



A Zebra Technologies White Paper

# ZebraLink™ Solutions for Enhancing Zebra® Printer Business Integration





## Executive Summary

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Each business has unique needs, and printers fill a vital role in boosting business productivity. ZebraLink is a suite of software, firmware, and connectivity solutions that enhances and extends the performance of Zebra bar code and RFID smart label printers. ZebraLink makes it simple to design, manage, and adapt a bar code printing application tailored to meet specific business processes. ZebraLink Solutions help unlock the full value of Zebra printers by:

- Reducing configuration, integration, and management time
- Making label design and modifications easy
- Providing real-time connectivity and control
- Simplifying networking configuration
- Leveraging features that improve printer efficiency and performance

This white paper introduces the ZebraLink software, firmware, and connectivity components, and shows how to maximize performance and value from Zebra printers.

## ZebraLink Overview

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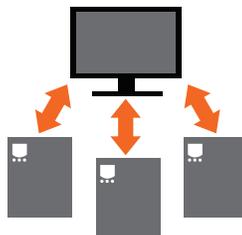
ZebraLink encapsulates a family of software applications, utilities, connectivity tools, and other resources developed to extend and enhance Zebra printer capabilities. Users can select each ZebraLink solution as they need—all are optional and are not required to run Zebra printers. Zebra designed ZebraLink for users and developers with different experience levels, business goals, and printing environments. ZebraLink can help customers using a single printer, and enable scalability for managing hundreds of printers worldwide from a central location. Most solutions target Zebra printers that use the ZPL<sup>®</sup> printer command language, and offer selected support for CPCL and EPL<sup>™</sup> models. Many ZebraLink solutions are available as free downloads from [www.zebra.com](http://www.zebra.com).

How well a printer creates labels is an incomplete measure of its value. Ease of use, required IT support, compatibility with legacy systems, support for enterprise security standards, and other business process considerations have a tremendous impact on total cost of ownership (TCO) and the value the printer provides. It is impractical and cost-prohibitive to support all the potential enterprise interfaces, security and networking protocols, and other features in every printer on the market. Therefore, users must choose printers with the features and options that provide the most value for their specific printing and business environment.

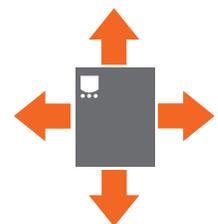
### DESIGN



### MANAGE



### ADAPT



ZebraLink provides a way to efficiently add capabilities to bar code and smart label printers on demand, without expensive custom development or premature printer replacement. It also significantly reduces the time required to set up, configure, manage, and modify printers, which minimizes support requirements. The following sections describe how ZebraLink solutions improve performance and add value to Zebra label printing systems. In many cases, ZebraLink features may already be present on a printer already in use, just waiting to be used!

## **Adapt Through Host Integration**

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Thermal label printers use proprietary printer command languages (for example, ZPL) that most enterprise computer systems and software applications do not support. Information from enterprise systems on bar code and RFID labels often require a model-specific label printer driver, middleware, or a custom interface. Such printing architectures may require specialized knowledge to maintain and may be inefficient to modify and upgrade.

ZebraLink provides several solutions for simplifying the process of integrating printers with host systems and expressing information from databases, ERP applications, and other legacy systems on bar code and RFID labels.

### **XML Interface**

XML-Enabled Zebra printers can output bar code and RFID labels by receiving XML data streams directly from the host computer or application. The data stream is matched inside the printer to a stored label format, variable data fields are populated, and the label is printed. No additional middleware or drivers are necessary, resulting in a simple architecture that is easy to manage and expand. Zebra's Oracle-certified XML solution includes XML-enabled label formats for Oracle® WMS and Mobile Supply Chain Applications (MSCA) stored in printer memory, which eliminates the need to design label formats. XML-Enabled printing is built-in on many of Zebra's mobile, desktop, tabletop, print engine and kiosk printers.

For more information about XML printing and the Oracle solution, download the "Bar Code Printing from Oracle WMS and MSCA" white paper from the Resource Library section of [www.zebra.com](http://www.zebra.com).

### **Multiplatform Software Development Kit (SDK)**

Seamless mobility is a key enabler to business productivity—from manufacturing, to transportation and logistics, and even retail—rely on smartphones, mobile terminals, and handheld devices. Zebra's Multiplatform Software Development Kit allows users to create new applications that enable printing from various BlackBerry® smartphone models or Windows Mobile® terminals and devices to Zebra mobile or stationary printers. The SDK includes source code samples, documentation, and on-phone demonstration modules that simplify the design of custom applications with embedded support for Zebra printers.

With ZebraLink-driven on-demand printing, businesses can now offer their workers the flexibility and efficiency that mobile devices provide. Workers no longer need to carry multiple devices to complete their printing tasks, including service and sales receipts, direct store delivery documentation, retail point-of-sale receipts, mobile online coupon printing, and healthcare specimen labeling. For more information, see Zebra's Smartphone Utility and SDK Web page at [www.zebra.com/sdk](http://www.zebra.com/sdk).

## Networking and Connectivity

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The ZebraNet® Print Server family is the flagship for ZebraLink connectivity solutions, which also include interfaces for the IBM® environment and Bluetooth® tools for communicating with mobile printers. All ZPL®-based Zebra® printers enabled with ZebraNet print servers offer optimal integration for today's network environment with easy setup and configuration via Zebra advanced printer management tools.

### **ZebraNet 10/100 Print Server**

This solution provides wired connectivity to 10Base-T, 100-BaseTX, and fast Ethernet 10/100 auto-switching networks. The ZebraNet 10/100 Print Server provides enhanced ECP parallel support and faster data transmission speeds that improve printing throughput. This print server is supported on select Zebra high-performance, midrange, and desktop printers, PAX™ print engines, and RFID printer/encoders. It is available in external and internal versions that each draw their power from the printer.

### **ZebraNet Wireless Plus Print Server**

The ZebraNet Wireless Plus print server allows printers to be included in 802.11b/g-standard wireless networks without wireless bridges or additional power supplies. The solution is available on select Zebra high-performance, midrange, and desktop printers, PAX™ print engines, and RFID printer/encoders. The ZebraNet Wireless Plus Print Server supports network radio cards from Cisco Systems and Motorola, offers multiple security protocol options, and performs at user-selectable speeds.

### **PS4000™**

The PS4000 is a standalone product that provides 802.11b/g wireless connectivity to up to four desktop printers (LP and G-series) connected via USB. It is powered by either an AC adapter or from the LA-24 battery (which also provides printer power) for mobile applications.

### **Twinax and Coax**

Twinax connectivity provides connectivity to IBM System 34/26/38 and AS/400® computers or associated controllers. Users can configure the Zebra printer on the IBM host as either an IBM 4214, 5224, 5225 or 5256 printer. Coax provides communication to IBM 3270 mainframe computers or associated controllers and IBM 3287 and Model 2 printer compatibility, including LU1 (SCS) and LU3 (3270 data stream) modes.

## Manage Printers Intelligently and Efficiently

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The time and expertise required for installing and configuring printers, and the effort needed to keep them running, are leading contributors to total cost of operation (TCO). If a printer fails, the resulting cost of lost productivity, shipment delays and potential charge backs can quickly exceed the printer purchase price. Solid printer management, monitoring and troubleshooting tools protects the printer investment and improves value.

### **ZebraNet™ Bridge Enterprise**

System administrators can use ZebraNet Bridge Enterprise to remotely manage the entire organization's Zebra printers from a central location. ZebraNet supports stationary and mobile printers, including those on wireless networks. ZebraNet Bridge Enterprise supports Zebra printers installed with firmware version X.10 and higher, which makes it compatible with many legacy units and all new ZPL printer models. It also has features to support Zebra printers using the EPL™ and CPCL control languages.

ZebraNet Bridge Enterprise takes redundancy and labor out of configuring, managing, and modifying printers. Administrators can create groups and subgroups of printers and then “push” the configurations, label formats, and settings for entire groups at once. One-to-many management provides significant time savings compared to traditional management applications that require the administrator to set each printer individually. Remote management allows a single administrator to manage Zebra printers across multiple locations.

## **Mirror**

Automatically managing printer configurations using a “pull” networking task can save operations and IT staff time and money, and ensure printers are functioning with the right configuration at the right time. Zebra’s Mirror automatically ensures printers are functioning with the latest intended information to keep operations running smoothly. IT administrators can configure and load important printer information on a networked server once, then allow the printers to pull the data as needed.

With Mirror, printers can pull settings, objects, and even firmware from a centralized FTP server. Administrators can synchronize the printers with specific files maintained on a server using several scenarios including when the printer powers up, at specified time intervals, both on power up and at time intervals, or on command. Mirror is available on a wide variety of mobile, desktop and tabletop printers.

## **WebView**

WebView provides a browser-based graphical interface to monitor printers across the enterprise. When a Zebra printer is connected to a TCP/IP Ethernet network using a ZebraLink print server, the printer’s embedded Web server allows a network administrator to point a Web browser to the Zebra printer’s URL just as one would point to a page on the Internet. The printer’s Web server then responds by sending a Web page to the network administrator’s browser, thus providing real-time, viewable and configurable record of the printer’s status, settings, and printing parameters.

## **Rich, Versatile Design Tools**

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A bar code or RFID application optimized for specific business needs and printing tasks helps save time and expenses. Zebra delivers several design solutions that provide businesses unmatched flexibility, integration, and scalability for creating efficient printer outputs.

## **Zebra’s Enterprise Connector Solution**

Thermal printers create specialized outputs including bar code and RFID labels, tags, wristbands and receipts. Each task calls for specialized features not found in common document printers. Zebra thermal printers support unique capabilities such as bar codes, RFID tag encoding, and real-time clock fields that require optimized command sets for maximum performance. The Zebra Enterprise Connector Solution for Oracle® BI Publisher removes the hassles from thermal printer software installation, usage and management—no complex files, and no need to learn specific printer languages.

IT administrators simply install ZebraDesigner™ for XML v2 software on a Windows® PC, design the label templates, and then upload them to the server-based Enterprise Connector environment. As users process transactions, Enterprise Connector efficiently transforms XML-based business data into printable content. For every new or batch transaction requiring label printing, Enterprise Connector quickly converts the design data into efficient, optimized ZPL commands, and then sends them to the print queue.

## Label Design

The ZebraDesigner™ v2 software family makes producing sophisticated labels easier than ever before. Created specifically for use with Zebra bar code printers, ZebraDesigner software delivers a unique level of access to the advanced features found exclusively on Zebra printers.

ZebraDesigner, available as a free download, offers primary label design features in a wizard-driven, Windows interface. ZebraDesigner Pro, available for demo and purchase, offers additional advanced features, such as database connectivity, RFID tag encoding, and real-time clock support. Users can use both ZebraDesigner and ZebraDesigner Pro to create labels for printers with the ZPL, EPL, and CPCL command languages, including mobile printer models. Users can print label designs directly from the software, or easily download and store them on Zebra printers for later recall and printing from a host or ERP system.

## Unicode™

Printers create text by using a codepage to convert numeric codes into characters and expressing them in a font that supports the required characters. Most codepages support only a limited number of characters, which severely impacts their ability to support multiple languages.

Unicode supports many thousands of characters—more than enough to print in all of the world's major languages. Zebra's Unicode solution eliminates the time and money associated with continually installing fonts and codepages to support new languages. Unicode fonts let the printer seamlessly output any language, with no need for an operator to select the language, font, or codepage, or otherwise configure or adjust the printer.

Many leading IT systems and enterprise software applications now support Unicode. By networking a Unicode-enabled Zebra printer to these systems, organizations can print international language labels directly from their applications.

Zebra's Unicode solution is free and included in the firmware of Zebra's current Xi™ series, Z Series®, S Series™, G-Series™, PAX™ series and KR403™ printers. Fonts for printing all major European, Asian (including GB-18030), Middle Eastern, and African languages are also available.

## Conclusion

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ZebraLink solutions simplify every aspect of bar code and RFID label printing, from creating label designs and formats, to installing and configuring printers, to managing daily printing operations and performing upgrades. The ZebraLink software, hardware and embedded firmware enable users to leverage features and capabilities specific to Zebra printers to improve printer performance, system uptime, device management, and solution modifications to existing or new label printing operations. Extending the power of Zebra printers and improving their productivity reduces support requirements, lowers costs, and enhances the value of Zebra printing solutions.

Zebra Technologies Corporation (NASDAQ: ZBRA) provides the broadest range of innovative technology solutions to identify, track, manage, and optimize the deployment of critical assets for improved business efficiency. Zebra's core technologies include reliable on-demand printer and state-of-the-art software and hardware solutions. By enabling improvements in sourcing, visibility, security and accuracy, Zebra helps its customers to put the right asset in the right place at the right time. Zebra operates in over 100 countries and serves more than 90 percent of Fortune 500 companies worldwide. For more information about Zebra's solutions visit [www.zebra.com](http://www.zebra.com).

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