated.** This makes PCL-enabled printing ideal for batch printing and high productivity environments. In contrast, the impact middleware can have on a printer's throughput can be dramatic. For example, a printer configured to process data at 10 inches per second (IPS) may slow to just six IPS when it is tied to a middleware application.

As a silver-level member of the SAP® Vendor Printer Program (note 1130927), Source Technologies allows SAP users to take full advantage of PCL's benefits by integrating the language directly into the device type of its Performance Series thermal printers. This functionality provides SAP users with laser printer features not traditionally found in thermal printers.

Making the Case for Enterprise Thermal Printing in your Organization

While PCL provides the printer's internal operational flexibility SAP users require in their organizations' document or barcode processes, a printer's output quality and durability is equally as important. Before choosing a printer, it is crucial to consider how each of the most common printers, dot matrix, inkjet, laser and thermal, perform in the following areas:

	Dot Matrix	Ink Jet	Laser	Thermal
Scanner Readability	Poor	Fair	Good	Excellent
Verifier Readability	Poor	Fair	Good	Excellent
Label Visual Appeal	Poor	Fair	Excellent	Excellent
Graphic Print Ability	Poor	Good	Excellent	Excellent
Consumable Costs	Good	Good	Fair	Good
Printing of Various Label Types and Sizes	Poor	Poor	Fair	Excellent
Environmental Challenges	Poor	Poor	Poor	Excellent
Maintenance Costs	Good	Poor	Fair	Good

Dot Matrix

Because dot matrix printers require an overlapping of dots to create bars in barcodes narrow bar widths may not be printed as intended when the size of the dot is greater than the bar width. They also generally have a much lower resolution as compared to ink jet, laser or thermal printers making barcode scanner and verifier readability difficult. The quality of graphics and the overall visual appeal of labels are also diminished making them a poor choice for barcode generation.

Ink Jet

While ink jet printers' speed allows them to excel in high productivity printing environments and in printing quality graphics, their tiny ink orifices, sometimes no bigger than the width of a human hair, make their print heads

susceptible to clogging. If not continuously maintained, barcode readability can suffer. Since inkjets perform better in clean environments, they are not well suited for areas where dirt or temperature changes occur frequently. Also, because inkjets spray ink directly onto a printable surface, they can be finicky about the types of substrates they will accept.

Laser

Laser printers excel when printing graphics and fonts. They also have large font selections and usually offer some international language support. However, they tend to falter in industrial environments and the barcodes they print are generally not as durable as thermal printers. Printing on unusual substrates or even adhesive labels can be difficult and expensive.

Thermal

Thermal printers are well suited to industrial environments. For example, Source Technologies' Performance Series Printers feature die cast frames and metal covers designed specifically for harsh work environments. The standard 300 dpi print head, allows for the crisp reproduction of fine detail in small, intricate bar and QR Codes®, thus preventing loss of data or misread codes when scanned.

The STp. 1120n also features near edge printing giving users' full use of the label to design and code barcodes that support detailed information. Because it can print with or without ribbons, it offers flexible multi-media printing on synthetics, tags, self-adhesive and plastics.

For more information on thermal printing with Source Technologies Thermal Series printers please call: 800-922-8501 or visit us on the web: www. sourcetech.com

About Source Technologies

For over 25 years, Source Technologies has engineered reliable and easy-to-use specialized printing solutions helping organizations streamline operations.

True workhorses of the industry, ST thermal printers perform effortlessly in some of the harshest settings and are based on the industry standard language PCL, allowing for seamless integration into any environment. Our mobile label and receipt printers are rugged and dependable enough to keep workforces moving.

MICR laser printers from Source Technologies are renowned for their security features and ability to print negotiable documents on-demand, inclusive of all variable data using blank stock in a single printer pass. Laser barcode and secure document printers produce shipping labels, invoices, order forms and time- and information-sensitive documents. Clients include Fortune 1000 companies as well as nine of the TOP 10 U.S. Banks and many of the world's largest security organizations.

Printing solutions from Source Technologies improve processes in a wide range of business environments including warehousing and distribution, transportation and logistics, healthcare, hospitality, retail and finance.

To Learn More About Our Printing Solutions:

Source Technologies | 2910 Whitehall Park Dr. | Charlotte, NC 28273

(800) 922-8501 | (704) 969-7500 | Sourcetech.com