# ZebraNet® 10/100 Internal Print Server

for
ZM400™, ZM600™, G-Series™, *ZP* Series™,
HC100™, Xi4™,  LP 2824 Plus™, and TLP 2824 Plus™

# User Guide

**Part Number: 14197L-005**

# Contents

**Notes** • _____

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# About This Document

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

## Contents

# Who Should Use This Document

This user guide is intended to be used by any person who will install and work with the 10/100 Internal PS for the ZM400, ZM600, GK420™, GX420/430™, *ZP* Series, HC100, Xi4, and 2824 Plus printers.

# How This Document Is Organized

This user guide is set up as follows:

| Section | Description |
|---------|-------------|
| *Introduction* | This chapter provides a high-level overview of the 10/100 Internal PS device, installation types, standard network configurations, and how to work with 10/100 Internal PS. |
| *Getting Started* | This chapter provides you with information and procedures for working with the most frequently used 10/100 Internal PS features. |
| *Installation* | This chapter provides information on the 10/100 Internal PS, and how to install ZebraNet Utilities and the ZebraNet View Java Applet. |
| *ZebraLink WebView - Printer* | This chapter provides you with detailed information about how to set, modify, and view the Printer Settings using WebView. |
| *ZebraLink WebView - Print Server* | This chapter provides you with detailed information about how to set, modify, and view the Print Server Settings using WebView. |
| *ZebraNet Utilities* | The appendix provides you with details on ZebraNet Utilities, the software suite of printer administration tools that complements and enhances both ZebraLink and the ZebraNet family of connectivity products. |
| *Hardware Troubleshooting* | This appendix provides you with solutions to known issues. |
| *Print Protocols* | In this appendix, an exercise is provided to experiment with File Transfer Protocol (FTP) support. |
| *Print Queues* | This appendix provides information and instructions on configuring your print queue. |
| *Frequently Asked Questions* | This appendix provides a group of frequently asked questions (FAQs) about 10/100 Internal PS. |
| *Glossary* | 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:**
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**Self Service Knowledge Base:** www.zebra.com/knowledgebase
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**Key:** T: Telephone
F: Facsimile
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# 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.
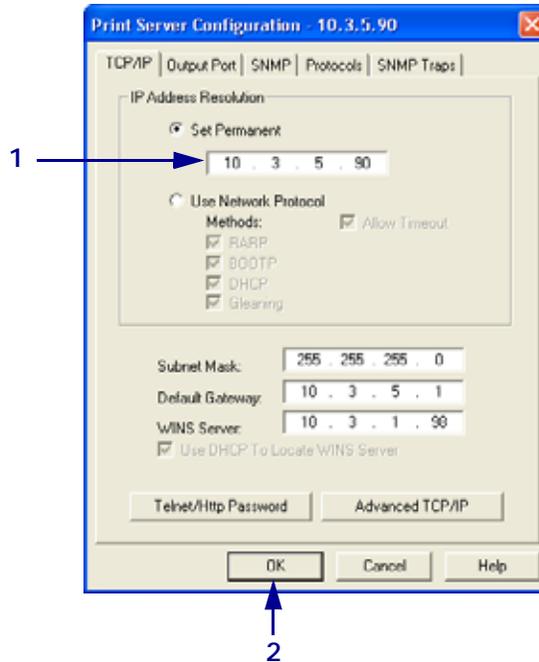
| 1 | Set Permanent text-box. |
|---|---|
| 2 | **a.** In the Set Permanent text-box, type in the print server's IP address. |
|   | **b.** When you are finished, click OK. |

# Related Documents

The following documents might be helpful references:

- ZebraNet Wireless User Guide

- Programming Guide for ZPL II$^{®}$, ZBI 2, Set-Get-Do, Mirror and WML (formerly the ZPL II$^{®}$ Programming Guide)

- EPL$^{™}$ Programming Guide

- Connectivity Solutions CD

**1**

# Introduction

This chapter provides a high-level overview of the 10/100 Internal PS device, installation types, standard network configurations, and how to work with 10/100 Internal PS.

## Contents

# Overview

The 10/100 Internal Print Server (PS) is an optional factory- or field-installed device that connects the network and your ZebraLink-enabled printer. 10/100 Internal PS provides you with a browser interface for printer and print server settings. If you use the ZebraNet Utilities, you can easily access the specialized features of a ZebraLink enabled printer. For details, see *ZebraNet Utilities* on page 93.

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

## Components

Figure 1 shows the components of a printer equipped with a 10/100 Internal PS. Table 1 identifies the various components and the functions each performs.

**Figure 1 • Components**
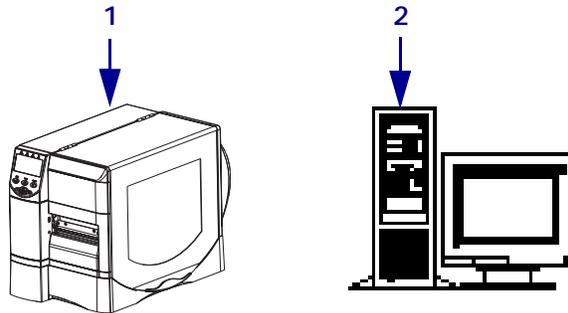
**Table 1 • Components and Functions**

| 1 | **Printer with 10/100 Internal PS**—10/100 Internal PS gives your printer these features: <ul><li>Print server and printer setup using a browser</li><li>Remote monitoring and configuration capability of the 10/100 Internal PS using a browser</li><li>Alerts</li><li>The ability for you to send unsolicited printer status messages via email-enabled devices</li></ul> |
|---|---|
| 2 | **ZebraNet Utilities**—ZebraNet Utilities is a suite of software programs that work with 10/100 Internal PS and enhance the features of ZebraLink resident within ZPL-based printers. The features include the following: <ul><li>ZebraNet View 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. It also offers powerful device management capabilities.</li><li>ZebraNet Alert lets you configure multiple event alerts per device with different alerts directed to different people. You are notified of alerts from either visual or audio cues. You can also generate advanced alert reports.</li><li>ZebraNet View Java Applet is a Java-based version of the popular ZebraNet View. It gives you ZebraNet View capabilities in a non-Windows environment.</li><li>ZebraNet Connect IP allows you to discover a print server on a network and define a port for printing.</li></ul> |

# Requirements

This section lists the minimum requirements for 10/100 Internal PS, which include firmware, software, browser support, protocols, and hardware.

## Firmware

Table 2 shows the appropriate firmware version for each printer.

**Table 2 • Firmware Version by Printer**

| Printer | Firmware Version |
|---------|------------------|
| ZM400 | V53.15.x or later |
| ZM600 | V53.15.x or later |
| GK420 | V61.15.x or later |
| GX420/430 | V56.15.x or later |
| *ZP* Series | V61.15.x or later |
| HC100 | V54.16.x or later |
| Xi4 | V53.17.x or later |
| 2824 Plus | V61.17.x or later |

**Important •** You can upgrade your firmware by visiting our web site:
www.zebra.com/firmware

## Software

These are the platforms supported by ZebraNet Utilities:

Microsoft® Windows® 95/98/Me/NT/2000/XP:
* Client mode for peer-to-peer printing via TCP/IP
* Print Protocols & Methods (all simultaneously active):
    * TCP/IP
    * LPR/LPD
    * Telnet
    * FTP
    * Raw printer port (port 9100)

The ZebraNet View Java Applet is supported by most Java-enabled browsers:

UNIX® Linux, and other systems supporting TCP/IP:
- Print Protocols & Methods (all simultaneously active):
    - TCP/IP
    - LPR/LPD
    - Telnet
    - FTP
    - Raw printer port (port 9100)

## Browser Support

- HTML v3.2 or higher
- Internet Explorer or Netscape Navigator

## Protocols

- TCP/IP: ARP, RARP

- TCP/IP & UDP: DHCP, BOOTP, SNMP v1.0

- HTTP v1.0

## Hardware

The following are the 10/100 Internal Print Server options available for different printer models:

| Printers | Internal Field Upgrade | Internal Factory |
|----------|:---:|:---:|
| ZM400 | • | • |
| ZM600 | • | • |
| GK420 |  | • |
| GX420/430 |  | • |
| *ZP* Series |  | • |
| HC100 |  | • |
| Xi4 | • | • |
| 2824 Plus |  | • |

# Compatibility

This section identifies the various components that are compatible with 10/100 Internal PS.

**ZebraNet Wireless Print Server**  10/100 Internal PS is fully compatible with the Wireless Print Server.

**ZebraNet Wireless Plus Print Server**  10/100 Internal PS is also fully compatible with the Wireless Plus Print Server.

**Software**  IBM®: Tivoli® v7.1.3, HP®: Web JetAdmin™ v7.0, OpenView™ V6.4, and any SNMP management application via Zebra Management Information Base (MIB) all work with 10/100 Internal PS.

# Technical Specifications for the 10/100 Internal PS

**General Specifications**

| | | | |
|---|---|---|---|
| Network Connection | | Ethernet 10BaseT and 100BaseT UTP RJ-45 connection Half and Full Duplex Communications | |
| User Interface | | A single (two element) LED activity indicator:<br>• bi-color display of operational status (solid green or solid amber)<br>• bi-color display of speed and network activity (flashing green or flashing amber) | |
| Height (external dimensions) | | 0.5 in. | 13.4 mm |
| Width (external dimensions) | | 2.2 in. | 55.9 mm |
| Length (external dimensions) | | 3.7 in. | 92.9 mm |
| Weight | | 0.9 oz | 26 g |
| Temperature | Operating | 32° to 140°F | 0° to 60°C |
| | Storage | –40° to 140°F | –40° to 60°C |
| Relative Humidity | Operating | 20% to 80%, non-condensing | |
| | Storage | 5% to 85%, non-condensing | |

**Notes •** _____

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# Getting Started

This chapter provides you with information and procedures for working with the most frequently used 10/100 Internal PS features.

## Contents

# Before You Begin

10/100 Internal 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 10/100 Internal PS configuration label.

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

Table 3 shows the minimum label widths needed to print a 10/100 Internal PS configuration label with different DPI printheads.

**Table 3 • Label Width**

| DPI | Inches | MM |
|-----|--------|-------|
| 600 | 1.25 | 31.75 |
| 300 | 2.50 | 63.50 |
| 200 | 3.69 | 93.73 |

## Print a Configuration Label

**1.** Which printer do you have?

| If you have a… | Then… |
|---|---|
| ZM400 and ZM600 | **a.** Turn on (**I**) the printer and let it complete its power-up cycle.<br>**b.** When the POST cycle is complete, press Setup/Exit to enter the Setup Mode.<br>**c.** Scroll through the parameters by pressing Plus (+) until you reach `List Network`.<br>**d.** Press Select.<br>**e.** Press Plus (+) to print a network configuration label (Figure 2).<br>**f.** Press Setup/Exit twice to exit the Setup Mode.<br>**g.** Continue to step 2. |
| G-Series, *ZP* Series, and 2824 Plus | **a.** Turn on (**I**) the printer and let it complete its power-up cycle.<br>**b.** Press and hold Feed until you see one flash of the LED.<br>**c.** After the LED flashes, release the button. A network and printer configuration label (See Figure 3) prints.<br>**d.** Continue to step 2. |
| HC100 | **Note •** The HC100 does not have a network configuration label. However, the IP Address, MAC Address, and other useful information appear on the printer configuration wristband.<br>**a.** Turn on (**I**) the printer and let it complete its power-up cycle.<br>**b.** Press and hold Pause/Feed until the green lights turn off on the printer status indicator and the orange lights blink once.<br>**c.** Release Pause/Feed to print a printer configuration wristband (Figure 4).<br>**d.** Continue to step 2. |
| Xi4 | **a.** Turn on (**I**) the printer and let it complete its power-up cycle.<br>**b.** When the POST cycle is complete, press Setup/Exit to enter the Setup Mode.<br>**c.** Scroll through the parameters by pressing Next/Save (◀▶) until you reach `List Network`.<br>**d.** Press Plus (+) to print a network configuration label (Figure 5).<br>**e.** Press Setup/Exit to exit the Setup Mode.<br>**f.** Press Next/Save to permanently save your changes. |

2. From the configuration label, you need to look for these numbers:

- IP PROTOCOL *
- IP ADDRESS
- SUBNET MASK *
- DEFAULT GATEWAY *
- MAC ADDRESS

**\* Not available on HC100**

3. On the configuration label that prints out for your 10/100 Internal PS device, circle the aforementioned settings. You can now proceed to *Assigning an IP Address* on page 33.

**Figure 2 • Network Configuration Label for ZM400/ZM600**

```
Zebra Technologies
ZTC ZM400-200dpi ZPL
ZBR2834???

1.36.1733   ........ OPTION FIRMWARE
Wired.............. PRIMARY NETWORK
NO................. LOAD FROM EXT?
Internal Wired..... ACTIVE PRINTSRVR

External Wired
ALL................ IP PROTOCOL
000.000.000.000.... IP ADDRESS
255.255.255.000.... SUBNET MASK
000.000.000.000.... DEFAULT GATEWAY
000.000.000.000.... WINS SERVER IP
YES................ TIMEOUT CHECKING
300................ TIMEOUT VALUE
000................ ARP INTERVAL
9100............... BASE RAW PORT

Internal Wired*
ALL................ IP PROTOCOL
010.003.005.090.... IP ADDRESS
255.255.255.000.... SUBNET MASK
010.003.005.001.... DEFAULT GATEWAY
010.003.001.098.... WINS SERVER IP
YES................ TIMEOUT CHECKING
300................ TIMEOUT VALUE
000................ ARP INTERVAL
9100............... BASE RAW PORT
00074d2b4159....... MAC ADDRESS

Wireless
ALL................ IP PROTOCOL
000.000.000.000.... IP ADDRESS
255.255.255.000.... SUBNET MASK
000.000.000.000.... DEFAULT GATEWAY
010.003.001.098.... 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
vh-CTC-PRD......... 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
WEP 128-BIT........ WLAN SECURITY
1.................. WEP INDEX
020................ POOR SIGNAL
LONG............... PREAMBLE
NO................. ASSOCIATED
ON................. PULSE ENABLED
15 ................ PULSE RATE
OFF............... INTL MODE
07FFH............. CHANNEL MASK
```

FIRMWARE IN THIS PRINTER IS COPYRIGHTED

**Figure 3 • Network Configuration Label for G-Series, *ZP* Series, and 2824 Plus Printers**

```
┌──────────────────────────────────┐
│       Network Configuration      │
├──────────────────────────────────┤
│  Zebra Technologies              │
│  ZTC GX420d                      │
│  ZBR2941050                      │
├──────────────────────────────────┤
│  Internal Wired*                 │
│  ALL................ IP PROTOCOL │
│  010.003.004.088.... IP ADDRESS  │
│  255.255.255.000.... SUBNET MASK │
│  010.003.004.001.... DEFLT. GATEWAY │
│  010.003.001.098.... WINS SERVER IP │
│  YES................ TIMEOUT CHECKING │
│  300................ TIMEOUT VALUE │
│  000................ ARP INTERVAL │
│  9100............... BASE RAW PORT │
│  00:07:4d:2c:e0:7a.. MAC ADDRESS │
└──────────────────────────────────┘
 FIRMWARE IN THIS PRINTER IS COPYRIGHTED
```

**Figure 4 • Printer Configuration Wristband for HC100**

```
┌──────────────────────────────────────┐
│          PRINTER CONFIGURATION       │
├──────────────────────────────────────┤
│   +000................    TEAR OFF    │
│   CONNECTED..........    USB COMM.    │
│   9600,8,N,2,X,N,~,^,,   SERIAL COMM. │
│   ZV54.16.0Z<-........   FIRMWARE     │
│   000.000.000.000.....   IP ADDRESS   │
│   000000000000           MAC ADDRESS  │
│ FIRMWARE IN THIS PRINTER IS COPYRIGHTED │
└──────────────────────────────────────┘
```

**Figure 5 • Network Configuration for Xi4**

```
              Network Configuration

 Zebra Technologies
 ZTC 110Xi4-200dpi
 ZBR3051375

 Wired..............  PRIMARY NETWORK
 NO.................  LOAD FROM EXT?
 Internal Wired.....  ACTIVE PRINTSRVR

 External Wired
 ALL................  IP PROTOCOL
 000.000.000.000....  IP ADDRESS
 255.255.255.000....  SUBNET MASK
 000.000.000.000....  DEFAULT GATEWAY
 000.000.000.000....  WINS SERVER IP
 YES................  TIMEOUT CHECKING
 300................  TIMEOUT VALUE
 000................  ARP INTERVAL
 9100...............  BASE RAW PORT

 Internal Wired*
 ALL................  IP PROTOCOL
 010.003.004.098....  IP ADDRESS
 255.255.255.000....  SUBNET MASK
 010.003.004.001....  DEFAULT GATEWAY
 010.003.001.098....  WINS SERVER IP
 YES................  TIMEOUT CHECKING
 300................  TIMEOUT VALUE
 000................  ARP INTERVAL
 9100...............  BASE RAW PORT
 00074d2e8f6f.......  MAC ADDRESS

 Wireless
 ALL................  IP PROTOCOL
 000.000.000.000....  IP ADDRESS
 255.255.255.000....  SUBNET MASK
 000.000.000.000....  DEFAULT GATEWAY
 000.000.000.000....  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
 125................  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
 NONE...............  WLAN SECURITY
 1..................  WEP INDEX
 020................  POOR SIGNAL
 LONG...............  PREAMBLE
 NO.................  ASSOCIATED
 ON.................  PULSE ENABLED
 15 ................  PULSE RATE
 OFF................  INTL MODE
 07FFH..............  CHANNEL MASK

 FIRMWARE IN THIS PRINTER IS COPYRIGHTED
```

# Setting the Primary Network Print Server

The ZM400, ZM600, and Xi4 printers support the simultaneous installation of an internal wired, external wired, 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. Table 4 outlines priorities and identifies which device becomes the active print server when multiple print servers are installed.

**Table 4 • Primary Print Server**

| 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.

The primary network setting can be configured using any of the following methods:

1. Printer's control panel:
   - ZM400: `PRIMARY NETWORK`
   - Xi4: `PRIMARY NETWORK`
   - G-Series, ZP Series, HC100, 2824 Plus: Not available

2. ZPL command: `^NC`

3. Set-Get-Do command: `ip.primary_network`

4. Printer's web page: Network Configuration > Primary/Secondary Settings

# Using the Control Panel to View and Modify Print Server Parameters

You may change several print server parameters using the control panel on the printer. Table 5 shows the parameters that may be viewed or modified through the printer's control panel for ZM400, ZM600, and Xi4 printers with firmware version V53.15.x or later.

**Table 5 • Print Server Parameters**

| Parameter | Function |
|---|---|
| LIST NETWORK | **Print a Network Configuration Label**<br>Use this parameter to print a network configuration label (see Figure 2 on page 24). |
| IP PROTOCOL[1] | **View the Method to Obtain an IP Address**<br>This parameter tells if the user (permanent) or the server (dynamic) selects the IP address. If a dynamic option is chosen, this parameter tells the method(s) by which the print server (wired or wireless) receives the IP address from the server.<br>*Selections:* ALL, GLEANING ONLY, RARP, BOOTP, DHCP, DHCP AND BOOTP, PERMANENT<br>*Default Value:* All |
| IP ADDRESS[1] | **View the Print Server's IP Address**<br>*Default Value:* 0.0.0.0 |
| SUBNET MASK[1] | **View the Subnet**<br>*Default Value:* 255.255.255.0 |
| DEFAULT GATEWAY[1] | **View the Gateway**<br>*Default Value:* 0.0.0.0 |
| RESET NETWORK[1] | **Reset the Wired or Wireless Network**<br>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. |
| ACTIVE PRINTSRVR | **View the Active Print Server**<br>*Selections:* Internal Wired, External Wired, or Wireless |
| PRIMARY NETWORK | **View the Primary Network**<br>*Selections:* Wired, Wireless<br>*Default Value:* Wired |

1   These parameters appear after the system recognizes the existence of a ZebraNet print server (wired or wireless). After the print server is recognized, all zeroes (000.000.000.000) will display until the printer obtains an IP address or defaults to address 192.168.254.254.

# Defaulting the 10/100 Internal PS

This section provides you with instructions for defaulting the 10/100 Internal PS to factory settings using the control panel, WebView, and ZebraNet View.

## Defaulting the 10/100 PS on the ZM400 and ZM600 Printers

**To default the 10/100 Internal PS to factory settings using the control panel on the ZM400 or ZM600 printers, complete these steps:**

1. From the control panel, press Setup/Exit two times.

2. Press Plus (+ button) five times.

   The control panel will read `DEFAULT NET`.

3. Press Setup/Exit to save the change.

   After the printer defaults all settings, the control panel will show `PRINTER READY`.

## Defaulting the 10/100 PS on the G-Series, *ZP* Series, and 2824 Plus Printers

For the G-Series, *ZP* Series, and 2824 Plus printers, select one of the following methods to default the print server for these printers:

- Use the web page in WebView — see *Defaulting the 10/100 Internal PS Using WebView on page 31* for further details.

- Use the ZebraNet View utility — see *Defaulting the 10/100 Internal PS Using ZebraNet View on page 32* for further details.

- Issue the ZPL command shown immediately below or refer to the *ZPL II Programming Guide* for further details.

      ^XA^JUN^XZ

- Use ZebraNet Bridge to manage the print server — see the *ZebraNet™ Bridge Enterprise User Guide* for further details.

**Note •** To download a copy of either of the guides mentioned above, visit the Zebra web site at: www.zebra.com/manuals.

## Defaulting the 10/100 PS on the HC100 Printers

### To default the 10/100 Internal PS to factory settings, complete these steps:

1. Press and hold Feed for two seconds.

**Note** • Be sure to count the number of LED blinks. The three blink sequence defaults **only** the print server parameters while the four blink sequence defaults **all** of the printer parameters.

2. Wait for the three blink sequence of the Error/Status LED.

3. Release Feed.

## Defaulting the 10/100 PS on the Xi4 Printers

### To default the 10/100 Internal PS to factory settings, complete these steps:

1. From the control panel, press Setup/Exit two times.

2. Press Plus (+) five times.
   The control panel will read `DEFAULT NET`.

3. Press Next/Save to save the change.
   The control panel will read `PRINTER READY`.

## Defaulting the 10/100 Internal PS Using WebView

**To default the 10/100 Internal PS to factory settings using WebView, complete these steps:**

**1.** From the ZebraNet PrintServer view, click Factory Print Server Settings.

The Restore to Factory Defaults page opens:

**Figure 6 • Restore to Factory Defaults**
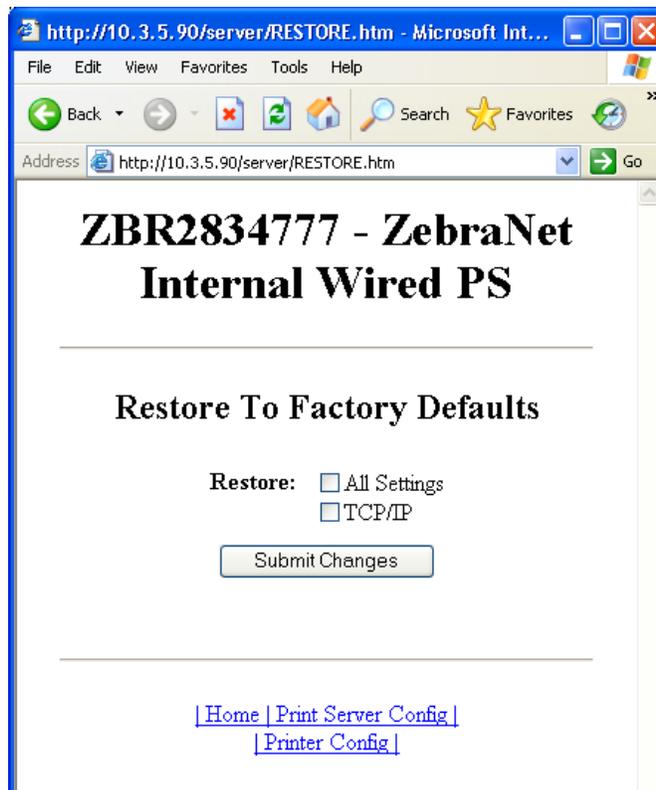


**2.** Enable the check box for the settings you want to reset, and click Submit Changes.

**Important •** During the reset cycle, the web pages are unavailable. Upon completion, check the IP address of the 10/100 Internal PS as it may have changed during the reset cycle.

## Defaulting the 10/100 Internal PS Using ZebraNet View

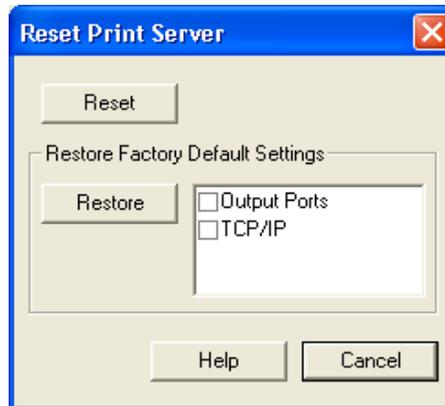**To default 10/100 Internal PS to factory settings using ZebraNet View, complete these steps:**

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

   The ZebraNet View dialog opens:

**Figure 7 • ZebraNet View**
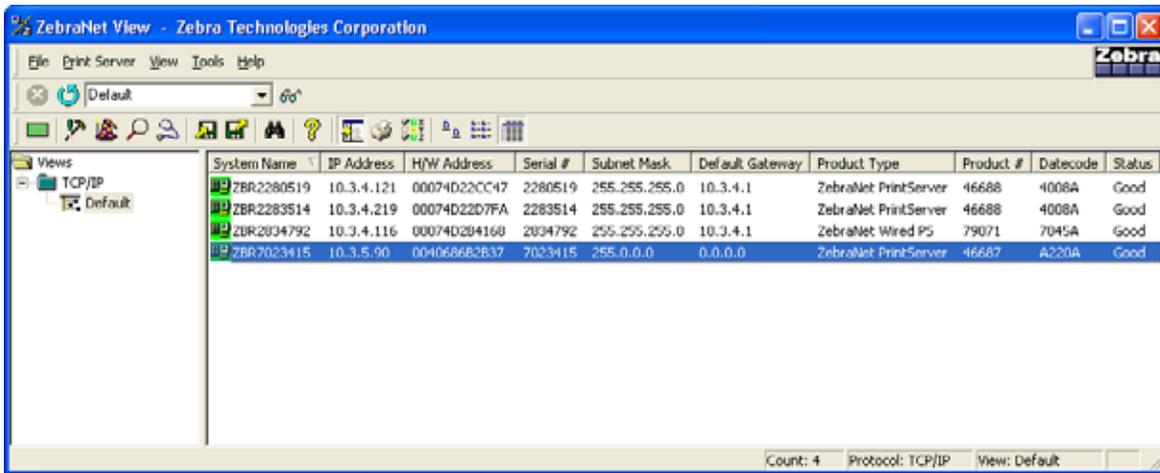


2. From the menu bar, select Print Server > Reset.

   The Reset Print Server dialog opens:

**Figure 8 • Reset Print Server**



3. Select the settings you want to reset, and then click Restore.

# Assigning an IP Address

Before you can begin working with 10/100 Internal PS, you must get or assign an IP address for the 10/100 Internal PS device.

There are four different ways to assign an IP address. Here is a list and a brief description of each method:

- Web View — Browser-enabled method to assign an IP address.
- ZebraNet View — Utility that remotely manages ZebraLink-enabled printers.
- DHCP — See your LAN administrator for more information.
- Telnet — DOS command to assign an IP address.

**Important •** Throughout the procedures in this chapter, there are some features that require the default User ID and/or default password. If you are prompted, these are the defaults:

- **User ID**: `admin`
- **Password**: `1234`

## With Dynamic Host Configuration Protocol (DHCP)

If your network uses DHCP, your 10/100 Internal PS device is assigned a temporary IP address.

**Note •** Check with your Network Administrator to see whether your network uses DHCP.

## Without DHCP

If your network does not use a dynamic IP addressing system (such as DHCP), you need to set a permanent IP address for the 10/100 Internal PS device. ZebraNet View is the Windows-based print server management and configuration utility that comes with your 10/100 Internal PS.

**Important •** The remaining sections are dependent on the successful installation of ZebraNet Utilities. To install, see *ZebraNet Utilities* .

## Assigning an IP Address, Subnet Mask, and Default Gateway

### To assign an IP address, Subnet, and Default Gateway using ZebraNet View, complete these steps:

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

   **Important •** On the illustration that follows, take note of the `H/W address` column and `Serial #` column. Compare what you see in ZebraNet View with the network configuration label you printed out.

   The ZebraNet View dialog opens:

**Figure 9 • ZebraNet View**
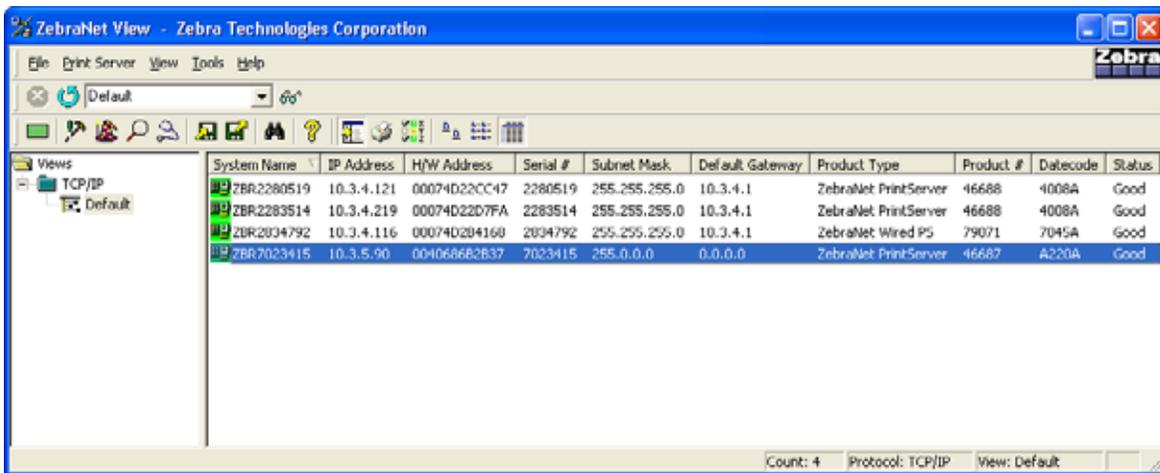


2. Compare the `MAC Address` on the 10/100 Internal PS network configuration label with the `H/W Address` column on the screen to find the 10/100 Internal PS you are working with.

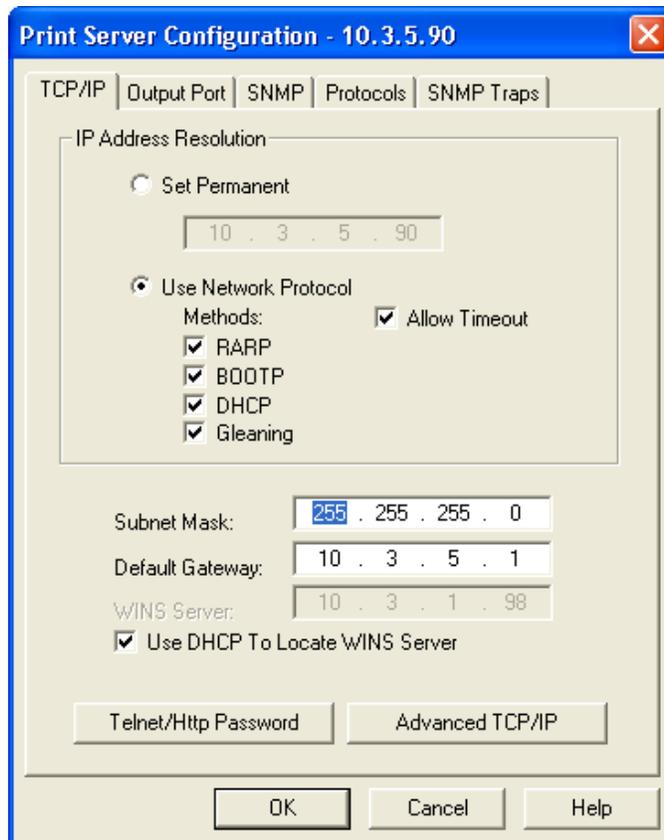3. When you locate your 10/100 Internal PS, select it.

**4.** From the menu bar, select PrintServer > Configuration.

> ⚠ **Important •** If the 10/100 Internal PS does not have an IP address, it shows in the main screen with an IP of **0.0.0.0**. If, after 2 minutes, you do not assign an IP Address, the 10/100 Internal PS defaults to IP Address **192.168.254.254**.

The Print Server Configuration dialog opens.

**Figure 10 • Printer Server Configuration**



**5.** If your 10/100 Internal PS does not have an IP address, complete these steps:

- Enter an `IP Address`.

- Click OK.

**6.** From the ZebraNet View menu bar, select PrintServer > Configuration.

**7.** Click the TCP/IP tab.

**8.** From the Print Server Configuration dialog > TCP/IP tab, in the Subnet Mask text-box, type in your `subnet mask`.

**9.** Confirm it is accurate, and click OK.

**10.** To set a permanent IP address, enable the Set Permanent option button.

**11.** In the Set Permanent text box, type a new `IP address`, and then click OK.

**12.** From the Print Server Configuration dialog > TCP/IP tab, in the Default Gateway text-box, type in your `default gateway`.

**13.** Confirm it is accurate, and click OK.

# In a Non-Windows Environment

If your environment is not Windows-based, this section is for you. However, this method can be used in a Windows environment, too.

## Assigning an IP address from the printer LCD

These steps can be used to assign an IP address using the control panel (LCD).

**Note •** This method is not available for the G-Series, ZP Series, 2824 Plus, and HC100 printers because they do not have a control panel (or printer LCD).

### To assign an IP address from the printer LCD, complete these steps:

**1.** Connect the AC power cord and data cables.

**2.** Turn on **(I)** the printer.

**3.** Wait until the printer completes the POST and the LCD says `PRINTER READY`.

**4.** Which model printer do you have?

| If you have a(n)… | Then… |
|---|---|
| ZM400 or ZM600 | **a.** When the POST cycle is complete, press Setup/Exit to enter the Setup Mode.<br>**b.** Scroll through the parameters by pressing Plus (+) until you reach `ACTIVE PRINTSRVR`.<br>**c.** Verify that the active print server is `INTERNAL WIRED`.<br>**d.** Scroll through the parameters by pressing Plus (+) until you reach `PRIMARY NETWORK`.<br>**e.** Continue to step 5. |
| Xi4 | **a.** When the POST cycle is complete, press Setup/Exit to enter the Setup Mode.<br>**b.** Scroll through the parameters by pressing Next/Save (▶) until you reach `ACTIVE PRINTSRVR`.<br>**c.** Verify that the active print server is `INTERNAL WIRED`.<br>**d.** Scroll through the parameters by pressing Next/Save (▶) until you reach `PRIMARY NETWORK`.<br>**e.** Continue to step 5. |

**5.** You can edit any of the following network settings in order to communicate with any 10/100 Internal PS in your network environment. The settings shown below will sequentially appear after the PRIMARY NETWORK parameter on the control panel.

**Important •** To change any of these settings, you need to enter the printer password. The default password is 1234.

- **ip protocol** (GLEANING ONLY, RARP, BOOTP, DHCP, DHCP and BOOTP, ALL, PERMANENT): The printer menu item IP PROTOCOL must be set to PERMANENT if attempting to assign the IP address from the control panel.

- **ip address** (if initial default setting is 0.0.0.0, after 2 minutes this defaults to **192.168.254.254**)

- **subnet mask** (default setting 255.255.255.0)

- **default gateway** (default setting of 000.000.000.000)

**6.** Which model printer do you have?

| If you have a(n)… | Then… |
|---|---|
| ZM400 or ZM600 | **a.** Press Select.<br>**b.** Press Setup/Exit twice to save your changes and exit the Setup Mode.<br>**c.** The control panel will read PRINTER READY. |
| Xi4 | **a.** Press Setup/Exit to exit the Setup Mode.<br>**b.** Press Next/Save to permanently save your changes.<br>**c.** The control panel will read PRINTER READY. |

## Assigning an IP Address via a Telnet Session

The methods used for assigning an IP address with a Telnet session are **Static Route** and **Gleaning**.

**Important •** This applies to any TCP/IP-capable workstation/host networked with the Zebra printer. Both, the workstation/host and the 10/100 Internal PS, must be on the same network segment.

Before you can Telnet to the 10/100 Internal PS and configure it, you must first assign the 10/100 Internal PS a temporary IP address.

### Static Route

### To use this method, complete these steps:

1. Turn on (I) the printer and wait for 2 minutes to allow for the device to complete the self-test.

   During this time, the 10/100 Internal PS performs an address broadcast. If no address is assigned to the unit (via DHCP or BOOTP), it uses a default address. The default address for 10/100 Internal PS is **192.168.254.254**. Print the 10/100 Internal PS configuration label to confirm the address. For details, see *Before You Begin* on page 22.

2. You can use the route add command to place the default IP address into the workstation's network routing table.

   **Example •** In the next step, **** is the IP address on the 10/100 Internal PS configuration label.

3. At the workstation/host command prompt (in Windows, at the DOS prompt), type:

   ```
   route add **** "IP address of the workstation" 0
   ```

   **Note •** The zero (0) placed at the end of the "route add" command is optional on some systems.

4. Telnet to the 10/100 Internal PS by typing:

   ```
   "Telnet xxx.xxx.xxx.xxx"
   ```

   The password is 1234.

5. At this point, you can alter the settings as desired. When complete, do a reset and allow the 10/100 Internal PS self-test to complete before proceeding with any communications activity.

### Gleaning

A method by which the 10/100 Internal PS uses the IP address of the first ping packet that is sent to its hardware address.

**Note •** Gleaning works **only** on local subnets at routers. It does not pass Address Resolution Protocol (ARP) broadcasts.

### To use this method, complete these steps:

1.  Add an entry to the ARP table that assigns an IP address to an Ethernet (hardware) address.

    The syntax for this command is:
    ```
    arp -s "temporary ipaddress of print server" "MAC Address
    (print server hardware address)" arp -s <temporary ip
    address> <MAC Address>
    ```

    **Example •** You would type:
    ```
    arp -s 10.3.50.59 00-07-4d-68-1D-B9-86
    ```

2.  Power cycle the printer.

3.  As the printer reboots, begin a continuous ping to the address assigned previously.

    **Note •** Most UNIX systems use a continuous ping.

    To use a continuous ping from a Windows host, you must issue the command:
    ```
    ping -t "ipaddress".
    ```

4.  When the 10/100 Internal PS begins to respond, stop the ping activity.

    In Windows, Ctrl + C halts the pinging.

5.  Telnet to the 10/100 Internal PS and assign the appropriate IP address, subnet mask, and gateway, if applicable.

6.  Once this is complete, reset the 10/100 Internal PS.

**Notes** • _____

_____

_____

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# 3

## Installation

This chapter provides information on the 10/100 Internal PS, and how to install ZebraNet Utilities and the ZebraNet View Java Applet.

### Contents

# 10/100 Internal PS

To install an 10/100 Internal PS, see the installation instructions on the Connectivity Solutions CD.

# ZebraNet Utilities

The ZebraNet Utilities is a software suite consisting of tools to assist you with the configuration of the 10/100 Internal PS device, which gives you the flexibility to make changes to settings, track errors, and more.

If you want to be certain you have the most recent version of the ZebraNet Utilities, you can visit our Web site and download the most recent version at:

www.zebra.com/utilities

For more details, see *Overview* on page 14 or *ZebraNet Utilities* on page 93.

**Note •** Contact your System Administrator before installing this software. You must have Administrator rights on your network to install most of these utilities.

## To install the ZebraNet Utilities, complete these steps:

The steps that follow reflect the steps and dialogs for a typical installation. If you plan to conduct a custom installation, the dialogs you encounter or see will differ from those in these steps.

1. Insert the CD-ROM into the drive.

**Important •** Is AutoPlay enabled on your computer?
   - **Yes**. Your computer automatically launches the installation.
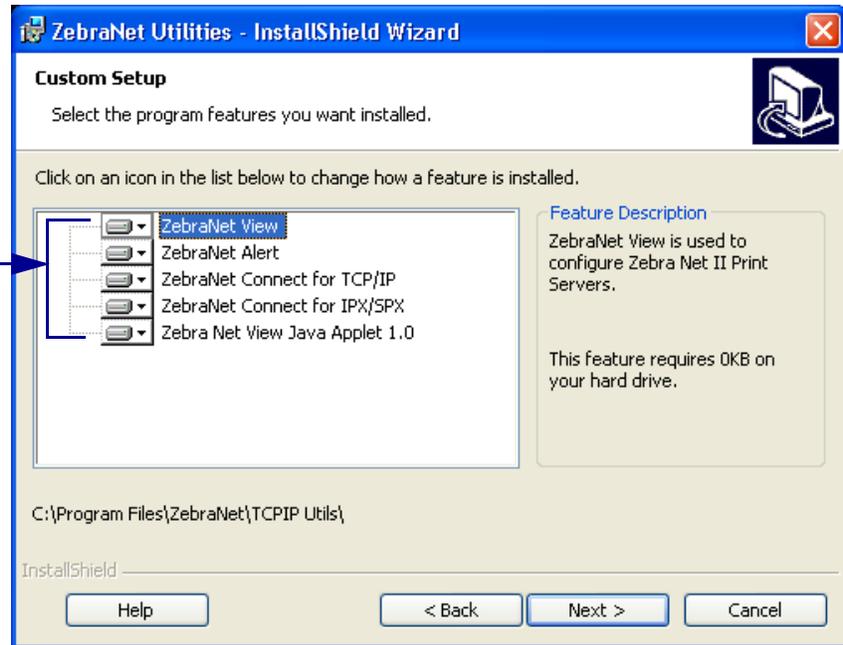   - **No**. You need to navigate to:

   ```
   Software > ZebraNet Util > setup.exe
   ```

   on the CD-ROM and manually launch the installation.

**2.** Click Next.

Figure 11 shows the dialog box where you select the utilities that you want to install.

**Figure 11 • ZebraNet Install Utilities**

> **Important •** If you choose to install the ZebraNet View Java Applet in step 3, you must complete the installation steps for *ZebraNet View Java Applet* on page 46.

**3.** In the ZebraNet Utilities dialog, select the features you want to install and click Next.

The ZebraNet Setup Dialog gives you the chance to reset your installation settings.

**Figure 12 • ZebraNet Setup Dialog**
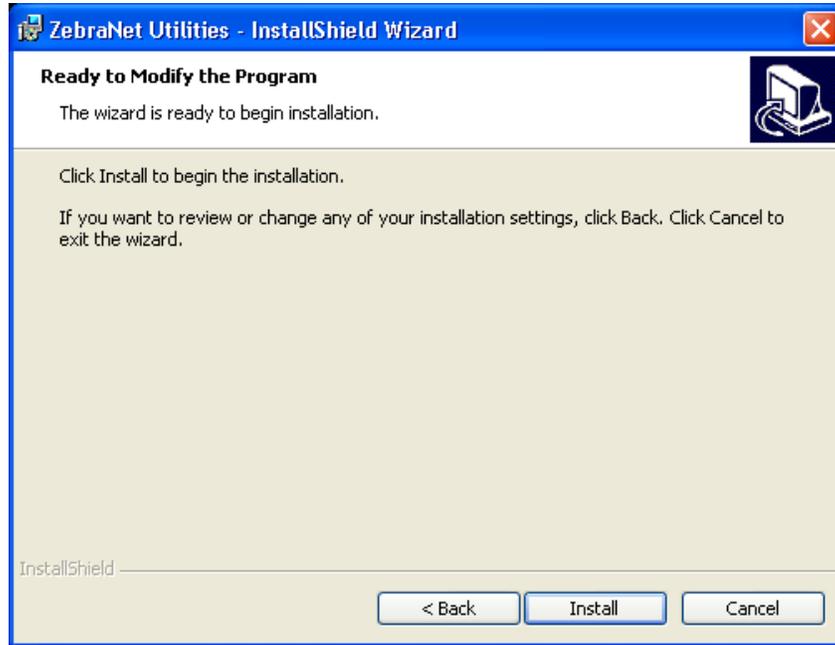
4. In the ZebraNet Utilities dialog, you have the option to review and make any changes to your installation settings. When you are satisfied with your installation settings, click Install.

When the installation is complete, this dialog opens.

**Figure 13 • ZebraNet Setup Dialog**
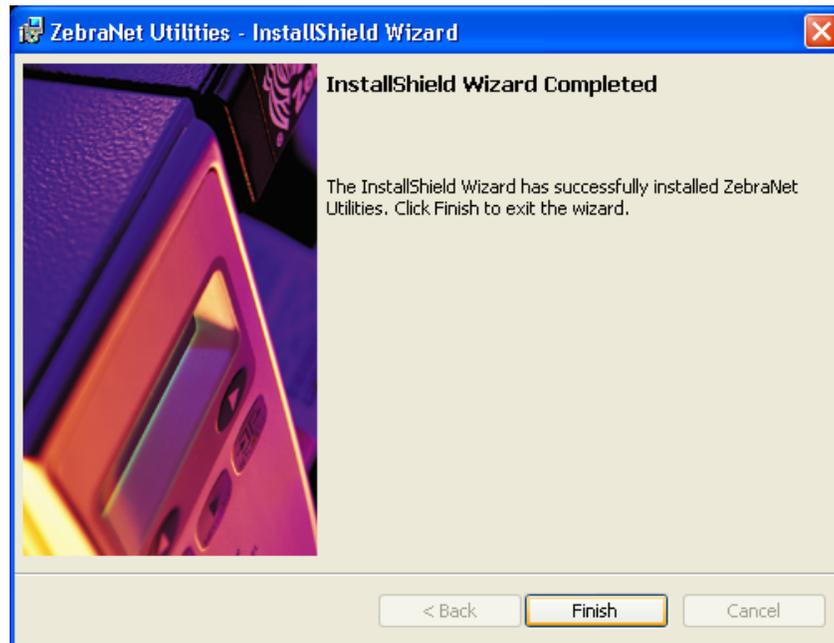


5. Click Finish.

**Important •** When the installation is complete, you need to restart your system for the changes to take effect.

# ZebraNet View Java Applet

If you selected ZebraNet View Java Applet when you were installing the ZebraNet Utilities, you need to complete a few installation steps to work with this utility.

### To install ZebraNet View Java Applet, complete these steps:
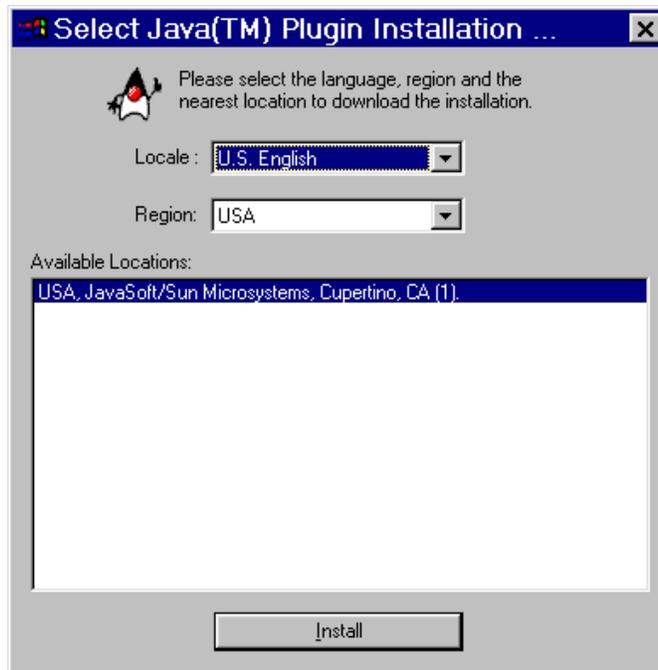
**1.** From the task bar, select Programs > ZebraNet Utilities > ZebraNet View Java Applet 1.0.

This Security Warning dialog opens.
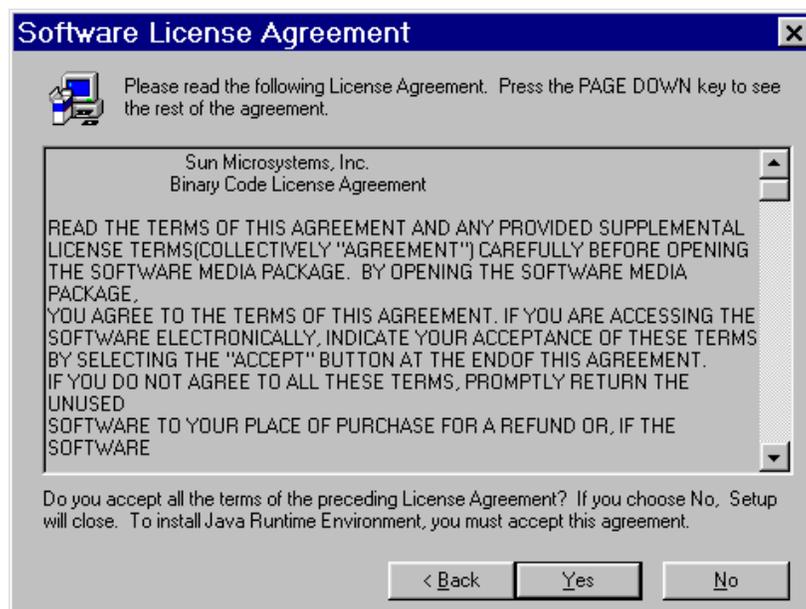
**Figure 14 • ZebraNet Security Warning**
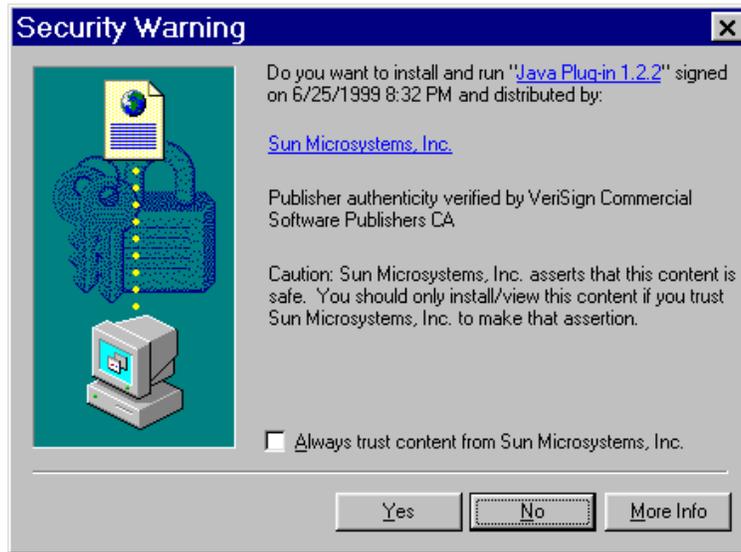
**2.** To begin the installation, click Yes.

The Select Java Plugin Installation dialog opens.

**Figure 15 • Select Java Plugin Installation**
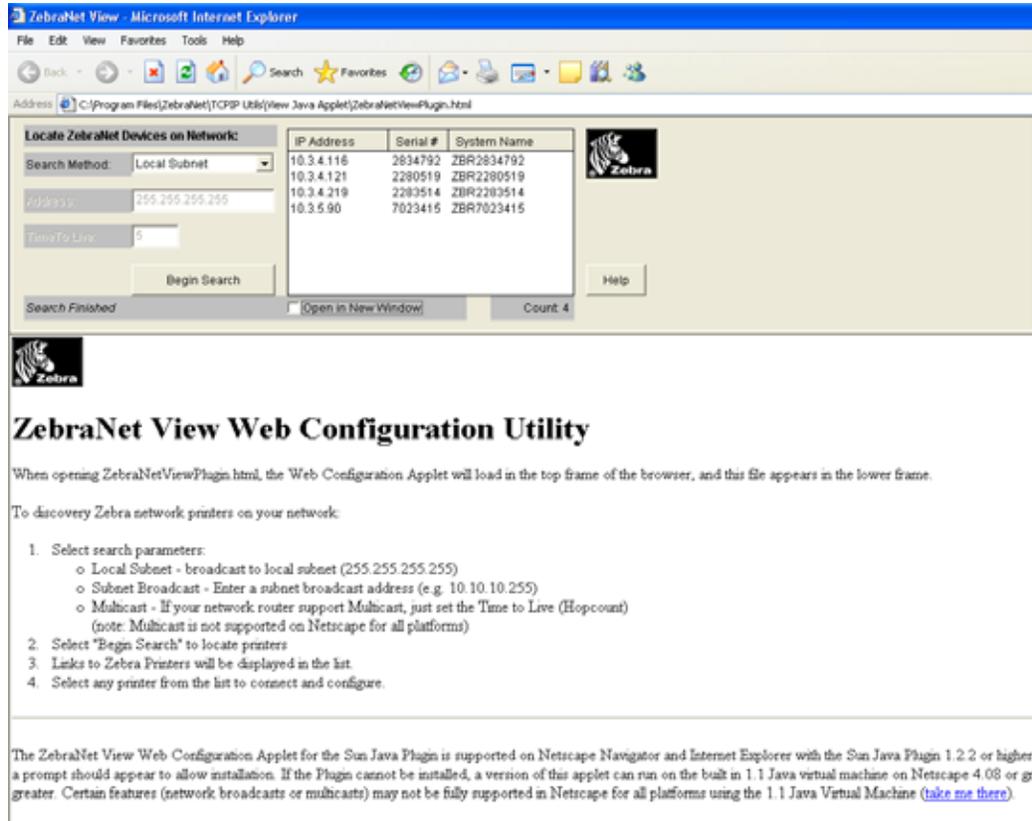


**3.** Make the selections that apply to your environment, and click Install.

The Software License Agreement opens.

**Figure 16 • Software License Agreement**

**4.** Read the License Agreement.

**5.** To continue with the installation, click Yes.

**6.** When the installation is complete, click OK.

The Java page opens.

**Figure 17 • Java Page**



**7.** You have these options:

- To work with this utility, see *ZebraNet View Java Applet* on page 102.

- To close the utility, click the **X**.

**4**

# ZebraLink
# WebView - Printer

This chapter provides you with detailed information about how to set, modify, and view the Printer Settings using WebView.

## Contents

# WebView - Printer

WebView provides the System Administrator or user complete, easy, one-step control over the printing environment. It provides real-time configuration, control, and monitoring capabilities with the convenient graphic interface of a Web browser.

The Web pages returned by Zebra printers are not static. They contain real-time information about the printer's present state of operation, including on-line status, error conditions, and all printing parameters.

## Printer Home Page

**Note •** To access the printer's Web page, you need the IP address. For instructions on getting the IP address, see *Assigning an IP Address* on page 33.

The Home Page is the first web page that opens. It is a page with a menu of hyperlinks. Each hyperlink allows you to make modifications to the printer, 10/100 Internal PS, and network settings. The other changeable settings on the Home Page include:

- Network Status, Error, and Warning reports
- ZebraNet 10/100 Internal PS configuration
- Printer settings
- Directories of objects stored in Flash memory and RAM devices
- Objects, stored fonts, images, programs, and ZPL II formats
- Zebra Technologies support and home pages

**To open WebView for your printer, complete these steps:**

1. Open a Web browser.

2. In the Address text-box, type your printer's IP address, and press Enter.

   The Printer Home Page opens.

**Figure 18 • Printer Home Page**
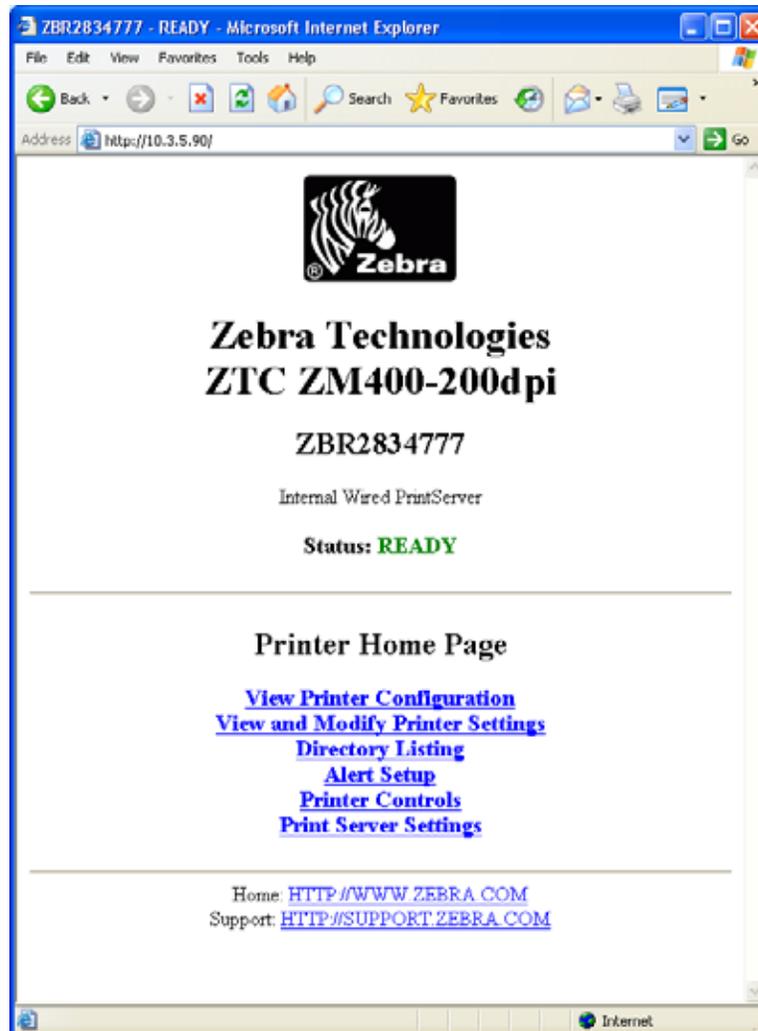


## View Printer Configuration

The View Printer Configuration menu option provides accurate, up-to-the-minute information on the printer's current state. An administrator can conveniently find any information on the virtual configuration label and also check on the status of printer ports.

**To see the View Printer Configuration menu option, complete these steps:**

1. From the Printer Home Page, click View Printer Configuration.

WebView displays the configuration settings.

**Table 6 • Configuration Settings**

| ZM400, ZM600 | |
|---|---|
| | **View Printer Configuration**<br><br>`mm 24940.07EGB100117.79400-001.L.VH2`<br>`+15                DARKNESS`<br>`10 IPS             PRINT SPEED`<br>`+000               TEAR OFF`<br>`TEAR OFF           PRINT MODE`<br>`GAP/NOTCH          MEDIA TYPE`<br>`TRANSMISSIVE       SENSOR SELECT`<br>`THERMAL-TRANS.     PRINT METHOD`<br>`832                PRINT WIDTH`<br>`1230               LABEL LENGTH`<br>`39.0IN   988MM     MAXIMUM LENGTH`<br>`MAINT. OFF         EARLY WARNING`<br>`NOT CONNECTED      USB COMM.`<br>`BIDIRECTIONAL      PARALLEL COMM.`<br>`RS232              SERIAL COMM.`<br>`9600               BAUD`<br>`8 BITS             DATA BITS`<br>`NONE               PARITY`<br>`XON/XOFF           HOST HANDSHAKE`<br>`NONE               PROTOCOL`<br>`000                NETWORK ID`<br>`NORMAL MODE        COMMUNICATIONS`<br>`<~>  7EH           CONTROL PREFIX`<br>`<^>  5EH           FORMAT PREFIX`<br>`<,>  2CH           DELIMITER CHAR`<br>`ZPL II             ZPL MODE`<br>`CALIBRATION        MEDIA POWER UP`<br>`CALIBRATION        HEAD CLOSE`<br>`DEFAULT            BACKFEED`<br>`+000               LABEL TOP`<br>`+0000              LEFT POSITION`<br>`DISABLED           REPRINT MODE`<br>`051                WEB S.`<br>`084                MEDIA S.`<br>`072                RIBBON S.`<br>`041                TAKE LABEL`<br>`050                MARK S.`<br>`002                TRANS GAIN`<br>`033                TRANS BASE`<br>`150                TRANS BRIGHT`<br>`236                RIBBON GAIN`<br>`012                MARK GAIN`<br>`DPSWFXM            MODES ENABLED`<br>`.......            MODES DISABLED`<br>` 832 8/MM FULL     RESOLUTION`<br>`V53.16.2 <-        FIRMWARE`<br>`1.2                XML SCHEMA`<br>`V37 29651-005 38   HARDWARE ID`<br>`1.49.1753          OPTION FIRMWARE`<br>`CUSTOMIZED         CONFIGURATION`<br>`NONE.............A: OPTION MEMORY`<br>`11200k...........R: RAM`<br>`2048k............E: ONBOARD FLASH`<br>`NONE               FORMAT CONVERT`<br>`FW VERSION         IDLE DISPLAY`<br>`03/10/08           RTC DATE`<br>`14:47              RTC TIME`<br>`ENABLED            ZBI`<br>`2.0                ZBI VERSION`<br>`READY              ZBI STATUS`<br>`9,524 IN           NONRESET CNTR`<br>`6,824 IN           RESET CNTR1`<br>`9,524 IN           RESET CNTR2`<br>`24,190 CM          NONRESET CNTR`<br>`17,333 CM          RESET CNTR1`<br>`24,190 CM          RESET CNTR2`<br>`SELECTED ITEMS     PASSWORD LEVEL`<br><br>Print on Label |

## Table 6 • Configuration Settings

| HC100 | |
|---|---|
| | **View Printer Configuration** |

```
+21                    DARKNESS
CARTRIDGE              DARKNESS MODE
225                    PRINT WIDTH
+000                   TEAR OFF
3147                   LABEL LENGTH
39.0IN    988MM        MAXIMUM LENGTH
NOT CONNECTED          USB COMM.
RS232                  SERIAL COMM.
9600                   BAUD
8 BITS                 DATA BITS
NONE                   PARITY
XON/XOFF               HOST HANDSHAKE
NONE                   PROTOCOL
000                    NETWORK ID
NORMAL MODE            COMMUNICATIONS
<~>  7EH               CONTROL PREFIX
<^>  5EH               FORMAT PREFIX
<,>  2CH               DELIMITER CHAR
ZPL II                 ZPL MODE
+000                   LABEL TOP
+0000                  LEFT POSITION
DISABLED               REPRINT MODE
DISABLED               ZBI
2.0                    ZBI VERSION
DPSWFXM                MODES ENABLED
.......                MODES DISABLED
 672 12/MM FULL        RESOLUTION
V54.16.0Z   <-         FIRMWARE
1.2                    XML SCHEMA
V39 --------- 34       HARDWARE ID
CUSTOMIZED             CONFIGURATION
10368k...........R:    RAM
2048k............E:    ONBOARD FLASH
NONE                   FORMAT CONVERT
1,457 IN               NONRESET CNTR
1,457 IN               RESET CNTR1
1,457 IN               RESET CNTR2
3,700 CM               NONRESET CNTR
3,700 CM               RESET CNTR1
3,700 CM               RESET CNTR2
```

[ Print on Label ]

**Table 6 • Configuration Settings**

| Xi4 | |
|---|---|
| | **View Printer Configuration**
2008-12-19 15:08:02 TIME STAMP
MM 29836.07JKS110107.79400-001.L.VH1
+10                DARKNESS
6 IPS              PRINT SPEED
+000               TEAR OFF
TEAR OFF           PRINT MODE
CONTINUOUS         MEDIA TYPE
TRANSMISSIVE       SENSOR SELECT
THERMAL-TRANS.     PRINT METHOD
832                PRINT WIDTH
1000               LABEL LENGTH
39.0IN   988MM     MAXIMUM LENGTH
MAINT. OFF         EARLY WARNING
NOT CONNECTED      USB COMM.
BIDIRECTIONAL      PARALLEL COMM.
RS232              SERIAL COMM.
9600               BAUD
8 BITS             DATA BITS
NONE               PARITY
XON/XOFF           HOST HANDSHAKE
NONE               PROTOCOL
000                NETWORK ID
NORMAL MODE        COMMUNICATIONS
<~>  7EH           CONTROL PREFIX
<^>  5EH           FORMAT PREFIX
<,>  2CH           DELIMITER CHAR
ZPL II             ZPL MODE
CALIBRATION        MEDIA POWER UP
CALIBRATION        HEAD CLOSE
DEFAULT            BACKFEED
+000               LABEL TOP
+0000              LEFT POSITION
DISABLED           REPRINT MODE
068                WEB S.
068                MEDIA S.
071                RIBBON S.
043                TAKE LABEL
050                MARK S.
002                TRANS GAIN
031                TRANS BASE
196                TRANS BRIGHT
219                RIBBON GAIN
013                MARK GAIN
DPSWFXM            MODES ENABLED
.......            MODES DISABLED
 832 8/MM FULL     RESOLUTION
V53.17.1    <-     FIRMWARE
1.2                XML SCHEMA
V37 --------- 38   HARDWARE ID
CUSTOMIZED         CONFIGURATION
11008k...........R: RAM
2048k............E: ONBOARD FLASH
NONE               FORMAT CONVERT
FW VERSION         IDLE DISPLAY
02/16/00           RTC DATE
07:50              RTC TIME
ENABLED            ZBI
2.1                ZBI VERSION
READY              ZBI STATUS
40,049 IN          NONRESET CNTR
40,049 IN          RESET CNTR1
40,049 IN          RESET CNTR2
101,725 CM         NONRESET CNTR
101,725 CM         RESET CNTR1
101,725 CM         RESET CNTR2
SELECTED ITEMS     PASSWORD LEVEL

[Print on Label] |

**2.** To update the printer information from this view, click Refresh and the printer sends current information to the Web browser.

**3.** When you are finished reviewing:

| If... | Then... |
|---|---|
| You want to return to the Home page | Click the Home link. |
| You want to print a label | Scroll to the bottom of this page and click Print Label. |

## View and Modify Printer Settings

This section provides you with steps for accessing and modifying printer settings with a ZebraLink-enabled printer. It also provides illustrations of the various pages you can access. For more specific information about these settings, please refer to *View and Modify Printer Settings* on page 65.

> **Important •** To apply changes made in this section, you need to use the default password for your printer:
>
> **Password:** 1234

## Directory Listing

The directory page provides a listing of all file system devices (B:, E:, R:, Z:). The size, name, and location of each stored object appears.

Buttons are available to perform file management operations on the objects. The file management operations include:

- Delete object — Not available for objects in read-only memory (Z:).

- Copy object to a new name and/or device — Not available for objects in read-only memory (Z:).

**To view the Directory Listing, complete these steps:**

**1.** From the Printer Home Page, click Directory Listing.

The Directory Listing page opens. There are several fields to select in this view.

**Figure 19 • Directory Listing**



**2.** To create a script, click Create New Script.

## Alert Setup

To configure the printer's interaction with ZebraNet Alert to be completely functional, SNMP settings must be established in these areas:

- The printer, via the WebView interface.

- The Alert Printer Management Utility for logging SNMP traps.

The ZebraLink messaging system provides for more than SNMP notification. Alerts can be routed to various destinations:

- TCP
- UDP
- email
- serial port
- parallel port destinations
- SNMP
- USB

## Setting Alerts

Your 10/100 Internal Print Server allows you to configure your printer to send unsolicited Alerts.

Table 7 shows the conditions that can trigger alerts.

**Table 7 • Alerts**

| Alert Type | Error Condition |
|---|---|
| **ZebraLink Alerts** | • Paper out<br>• Ribbon out *<br>• Head too hot<br>• Head too cold<br>• Head open<br>• Supply too hot*<br>• Ribbon in *<br>• Rewind *<br>• Cutter jammed *<br>• Printer paused<br>• PQ job completed<br>• Label ready *<br>• Head element bad *<br>• BASIC runtime<br>• BASIC forced<br>• Power on<br>• Clean printhead<br>• Media low<br>• Ribbon low<br>• Replace head<br>• Battery low *<br>• RFID error *<br>• All messages |

**\* NOTE: Alerts for these conditions cannot be set on the HC100.**

This section has step-by-step instructions for setting up an alert using ZebraLink™. For information on setting up alerts using ZebraNet View, see *ZebraNet Utilities* on page 93.

> **!**  **Important •** If you do not have a ZebraLink-enabled printer, these steps will not work.

### To view Alert Setup using ZebraLink, complete these steps:

1. Open a Web browser.

2. In the Address text-box, type your printer's IP address, and press Enter.

   The Printer Home Page opens.

**Figure 20 • Printer Home Page**
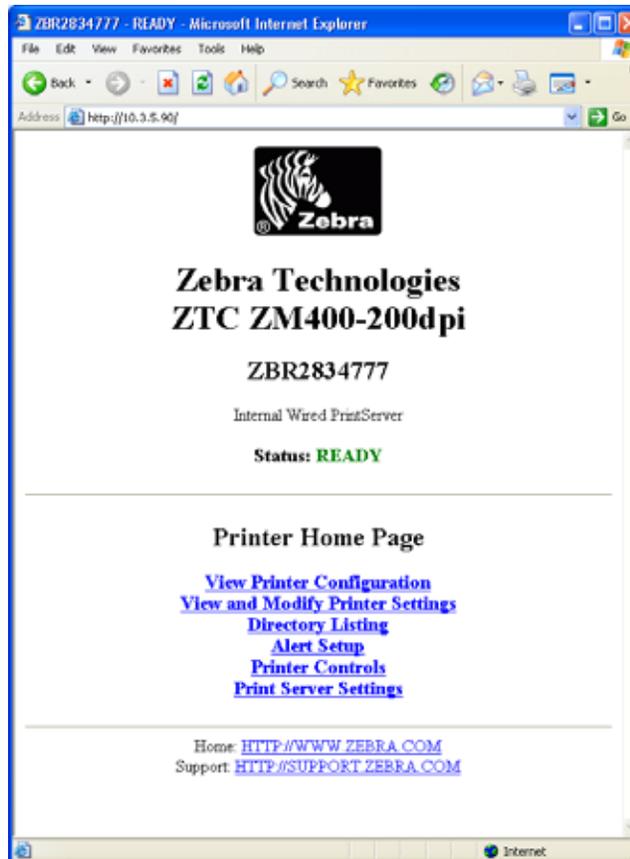
3. From the Printer Home Page, click **Alert Setup**.

   The Alert Messaging System page opens.

**Figure 21 • Alert Messaging System**



To add an alert, you need the default password.

4. To add an alert, click **Add Alert Message**.

5. Select accordingly.

6. You can use ZebraNet Alert to monitor alerts set through a ZebraLink-enabled printer.

   From this Web page, you can add alert messages notifying you when a printer is out of paper, needs a ribbon, and so on.

## Establishing Email Alert Messaging

You can have multiple email addresses set up for routing different error messages, or split notifications between email and other network management tools.

### To begin receiving email notification of errors, complete these steps:

**1.** Open a Web browser.

**2.** In the Address text-box, type in the printer's IP address.

The Printer Home Page opens.

**Figure 22 • Printer Home Page**



**3.** From the Printer Home Page, click Alert Setup.

The Alert Setup page shows a list of message notifications and their respective destinations (if no notifications are listed).

4. To set up email notification, go to the Alert Setup page and click Add Alert Message.

  The Add Alert Message page opens.

**Figure 23 • Add Alert Message**



5. Specify the condition to send over email, such as HEAD ELEMENT BAD or PAPER OUT.

6. Set Destination to Email.

7. In the SET drop-down box, select YES.

  You will be notified via email whenever your specific condition is detected.

8. In the CLR drop-down box, select YES if you wish to be notified when the specific condition is cleared.

9. Enter a valid email address to send the alert messages to.

**Example •** `admin@yourcompany.net` (The Port field can be ignored for email setup.)

**Important •** A password is required. If you forget to enter the password, the alerts you just set are deleted.

10. Click Add Alert Message.

To receive email alert, you must give 10/100 Internal PS the IP address of your mail server that is running SMTP.

11. To save current settings, click Save Printer Setting.

12. Enter the password and click Save Current Configuration.

**Important •** The printer accepts only the last configuration made.

13. You can continue to add more Alerts, if finished:
   - From the Printer Home Page, select PrintServer Settings > Network Communications Setup.
   - Click SMTP Email Alerts.
   - Specify your SMTP server address.

**Note •** The SMTP Server address might be referred to as Mail Server address.

When these steps are done, you can begin receiving email notification messages.

## Printer Controls

This page offers control over basic printer functions.

Other functions are also accessible from this page. These include:
   - Pause — pauses the print job.
   - Feed — causes printer to feed one label.
   - Cancel One Format — cancels the currently printing format.
   - Cancel All Formats — cancels all formats.
   - Reset Printer — causes printer to perform its standard reset without cycling power.

### To view Printer Controls, complete these steps:

**1.** From the Printer Home Page, click Printer Controls.

This Printer Controls page opens.

**Figure 24 • Printer Controls**



!  **Important •** In this view, you must have administrative rights to make changes to the printer controls.

## Print Server Settings

This section provides you with instructions for viewing the current printer server settings.

**To view the print server menu, complete this step:**

1. From the Printer Home Page, click Print Server Settings.

   The Print Server Settings Page opens.

**Figure 25 • Print Server Settings Page**
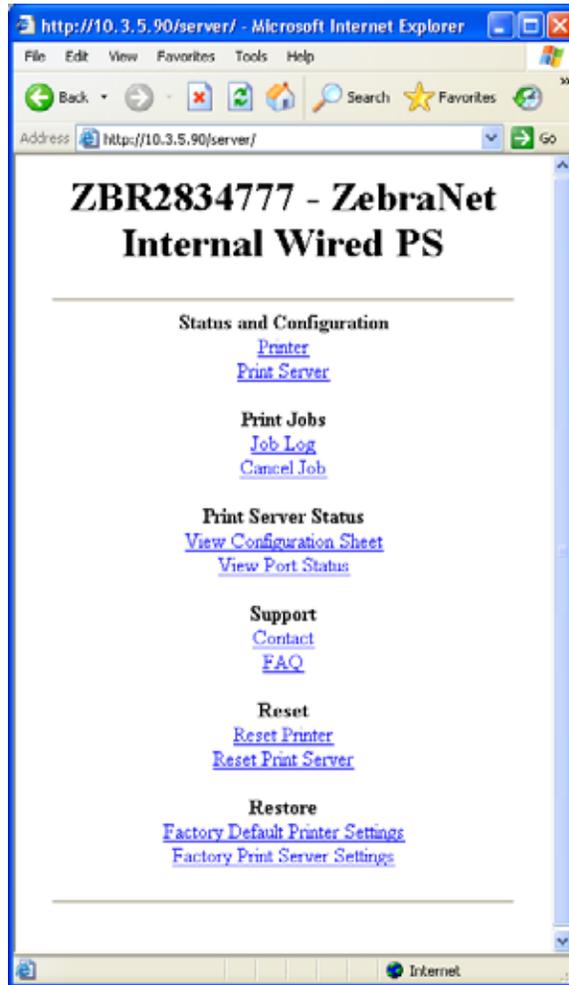
# View and Modify Printer Settings

### To view and modify printer settings, complete these steps:

**1.** From the Printer Home Page, click View and Modify Printer Settings.

The View and Modify Printer Settings page opens.

**Figure 26 • View and Modify Printer Settings**
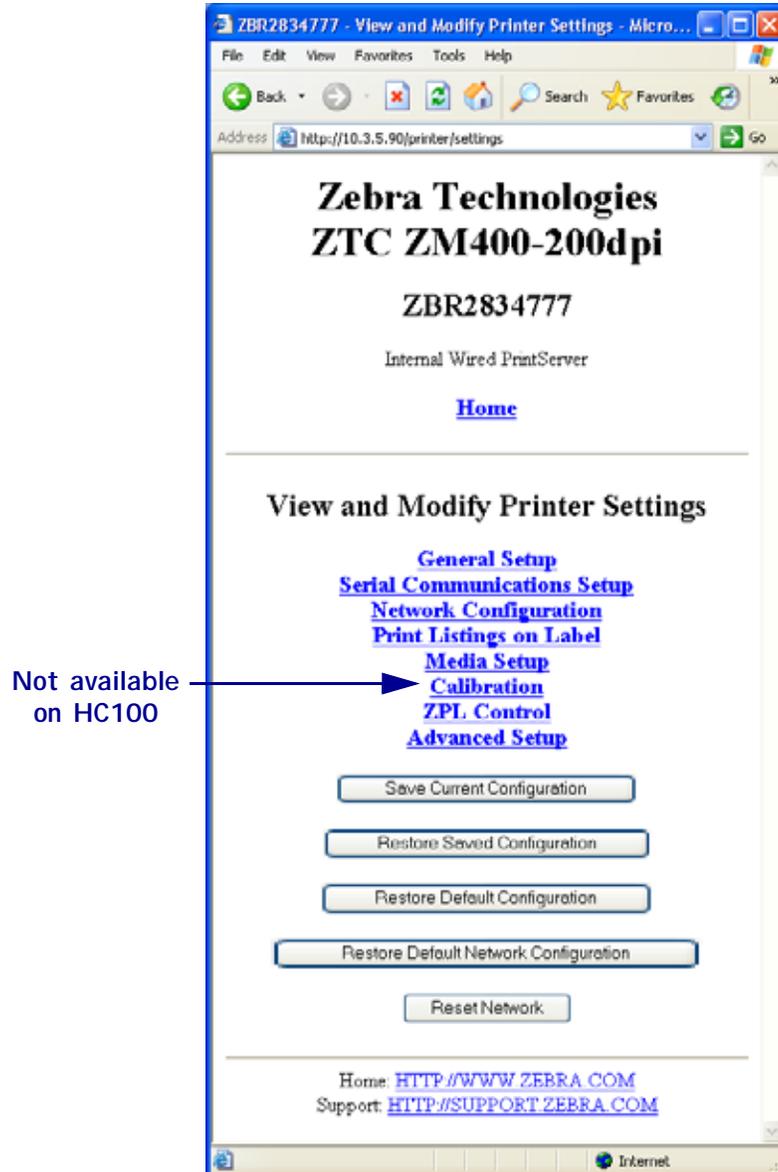
2. For details on the View and Modify Printer Settings page, see Table 8.

**Table 8 • View and Modify Printer Settings Menu Options**

| General Setup<br><br>For the HC100 printers, the following changes occur:<br>• Darkness Mode added<br>• Print Mode removed<br>• Print Speed removed |  |
|---|---|
| Serial Communications Setup |  |

**Table 8 • View and Modify Printer Settings Menu Options (Continued)**

| | |
|---|---|
| **Network Configuration**<br><br>For the G-Series, *ZP Series*, 2824 Plus, and HC100 printers, only the following links appear:<br><br>• SNMP<br>• SMTP<br>• TCP/IP Settings<br><br>For more information about configuring the network, see *Network Configuration* on page 71. |  |
| **Print Listings on Label**<br><br>For the HC100 printers, List Network has been removed. |  |

**Table 8 • View and Modify Printer Settings Menu Options (Continued)**

| Media Setup | |
|---|---|
| For the HC100 printers, Media Type and Print Method have been removed. No changes can be made to the Print Width and Maximum Length settings. |  |

**Table 8 • View and Modify Printer Settings Menu Options (Continued)**

| Calibration | |
|---|---|
| For the HC100 printers, this page is not available. |  |

**Table 8 • View and Modify Printer Settings Menu Options (Continued)**

| ZPL Control |  |
| --- | --- |
| **Advanced Setup**<br><br>For the HC100 printers, Backfeed has been removed. |  |

# Network Configuration

### To view and modify network configuration, complete these steps:

**1.** From the Printer Home Page, click View and Modify Printer Settings.

**2.** Click Network Configuration.

The Network Configuration page opens.

**Note •** For the G-Series, *ZP* Series, 2824 Plus, and HC100 printers, only the following links appear:

- SNMP
- SMTP
- TCP/IP Settings

**Figure 27 • Network Configuration Page
(ZM400/ZM600 Web Page Shown)**
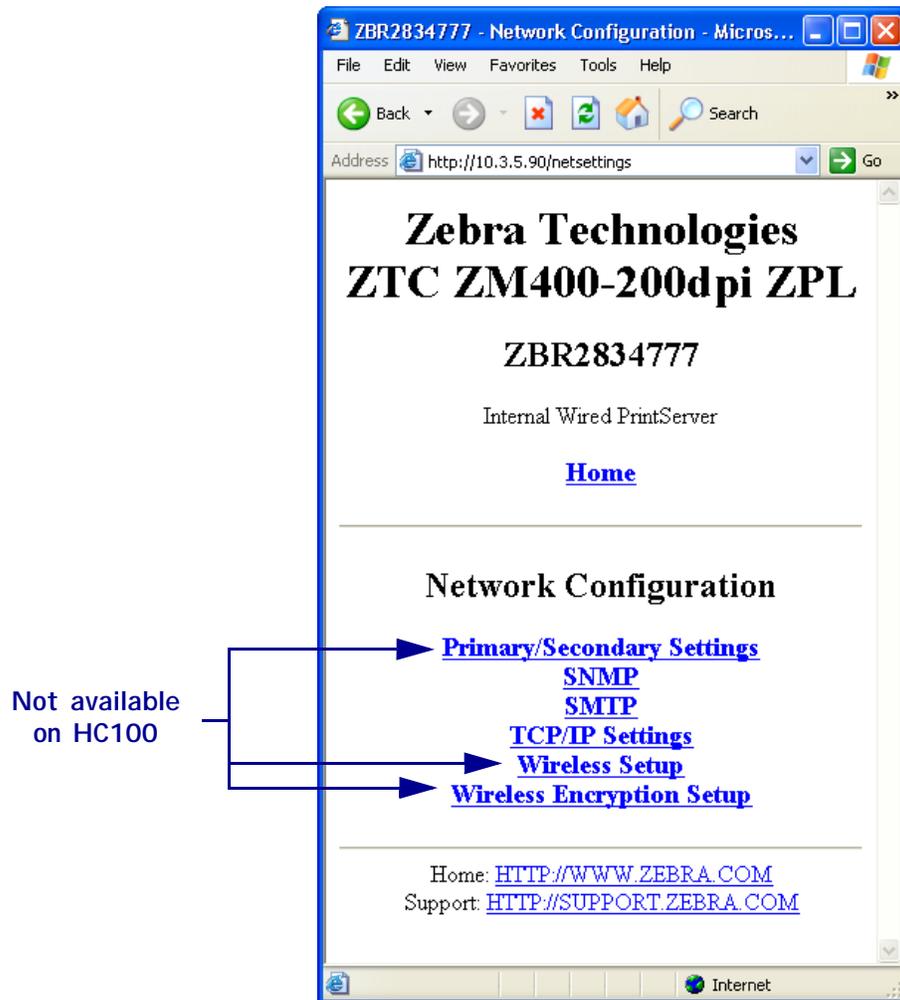
**3.** For details on the Network Configuration Settings page, see Table 9.

**Table 9 • Network Configuration Settings Menu Options**

| Primary/Secondary Settings | |
|---|---|
| For the HC100 printers, this page is not available. |  |
| SNMP |  |

**Table 9 • Network Configuration Settings Menu Options (Continued)**

| SMTP |  |
| --- | --- |
| TCP/IP Settings |  |

**Table 9 • Network Configuration Settings Menu Options (Continued)**

| Wireless Setup | |
|---|---|
| |  |

**Table 9 • Network Configuration Settings Menu Options (Continued)**

| Wireless Encryption Setup |  |
|---|---|

**Notes •** _____

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# 5

# ZebraLink
# WebView - Print Server

This chapter provides you with detailed information about how to set, modify, and view the Print Server Settings using WebView.

## Contents

# WebView - Print Server

This section provides steps on how to check the 10/100 Internal PS configuration settings using a browser.

## Print Server Home Page

### To open WebView for your print server, complete these steps:

1. Open a Web browser.

2. In the Address text-box, type your printer's IP address, and then press Enter.

   Your browser page looks similar to Figure 28.

**Figure 28 • Printer Home Page**

3. From the Printer Home Page, click Print Server Settings.

The default User ID and password are required.

> **Important •** To apply changes made in this section, you need to use the default User ID and password for your printer:
>
> **User ID: admin**
>
> **Password: 1234**

The Print Server Settings Page opens.

**Figure 29 • Print Server Settings Page**
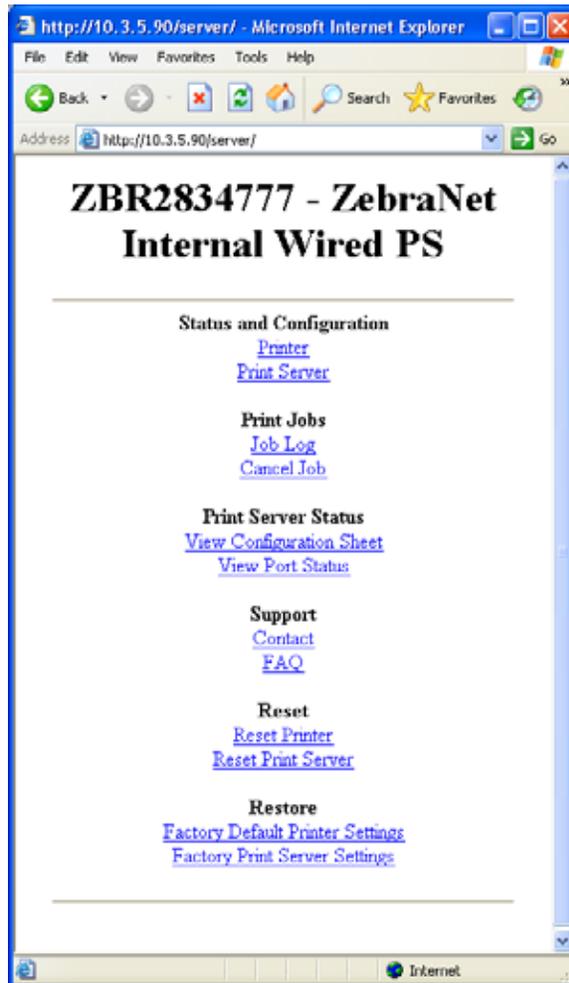
## Status and Configuration

Within this section of the Print Server Settings, you will either navigate to the printer home page or change the configuration of the 10/100 Internal PS.

### Printer

With this feature, you may return to the Printer Home Page.

### Print Server

This feature allows the configuration of certain options for the print server including:
- TCP/IP Configuration
- TCP/IP Logical Printing Ports
- System (SNMP)
- SMTP Email Alerts
- Web Admin
- POP3 E-Mail Printing

For more detailed information, please refer to *Configuring the Print Server* on page 87.

## Print Jobs

Within this section of the Print Server Settings, you may either view the print job log or cancel the job.

### Job Log

You may use this feature to display the system up time, total jobs printed, and job information.

### Cancel Job

You may use this feature to cancel the current print job.

## Print Server Status

Within this section of the Print Server Settings, you may either assess the Configuration Sheet or the port status.

### View Configuration Sheet

You may use this feature to view the configuration sheet with general, TCP/IP, and port configuration sections.
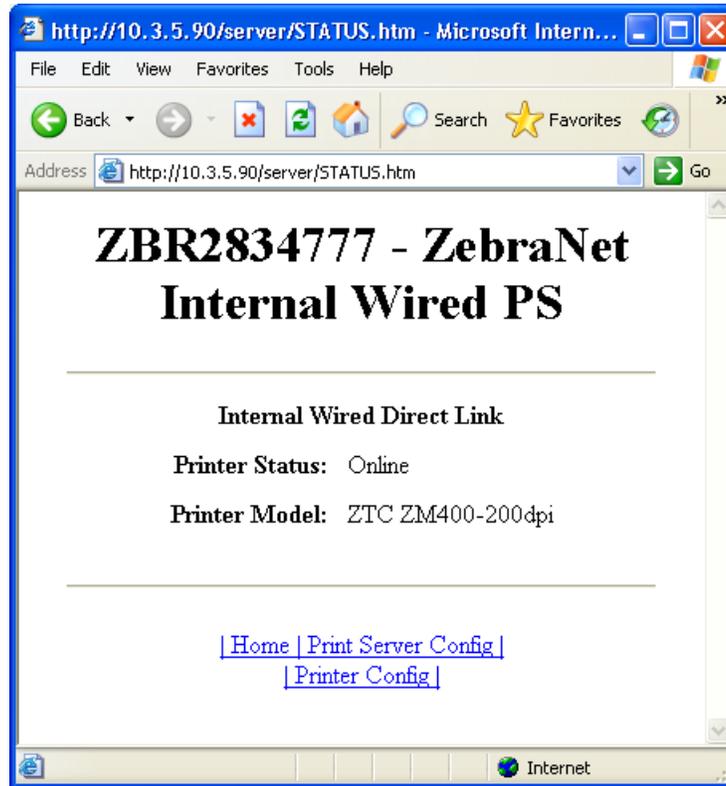
**Figure 30 • Configuration Sheet Page**
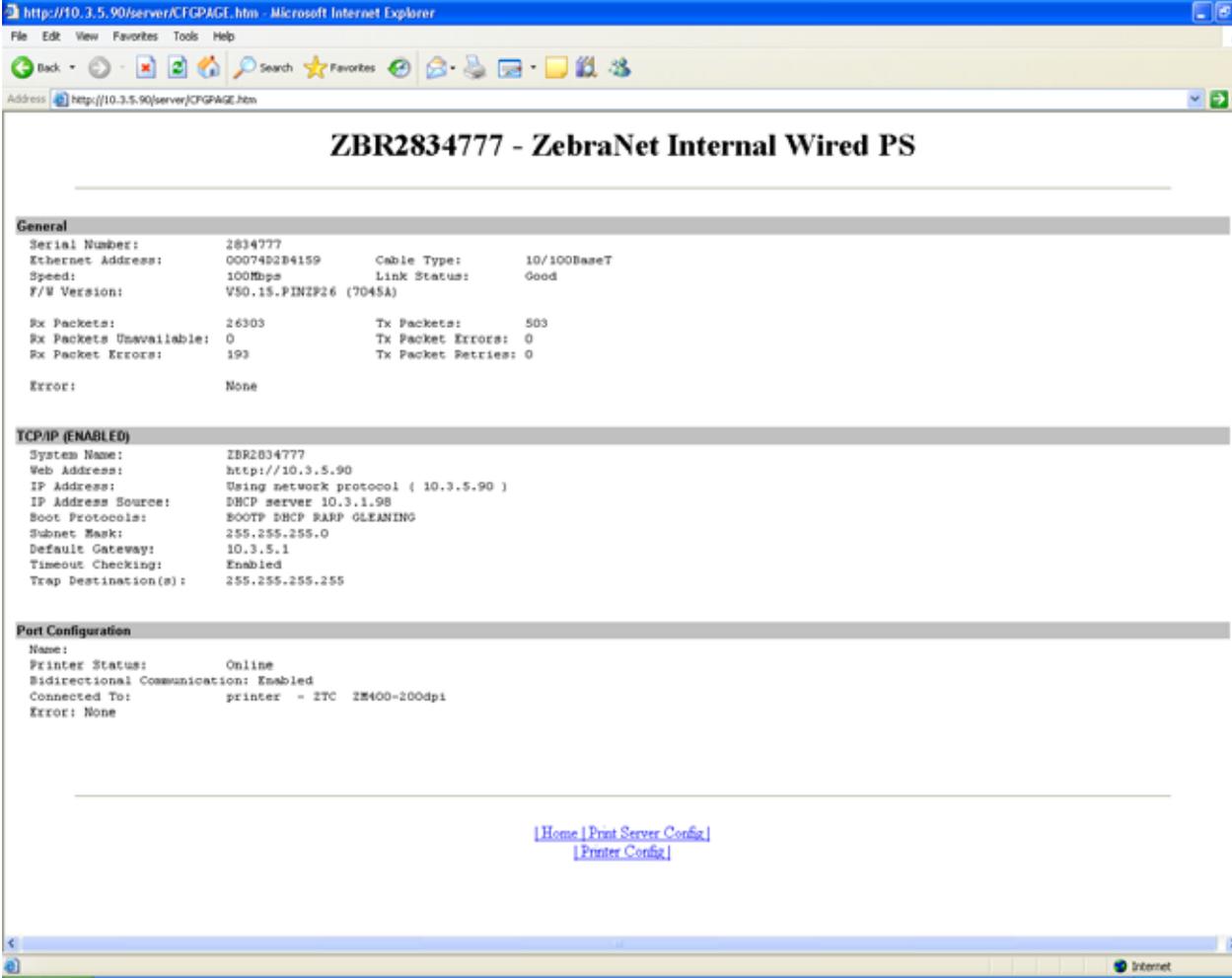
### View Port Status

You may use this feature to check the printer's status and model.

**Figure 31 • Port Status Page**



## Support

Within this section of the Print Server Settings, you may either contact Zebra or review Frequently Asked Questions (FAQ's).

### Contact

Use this feature to contact Zebra via web site, telephone, or fax.

### FAQ

Use this feature to connect to the Zebra Service and Support on the web site.

## Reset

Within this section of the Print Server Settings, you may either reset the printer or the print server.

### Reset Printer

This feature permits you to reset the controls used to print formats, and to reset the printer.

**Figure 32 • Reset Printer Page**

### Reset Print Server

With this feature, you may reset the print server.

**Figure 33 • Reset Print Server Page**

# Restore

Within this section of the Print Server Settings, you may either restore factory default settings to the printer or the print server.

## Factory Default Printer Settings

You may use this feature to restore the printer settings to factory defaults.

**Figure 34 • Factory Default Printer Settings Page**
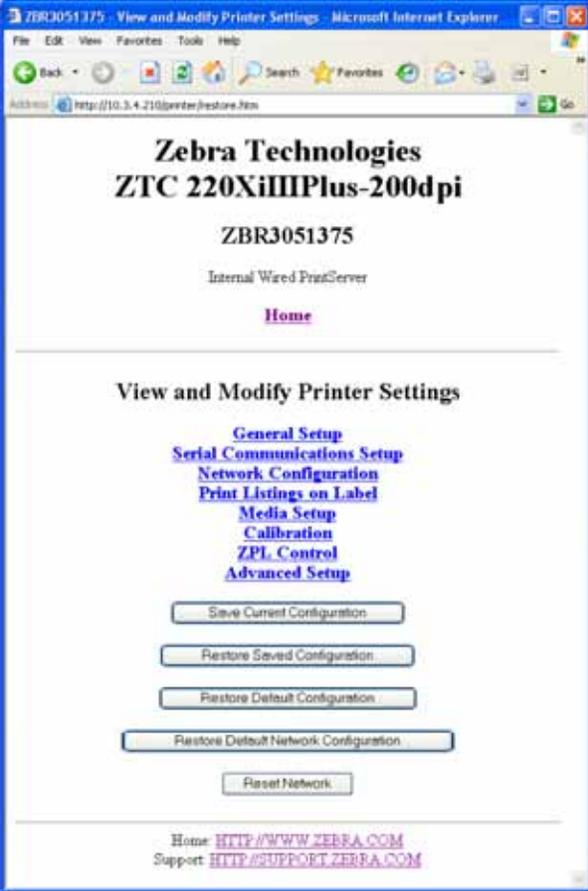
## Factory Print Server Settings

You may use this feature to restore the print server to factory defaults.

**Figure 35 • Factory Print Server Settings Page**
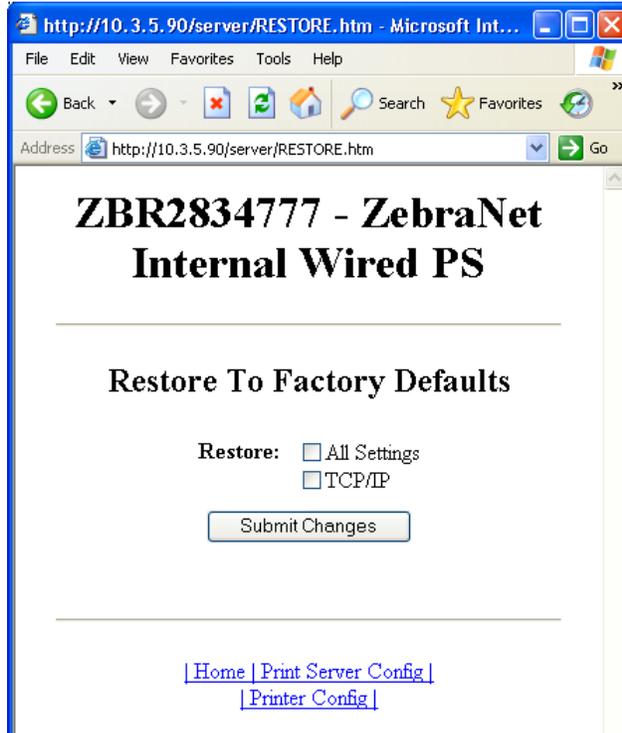
# Configuring the Print Server

### To configure the print server settings, complete these steps:

1. From the Print Server Home page, click Print Server.

   The Print Server Configuration page opens.

**Figure 36 • Print Server Configuration Page**
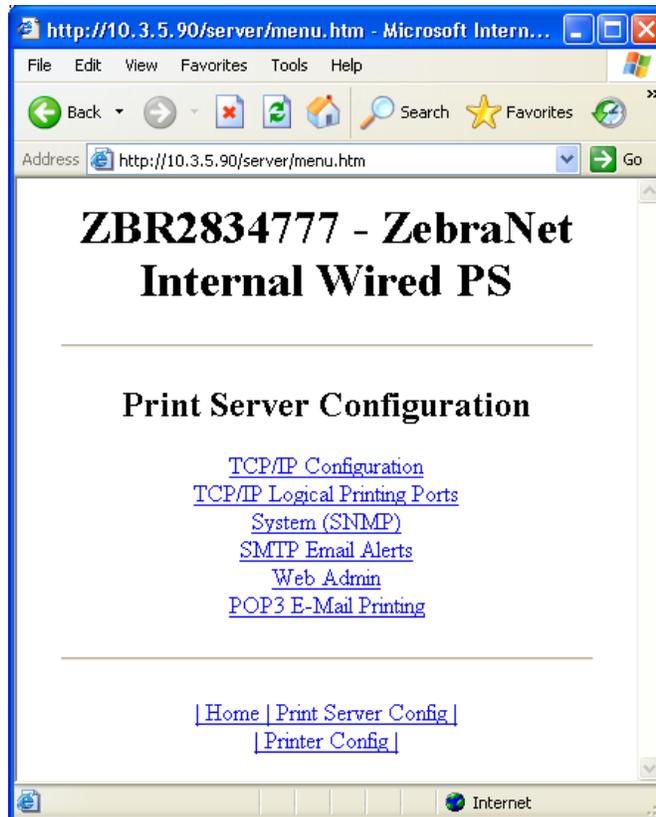


2. For details on the Print Server Configuration page choices, see Table 10, *Print Server Configuration Menu Options* on page 88.

3. Select the appropriate link to make your change(s).

**Table 10 • Print Server Configuration Menu Options**

**TCP/IP Configuration**

You can change the TCP/IP configuration of the 10/100 Internal PS.

- **IP Address:** Use this feature to set the IP address if using the Permanent addressing method.
- **IP Protocol:** Use this feature to select the Dynamic Addressing method to use at startup. Choices include: ALL, GLEANING ONLY, RARP, BOOTP, DHCP, BOOTP and DHCP, or PERMANENT.
- **Default Address Enabled:** This setting determines if the printer will use its default address, if no address is provided through DHCP or BOOTP. If no address is assigned after two minutes, the print server defaults to IP address 192.168.254.254.
- **Subnet Mask:** Use this feature to set the subnet mask. The subnet mask must follow the format XXX.XXX.XXX.XXX, where each XXX is a number between 0 and 255.
- **Default Gateway:** Use this feature to set the default gateway. This gateway will be used whenever messages need to be sent to another network. This gateway address must follow the format XXX.XXX.XXX.XXX, where each XXX is a number between 0 and 255.
- **WINS Server IP Address:** Use this feature to set or view the IP address of the WINS Server.
- **Connection Timeout Checking:** Use this feature to enable or disable the Connection Timeout feature. The timeout is used to close network TCP/IP connections that are idle for more than the number of seconds entered in the Timeout Value.
- **Timeout Value (secs):** Use this feature to set the Connection Timeout Value. The Valid range is 10 to 3600 seconds. The default is 300 seconds.
- **ARP Broadcast Interval (mins):** Use this feature to set interval for sending an ARP Broadcast. The valid range is 1 to 30 minutes. Address Resolution Protocol (ARP) broadcast packets allow other network devices to associate the print server's IP Address with its hardware address.
- **Base Raw Port Number:** Use this feature to set the raw TCP port that the print server will use for printing tasks. The default is port 9100.
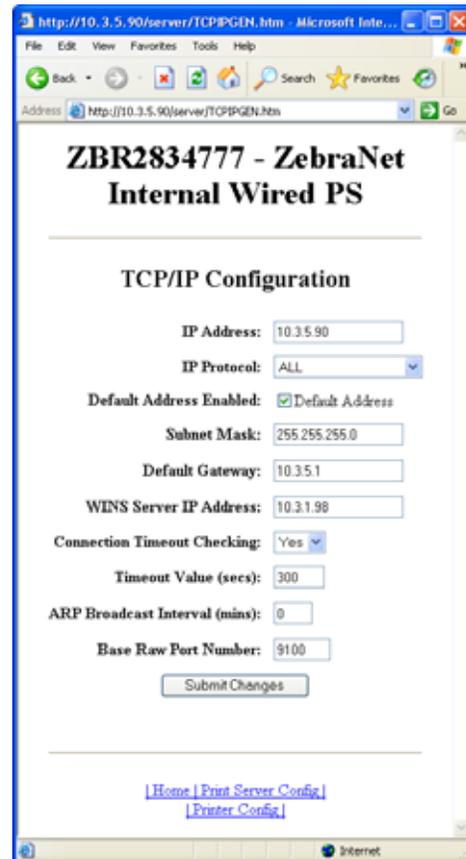
**ZBR2834777 - ZebraNet Internal Wired PS**

**TCP/IP Configuration**

| | |
|---|---|
| IP Address: | 10.3.5.90 |
| IP Protocol: | ALL |
| Default Address Enabled: | ☑ Default Address |
| Subnet Mask: | 255.255.255.0 |
| Default Gateway: | 10.3.5.1 |
| WINS Server IP Address: | 10.3.1.98 |
| Connection Timeout Checking: | Yes |
| Timeout Value (secs): | 300 |
| ARP Broadcast Interval (mins): | 0 |
| Base Raw Port Number: | 9100 |

Submit Changes

| Home | Print Server Config |
| Printer Config |

**Table 10 • Print Server Configuration Menu Options (Continued)**

**TCP/IP Logical Printing Ports**

Logical printers allow you to set up multiple pre- and post-processing configurations for each output port. Each logical port configuration can perform the following:

- Add user-configured strings before and after the print data.
- Remove unwanted characters from the beginning of the print data.
- Four logical printer configurations are supported for each output port on the printer. The configurations can be assigned to any port, and all of these configurations can be assigned to a single output port.
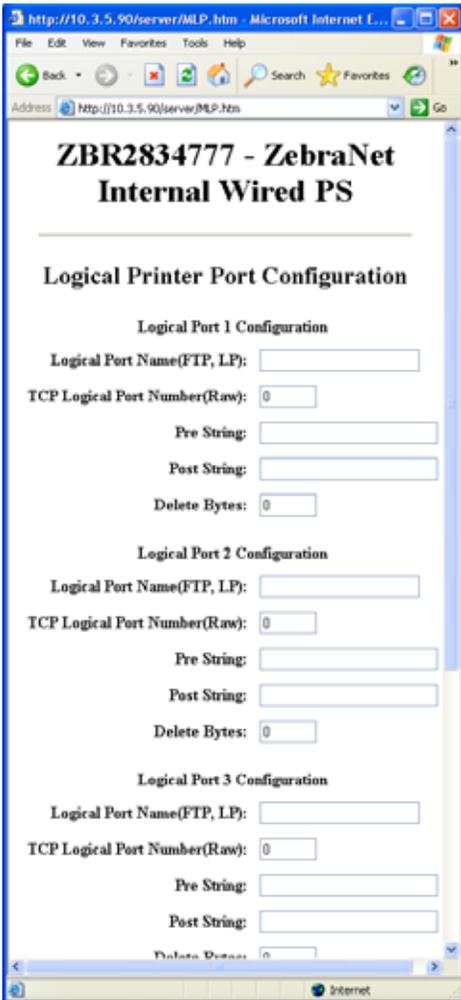
**Table 10 • Print Server Configuration Menu Options (Continued)**

| | |
|---|---|
| **System (SNMP)**<br><br>This feature gives you the ability to manage multiple devices on a network, be it printers, computers, or other network-attached devices.<br><br>On this page, you can define the SNMP system name, system location (10/100 Internal PS description), and other SNMP settings for your 10/100 Internal PS. |  |
| **SMTP Email Alert Configuration**<br><br>This feature allows you to set up the print server to send email messages about the printer's status to an Network Administrator. The SMTP settings must be set to send emails to the email server. |  |
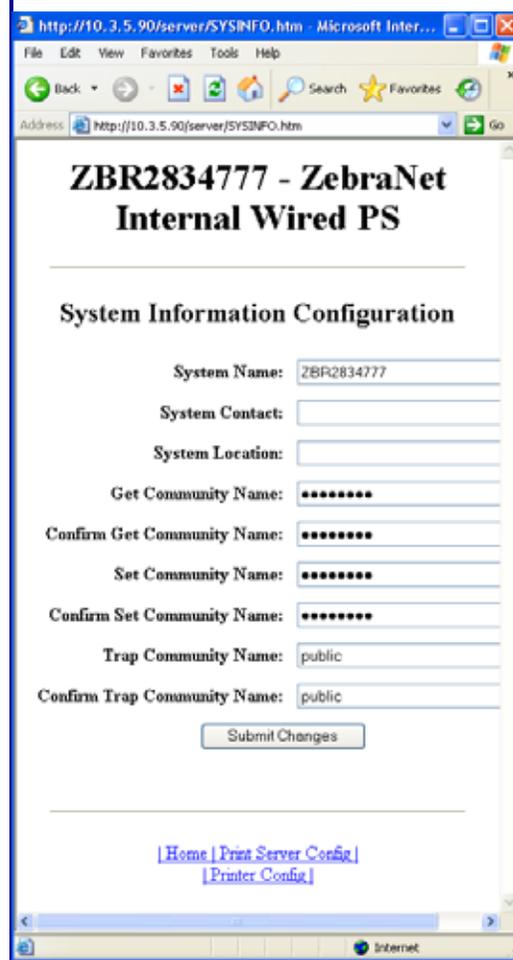
**Table 10 • Print Server Configuration Menu Options (Continued)**

| | |
|---|---|
| **Web Admin**<br>This page allows you to configure the Admin name and password. Links to upgrades and support information can also be altered.<br>**Note •** The printer and print server password can be changed on ZPL printers with firmware Vx.15.x or higher. |  |
| **POP3 Email Printing**<br>This feature helps you set up the print server to receive email messages containing formats that can be printed. The POP3 settings must be set to retrieve emails from the email server.<br>**Important •** Zebra recommends setting the POP3 polling interval no lower than 30. Some email servers will lock accounts after repeated login attempts. |  |

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# A

# ZebraNet Utilities

The appendix provides you with details on ZebraNet Utilities, the software suite of printer administration tools that complements and enhances both ZebraLink and the ZebraNet family of connectivity products.

## Contents

# ZebraNet View

ZebraNet View offers powerful device management capabilities and 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.

### 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 37 • ZebraNet View**
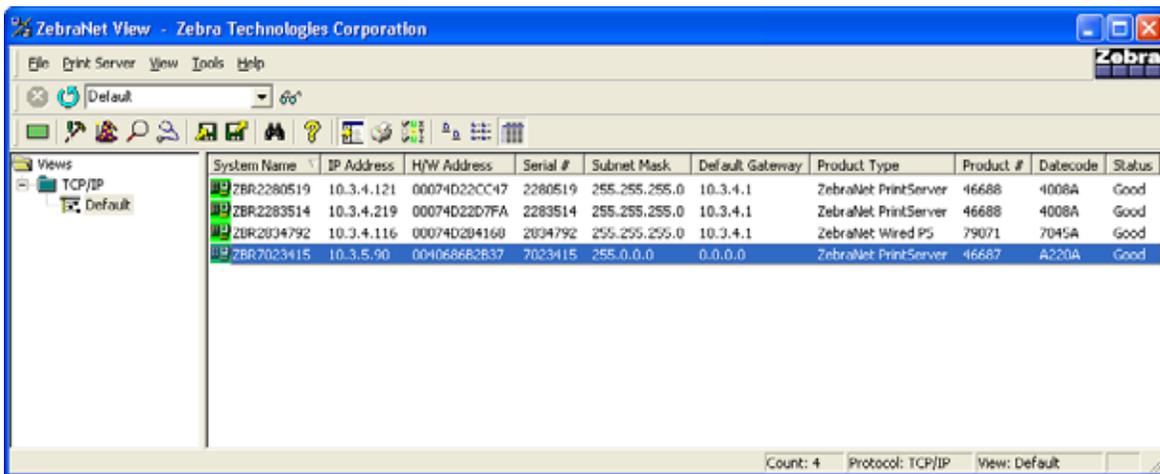


**2.** Select your printer.

# Print Server Configuration

### To configure your print server, complete these steps:

1.  From the menu bar, select PrintServer > Configuration.

    The Print Server Configuration dialog opens.

**Figure 38 • Print Server Configuration**
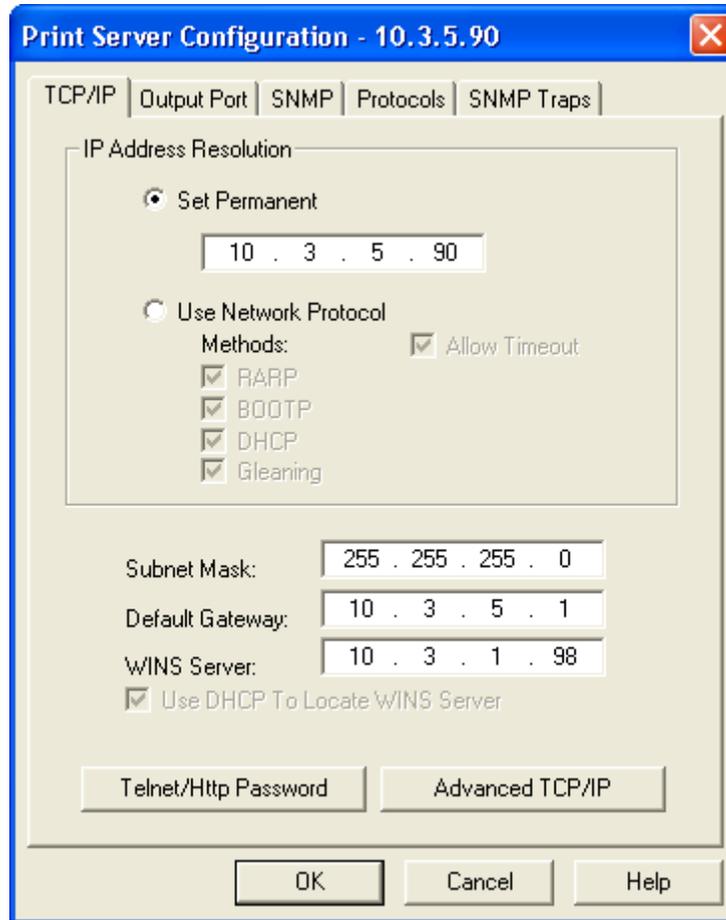


There are multiple tabs that you can access to make changes to current settings.

# ZebraNet Alert

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. Using Web-based configuration tools, selected errors or warning conditions can be routed to a variety of services such as email messages, wireless pagers, or the ZebraNet Alert.

Table 11 shows the conditions that can trigger alerts and the possible destinations.

**Table 11 • ZebraNet Alert and Destinations**

| Alert Type | Error Condition |
|---|---|
| **ZebraLink Alerts** | • Paper out<br>• Ribbon out *<br>• Head too hot<br>• Head too cold<br>• Head open<br>• Supply too hot*<br>• Ribbon in *<br>• Rewind *<br>• Cutter jammed *<br>• Printer paused<br>• PQ job completed<br>• Label ready *<br>• Head element bad *<br>• BASIC runtime<br>• BASIC forced<br>• Power on<br>• Clean printhead<br>• Media low<br>• Ribbon low<br>• Replace head<br>• Battery low *<br>• RFID error *<br>• All messages |
| **ZebraNet Alert Destinations** | Unsolicited Alert messages can be directed to the following destinations:<br><br>• Email (10/100 Internal PS-specific)<br>• TCP (10/100 Internal PS-specific)<br>• UDP (10/100 Internal PS-specific)<br>• SNMP (10/100 Internal PS-specific)<br>• Serial<br>• Parallel<br>• USB |

**\* NOTE: Alerts for these conditions cannot be set on the HC100.**

## ZebraNet Alert Using SNMP

You can send notifications over SNMP only, for use with ZebraNet Alert or a similar network management utility.

### To configure the 10/100 Internal PS to send alerts across a TCP/IP Network using ZebraNet Alert, complete these steps:

**Important •** If you did not install ZebraNet Alert during the ZebraNet Utilities installation, see *ZebraNet Utilities* on page 42.

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

2. Select the printer you want.

| If... | Then... |
|---|---|
| A DHCP server is present | The 10/100 Internal PS will already have an IP address. |
| No DHCP server is present | You may need to assign the printer an IP address. |

3. To assign your printer an IP address, from the menu bar, select Print Server > Configuration.

4. For PrintServer SNMP Traps, select the SNMP Traps tab.

5. Enter the trap destination and options.

   This tells the 10/100 Internal PS what TCP/IP address to send the alerts to, and under what circumstances to send error and log reports. Entering 255.255.255.255 broadcasts the message to every host on the network with an SNMP program running.

6. For ZebraNet Alert to get and display the messages, you need to open ZebraNet Alert. To do this, follow these steps:

   a. From the task bar, select Start > Programs > ZebraNet Utilities > ZebraNet Alert.

   **Important •** The SNMP trap settings must be established to communicate with 10/100 Internal PS if messages are sent to the ZebraNet Alert.

   b. In the ZebraNet Alert dialog, from the menu bar, select View > Filter Settings.

   c. From the View Filter - Devices tab, choose your settings accordingly.

   **Note •** If you select **No device filtering**, messages from every printer are caught; **Device Address** allows you to specify from which IP address data will come.

   d. The **View Filter - Events** tab allows you to select individual events you want the program to be aware of.

   **Important •** Now SNMP Alert messages for the 10/100 Internal PS can be set up in WebView. From the printer's home page, activate the link to Alert Setup. You can add messages that are sent to the ZebraNet Alert for Windows by choosing SNMP as a destination.

## Open ZebraNet Alert

### To open ZebraNet Alert, complete these steps:

**1.** From the task bar, select Start > ZebraNet Utilities > ZebraNet Alert.

**2.** In the ZebraNet Alert dialog, from the menu bar, select Report.

The report menu option has multiple report selections.

**3.** Select the type of report you want to generate.

Figure 39 is an example of the Event Summary report. Notice it generates a .log file.

**Figure 39 • Event Summary Report**
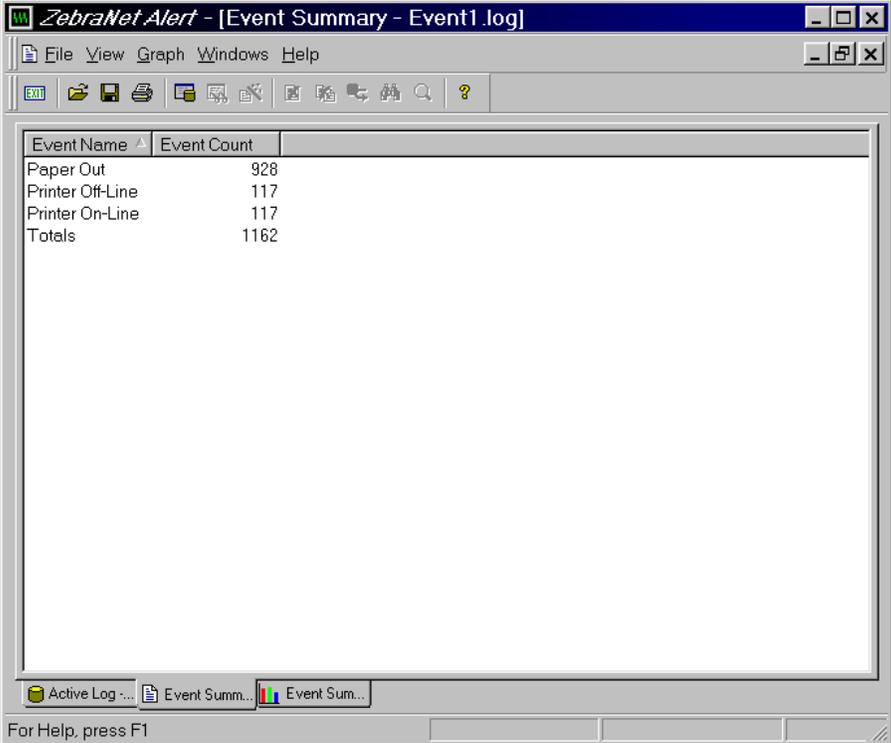
# Setting Alerts

This section includes step-by-step instructions for setting up an alert using ZebraNet View. For information on setting up alerts using ZebraLink, see *Alert Setup* on page 56.

### To set alerts (traps) using ZebraNet View, complete these steps:

**1.** In the ZebraNet View dialog, from the menu bar select Print Server > Configuration.

**2.** Click the SNMP Traps tab.

The Printer Traps check boxes are the alerts you can set from ZebraNet View.

**Figure 40 • SNMP Traps**
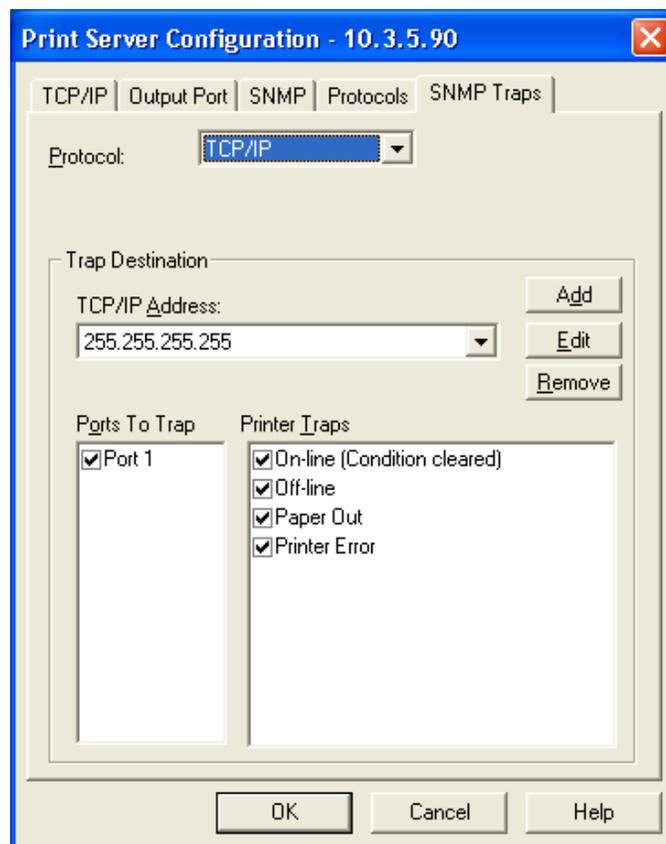
**3.** Enable the alerts (printer traps) you want to set here and click OK.

**4.** To monitor the alerts you established, from the task bar select Start > ZebraNet Utilities > ZebraNet Alert.

The ZebraNet Alert dialog opens.

**Figure 41 • ZebraNet Alert**
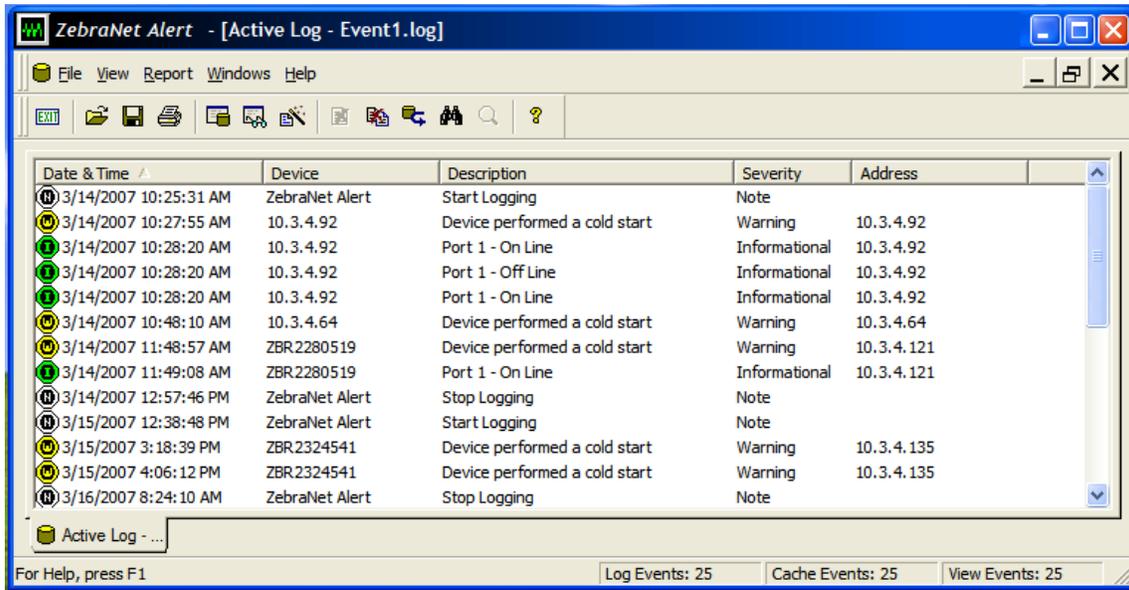


In this dialog, you can view the log of errors and monitor the activity of your printer(s).

# Establishing Email Alert Messaging

ZebraNet Alert supports email notification of printer errors sent directly to any valid email address. You can have multiple email addresses set up for routing different error messages, or split notifications between email and other network management tools.

## To monitor alerts, complete these steps:

**1.** From the task bar, select Start > Programs > ZebraNet Utilities > ZebraNet Alert.

The Active Log dialog opens, displaying a list of all the logged alerts.

**Figure 42 • Active Log Dialog**
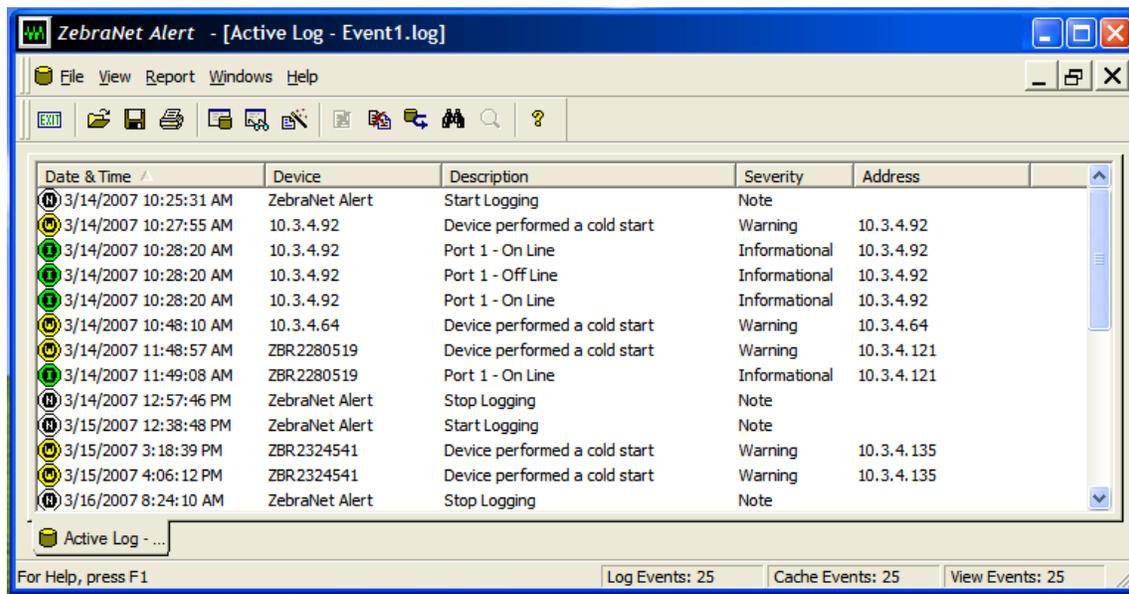


**2.** From this dialog, you can track the printer(s) activity and status.

**3.** From the menu bar, you can explore all of the other features, such as Reports.

# ZebraNet View Java Applet

ZebraNet View Java Applet is a Java-based version of ZebraNet View. This can run on any enabled platform that can run a Java virtual machine, such as Windows, UNIX, Linux, and many others.

> ⚠ **Important •** To use ZebraNet View Java Applet, you must have installed ZebraNet Utilities and then installed this application. For installation instructions for ZebraNet Utilities, see *ZebraNet View Java Applet* on page 46.

### To access ZebraNet View Java Applet, complete these steps:

1. From the task bar, select Start > Programs > ZebraNet Utilities > ZebraNet View Java Applet 1.0.

   This dialog opens.

**Figure 43 • ZebraNet View Java Applet 1.0**
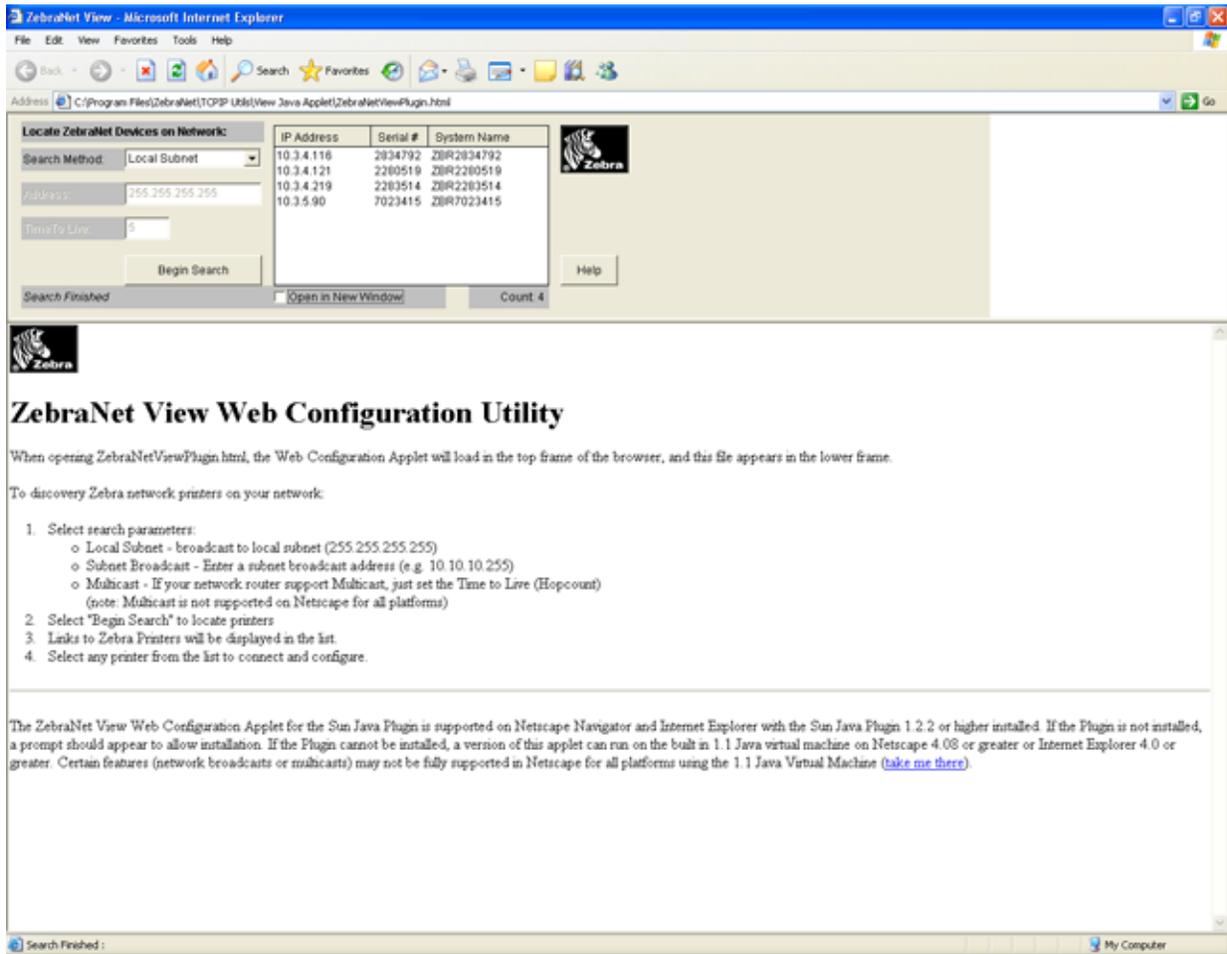
2. In the Search Method drop-down box, select the search method you want.

3. Click Begin Search.

   It searches your network for all networked Zebra printers, discovers them, and lists them.

4. 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).

# ZebraNet Connect IP

ZebraNet Connect IP allows you to send jobs to print servers that use Dynamic IP addresses (DHCP). It also notifies you of printer errors, such as **paper out** or **head open**. When print jobs are printed through ZebraNet Connect IP, they are sent directly to 10/100 Internal PS and are not routed through a network server, resulting in a reduction of network traffic.

**Note •** The DHCP feature of ZebraNet Connect IP can rediscover a 10/100 Internal PS on the local subnet, even when its IP address might be changing (for example, when using DHCP for IP address resolution). The 10/100 Internal PS is relocated by its port name as configured through ZebraNet View (the default name is Serial Number-Port Number). This feature is enabled on the local subnet only. A non-local 10/100 Internal PS device is not rediscovered if the IP address changes.

## Setting up a ZebraNet Connect IP

If you have printing problems while using the ZebraNet Connect IP printing port, you may check the status of the port or change its settings through the printer Properties dialog.

- For Windows 95/98, select Port Settings under the Details tab.
- For Windows NT 4.0 or Windows 2000, select Configure Port under the Ports tab.

### Windows NT 4.0/Windows 2000

If you are using the Windows NT 4.0 or Windows 2000 operating system, use the following procedure to set up a printer port for the 10/100 Internal PS.

#### To set up a printer port for the 10/100 Internal PS, complete these steps:

1. From the task bar, select Start > Settings > Printers.

2. Select the Windows printer to use when printing with the 10/100 Internal PS.

3. From the menu bar, select File > Properties.

4. To add a ZebraNet Connect IP port, in the Ports tab select Add Port.

5. From the list of Available Printer Ports, select ZebraNet Connect Monitor as the type of port to add, and click New Port.

**Note •** If ZebraNet Connect IP monitor is not listed, verify that the ZebraNet Connect IP software has been properly installed. To do this, you need to reinstall the software and choose Modify.

From the Add ZebraNet Connect Port screen, there is a list of all 10/100 Internal PS devices available on the local subnet.

- The TCP/IP monitor searches only the local subnet.

6. If the port you want to add is listed in the Ports Available on Local Subnet window, select the port name. If the port you want to use is not listed, you can:

   • Select Cancel and repeat step 5 to rediscover the print servers.

   • In ZebraNet Connect, click the Locate Non-local Device button and enter the static TCP/IP Address used for the 10/100 Internal PS.

   **Note •** The ZebraNet Connect for TCP/IP DHCP discovery feature relocates a 10/100 Internal PS device on the local subnet by its port name, even if the IP address changes. This feature is enabled on the local subnet only. A non-local 10/100 Internal PS device is not rediscovered if the IP address changes.

7. Click Add.

8. To close the Printer Ports dialog, click Cancel.

9. To save the configuration, click OK.

Now you can use ZebraNet Connect. Whenever you print to the Windows printer configured with ZebraNet Connect, your print job will go directly to the ZebraNet 10/100 Internal PS port.

## Windows 95/98/Me

**To set up a 10/100 Internal PS port using Windows 95/Windows 98/Me, complete these steps:**

1. From the task bar, select Start > Settings > Printers.

2. Select the Windows printer that you want to print with ZebraNet Connect IP.

   **Note •** Under Windows 95, you have to set up the printer for a local port first, and then open Properties from the File menu and continue with the configurations.

3. From the file menu, select File > Properties.

4. To add a ZebraNet Connect IP port, in the Details tab select Add Port.

5. From the Add Port dialog, select Other, and then select the ZebraNet Connect Monitor as the type of port to add.

   **Note •** If ZebraNet Connect IP is not listed, verify that the software has been properly installed.

6. Click OK.

   The Add ZebraNet Connect Port screen opens. There is a list of all 10/100 Internal PS devices discovered on the network.

   • The TCP/IP monitor searches only the local subnet.

7. If the port you want to add is listed in the Ports Available on Local Subnet window, select the port name. If the port you want to use is not listed, you can:

   • Select Cancel and repeat step 5 to rediscover the 10/100 Internal PS devices.

   • In ZebraNet Connect IP, click the Locate Non-local Device button and enter the static TCP/IP address used for the 10/100 Internal PS.

8. Click Add.

9. To save the configuration, click OK.

Now you can use ZebraNet Connect IP. Whenever you print to the Windows printer configured with ZebraNet Connect IP, your print job will go directly to the 10/100 Internal PS port.

# B

# Hardware Troubleshooting

This appendix provides you with solutions to known issues.

## Contents

# Troubleshooting the 10/100 PS

## Defaulting the 10/100 PS

Which model printer do you have?

| If you have a… | Then… |
|---|---|
| ZM400 or ZM600 printer | Go to *Defaulting the 10/100 PS on the ZM400 and ZM600 Printers* on page 29. |
| G-Series, ZP Series, or 2824 Plus printer | Go to *Defaulting the 10/100 PS on the G-Series, ZP Series, and 2824 Plus Printers* on page 29. |
| HC100 printer | Go to *Defaulting the 10/100 PS on the HC100 Printers* on page 30. |
| Xi4 printer | Go to *Defaulting the 10/100 PS on the Xi4 Printers* on page 30. |

## 10/100 Internal PS Network Status/Activity Indicator

### For the ZM400, ZM600, HC100, and Xi4 printers

Alongside of the RJ45 connector, there is a single LED containing a red element and a green element. By turning on and off different combinations of these two LED elements, the LED indicates Ethernet links, activity, and speed.

| LED State | Description |
|---|---|
| Off | No Ethernet link detected |
| Amber | 10 Mbps link detected |
| Amber, blinking | 10 Mbps link detected and Ethernet activity detected |
| Green | 100 Mbps link detected |
| Green, blinking | 100 Mbps link detected and Ethernet activity detected |

### For the G-Series, *ZP* Series, and 2824 Plus Printers

On the top of the RJ45 connector, two LEDs are provided for these printers. The left LED is green and the right LED is amber. Follow the table below to determine activity and status of the G-Series, *ZP* Series, and 2824 Plus printers.

| Left LED State | Right LED State | Description |
|---|---|---|
| Off | Off | No Ethernet link detected |
| Off | Amber | 10 Mbps link detected |
| Green, blinking | Amber | 10 Mbps link detected and Ethernet activity detected |
| Green | Off | 100 Mbps link detected |
| Green | Amber, blinking | 100 Mbps link detected and Ethernet activity detected |

## ZebraNet View Utility Discovery or Configuration Problems

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

- Verify there is not a router between the workstation running ZebraNet View and the 10/100 Internal PS. Because the 10/100 Internal 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 10/100 Internal PS.

- Verify that the LED on the 10/100 Internal PS is active. Consult the chart above for details.

## Unable to Print

If you are having problems printing, verify that there is communication between the 10/100 Internal PS and the printer. Suggestions include the following:

- Ping the printer to determine the ability to communicate with the printer. See *Ping the Printer*.

- Or open a Telnet session and send a ZPL command to print a configuration label. See *Telnet* on page 111 for more information.

- 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 44. You see a reply from the print server indicating a connection.

**Figure 44 • 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.

### Telnet

Open a telnet session to send a ZPL command from a DOS prompt. This procedure can be used when running Vx.15.x or later firmware. In this example, a ZPL II command is used to cause a label to print.

**Note •** You do not need to open a telnet session if you pinged the printer using the previous procedure. The purpose of these two procedures is to identify whether your PC can communicate with your printer.

#### To open a telnet session on your PC, 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:

   `telnet xxx.xxx.xxx.xxx 9100`

   where `xxx.xxx.xxx.xxx` is the IP address of the print server.

   This will connect your PC to the 10/100 Internal PS through the parallel port of the printer.

4. Enter `~WC`.

   This ZPL command will print a configuration label on your printer.

5. Click the **X** in the upper right-hand corner of the window to exit.

If the configuration label prints, the issue is not a communication problem between the printer, the print server, or the PC.

## Unable to Configure Device

To assign an IP address to a ZebraNet 10/100 Internal PS using ZebraNet View, you must be on the same subnet. If ZebraNet View has Multicast enabled, you may be able to view the ZebraNet 10/100 Internal PS on another subnet, but you will not be able to configure the device.

**Notes** • _____

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# C

## Print Protocols

In this appendix, an exercise is provided to experiment with **F**ile **T**ransfer **P**rotocol (FTP) support.

### Contents

# FTP

Embedded within the 10/100 Internal PS is an FTP server application that processes file transfers from a host computer to the printer.

If the printer is on a network, label formats can be generated and data can be transferred without setting up a print queue.

### To send information to the printer in a Windows environment, try this exercise:

1. In a text editor, generate the following ZPL II code:

   ```
   ^XA
   ^FO100,100
   ^CF0,55^FDZebra Technologies^FS
   ^XZ
   ```

2. Save the file and name it `test.txt`.

3. Open the MS-DOS Command Prompt and type:

   ```
   ftp <IP of 10/100 PS>
   ```

   **Example •** If the IP address of your 10/100 Internal PS device is `12.3.4.123`, you would type:

   ```
   ftp 12.3.4.123
   ```

   This opens a session with the FTP server.

   **Note •** The default user name is `blank`.

4. Type your user name and press Enter.

5. Type:

   ```
   put test.txt
   ```

   This transfers `test.txt` to the printer, and the printer generates a label.

6. To terminate the FTP session, type:

   ```
   quit
   ```

# D

# Print Queues

This appendix provides information and instructions on configuring your print queue.

## Contents

# Berkeley Software Distribution (BSD)-Style Print Queue

BSD is a version of the UNIX OS that includes TCP/IP.

## Configuring the Print Queue

For remote BSD-style LPD printing, add the 10/100 Internal PS as a remote printer in the /etc/printcap database to each host printing to the 10/100 Internal PS. You can add printcap options as needed. If you are unfamiliar with these options, consult the printer documentation.

**Important •** You must be logged in as `root`.

The entry looks similar to this:

```
local_print_queue_name|[printer_model_and_manufacturer]:\
:lp=:mx#0:rm=ZebraNet_name:\
:rp=remote_print_queue_name:\
:sd=path_to_spool_directory:lf=just log_file_name
```

`local_print_queue_name` — This defines the name of the printcap entry. It is used by the LPR/LPD utilities to specify which printcap entry is being referenced. Additional printcap entries can be added as needed for different queue types. Each entry must have a unique local_print_queue_name and a different spool directory to work properly. When you are ready to print, use the local_print_queue_name that matches the data type of the file to be printed.

`ZebraNet_name` — This is the name (alias) of the ZebraNet 10/100 Internal PS. This must be the same name as entered in the `/etc/` hosts file or your NIS or DNS system. An IP address may also be used here.

`remote_print_queue_name` — This entry determines the ZebraNet port where the print job will be printed and optionally specifies ASCII printing that must end for `LF1`.

`path_to_spool_directory` — This is the path to a directory where the print jobs will be spooled for this queue. You must create a unique spool directory for each printcap entry.

`log_file_name` — This is the path to a file where error information from the LPD will be logged.

**Example •** Your printcap entries might look similar to this:

```
Ascii_files|form.feed.Queue_on_Port_1:\
:lp=:mx#0:rm=pserver1:rp=MYQUEUELF1:\
:sd=/usr/spool/myqueuelf1:\
        :lf=/usr/spool/myqueuelf1/queue.log
```

**Important •** Each printcap entry must have a different spool directory to work properly.

# System V Queue Installation

## Configuring Operating System V Queue for ZebraNet Printing

This section describes the configuration of the printing system on the UNIX operating system. For clarity and brevity, the following specific names are used to represent general devices or concepts.

lj4 — The local queue name on the UNIX system to which you want 10/100 Internal PS print jobs directed.

ZEBRAPRINTER — The host name or IP address of the remote system that is the 10/100 Internal PS device. For example, to Telnet to the 10/100 Internal PS and invoke the 10/100 Internal PS configuration utility, you would enter:

```
Telnet ZEBRAPRINTER
```

A host name is not required for the 10/100 Internal PS — the IP address can be used.

yourqueuename — This is the name of the queue on the ZebraNet and must end with LF1.

## Prerequisites

Before you proceed, the following prerequisites must be met:

- The name ZEBRAPRINTER and the IP address assigned to the 10/100 Internal PS are in the /etc/hosts file on the UNIX system.
- The LPD must be running on the UNIX system.

## Spool Print Job Configuration

**To configure the UNIX machine so users can spool print jobs to the PCL print queue on the ZebraNet named ZEBRAPRINTER, complete these steps:**

1. Log in to the UNIX machine as root.

2. Type:
   ```
   lpsystem -t bsd ZEBRAPRINTER
   ```

3. Type:
   ```
   lpadmin -p lj4 -s ZEBRAPRINTER!yourqueuename - I any
   ```

4. Type:
   ```
   accept lj4
   ```

5. Type:
   ```
   enable lj4
   ```

6. Try printing by typing the command:
   ```
   lp -d lj4 [filename]
   ```

**Notes •** _____

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# E

# Frequently Asked Questions

This appendix provides a group of frequently asked questions (FAQs) about 10/100 Internal PS.

## FAQs

**Can the ZebraNet 10/100 Internal PS option work on a computer network that is running both TCP/IP and IPX protocols simultaneously?** Yes. The ZebraNet 10/100 Internal PS runs all of its available protocols simultaneously. This means that the ZebraNet 10/100 Internal PS can run on mixed networks such as a network using Microsoft, and UNIX.

**Important •** The ZebraNet 10/100 Internal PS does not support IPX, but it can function on networks that use IPX protocols.

**Will the ZebraNet 10/100 Internal PS allow connectivity to anything other than a PC network?** Yes. The ZebraNet 10/100 Internal PS allows connectivity to systems such as IBM's AS400, 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 previous 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: PORTLF1.

  - 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

- 10/100 Internal 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 is the default User ID and password for the print server?**

- The User ID is **admin** and the password is **1234**.

**What ports are open on 10/100 Internal PS and related software?**

**TCP Ports:**

- 21 FTP

- 23 Telnet

- 80 HTTP Server

- 515 Printer port

- 9100 Raw socket connection

**UDP Ports:**

- 161 SNMP broadcast from 10/100 Internal PS

- 162 SNMP trap on ZebraNet Alert

- 4201 discovery destination on 10/100 Internal PS

- (dynamic) SNMP get request from ZebraNet View

- (dynamic) discovery broadcast from ZebraNet View

- (dynamic) discovery broadcast from ZebraNet View Java

### What are my network connectivity options based on when using a 10/100 Internal PS?

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

- FTP — ZPL/EPL files can be sent to the printer as standard ASCII files via an FTP client.

- HTTP — Using the script option on the printers Directory web page, you can type ZPL into a specified location of the Web browser and send it to the printer.

- 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/EPL into existing programs, such as VB scripts.

- POP3 — With proper configuration, you can place valid label format instructions 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.
  **IMPORTANT:** Attachments and subject lines are not supported.

**Notes •** _____

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# 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 10/100 Internal 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 10/100 Internal 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, a packet-based protocol used for delivering data across networks.

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

**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.

**LPD** LPD stands for Line Printer Daemon; it is the part that receives and processes the request. A "daemon" is a server or agent.

**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.

**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.

**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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