



Addendum
to the
SEH PS105-Z and PS102-Z User Guide

for Zebra[®] Printers



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Preface

This section provides you with contact information, document structure and organization, contacts, and additional reference documents.

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Who Should Use This Document

This Addendum is intended to be used by any person who will install and work with the SEH IPv6 Print Server (SEH IPv6 PS).

How This Document Is Organized

This Addendum is set up as follows:

Section	Description
<i>Introduction</i>	This chapter provides a high-level overview of the SEH IPv6 PS device, minimum requirements, installation types, and specifications.
<i>Installation</i>	This chapter provides information on how to install the SEH IPv6 PS.
<i>Operations</i>	This chapter provides you with information and procedures for working with the most frequently used SEH IPv6 PS features.
<i>Configuration</i>	This chapter provides you with details for configuring the SEH IPv6 PS.
<i>Software Tools</i>	This chapter provides you with details on the SEH and ZebraNet Utilities.
<i>Hardware Troubleshooting</i>	This section provides you with solutions to known issues.
<i>Frequently Asked Questions</i>	This section provides a group of frequently asked questions (FAQs) about the SEH IPv6 PS.
<i>Glossary</i>	This appendix is a list of terms and associated definitions.

Contacts

Technical Support via the Internet is available 24 hours per day, 365 days per year.

Web Site: www.zebra.com

E-mail Back Technical Library:

E-mail address: emb@zebra.com

Subject line: Emailist

Self Service Knowledge Base: www.zebra.com/knowledgebase

Online Case Registration: www.zebra.com/techrequest

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Key:	T: Telephone F: Facsimile E: E-mail		

Document Conventions

The following conventions are used throughout this document to convey certain information:

Alternate Color (online only) Cross-references contain links to other sections in this guide. If you are viewing this guide online, click the [blue text](#) to jump to its location.

Command Line Examples All command line examples appear in `Courier New` font. For example, type the following to get to the Post-Install scripts in the `bin` directory:

```
ztools
```

Files and Directories All file names and directories appear in `Courier New` font. For example, the `Zebra<version number>.tar` file and the `/root` directory.

Cautions, Important, Note, and Example



Caution • Warns you of the potential for electrostatic discharge.



Caution • Warns you of a potential electric shock situation.



Caution • Warns you of a situation where excessive heat could cause a burn.



Caution • Advises you that failure to take or avoid a specific action could result in physical harm to you.

Caution • Advises you that failure to take or avoid a specific action could result in physical harm to the hardware.



Caution • Advises you need to wear protective eye wear.



Important • Advises you of information that is essential to complete a task.



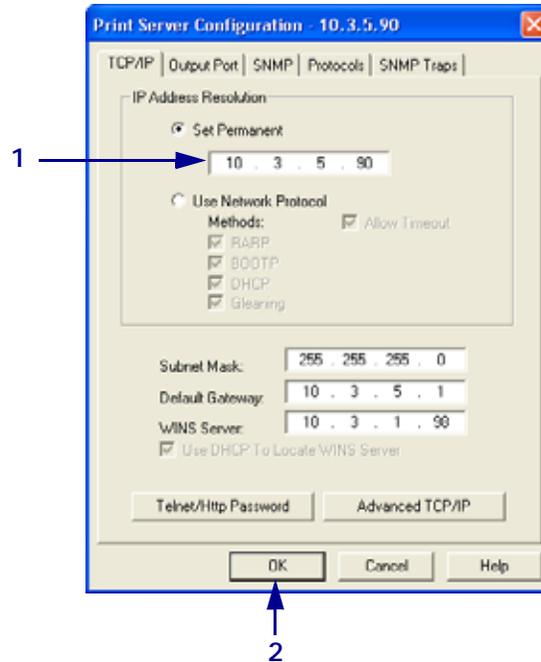
Note • Indicates neutral or positive information that emphasizes or supplements important points of the main text.



Example • Provides an example, often a scenario, to better clarify a section of text.

Illustration Instructions Used when an illustration contains either information about a dialog box or step(s) to accomplish in a dialog box.

One illustration instruction identifies a section of the dialog box and the other shows steps to follow.



1	Set Permanent text-box.
2	<ol style="list-style-type: none"> a. In the Set Permanent text-box, type in the print server's IP address. b. When you are finished, click OK.

Related Documents

The following documents might be helpful references:

- *SEH Print Server PS105-Z Hardware Installation Guide*
- *SEH Print Server PS Series Quick Installation Guide*
- *SEH Print Server Installation Manual*
 - Installation In Mac OS 9/8 Systems
 - Installation In Novell Netware
 - Installation In UNIX Systems
 - Installation In Windows Systems
- *SEH Print Server PS Series User Manual*
- *ZPL II[®] Programming Guide For x.14 Firmware and Above*
- *ZebraNet[™] Bridge Enterprise Printer Management User Guide*
- SEH PS102-Z Internal Print Server Kit for Xi4[™] Printers Installation Instructions
- SEH PS102-Z Internal Print Server Kit for S4M Printers Installation Instructions
- SEH IPv6 Print Server Quick Reference Guide
- SEH Print Server CD



Introduction

This chapter provides a high-level overview of the SEH IPv6 PS device, minimum requirements, installation types, and specifications.

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Overview

The SEH IPv6 Print Server (PS) is an optional factory- or field-installed device that connects the network and your ZebraLink-enabled printer. If you use the ZebraNet Utilities, you can easily access many of the specialized features of a ZebraLink enabled printer. For details, see *Software Tools on page 43*.

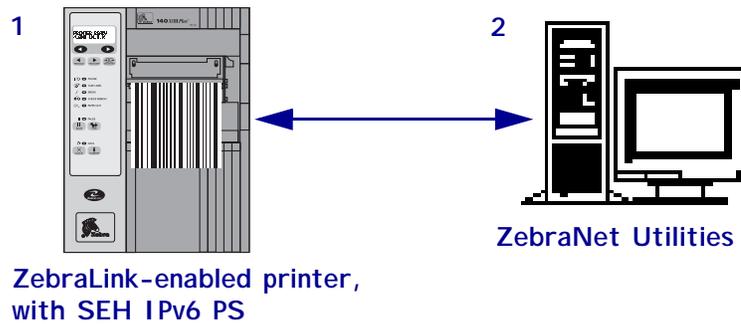


Important • You can download the most recent version of ZebraNet Utilities from http://www.zebra.com/printer_management.

Illustration

Figure 1 shows the flow of components that work with the SEH IPv6 PS. The table that follows identifies the components and how they enhance each respective device:

Figure 1 • Components



1	<p>ZebraLink-enabled printer with SEH IPv6 PS—A ZebraLink-enabled printer with SEH IPv6 PS gives you the following features:</p> <ul style="list-style-type: none">• Printer alerts• Print server setup using a browser• Remote monitoring and configuration capability of the SEH IPv6 PS using a browser• The ability for you to send unsolicited printer status messages via raw TCP/IP. <p>The SEH IPv6 PS can be either field- or factory-installed. For details, see <i>Installation Types on page 16</i>.</p>
2	<p>ZebraNet Utilities—ZebraNet Utilities is a suite of software programs that work with SEH IPv6 PS and enhance the features of ZebraLink resident within ZPL-based printers. The features include:</p> <ul style="list-style-type: none">• <i>ZebraNet Bridge</i> allows you to discover and manage a print server on a network.• <i>ZebraNet View</i> allows you to locate printers automatically. ZebraNet View searches on parameters such as IP address, subnet, printer model, printer status, and many other user-defined characteristics.• <i>ZebraNet View Java Applet</i> is a Java-based version of the popular ZebraNet View. It gives you ZebraNet View capabilities in a non-Windows environment.

Requirements

This section lists the minimum requirements for SEH IPv6 PS, which include hardware and firmware.

Hardware

The following are the SEH IPv6 PS options available for different printer models:

Printers	External	Internal Field Upgrade	Internal Factory
105SL™	•	•	•
PAX4™ series	•		
R110Xi™	•	•	•
R170Xi™	•	•	•
RZ400™	•		
RZ600™	•		
S4M™	•	•	•
XiIIIPlus™	•	•	•
Xi4™	•	•	•
Z4Mplus™	•		
Z6Mplus™	•		
ZM400™	•		
ZM600™	•		

Firmware

Supported Firmware Versions After an SEH IPv6 PS is installed, your printer must be running a supported firmware version to access the features in this manual. See [Table 1](#) for the firmware versions.

Supported Printer Models and Firmware Versions

Table 1 lists the supported Zebra printer or print engines and their associated firmware versions when using an SEH IPv6 print servers.

Table 1 • Supported Printer Models and Firmware Versions

Printer	Firmware Version
105SL	V60.16.5Z or later
110PAX4, 170PAX4	V60.16.5Z or later
R110Xi, R170Xi	R60.16.5Z or later
RZ400, RZ600	R53.16.5Z or later
S4M	V53.16.5Z or later
<i>XiIIIPlus</i>	V60.16.5Z or later
Xi4	V53.17.x or later
Z4Mplus, Z6Mplus	V60.16.5Z or later
ZM400, ZM600	V53.16.5Z or later

Compatibility

This section identifies the various components that are compatible with SEH IPv6 PS.

- ZebraNet Wireless Print Server
- ZebraNet Wireless Plus Print Server
- ZebraNet Internal Wireless Plus Print Server

Installation Types

SEH IPv6 PS can be factory- or field-installed, as follows:

Factory Factory installations are for new Zebra printers that are built with the internal SEH IPv6 PS (PS102-Z) option.

Field Field installations are for Zebra printers already in the field that do not have the SEH IPv6 PS device installed. The SEH IPv6 PS option can be installed on existing printers, as follows:

- **External SEH IPv6 PS (PS105-Z)** — attaches to the printer parallel port
- **Internal SEH IPv6 PS (PS102-Z)** — for the appropriate Zebra printers, this option connects directly to the main logic board



Caution • A qualified service technician must perform this installation.

External SEH IPv6 PS (PS105-Z) Technical Specifications

General Specifications			
Network Connection		Ethernet 10BaseT and 100BaseT UTP RJ-45 connection Half and Full Duplex Communications	
Printer Connection		Bi-directional, IEEE-1284 Centronics parallel port (Compatibility, Nibble, and ECP)	
User Interface		LED activity indicators: <ul style="list-style-type: none"> • Status • Link • Network activity 	
Height (external dimensions)		1.0 in.	26 mm
Width (external dimensions)		2.5 in.	63 mm
Length (external dimensions)		3.9 in.	98 mm
Weight		2.8 oz.	70 g
Electrical		Maximum 320mA at 5VDC Power provided by the printer (Centronics pin 18, 5VDC at 320mA)	
Temperature	Operating	41° to 104°F	5° to 40°C
	Storage	-40° to 140°F	-40° to 60°C
Relative Humidity	Operating	5% to 80%, non-condensing	
	Storage	5% to 90%, non-condensing	
Agency Approvals		Agency Approvals <ul style="list-style-type: none"> • CE: EN 55022, Class B • EN 55024 Agency Marks <ul style="list-style-type: none"> • CE • FCC Class A • VCCI Class B • C-Tick • WEEE (B-to-C) • RoHS 	

Internal SEH IPv6 PS (PS102-Z) Technical Specifications

General Specifications			
Network Connection		Ethernet 10BaseT and 100BaseT UTP RJ-45 connection Half and Full Duplex Communications	
Printer Connection		Bi-directional, IEEE-1284 Centronics parallel port (Compatibility, Nibble, and ECP)	
User Interface		LED activity indicators: <ul style="list-style-type: none"> • Status • Link • Network activity 	
Height (external dimensions)		0.7 in.	18 mm
Width (external dimensions)		3.3 in.	83 mm
Length (external dimensions)		3.7 in.	94 mm
Weight		1.4 oz.	40 g
Electrical		Maximum 380mA at 5VDC Power provided by the printer (Centronics pin 18, 5VDC at 380mA)	
Temperature	Operating	32° to 104°F	0° to 40°C
	Storage	-40° to 140°F	-40° to 60°C
Relative Humidity	Operating	5% to 80%, non-condensing	
	Storage	5% to 85%, non-condensing	



Installation

This chapter provides information on how to install the SEH IPv6 PS.

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SEH PS105-Z Print Server (External)

To install an external SEH IPv6 PS, see the installation instructions on the IPv6 CD. For a list of compatible printers, see *Hardware on page 14*.

SEH PS102-Z Print Server (Internal)

To install an internal SEH IPv6 PS, see the installation instructions on the IPv6 CD. For a list of compatible printers, see *Hardware on page 14*.



Operations

This chapter provides you with information and procedures for working with the most frequently used SEH IPv6 PS features.

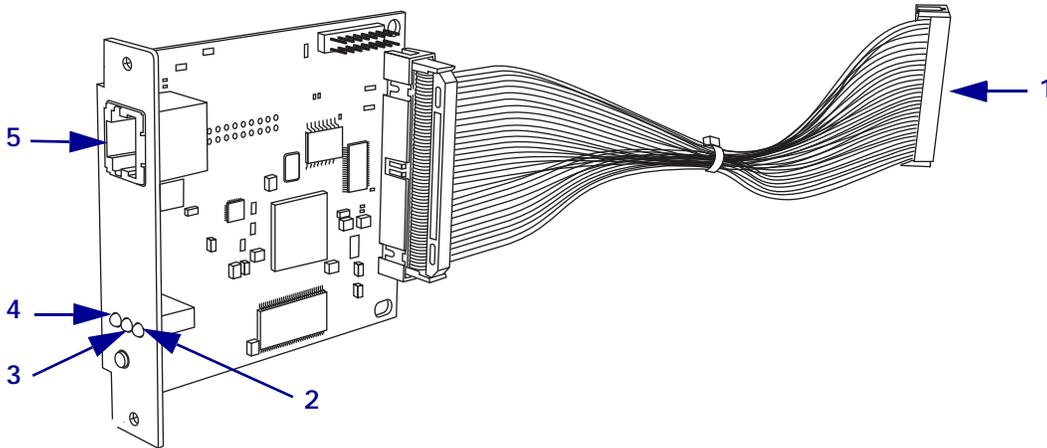
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SEH PS102-Z Internal Print Server

Figure 2 and Figure 3 show key components of the internal print server (PS102-Z). You should familiarize yourself with the various LED's and connectors for the print server before you begin.

Figure 2 • SEH PS102-Z
(S4M PS102-Z Shown)

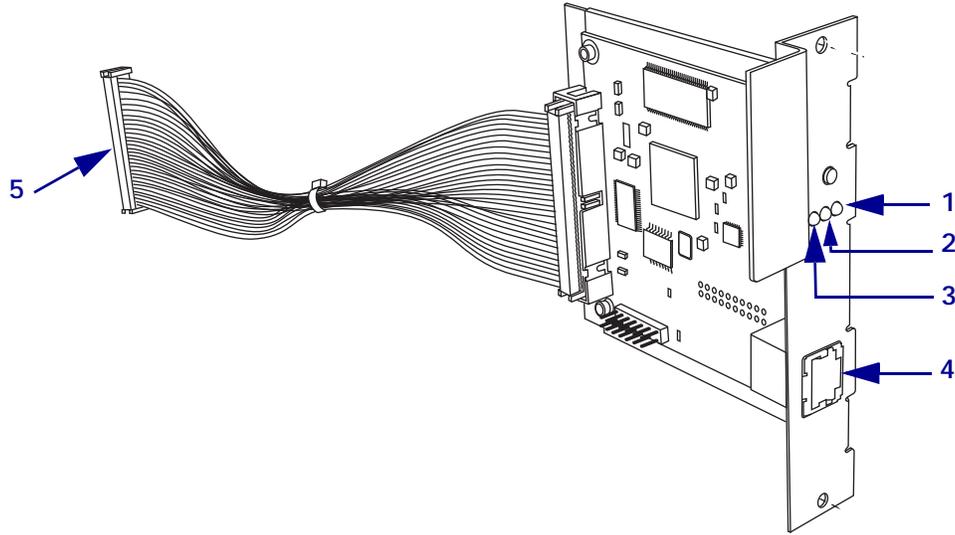


1	Parallel port connector
2	Link LED
3	Network Activity LED
4	Status LED
5	RJ45 connector



Note • For the S4M printer, the Link LED appears on the right because the board is mounted with RJ45 connector at the top of the print server board.

**Figure 3 • SEH PS102-Z
 (105SL and Xi Series™ PS102-Z Shown)**



1	Status LED
2	Network Activity LED
3	Link LED
4	RJ45 connector
5	Parallel port connector

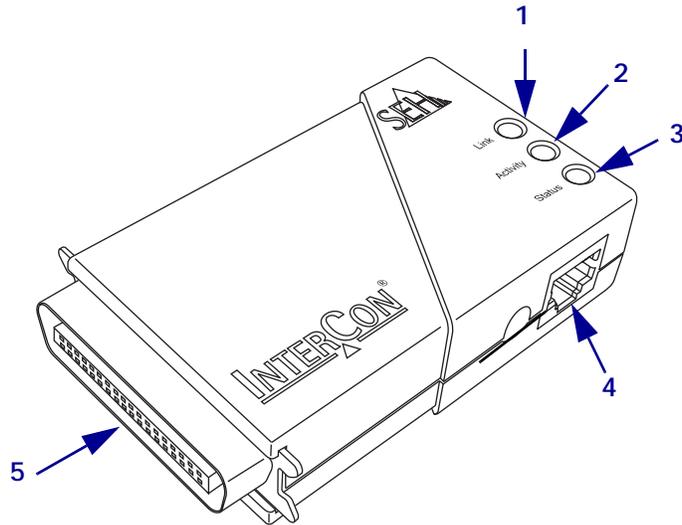


Note • For the 105SL and the Xi Series printers, the Link LED appears on the left because the board is mounted with the RJ45 connector at the bottom of the print server board.

SEH PS105-Z External Print Server

Figure 4 shows key components of the external print server (PS105-Z). You should familiarize yourself with the various LED's and connectors for the print server before you begin.

Figure 4 • SEH PS105-Z



1	Link LED
2	Activity LED
3	Status LED
4	RJ45 connector
5	Parallel port (Centronics) connector

Media Sizes

SEH IPv6 PS offers many features, but how you access and work with them is dependent on your environment. Before you begin, you need to get information from the SEH IPv6 PS configuration label.



Important • Make sure the printer is turned off (O).

In order to print the SEH IPv6 PS configuration label, the correct media size must be loaded in the printer. [Table 2](#) shows the minimum label widths and lengths needed to print an SEH IPv6 PS configuration label with different DPI printheads.

Table 2 • Label Sizes

DPI	Label Width		Label Length	
	Inches	MM	Inches	MM
600	1.35	34.29	1.63	40.46
300	2.71	68.83	3.01	74.92
203	4.0	101.60	4.32	109.38

SEH IPv6 PS Configuration Label

Before printing an SEH IPv6 PS configuration label, be sure the correct media size is loaded in your printer. See [Table 2](#) for more specific information.

To print an SEH IPv6 PS configuration label, complete these steps:

1. Turn on (I) the printer and let it complete its power-up cycle.
2. When the POST cycle is complete, press the Status button for one second.

An SEH IPv6 PS status page (or PS configuration label) prints. Your configuration label looks similar to this:

Figure 5 • SEH IPv6 PS Configuration Label

```

(C) 2008 SEH Computertechnik GmbH

Status Page PS105
-----

General Status
1 → Print server model      : PS105
   Serial number           : 17720070100111
2 → Software version       : 10.2.13
   Hardware version        : 1.0
   Hardware address        : 00:c0:eb:0a:57:7a
   Network                  : 100BaseTX FULL (negotiated)
   Date and time            :
   Service Information      : /263/23/4.83/85/848d.0/1cecf.0

TCP/IP
3 → IP address             : 010.003.005.066 (via DHCP)
4 → Subnet mask            : 255.255.255.000
5 → Gateway                 : 010.003.005.001
   ARP/PING                 : ON
   BOOTP                    : ON
   DHCP                     : ON
   ZeroConf                  : ON

IPv6
6 → IPv6                   : ON
   IPv6 addresses           : fe80::2c0:ebff:fe0a:577a

Novell
   Novell name              : IC0A577A
   Print server mode        : ON
   R/N printer              : ON
  
```

1	Serial number
2	Hardware address
3	IP address (IPv4)
4	Subnet mask
5	Gateway
6	IPv6 address

3. Changes to settings on either the printer or the print server may require specific information. This specific information is often found on the configuration label. From the configuration label, you need to look for these numbers:

- IP ADDRESS
- IPv6 ADDRESS
- SUBNET MASK
- DEFAULT GATEWAY
- SERIAL NUMBER
- HARDWARE ADDRESS (MAC address)

Status Button

Reset the SEH IPv6 PS to Factory Defaults

You may reset all print server parameters to their default values (factory default settings). Earlier settings will be deleted in this process. Installed certificates will not be deleted.



Important • Since the IP address of the print server will be reset as well, the Print Server Home page cannot be started or displayed after the reset.

You must reset the parameters, for example, if you want to use the print server in another network by changing the location of the printer. Before this change of location, you should reset the parameters to the default settings to install the print server in another network.



Note • If a password has been set in the print server, the password has to be entered before resetting the parameters. No password is necessary if you reset the print server using the Status button on the print server.

To default the SEH IPv6 PS to factory settings using the Status button, complete these steps:

The Status button is a small blue button on the back of the SEH IPv6 PS devices.

1. What type of SEH IPv6 PS device do you have?

Type of SEH IPv6 PS	Then...
SEH PS102-Z (internal)	See Figure 2 on page 22
PS105-Z (external)	See Figure 4 on page 24



Important • The Reset mode is signaled by the simultaneous flashing of the Activity LED (yellow) and the Status LED (green) and remains active for the duration of five flashes. The Status button must be released within this time frame, otherwise, the print server will go into BIOS mode. In this case, you will need to start the reset process again.



Note • Before starting the reset process, disconnect the network cable from the SEH IPv6 PS device to avoid the distracting flashing Link LED.

2. Turn off (O) the printer.
3. Press and hold the Status button on the SEH IPv6 PS device.
4. Turn on (I) the printer.
Wait until the Activity and Status LED's start blinking simultaneously. The Reset Mode is activated.
5. Release the Status button for about two seconds.
The LED's blink in an alternating pattern.

- 6.** Once again, press and hold the Status button.
The LED's blink simultaneously. After a few seconds, only the Activity LED (yellow) blinks consistently.
- 7.** Release the Status button.
- 8.** Turn the printer off (O) and back on (I).
- 9.** Press the status button for a short time to print a status page.
The status page may be used to check whether the parameters were successfully reset.
- 10.** Once parameters are reset, reconnect the network cable to the SEH IPv6 PS device.

Power

Power for the SEH PS105-Z is provided via pin 18 of the parallel port (Centronics) connector.

LED's

SEH IPv6 PS Status Indicator

The Status Indicator LED indicates the operational status of the SEH IPv6 PS.

During normal operation, the LED is solid green. This indicates all the hardware is functioning properly and SEH IPv6 PS has detected the presence of the network. It does not mean the SEH IPv6 PS has an IP address or is attached to a printer queue.

SEH IPv6 PS Network Activity Indicator

A Network Activity LED indicates a data packet has been received by the SEH IPv6 PS.

During normal operation, the LED is blinking yellow based on the rate at which it receives packets. Network activity detected by this LED does not mean the activity is data for the print server. The activity is any activity on the network seen by the SEH IPv6 PS.

SEH IPv6 PS Link Indicator

The Link Indicator LED indicates a physical connection to the network is available via the SEH IPv6 PS.

During normal operation, the LED is solid green.



Notes • _____



Configuration

This chapter provides you with details for configuring the SEH IPv6 PS.

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SEH Configuration Mechanisms

This document is only intended as an addendum to the existing SEH documentation and is not intended to repeat information already included in SEH documentation. Please refer to the SEH IPv6 CD for more detailed information and user manuals.

Control Panel

Loading network defaults (DEFAULT NET) from the Zebra printer control panel has no effect on the SEH IPv6 PS. If you need to reset the network parameters, see *Reset the SEH IPv6 PS to Factory Defaults* on page 27.

Parameters for V60.16.x, R6x.16.x, or later Firmware

The following printers and print engines use firmware versions V60.16.x, R6x.16.x, or later:

- 105SL
- 110XiIIIPlus, 140XiIIIPlus, 170XiIIIPlus, 220XiIIIPlus
- R110Xi, R170Xi
- Z4Mplus, Z6Mplus
- 110PAX4, 170PAX4, R110PAX4

Firmware Requirements Table 3 shows the network parameters that may be viewed or modified through the printer's control panel. These parameters appear on printers with firmware V60.16.x, R6x.16.x, or later.

Printers with older versions of firmware have a different set of parameters. You may download firmware V60.16.x, R6x.16.x, or later to access the newer encryption features. Go to <http://www.zebra.com/firmware> for firmware download options.

Network Password Some of the parameters can be password-protected by a network password. By default, the network print servers run in an "unprotected" mode (password set to **0000**), which means that you do not need to enter a network password through the control panel to view or modify network settings. To set a network password (not the same as the general printer password), use the ^WP ZPL command. For more specific details about ZPL commands, see *ZPL II[®] Programming Guide For x.14 Firmware and Above*.

Table 3 • Network Parameters for V60.16.x, R6x.16.x, or later Firmware (105SL, X111 Series, RXi Series, Z4Mplus, Z6Mplus, and PAX4 Series)

Parameter	Function
WIRED PS CHECK? ¹	<p>View if the Printer Checks for a Wired Print Server at Bootup</p> <p>This parameter, which serves the same function as the ^NB ZPL command, tells if the printer searches for a wired print server at bootup.</p> <p><i>Selections:</i> YES, NO</p> <p><i>Default Value:</i> NO</p>
LOAD LAN FROM? ¹	<p>View if IP Settings Are Loaded from the Printer or Print Server</p> <p>This parameter, which serves the same function as the ^NP ZPL command, tells if the printer uses IP settings from the printer or the print server at bootup.</p> <p><i>Selections:</i> PRINTER, PRINTSERVER</p> <p><i>Default Value:</i> PRINTER</p>
ACTIVE PRINTSRVR ²	<p>View the Active Print Server</p> <p>This menu item displays which print server is being used. This tells which device's settings such as IP protocol and IP address are being displayed under those menu items.</p> <p><i>Selections:</i></p> <ul style="list-style-type: none"> • WIRELESS indicates that the wireless device is active. • EXTERNAL WIRED indicates that the external print server is active. • NONE indicates that at least one of the network options is installed but none of them are active. When NONE is shown for this menu item, the device-specific items such as IP protocol and IP address will not display. <p><i>Default Value:</i> NONE</p>
RESET NETWORK ^{1,3}	<p>Reset the Wired or Wireless Network</p> <p>Use this parameter to reinitialize the wireless radio card and the print server (wired or wireless) when the wireless print server is running. This parameter also causes any wireless radio card in the printer to reassociate to the wireless network. (Same function as ZPL command ~WR. For more specific details about ZPL commands, see <i>ZPL II® Programming Guide For x.14 Firmware and Above.</i>)</p>

1 Appears only when a wireless print server is installed.

2 Appears after the printer recognizes the existence of a print server (wired or wireless).

3 If a wireless password is set, you must enter the wireless password (not the printer password) to access this parameter.

Parameters for V53.16.x, R53.16.x, or later Firmware

The following printers use firmware versions V53.16.x, R53.16.x, or later:

- ZM400, ZM600
- RZ400, RZ600
- 110Xi4, 140Xi4, 170Xi4, 220Xi4

Firmware Requirements Table 4 shows the wireless parameters that may be viewed or modified through the printer’s control panel.

Network Password Some of the parameters can be password-protected by a network password. By default, the network print servers run in an “unprotected” mode (password set to **0000**), which means that you do not need to enter a network password through the control panel to view or modify network settings. To set a network password (not the same as the general printer password), use the **^WP** ZPL command. For more specific details about ZPL commands, see *ZPL II® Programming Guide For x.14 Firmware and Above*.

Table 4 • Wireless Parameters for V53.16.x and R53.16.x Firmware (Xi4, ZM400, ZM600, RZ400, and RZ600 Printers)

Parameter	Function
PRIMARY NETWORK	<p>Select the Primary Network Device</p> <p>This parameter tells if the printer uses IP settings from the wireless or a wired print server at bootup.</p> <p><i>Selections:</i> WIRED, WIRELESS</p> <p><i>Default Value:</i> WIRED</p>
LOAD FROM EXT? ²	<p>View if IP Settings Are Loaded from the Printer or Print Server</p> <p>This parameter tells if the printer should use IP settings from the external print server at bootup.</p> <p><i>Selections:</i> YES, NO</p> <p><i>Default Value:</i> NO</p>
ACTIVE PRINTSRVR ¹	<p>View the Active Print Server</p> <p>This menu item displays which print server is being used. This tells which device’s settings such as IP protocol and IP address are being displayed under those menu items.</p> <p><i>Selections:</i></p> <ul style="list-style-type: none"> • WIRELESS indicates that the wireless device is active. • INTERNAL WIRED indicates that the internal 10/100 option board is active. • EXTERNAL WIRED indicates that the external print server is active. • NONE indicates that at least one of the network options is installed but none of them are active. When NONE is shown for this menu item, the device-specific items such as IP protocol and IP address will not display. <p><i>Default Value:</i> NONE</p>

**Table 4 • Wireless Parameters for V53.16.x and R53.16.x Firmware
(Xi4, ZM400, ZM600, RZ400, and RZ600 Printers) (Continued)**

Parameter	Function
RESET NETWORK ^{1,3}	<p>Reset the Wired or Wireless Network</p> <p>Use this parameter to reinitialize the wireless radio card and the print server (wired or wireless) when the wireless print server is running. This parameter also causes any wireless radio card in the printer to reassociate to the wireless network. (Same function as ZPL command ~WR. For more specific details about ZPL commands, see <i>ZPL II® Programming Guide For x.14 Firmware and Above.</i>)</p>

1 Appears after the printer recognizes the existence of a print server (wired or wireless).

2 Appears only when a wireless print server is installed.

3 If a wireless password is set, you must enter the wireless password (not the printer password) to access this parameter.

Parameters for V53.16.x Firmware

The S4M printer uses V53.16.x firmware.

Table 5 shows the network parameters that may be viewed or modified through the S4M control panel. To view wireless and network parameters that are not available as selections through the control panel, print a network configuration label.



Note • Refer to the *S4M User Guide* for specific instructions on how to use the control panel.

**Table 5 • Wireless Parameters for V53.16.x Firmware
(S4M Printer)**

Parameter	Explanation
Password Level 3 Parameters	
ACTIVE PRINTSR¹	<p>View the Active Print Server</p> <p>This menu item displays which print server is being used. This tells which device's settings such as IP protocol and IP address are being displayed under those menu items.</p> <p><i>Selections:</i></p> <ul style="list-style-type: none"> • WIRELESS indicates that the wireless device is active. • EXTERNAL WIRED indicates that the external print server is active. • NONE indicates that at least one of the network options is installed but none of them are active. When NONE is shown for this menu item, the device-specific items such as IP protocol and IP address will not display. <p><i>Default Value:</i> NONE</p>
RESET NETWORK¹	<p>Reset the Wired or Wireless Network</p> <p>Use this parameter to reinitialize the wireless radio card and the print server (wired or wireless) when the wireless print server is running. This parameter also causes any wireless radio card in the printer to reassociate to the wireless network. (Same function as ZPL command ~WR. For more specific details about SGD commands, see <i>ZPL II[®] Programming Guide For x.14 Firmware and Above.</i>)</p>

¹ Appears after the printer recognizes the existence of a print server (wired or wireless).

Network Configuration Label

The network configuration label contains the IP Address, primary print server, and other useful information.

Figure 6 • Network Configuration Label

Network Configuration	
Zebra Technologies ZTC ZM400-300dpi ZPL ZBR2834748	
2.7.1761	OPTION FIRMWARE
Wired.....	PRIMARY NETWORK
NO.....	LOAD FROM EXT?
External Wired.....	ACTIVE PRINTSRVR
IPv6 Print Server*	
ON.....	DHCP
ON.....	BOOTP
ON.....	ARP
172.030.001.051.....	IPv4 ADDRESS
255.255.255.000.....	IPv4 SUBNET MASK
172.030.001.001.....	IPv4 GATEWAY
3eb:c7c:333:101:2c0:ebff:fe0a:f2a4	IPv6 ADDRESS
64.....	IPv6 PREFIX LENGTH
::.....	IPv6 GATEWAY
172.030.001.003.....	WINS SERVER
9100.....	BASE RAW PORT1
Internal Wired	
ALL.....	IP PROTOCOL
000.000.000.000.....	IP ADDRESS
255.255.255.000.....	SUBNET MASK
000.000.000.000.....	DEFAULT GATEWAY
172.030.001.003.....	WINS SERVER IP
YES.....	TIMEOUT CHECKING
300.....	TIMEOUT VALUE
000.....	ARP INTERVAL
9100.....	BASE RAW PORT
00074d2b413c.....	MAC ADDRESS
Wireless	
DHCP.....	IP PROTOCOL
000.000.000.000.....	IP ADDRESS
255.255.255.000.....	SUBNET MASK
000.000.000.000.....	DEFAULT GATEWAY
172.030.001.003.....	WINS SERVER IP
YES.....	TIMEOUT CHECKING
300.....	TIMEOUT VALUE
000.....	ARP INTERVAL
9100.....	BASE RAW PORT
NO.....	CARD INSERTED
0000H.....	CARD MFG ID
0000H.....	CARD PRODUCT ID
000000000000.....	MAC ADDRESS
YES.....	DRIVER INSTALLED
INFRASTRUCTURE.....	OPERATING MODE
CTC-W-E-F-1.....	ESSID
100.....	TX POWER
ON.....	1 Mb/s
ON.....	2 Mb/s
ON.....	5.5 Mb/s
ON.....	11 Mb/s
11 Mb/s.....	CURRENT TX RATE
DIVERSITY.....	RECEIVE ANTENNA
DIVERSITY.....	XMIT ANTENNA
OPEN.....	WEP TYPE
WPA EAP-FAST.....	WLAN SECURITY
2.....	WEP INDEX
020.....	POOR SIGNAL
LONG.....	PREAMBLE
NO.....	ASSOCIATED
ON.....	PULSE ENABLED
15.....	PULSE RATE
OFF.....	INTL MODE
07FH.....	CHANNEL MASK
FIRMWARE IN THIS PRINTER IS COPYRIGHTED	

1	Active print server indicated by an asterisk
2	IPv4 Address
3	IPv6 Address

Active Device Selection

Your active device print server selection is dependent on the model of printer or print engine that you have.

If your printer is a(n)...	Then...
<ul style="list-style-type: none"> • S4M 	<p>Only one print server (wired or wireless) can be installed at a time. Thus, the print server installed is the primary print server.</p>
<ul style="list-style-type: none"> • 105SL • XiIIIPlus • R110Xi • R170Xi • Z4Mplus • Z6Mplus • PAX4 • R110PAX4 	<p>You may select which installed device is the primary network device. The printer will try to use the primary network device as the active print server before trying the other installed options.</p> <p>These printers and print engines use X60.16.x firmware. The default for the printer is to <u>skip</u> the check for a wired print server during bootup. This makes the wireless print server the primary network device. To change this default and allow the wired print server to be the primary network device when it is connected, use one of the following methods to tell the printer to check for a wired print server at bootup time:</p> <ul style="list-style-type: none"> • the WIRED PS CHECK parameter on the control panel • the ^NB ZPL command (see the <i>ZPL II® Programming Guide</i>) <p>Table 6 identifies which device becomes the active print server under various conditions.</p>
<ul style="list-style-type: none"> • Xi4 • ZM400 • ZM60 • RZ400 • RZ600 	<p>These printers support the simultaneous installation of an internal, external, and a wireless print server. Even though all three print servers may be installed, only one is connected to the network and is the active print server.</p> <p>Table 7 outlines priorities and identifies which device becomes the active print server when multiple print servers are installed.</p> <p>You may select whether the wired or wireless print server will be the primary connection by using one of the following methods:</p> <ul style="list-style-type: none"> • the PRIMARY NETWORK parameter on the control panel • the ^NC ZPL command (see the <i>ZPL II® Programming Guide</i>)

Table 6 • Results of Check for Wired Print Server for 105SL, XiIIIPlus, Z4Mplus, Z6Mplus, and PAX4 Series Printers

If the Check for Wired Print Server is set to:	Installed and Connected to a Live Ethernet Network		Then the Active Print Server will be:
	Wired	Wireless*	
Skip	X	X	Wireless
	X		Wired
		X	Wireless
Check	X	X	Wired
	X		Wired
		X	Wireless

* NOTE: A wireless option board must have an active radio that can properly associate to an access point.

Table 7 • Active Print Server Matrix for Xi4, ZM400, ZM600, RZ400, and RZ600 Printers

If the Primary Network is set to:	Installed and Connected to a Live Ethernet Network			Then the Active Print Server will be:
	Internal	External	Wireless*	
Wired	X	X	X	Internal
		X	X	External
			X	Wireless
Wireless	X	X	X	Wireless
	X	X		Internal
		X		External

* NOTE: A wireless option board must have an active radio that can properly associate to an access point.

Configuring ZebraNet Alerts

ZebraNet Alert gives you the ability to manage your Zebra printers by immediately notifying System Administrators of printer error or warning conditions, which reduces printer downtime and increases application efficiency.

Table 8 shows the conditions that can trigger alerts and the possible destinations

Table 8 • ZebraNet Alert and Destinations

Alert Type	Error Condition
ZebraLink Alerts	<ul style="list-style-type: none"> • Paper out • Ribbon out • Head too hot • Head too cold • Head open • Supply too hot • Ribbon in • Rewind • Cutter jammed • Printer paused • PQ job completed • Label ready • Head element bad • BASIC runtime • BASIC forced • Power on • Clean printhead • Media low • Ribbon low • Replace head • Battery low • RFID error
ZebraNet Alert Destinations	<p>Unsolicited Alert messages can be directed to the following destinations:</p> <ul style="list-style-type: none"> • TCP/IP

Setting Alerts Using ZPL Command ^SX

It is important to understand the relationship between the SEH IPv6 PS and the printer when you are establishing alerts. When the printer transmits an alert on the parallel port, the SEH IPv6 PS will intercept the data and transmit it via the TCP/IP port.

In order to receive unsolicited alerts via TCP/IP, you must configure the alert to be transmitted on the parallel port by setting the second parameter of the ^SX command to 'B'. For more details on the ^SX command, see the *ZPL II® Programming Guide For x.14 Firmware and Above*.

Set-Get-Do (SGD) Commands (getvar only)

SGD commands can be used to query the printer for print server configuration information. For more specific details about SGD commands, see *ZPL II® Programming Guide For x.14 Firmware and Above*.



Notes • _____



Software Tools

This chapter provides you with details on the SEH and ZebraNet Utilities.

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Software Tools

SEH Tools

SEH tools may be used to configure and manage print servers. See the InterCon-NetTool software application on the SEH IPv6 PS CD.

Zebra Tools

Printers using the SEH IPv6 PS may be discovered using any of the ZebraNet tools. Some functionality may be limited.

Tool	Description
<i>ZebraNet Bridge on page 45</i>	Printers using the SEH IPv6 PS can be managed using ZebraNet Bridge.
<i>ZebraNet View on page 46</i>	ZebraNet View is a Windows application which allows you to locate and view printers automatically.
<i>ZebraNet View Java Applet on page 48</i>	ZebraNet View Java Applet allows you to locate and view printers automatically on a variety of operating systems.

ZebraNet Bridge

Printers using the SEH PS can be managed using ZebraNet Bridge. PS settings will be viewable only, while printer settings may be modified and viewed. For more information, see the *ZebraNet™ Bridge Enterprise Printer Management User Guide*.

ZebraNet Bridge Enterprise remotely configures and monitors ZebraLink-enabled printers and ZebraNet print servers in real time. Core functions include:

- Automatic printer discovery across the enterprise network
- Dynamic group management
- Heartbeat monitoring and status indicators
- Viewable and changeable printer settings
- Viewable print server settings
- Easy firmware, font, and file downloading
- Configuration Broadcast
- Critical alert management
- Printer profiles

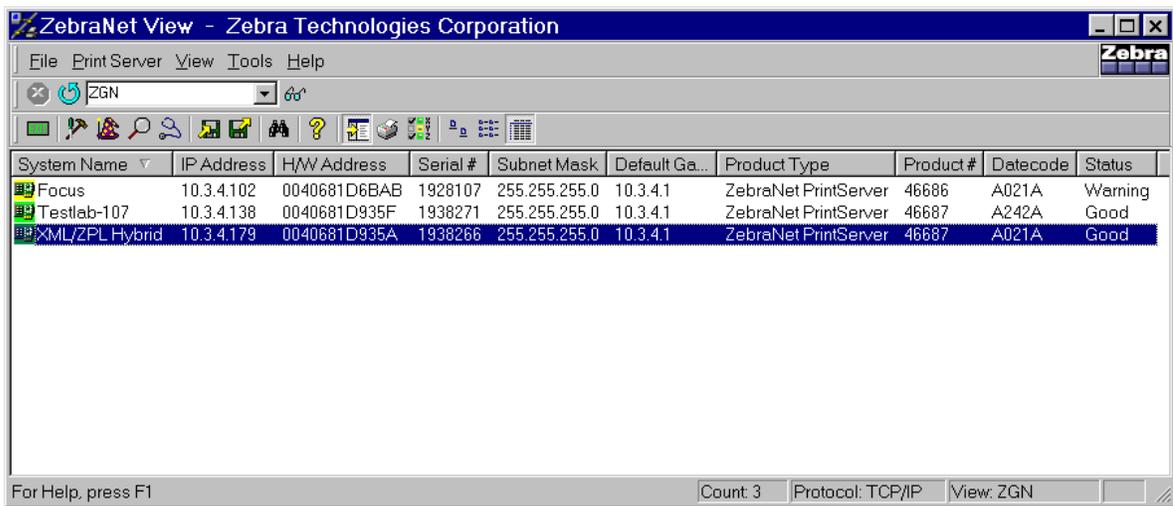
ZebraNet View

ZebraNet View allows you to locate printers automatically. It can search on parameters such as IP address, subnet, printer model, printer status, and many other user-defined characteristics. ZebraNet View also allows you to view the print server status.

To open ZebraNet View Utilities, complete these steps:

1. From the task bar, select Start > Programs > ZebraNet Utilities > ZebraNet View.
The ZebraNet View dialog opens.

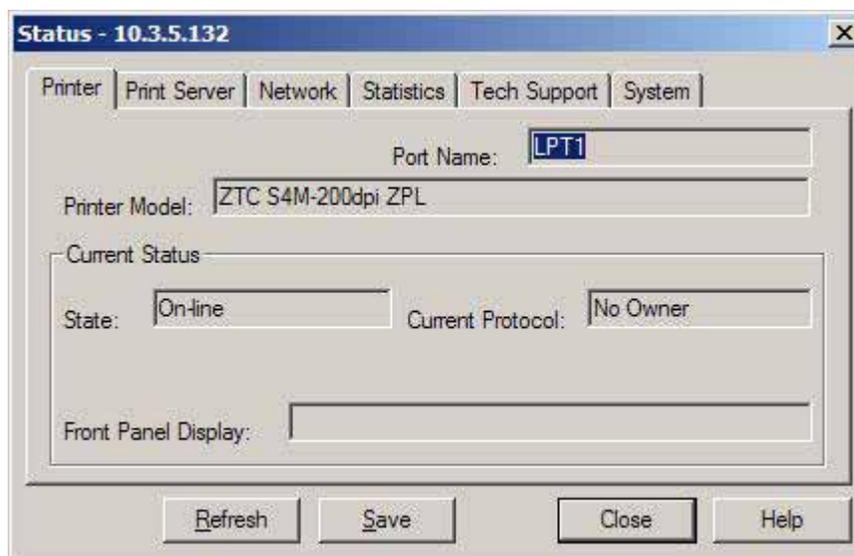
Figure 7 • ZebraNet View



2. Select your printer.

To view the print server status, complete these steps:

1. Open ZebraNet View Utilities.
2. Select your printer.
3. Right-click and select Status.
The ZebraNet View Status dialog opens.

Figure 8 • ZebraNet View Status

The tabs across the top of the dialog will provide you with a variety of status information.

ZebraNet View Java Applet

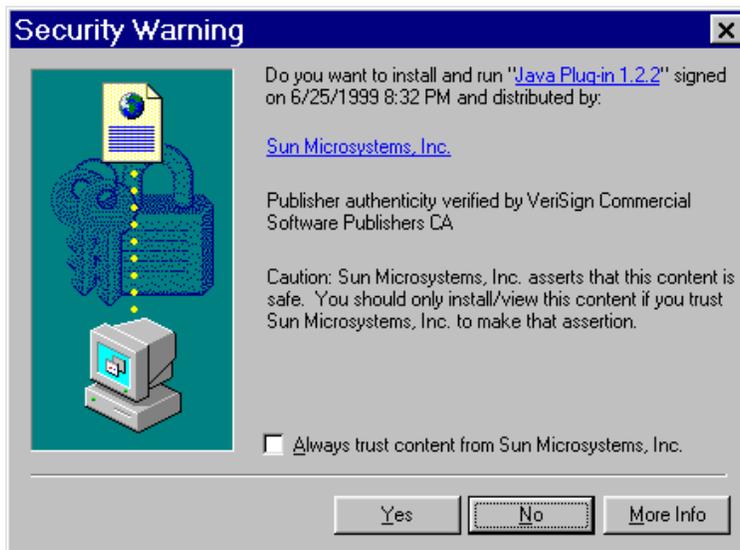
Executing the ZebraNet View Java Applet

The first time you execute the ZebraNet View Java Applet, you must complete several additional steps to work with this utility.

To begin working with ZebraNet View Java Applet, complete these steps:

1. From the task bar, select Programs > ZebraNet Utilities > ZebraNet View Java Applet 1.0.
This Security Warning dialog opens:

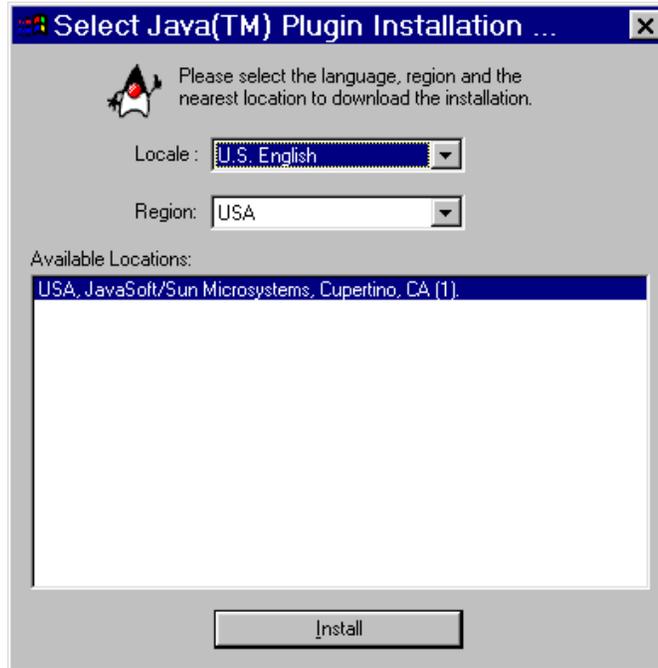
Figure 9 • ZebraNet Security Warning



2. To begin the installation, click Yes.

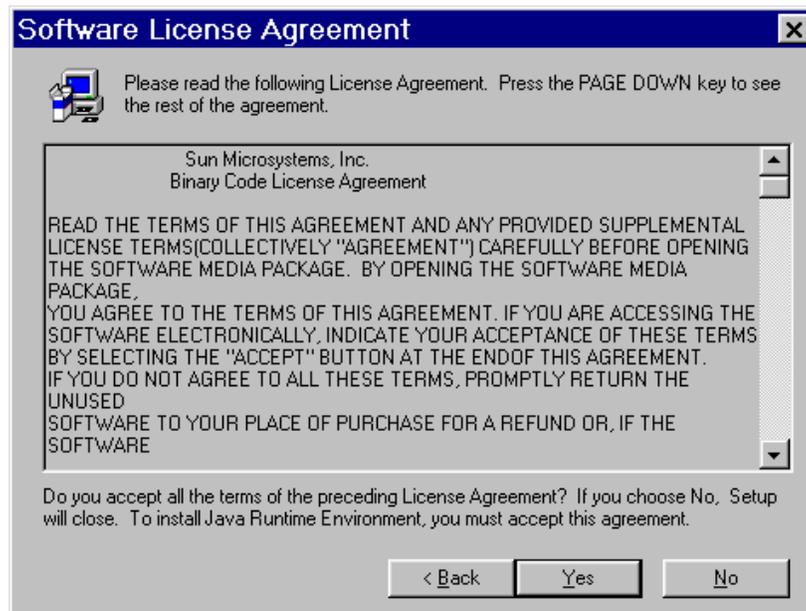
The Select Java Plugin Installation dialog opens:

Figure 10 • Select Java Plugin Installation



3. Make the selections that apply to your environment, and click Install.
 The Software License Agreement opens.

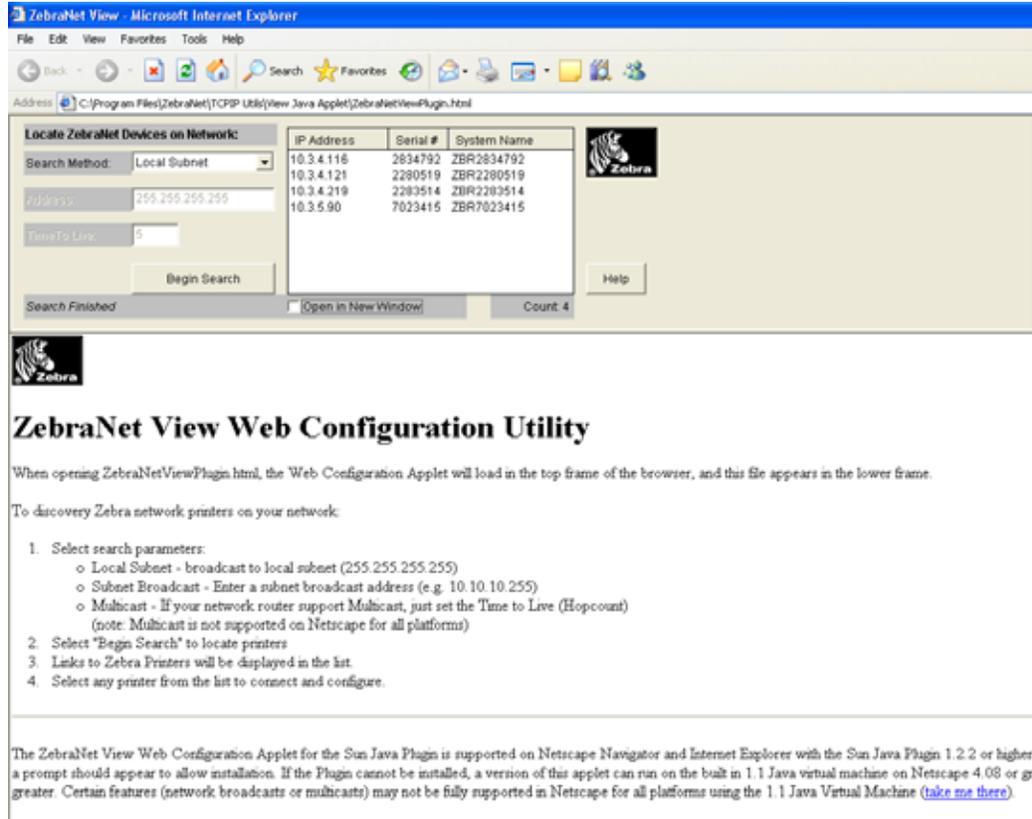
Figure 11 • Software License Agreement



4. Read the License Agreement.
5. To continue with the installation, click Yes.

- When the installation is complete, click OK.
The ZebraNet View Java Applet 1.0 page opens.

Figure 12 • ZebraNet View Java Applet 1.0



- In the Search Method drop-down box, select the search method you want.
- Click Begin Search.
It searches your network for all networked Zebra printers, discovers them, and lists them.
- When you select a device from the discovery list, the selected device's Home Page appears in the lower portion of the view (it replaces the ZebraNet View Web Configuration Utility content).



Hardware Troubleshooting

This section provides you with solutions to known issues.

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Troubleshooting the SEH IPv6 PS

Resetting to Factory Default

For more information about resetting the SEH IPv6 PS to factory defaults, refer to *Reset the SEH IPv6 PS to Factory Defaults* on page 27.

The Link LED Is Not Lit

If the LED is not lit, the SEH IPv6 PS has not detected the presence of a network cable. To solve the problem:

1. Turn the printer off (O).
2. Remove the network cable from the SEH IPv6 PS.
3. Plug the network cable back in until you hear a click.
4. Check the other end of the cable in the same manner.
5. Turn the printer on (I). If the SEH IPv6 PS still does not detect a cable, continue.



Important • Cables with a rating higher than CAT-6 have **not** been tested.

6. Verify that the network cable is appropriate for the network and has an RJ-45 connector.
7. Connect the SEH IPv6 PS to a network drop that is a known good network connection. If the SEH IPv6 PS is still unable to detect the network cable, contact Technical Support for assistance.

Communication Problems

Because the print server is connected via the parallel port, certain error conditions within the printer (such as **MEDIA OUT**) may prevent communication through the print server. Clear the error to resume operation.

Not Receiving ZebraNet Alerts

Make sure that you have configured the alerts to be sent out the parallel port. For more information on configuring alerts, see *Setting Alerts Using ZPL Command ^SX* on page 41.

ZebraNet View Utility Discovery or Configuration Problems

If you are having problems using the ZebraNet View utility to discover the unit, check the following:

- Verify there is not a router between the workstation running ZebraNet View and the SEH IPv6 PS. Because the SEH IPv6 PS does not have an IP address, TCP/IP communication cannot be started across a router. Run ZebraNet View on the same subnet as the SEH IPv6 PS.
- Verify that the Status LED is solid green, the Link LED is solid green and the Activity LED is blinking yellow.

Unable to Print

If you are having problems printing, verify that there is communication between the SEH IPv6 PS and the printer. Check the following:

- Print a configuration label by pressing the test button on the SEH IPv6 PS. If a configuration label does not print, verify the printer has media and ribbon (if used) and is not paused.
- Ping the printer to determine the ability to communicate with the printer. See *Ping the Printer*.
- Check obvious error conditions such as head open, out of media, out of ribbon, etc.
- If problems persist, contact Technical Support.

Ping the Printer

To ping the printer, complete these steps:

1. Open a DOS window.
To open a DOS window, click on Start > Run.
2. In the Open text box, type: cmd
3. From the DOS prompt, type:
ping xxx.xxx.xxx.xxx
where xxx.xxx.xxx.xxx is the IP address of the print server.
4. See [Figure 13](#). You see a reply from the print server indicating a connection.

Figure 13 • Example of a Successful Ping

```
C:\>ping 172.30.1.34

Pinging 172.30.1.34 with 32 bytes of data:

Reply from 172.30.1.34: bytes=32 time=8ms TTL=126
Reply from 172.30.1.34: bytes=32 time=25ms TTL=127
Reply from 172.30.1.34: bytes=32 time=6ms TTL=127
Reply from 172.30.1.34: bytes=32 time=23ms TTL=127

Ping statistics for 172.30.1.34:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 6ms, Maximum = 25ms, Average = 15ms
```

If the issue is a communication problem, you would have received an error message.



Frequently Asked Questions

This section provides a group of frequently asked questions (FAQs) about the SEH IPv6 PS.

FAQs

Can the internal SEH IPv6 PS option work on a computer network that is running both TCP/IP and IPX protocols simultaneously? Yes. The SEH IPv6 PS runs all of its available protocols simultaneously. This means that the SEH IPv6 PS can run on mixed networks such as a network using Microsoft, and UNIX.

Will the SEH IPv6 PS allow connectivity to anything other than a PC network?

Yes. The SEH IPv6 PS allows connectivity to systems such as Novell, Linux, UNIX, Apple, IBM's AS400, and BS2000 networks provided that it is configured using TCP/IP.

What if a print job makes it to the queue, but never leaves the queue? The label does not print. These are the things to check:

- Confirm that the printer is turned on and receiving power.
- Confirm that the network cable is plugged in and that you can ping the printer.
- If the above bullets do not change the outcome, it is likely that there was a misconfiguration while creating the queue. The queue must be recreated verifying the following:
 - Confirm that you use the print server's valid IP address.
 - If you are using a UNIX or AS/400 host, there is an option for the remote queue name. There is only one valid response to use: LP1.
 - If Windows does not have LPR installed, the above required option should be left blank.
 - See the documentation for other operating system specific queue creation.

What are the minimum requirements to network a printer?

- Cat-5 network cable with 10BaseT connectors
- SEH IPv6 PS
- Hub or Switch
- If a hub or switch is NOT used, you need a cross-over cable.
- Workstation running a TCP stack with print services installed.

What ports are open on SEH IPv6 PS and related software?

TCP Ports:

- 21 FTP
- 80 HTTP Server
- 515 LPD
- 631 IPP port
- 9100 Raw socket connection

UDP Ports:

- 161 SNMP broadcast from SEH IPv6 PS
- 4201 discovery destination on SEH IPv6 PS
- (dynamic) discovery broadcast from ZebraNet view
- (dynamic) discovery broadcast from ZebraNet view Java

What are my network connectivity options based on when using an SEH IPv6 PS?

It depends on your environment, but the print server accepts print jobs in any of the following ways:

- *FTP* — ZPL files can be sent to the printer via an FTP client as standard ASCII files.
- *HTTP* — Using the file printing page, you can send files to the printer to be printed.
- *IPP* — Using third-party IPP clients, print jobs can be sent via the Internet.
- *LPR/LPD* — Sometimes referred to as queue-based printing. LPR/LPD is the standard in network printing. Most TCP/IP operating systems are compatible with this option.
- *Raw socket connection* — You can connect to the printer directly via the network, bypassing *everything in-between*. This option is commonly used to integrate ZPL into existing programs, such as VB scripts.
- *POP3* — With proper configuration, you can place ZPL files into the body of an email, and it will print. The print server periodically checks this email box at the specified intervals and prints the body of the message.

Glossary



10BaseT A type of Ethernet that uses unshielded twisted pair cable.

100BaseT A type of Ethernet that can transmit 100Mb of data per second with a twisted-pair cable.

ARP The standard TCP/IP method for determining the actual network address of a device based on its IP address.

ASCII A standard for the binary representation of characters.

BOOTP BOOTP (Bootstrap Protocol) is a protocol that lets a network client configure automatically. It can automatically configure any of the following information: IP address, gateway, subnet, system name, name server, and more. It automatically assigns the necessary settings from a pool of pre-determined addresses for a certain duration of time. BOOTP is the basis for a more advanced network manager protocol, the DHCP (Dynamic Host Configuration Protocol).

broadcast In a network, a situation when all destinations on the network receive a given packet.

client A workstation or PC in a client/server environment.

community For SNMP, a relationship between an agent and a set of SNMP managers that defines security characteristics. The community concept is a local one, defined at the agent. Each community is given a unique community name.

current mode (parallel port) A mode that the printer and print server negotiate.

DHCP (Dynamic Host Configuration Protocol) DHCP is an alternative to another network IP management protocol, Bootstrap Protocol (BOOTP). Like BOOTP, DHCP can configure an IP address, gateway, subnet, system name, and name server. When speaking about the SEH IPv6 PS, BOOTP, and DHCP configure the same options.

delete bytes This number is used to remove characters from the beginning of every job sent to the logical printer. The value for delete bytes can range from 0 to 255.

dynamic A dynamic configuration, as the name implies, means that it changes. BOOTP and DHCP offer time-based leases for the configurations they assign. Their changes depend on the time-based lease, and how often the printer itself is offline and online again. A dynamic configuration can include BOOTP or DHCP.

Ethernet A widely used local area network system based on the IEEE 802.3 standard.

firmware Software routines that are stored in ROM (Read Only Memory). This is typically part of a device, such as a printer or an SEH IPv6 PS.

FTP File Transfer Protocol, a TCP/IP-related protocol for transferring files between devices on a network.

Flash memory A type of memory that allows read-and-write operations, but permanently stores data when the power is turned off. Useful for storing firmware because it can be easily updated by downloading new code.

gateway A device that converts one higher-level network protocol to a different higher level protocol.

gleaning A temporary, local configuration option. Gleaning lets you add the address of the device you want to configure to your local workstation's ARP table. This configuration is not permanent and is valid only from the workstation from which you entered the ARP information. After the information is entered into the workstation's ARP table, the user follows up with a Telnet session to enter the information permanently. This configuration option is used mostly by non-Windows workstations that cannot run the ZebraNet View configuration utility.

IP Internet Protocol, one of the main protocols of the TCP/IP protocol suite.

IP address A network address used by the TCP/IP protocol.

IPP Internet Printing Protocol. Allows you to associate a printer with a URL address that is used for printing over the Internet.

IPX Internetwork Packet Exchange, one of the NetWare protocols.

JetAdmin A Hewlett-Packard printer management program available for NetWare and TCP/IP.

logical Refers to conceptual rather than physical. For example, a computer might have a single physical connection to the network (an Ethernet adapter card), but could have logical connections to several other devices on the network.

MAC Address Media Access Control. Ethernet address that corresponds to the assigned IP address.

name server A workstation on a TCP/IP network that provides a list of all workstations on the network.

node A device connected to a network, such as a computer or print server.

parallel port A port on a device that sends information in groups of bits over multiple wires, one wire for each bit in a group.

ping A TCP/IP command that determines whether a device is accessible on the network.

POP3 Post Office Protocol, the protocol used to retrieve email from the server.

port A physical connector, such as the parallel port, or a logical connection to a device.

post-string A string that is sent at the end of every job going to the logical printer. Maximum 64 characters long.

pre-string A string that is sent at the beginning of each job that goes to the logical printer. Max 64 characters long.

print server A device in a network that changes a network protocol into a printer protocol.

protocol A method of sending and receiving data between two or more workstations on a network, and ensuring that the data is received without errors.

RARP Reverse Arp, a standard TCP/IP method of determining a device's IP address based on its Ethernet address.

raw TCP port A type of TCP port in which data is passed unmodified to the receiving node.

RJ45 A type of modular jack connector similar to a telephone connector with up to eight wires. Used for 10BaseT and 100BaseT Ethernet connections and for serial port connections.

SEH IPv6 print server An Ethernet connectivity solution.

serial port On a printer or print server, a port that transfers data one bit at a time. Serial ports usually have either a 25-pin, 9-pin "D," or RJ-45 connector setting mode (parallel port).

A mode that the print server is set to for the highest level of parallel port communications.

server A device on a local area network that provides services to client computers on the network.

SMTP Simple Mail Transfer Protocol, a protocol used to send email messages over the Internet.

SNMP Simple Network Management Protocol, a protocol for monitoring and controlling devices on a network.

spooling In printing applications, spooling is the transfer of data to a temporary storage area on disk (the print queue) prior to printing. Spooling allows many jobs to be queued to a single printer.

static Refers to a static IP address. All information is provided by the network administrator.

subnet mask A TCP/IP method of dividing a network into several smaller subnetworks.

TCP/IP Transmission Control Protocol/Internet Protocol, the de facto standard for Internet communications that is widely used on local area networks.

TCP Port A method of accessing a TCP/IP service, where a device with a single IP address can have multiple TCP ports.

Telnet A TCP/IP protocol that allows two devices to communicate over a LAN.

trap An unsolicited message sent by an SNMP agent to an SNMP management station. It notifies the management station of some unusual event.

UNIX A general-purpose computer operating system used on many different kinds of computers.

WCSO Wireless Card Socket Option. Zebra's wireless Ethernet option.

Windows 95 and Windows 98 Microsoft's PC operating systems that feature built-in peer-to-peer networking.

Windows NT Microsoft's multitasking operating system that can be used either as a client or as a server.

Windows 2000 Microsoft's multitasking operating system that replaces Windows NT; can be used as either as a client or as a server.

ZebraNet PrintServer II An Ethernet connectivity solution.

ZebraNet 10/100 Print Server An Ethernet connectivity solution.

ZebraLink Allows you to connect and control your bar code printers anywhere and anytime.

ZPL II Zebra Programming Language II is a powerful label-definition and printer-control language.

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