

**PRINTRONIX<sup>®</sup>**

*PrintNet Ethernet User's Manual*  
*P8000 Line Matrix Printers*

## READ THIS SOFTWARE LICENSE AGREEMENT BEFORE USING THIS PRINTER

### Software License Agreement

CAREFULLY READ THE FOLLOWING TERMS AND CONDITIONS BEFORE USING THIS PRINTER. USING THIS PRINTER INDICATES YOUR ACCEPTANCE OF THESE TERMS AND CONDITIONS. IF YOU DO NOT AGREE TO THESE TERMS AND CONDITIONS, PROMPTLY RETURN THE PRINTER AND ALL ACCOMPANYING HARDWARE AND WRITTEN MATERIALS TO THE PLACE YOU OBTAINED THEM, AND YOUR MONEY WILL BE REFUNDED.

### Definitions

"Software" shall mean the digitally encoded, machine-readable data and program. The term "Software Product" includes the Software resident in the printer and its documentation. The Software Product is licensed (not sold) to you, and Printronix, Inc. either owns or licenses from other vendors who own, all copyright, trade secret, patent and other proprietary rights in the Software Product.

### License

1. Authorized Use. You agree to accept a non-exclusive license to use the Software resident in the printer solely for your own customary business or personal purposes.
2. Restrictions.
  - a. To protect the proprietary rights of Printronix, Inc., you agree to maintain the Software Product and other proprietary information concerning the typefaces in strict confidence.
  - b. You agree not to duplicate or copy the Software Product.
  - c. You shall not sublicense, sell, lease, or otherwise transfer all or any portion of the Software Product separate from the printer, without the prior written consent of Printronix, Inc.
  - d. You may not modify or prepare derivative works of the Software Product.
  - e. You may not transmit the Software Product over a network, by telephone, or electronically using any means; or reverse engineer, decompile or disassemble the Software.
  - f. You agree to keep confidential and use your best efforts to prevent and protect the contents of the Software Product from unauthorized disclosure or use.
3. Transfer. You may transfer the Software Product with the printer, but only if the recipient agrees to accept the terms and conditions of this Agreement. Your license is automatically terminated if you transfer the Software Product and printer.

### Limited Software Product Warranty

Printronix, Inc. warrants that for ninety (90) days after delivery, the Software will perform in accordance with specifications published by Printronix, Inc. Printronix, Inc. does not warrant that the Software is free from all bugs, errors and omissions.

### Remedy

Your exclusive remedy and the sole liability of Printronix, Inc. in connection with the Software is replacement of defective software with a copy of the same version and revision level.

### Disclaimer of Warranties and Limitation of Remedies

1. THE PARTIES AGREE THAT ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY ARE EXCLUDED. Printronix, Inc. does not warrant that the functions contained in the Software will meet your requirements or that the operation of the Software will be uninterrupted or error free. Printronix, Inc. reserves the right to make changes and/or improvements in the Software without notice at any time.
2. IN NO EVENT WILL PRINTRONIX, INC. BE LIABLE FOR LOST PROFITS, LOST DATA, BUSINESS INTERRUPTIONS, OR ANY OTHER DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF OR INABILITY TO USE THIS PRODUCT, EVEN IF HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, OR ANY DAMAGES CAUSED BY THE ABUSE OR MANIPULATION OF THE SOFTWARE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.
3. Printronix, Inc. will not be liable for any loss or damage caused by delay in furnishing a Software Product or any other performance under this Agreement.
4. Our entire liability and your exclusive remedies for our liability of any kind (including liability for negligence except liability for personal injury caused solely by our negligence) for the Software Product covered by this Agreement and all other performance or nonperformance by us under or related to this Agreement are limited to the remedies specified by this Agreement.
5. California law governs this Agreement.

### Termination of License Agreement

This License shall continue until terminated. This license may be terminated by agreement between you and Printronix, Inc. or by Printronix, Inc. if you fail to comply with the terms of this License and such failure is not corrected within thirty (30) days after notice. When this License is terminated, you shall return to the place you obtained them, the printer and all copies of the Software and documentation.

### U.S. Government Restricted Rights

Use, duplication or disclosure by the Government is subject to restrictions as set forth in the Rights in Technical Data and Computer Software clause at FAR 242.227-7013, subdivision (b) (3) (ii) or subparagraph (c) (1) (ii), as appropriate. Further use, duplication or disclosure is subject to restrictions applicable to restricted rights software as set forth in FAR 52.227-19 (c) (2).

### Acknowledgement of Terms and Conditions

YOU ACKNOWLEDGE THAT YOU HAVE READ THIS AGREEMENT, UNDERSTAND IT, AND AGREE TO BE BOUND BY ITS TERMS AND CONDITIONS. NEITHER PARTY SHALL BE BOUND BY ANY STATEMENT OR REPRESENTATION NOT CONTAINED IN THIS AGREEMENT. NO CHANGE IN THIS AGREEMENT IS EFFECTIVE UNLESS WRITTEN AND SIGNED BY PROPERLY AUTHORIZED REPRESENTATIVES OF EACH PARTY. BY USING THIS PRINTER, YOU AGREE TO ACCEPT THE TERMS AND CONDITIONS OF THIS AGREEMENT.

*PrintNet Ethernet User's Manual*

*P8000 Line Matrix Printers*

This document contains proprietary information protected by copyright. No part of this document may be reproduced, copied, translated or incorporated in any other material in any form or by any means, whether manual, graphic, electronic, mechanical or otherwise, without the prior written consent of Printronix®.

Printronix makes no representations or warranties of any kind regarding this material, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose. Printronix shall not be held responsible for errors contained herein or any omissions from this material or for any damages, whether direct or indirect, incidental or consequential, in connection with the furnishing, distribution, performance, or use of this material. The information in this manual is subject to change without notice.

Copyright 2009, 2013, Printronix, Inc. All rights reserved.

## **Trademark Acknowledgements**

---

Portions of this manual used by permission of Wyndham Technologies, Inc. Copyright 1991-1999 Wyndham Technologies Inc.

IGP, LinePrinter Plus, PGL, Network Interface Card, PrintNet and Printronix are registered trademarks of Printronix, Inc.

AIX, AS/400, NetView, and OS/2 are registered trademarks, and AFP, Intelligent Printer Data Stream, IPDS, Print Services Facility, and PSF are trademarks of International Business Machines Corporation.

Unix is a registered trademark of X/Open Company Limited.

Microsoft, MS-DOS, Windows, Windows 95, Windows 98, Windows Me, Windows NT and Windows 2000 are registered trademarks of Microsoft Corporation.

FTP Software and OnNet are trademarks or registered trademarks of FTP Software, Inc.

NetManage and Chameleon are trademarks or registered trademarks of NetManage, Inc.

Frontier Technologies and SuperTCP are trademarks or registered trademarks of Frontier Technologies Corporation.

Solaris is a registered trademark of Sun Microsystems, Inc.

HP-UX is a registered trademark of Hewlett-Packard Company.

DG/UX is a registered trademark of Data General Corporation.

LINUX is a registered trademark of Linus Torvalds.

Ultrix is a registered trademark of Digital Equipment Corporation.

IRIX is a registered trademark of Silicon Graphics, Inc.





# Table of Contents

<b>1</b>	<b>Introduction .....</b>	<b>15</b>
	Overview .....	15
	What is the PrintNet? .....	15
	What Special Features are Available? .....	15
	Logical Printer Architecture .....	17
	Destinations/Queues.....	19
	Models.....	19
	Interfaces.....	20
	PrintNet Card LED.....	20
	Speed Setting for 10/100Base-T.....	21
	Conventions Used in this Manual.....	22
	Notes and Notices .....	23
<b>2</b>	<b>Installation And Configuration .....</b>	<b>25</b>
	Installation .....	25
	Connecting to the Network.....	25
	Configuration Tools .....	25
	Printing an Ethernet Test Page .....	26
	PrintNet Verification .....	26
	HTML Forms .....	27
	Telnet .....	28
	Setup through Data Stream .....	28



## Table of Contents

---

<b>3</b>	<b>PrintNet Web Server .....</b>	<b>29</b>
	Overview .....	29
	Configuration .....	31
	Printer.....	32
	Printer Configuration .....	32
	Configuration Management.....	33
	File Management .....	34
	Network Configuration.....	36
	TCP/IP Network .....	36
	Print Path Configuration .....	38
	Destination Settings .....	39
	Chosen Model Settings.....	41
	Chosen Logpath.....	41
	Print Model Configuration.....	41
	Log Path Configuration .....	44
	TN5250/3270 Configuration .....	46
	SNMP Configuration .....	50
	Administration Configuration .....	56
	System Information .....	56
	Passwords .....	58
	System Configuration.....	59
	Firmware Upgrade .....	60
	Job Capture.....	61
	Status .....	61
	Status - I/O Port .....	62
	Status - Network.....	62
	Help.....	62



## Table of Contents

---

<b>4</b>	<b>Windows Configuration .....</b>	<b>63</b>
	Overview .....	63
	Windows Environment Description.....	63
	Windows PrintNet Configuration .....	64
	Mandatory .....	64
	Optional.....	64
	Configuration using ARP.....	64
	Communicating Across Routers.....	66
	Changing Destination Names .....	67
<b>5</b>	<b>Unix Configuration.....</b>	<b>69</b>
	Overview .....	69
	Unix Environment Description .....	69
	Unix PrintNet Configuration.....	70
	Mandatory .....	70
	Optional.....	70
	Using ARP.....	70
	Using BOOTP .....	72
	Communicating Across Routers.....	73
	Unix Host Configuration .....	74
	Manual System V Host Setup .....	74
	PrintNet Installation on HP-UX .....	75
	Solaris 2.6 – 7 PrintNet Setup .....	76
	Manual LPR/LPD Host Setup.....	77
	PrintNet Configuration for AIX 4.....	79
	AIX Remote Queue Time-Out Setting .....	81
	Printing from AIX .....	81
	Printing with FTP.....	82
	Alternate FTP Printing.....	83
	Direct Socket Printing.....	84



---

## Table of Contents

<b>6</b>	<b>z/OS Configuration, IPDS Printer .....</b>	<b>85</b>
	Overview .....	85
	Requirements.....	85
	Configuration Checklist .....	86
	Configuring PSF for z/OS to Print IPDS Files .....	86
	Configuration Procedure .....	86
	Verifying a TCP/IP-Attached Printer on z/OS.....	96
	Sharing Line Matrix Printers on z/OS .....	97
	JES Spool Printer Sharing .....	97
	Port Switching Printer Sharing .....	99
	Handling z/OS Connectivity Problems .....	99
	Ping is not Successful .....	99
	Ping is Successful.....	100
<b>7</b>	<b>AS/400 Configuration, ASCII Printer .....</b>	<b>101</b>
	Overview .....	101
	Configuring AS/400 for ASCII using TCP/IP .....	103
	Configuring with ADDTCPIFC.....	103
	Configuring a Router Definition with ADDTCP RTE.....	105
	Configuring a Local Domain and Hostname .....	105
	Configuring A TCP/IP Host Table Entry .....	105
	Configuring the AS/400 for Printing.....	106
	Setting Up Printing for ASCII Files .....	106
	Verify Printing on AS/400 .....	113
	AS/400 ASCII Troubleshooting .....	114

## Table of Contents

---

<b>8 AS/400 Configuration, IPDS Printer .....</b>	<b>115</b>
Configuring on AS/400 as an IPDS Printer .....	115
Printing AFP, IPDS, and SCS Files.....	115
Requirements.....	116
Configuration Checklist .....	116
Configuring an AS/400 TCP/IP Interface with ADDCPIFC.....	118
Configuring PSF/400 for IPDS on V3R2 .....	120
Configuring PSF/400 for IPDS on V3R7 and Above .....	126
Configuring PSF for IPDS on V4R2 and Above .....	131
Configuring AFP with CRTPSFCFG on V4R3 and Above (Optional) .....	132
Configuring PSF with CRTDEVPRT on V4R2 and Above .....	134
Verifying the IPDS Configuration on AS/400.....	138
Sharing the AS/400 Printer on the Network .....	139
Printer Sharing Parameters.....	140
AS/400 Troubleshooting.....	143
Cannot PING the Printer .....	143
PSF/400 Terminates when Initialized.....	143
Spooled Print File Remains in PND Status .....	144
Spooled Files Disappear without Printing .....	144
Data is Being Clipped.....	144



---

## Table of Contents

<b>9</b>	<b>z/OS Configuration, TN3270E .....</b>	<b>145</b>
	z/OS Configuration for a TN3270E Printer .....	145
	Coax Printer Support FMID .....	145
	Program Materials .....	146
	VTAM Definitions for SCS and DSE TN3270E .....	147
	TCPIP Configuration with TN3270E.....	149
	Printer Inventory Manager as Defined with TN3270E....	150
	Configuration Screens.....	159
<b>10</b>	<b>AS/400 Configuration, TN5250 .....</b>	<b>163</b>
	Setting Up TN5250 Print Queues on AS/400 .....	163
	Setting Up a TN5250 Connection/Device via a Telnet Session .....	164
	User Supplied Values .....	165
	Using Telnet Commands for TN5250.....	165
	Command List.....	165
	Getting Started.....	166
	TN5250 Job Formatting .....	167
	Font Identifier (FONT) - Help .....	169
<b>11</b>	<b>Monitoring Printers .....</b>	<b>171</b>
	Implementing Printer Management .....	171
	Agent/Manager Model.....	171
	MIB.....	172
	SNMP .....	173
	Monitoring Tools.....	173
	Monitoring with AIX NetView/6000.....	173
	PrintNet Enterprise Suite.....	174
	Setting the SNMP Community Name.....	174
	Disable SNMP Protocol.....	174

## Table of Contents

---

<b>12 Commands</b> .....	<b>175</b>
Command Shell Overview .....	175
npsh Access Methods .....	175
Main npsh Command Prefixes .....	176
Getting Command Help.....	176
Complete Command List.....	177
Store Commands .....	177
Set Commands .....	187
List Commands .....	197
Miscellaneous Commands .....	199
<b>13 Extra Features</b> .....	<b>203</b>
PrintNet Security .....	203
Users and Passwords .....	203
Reset the PrintNet Password.....	205
TCP Access Lists .....	205
PrintNet Naming Schemes .....	207
Periodic Ping .....	207
<b>A Troubleshooting Tips</b> .....	<b>209</b>
Windows Troubleshooting Tips .....	209
Technical Support .....	209
PrintNet cannot be Found on the Network .....	210
HTML Configuration Forms will not Display .....	210
Errors Occur when Defining an LPR Printer .....	211
Cannot Browse the PrintNet on the Network .....	211
Printer Errors when Printing or No Output .....	212
TCP/IP Access Problem.....	212
Web Browser/HTTP Problem.....	213
Windows NT 4.0 or 2000 Host Setup Problems.....	214



## Table of Contents

---

Unix Troubleshooting Tips .....	216
PrintNet Cannot be Found on the Network .....	216
Nothing Prints .....	217
Stair-Stepped Output .....	218
No Form Feed or Extra Page Comes Out.....	219
Front Panel Message – Dynamically Set Params Read Only .....	219
<b>B Customer Support .....</b>	<b>221</b>
Printronix Customer Support Center .....	221
Printronix Supplies Department .....	222
Corporate Offices .....	222
<b>C Glossary .....</b>	<b>225</b>

---

# 1

## *Introduction*

### Overview

---

This chapter introduces you to the PrintNet architecture and special features, as well as providing information on installation and configuration tools.

#### **What is the PrintNet?**

---

PrintNet adds 10/100 network interface to Printronix printers. Network settings can be configured through the printer's control panel, telnet, or webpage.

#### **What Special Features are Available?**

---

PrintNet offers an extensive list of features including:

- built-in HTML forms for easy cross-platform configuration
- availability of PrintNet<sup>®</sup> Enterprise, a remote management software utility
- a detailed and easy-to-use command shell built-in to the firmware
- multi-level configuration security through passwords, permission levels, and access lists
- WAN-wide communication access
- numerous printer logging methods (e.g., automatic email) to record printer errors and usage

## Chapter 1 Overview

---

- remote management through HTML forms, Telnet sessions, commands, SNMP, and pre-defined log methods
- extensive built-in troubleshooting tools
- built-in `telnet` and `ping` clients
- protocols can be individually disabled
- multiple destinations/queues for versatile printer manipulation and distinct print setups
- header and trailer strings to instruct printers on font, pitch, printing, etc.
- flexible naming conventions
- automatic network connection and frame type sensing
- simultaneous printing across all I/O ports and all supported protocols
- multiple network protocol support



---

## Logical Printer Architecture

---

PrintNet provides a logical printer architecture which gives the system administrator the possibility to configure the print server to handle and act upon the print data in several ways. When a print job comes through the print server, there is a certain logical print path that it follows before it gets to the printer. Each logical print path consists of a sequence of logical steps where extra processing may be performed on the print data before it is sent to the printer. This ability to preprocess the print data before it is sent to the printer allows elimination of certain printing problems, or implementation of printer enhancements that may be difficult and time consuming to solve or introduce at the system, spool or queue level. The preprocess ability is also simplistic to perform at the print server level.

The logical print path for a print job going through PrintNet consists of three different phases:

- **Phase 1** - the host sends the job to a destination or queue on PrintNet (e.g. d1prn).
- **Phase 2** - the print job passes through the associated “model” (e.g. model “m1”) on PrintNet for any extra processing associated with the model.
- **Phase 3** - the processed print job is directed to the printer for output.

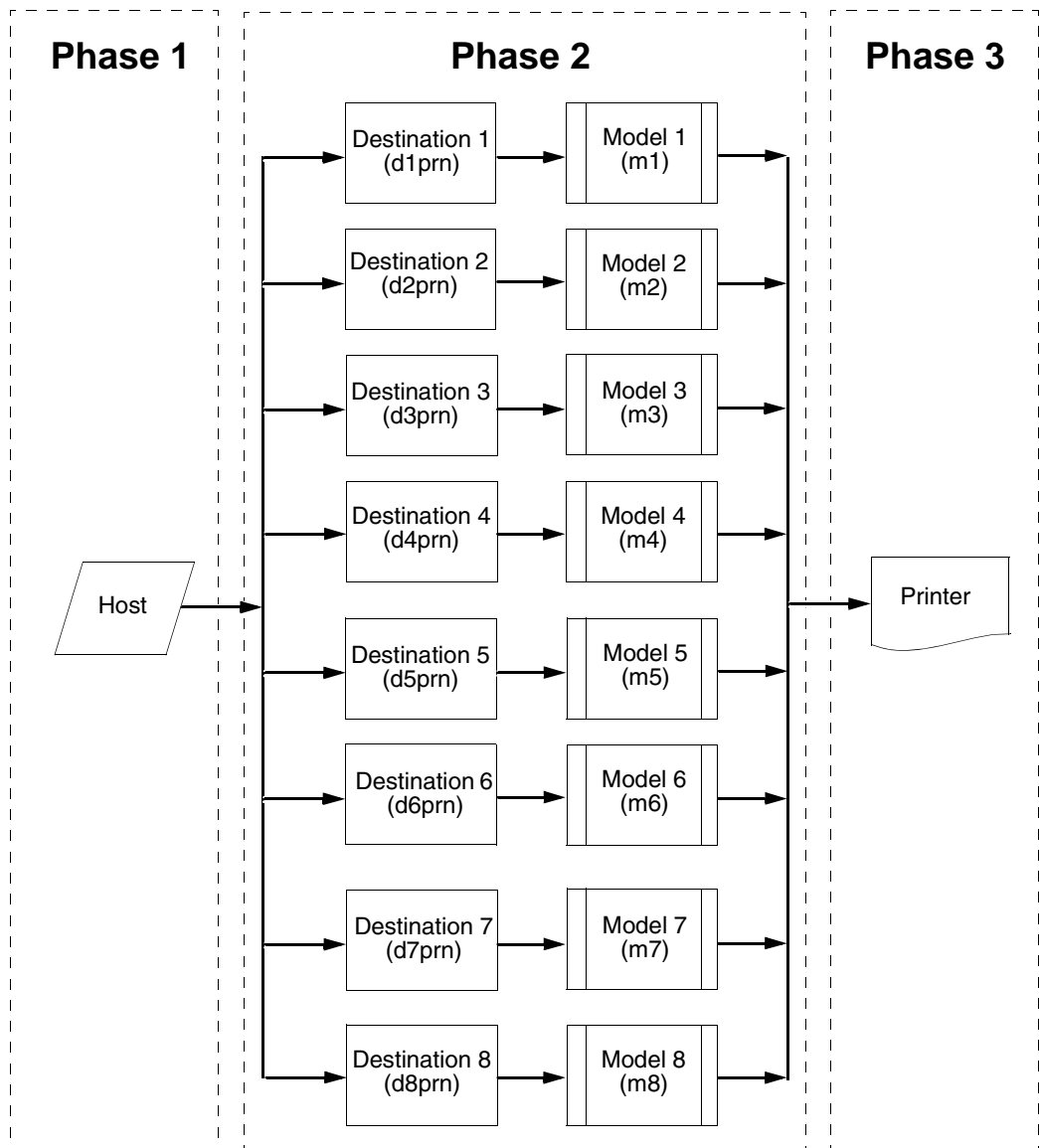


Figure 1. Print Path

## Destinations/Queues

---

For every I/O port on PrintNet, there is at least one pre-defined logical print queue or destination to accept print jobs destined for it. This includes print jobs that are sent directly to the I/O port, such as port 9100. These queue or destination names are pre-defined but can be changed by the user.

## Models

---

For every destination or queue, there is a pre-defined model associated with it. The model defines how the print job will be processed as it passes through to the printer. Models are a set of mini filters that can be used to modify the print data stream. The functions available for each model are as follows:

1. Insert carriage return after line feed
2. Insert a banner page before or after each print job
3. Insert header strings
4. Insert trailer strings
5. Log one or all of the following information as each print job passes through the model
  - Job ID and username
  - User ID and three messages per job about the start and finish
  - Miscellaneous messages from the printer
  - Status of the printer based on the port interface signals

## Chapter 1 Interfaces

---

6. Load a specific printer configuration before processing a print job
  - Specify a printer configuration to be associated with a print queue.
  - When a job is sent to that print queue, the associated printer configuration will be loaded before the job is processed.
  - Feature allows you to define up to eight unique and independent printer personalities in a single printer.
  - Allows you to effectively have eight virtual printers in one.

## Interfaces

---

The Ethernet interfaces with the host printer through an Ethernet 10/100Base-T interface connector.

PrintNet is enabled with a security element.

## PrintNet Card LED

---

**Table 1. PrintNet LED Indicator**

NET	Indication	Description
ON	flashes	Indicates activity
OFF	constant	Indicates that the link is good at 10 Mbps
ON	constant	Indicates that the link is good at 100 Mbps

## Speed Setting for 10/100Base-T

---

When the router is set to auto-negotiation enable, the following is the correct behavior of the PrintNet with each setting:

1. **10mbps Half Duplex**

Use parallel detection because the PrintNet is using force mode and thus has auto-negotiation disabled.

PORs to 10mbps Half Duplex. Resets to 10mbps Half Duplex. Reconnection at switch maintains 10mbps Half Duplex.

2. **10mbps Full Duplex**

Use parallel detection because the PrintNet is using force mode and thus has auto-negotiation disabled.

PORs to 10mbps Full Duplex. Resets to 10mbps Full Duplex. Reconnection at switch maintains 10mbps Full Duplex.

3. **100mbps Half Duplex**

Use parallel detection because the PrintNet is using force mode and thus has auto-negotiation disabled.

PORs to 100mbps Half Duplex. Resets to 100mbps Half Duplex. Reconnection at switch results in 100mbps Half Duplex.

4. **100mbps Full Duplex**

Use parallel detection because the PrintNet is using force mode and thus has auto-negotiation disabled.

PORs to 100mbps Full Duplex. Resets to 100mbps Full Duplex. Reconnection at switch results in 100mbps Full Duplex.

5. **PrintNet in Auto mode in 100mbps Full Duplex environment**

Use auto negotiation to the highest common local and remote capability, i.e. 100 mbps Full Duplex in this case.

PORs to 100 mbps Full Duplex. Resets to 100 mbps Full Duplex. Reconnection at switch remains 100 mbps Full Duplex.

## Chapter 1 Conventions Used in this Manual

---

### 6. PrintNet in Auto mode in 10mbps Half Duplex environment (determined using 10 mbps Half Duplex hub)

Use auto-negotiation to the highest common local and remote capability, i.e. 10 mbps Half Duplex in this case.

PORs to 10 mbps Half Duplex. Resets to 10 mbps Half Duplex. Reconnection at switch maintains 10 mbps Half Duplex.

**NOTE:** With parallel detection, only speed can be determined. The duplex mode sets to half duplex.

## Conventions Used in this Manual

---

All uppercase print indicates control panel keys.

**Example:** Press the CLEAR key, then press the ONLINE key.

Quotation marks (“ ”) indicate messages on the Liquid Crystal Display (LCD).

**Example:** Press the ONLINE key. “OFFLINE” appears on the LCD.

Command syntax and examples are formatted as follows:

- The Courier font in **boldface** indicates commands that you type. For example:

At the prompt, type:

```
ping ftp.CompanyWebsite.com
```

- Regular Courier font indicates references to command syntax and output. For example:

The ftp.CompanyWebsite.com site is working properly.

- Variable values are shown in *italics* in command syntax, output, and in text. For example:

```
ping ipname
```

The *ipname* is working properly.

---

## Notes and Notices

---

For your safety and to protect valuable equipment, read and comply with the notes included in this manual. A description follows:

**NOTE:** A Note gives you helpful information and tips about printer operation and maintenance.

**Chapter 1** Notes and Notices

---



---

# 2

## *Installation And Configuration*

### **Installation**

---

The printer has an RJ-45 connector on the back panel for 10/100Base-T (UTP) networks. Print a test page to confirm that the Ethernet is installed. Contact your service representative if the Ethernet is not installed.

### **Connecting to the Network**

---

To attach the PrintNet to a network, plug the network cable into the RJ-45 connector.

### **Configuration Tools**

---

There are two parts to a PrintNet setup:

- Configuring the PrintNet so it can be seen on the network. This involves network-related settings (e.g., an IP address within TCP/IP environments) configured through the built-in command shell, npsh, or from the control panel.
- Configuring a host with a new printer so it knows how to send data to the PrintNet. Just being able to see the printer on the network does not mean you can automatically print to it. A host has to be told where to send the data.

**NOTE:** Some network environments do not require any network settings to be configured on the PrintNet. However, all network setups require configuration on the host end.

The following methods are available for configuring the Ethernet:

- via the control panel
- HTML forms
- Telnet
- PTX\_SETUP

### Printing an Ethernet Test Page

---

Always print an Ethernet Test page before performing any updates or network configuration. Refer to the *User's Manual* for instructions on printing a test page.

### PrintNet Verification

---

Before performing the verification, you must connect PrintNet to the local area network.

1. Print an Ethernet Test page to verify the settings you selected.
2. Verify the network setting is correct.

## HTML Forms

---

The network settings can be configured over TCP/IP through a standard Web browser. The PrintNet Web pages provide a way to access some of the commands built into the print server.

**NOTE:** If a router is used, make sure a Gateway value is configured.

To access the PrintNet home page:

1. Make sure the print server has an IP address and Subnet Mask so it is recognizable on your TCP/IP network.
2. Make sure your network station can successfully ping the PrintNet over the network.
3. Direct your Web browser to the URL

http://IPaddress

(e.g., http://192.75.11.9)

where IPaddress is the IP address of your PrintNet.

See “PrintNet Web Server” on page 29 for details.

Besides the HTML forms and software provided, the PrintNet internal command shell, npsh, can also be reached using Telnet, FTP, and Data Stream:

### Telnet

---

Telnet commands can be used to configure PrintNet settings remotely. A TCP/IP host starts a Telnet session with the print server and logs into the device command shell to alter and view settings.

Example:

```
telnet 192.75.11.9
```

**NOTE:** The default User ID is root. There is no password by default, just press **ENTER**. If you have changed the default User ID and password, use the current User ID and the associated password instead of the defaults. For more information on setting passwords, see “PrintNet Security” on page 203.

### Setup through Data Stream

---

The PTX\_SETUP command can also be used to configure PrintNet settings through a printer data port (serial, parallel, or network etc.). This is done by creating a text file containing the PTX\_SETUP command and PrintNet internal command shell (npsh) commands. The text file is then sent to the printer through a data port to perform the PrintNet configuration. The following is an example of a PTX\_SETUP file that can be used to configure the PrintNet:

```
!PTX_SETUP
NIC_SETUP
store net 1 addr 190.168.2.11
END_NIC_SETUP
PTX_END
```

---

# 3

## *PrintNet Web Server*

### Overview

---

The PrintNet comes with a printer management tool that allows you to monitor, configure, and manage both the printer and its print job. The PrintNet comes with a web server that allows System Administrators and users access to its printer management capabilities from a standard web browser.

The PrintNet printer's IP address is used as a URL, similar to the URL of an Internet web page. When a web browser is activated and the printer's IP address is entered, the printer's embedded web server displays its home page, with links to the printer's status and configuration settings.

All of PrintNet's configuration settings are protected by a password so unauthorized users cannot make changes. When you try to open any of the PrintNet 's configuration pages, you are asked for your user name and password. At the prompt, you need to enter **root** (unless you have another user configured with root privileges) followed by the associated password. If there is no password, just press **ENTER**. For more information on setting passwords, refer to "PrintNet Security" on page 203.

After you configure the PrintNet settings, and click the SUBMIT button on the related form, re-power the PrintNet to ensure the latest settings are in use. To reset the PrintNet, go to the System form under the Configuration Menu and click the REBOOT button.

The embedded PrintNet HTML server gives you the ability to configure the network setting, printer operation, monitor printer status, and to manage print jobs. The PrintNet Web page structure is divided into several menus.

## Chapter 3 Overview

The screenshot displays the PrintNet Webpage interface. At the top left is the PRINTRONIX logo with the tagline "GLOBAL PRINTING...ENABLED.". A navigation bar contains links for Configuration, Status, Help, and About. The main content area is divided into three sections:

- Configuration:** A box titled "Configuration" containing a list of links for configuring the printer and network settings. The links include: Printer (Printer settings), Network (TCP/IP network settings), Print Path (Destination, Model, Log Path, and I/O port configuration), Print Model (Shortcut to the print path model configuration forms), Log Path (Shortcut to the print path log path configuration forms), TN5250/3270 (TN5250/3270 configuration settings), SNMP (SNMP configuration settings), Administration (Names and passwords), and System (System operation modes (reboot, factory defaults, upgrade, and job capture)).
- Printer Status:** A box titled "Printer Status" for a "1000 lpm Cartridge Line Printer". It shows a status of "ONLINE" and a ribbon life of "99%". Below this, it lists: Fault (checked), State (checked), Ribbon (99%), Firmware (372817 V1.02V), and Serial Number.
- Print Server:** A box titled "Print Server" showing details for a server named "P\_800014". It lists: NIC Version (2.1.36), MAC (00:08:96:80:00:14), and a Print Queue table with columns "JOB" and "HOST". The queue contains one job: "d1prn-1" with host "10.224.100.35 (23)".

**Figure 2. PrintNet Webpage**

The main page is divided into three major sections: Configuration, Printer Status, and Print Server. The Printer Status and Print Server sections display on the right side amongst other pages.

### Configuration

This area allows the user to configuration the printer and network settings. The user can click each link to go to page options.

### Printer Status

This area displays the printer type and information, control panel display, and printer state. The user can click "State" to change the printers between Online and Offline mode.

### Print Server

This section shows PrintNet information and active print jobs.

---

## Configuration

---

The Configuration menu items allow you to configure the settings for the following items:

- **Printer** - this menu item allows you to configure the printer. You can change the printer's form size, character set, and emulation settings. You can also load/save configuration files, print configurations, and manage file systems.
- **Network** - this menu item allows you to change the TCP/IP network setting over TCP/IP.
- **Print Path** - this menu item allows you to change the name of the destination queues, and define how the print job will be preprocessed before printing. It allows you to select what information to log.
- **Print Model** - this menu item allows you to specify the print model name. It also allows you to select banner page types, filters, header and trailer strings, and printer configurations.
- **Log Path** - this menu item allows you to specify the logpath name, type, and destination.
- **TN5250/3270** - this menu item allows you to configure the TN5250/3270 settings if TN is enabled in the printer.
- **SNMP** - this menu item allows you to configure the SNMP trap manager settings. It also allows you to define the printer event types to monitor, and the e-mail address that should receive alert notifications.
- **Administration** - this menu item allows you to define or change the printer name, location, description, etc.. It also allows you to change the root and guest user passwords, and to specify the SMTP server's IP address.
- **System** - this menu item allows you to reboot the printer, restore its settings to the factory default, upgrade printer firmware, and capturing the print data.

## Printer

---

The Printer page displays three main functions: Printer Configuration, Configuration Management, and File Management.

### Printer Configuration

---

The Printer Configuration page allows the user to set up print format, host communication, emulation settings, etc.. For descriptions on each option, refer to the printer's *User's Manual*.

#### Printer Configuration ?

NOTE: Changing some parameters requires the Printer to be taken Offline before the changes take effect. This can be done by clicking on State in the Printer Status Window.

##### PRINTER PARAMETERS

---

HOST INTERFACE

PRINTER CONTROL

ADVANCED USER

EMULATION

CONFIG. CONTROL

Figure 3. Printer Configuration Webpage



## Configuration Management

The Configuration Management page allows the user to manage or display printer configurations. For descriptions on each option, refer to the printer's *User's Manual*.

### Configuration Management ?

Configuration Management

Load	Load a Configuration.
Save	Save a Configuration.
Delete	Delete a Configuration.
Reset	ResetConfiguration Names.
Report	Create a report.

Upload configurations to a file.

Download configurations.

CONFIG. CONTROL

Power-Up Config.:

Protect Configs.:

Name Configs

Auto Save:

Figure 4. Configuration Management Webpage

## File Management

The File Management page allows the user to manage the printer file system. This webpage has the following functionalities:

- Delete - allows you to delete a file using 'Delete' link.
- Upload – allows you to upload a file stored in the printer. Upon completion of upload, you are prompted to select which application to use for bringing up the data (see Figure 6 on page -35).
- Download – allows you to browse for a file and load it to the printer.
- Overwrite Files – allows you to protect the files stored in the printer by setting the Overwrite Files option to Disable.
- View File List – click this link to view a list of files in the printer.
- Optimize&Reboot – removes the deleted files from the flash and reboots the printer.

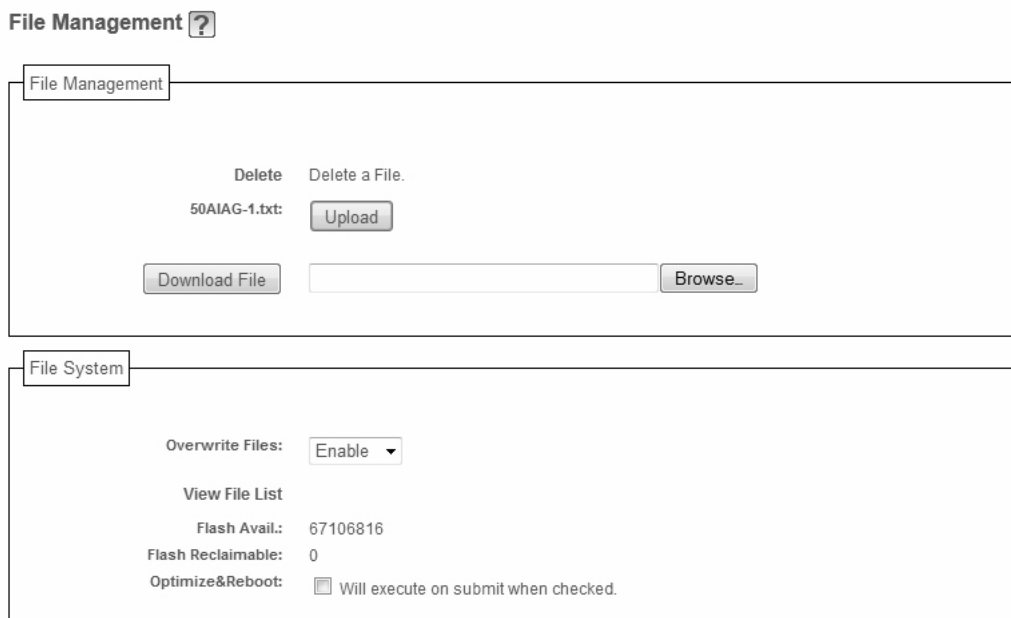


Figure 5. The File Management Webpage

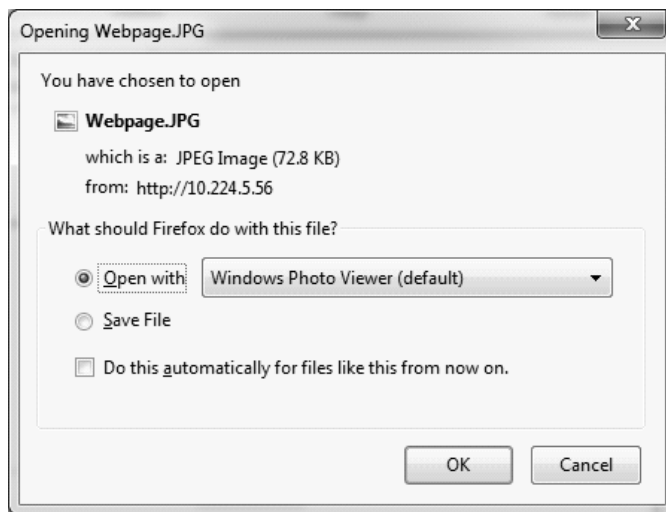


Figure 6. Upload File Prompt

## Network Configuration

The network configuration allows you to specify the setting for each network protocol. Beside each protocol name is a checkbox which allows you to enable or disable each protocol depending on your network printing needs.

**NOTE:** TCP/IP is the only supported protocol which is always enabled.

### TCP/IP Network

Network ?

NOTE: These settings only take effect after you reset the Integrated PrintNet Enterprise from the System page.

**TCP/IP**

**Interface 1 10/100Mbps Ethernet**

Dynamic IP  BOOTP  DHCP (current value = DHCP)

Persistent DHCP  (current value = disabled)

Static IP Address  (current value = 10.224.5.3)

Static Subnet Mask  (current value = 255.255.0.0)

Static Gateway  (current value = 10.224.1.254)

**DNS**

Static DNS server  (current value = 10.1.1.77)

Static DNS Domain Suffix  (current value = misirvine.printronix.com)

Figure 7. TCP/IP Network Configuration

## Interface

The three editable fields contain the PrintNet's IP address, subnet mask, and Gateway. The check boxes enable the BOOTP, DHCP, and Persistent DHCP protocols, which are alternate methods of assigning IP addresses. On most networks, you want to enter a permanent IP address and subnet mask and disable BOOTP and DHCP. However, if your network requires one of these, you should clear the IP address (and possibly the subnet mask) fields and ensure that the appropriate check box is selected.

The image shows a screenshot of a network configuration window titled "Routing". It contains two sections for static routes, "Static Route 1" and "Static Route 2". Each section has three input fields: "Destination", "Mask", and "Gateway".

Route	Destination	Mask	Gateway
Static Route 1	<input type="text"/>	<input type="text"/>	<input type="text"/>
Static Route 2	<input type="text"/>	<input type="text"/>	<input type="text"/>

Figure 8. TCP/IP Static Route

### **Routing**

The routing table tells the PrintNet which router or gateway to use to access other subnets or hosts. In most situations, you can simply add your router's IP address as the default router. All packets destined for other subnets will be forwarded to the default router for delivery to the destination host. If you have more complex routing requirements, add static routing entries for specific hosts or networks in the remaining Routing rows. Packets with IP addresses that match a given Destination and Mask (from the first two fields in a Routing row) will be routed to the router/gateway named in the third field. Packets which do not match any of the listed Destinations and Masks will be routed to the default router if one is set.

### **Print Path Configuration**

---

The PrintNet print path is the path a print job takes when it reaches the printer's Ethernet interface. First the job goes to a destination/queue (e.g. d1prn) where it then passes through an associated model (e.g. m1) for extra processing and logpath (e.g. l1) for job and printer logging. Finally the job reaches printer's data parser. The "Print Path" Webpage displays one destination's settings at a time. From here, you can then select another destination or you can go directly to an I/O port to configure port settings.

## Destination Settings

### Print Path ?

Destination Settings: d1prn

Name:

BackChannel:  none  prn

Services:  lpd  ftpd  socket

Selected Model:

Selected Logpath:

Chosen Model: m1

Banner Type: none

Banner Position: before

Filter: none selected

Header String: none selected

Trailer String: none selected

Printer Configuration: none

Chosen Logpath: log1

Log Type: none

Log Destination: none

Figure 9. Print Path Configuration

### **Name**

Name of the destination. The default destination queue names are d1prn, d2prn, d3prn, d4prn, d5prn, d6prn, d7prn, and d8prn. The destination name can be modified by entering a new name in the field and clicking "Submit".

### **Back Channel**

I/O port to receive printer feedback when a print job passes through this destination. By default, the backchannel for all print queues is enabled.

### **Services**

Define what type(s) of print services the destination will support. By default all services enabled.

<b>Parameter</b>	
socket	Printing to a TCP port number (e.g. 9100) on the PrintNet
lpd	Remote printing using the Line Printer Daemon
ftpd	printing using the File Transfer Protocol (FTP)

### **Selected Model**

Defines the model configuration that is to be associated with the current destination. The default model names are m1, m2, m3, m4, m5, m6, m7, and m8.

### **Selected Logpath**

Defines the logpath configuration associated with the current destination. The default logpath names are l1, l2, l3, l4, l5, l6, l7, and l8.



## Chosen Model Settings

---

This section displays the model associated with the displayed destination. To change Print Model settings, see “Print Model Configuration” on page 41.

## Chosen Logpath

---

This section displays the logpath setting associated with the displayed destination. To change Log Path settings, see “Log Path Configuration” on page 44.

## Print Model Configuration

---

The screenshot shows a configuration window titled "Print Model" with a help icon. Below the title bar, a tab is labeled "Model Settings: m1". The main content area contains the following settings:

- Name:** A text input field containing "m1".
- Banner Page:** A section with two rows of radio buttons:
  - Type:  none,  text
  - Position:  before,  after
- Filter:** A checkbox labeled "insert carriage return after line feed" which is currently unchecked.
- Header String:** A text input field.
- Trailer String:** A text input field.
- Printer Configuration:** A dropdown menu currently showing "(None)".

Figure 10. Print Model Configuration, Model Settings

### Name

Name of the model. The default model names are m1, m2, m3, m4, m5, m6, m7, and m8. The model name can be modified by entering a new name in the field and clicking “Submit”.

### Banner Page

Tells the Ethernet Interface to produce a banner page with each print job. The type of banner page data can be text. You can also specify whether the banner page should come at the front or the end of a print job.

### Filter

Specify whether the Ethernet Interface is to add carriage returns to print jobs passing through that contain solitary linefeeds. This is common with Unix text jobs resulting in stair-stepped output.

### Header String

Define an escape sequence to be sent to the printer before each print job. For example, you may want to send a sequence to print the job in landscape mode. You can specify up to four separate sequences per header string. The Ethernet Interface will execute them in order from top to bottom. If specifying fewer than four sequences, be sure to start at the top leaving undefined fields at the bottom.

### Trailer String

Define an escape sequence to be sent to the printer after each print job. For example, you may want to send a sequence to add a formfeed so you don't have to manually press the formfeed button on the printer. You may also want to tell the printer to reset itself in case you have set a header string which tells the printer to do something special with the job. You can specify up to three separate sequences per trailer string. The Ethernet Interface executes them in order from top to bottom. If specifying fewer than four sequences, be sure to start at the top leaving undefined fields at the bottom.

The most common sequence is listed on the form:

- **Formfeed** - tells the printer to do a formfeed at the end of the data. See page -190.

---

## **Printer Configuration**

Specify a printer configuration number to be loaded before processing the print job. This ability to associate a printer configurations to a logical printer model allows you to define up to eight unique and independent printer personalities in a single printer. Using this feature, you effectively have eight different printers in one.

To associate a printer configuration to the currently selected destination queue, just select the desired printer configuration number from the drop down list. Once a printer configuration has been associated with a destination queue, any print job sent to that destination queue name will cause the printer to load the associated printer configuration before processing the print job.

## Log Path Configuration

Log Path ?

Model Settings: log1

Name:

Type:  Print Job Started  Printer Error

Destination:  None  Email  (e.g. userid@domain.com)  UDP Syslog  (e.g. 192.168.0.1 or domain name)  TCP Connection Port: 4010

Figure 11. Log Path Settings

### Name

Name of the log path. The default names are l1, l2, l3, l4, l5, l6, l7, and l8. The Log Path name can be modified by entering a new name and clicking “Submit”.

### Logpath Type

Define what type of log information will be tracked for each print job passing through the associated destination. The types are:

- **Print Job Started** - A notification is sent to 'Destination' when a print job is received in the PrintNet.
- **Printer Error** - A notification is sent to 'Destination' when a printer error occurs during printing. If no print job exists in the PrintNet, the notification will not be sent.

---

## Logpath Port


Define where logging information for print jobs passing through the associated destination will be reported. The choices are:

- **None** (default) - do not report any logging information
- **Email** - to an e-mail address (SMTP server address is set in the Administration page)
- **UDP Syslog** - to a host (specified by the IP address in the edit field) running a SYSLOG daemon
- **TCP/IP port** - to a TCP port number.

## TN5250/3270 Configuration

The TN5250/3270 configuration form allows you to specify settings for up to eight different TN5250/3270 sessions.

**NOTE:** The standard Printronix PrintNet module does not support TN5250/3270 protocol. However, the TN5250/3270 software is available as an option you can order or as factory installed.

TN5250/3270 Configuration 

---

Configuration for Print Path d1prn

---

### Configuration for Print Path d1prn

**NOTE:** Changes will only take effect after you reset the Integrated PrintNet Enterprise from the System page.

**Mode:** TN5250

[Click here for TN3270 mode](#)

**Host:**  ok  
(eg. 204.191.175.114 or host.domain.com)

**Port:**

**Device Description:**

**Message Queue Name:**

**Message Queue Library:**

**Device Type:** IBM

**WSCST Name:**


**WSCST Library:**

**Auto Connect:**

**Start Auto Connect:** [Click here](#)

Figure 12. TN5250/3270 Configuration, TN5250 Mode

---

**TN5250/3270 Configuration** 

---

Configuration for Print Path d1prn

**Configuration for Print Path d1prn**

**NOTE:** Changes will only take effect after you reset the Integrated PrintNet Enterprise from the System page.

**Mode:** TN3270

[Click here for TN5250 mode](#)

**Host:**  ok  
(eg. 204.191.175.114 or host.domain.com)

**Port:**

**Resource Name:**

**Auto Connect:**

**Start Auto Connect:** [Click here](#)

**Figure 13. TN5250/3270 Configuration, TN3270 Mode**

### **Mode**

Specifies the TN protocol mode for the current configuration.

*Default:* TN5250

### **Host IP**

Specifies the IP address or domain name of the host (AS/400 for TN5250) for the current configuration.

*Default:* Unconfigured (empty) host.

### **Port**

Specifies the UDP port number of the TN5250 or TN3270 server for the current configuration.

*Default:* 23

### **Resource Name**

(TN3270 mode) Specifies the name of the AS/400 LU session for the current configuration. The resource name entered will be the name of the printer device created on the AS/400 host for the current session. The name is limited to 10 characters in length, must start with an alpha character (a-z, A-Z), and contain only alphanumeric characters and underscores.

*Default:* Unconfigured (empty) resource name

### **Device Description**

(TN5250 mode) Specifies the name of the printer device for the current configuration. The description entered will be the name of the printer device created on the AS/400 host for the current session. The name is limited to 10 characters in length, must start with an alpha character (a-z, A-Z), and contain only alphanumeric characters and underscores.

*Default:* Unconfigured (empty) description

### **Message Queue Name**

(TN5250 mode) Specifies the queue name to which system messages will be logged.

*Default:* QSYSOPR

### **Message Queue Library**

(TN5250 mode) Specifies the queue library to which system messages will be logged.

*Default:* \*LIBL



---

## **Device Type**

By default, the device type is always set to IBM.

## **WSCST Name**

(TN5250 mode) As declared on the AS/400 host for the created printer device.

Default: \*NONE

## **WSCST Library**

(TN5250 mode) As declared on the AS/400 host for the created printer device.

## **Auto Connect**

Specifies whether the PrintNet will automatically connect to the host.

Default: Disabled

## **Start/Stop Auto Connect**

Specifies whether the PrintNet should retry automatic connection to the host.

Default: 'Start' if Auto Connect is currently stopped, 'Stop' if Auto Connect is currently started.

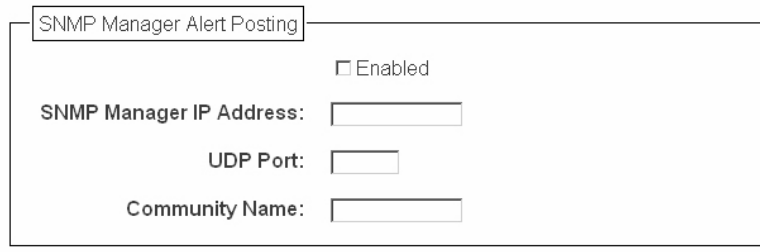
## SNMP Configuration

---

The SNMP Configuration form allows you to configure SNMP trap managers and the e-mail alert features of PrintNet. It allows you to configure how SNMP alerts are processed by a SNMP trap manager, a Unix syslog logging daemon, and/or have e-mail notifications sent. Up to 10 SNMP trap managers and e-mail recipients may be specified. Individual alerts fall into one of 14 alert group categories, providing the ability to filter alert notices as desired.

### SNMP Manager Alert Posting Settings

#### Alert Posting Configuration 1:



The form is titled "Alert Posting Configuration 1:" and contains a section for "SNMP Manager Alert Posting". This section includes a checkbox labeled "Enabled" which is currently unchecked. Below the checkbox are three input fields: "SNMP Manager IP Address:", "UDP Port:", and "Community Name:", each followed by a text box for user input.

**Figure 14. SNMP Manager Alert Posting Configuration**

Specifies whether alerts from the enabled alert group categories for this configuration will be sent to the SNMP manager. If this option is enabled, the following information must be entered:

- **SNMP Manager IP Address** - specifies the IP address of the SNMP trap manager
- **UDP Port** - specifies the UDP port number used by the SNMP trap manager for receiving trap messages. Acceptable values are 162 and 49157 through 65535
- **Community Name** - up to 15 character string specifying the trap community name.

---

## Syslog Alert Posting Settings



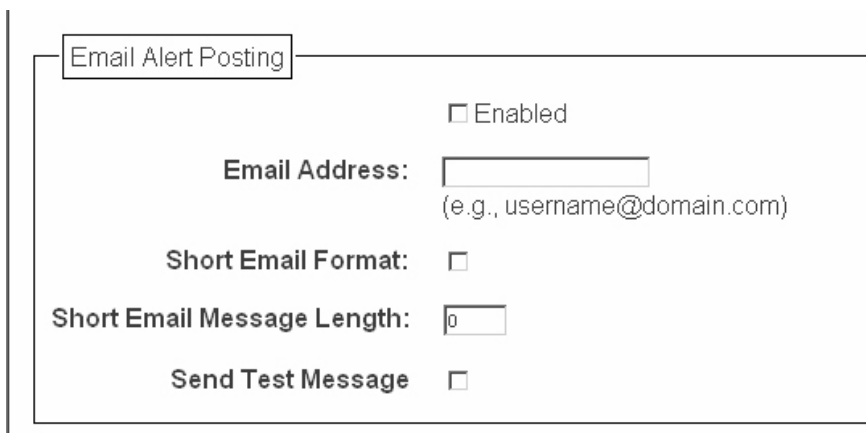
The screenshot shows a configuration form for Syslog Alert Posting. A box labeled "Syslog Alert Posting" is connected by a line to a checkbox labeled "Enabled". The checkbox is currently unchecked.

**Figure 15. SNMP Syslog Alert Posting Configuration**

Specifies whether alerts from the enabled alert group categories for this configuration will be sent to the Unix syslog daemon. If this option is enabled, the syslog daemon IP address must be entered in the syslog field in the System Information section of the Administration Configuration form.

Default: Disabled

## E-mail Alert Posting Settings



The screenshot shows a configuration form for E-mail Alert Posting. A box labeled "Email Alert Posting" is connected by a line to a checkbox labeled "Enabled". Below this are several fields: "Email Address:" with a text input field and the example "(e.g., username@domain.com)", "Short Email Format:" with an unchecked checkbox, "Short Email Message Length:" with a text input field containing "0", and "Send Test Message" with an unchecked checkbox.

**Figure 16. SNMP Email Alert Posting Configuration**

## Chapter 3 SNMP Configuration

---

Specifies whether alerts from the enabled alert group categories for this configuration will be sent to the specified e-mail address. If this option is enabled, the following information must be entered:

- **E-mail Address** - specifies an e-mail address to which alert information will be sent
- **Short E-mail Format** - specifies whether a short (15-80 character) alert e-mail message should be sent.

If enabled, the message will contain the alert description, the severity level, device description, and device name (unless the length of the message exceeds the Short E-mail Message Length, in which case the message will be truncated).

If disabled, the message will contain additional information including the device description, device name and location, alert description, alert group, alert severity level, and printer status.

*Default:* Disabled

- **Short E-mail Message Length** - Specifies the maximum size of the short e-mail message. Acceptable values are 15 to 80 characters.

*Default:* 80 characters

- **Send Test Message** - Provides a way to test the validity of the e-mail address/SMTP server address. If checked, a test message will be sent to the specified e-mail address when the submit button is pressed.

*Default:* All alert groups are disabled by default.

If the alert message is to be sent to a cellular phone or pager, the Short E-mail Format option should be enabled. Once this option is enabled, you may specify the maximum e-mail message length (15-80 characters). When enabled, the message will contain the alert description, the severity level, device description, and device name (unless the length of the message exceeds the Short E-mail Message Length, in which case the message will be truncated).

---

If the Short E-mail format is disabled, the message will contain additional information including the device name and location, alert description, alert group, alert severity level, and printer status.

To test the validity of the e-mail address and the SMTP server address, enable the Send Test Message option. If the Send Test Message box is checked, a test message will be sent to the specified e-mail address when the submit button is pressed.

## Alert Groups

Alert Groups

**Alert Groups (check to enable):**

Warning Alerts:	<input checked="" type="checkbox"/>
Offline Alerts:	<input checked="" type="checkbox"/>
Media Input Alerts:	<input checked="" type="checkbox"/>
Media Output Alerts:	<input checked="" type="checkbox"/>
Media Path Alerts:	<input checked="" type="checkbox"/>
Marker Alerts:	<input checked="" type="checkbox"/>
Cutter Alerts:	<input checked="" type="checkbox"/>
Bar Code Alerts:	<input checked="" type="checkbox"/>
Scanner Alerts:	<input checked="" type="checkbox"/>
Intervention Alerts:	<input checked="" type="checkbox"/>
Consumable Alerts:	<input checked="" type="checkbox"/>
Label Alerts:	<input checked="" type="checkbox"/>
Power Cart Alerts:	<input checked="" type="checkbox"/>
RFID Alerts:	<input checked="" type="checkbox"/>

**Figure 17. SNMP Alert Groups Configuration**

## Chapter 3 SNMP Configuration

---

Specifies which alert groups are enabled for reporting for this configuration. When an alert occurs that is contained in one of the enabled alert groups, it will be posted to the specified SNMP manager, Unix syslog daemon, and/or e-mail address. The following table describes which printer events belongs to which Alert Group.

*Default:* All alert groups are enabled by default.

**Table 2. Alert Groups and Printer Events**

Alert Group	Printer Events
Warning	File System Full File Exist Hex Dump Mode Half Speed Mode
Offline	Printer is Offline
Media Input	Load Paper
Media Output	Stacker Full Stacker Jam Time Out Stacker Full Time Out Stacker Fault Time Out Stacker Jam Stacker Fault Stack Over Flow8 Stack Under Flow Stacker Fail Stacker Interlock Fail Stacker Not Ready
Media Path	Clear Paper Jam

---

**Table 2. Alert Groups and Printer Events**

<b>Alert Group</b>	<b>Printer Events</b>
Marker	Ribbon Stall Time Out Ribbon Ink Out Ribbon Stall Ribbon Drive Shuttle Over Speed Ribbon Fault Ribbon Detected Ribbon Broken
Barcode	Barcode Fail Specification Barcode Quiet Zone Too Small Barcode Improper Data Format
Intervention	These are error messages that need some kind of user intervention to solve them.
Consumable	Ribbon Low

**NOTE:** Not all of the alerts are available on all of the printers. The alerts available for monitoring will depend on the printer type and the options installed on the printer.

## Administration Configuration

The Administration Configuration form is broken down into general print server-related settings and password security.

### System Information

The screenshot shows a web interface for 'Administration Configuration'. At the top, there is a tab labeled 'Administration' with a question mark icon. Below it, a sub-tab labeled 'System Information' is selected. A note states: 'NOTE: Changes in server name setting only take effect after you reset the Integrated PrintNet Enterprise from the System page.' The form contains several input fields: 'Name' (with the value 'P\_80002f'), 'Location', 'Contact', 'Printer Serial Number', and 'SMTP server'. At the bottom, there are two checked checkboxes under 'Tcp Services': 'FTP' and 'Telnet'.

**Figure 18. Administration Configuration, System Information**

The System Information form allows you to specify the following information about the printer:

#### Name

Name given to the print server in Windows environment. The default name is "P\_XXXXXX" where "XXXXXX" equals the last six digits of the PrintNet's Ethernet address. (e.g. P\_01001C). The user can change the printer name in this field.

#### Location

Optional field to help identify the printer's physical location.



### Contact

Optional field to help identify the individual or group responsible for the printer.

### Printer Serial Number

Allows the user to enter the printer's serial number. If the printer's controller board is replaced, this field will be blank. The service representative can enter the printer's serial number in this field.

### SMTP Server

Specifies the IP address or domain name of the SMTP server to be used for processing email messages generated by the PrintNet.

Default: Unconfigured (empty).

### TCP Services

There are two protocols that users can disable. Usually major corporations prefer to disable ftp and telnet once configuration of the printer is complete. ftp and telnet protocols are set to enable by default. If these protocols are disabled, you can use the Webpage to enable them.

If HTTP protocol is disabled along with ftp and telnet, the only way to enable these protocols is by sending a print job with PTX\_SETUP commands. (Refer to printer's *User's Manual* for PTX\_SETUP syntax.)

## Passwords

Passwords

NOTE: Reauthorization is necessary after changing a password.

Root Password

Old:

New:

Confirm:

Guest Password

Old:

New:

Confirm:

**Figure 19. Administration Configuration, Passwords**

Only a user with root privileges can alter the PrintNet's settings. Guest users can only view settings but cannot alter them. Both types of users can be assigned passwords. To change a password, type in the old password in the "Old" field. Then type the new password twice: once in the "New" field, and once in the "Confirm" field.

*Default:* No passwords for root or guest users.

---

## System Configuration

---

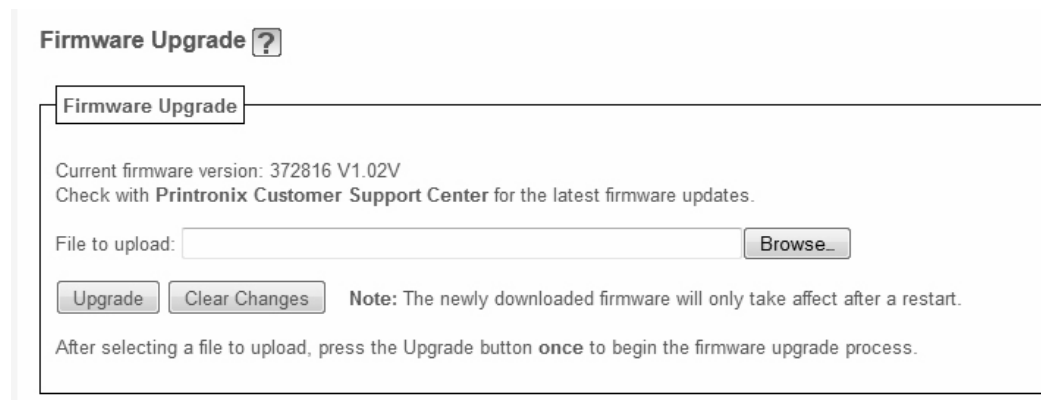
The screenshot shows a web interface for system configuration. At the top left, there is a header 'System' with a question mark icon. Below this is a sub-header 'System' in a box. A note states: 'NOTE: 'Reboot' and 'Default' will immediately shut down all services on the Integrated PrintNet Enterprise and reset the unit.' Below the note are three buttons: 'Reboot' with the description 'This will reboot the printer.', 'Default' with the description 'This will reboot the Integrated PrintNet Enterprise with factory default settings.', and 'Upgrade' with the description 'This will allow to upgrade the firmware of the printer.'

**Figure 20. System Configuration**

The System Configuration form allows you to change the PrintNet's operation mode. Select "Reboot" to re-power the print server. Select "Default" to reset the print server and have it come up with factory default settings.

## Firmware Upgrade

Click "Upgrade" to upgrade the printer's firmware. The Firmware Upgrade webpage displays below.



The screenshot shows a web interface for a firmware upgrade. At the top, it says "Firmware Upgrade" with a question mark icon. Below that is a header "Firmware Upgrade". The main content area displays "Current firmware version: 372816 V1.02V" and a link to "Printronix Customer Support Center". There is a "File to upload:" field with a "Browse..." button. Below the field are "Upgrade" and "Clear Changes" buttons. A note states: "Note: The newly downloaded firmware will only take affect after a restart." At the bottom, it says: "After selecting a file to upload, press the Upgrade button once to begin the firmware upgrade process."

**Figure 21. Firmware Upgrade Webpage**

1. To find the upgrade file click the Printronix Customer Support Center link.
2. Click "Browse..." to navigate to the directory, then click "Upgrade".

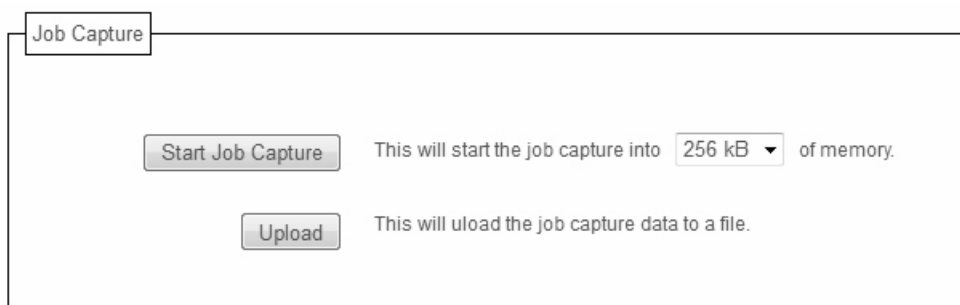
**NOTE:** Upgrading the printer firmware will erase all printer configurations except network setting. You may want to upload the configuration and save it to your PC before the upgrade process.

**IMPORTANT** The upgrade process may take a few minutes. The process cannot be interrupted during upgrade or the printer will not be able to power up again.

---

## Job Capture

---



**Figure 22. Job Capture Webpage**

Sometimes the job does not work or your barcode does not print. Job Capture allows you to capture data sent to the printer. To start capturing data, click "Start Job Capture". To stop capturing data, click "Stop Job Capture". Upon job capture completion, click "Upload" to load the data from the printer to your host system. The captured file size depends on your available DRAM size.

---

## Status

---

The Status menu items allow you to view the current status of both the printer and the network. The submenu items available are as follows:

- **I/O Port** - this menu item allows you to view the current status of the printer, including the print jobs that are queued or are currently active.
- **Network** - this menu item allows you to view the current status of the network connection.

## Status - I/O Port

---

The I/O Port Status form allows you to remotely see what is happening on the PrintNet I/O port. The port's status and a list of active and queued jobs will be displayed. You can cancel a job (as long as you have permission) by clicking the Cancel icon beside the desired job. If you see "waiting" in the "Status" line, this indicates the PrintNet is either waiting for data from the host or for feedback from the printer. If you see "blocked" in this line, this indicates the printer is not allowing the PrintNet to send any more data. The printer could be busy processing data it has already received or it could be in an error state.

The printer status display is automatically refreshed every minute.

**NOTE:** You cannot cancel a print job with an IPDS Emulation. Do not click the Cancel icon.

The printer's buffer size may not allow you to monitor the real time status of the printer and the print job at the same time. The status feedback to the host usually reads "printer idle" unless the print job is significantly large.

## Status - Network

---

This form allows you to view the current status of the network. The statistical data provided is broken down by network protocol. You can use this form to troubleshoot network-related problems.

## Help

---

Through the provided HTML forms, you can configure settings on the Integrated PrintNet Enterprise and view printer status.

---

# 4

## *Windows Configuration*

### **Overview**

---

This chapter details a complete Windows configuration setup including:

- Identifying the PrintNet on the network using TCP/IP as the underlying protocol
- Configuring the PrintNet with its mandatory TCP/IP settings (IP address and subnet mask)
- Configuring a new printer on the Windows station

### **Windows Environment Description**

---

The PrintNet supports network printing under Windows environments by using TCP/IP. In a Windows setup, pure TCP/IP is used as the network protocol.

## **Windows PrintNet Configuration**

---

The IP address and subnet mask are mandatory TCP/IP settings and are needed before the print server can be detected on the network. There are also additional optional settings. This section offers alternative methods for configuring your PrintNet in a Windows environment and describes some of the more common optional settings available.

### **Mandatory**

---

Since TCP/IP is used for Windows printing, the PrintNet must be configured with a minimum of an IP address and subnet mask before it can be seen on the network.

### **Optional**

---

Additional settings, like routing entries, can be configured. This allows communication across subnets when no other router exists.

You can configure the PrintNet from the printer control panel, Web browser, host commands, or other Printronix utility software. To configure these options, see “Configuration Tools” on page 25.

### **Configuration using ARP**

---

To configure the PrintNet with its IP settings using a manual `arp` command:

1. Log on to a Windows station with TCP/IP loaded and located on the same subnet as the PrintNet.
2. Find the Ethernet address for the PrintNet on the configuration printout. It must be entered as part of this procedure.



---

## Configuration using ARP

3. Use the `arp` command to add an entry into the Windows station ARP table for the PrintNet. This is the most common syntax for this command:

Syntax:

```
arp -s ipaddress ethernetaddress
```

Example for Microsoft® TCP stacks:

```
arp -s 192.75.11.9 00-08-96-07-00-60
```

This example specifies a PrintNet using IP address 192.75.11.9 and Ethernet address 00-08-96-07-00-60.

4. Check if the ARP entry was accepted.

```
arp -a
```

You should see an entry in the listed ARP table with the IP address and Ethernet address specified in Step 3.

5. Ping this IP address to see if the PrintNet can be seen on your network.

At this point, you should be able to communicate with the PrintNet from your local Windows station. This means the print server knows about an IP address and subnet mask and has these settings in its current memory. However, if the PrintNet is power cycled, these settings will disappear unless you store them into flash memory. To do this:

- a. Load a Web browser on your Windows station and direct it to the URL:

```
http://IPAddress
```

```
(e.g., http://192.75.11.9)
```

where IPAddress is the IP address of your PrintNet.

**NOTE:** If prompted for a “User ID” and password first, type `root` for the ID and press ENTER at the password prompt (since there is no password by default).

- b. At the “Network Configuration” HTML form that displays, click in the field below the “IP Address” heading and type in the IP address for the PrintNet.

## Chapter 4 Windows PrintNet Configuration

---

- c. Under the “Subnet Mask” heading, enter the PrintNet subnet mask.

**NOTE:** If you would like to communicate with the PrintNet from across routers, you will need to fill in an entry within the “Routing” section. Please see “Communicating Across Routers” on page 66 for more details.

6. Click on the SUBMIT button when done and physically repower the printer to make the new settings take effect.

### Communicating Across Routers

---

Since Windows environments rely on TCP/IP to communicate with the PrintNet, crossing routers becomes an issue.

After you have followed one of the PrintNet configuration methods mentioned, most likely you will only be able to communicate with the print server from the same subnet. This means any hosts across a router will not be able to see your PrintNet. In order for hosts across a router to see your PrintNet, store a default router/gateway within the print server so that any packets destined for another subnet get forwarded to this router automatically. The router (or series of routers) can then take over, ensuring the packets get to their final destination on another subnet on your network.

To configure a default router/gateway within the PrintNet:

1. Load a Web browser on your Windows station and direct it to the URL.

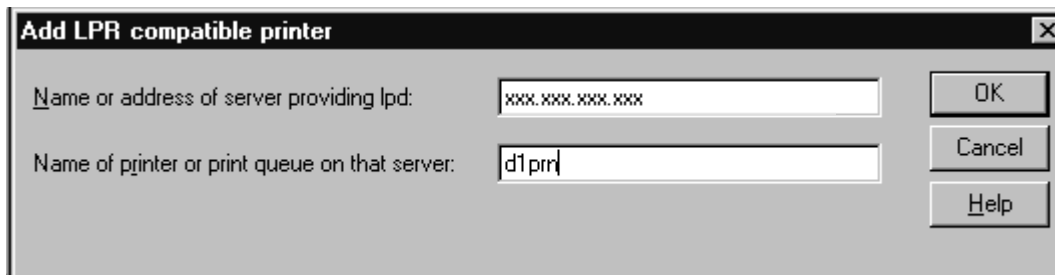
**NOTE:** If prompted for a “User ID” and password first, type in `root` for the ID and press ENTER at the password prompt (since there is no password by default).

2. At the “Network Configuration” HTML form that displays, click in the first field below the “Gateway” heading and type in the IP address of the default router/gateway for the PrintNet subnet.
3. Click on the SUBMIT button when done and physically repower the print server to make the new settings take effect.

## Changing Destination Names

---

When defining some printers within Windows environments, the PrintNet requires that you specify a predefined destination rather than any name you would like. For example, when creating a new printer under Windows NT, a screen similar to Figure 23 displays.



**Figure 23. Windows NT Print Setup Dialogue Box**

The first field requires the IP address for the PrintNet, and the second field must be filled in with a valid destination from the print server (e.g., d1prn). Otherwise, LPR will not be able to access the printer.

This name can be changed to something more meaningful using the built-in HTML forms. To do this:

1. Load a Web browser on your Windows station and direct it to the URL:

`http://NICIPaddress/destConf.html`  
(e.g., `http://192.75.11.9/networkConf.html`).

**NOTE:** If prompted for a “User ID” and password first, type in `root` for the ID and press ENTER at the password prompt (since there is no password by default).

## Chapter 4 Windows PrintNet Configuration

---

2. At the “Print Path Configuration” HTML form that displays, select a destination link from the top of the page to bring up the appropriate destination form. By default, you should see a line near the top of the form showing the destinations.
3. Once the desired destination HTML form displays, highlight the “Name” field and type in the new name for this destination.
4. Click the SUBMIT button when done and physically repower the print server to make the new setting take effect.

---

# 5

## *Unix Configuration*

### **Overview**

---

This chapter details a complete Unix setup including:

- Configuring the PrintNet with its mandatory TCP/IP settings (e.g., IP address and subnet mask).
- Configuring the Unix host station with a new printer.

### **Unix Environment Description**

---

The PrintNet supports network printing under various TCP/IP environments including all variations of Unix. Printing can come from multiple hosts directly or through central spooling machines.

## Unix PrintNet Configuration

---

There are mandatory settings needed before the print server can be detected on the network, as well as some additional optional settings. This section offers alternative methods for configuring your PrintNet and mentions some of the more common optional settings available.

### Mandatory

---

Since TCP/IP is used, the PrintNet must be configured with a minimum of an IP address and subnet mask before it can be seen on the network. To configure these options, see “Configuration Tools” on page 25.

### Optional

---

Additional settings, like routing entries, can be configured allowing for communication across subnets.

Configuration of the PrintNet can be done from the control panel or through host commands. To configure these options, see “Configuration Tools” on page 25.

### Using ARP

---

To configure the Ethernet Interface with its TCP/IP settings using a manual `arp` command, the syntax is:

```
arp -s ipaddress ethernetaddress
```

For the `aix` command, the syntax is:

```
aix -s ether ipaddress Mac_address
```

To use either of these commands:

1. Log on to a Unix station as **superuser** or **root**. This station must be located on the same subnet as the PrintNet since ARP is limited to subnets.

2. Find the Ethernet address for the PrintNet by printing a configuration or reading it from the control panel. It must be entered as part of this procedure.
3. Use the `arp` command to add an entry into the Unix station ARP table for this PrintNet. Here is the most common syntax for this command:

```
arp -s ipaddress ethernetaddress
```

Example for Microsoft TCP stacks:

```
arp -s 192.75.11.9 00:08:96:07:00:60
```

This example specifies a PrintNet using IP address 192.75.11.9 and Ethernet address 00:08:96:07:00:60.

4. Verify that the ARP entry was properly applied.  

```
arp -a
```

You should see an entry in the listed ARP table with the IP address and Ethernet address specified in step 3.
5. Try to `ping` this IP address to see if the PrintNet can be seen on your network.

At this point, you should be able to communicate with the PrintNet from your local Unix station. This means the printer knows about an IP address and subnet mask and has these settings in its current memory. However, if the PrintNet is shut off, these settings will be lost unless you store them in flash memory, as follows:

1. Load a Web browser on your Windows station and direct it to the URL:

```
http://NICIPaddress/networkConf.html  
(e.g., http://192.75.11.9/networkConf.html).
```

**NOTE:** If prompted for a “User ID” and password first, type in `root` for the ID and press ENTER at the password prompt (since there is no default password).

2. At the “Network Configuration” HTML form that displays, click in the field below the “IP Address” heading and type in the IP address for the PrintNet.

3. Under the **Subnet Mask** heading, enter the PrintNet subnet mask.

**NOTE:** If you would like to communicate with the PrintNet from across routers, you will need to fill in an entry within the “Routing” section. Please see “Communicating Across Routers” on page 73 for further details.

4. Click the **Submit** button when done and physically repower the print server to make sure the new settings are in effect.

### Using BOOTP

---

BOOTP allows you to dynamically assign an IP address to the PrintNet upon bootup. In addition, the BOOTP server can provide additional details like a default router/gateway address. To configure the PrintNet with its TCP/IP settings using BOOTP:

1. On your BOOTP server, make an entry in the `/etc/bootptab` file for the PrintNet.

Syntax:

```
IPname: \  
:sm=netmask:\  
:hd=homedirectory:\  
:bf=null:\  
:gw=defaultgateway:\  
:ht=ethernet:\  
:ha=ethernetaddress:\  
:ip=ipaddress:\  
:ts=timeserver:\  
:to=timezone:
```

Example:

```
spike:\  
:sm=255.255.255.0:\  
:hd=/usr/null:\  
:bf=null:\  
:gw=192.75.11.1:\  
:ht=ethernet:\  
:ha=000896070060:\  
:ip=192.75.11.9:\  
:ts=192.75.11.7:\  
:to=25200:
```



---

## Communicating Across Routers

2. Turn the PrintNet on so that it immediately sends out a BOOTP request. Wait one minute to allow the IP address assignment process to complete.
3. Try to ping the PrintNet IP address from a network station to see if it can be seen on your network.

**NOTE:** You will be able to communicate with the PrintNet from network stations on different subnets if the print server has been told about its default router/gateway in the BOOTP response from the BOOTP server.

---

## Communicating Across Routers

Since Unix environments rely on TCP/IP to communicate with the PrintNet, crossing routers becomes an issue.

After you have followed one of the PrintNet configuration methods mentioned (other than the BOOTP method), most likely, you will only be able to communicate with the print server from the same subnet. This means any host across a router will not be able to see your PrintNet. In order to communicate across a router, store a default router/gateway within the print server so that any packets destined for another subnet get forwarded to this router automatically. The router (or series of routers) can then take over the process of ensuring the packets get to their final destination on another subnet on your network.

To configure a default router/gateway within the PrintNet:

1. Load a Web browser on your Windows station and direct it to the URL

`http://NICIPaddress/networkConf.html`  
(e.g., `http://192.75.11.9/networkConf.html`).

**NOTE:** If prompted for a User ID and password first, type in `root` for the ID and press ENTER at the password prompt (since there is no default password).

2. At the **Network Configuration** HTML form that displays, click the first field below **Gateway** and type in the IP address of the default router/gateway for the PrintNet subnet.

3. Click **Submit** when done and physically repower the print server to make sure the new setting is in effect.

## Unix Host Configuration

---

There may be times when you would prefer or have to perform the manual setup steps for a new printer definition. There may also be times when you require a less common print solution such as direct socket capabilities. This section covers these additional setups.

### Manual System V Host Setup

---

This setup involves any Unix operating system using System V print spooling (e.g., SCO, Solaris®, HP-UX®, DG/UX®, etc.). This means an interface file is used for each defined printer and, in the case of any System V print setup involving a PrintNet, the RSHD protocol is used to transfer data from the host to the print server.

To manually configure a new System V printer on a Unix station, create a dummy device file that acts as a locking mechanism between contending print jobs.

Syntax:

```
touch /dev/NICname.portname
```

where *NICname* is the host or IP name of the print server and *portname* is one of its four I/O ports.

Example:

```
touch /dev/spike.prn
```

---

## PrintNet Installation on HP-UX

---

LPR is supported in HP/UX Version 9.0 and greater. To configure a print queue using LPR, issue the following commands.

**NOTE:** Requires root privilege. The default BSD interface file “rmodel” will be used.

Syntax:

```
lpshut
lpadmin -pqueue_name -mrmodel -v/dev/null
        -orm[printer_ip] -orpd1prn -ob3
lpsched
accept queue_name
enable queue_name
```

queue\_name = any unique printer name

[printer\_ip] = IP address of the printer or the DNS name (without brackets)

d1prn = PrintNet remote printer name\*

**Explanation of command line:**

-m indicates the model rmodel

-v indicates the use of /dev/null as a file interlock to avoid contention

-orm is the name of remote Print Server

-orp is the name of the remote printer on the remote Print Server

-ob3 declares that the remote Print Server is a BSD type

**NOTE:** The “lpshut” command stops the HP spooling system; do not perform when print jobs are active.

The default PrintNet destination name is d1prn, however, this name can be changed. To verify the queue name, print an Ethernet Test Page or telnet to the print server’s IP address and run a “list dest” command.

To print to this queue, use normal lp syntax:

```
# lp -dqueue_name filename
```

## Solaris 2.6 – 7 PrintNet Setup

---

**NOTE:** Requires Superuser privilege in the borne shell. Assume that you can ping and Telnet to the adapter.

The IP address of the PrintNet must be placed in the /etc/hosts file.

Syntax:

```
lpsadmin -p [queue_name] -v /dev/null
lpsadmin -p [queue_name] -i /usr/lib/lp/model/
netstandard
lpsadmin -p [queue_name] -o dest=[host_name] -o
protocol=bsd -o timeout=60
lpsadmin -p [queue_name] -s [host_name]!d1prn -I any
enable {queue_name}
accept [queue_name]
```

where

[queue\_name] = any name, but not the name in the etc/hosts file or d1prn

[host\_name] = name in etc/hosts file

### Troubleshooting

This installation procedure assumes that the PrintNet is configured with the correct IP address, subnet mask, and gateway (if required). You can also ping and telnet to the PrintNet.

Print an E-Net Test Page to verify the Ethernet settings.

See “Printing an Ethernet Test Page” on page 26.

The default PrintNet queue name is d1prn, however, the name can be changed. To verify the queue name, print an E-Net Test Page or telnet to the print server’s IP address and run a “list dest” command.

**NOTE:** Depending on the shell, precede the ! character with a \ to avoid shell script errors.

## Manual LPR/LPD Host Setup

---

The PrintNet also supports Unix operating systems which follow a BSD print system (e.g., SunOS 4.1.x). This means a printcap file is used to define all printers available on the host, and interface scripts are not commonly used. Instead, LPR/LPD printers are defined.

To manually configure an LPR/LPD printer on a BSD Unix system:

1. Define an entry for this new printer within the printcap file, `/etc/printcap`.

Syntax:

```
printername:  
:sh:pw#80:mx#0:\  
:rm=NICname:\  
:rp=NICdestination:\  
:lp:\  
:sd=/usr/spool/lpd/printername:\  
:lf=/usr/spool/lpd/printername/log:\  
:af=/usr/spool/lpd/printername/acct:
```

where *printername* is any name you would like to give to this new printer, *NICname* is the host or IP name of the print server, and *NICdestination* is one of the pre-defined destinations/queues on the device.

Example:

```
P5000:  
:sh:pw#80:mx#0:\  
:rm=spike:\  
:rp=dlprn:\  
:lp:\  
:sd=/usr/spool/lpd/ P5000:\  
:lf=/usr/spool/lpd/ P5000/log:\  
:af=/usr/spool/lpd/ P5000/acct:
```

## Chapter 5 Solaris 2.6 – 7 PrintNet Setup

---

2. Create the spool directory specified by the `sd=` entry in the `printcap` entry for this printer.

Example:

```
touch /usr/spool/lpd/ P5000
```

3. Create the log and account files specified by the `lf=` and `af=` entries in the `printcap` entry for this printer.

Example:

```
touch /usr/spool/lpd/P5000/log
touch /usr/spool/lpd/P5000/acct
```

4. Change permissions and ownership on the spool directory and everything within it.

Example:

```
chmod -R g+rwX,o+rX /usr/spool/lpd/ P5000
chmod -R daemon.daemon /usr/spool/lpd/ P5000
```

5. Start the printer daemon for this new printer.

Example:

```
lpc start P5000
```

You now have a new printer which relies on LPR/LPD to print to a PrintNet printer. Use the following command to test printing:

Syntax:

```
lpr -P printername filename
```

Example:

```
lpr -P P5000 /etc/hosts
```

## PrintNet Configuration for AIX 4

---

Before you set up the printer, it is good to know the ways a print job can be filtered.

1. **Standard processing.** Filtering is done on the printer with no processing on the host.
2. **Local Filtering.** Filtering is done on the host. Be sure to specify the printer model during install.

### Standard Processing

1. Enter SMIT select devices.
2. Select **Printer/Plotter**.
3. Select **Print Spooling**.
4. Add a **Remote** Print Queue.
5. Set the type of Remote Printing to **Standard processing**.
6. Enter the following Remote printer settings:

Name of queue	any_name, user selectable
Host Name of Remote Server	name in /etc/hosts file or the PrintNet IP address
Name of Queue on Remote Server	d1prn
Type of Print Spooler	BSD (Press the list button and choose BSD)

### Local Filtering

1. Enter **smitty mkvirprt**.
2. Add a **Remote** Print Queue.
3. Set the type of Remote Printing to **Local Filtering...**
4. Set the Printer Manufacturer to **IBM**.
5. Set the Printer Type to **IBM4202**.

**IMPORTANT** You must change the printer emulation to **Proprinter**.

6. Enter the following Remote Print Queue with Local Filtering settings:

Name of queue	any_name, user selectable
Host Name of Remote Server	name in /etc/hosts file or the PrintNet IP address
Name of Queue on Remote Server	d1prn
Type of Print Spooler	BSD (Press the list button and choose BSD)
Leave Pass-Through Flag	Yes



---

## AIX Remote Queue Time-Out Setting

---

### Troubleshooting

This installation procedure assumes that the PrintNet is configured with the correct IP address, subnet mask, and gateway (if required). In addition you can also ping and telnet to the PrintNet.

To verify the PrintNet settings, print an E-net Test Page. See “Printing an Ethernet Test Page” on page 26.

The default PrintNet queue name is `d1prn` (in lower case), however the name can be changed. To verify the queue name, print an E-Net Test Page or telnet to the print server’s IP address and do a “list dest” command.

## AIX Remote Queue Time-Out Setting

---

Symptoms: Print jobs restart or queue goes down.

If the queue is set up for standard processing (not local filtering), add `-T50` flag to `rembak` to the queue device stanza for the queue in `/etc/qconfig`

```
backend = /usr/lib/lpd/rembak -T50
```

If the queue was set up for local filtering edit the file `/usr/lib/lpd/pio/etc/piorlfb` and change the line;

```
typeset priorlfb_rbflags=""
```

to

```
typeset priorlfb_rbflags="-T50"
```

## Printing from AIX

---

Version 4.0 and higher of AIX® offers LPR/LPD support for network printing. This means, to set up a new printer under this operating system, you only need to define these two parameters:

1. **PrintNet IP address.** The IP address or host name of the print server to which you want to print.
2. **PrintNet destination/queue.** A pre-defined name on the print server telling the device to which I/O port to send the jobs. Most likely, you will use `d1prn` for the PRN.

## Printing with FTP

---

Print jobs can also be sent to the PrintNet using the File Transfer Protocol (FTP). To do this:

1. On your network station, change to the directory containing the file you want to print.

2. Open an FTP session with the PrintNet.

Syntax:

```
ftp NICIPaddress
```

3. Log in as `root`.
4. At the password prompt, press ENTER (since there is no default password).
5. Change to the `dest` directory.

Syntax:

```
cd dest
```

6. List the contents of this directory using the `dir` command and determine which destination/queue you would like to send the print job through. Most likely, you will select `dlprn` for the PRN port.

7. Change to this destination directory.

Example:

```
cd dlprn
```

8. Change the mode to correspond with the type of file you are going to print. By default, ASCII is set for text-only files, but if you need to print both text and graphics, select binary using the `bin` command.

## Alternate FTP Printing

---

9. Place the file to be printed within this directory on the PrintNet, so it can be spooled and printed.

Syntax:

```
put filename
```

10. Close the FTP session, unless you have more jobs to print.

Syntax:

```
quit
```

## Alternate FTP Printing

---

1. Change the default ftp directory by entering the following command:

```
store pserver ftp dest
```

2. Open an FTP session with the PrintNet.

Syntax:

```
ftp NICIPaddress
```

3. Log in as `root`.

4. At the password prompt, press ENTER (since there is no default password).

5. Change the mode to correspond with the type of file you are going to print. By default, ASCII is set for text-only files, but if you need to print both text and graphics, select binary using the `bin` command.

6. Send the file to be printed here.

Syntax:

```
put filename dlprn
```

7. Close the FTP session, unless you have more jobs to print.

Syntax:

```
quit
```

## Direct Socket Printing

---

Within TCP/IP environments, there are some setups which require the host to print directly to a TCP port number on the PrintNet, bypassing all of the higher level destination/queue names. If you run into a setup which requires this, you will need to define two parameters for a new print setup:

1. **PrintNet IP address.** The IP address or host name of the print server to which you want to print.
2. **PrintNet TCP port number.** A predefined number for the I/O port on the print server. 9100 is the default port number.

Though the host will be sending directly to a TCP port number on the PrintNet, the port numbers are still mapped to destinations/queues in case there is some type of special processing or logging to be done to the job. However, the destination name is of no concern in this type of printer definition. Only the two parameters mentioned above need to be defined for printing to work.

---

# 6

## *z/OS Configuration, IPDS Printer*

### Overview

---

Use this chapter to configure z/OS to print IPDS files on your line matrix network printer.

To print IPDS files, you must have the IPDS option on the printer.

### Requirements

---

Verify that you have the following required software:

- PSF Version 2.2.0 with APAR OW15599 (for TCP/IP support)
- z/OS Scheduler with APAR OW12236 to support two new PRINTDEV keywords: IPADDR and PORTNO
- TCP/IP Version 3 Release 1, or higher, installed and configured on z/OS

To obtain the PTFs associated with these APARs, contact the support center.

## **Configuration Checklist**

---

All of the following configuration steps carried out on z/OS require appropriate RACF authority.

1. Set TCP/IP addresses for the printer, such as IP address, gateway address, or subnet mask. See “Configuration Tools” on page 25.
2. Configure the host environment. See “Configuring PSF for z/OS to Print IPDS Files” on page 86.
3. Verify the configuration. See “Verifying a TCP/IP-Attached Printer on z/OS” on page 96.
4. If you want to share the printer, do the procedure in “Sharing Line Matrix Printers on z/OS” on page 97.
5. If you have problems, refer to “Handling z/OS Connectivity Problems” on page 99.

## **Configuring PSF for z/OS to Print IPDS Files**

---

To perform this procedure, you need the IP address of the Ethernet.

### **Configuration Procedure**

---

Configuring PSF to print IPDS files includes the following steps:

1. Define the z/OS communications control unit to z/OS. See “Define the Communications Control Unit to z/OS” on page 87.
2. Modify the TCP/IP profile on your z/OS system, if necessary. See “Modify the TCP/IP Profile in z/OS” on page 87.
3. “Ping” the printer. See “Verify the Printer Connection” on page 90.
4. Define the printer as a writer-controlled printer to JES. See “Define the Printer to JES” on page 91.

5. Define the printer to PSF with a PRINTDEV statement, including the IP address. See “Define the Printer to PSF” on page 92.

This section does not provide all the information you need to install and configure TCP/IP on your z/OS system. For more information on installing TCP/IP, refer to *TCP/IP for z/OS: Customization and Administration Guide*.

The routing of information is determined on the basis of the IP address, and is performed by IP gateways. After the network is configured correctly, the z/OS host appears to be communicating directly with the TCP/IP-attached printer.

### Define the Communications Control Unit to z/OS

If you have not already done so, define the communications control unit for the z/OS host, such as the 3172 or the 3745 control unit, to z/OS. Use either an z/OS configuration program (MVSCP) or a hardware configuration definition (HCD), depending on the version of your z/OS system:

- When using a version earlier than z/OS 4.1.0, use an MVSCP.
- When using a version of z/OS 4.1.0 or later, use an HCD or an MVSCP.

For more information about using these methods, refer to:

- MVS/ESA\* Migration Planning: Dynamic I/O Configuration
- MVS/ESA Hardware Configuration: Using the Dialog

### Modify the TCP/IP Profile in z/OS

The TCP/IP profile contains system configuration statements used to initialize the TCP/IP address space. Of those statements, the following are subject to special considerations when you are printing from PSF on TCP/IP-attached printers. Samples of these statements are printed in bold in the example shown in Figure 24.

## Chapter 6 Configuring PSF for z/OS to Print IPDS Files

ACBPOOLSIZE	1000					
ADDRESSTRANSLATIONPOOLSIZE	1500					
CCBPOOLSIZE	150					
<b>DATABUFFERPOOLSIZE</b>	<b>160</b>	<b>32768</b>				
ENVELOPEPOOLSIZE	750					
IPROUTEPOOLSIZE	300					
LARGEENVELOPEPOOLSIZE	50					
RCBPOOLSIZE	50					
SCBPOOLSIZE	256					
SKCBPOOLSIZE	256					
<b>SMALLDATABUFFERPOOLSIZE</b>	<b>256</b>					
TCBPOOLSIZE	512					
<b>TINYDATABUFFERPOOLSIZE</b>	<b>256</b>					
UCBPOOLSIZE	100					
<b>KEEPALIVEOPTIONS INTERVAL 10 SENDGARBAGE FALSE ENDKEEPALIVEOPTIONS</b>						
<b>GATEWAY</b>						
;	* Network	First hop	Linkname	<b>Packet Size</b>	Subnet mask	Subnet value
	9	=	BPCLAN	<b>2000</b>	0.255.255.0	0.99.12.0
	DEFAULTNET	9.99.12.254	BPCLAN	2000	0.255.255.0	0

**Figure 24. Modifying TCP/IP Profile**

This section contains information about the statements, the special considerations that apply to them, and the changes they may make necessary. If you change any of the values in the TCP/IP profile, restart TCP/IP to pick up the changes.



### **DATABUFFERPOOLSIZE**

The DATABUFFERPOOLSIZE statement defines the number and size of the data buffers. For printing on TCP/IP-attached printers, it is recommended that you specify at least **160** data buffers, **32768** buffer size.

### **SMALLDATABUFFERPOOLSIZE**

The SMALLDATABUFFERPOOLSIZE statement defines the number of small data buffers. For printing on TCP/IP-attached printers, it is recommended that you specify at least **256** small data buffers.

### **TINYDATABUFFERPOOLSIZE**

The TINYDATABUFFERPOOLSIZE statement defines the number of tiny data buffers. For printing on TCP/IP-attached printers, it is recommended that you specify at least **256** tiny data buffers.

### **KEEPALIVEOPTIONS**

PSF relies on TCP to detect when a connection with a TCP/IP-attached printer is no longer usable. When no data has been exchanged between PSF and its connection partner, TCP sends keep-alive probes to the connection partner periodically. These periodic probes, called keep-alive transmissions, enable TCP to discover when a connection is no longer usable even if the connection partner is abruptly powered off or is no longer accessible through the network.

The frequency of keep-alive transmissions is controlled by the INTERVAL parameter on the KEEPALIVEOPTIONS statement. The frequency applies to all TCP applications that direct TCP to send keep-alive transmissions. The default frequency is after about two hours of inactivity.

For printing on TCP/IP-attached printers, it is recommended that you specify a shorter interval than the default, such as 10 minutes, for the interval between keep-alive transmissions.

Also, if any target host requires that the keep-alive packet contain data, specify `SENDGARBAGE TRUE`. For example:

```
KEEPALIVEOPTIONS INTERVAL 5 SENDGARBAGE TRUE
ENDKEEPALIVEOPTIONS
```

### GATEWAY

**NOTE:** If the host has keep-alive enabled, be sure to to disable the printer's keep-alive function. See page 183 for the keep-alive command.

The Packet Size parameter of the GATEWAY statement defines the maximum transmission unit (MTU) for the z/OS host. For 10/100Base-T Ethernet Interface printers, the MTU size is fixed at 1024 bytes. The value cannot be adjusted.

### Verify the Printer Connection

To verify that the z/OS system can establish a connection with the TCP/IP-attached printer, “ping” the printer from the MVS system.

From a TSO session, enter the following command:

```
TSO PING ip_address
```

In JES2, enter the following command from the System Display and Search Facility (SDSF) menu 6:

```
ping ip_address
```

***ip\_address*** specifies the IP address of the Ethernet.

Here is an example of a successful “ping” command:

```
EZA0458I Ping V3R1: Pinging host 9.99.12.33
(Use ATTN to interrupt.)
EZA0463I PING: Ping #1 response took 0.084 seconds.
Successes so far = 1.
```

Here is an example of an unsuccessful “ping” command:

```
EZA0458I Ping V3R1: Pinging host 9.99.12.33
(Use ATTN to interrupt.)
EZA0464I PING: Ping #1 timed out
```

**NOTE:** If you have problems “ping”-ing a printer, refer to “Handling z/OS Connectivity Problems” on page 99.

### Define the Printer to JES

When a TCP/IP-attached printer is to be used with JES, it must be defined for deferred printing mode with JES.

#### JES2 Printer Definitions

Below is an example of the JES2 printer definition initialization member, located in the system PARMLIB:

```
FSS (FSS1) , PROC=PSFPROC , HASPFSSM=HASPFSM  
PRT1      FSS=FSS1 , MODE=FSS , PRMODE= (LINE , PAGE , SOSI1) ,  
          CLASS=C , UCS=0 , SEP , NOSEPDS , CKPTPAGE=100 ,  
          DRAIN , MARK , TRKCELL=YES
```

The above example is correct for JES2 3.11 and above. For earlier versions of JES2, the statement is named **FSSDEF** and would be stated as **FSSDEF FSSNAME=FSS1**.

The value you specify for the PROC parameter must match the name on the PSF Startup procedure.

#### JES3 Printer Definitions

Below is an example JES3 printer definition. This example is not executable, but it is intended to help the JES3 systems programmer define the printer to the z/OS host.

```
FSSDEF , TYPE=WTR , FSSNAME=FSS1 , PNAME=PSFPROC , SYSTEM=SYS1 ,  
TERM=NO DEVICE , JNAME=PRT1 , JUNIT= ( , SYS1 , , OFF) ,  
FSSNAME=FSS1 , MODE=FSS , PM= (LINE , PAGE , SOSI1) ,  
CHARS= (YES , GT12) ,
```

The value you specify for the JNAME parameter must match the name of the printer in the PSF Startup procedure.

The value you specify for the PNAME parameter must match the name on the PSF Startup procedure.

### Define the Printer to PSF

Each TCP/IP-attached printer must be defined to PSF with a PRINTDEV statement in the PSF startup procedure.

Figure 25 shows a sample PSFPROC procedure that you can modify to suit your installation. The PRINTDEV statement shows the required IPADDR keyword.

No line matrix printer-specific writer procedure is currently supplied. You can, however, copy the APSWPROT sample from the APAR medium and modify it for the line matrix printer.

**NOTE:** The line matrix printer supports only resident symbol sets.

```
//PSFPROC PROC
//***** NETWORK PRINTERS WRITER PROCEDURE *****
//*
//*01* MODULE-NAME = PSFPROC
//*
//*01* DESCRIPTIVE-NAME = START PROCEDURE FOR PSF:
//*TCP/IP ATTACHED NETWORK PRINTERS
//*
//*01* NOTES = THE FULL NAME OF THE DEFAULT PAGEDEF IS
//*P1A06462.
//*THE FULL NAME OF THE DEFAULT FORMDEF IS
//*F1A10110.
//*THE FULL NAMES OF THE DEFAULT FONTS ARE
//*X0GF10, X0GS10, X0TU10, AND X0GU10.
//*THE FULL NAME OF THE SEPARATOR PAGE PAGEDEF IS
//*P1V06483.
//*THE FULL NAME OF THE SEPARATOR PAGE FONT IS
```

## Configuration Procedure

---

```
/*X0GT15.
/*
/*
/*01* CHANGE-ACTIVITY:
/*
/**** END OF SPECIFICATIONS ***/
//STEP01EXEC PGM=APSPPIEP,REGION=4096K
//JOBHDR OUTPUT PAGEDEF=V06483,/* JOB SEPARATOR PAGEDEF*/
//FORMDEF=A10110,CHARS=GT15/* JOB SEPARATOR FORMDEF*/
//JOBLTR OUTPUT PAGEDEF=V06483,/* JOB SEPARATOR PAGEDEF*/
//FORMDEF=A10110,CHARS=GT15/* JOB SEPARATOR FORMDEF*/
//DSHDR OUTPUT PAGEDEF=V06483,/* DS SEPARATOR PAGEDEF*/
//FORMDEF=A10110,CHARS=GT15/* DS SEPARATOR FORMDEF*/
//MSGDS OUTPUT PAGEDEF=A06462,/* MESSAGE DATASET PAGEDEF*/
//FORMDEF=A10110/* MESSAGE DATASET FORMDEF*/
//FONT300DDDSN=SYS1.FONT300,/* SYSTEM FONTS - 300 PEL*/
//DISP=SHR
//PSEG01DDDSN=SYS1.PSEGLIB,/* SYSTEM PAGE SEGMENTS*/
//DISP=SHR
//OLAY01DDDSN=SYS1.OVERLIB,/* SYSTEM MEDIUM OVERLAYS*/
//DISP=SHR/*
//PDEF01DDDSN=SYS1.PDEFLIB,/* SYSTEM PAGEDEFS*/
//DISP=SHR
//FDEF01DDDSN=SYS1.FDEFLIB,/* SYSTEM FORMDEFS*/
//DISP=SHR
/* *****/
```

## Chapter 6 Configuring PSF for z/OS to Print IPDS Files

```
/*PRINTDEV
/* *****/
//PRT1CNTL
//PRT1PRINTDEV FONTDD=*.FONT300,/* 300 PEL FONT LIBRARY DD*/
//OVLYDD=*.OLAY01,/* OVERLAY LIBRARY DD*/
//PSEGDD=*.PSEG01,/* SEGMENT LIBRARY DD*/
//PDEFDD=*.PDEF01,/* PAGEDEF LIBRARY DD*/
//FDEFDD=*.FDEF01,/* FORMDEF LIBRARY DD*/
//JOBHDR=*.JOBHDR,/* JOB HEADER SEPARATOR*/
/*/* OUTPUT*/
//JOBTRLR=*.JOBTLR,/* JOB TRAILER SEPARATOR*/
/*/* OUTPUT*/
//DSHDR=*.DSHDR,/* DATA SET HEADER*/
/*/* SEPARATOR*/
//MESSAGE=*.MSGDS,/* MESSAGE DATA SET OUTPUT*/
//BUFNO=5,/* NUMBER OF WRITE DATA BUFFERS*/
//PAGEDEF=A06462,/* DEVICE PAGEDEF DEFAULT*/
//FORMDEF=A10110,/* DEVICE FORMDEF DEFAULT*/
//CHARS=(GF10,/* DEVICE*/
//GS10,TU10,GU10),/* DEFAULT FONT SET*/
//PIMSG=YES,/* ACCUMULATE DATA SET*/
/*/* MESSAGES*/
//DATAACK=BLOCK,/* REPORT ALL DATA-CHECK*/
/*/* ERRORS*/
//TRACE=NO,/* CREATE INTERNAL TRACE*/
//FAILURE=WCONNECT,/* PSF ACTION ON PRINTER*/
```

```
/*/* FAILURE*/  
//TIMEOUT=REDRIVE/* PSF ACTION ON TIMEOUT*/  
//MGMTMODE=OUTAVAIL,/* PRINTER MANAGEMENT MODE*/  
//DISCINTV=15,/* DISCONNECT INTERVAL IN*/  
/*/* SECONDS*/  
//IPADDR='xxx.xxx.xxx.xxx'/* IP ADDRESS FOR TCP/IP*/  
//PRT1ENDCNTL
```

**Figure 25. Sample PSFPROC procedure**

**NOTE:** To specify a TCP/IP address space name other than the default, TCPIP, code the following exec statement in the writer procedure:

```
//STEP01EXEC PGM=ASPPIEP,REGION=4096K,  
PARM=( , , , , tcpip_name)
```

where *tcpip\_name* is the name of the TCP/IP address space. If this parameter is not coded, PSF uses the default name, TCPIP.

The IP address is the only required parameter. Other parameters may be set to facilitate printer sharing as described in “Sharing Line Matrix Printers on z/OS” on page 97. For a description of the PRINTDEV statement, which is not given here, see the *PSF System Programming Guide*.

### **IPADDR**

Specifies the IP address for the printer or attachment, in dotted-decimal notation. Do not specify a hostname in place of the dotted-decimal address.

## Verifying a TCP/IP-Attached Printer on z/OS

To operate a TCP/IP-attached printer, use JES operator commands.

### Starting a TCP/IP-attached Printer

To start a TCP/IP-attached printer, do the following:

1. Start TCP/IP.
2. Power on the printer.
3. Start the printer FSA.
  - On **JES2**, the command is:  
`$Sprinter_name`
  - On **JES3**, the command is:  
`*VARY printer_name,ON`

### Stopping a TCP/IP-attached Printer

You can stop a TCP/IP-attached printer in several ways:

- The preferred method is to first stop the PSF FSA for the printer by entering the following command from the z/OS console:

JES2:

`$Pprinter_name`

JES3:

`*VARY printer_name,OFF`

`*CANCEL printer_name`

where `printer_name` specifies the name of the printer FSA.

Then you can turn off power to the printer.

- To end the PSF FSA for the printer, use the JES commands. If you are unable to purge or cancel the printer by use of the JES commands, enter the following command:

`MODIFY FSSname,FORCE,printer_name`



### Resolving IPDS Printing Problems

If you have problems printing, do the following:

- Print an Ethernet Test Page. Refer to your *User's Manual*.
- Verify that the IPDS service is enabled.
- Verify the service name.
- Verify that port number 5001 is being used.

If you are still unable to print IPDS files, contact the support center.

## Sharing Line Matrix Printers on z/OS

---

Line matrix printers can be shared on PSF in one of two ways:

- By using the MGMTMODE and DISCINTV parameters via the JES spool.
- By port switching on the printer.

### JES Spool Printer Sharing

---

JES spool printer sharing is valid for TCP/IP attached network printers. A session with the printer is maintained while there is output on the JES spool and the printer is available. When there is no more output on the spool and the disconnect interval expires, PSF ends the session with the printer. PSF attempts to restart the session when there is more work on the spool for the printer. After the session is restarted, PSF must reload the resources required for the print jobs. When using this method of network printer sharing, PSF cannot determine if another print driver is active.

You can request this method of network printer sharing by specifying the following parameters in the PSF Startup Proc.

```
MGMTMODE=OUTAVAIL  
FAILURE=WCONNECT  
TIMEOUT=REDRIVE  
DISCINTV=n
```

### **MGMTMODE**

Set to OUTAVAIL. OUTAVAIL requests that PSF start a communications session with the printer only when output is available on the JES spool.

### **FAILURE**

Specifies the action PSF is to take after a printer failure or a TCP/IP network failure. If FAILURE=WCONNECT and the printer is connected to another host when PSF attempts to establish a connection on TCP/IP, PSF continuously retries (up to the limit specified by CONNINTV) until the printer becomes available. FAILURE=STOP stops the attempt to connect to the printer.

### **TIMEOUT**

Specifies the action that PSF is to take after a timeout when no output is available on JES. The DISCINTV parameter specifies the timeout interval. TIMEOUT=REDRIVE requests that PSF redrive the printer FSA using the value of the MGMTMODE parameter. TIMEOUT=STOP requests that PSF stop the printer FSA, which can then be restarted only by an operator command.

### **DISCINTV**

Specifies the disconnect interval in seconds. The value can range from zero through 86400. It is recommended that you set the value to **15**. When no output is available from JES for this time period, PSF ends the session with the network printer. If the value is set to zero, PSF does not end the session because of lack of output.

**NOTE:** PSF supports two other methods of printer sharing, which are not applicable to 10/100Base-T Ethernet Interface printers. VTAM RELREQ is available for printer sharing under SNA. Port switching is available for SNA- and TCP/IP-attached printers when a printer can support multiple active ports.

## Port Switching Printer Sharing

---

To support printer sharing, 10/100Base-T Ethernet Interface printers automatically switch among all attached ports (serial port, the twinax or coax port, or the Ethernet network port). Basically, the printer prints jobs for one port until no new jobs appear and the port “times out”. The printer then switches to the next port and does the same thing.

To change the default “time out” value for a port, update the TIMEOUT value for the port on the appropriate menu (Serial Interface, Ethernet, Twinax Interface, or Coax Interface).

## Handling z/OS Connectivity Problems

---

If you encounter problems when “ping”-ing a network printer from z/OS, here is how to resolve them.

### Ping is not Successful

---

If the “ping” is not successful, verify the following:

- The printer is powered on.
- The IP address is unique in the TCP/IP network.  
If the IP address of the z/OS system is not unique, see your network administrator to resolve the IP address problem.
- The Maximum Transmission Unit (MTU) size of the IP packet for the z/OS system is equal to the MTU size of the printer. For information about the values recommended for the z/OS system, see “Modify the TCP/IP Profile in z/OS” on page 87.

To change the MTU size for the z/OS system, change the GATEWAY statement in the z/OS TCP/IP profile, and restart TCP/IP to pick up the changes.

You cannot change the MTU size on a 10/100Base-T Ethernet Interface printer. The MTU size is fixed at 1024 bytes.

If these items are all in order, consult your TCP/IP network administrator about a possible network problem.

## Ping is Successful

---

A successful “ping” usually indicates that the z/OS system can communicate with the printer; however, you might receive a successful “ping” even though the IP address of the TCP/IP-attached printer is a duplicate of another IP address.

If PSF is unable to establish a network connection with the TCP/IP-attached printer or if PSF output for this printer prints elsewhere, follow these steps to determine whether the IP address of the printer is unique:

1. Turn the printer off.
2. Wait at least 5 minutes for TCP/IP to clear the Address Resolution Protocol (ARP) tables. (If your installation specified a longer interval on the ARPAGE configuration statement in the TCP/IP profile, you may need to wait longer. For information about the ARPAGE statement, refer to the *TCP/IP z/OS Customization and Administration Guide*.)
3. Enter the “ping” command again from the z/OS system.

**NOTE:** If you receive a successful response to the “ping” command, there is a duplicate IP address. Consult your TCP/IP network administrator.

---

# 7

## *AS/400 Configuration, ASCII Printer*

---

### Overview

This chapter details a complete AS/400 configuration setup including:

- Developing Line Descriptions with CRTLINETH
- Configuring the AS/400 for TCP/IP
- Configuring the AS/400 for Printing
- Verifying Printing from the AS/400

This document assumes no AS/400 printer configuration has been done. If any configuration has been done, please follow the procedure to the point at which continued configuration is required.

#### **Developing Line Descriptions With CRTLINETH**

For each PrintNet printer on the AS/400, a line description needs to be created. This is required for Release V3R2 and V3R7.

If a line description already exists, make sure the SSAP list includes default options “AA” and “12.” You must also know the LAN speed for the AS/400 LAN printer.

**NOTE:** To change a line description, you need to vary the line off before making the change. After making the change, you need to vary the line back on.

To change an existing line description, use the CHGLINETH command. To create a line description, use CRTLINETH.

## Chapter 7 Overview

**NOTE:** SSAPS of “AA” and “12” are automatically set as default values in the line description when “\*CALC” is used in creating new line descriptions. You do not need to set these values unless they have been changed.

To create a line description, enter the following command:

```
CRTLINETH LIND(ETHLAN) RSRNAME(LIN041)
```

Your completed screen should look like Figure 26.

```

5763SS1 V3R2M0 960517                                BLDD60 09/11/96 12:25:46
Line description . . . . . : LIND      ETHLAN
Option . . . . . : OPTION    *ALL
Category of line . . . . . :          *ELAN
Resource name . . . . . : RSRNAME  LIN041
Online at IPL . . . . . : ONLINE  *YES
Vary on wait . . . . . : VRYWAIT  *NOWAIT
Local adapter address . . . . . : ADPTADR *ADPT
Exchange identifier . . . . . : EXCHID 056A1005
Ethernet standard . . . . . : ETHSTD  *ALL
Maximum controllers . . . . . : MAXCTL 40
Error threshold level . . . . . : THRESHOLD *OFF
Text . . . . . : TEXT      *BLANK
-----Active Switched Controllers-----
(No active switched controllers attached)
SSAP list . . . . . : SSAP
-----Source Service Access Points-----
SSAP      Maximum Frame   Type          SSAP      Maximum Frame   Type
  04             1496      *SNA          AA             1496      *NONSNA
  12             1496      *NONSNA      C8             1496      *HPR
Group address . . . . . : GRPADR
-----Group Addresses-----
(No group addresses found)
Link speed . . . . . : LINKSPEED 10M
Cost/connect time . . . . . : COSTCNN 0
Cost/byte . . . . . : COSTBYTE 0
Security for line . . . . . : SECURITY *NONSECURE
Propagation delay . . . . . : PRPDLY *LAN
User-defined 1 . . . . . : USRDFN1 128
User-defined 2 . . . . . : USRDFN2 128
User-defined 3 . . . . . : USRDFN3 128
Autocreate controller . . . . . : AUTOCRTCTL *NO
Recovery limits . . . . . : CMNRCYLMT
  Count limit . . . . . :          2
  Time interval . . . . . :          5

```

Figure 26. Example PrintNet Line Description

---

## Configuring with ADDTCPIFC

---

The following three parameters must be specified:

### Line Description (LIND)

The line description name is the user's name for the AS/400 network printer. This name must be identical to the name entered when the TCP/IP is configured on the AS/400.

### Resource Name (RSRCNAME)

The system-assigned name for the interface (for example, LIN041).

### SSAP

When \*CALC is used, the values of "12" and "AA" are entered automatically as defaults. Verify that those SSAP values have not been changed.

## Configuring AS/400 for ASCII using TCP/IP

---

The next step is to configure the interface on the AS/400 for TCP/IP.

**NOTE:** The AS/400 interface is not the PrintNet. Do not set the AS/400 interface address to the same address as the PrintNet IP address. Also, do not add the PrintNet to the AS/400 TCP/IP interface list.

## Configuring with ADDTCPIFC

---

ADDTCPIFC is used to add a TCP/IP interface to the AS/400. This step configures the AS/400 for attachments to a TCP/IP network.

At the AS/400 command line, enter the following command:

```
ADDTCPIFC INTNETADR ('9.99.15.188') LIND(ETHLAN)
SUBNETMASK ('255.255.255.0')
```

Your completed screen should look like Figure 27.

System:	BLDD6
<b>Internet address:</b>	<b>9.99.15.188</b>
<b>Subnet mask:</b>	<b>255.255.255.0</b>
<b>Line description:</b>	<b>ETHLAN</b>
Line type:	*Elan
Interface status:	Inactive
Type of service:	*Normal
Maximum transmission unit:	*Lind
Automatic start:	*Yes

**Figure 27. Example of ADDTCPIFC Interface**

The following parameters must be specified:

**Internet Address**

Internet address of the AS/400 LAN printer.

**NOTE:** Do not use the IP address of the PrintNet.

**Subnet Mask**

The Subnet Mask for this AS/400 TCP/IP interface (for example, 255.255.255.0).

**Line Description**

The name assigned to the AS/400 line description as described in “Developing Line Descriptions With CRTLINETH” on page 101.

**NOTE:** Each AS/400 LAN printer will have its own line description.



### Configuring a Router Definition with ADDTCP RTE

---

If necessary, use the ADDTCP RTE command to create a route definition. This is required if the printer is somewhere other than on a local segment and must cross bridges.

### Configuring a Local Domain and Hostname

---

The AS/400 print commands, described in “Setting Up Printing for ASCII Files” on page 106, require a local name and hostname. If you have already configured LAN attached TCP/IP printers on the AS/400 system, you will have a local domain name and hostname configured on the system.

**NOTE:** If you already have a local domain name and hostname configured on the system, do not change your setup.

If the local domain name and hostname file is empty, the file must be set up. This control file information is used to determine if a print request comes from an authorized host.

To configure the local domain and hostname, you will run the CFGTCP command and select Option “12” from the menu. Enter a local domain name, such as *city.company.com*. Enter a local hostname, such as *as400-01*. This is the name of your AS/400 system and must match the hostname for your system in the host entry table. Refer to “Configuring A TCP/IP Host Table Entry” for more information.

**NOTE:** If the printer and AS/400 are not on the same local LAN segment, use CFGTCP Option 2 to verify that there is a route defined in the TCP/IP route list.

### Configuring A TCP/IP Host Table Entry

---

Although creating a TCP/IP host table entry is optional, it is a good idea to take this step. Add the AS/400 name and the IP address of the LAN printer to the “Host Table Entries.”

## Configuring the AS/400 for Printing

---

To configure an AS/400 for printing, you must:

- set up the printing capability, and
- verify the setup with a print job.

You will need the following information:

### Remote Printer Queue name

Set to 'd1prn' through 'd8prn'.

**NOTE:** The Remote Printer Queue name must be in lowercase letters. Do not use "PASS."

**NOTE:** When the IPDS feature is installed, the queue name 'd4prn' is not available.

### IP Address

The IP address for the PrintNet.

## Setting Up Printing for ASCII Files

---

The next step is to set up the remote printing capability. There are two ways to do this: you can either specify the LPR parameters manually each time you send a file to the printer, or use Remote Writer and a remote output queue for automatic printing to the printer.

### To use LPR Manually

1. Start TCP/IP, if it is not already running, by entering the command `STRTCP`.
2. At the AS/400 command line, enter `LPR`.
3. Figure 28 displays in **bold** the parameters you need to specify.

## Setting Up Printing for ASCII Files

---

```
Send TCP/IP Spooled File (LPR)

Type choices, press Enter.

Remote system          RMTSYS          > *INTNETADR
Printer queue          PRTQ            > 'd1prn'
Job name               JOB              *
  User
  Number
Spooled file number    SPLNMBR          *ONLY
Destination type       DESTTYP          *OTHER
Transform SCS to ASCII TRANSFORM        *YES
Manufacturer type and model MFRTYPMDL    > *IBM6400EP
Internet address       INTNETADR        > '9.99.2.3'
```

**Figure 28. ASCII LPR Parameters**

The following parameter values are required:

### **Remote System**

Enter the hostname of your printer or `*INTNETADR`, which then prompts you to specify the IP address of your printer.

### **Printer Queue (PRTQ)**

Set to `'d1prn'` through `'d8prn'`. The remote printer queue name must be in lowercase letters, entered in single quotes.

**NOTE:** When the IPDS feature is installed, queue name `'d4prn'` is not available.

## Chapter 7 Configuring the AS/400 for Printing

---

### Destination Type (DESTTYP)

Specify \*OTHER for the DESTTYP parameter.

### Transform (TRANSFORM)

Specify \*YES.

### Manufacturer Type and Model (MFRTYPMDL)

Select a manufacturer type and model. This is the name of the WSCO. Select \*IBM6400EP for Epson emulation or \*IBM6400 or \*IBM42023 for Proprinter Emulation if you have AS/400 V3R2 and above or V3R7 and above.

**NOTE:** Select the Manufacturer Type Model based on the data type.

- a. Report printing, text only, no IGP or barcodes.

Manufacturer Type Model = \*IBM42023  
Workstation customizing object = \*NONE

Since IBM42023 is a Printronix XL emulation, the printer emulation must also be switched to Proprinter emulation. Be sure to save the printer emulation as the power-up configuration.

Alternate selection:

Manufacturer Type Model = \*IBM6400EP  
Workstation Customizing Object = \*NONE

Since IBM6400EP is an Epson emulation, the printer emulation must be also switched to Epson emulation. Be sure to save the printer emulation as the power-up configuration.

- b. PGL or VGL or PPI program.

Manufacturer Type Model = \*WSCSTCONT132  
Workstation Customizing Object = QWPDEFAULT  
Library = QSYS

---

## Setting Up Printing for ASCII Files

This selects a generic object that passes the data unchanged without any escape codes to the printer. Text files will print in the currently selected printer configuration, cpi, lpi, and form length. OS/400 versions below V3R7 may not have this selection and may require manual creation of a generic WSCST. Please contact Printronix Technical Support for assistance.

**NOTE:** For occasional text reports, create a printer configuration for each report and use the [Job Select] key to select a report configuration.

### **Internet Address (INTNETADR)**

The IP address of the PrintNet.

**NOTE:** You may specify either **\*INTNETADR** (and the PrintNet IP address) or the hostname for the PrintNet (if you added the printer to the host table entry as directed in “Configuring A TCP/IP Host Table Entry” on page 105).

**To Create an Automatic Remote Output Queue**

1. From the AS/400 command line, enter CRTOUTQ.
2. Figure 29 displays in **bold** the parameters you need to specify.

Send TCP/IP Spooled File (LPR)		
Type choices, press Enter.		
<b>Output queue</b>	<b>OUTQ</b>	> <b>USERNAME</b>
Library		*CURLIB
Maximum spooled file size:	MAXPAGES	
Number of pages		*NONE
Starting time		
Ending time		
	+ for more values	
Order of files on queue	SEQ	*FIFO
<b>Remote system</b>	<b>RMTSYS</b>	> <b>*INTNETADR</b>
<b>Remote printer queue</b>	<b>RMTprtQ</b>	> 'd1prn'
<b>Writer to autostart</b>	<b>AUTOSTRWTR</b>	1
Queue for writer messages	MSGQ	QSYSOPR
Library		*LIBL
<b>Connection type</b>	<b>CNNTYPE</b>	> <b>*IP</b>
<b>Destination type</b>	<b>DESTTYP</b>	<b>*OTHER</b>
<b>Host print transform</b>	<b>TRANSFORM</b>	<b>*YES</b>
<b>Manufacturer type and model</b>	<b>MFRTYPMDL</b>	> (See Note on page 108)

## Setting Up Printing for ASCII Files

---

Workstation Customizing Object	WSCST	> (See Note on page 108)
Library		
<b>Internet address</b>	<b>INTNETADR</b>	> <b>'9.99.57.173'</b>
Destination options	DESTOPT	*NONE
Print separator page	SEPPAGE	*YES
User defined option	USRDFNOPT	*NONE

**Figure 29. Automatic Remote Output Queue Configuration**

3. Enter values for the following parameters:

### **Output Queue (OUTQ)**

The name of the AS/400 output queue. The name can be anything you would like. This name is not the same as the printer internal queue name, 'd1prn'.

### **Remote System (RMTSYS)**

Internet address of the PrintNet on the printer (\*INTNETADR prompts you for this) or the hostname of the PrintNet.

### **Remote Printer Queue (RMTprtQ)**

Default name of the network printer. Set for any of 'd1prn' through 'd8prn'. The remote printer queue name must be lowercase, entered in single quotes.

**NOTE:**When the IPDS feature is installed, queue name 'd4prn' is not available.

### **Writer to Autostart (AUTOSRTWTR)**

Set the value to 1. This will start the Remote Writer when the queue is created, and it automatically starts the Remote Writer after each IPL of the AS/400 and whenever STRTCP is started.

## Chapter 7 Configuring the AS/400 for Printing

---

### Connection Type (CNNTYPE)

Specify this value as \*IP.

### Destination Type (DESTTYP)

Specify \*OTHER. \*OTHER is a performance enhancement, in which data is not required to be transformed again if the connection is interrupted and allows printing of multiple copies.

### Transform (TRANSFORM)

Specify this value as \*YES.

### Manufacturer Type (MFRTYPMDL)

Select a manufacturer type and model. This is the name of the WSCO. Select \*IBM6400EP for Epson emulation or \*IBM6400PR or \*IBM42023 for Proprinter Emulation.

## Troubleshooting

This installation procedure assumes that the PrintNet is configured with the correct IP address, subnet mask, and gateway (if required). In addition you can also ping and telnet to the PrintNet.

Print an E-net Test Page to verify the Ethernet settings. See "Printing an Ethernet Test Page" on page 26.

The default PrintNet queue name is d1prn, however, the name can be changed. Substitute the changed name for the RMTprtq parameter. To verify the queue name, print an E-Net Test Page or telnet to the PrintNet and perform a "list dest" command.

### Internet address (INTNETADR)

Specify the IP address of the printer.



---

## Verify Printing on AS/400

---

This section verifies that the printer is capable of printing ASCII files and that the printer can be pinged on the network.

To test ASCII printing:

1. Start TCP/IP, if it is not already running, by entering the command `STRTCP`.
2. Verify that the AS/400 TCP/IP interface is active.
3. **Ping** the printer from an AS/400 workstation with the command:  
`ping ip_address.`

Where *ip\_address* is the Internet address of the remote system printer (the PrintNet) or the hostname of the printer (if you put the hostname in the host entry table as directed in “Configuring A TCP/IP Host Table Entry” on page 105).

4. If the printer cannot be pinged, proceed to “AS/400 ASCII Troubleshooting” on page 114.
5. Use one of the following methods to send a spooled file to the printer:
  - Enter the LPR command on the AS/400 command line with the appropriate parameters. See “To use LPR Manually” on page -106.
  - Enter `STRRMTWTR name` on the AS/400 command line, where *name* is the name of the AS/400 remote output queue (not the printer Internet queue, as described on “To Create an Automatic Remote Output Queue” on page 110).
  - Use the `WRKOUTQ` command to send jobs.

## AS/400 ASCII Troubleshooting

---

During power up, the printer performs an interface hardware test. The presence of the ETHERNET PARAMS menu selection at the printer control panel indicates that the PrintNet hardware is functioning properly. See the *User's Manual* for configuration menu information.

If you have trouble pinging the printer:

1. Verify the configuration of the AS/400, including the printer and any intervening devices such as routers and bridges.
2. Verify that the AS/400 line description is varied on and the printer is turned on and displays an ONLINE status.
3. Verify that the AS/400 TCP/IP is active.

---

# 8

## *AS/400 Configuration, IPDS Printer*

---

### **Configuring on AS/400 as an IPDS Printer**

---

**NOTE:** The IPDS emulation is not supported on the T4M printer.

Use this chapter to configure your printer on AS/400 as an IPDS printer. To print IPDS, you must install the IPDS option on your printer. Once configured as an IPDS printer, the printer can also print AFP™ and SCS, but these datastreams must be converted to IPDS first.

**NOTE:** Do not cancel IPDS print jobs by using WebPage cancel. To cancel IPDS print jobs hold the job on the AS/400 writer or press the printer Cancel key.

### **Printing AFP, IPDS, and SCS Files**

---

Printers configured as IPDS only print IPDS files. AFP and SCS files can be printed, but they must be transformed to IPDS before printing.

- AFP files are transformed directly by Print Services Facility™ (PSF/400, an integrated feature of OS/400), which then sends the transformed file to the printer.
- SCS files are transformed into IPDS by setting the IPDSPASTHR parameter to YES (see Figure 32 on page 124 or Figure 33 on page 127). This path yields the best performance by sending IPDS files directly to the printer with no transform.

### Requirements

---

Contact technical support to obtain the latest PTFs for PSF/400. For IPDS printing, you also need to install the IPDS option for the printer.

### Configuration Checklist

---

**NOTE:** All of the following configuration steps carried out on the AS/400 may require “create” or “change” authority.

1. If you have not already done so, set up the printer and install the PrintNet.
2. Using the printer control panel, set up the parameters and values for IPDS.
3. Set TCP/IP addresses for the printer, such as an IP Address, Gateway Address, or Subnet Mask. See “Configuration Tools” on page 25.
4. If the printer and AS/400 are not on the same LAN segment, verify there is a route defined in the TCP/IP route list. If necessary, use the `ADDTCPRTE` command to create a route definition. You need this if your printer is somewhere other than on a local segment.
5. You need the PrintNet IP address to configure the PrintNet.
6. If you have not done so yet, create a line description for your PrintNet. See “Developing Line Descriptions With CRTLINETH” on page 101.
7. Create or verify the existence of an AS/400 TCP/IP interface for PrintNet. See “Configuring an AS/400 TCP/IP Interface with ADDTCPIFC” on page 118.

## Configuration Checklist

---

8. The next step depends on your AS/400 release. Configure your printer with one of these procedures:
  - “Configuring PSF/400 for IPDS on V3R2” on page 120.
  - “Configuring PSF/400 for IPDS on V3R7 and Above” on page 126.
9. Notice that when the IPDS feature is installed, the queue name ‘dipdsprn’ displays in the print queue in place of d4prn.
10. Verify the printer is ON using the `VFYCFG` command.
11. Verify that TCP/IP has been started using the `STRTCP` command.
12. Test your configuration. See “Verifying the IPDS Configuration on AS/400” on page 138.
13. To share the printer on the network, verify that the necessary parameters have been set correctly. See “Sharing the AS/400 Printer on the Network” on page 139.
14. If you have problems, refer to “AS/400 Troubleshooting” on page 143.

## Configuring an AS/400 TCP/IP Interface with ADDTCPIFC

**NOTE:** Do not enter the IP address of the PrintNet. Do not set the AS/400 interface address to the same address as the PrintNet IP address. Also, do not add the PrintNet to the AS/400 TCP/IP interface list.

### Configuring An Interface For Ethernet

ADDTCPIFC is used to add a TCP/IP interface to AS/400. This step configures the AS/400 for attachments to a TCP/IP network.

1. At the AS/400 command line, enter the following command:

```
ADDTCPIFC INTNETADR ('9.99.15.188') LIND(ETHLAN)
SUBNETMASK ('255.255.255.0')
```

2. Your completed screen should look like Figure 30.

System: BLDD60	
<b>Internet address:</b>	<b>9.99.15.188</b>
<b>Subnet mask:</b>	<b>255.255.255.0</b>
<b>Line description:</b>	<b>ETHLAN</b>
Line type:	*ELAN
Interface status:	Inactive
Type of service:	*NORMAL
Maximum transmission unit:	*LIND
Automatic start:	*YES

**Figure 30. Example ADDTCPIFC Interface**

3. The following parameters must be specified:

- a. **Internet Address**

Internet address of the AS/400 Ethernet LAN printer.

**NOTE:** Do not use the IP address of the PrintNet.

---

## Configuring an AS/400 TCP/IP Interface with ADDTCPIFC

b. **Subnet Mask**

The Subnet Mask for this AS/400 TCP/IP interface (for example, **255.255.255.0**).

c. **Line Description**

The name assigned to the AS/400 line description as described in “Developing Line Descriptions With CRTLINETH” on page 101. Each AS/400 LAN printer will have its own line description.

### Configuring a TCP/IP Host Table Entry

Although optional, it is recommended that you create a TCP/IP host table entry. Add the AS/400 name and the IP address of the LAN printer to the “Host Table Entries.” Also, add the hostname and IP address of the printer to the list. You can access the host table entries function by using the `CFGTCP` command, then selecting option 10 from the menu.

You can also add entries to your host table for both the hostname and the fully qualified network name for your system. The entry name should match the name you configured for host and domain. For example, if your hostname is “RCHASM03” and your domain name is “RCHLAND.PTX.COM”, your fully qualified network name is “RCHASM03.RCHLAND.PTX.COM”. In your host entry table, enter both RCHASM03 and RCHASM03.RCHLAND.PTX.COM.

## Configuring PSF/400 for IPDS on V3R2

To configure IPDS on AS/400 V3R2, use the following commands:

- CRTDEVPRT
- CRTPSFCFG

## Configuring PSF with CRTDEVPRT on V3R2

This section describes how to create a printer device description.

1. At the AS/400 command line, enter a command in the form:

```
CRTDEVPRT  DEVD(printer_type) DEVCLS(*RMT) TYPE(*IPDS)
           MODEL(0) AFP(*YES) AFPATTACH(*APPC)
           FONT(11) RMTLOCNAME(TCPIP) FORMFEED(*CONT)
           TEXT('\iprinter_type NETWORK PRINTER')
```

Where *printer\_type* (e.g., T5000, P5000, L5520) is the model of your printer.

2. A completed screen looks like the example shown in Figure 31, which starts on the next page.



---

## Configuring PSF/400 for IPDS on V3R2

---

### Display Device Description

<b>Device Description:</b>	<b>DEV</b>	<i>printer_type</i>
Option:	OPTION	*ALL
Category of device:		*PRT
Automatically created:		NO
<b>Device class:</b>	<b>DEVCLS</b>	<b>*RMT</b>
<b>Device type:</b>	<b>TYPE</b>	<b>*IPDS</b>
<b>Device model:</b>	<b>MODEL</b>	<b>0</b>
<b>Advanced function printing:</b>	<b>AFP</b>	<b>*YES</b>
<b>AFP attachment:</b>	<b>AFPATTACH</b>	<b>*APPC</b>
Online at IPL:	ONLINE	*YES
<b>Font:</b>	<b>FONT</b>	
<b>Identifier:</b>		<b>011</b>
<b>Point size:</b>		<b>*NONE</b>
<b>Form feed:</b>	<b>FORMFEED</b>	<b>*CONT</b>
Separator drawer:	SEPDRAWER	*FILE
Separator program:	SEPPGM	*NONE
Library:		
Printer error message:	PRTERMSG	*INQ
Message queue:	MSGQ	QSYSOPR
Library:		*LIBL
Maximum pending requests:	MAXPNDRQS	6
Print while converting:	PRTCVT	*YES

## Chapter 8 Configuring on AS/400 as an IPDS Printer

Print request timer:	PRTRQSTMR	*NOMAX
Form definition:	FORMDF	F1C10110
Library:		*LIBL
Character identifier:	CHRID	*SYSVAL
<b>Remote location:</b>	<b>RMTLOCNAME</b>	<b>TCPIP</b>
Local location:	LCLLOCNAME	*NETATR
Remote network identifier:	RMTNETID	*NETATR
Mode:	MODE	QSPWTR
Dependent location name:	DEPLOCNAME	*NONE
Text:	TEXT	' <i>printer_type</i> Network Printer'

**Figure 31. Example of CRTDEVPRT Command (V3R2)**

3. Values must be entered for the following parameters:
  - a. **Device Description (DEVD)**

The device description or name. This value must match the value entered for the `PSFCFG` parameter in “Configuring AFP with CRTPSFCFG on V3R2” on page 123.
  - b. **Device Class (DEVCLS)**

Specify `*RMT`.
  - c. **Device Type (TYPE)**

Specify `*IPDS`.
  - d. **Device Model (MODEL)**

Specify `0`.
  - e. **Advanced Function Printing (AFP)**

Specify `*YES`.
  - f. **AFP Attachment (AFPATTACH)**

Specify `*APPC`. `CRTPSFCFG` overrides this value.

---

## Configuring PSF/400 for IPDS on V3R2

g. **Font (FONT)**

Enter an appropriate value.

h. **Form Feed (FORMFEED)**

Specify \*CONT.

i. **Remote Location (RMTLOCNAME)**

Enter the remote location name.

### Configuring AFP with CRTPSFCFG on V3R2

The PSF™ configuration object created with this command is used by PSF/400 when printing IPDS files. The object is used by AS/400 V3R2 only if the object is in the QGPL library and has the same name as the printer device description. This information overrides the APPC configuration information specified in the printer device description.

To configure AS/400 for IPDS printing on V3R2:

1. At the AS/400 command line, enter a command in the form:

```
CRTPSFCFG  PSFCFG(printer_type IPDSPASTHR(*YES)
            RLSTMR(*SEC15) TEXT('\ printer_type NETWORK
            PRINTER') RMTLOCNAME ('128.99.12.134')
            PORT(5001)
```

where *printer\_type* (e.g., T5000, P7000) is the model of your printer.

2. A completed screen looks like Figure 32.

<b>PSF configuration:</b> <i>printer_type</i>	<b>Library:</b> QGPL
User resource library:	*JOBLIBL
<b>IPDS pass through:</b>	*YES
<b>Activate release timer:</b>	*NORDYF
<b>Release timer:</b>	*SEC15
Restart timer:	*IMMED
SNA retry count:	2

## Chapter 8 Configuring on AS/400 as an IPDS Printer

---

Delay time between retries:	0
Blank page:	*YES
Page size control:	*NO
Resident fonts:	*YES
Resource retention:	*YES
Edge orient:	*NO
<b>Remote location:</b>	
<b>Name or address:</b>	<b>128.99.12.134</b>
<b>TCP/IP port:</b>	<b>5001</b>
<b>TCP/IP activation timer:</b>	<b>170</b>
PSF defined options:	
<b>Text description:</b>	<i>printer_type</i> <b>Network Printer</b>
Device resource library list:	*DFT

**Figure 32. Example CRTPSFCFG Command (V3R2)**

3. The following parameters are required:
  - a. **PSF Configuration (PSFCFG)**  
The name of the printer device you are configuring.
  - b. **Library**  
Specify `QGPI`.
  - c. **IPDS pass through (IPDSPASTHR)**  
To print SCS files, specify `*YES`. PSF/400 transforms SCS into IPDS before printing.

d. **Activate release timer (ACTRLSTMR)**

Specifies the point at which the release timer (RLSTMR) is activated. Set to **\*NORDYF**. This means that the release timer is activated when there are no spooled files in the printer's output queue with a status of RDY and the last page of the last spooled file processed has printed. \*NORDYF is used so that all files with a status of RDY are printed before releasing the session (which does not terminate the writer, however).

e. **Release timer (RLSTMR)**

Specifies the amount of time to wait before a session or dialog is released without terminating the writer. The ACTRLSTMR parameter specifies when this timer is to be activated. Set the parameter to a value at least equal to the TIMEOUT value on the printer. The recommended value is **\*SEC15**.

f. **Remote Location name or address (RMTLOCNAME)**

Enter the IP address or hostname of the printer.

g. **TCP/IP port (PORT)**

Specify 5001.

h. **TCP/IP activation time (ACTTMR)**

This value specifies the number of seconds that PSF/400 waits for a printer to respond to an activation request. If only one system is using the printer, use the default value (170 seconds). If more than one system is using the printer, specify **\*NOMAX**, which causes PSF/400 to wait indefinitely for a response to an activation request.

## Configuring PSF/400 for IPDS on V3R7 and Above

---

To configure IPDS on AS/400 V3R7 and above, use the following commands:

- CRTPSFCFG (Optional)
- CRTDEVPRT

### Configuring AFP with CRTPSFCFG on V3R7 or V4R1 (Optional)

New for V3R7 is the ability to specify three TCP/IP-related parameters for PSF in a printer device description: RMTLOCNAME, PORT, and ACTTMR. In V3R2, CRTPSFCFG, which replaced WRKAFF2, was used to specify these same parameters, along with other parameters. In V3R7 and higher, these three parameters are ignored when specified in a PSF configuration object, since they are specified in a printer device description. However, you may wish to use a PSF configuration object to specify other parameters, such as IPDS passthrough and so on.

The PSF configuration object created with this command is used by PSF/400 when printing IPDS files only if the object is specified with the USRDFNOBJ parameter in the printer device description.

To configure AS/400 for IPDS printing on V3R7 or V4R1:

1. At the AS/400 command line, enter a command in the form:

```
CRTPSFCFG  PSFCFG(AFP/printer_typeNETPRT)
           IPDSPASTHR(*YES) RLSTMR(*SEC15)
           TEXT(`printer_type NETWORK PRINTER')
```

where *printer\_type* (e.g., T5000, P7000) is the model of your printer.

## Configuring PSF/400 for IPDS on V3R7 and Above

---

2. A completed screen looks like Figure 33.

PSF Configuration Information	
PSF configuration: <i>printer_type</i> NETPRT	Library: AFP
User resource library:	*JOBLIBL
IPDS pass through:	*YES
Activate release timer:	*NORDYF
Release timer:	*SEC15
Restart timer:	*IMMED
SNA retry count:	2
Delay time between retries:	0
Blank page:	*YES
Page size control:	*NO
Resident fonts:	*YES
Resource retention:	*YES
Edge orient:	*NO
<b>Remote location:</b>	
<b>Name or address:</b>	<b>*NONE</b>
<b>TCP/IP port:</b>	<b>*NONE</b>
<b>TCP/IP activation timer:</b>	<b>170</b>
PSF defined options:	
*NONE	
Text description:	<i>printer_type</i> Network Printer
Device resource library list:	*DFT

Figure 33. Example CRTPSFCFG Command (V3R7 or V4R1)

## Chapter 8 Configuring on AS/400 as an IPDS Printer

---

**NOTE:** The lines in **bold** in Figure 33 are not used by PSF/400. Instead, PSF/400 uses the information entered in the device description screen.

3. The following parameters are recommended:
  - a. **PSF configuration (PSFCFG)**

The name used for this PSF configuration object. The name must match the user-defined object name (USRDFNOBJ) in the printer DEVD.
  - b. **IPDS pass through (IPDSPASTHR)**

To print SCS files, specify **\*YES**, PSF/400 transforms SCS into IPDS before printing.
  - c. **Activate release timer (ACTRLSTMR)**

Specifies the point at which the release timer (RLSTMR) is activated. Set to **\*NORDYF**.
  - d. **Release timer (RLSTMR)**

Specifies the amount of time to wait before a session or dialog is released without terminating the writer. The ACTRLSTMR parameter specifies when this timer is to be activated. Set the parameter to a value at least equal to the TIMEOUT value on the printer. The recommended value is **\*SEC15**.

### Configuring PSF with CRTDEVPRN on V3R7 and Above

This section describes how to create a printer device description.

1. At the AS/400 command line, enter a command in the form:

```
CRTDEVPRN DEVD(printer_type) DEVCLS(*LAN) TYPE(*IPDS)
MODEL(0) LANATTACH(*IP) AFP(*YES) PORT(5001)
FONT(11) FORMFEED(*CONT)
RMTLOCNAME('128.9.12.134')
USRDFNOBJ(AFP/5000NETPRT *PSFCFG)
TEXT('printer_type NETWORK PRINTER')
```

Where *printer\_type* (e.g., T5000, P7000) is the model of your printer.



## Configuring PSF/400 for IPDS on V3R7 and Above

---

**NOTE:** Only use the USRDFNOBJ parameter if it was defined in the previous procedure. See “Configuring AFP with CRTPSFCFG on V3R7 or V4R1 (Optional)” on page 126.

2. A completed screen looks like the example shown in Figure 34.

Display Device Description		
5716SS1 V3R7M0 961108	BLDRB1	
<b>Device Description:</b>	<b>DEVD</b>	<i>printer_type</i>
Option:	OPTION	*ALL
Category of device:		*PRT
<b>Device class:</b>	<b>DEVCLS</b>	<b>*LAN</b>
<b>Device type:</b>	<b>TYPE</b>	<b>*IPDS</b>
<b>Device model:</b>	<b>MODEL</b>	<b>0</b>
<b>LAN attachment:</b>	<b>LANATTACH</b>	<b>*IP</b>
<b>User-defined object:</b>	<b>USRDFNOBJ</b>	<i>printer_type</i> <b>NETPRT</b>
Library:		AFP
Object type:		*PSFCFG
Data transform program:	USRDTATFM	*NONE
User-defined driver program:	USRDRVPGM	*NONE
Advanced function printing:	AFP	*YES
<b>Port number:</b>	<b>PORT</b>	<b>5001</b>
Online at IPL:	ONLINE	*YES
<b>Font:</b>	<b>FONT</b>	
<b>Identifier:</b>		<b>011</b>
<b>Point size:</b>		<b>*NONE</b>
<b>Form feed:</b>	<b>FORMFEED</b>	<b>*CONT</b>

## Chapter 8 Configuring on AS/400 as an IPDS Printer

Separator drawer:	SEPDRAWER	*FILE
Separator program:	SEPPGM	*NONE
Library:		
Printer error message:	PRTERRMSG	*INQ
Message queue:	MSGQ	QSYSOPR
Library:		*LIBL
<b>Activation timer:</b>	<b>ACTTMR</b>	<b>170</b>
Maximum pending requests:	MAXPNDRQS	6
Print while converting:	PRTCVT	*YES
Print request timer:	PRTRQSTMR	*NOMAX
Form definition:	FORMDF	F1C10110
Library:		*LIBL
<b>Remote location:</b>	<b>RMTLOCNAME</b>	
Name or address:		128.9.12.134
Dependent location name:	DEPLOCNAME	*NONE
Text:	TEXT	<i>printer_type</i> Network Printer
User-defined options:	USRDFNOPT	

**Figure 34. Example CRTDEVPRT Command (V3R7 and above)**

3. Values must be entered for the following parameters:
  - a. **Device Description (DEV D)**  
The device description or name.
  - b. **Device Class (DEVCLS)**  
Specify \*LAN
  - c. **Device Type (TYPE)**  
Specify \*IPDS

---

## Configuring PSF for IPDS on V4R2 and Above

---

- d. **Device Model (MODEL)**  
Specify 0
- e. **LAN Attachment (LANATTACH)**  
Specify \*IP
- f. **Port Number (PORT)**  
Specify 5001
- g. **Font (FONT)**  
Enter an appropriate value.
- h. **Form Feed (FORMFEED)**  
Specify \*CONT
- i. **Activation Timer (ACTTMR)**  
This value specifies the number of seconds that PSF/400 waits for a printer to respond to an activation request. If only one system is using the printer, use the default value (170 seconds). If more than one system is using the printer, specify \*NOMAX, which causes PSF/400 to wait indefinitely for a response to an activation request.
- j. **Remote Location (RMTLOCNAME)**  
Enter the IP address or hostname of the printer.
- k. **User-Defined Object (USRDFNOBJ)**  
To use a PSF configuration object, specify its name and library here. This object type must be \*PSFCFG. For V3R7 and higher, a single PSF configuration object may be referenced by multiple device descriptions, if required.

## Configuring PSF for IPDS on V4R2 and Above

---

To configure IPDS on the iSeries V4R3, use the following commands:

- CRTDEVPRT
- CRTPSFCFG (Optional)

## Configuring AFP with CRTPSFCFG on V4R3 and Above (Optional)

To configure the iSeries for IPDS printing on V4R3:

1. At the iSeries command line, enter a command in the form:

```
CRTPSFCFG PSFCFG(AFP/NETPRTP7000) IPDSPASTHR(*YES)
RLSTMR(*SEC15) TEXT(`PRINTRONIX P7000 NETWORK ATTACHED
PRINTER`) PAGESIZCTL(*YES) ACTRLSTMR(*NORDYF)
```

2. A completed screen looks like Figure 35.

Create PSF Configuration (CRTPSFCFG)		
PSF configuration .....		Name
<b>Library .....</b>	<b>&gt;*CURLIB</b>	<b>Name, *CURLIB</b>
User resource library list .....	*JOBLIBL	*JOBLIBL, *CURLIB, *NONE
Device resource library list .....	*DFT	Name, *DFT
+ for more values		
<b>IPDS pass through .....</b>	<b>&gt;*NO</b>	<b>*NO, *YES</b>
Activate release timer.....	*NORDYF	*NORDYF, *IMMED...
<b>Release timer .....</b>	<b>&gt;*NOMAX</b>	<b>1-1440, *NOMAX, *SEC15...</b>
Restart timer.....	*IMMED	1-1440, *IMMED
APPC and TCP/IP retry count....	15	1-99, *NOMAX
Delay between APPC retries.....	90	0-999
Acknowledgment frequency .....	100	1-32767
Printer response timer	*NOMAX	5-3600, *NOMAX
Generate PDF output	*NONE	*NONE, SPLF, *STMF, *MAIL
<b>Text 'description' .....</b>	<b>&gt;*BLANK</b>	
Additional Parameters		
Automatic session recovery:		
Enabled .....	*NO	*NO, *YES
Message option .....		*INFO, *INQ
Blank page .....	*YES	*YES, *NO
<b>Page size control.....</b>	<b>&gt;*YES</b>	<b>*NO, *YES</b>
Resident fonts .....	*YES	*YES, *NO
Resource retention .....	*YES	*YES, *NO

### Configuring AFP with CRTPSFCFG on V4R3 and Above (Optional)

---

Edge orient.....	*NO	*YES, *NO
Use outline fonts.....	*NO	*YES, *NO
PSF defined option.....	*NONE	
	+ for more values	
Font substitution messages.....	*YES	*YES, *NO
Capture host fonts at printer.....	*NO	*NO, *YES
Font resolution for formatting ...	*SEARCH	*SEARCH, 240, 300
Font mapping table.....	*NONE	Name, *NONE
Library.....		Name
Cut sheet emulation mode .....	*NONE	*NONE, *CHKFIRST, *CHKALL
Use DBCS simulation fonts	*NO	*YES, *NO
Replace .....	*YES	*YES, *NO
Authority .....	*LIBCRTAUT	Name, *LIBCRTAUT, *CHANGE...

**Figure 35. Example CRTPSFCFG Command (V4R2 and above)**

3. The following parameters are recommended: PSF configuration (PSFCFG)

The name used for this PSF configuration object. The name must match the user-defined object name (USRDFNOBJ) in the printer DEVD.

#### **PSF configuration (PSFCFG)**

The name used for this PSF configuration object. The name must match the user-defined object name (USRDFNOBJ) in the printer DEVD.

#### **IPDS pass through (IPDSPASTHR)**

To print SCS files, specify **\*YES**, PSF transforms SCS into IPDS before printing.

### Release timer (RLSTMR)

Specifies the amount of time to wait before a session or dialog is released without terminating the writer. The ACTRLSTMR parameter specifies when this timer is to be activated. Set the parameter to a value at least equal to the TIMEOUT value on the printer. Printronix recommends **\*SEC15**.

### Page size control (PAGSIZCTL)

Specifies if the page size (forms) is set by PSF. Usually set to **\*YES**.

### Remote Location name or address (RMTLOCNAME)

Enter the IP address or hostname of the printer.

## Configuring PSF with CRTDEVPRT on V4R2 and Above

---

This section describes how to create a printer device description.

1. At the iSeries command line, enter a command in the form:

```
CRTDEVPRT DEVD(P7000) DEVCLS(*LAN) TYPE(*IPDS) MODEL(0)
LANATTACH(*IP) AFP(*YES) PORT(5001) FONT(11)
FORMFEED(*CONT) RMTLOCNAME('128.9.12.134')
USRDFNOBJ(AFP/NETPRTP7000 *PSFCFG)
TEXT('Printronix P7000 NETWORK PRINTER')
```

Only use the USRDFNOBJ parameter if it was defined in the previous procedure.

A completed screen looks like the example shown in Figure 36.

## Configuring PSF with CRTDEVPRT on V4R2 and Above

<b>Create Device Desc (Printer) (CRTDEVPRT)</b>		
<b>Device description</b> .....	<b>&gt;P7000</b>	<b>Name</b>
<b>Device class</b> .....	<b>&gt;*LAN</b>	<b>*LCL, *RMT, *VRT, *SNPT, *LAN</b>
<b>Device type</b> .....	<b>&gt;*IPDS</b>	<b>3287, 3812, 4019, 4201...</b>
<b>Device model</b> .....	<b>&gt;0</b>	<b>0, 1, 2, 3, 4, 10, 13, 301...</b>
<b>LAN attachment</b> .....	<b>&gt;*IP</b>	<b>*LEXLINK, *IP, *USRDFN</b>
Advanced function printing .....	<b>*YES</b>	<b>*NO, *YES</b>
<b>Port number</b> .....	<b>&gt;5001</b>	<b>0-65535</b>
Online at IPL.....	<b>*YES</b>	<b>*YES, *NO</b>
Font:		
<b>Identifier</b> .....	<b>&gt;011</b>	<b>3, 5, 11, 12, 13, 18, 19...</b>
Point size.....	<b>*NONE</b>	<b>000.1-999.9, *NONE</b>
Form feed .....	<b>*CONT</b>	<b>*TYPE, *CONT, *CONT2, *CUT...</b>
Separator drawer .....	<b>*FILE</b>	<b>1-255, *FILE</b>
Separator program.....	<b>*NONE</b>	<b>Name, *NONE</b>
Library .....		<b>Name, *LIBL, *CURLIB</b>
Printer error message.....	<b>*INQ</b>	<b>*INQ, *INFO</b>
Message queue .....	<b>*CTLD</b>	<b>Name, *CTLD, *SYSOPR, QSYSOPR</b>
Library .....		<b>Name, LIBL, *CURLIB</b>
Activation timer .....	<b>170</b>	<b>1-2550, *NOMAX</b>
Image configuration .....	<b>*NONE</b>	<b>*NONE, *IMGA01, *IMGA02...</b>
Maximum pending requests.....	<b>6</b>	<b>1-31</b>
Print while converting.....	<b>*YES</b>	<b>*NO, *YES</b>
Print request timer .....	<b>*NOMAX</b>	<b>1-3600, *NOMAX</b>
Form definition.....	<b>F1C10110</b>	<b>Name</b>
Library .....	<b>*LIBL</b>	<b>Name, *LIBL, *CURLIB</b>
Remote location:		
<b>Name or address</b> .....		
User-defined options.....	<b>*NONE</b>	<b>Character value, *NONE</b>
+ for more values		
<b>User-defined object:</b>		
<b>Object</b> .....	<b>*NONE</b>	<b>Name, *NONE</b>
Library .....		<b>Name, *LIBL, *CURLIB</b>
<b>Object type</b> .....		<b>*DTAARA, *DTAQ, *FILE...</b>
Data transform program.....	<b>*NONE</b>	<b>Name, *NONE</b>
Library .....		<b>Name, *LIBL, *CURLIB</b>
User-defined driver program.....	<b>*NONE</b>	<b>Name, *NONE</b>
Library .....		<b>Name, *LIBL, *CURLIB</b>
Secure connection .....	<b>*NO</b>	<b>*NO, *YES</b>
Validation list.....	<b>*NONE</b>	<b>Name, *NONE</b>
Library .....		<b>Name, *LIBL, *CURLIB</b>

## Chapter 8 Configuring on AS/400 as an IPDS Printer

Publishing information:		
Support duplex.....	*UNKNOWN	*UNKNOWN, *SIMPLEX, *DUPLEX
Support color.....	*UNKNOWN	*UNKNOWN, *NOCOLOR, *COLOR
Pages per minute black .....	*UNKNOWN	1-32767, *UNKNOWN
Pages per minute color .....	*UNKNOWN	1-32767, *UNKNOWN
Location .....	*BLANK	
Data steams supported .....	*UNKNOWN	*UNKNOWN, *PCL, *PS, *PDF
+ for more values		
Text 'description'	*BLANK	
Additional Parameters		
Remote network identifier.....	*NETATR	Name, *NETATR, *NONE
Workstation customizing object .....	*NONE	Name, *NONE
Library .....		Name, *LIBL, *CURLIB
Authority .....	*ALL	Name, *LIBCRTAUT, *CHANGE...

**Figure 36. Example CRTDEVPRT Command (V4R2 and above)**

2. Values must be entered for the following parameters:

**Device Description (DEVD)**

The device description or name.

**Device Class (DEVCLS)**

Specify \*LAN.

**Device Type (TYPE)**

Specify \*IPDS.

**Device Model (MODEL)**

Specify 0.

**LAN attachment (LANATTACH)**

Specify \*IP.

**Port number (PORT)**

Specify 5001.



## Configuring PSF with CRTDEVPRT on V4R2 and Above

---

### **Font (FONT)**

Enter an appropriate value.

### **Form Feed (FORMFEED)**

Specify **\*CONT**.

### **Activation timer (ACTTMR)**

This value specifies the number of seconds that PSF waits for a printer to respond to an activation request. If only one system is using the printer, use the default value (170 seconds). If more than one system is using the printer, specify **\*NOMAX**, which causes PSF to wait indefinitely for a response to an activation request.

### **Remote Location (RMTLOCNAME)**

Enter the IP address or hostname of the printer.

### **User-Defined Object (USRDFNOBJ)**

To use a PSF configuration object, specify its name and library here. This object type must be **\*PSFCFG**. For V3R7 and higher, a single PSF configuration object may be referenced by multiple device descriptions, if required.

## Verifying the IPDS Configuration on AS/400

---

To test IPDS printing:

1. If it is not already on, vary on the line description:  
`VRYCFG CFGTYPE(*LIN)`
2. To start TCP/IP, enter `STRTCP`.
3. Verify that the AS/400 TCP/IP interface is active. Use the command:  
`WRKTCPSTS`  
and then select option 1.
4. Turn the printer on and wait until the printer control panel displays "ETHERNET IS READY."
5. To verify the printer is connected to AS/400, ping the printer from an AS/400 workstation with one of the following commands:  
`PING ip_address`  
or  
`PING hostname`  
where *ip\_address* is the Internet address of the remote system printer (the PrintNet), and *hostname* is the hostname you defined for the printer, if any.
  - If the ping is not successful, refer to "Cannot PING the Printer" on page 143.
  - If the ping is successful, vary on the printer device description with the command:  
`VRYCFG (printer_device) CFGTYPE(*DEV)`  
`STATUS(*ON)`
6. To use PSF/400 to send an IPDS file to the printer, enter:  
`STRPRTWTR DEV (printer_device)`  
where *printer\_device* is the name of the printer.

- 
7. If you have problems printing, do the following:
    - Print an Ethernet Test Page. Refer to your *User's Manual*.
    - Verify that port number 5001 is being used.
  8. If you are still unable to print IPDS files, contact technical support.

## Sharing the AS/400 Printer on the Network

---

To support printer sharing, your printer automatically switches among all attached ports (serial, twinax/coax, LAN). Basically, the printer prints jobs for one port until no new jobs appear and the port “times out.” The printer then switches to the next port and does the same thing.

To change the default “time out” value for a port, update the TIMEOUT value for the port on the appropriate menu (Serial Interface, Ethernet Parameters, Twinax Interface, or Coax Interface).

### Printer Sharing Parameters

To set up AS/400 for printer sharing, set the following parameters.

**Table 3. Printer Sharing**

AS/400 Version	Where Set	Parameter	Recommended Value	Description
V3R2	CRTPSFCFG CHGPSFCFG	RLSTMR	*NORDYF	Specifies the point at which the release timer (RLSTMR) is activated. Set to *NORDYF. This means that the release timer is activated when there are no spooled files in the printer's output queue with a status of RDY and the last page of the last spooled file processed has printed. *NORDYF is used so that all files with a status of RDY are printed before releasing the session (which does not terminate the writer).
V3R2	CRTPSFCFG CHGPSFCFG	ACTRLSTMR	*SEC15	Specifies the amount of time to wait before a session or dialog is released without terminating the writer. The ACTRLSTMR parameter specifies when this timer is to be activated. Set the parameter to a value at least equal to the TIMEOUT value on the printer. The recommended value is *SEC15.

## Printer Sharing Parameters

**Table 3. Printer Sharing (continued)**

AS/400 Version	Where Set	Parameter	Recommended Value	Description
V3R2	CRTPSFCFG CHGPSFCFG	ACTTMR	*NOMAX	The value specifies the number of seconds that PSF/400 will wait for a printer to respond to an activation request. If only one system will be using the printer, use the default value (170 seconds). If more than one system will be using the printer, set the value to *NOMAX, which causes PSF/400 to wait indefinitely for a response to an activation request.
V3R7 V4R1	CRTPSFCFG CHGPSFCFG	ACTRLSTMR	*NORDYF	Specifies the point at which the release timer (RLSTMR) is activated. Set to *NORDYF. This means that the release timer is activated when there are no spooled files in the printer's output queue with a status of RDY and the last page of the last spooled file processed has printed. *NORDYF is used so that all files with a status of RDY are printed before releasing the session (which does not terminate the writer).

**Chapter 8** Sharing the AS/400 Printer on the Network

---

**Table 3. Printer Sharing (continued)**

<b>AS/400 Version</b>	<b>Where Set</b>	<b>Parameter</b>	<b>Recommended Value</b>	<b>Description</b>
V3R7 V4R1	CRTPSFCFG CHGPSFCFG	RLSTMR	*SEC15	Specifies the amount of time to wait before a session or dialog is released without terminating the writer. The ACTRLSTMR parameter specifies when this timer is to be activated. Set the parameter to a value at least equal to the TIMEOUT value on the printer. The recommended value is *SEC15.
V3R7 V4R1	CRTDEVPRT CHGDEVPRT	ACTTMR	*NOMAX	The value specifies the number of seconds that PSF/400 will wait for a printer to respond to an activation request. If only one system will be using the printer, use the default value (170 seconds). If more than one system will be using the printer, set the value to *NOMAX, which causes PSF/400 to wait indefinitely for a response to an activation request.

## AS/400 Troubleshooting

---

Use this section to resolve problems configuring AS/400 on TCP/IP networks.

### Cannot PING the Printer

---

If you have problems trying to ping the printer:

- Verify the configuration of AS/400, including the printer and any intervening devices such as routers and bridges.
- Verify that the AS/400 line description is varied on and the printer is turned on and displays a status of ONLINE.
- Verify that the AS/400 TCP/IP interface is active.

### PSF/400 Terminates when Initialized

---

If PSF/400 terminates when you initialize it for IPDS printing and issues message PQT3603, check for the following error codes:

- Code 10 means an incorrect `RMTSYS` or `RMTLOCNAME` (V3R2, V3R7, or V4R1) has been specified for the printer.
- Code 15 means that PSF/400 timed out waiting for the printer's response. Check the value you entered for Activation Timer when using `WRKAFFP2`, `CRTPSFCFG` (V3R2), or `CRTDEVPR` (V3R7 or V4R1).
- Codes 20-39 indicate a general communications failure. Make sure all of the components in your network are operational, such as routers. If necessary, call Printronix technical support.
- Codes 40-59 indicate a logic error between PSF and the printer control unit. Contact Printronix technical support.

## Spooled Print File Remains in PND Status

---

Check the output queue with the command:

```
WRKOUTQ queuename
```

This typically indicates that PSF/400 is waiting for a response from the printer. This can be verified by displaying the `QSPL` subsystem, `WRKACTJOBSBS (QSPL)`. If the status of the PDJ job for the printer is `SELW`, then PSF/400 is waiting for a response from the printer. Make sure that the printer is in `ONLINE` mode and that all network connections (for example, routers) between the AS/400 and the printer are active.

## Spooled Files Disappear without Printing

---

To resolve this problem:

- Check that the correct printer queue name and correct IP address have been used.
- `ping` the IP address. If the `ping` is successful, disconnect the network cable from the printer/print server, and `ping` the address again. If the `ping` is still successful, there is another printer with that IP address on the network.

## Data is Being Clipped

---

To resolve this problem, you may want to set the PSC (Page Size Control) parameter to `*YES` in the `CRTPSFCFG` command (V3R2, V3R7, or V4R1).



---

# 9

## *z/OS Configuration, TN3270E*

---

### **z/OS Configuration for a TN3270E Printer**

---

The following configuration information shows how a line matrix printer can be configured on z/OS and Info Print Server to print TN3270E. Modtabs are provided for both an SCS and DSC printer. The z/OS level is 1.3.

These basic configurations provided a starting point for users new to printing in this manner.

**NOTE:** Since Info Print Server (IPS) treats the TN3270E printer as a COAX attached printer, additional COAX feature for IPS is required.

---

### **Coax Printer Support FMID**

---

Coax Printer Support consists of the following FMID:

HPRT100

## Program Materials

A program is identified by a program number and a feature number. The program number for Coax Printer Support is 5697-F51.

Additional information regarding the telnet server and Info Print Server can be found in the following manuals.

- For z/OS V1R2 and above, the TCPIP information can be found in SG24-5227-3, Communications Server for z/OS V1R2 TCP/IP Implementation Guide.
  - InfoPrint Server Customization Guide, S544-5744-03.
  - InfoPrint Server Operation and Administration, S544-5745-03.
1. Look at the JES definition defining and associating printer, PRINTER9 with INFOPRINT SERVER.

```
/* PRT9 AND FSSDEF FOR LINE MATRX 06/27/97 MM */
PRINTER9 CLASS=K,SEP,NOMARK,MODE=FSS,FSS=PRINTWAY, X
PRMODE=(LINE,PAGE),WS=(W,Q),SETUP=NOHALT,START=NO
/* ASSOCIATE PRINTWAY WITH ITS START UP PROCEADURE */
FSS(PRINTWAY) PROC=COURWTR,AUTOSTOP=YES
```

Figure 37. JES Definition Defining PRINTER9

```
//COURWTR PROC
/* -----*
//IEFPROC EXEC PGM=ANFFIEP,REGION=3M,PARM='INV=AOP1' z/OS4 INV
//STEPLIB DD DSN=IPPW.PW311.SANFLOAD,DISP=SHR
//ANFQUEUE DD DSN=ANDREE.z/OS4.QUEUE,DISP=SHR
//ANFMMSG DD DSN=ANDREE.z/OS4.MSGFILE,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//
```

Figure 38. Example Of Proc Used To Start INFOPRINT Server

## VTAM Definitions for SCS and DSE TN3270E

---

```
NETSPL1  VBUILD TYPE=APPL
*
*   APPL REPRESENTING IPS
*
APIPP101 APPL MODETAB=MODETAB1,DLOGMOD=SCS,AUTH=(ACQ)
LUPRT101 APPL MODETAB=MODETAB1,DLOGMOD=SCS
```

Figure 39. Example Of The APPLID That Represents A Copy Of IPS

## VTAM Definitions for SCS and DSE TN3270E

---

The following are VTAM definitions for SCS and DSE TN3270E printers.

**NOTE:** These definitions are identical to those of COAX attached printers.

```
*****
* JES2 TN3270E VTAM MAJOR NODE                               *
*****
*
* LU1 Printer
RMT2  APPL AUTH=(ACQ),EAS=1,PARSESS=NO,SESSLIM=YES,          X
      MODETAB=MODETAB1,DLOGMOD=SCS
*
* LU3 Printer
RMT3  APPL AUTH=(ACQ),EAS=1,PARSESS=NO,SESSLIM=YES,          X
      MODETAB=MODE4245,DLOGMOD=LU3PRT
```

Figure 40. MODTAB Entries

## Chapter 9 Program Materials

---

```
*****
*
*          *
* PRINTER WITH SNA CHARACTER SET (LU_1)          @DA22961*
*          *
*****
SCS  MODEENT
LOGMODE=SCS,FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B1', *
      SECPROT=X'90',COMPROT=X'3080',RUSIZES=X'87C6',      *
      PSERVIC=X'01000000E100000000000000',              *
      PSNDPAC=X'01',SRCVPAC=X'01'
      TITLE 'DSC4K'
```

```
*****
*
*          *
* DSC PRINTER (LU_3)          *
*          *
*****
LU3PRT  MODEENT LOGMODE=LU3PRT,FMPROF=X'03',TSPROF=X'03',      X
        PRIPROT=X'B1',SECPROT=X'20',COMPROT=X'3080',          X
        SSNDPAC=X'00',SRCVPAC=X'00',RUSIZES=X'C7C7',          X
        PSNDPAC=X'80',PSERVIC=X'03800000000018502B507F00'
```

## TCPIP Configuration with TN3270E

---

The following is the portion of the system's TCPIP configuration involved with TN3270E printers.

```
;
; Define the VTAM parameters required for the Telnet server.
;
BeginVTAM
;
PRTGROUP PGRPLU1
  RMT2
ENDPRTGROUP

PRTGROUP PGRPLU3
  RMT3
ENDPRTGROUP

IPGROUP TESTPRT
  9.99.98.62
ENDIPGROUP

IPGROUP TESTPRT3
  9.99.98.67
ENDIPGROUP

PRTMAP PGRPLU1 TESTPRT GENERIC

PRTMAP PGRPLU3 TESTPRT3 GENERIC

; End telnet printer section

EndVTAM
```

**NOTE:** Only additions required for the TN3270E printers are shown.

## Printer Inventory Manager as Defined with TN3270E

---

The following screens show areas of the Printer Inventory Manager involved with the definition of the TN3270E printers.

1. At main panel, select option 4 to look at the FSS definition.

InfoPrint Server: Printer Inventory Manager

Option ===>

### Printer Definitions

- 1 Add            Add a printer definition
- 2 List           List printer definitions
- 3 Select        Select printer definitions to list

### Other Functions

- 4 FSS/FSA/Pool    Manage other inventory definitions
- 5 PrintWay Queue   View IP PrintWay transmission queue
- 6 PrintWay Message   View IP PrintWay message log
- 7 Configure        Change panel configuration

Printer Definition List

Row 17 of 23

## Printer Inventory Manager as Defined with TN3270E

2. Select option 5 from this panel to list the FSSs.

```
FSA, FSS, and Pool Management
Option ==>

FSA
 1 Add      Add an FSA
 2 List     List FSAs
 3 Select   Select FSAs to list

FSS
 4 Add      Add an FSS
 5 List     List FSSs
 6 Select   Select FSSs to list

Pool of Printer Definitions
 7 Add      Add a Pool
 8 List     List Pools
 9 Select   Select Pools to list
```

3. From the panel below, browse the PRINTWAY FSS to see how the TN3270E FSS was defined.

```

                FSS List                Row 1 of 3
Command ==>                Scroll ==> HALF

Actions:
 A-Add B-Browse C-Copy D-Delete E-Edit
A FSS Name Type Description
= =====
=====
B PRINTWAY IPPW APPLID for TN3270E Printers APIPP101
  PRT10 IPPW Howard's PrintWay FSS
  WTRES700 PSF Howard's FSS
***** Bottom of data *****
```

## Chapter 9 Program Materials

---

The panel below shows how the FSS (PRINTWAY) is associated with its VTAM Applid APIPP101.

```
Browse                IP PrintWay FSS
Command ==>

FSS name. . . PRINTWAY
Description . APPLID for TN3270E Printers APIPP101      (extend)

  Old-style translation
  Hiperspace blocks . .
  TCP/IP job name . . .
  Document code page. .
  Applid. . . . . . . APIPP101
  National language . . 1  1. English 2. Japanese
  Trace mode. . . . . 1  1. None 2. Internal 3. No printing 4. Full
    Trace prompt
    Trace table size .
```

4. Next look at the printer definition for the DSE (LU\_3) printer in the printer inventory.
5. Select option 2 from the Printer Inventory Manager main panel, to list the printers.



**Printer Inventory Manager as Defined with TN3270E**

---

```

Command ==>>                               Scroll ==>> HALF

Actions:

  A-Add B-Browse C-Copy D-Delete E-Edit X-Chg type
A Printer Name  Type Description Location  DEST  C FORMS  LU Name
=====
=====
PRT717   PSF LINE MATRIX IPDS  B5 lab  PRT717 Y
B VTAM_DSE1   IPPW A TN327E Pri IMPACT LAB      K
  VTAM_SCS1   IPPW A TN327E Pri IMPACT LAB      J
  VTAM_SCS2   IPPW                               L
***** Bottom of data *****
  
```

6. While browsing VTAM\_DSE1, notice that the DSC printer is defined to IPS as a COAX attached printer.

```

Browse          IP PrintWay Printer Definition
Command ==>>

Printer definition name . VTAM_DSE1
Description . A TN327E Printer using the DSE (LU_3) Datastream. (extend)
Location. . . IMPACT LAB (extend)

Section          Component name      Custom values
                (enter to browse)  (enter to browse)
Allocation      =>                  => *
  
```

## Chapter 9 Program Materials

---

```
Processing      =>          => *
NetSpool options =>          =>
NetSpool end-of-file =>      =>
IP PrintWay options =>      => *
Protocol        =>          => *
```

```
/ Use DEST, CLASS, and FORMS for IP PrintWay printer selection
NetSpool LU name .      LU classes . .      (extend)
```

## Printer Inventory Manager as Defined with TN3270E

The following panel shows the Allocation section of the setup, where the printer is associated with Class K jobs.

Browse	Allocation
Command ==>	
Printer definition name . VTAM_DSE1	
	More: +
Pool allocation values:	
CLASS . . . . K	LINECT. . .
DEST. . . . .	PRMODE. . .
JES node. . .	PRTY. . . .
FCB . . . . .	SEGMENT . .
FLASH count .	THRESHLD. .
FLASH name. .	UCS . . . .
FORMS . . . .	WRITER. . .
GROUPID . . .	
USERDATA	
..	(extend)
BURST . . . .	1. Yes 2. No
HOLD. . . . .	1. Yes 2. No
OUTDISP . . .	1. Purge 2. Leave 3. Keep 4. Hold 5. Write
Values for Separator Pages:	
Address	
..	(extend)
Building . .	

In the IP Printway options, retry time, retry limit, and response timeout is already for the printer.

**NOTE:** The values of these settings are account specific. Other values may best serve your printing environment.

## Chapter 9 Program Materials

---

```
Browse                IP PrintWay Options
Command ==>

Printer definition name . VTAM_DSE1

                                More:  +
Retention period:
  Successful. . . . . Failure . .
Retry time . . . . . 0000:05:00
Retry limit. . . . . 2

Connection timeout . 30
Response timeout . . 100
Exits:
  Begin data set. .      End data set. .      Record. .

Document header . . . . . (extend)
  / Translate document header
Document trailer . . . . . (extend)
  / Translate document trailer
Dataset grouping . . 2 1. None 2. Job 3. Concatenate job

Formatting:
  Line termination. . . .
```

## Printer Inventory Manager as Defined with TN3270E

---

```
Browse          IP PrintWay Options
Command ==>

Printer definition name . VTAM_DSE1

                                More: -

Document header . . . . . (extend)
 / Translate document header
Document trailer . . . . . (extend)
 / Translate document trailer
Dataset grouping . . 2 1. None 2. Job 3. Concatenate job

Formatting:
Line termination. . . .
Transparent data char . 35
Carriage control type . 2 1. None 2. Machine 3. ANSI
Delete form feed. . . . 4 1. None 2. Leading 3. Trailing 4. Both
Formatting. . . . . 1. None      2. Standard
                    3. Translate only 4. Use FCB
PostScript header . . . 1. Add      2. Ignore
                    3. Landscape   4. Always landscape
Omit line termination at EOF
```

## Chapter 9 Program Materials

---

The following shows where the VTAM parameters were set for the printer. For the DSE printer we chose RMT3 and the logmode of LU3PRT.

```
Browse          VTAM Protocol
Command ==>

Printer definition name . VTAM_DSE1

Printer LU name. . . RMT3

VTAM Processing Options:
Printer logmode. . . LU3PRT
Checkpoint pages . . 5
Send as transparent data
```

The next panel shows these settings for the SCS printer.

```
Browse          VTAM Protocol
Command ==>

Printer definition name . VTAM_SCS1

Printer LU name. . . RMT2

VTAM Processing Options:
Printer logmode. . . SCS
Checkpoint pages . . 5
Send as transparent data
```

---

The last thing you need to configure is the printer.

**NOTE:** At this time, InfoPrint Server and all related LUs should be active.

Using the printer's web pages go to the configuration screen

## Configuration Screens

---

1. To configure the line matrix printer, fill out and submit the forms using the following links.

**Table 4. Configuration Forms**

Configuration	HTML Forms
Network	TCP/IP (including Windows) and Novell network settings
Print Path	Destination, Model, Log Path, and I/O port configuration
Print Model	Shortcut to the print path model configuration forms
Log Path	Shortcut to the print path log path configurations form
TN5250/3270	TN5250/3270 configuration settings
SNMP	SNMP configuration settings
Administration	Names and passwords
System	System operation modes (reboot, factory defaults)

2. Select the TN5250/3270 section from the configuration screen.

**NOTE:** Changes will only take effect after you reset the line matrix printer from the System page.

## Chapter 9 Configuration Screens

---

The following displays:

Mode: TN5250	<a href="#">Click here for TN3270 mode</a>
Host	ok (eg. 204.191.175.114 or host.domain.com)
Port	
Device Description	
Message Queue Name	
Message Queue Library	
Device Type	GENERIC PRINTER
WSCST Name	
WSCST Library	
Auto Connect	
Start Auto Connect	<a href="#">Click here</a>

### 3. Select TN3270E Mode.

The following displays:

Configuration for Print Path d2prn	
Mode: TN3270	<a href="#">Click here for TN5250 mode</a>
Host	ok (eg. 204.191.175.114 or host.domain.com)
Port	23
Resource Name	
Auto Connect	
Stop Auto Connect	<a href="#">Click here</a>

**NOTE:** Changes will only take effect after you reset the line matrix printer from the System page.

### 4. Enter the address of your system for the host IP address

The port address is the port configured for your telnet server. It is usually port 23.

The Resource name will be the printer name defined in the VTAM portion of your Telnet server configuration. For this example use RMT3.



- 
5. Select auto connect.
  6. Go to the system page and reboot for the changes to take effect.
  7. After the printer reboots, enter the command /DTCPIP, T, CONN from the SDSF console. The following messages show that the printer is connected.

```
D TCPIP,,T,CONN
EZZ6064I TELNET CONNECTION DISPLAY 044
      EN                TSP
CONN  TY IPADDR..PORT  LUNAME  APPLID  PTR LOGMODE
-----
00000468  9.99.98.62..2000  RMT3  *PRINTER  PPE LU3PRT
----- PORT:  23  ACTIVE      PROF: CURR CONNS:  1
-----
3 OF 3 RECORDS DISPLAYED
```

You are now ready to print.

**Chapter 9** Configuration Screens

---

---

# 10

## *AS/400 Configuration, TN5250*

---

### Setting Up TN5250 Print Queues on AS/400

---

Start with V3R7 or later and the most recent PTF level. The AS/400 should have tcpip installed, be fully configured, and functional. To set up the TN5250 print queues, do the following:

1. Make sure the AS/400 has sufficient resources to add additional virtual devices.
2. Establish the IP value (not the dns name) of the AS/400.
3. Set the IP, subnet mask, and default router on the PrintNet.
4. Use a telnet session or web browser session to configure three items per dest (logical PrintNet queue) for use as a logical network connection to the AS/400.

**NOTE:** The three values (i.e., 192.168.168.34) represent the AS/400 IP in dotted notation and are the entries for the AS/400.

The newly created TN5250 device/queue (i.e. pallet form, first chair is alpha, 10 char. max) assumes the new name "devicedesc."

5. Determine whether or not to autoconnect (initiate connection on power up or through PrintNet reset) the TN5250 device/queue.

## Chapter 10 Setting Up a TN5250 Connection/Device via a Telnet Session

---

**NOTE:** It is not necessary to set up the devd or queue name on the AS/400 manually or in advance. The configuration and reset of the PrintNet automatically sets up the devd or queue name.

### Setting Up a TN5250 Connection/Device via a Telnet Session

---

In a telnet session, the command “list TN5250” shows the configured values. To set up a TN5250 connection/device via a telnet session, use the commands “store TN5250...” and the following:

**NOTE:** The PrintNet sessions can be configured either by a web browser or by telnet.

1. Use cmd WRKCTLD \*VWS, choice 5, display, enter to list the number of virtual devices this controller.
2. Use cmd DSPSYSVAL QAUTOVRT. Note the number of auto-configured virtual devices permitted on the system. This number must be greater than one.
3. Use cmd DSPYSYVAL QCHRID. This is the system language (code page) available.
4. Use cmd WRKTCPSTS \*IFC to determine the IP address of the AS/400. This value is used in setting the PrintNet TN5250 devices.

## User Supplied Values

---

**Host:** For this session, use the IP value from (step 4 above).

**Device description:** This is the name of the virtual device.

**Auto connect:**

- If true (enabled) then queue and device automatically attach.
- If not true (disabled) the command “tn dest dxprn start/stop” allows individual sessions to start or stop.

**NOTE:** Leave other values at their default descriptions.

Example of telnet session commands:

```
store tn dest d8prn host 192.168.168.34
store tn dest d8prn devicedesc palletform
store tn dest d8prn autoconnect
reset
```

This example creates a device/queue named “palletform” on the AS/400 host with IP 192.168.168.34. The PrintNet initiates the connection each time it is reset or the printer power is cycled.

## Using Telnet Commands for TN5250

---

### Command List

---

The following commands for TN5250 are available via a Telnet session with the PrintNet.

#### Store Commands

```
store tn dest <dxprn> host <IPaddress>
store tn dest <dxprn> port <portnumber>
store tn dest <dxprn> devicedesc <devicename>
store tn dest
<dxprn> msgqname <msgqname> msgqlib <msgqlib>
store tn dest
<dxprn> WSCSTname <WSCSTname> WSCSTlib <WSCSTlib>
store tn dest <dxprn> from default
```

## Chapter 10 Using Telnet Commands for TN5250

---

```
store tn dest <dxprn> [-]autoconnect
store tn dest <dxprn> copytimeout <copytimeoutvalue>
```

See page 177 for store command descriptions.

### List Commands

```
list tn
list tn dxprn - shows detail of a specific tn print queue.
list stored tn
list default tn
```

See page 197 for list command descriptions.

### TN5250 Auto Connect Command

```
tn dest <dxprn> start|stop
```

See page 201 for a detailed description.

## Getting Started

---

Set the following items when first configuring the PrintNet for use with an AS/400 running TN5250:

- The IP address of the AS/400 you are planning to use.  
Example: store tn dest d1prn as400 192.75.11.1
- The device description or queue name you want built on the AS/400 for the printer. This must be unique to the printer.  
Example: store tn dest d1prn devicedesc tnqueue
- Enable the printer to automatically connect to the AS/400 when it is first powered up or automatically reconnect if the original connection is lost.

Example: store tn dest d1prn autoconnect

In most circumstances, all other settings can be left as default. The printer should be reset (powered off and on again) for the settings to take effect.

If you do not wish the printer to connect automatically when powered up then leave the autoconnect disabled and control the connection manually with the following command:

---

Example: tn dest d1prn start

By using the manual method, time is allowed to properly prepare the AS/400 after the printer is powered up but before a connection is established. This method should only be used during an initial installation until the printer and the AS/400 are synchronized. The normal method is to have autoconnect enabled.

The autoconnect feature has a cycle time of approximately one minute. A little patience may be required when first turning on the printer before the connection becomes visible on the AS400.

## TN5250 Job Formatting

---

Forms width, forms length, CPI and LPI are controlled by the TN5250 data stream unless the front panel TN5250 Host Override option is enabled. The CPI is controlled through TN5250 via the font selection in the Change Device Description (CHGDEVPRT) command.

A completed screen looks like the example shown in Figure 41.

Change Device Desc (Printer) (CHGDEVPRT)		
Type choices, then press <b>Enter</b> .		
Device description	DEVD	
Online at IPL	ONLINE	*NO
<b>Font:</b>	<b>FONT</b>	
<b>Identifier</b>		<b>011</b>
<b>Point Size</b>		<b>*NONE</b>
Form Feed	FORMFEED	*CONT

## Chapter 10 TN5250 Job Formatting

---

Separator drawer	SEPDRAWER	*FILE
Separator program	SEPPGM	*NONE
Library		
Printer error message	PRTERMSG	*INFO
Library		*LIBL
Host print transform	TRANSFORM	*NO
Manufacturer type and model	MFRTYPMDL	*SAME
Paper source 1	PPRSRC1	*MFRTYPMDL
Paper source 2	PPRSRC2	*MFRTYPMDL
Envelope source	ENVELOPE	*MFRTYPMDL
ASCII code page 899 support	ASCII899	*NO
Image configuration	IMGCFG	*NONE
Character identifier:	CHRID	
Graphic character set		*SAME
Code page		
User-defined options	USRDFNOPT	*SAME
+ for more values		
User-defined object:	USRDTATFM	
Object		*NONE
Library		
Object type		
Data transform program	USRDTATFM	*NONE
Library		
User-defined driver program	USRDRVPGM	*NONE
Library		



---

Text 'description'	TEXT	'Device created for S1045PXM.'
Workstation customizing object	WSCST	*NONE
Library		

Figure 41. Example of CHGDEVPR command

## Font Identifier (FONT) - Help

---

Specifies the font identifier used by the 3812, 3816, and 5219 printers (including ASCII printers emulating the 5219 printer), and the IPDS printers.

The Printer Font Table (Font Parameter) in the CRTDEVPR command lists the valid font identifiers, the display values, the characters per inch value implied with each font style, a description of each font style, and whether the font is supported on a particular printer.

**NOTE:** Some fonts may be substituted by the printer. Consult the various printer reference guides of details.

The possible values are:

- **identifier.** Specify the 3-, 4-, or 5-digit identifier associated with this printer.
- **point-size.** Specify a point size ranging from 0.1 through 999.9. If you do not specify a point size, the system will set one.
- **\*SAME.** This value does not change.

The print quality/typeface setting in TN5250 mode is NOT set by the TN5250 data stream. It is only set through the front panel. This is true regardless of the front panel TN5250 Host Override setting.

**Chapter 10** Font Identifier (FONT) - Help

---

---

# 11

## *Monitoring Printers*

---

### **Implementing Printer Management**

---

Printer management includes the following tasks:

- Monitoring the status of network printers
- Responding to alarms
- Gathering statistics on printer operations

The three elements of network printer monitoring and management are:

- Agent/manager model
- The management information database (MIB)
- SNMP, the protocol used to get management information

#### **Agent/Manager Model**

---

The elements of a monitoring system, MIB and SNMP, are implemented in an agent/manager model:

- The MANAGER is a console, workstation, or server on working hubs or routers which has a global knowledge of NICs and printers.
- AGENTS are utilities that reside on devices, such as a PrintNet, that respond through SNMP to management requests for information. The information is stored in an MIB.

### MIB

---

An MIB contains information a device makes available through SNMP. The MIB is a management information base that describes information about actual objects to be managed and controlled.

#### Standards Of Network Printer MIBs

The Printer MIB is based on the following standards:

- System and Interfaces Group MIB (RFC 1213 of March 1991)
- Host Resource MIB (RFC 1514 of September 1993)
- Printer MIB (RFC 1759 of March 1995)
- PrintNet contains the Standard Printer MIB per RFC 1759, available from [www.ietf.org](http://www.ietf.org).

#### Information Provided By The MIB

The printer MIB contains the following types of information about network printers:

**Descriptions.** Printer configuration, location, and contact.

**Status.** Current operating status of printers.

**Alerts.** Reportable events from printers.

#### General Information About MIBs

For further information on SNMP and MIB, refer to the following:

- RFC 1155 — Structure and Identification of Management Information for TCP/IP-based Internets (SMI)
- RFC 1156 — Management Information Base for Management of TCP/IP Internets (MIB)
- RFC 1157 — A Simple Network Management Protocol (SNMP)
- The Simple Book: An Introduction to Management of TCP/IP-based Internets

### **Getting the Latest MIB Information**

The latest copy of these and other RFCs can be obtained from the Internet Engineering Task Force (IETF) at <http://www.ietf.org>.

### **SNMP**

---

SNMP is the protocol used to communicate between manager and agent. Managers request information, usually through automated polling at specified intervals, and agents respond. PrintNet SNMP is used on TCP/IP network only.

SNMP is a standard by which a network manager can get statistics and configuration information from the print servers and other devices on the network. This is done through a Network Management Station (NMS) such as NetView<sup>®</sup>. Currently only SNMP version 1 protocol is supported.

## **Monitoring Tools**

---

Many tools can be used to monitor printers with SNMP agents. One of these tools is NetView. There are also other MIB browsers which are not described here.

### **Monitoring with AIX NetView/6000**

---

The AIX NetView/6000 program can manage any IP-addressable device with an SNMP agent.

NetView/6000 can be used to set a network topology, monitor a network, diagnose problems, and measure network performance.

Through its MIB Browser, information about the resources affecting an event (such as an alarm) can be obtained.

## PrintNet Enterprise Suite

---

PrintNet Enterprise Suite (PNE) is a versatile remote management software utility. It allows you to organize all of the printers in your office remotely in a single database, download software and printer settings from a host computer with a single mouse click, and use a virtual operator's panel to configure printers in the same room or on the other side of the world. Refer to the *PrintNet Enterprise Suite User's Manual* or [www.Printronix.com](http://www.Printronix.com) for more details on this tool.

## Setting the SNMP Community Name

---

The default SNMP read-only community name is “public” and cannot be changed.

Change the SNMP R/W community name with the command:

```
set user passwd snmp com_name
save
```

where *com\_name* is the new SNMP R/W community name.

The default is no R/W community name.

**NOTE:** Changing SNMP community names or access rights may hinder or disable applications that are monitoring your printers.

## Disable SNMP Protocol

---

Enter the following command to disable SNMP protocol:

```
disable snmp
```

---

# 12

## *Commands*

---

### Command Shell Overview

---

The PrintNet comes with an in-depth command shell called `npsh`. It allows you to manipulate objects like destinations, I/O ports, and models and provides monitoring and troubleshooting capabilities.

#### **npsh Access Methods**

---

There are many ways this command shell can be accessed:

- built in HTML forms
- a Telnet session from a TCP/IP host to the PrintNet
- a single remote shell command (e.g., `rsh`, `rcmd`, `remsh`) from a TCP/IP host
- a `PTX_SETUP` command file containing one or more `npsh` commands sent through a printer data port (serial, parallel, etc.)

## Main npsh Command Prefixes

---

All configurable commands either start with `store` or `set`, and view commands start with `list`.

**NOTE:** If the `store` prefix is used, the PrintNet must be repowered to make the changes take effect. Since `store` affects flash memory settings only, the print server must reset and read the new settings now in flash memory.

**NOTE:** If the `set` prefix is used, a `save` command must be executed as well so that the new settings are retained after power cycles. Since `set` only affects the settings in memory, they will be lost after a power cycle unless they are saved to flash memory.

## Getting Command Help

---

The PrintNet command shell provides several online help tools, including:

### “?” Command

Typing “?” when logged in to the command shell will produce a full list of all available commands.

### Command Prefixes

Typing in the first portion of a command will produce an error message showing the correct syntax. For example, typing in `store tcpip` will produce a list of all commands that start with this prefix.



## Complete Command List

---

This section outlines the entire PrintNet command set including the command syntax, a description, and in most cases, an example for each command listed.

**NOTE:** If you see the word *ifnum* in any npsd commands, you should substitute a 1. The 1 represents the one network interface (e.g., Ethernet) supported.

### Store Commands

---

These commands change the settings stored in flash memory and do not affect the current or working settings in memory. A power cycle is needed before the stored settings become current.

```
store ftpc addr <IPADDRESS>
```

**Example:** store ftpc addr 192.168.10.10

Store the ftpc server IP address. The printer starts an ftp client session at the power up time if ftpc is enabled. The print will connect to the IP address provided with this setting.

```
store ftpc user <USER-NAME>
```

**Example:** store ftpc user joe

The user ID used to log into ftp server.

```
store ftpc passwd <PASSWORD>
```

**Example:** store ftpc passwd super

To enter the password that allows the user to log into ftp server.

```
store ftpc file <FILENAME>
```

**Example:** store ftpc file printer.inf

This is the name of the file that is stored in the ftp server. The file will be loaded to the printer at the power up time if ftpc is enabled.

```
store ifc from default
```

Set all UTP settings back to factory defaults.

```
store ifc from current
```

Store all current UTP settings to flash memory so they are retained after a power cycle. This ensures all current settings match what is stored in flash memory.

## Chapter 12 Complete Command List

---

```
store ifc default <IFNUM>|<0> (0 for no default)
```

Store the specified interface as the default interface. The other interface is no longer active after power cycle. The 0 allows for both interfaces to be active.

```
store ifc <IFNUM> mode auto|10half|10full|100half|100full
```

Store the specified interface mode as automatic, 10mbps half duplex, 10mbps full duplex, 100mbps half duplex, 100mbps full duplex. See page 21.

```
store pping opts [-]enable
```

Example: store pping opts enable

Store the state of periodic ping flag. If the periodic ping flag is enabled the PrintNet periodic ping client will attempt to ping its default gateway on its active PrintNet interfaces.

Default: disabled

```
store pping packet <NUMBER OF PACKETS>
```

Example: store pping packet 1

Store the value of the packet. It is the number of ICMP Echo Request packets that will be sent by the periodic ping client on each period.

Default: 1

```
store pping period <MINUTES>
```

Example: store pping period 5

Store the value of the period. <minutes> is the amount of time from 1 to 5 minutes defines the periodic ping sequence will be repeated.

Default: 5

```
store pping from default
```

Example: store pping from default

Store all the periodic ping default settings to flash memory so that they are retained after power up.

## Store Commands

---

```
store pserver opts [[-]jobsecurity]
[jobtimeout <SECONDS>] [jobcontrol[off|standard|
enhanced|fast]] [[-]multcp]
```

**Example:** store pserver opts -jobsecurity

jobcontrol is not used in this product.

**Example:** store pserver opts jobcontrol [fast]

jobcontrol is used to have different levels of secure printing. This is available as a performance enhancement for LPR, TCP socket printing etc. When jobcontrol is set to enhanced all jobs will be supported with job flow control.

**NOTE:** When jobcontrol is disabled, dynamic config loading on a model change is also disabled.

- **off.** no job control; no SOJ/EOJ commands. The printer prints faster in off mode.
- **standard.** (the default) traditional job control with immediate acknowledgements of SOJ/EOJ commands.
- **enhanced.** job control with EOJ acknowledgements held off by the printer until job is fully printed. The printer prints slower in enhanced mode.
- **fast.** The EOJ (End of Job) packet is acknowledged immediately. Use this selection if the job is timed out due to a delay in the acknowledgement of the EOJ packet because of the amount of data printing.

To monitor the printer, use the telnet command “lpstat.” The normal status reported on the first line of the lpstat response is the status of the queue (LPQ) within the PrintNet. The status reported does not reflect the state of the print job once it has been sent from the PrintNet to the printer.

The new line at the bottom of the lpstate response labeled “printer job:” can report one of two status values:

- a. **In Progress.** A job in the printer is not yet finished.
- b. **Done.** There are no jobs in the printer. All previous jobs are finished.

## Chapter 12 Complete Command List

---

**Example:** `store pserver opts jobtimeout 5`

The `jobtimeout` applies to the active job only and starts counting from zero each time data has been handed over to the printer successfully. If a blocked condition occurs for instance no data can be written to the printer, the print job will be cancelled after the timeout. The default for `jobtimeout` is 0 which is disable.

The `multtcp` option determines how many concurrent socket connections are allowed.

**Example:** `store pserver opts -multtcp`

When `multtcp` is disabled, only a single socket connection is allowed at a time.

**Example:** `store pserver opts multtcp`

With this option, multiple concurrent socket connections are allowed. The default `multtcp` is set to be enabled.

`store pserver tcpsocket <TCP-PORT> port <NEW-TCP-PORT>`

**Example:** `store pserver tcpsocket 4000 port 5000`

Change a pre-defined TCP port number (`<tcp-port>`) on the PrintNet to a new TCP port number (`<new-tcp-port>`). The default number is 9100 for `prn`.

`store pserver tcpsocket <TCP-PORT> dest <DEST>`

**Example:** `store pserver tcpsocket 5000 dest dlprn`

Assign a pre-defined TCP port number (`<tcp-port>`) to a particular destination (`<dest>`) on the PrintNet. Therefore, if you are using a print method that sends jobs directly to a TCP port number, you still have the option to process the job data through this destination setting.

`store pserver tcpsocket add <TCP-PORT> dest <DEST>`

**Example:** `store pserver tcpsocket add 9101 dest d2prn`

Maps the port number to a destination.

`store pserver tcpsocket del <TCP-PORT> dest <DEST>`

**Example:** `store pserver tcpsocket del 9101 dest d2prn`

Deletes a mapped port number destination already defined by listed commands.

## Store Commands

---

`store pserver lpd [-]dest1default`

**Example:** `store pserver lpd dest1default`

If `dest1default` is disabled and upon verification, the printer name supplied by the LPR protocol and the destination name do not match, then an error message is returned and the service is refused. If `dest1default` is enabled and upon verification, the printer name supplied by the LPR protocol and the destination name do not match, then the job is automatically routed to the first destination and the service is accepted.

**Default:** enabled

`store pserver ftp [-]dest`

**Example:** `store pserver ftp dest`

This command is to set the default directory when ftp is launched. Example commands as follows:

```
set dest d1prn name pr1
store pserver ftp dest
save
```

The first command changes `<dest>` `d1prn` to `pr1`. The second command tells ftp to start at directory `dest`. To send the print job, ftp to the printer and enter `'put printjob pr1'`.

`store pserver from default`

Set all general print server settings back to factory defaults.

`store pserver from current`

Store all current general print server settings to flash memory so they are retained after a power cycle. This ensures all current settings match what is stored in flash memory.

`store ptrmgmt pne <PNE PORT NUMBER>`

Change the port number to communicate with Printnet Enterprise.

**Default:** 9001

## Chapter 12 Complete Command List

---

```
store ptrmgmt status <STATUS PORT NUMBER>
```

**Example:** store ptrmgmt status 1025

Receives printer status, print job status, and/or emulation verification data. The data sent through this port is defined by the printer code.

**Default:** 9002

```
store ptrmgmt mgmt <MGMT PORT NUMBER>
```

Used in PXML operation.

**Default:** 9007

```
store tcpip <IFNUM> addr <ADDRESS>
```

**Example:** store tcpip 1 addr 192.75.11.9

Store the IP address for the PrintNet.

```
store tcpip <IFNUM> mask <MASK>
```

**Example:** store tcpip 1 mask 255.255.255.0

Store the subnet mask for the PrintNet.

```
store tcpip <IFNUM> opts [[-]rarp] [[-]bootp] [[-]dhcp]
[[-]persistdhcp]
```

**Example:** store tcpip 1 opts -bootp -dhcp

Enable or disable the automatic RARP, BOOTP, DHCP, or persistent DHCP requests for IP addresses upon bootup. If you are storing the PrintNet TCP/IP network settings within the device, you will not need to rely on BOOTP or DHCP for new settings.

```
store tcpip route add default[1|2] <ROUTER> <IFNUM>
[<METRIC>]
```

**Example:** store tcpip route add default1 192.75.11.1 1

Store a default router/gateway defined by router IP Address (<router> <ifnum>) so the PrintNet knows where to direct packets destined for another subnet. It is easier to store one default entry rather than an entry per remote host or network as in the previous command.

```
store tcpip del default [1|2]
```

**Example:** store tcpip route del default1 192.75.11.1 1

Delete a default router/gateway defined by router IP Address (<router> <ifnum>) so the PrintNet knows where to direct packets destined for another subnet.

---

## Store Commands

```
store tcpip route add [host|net] <NETWORK> [/mask>]
<ROUTER> <IFNUM> [<METRIC>]
```

Example: store tcpip route add net 192.75.12.0 1

Add a static route to a particular TCP/IP host or subnet specified by <network> so the PrintNet knows how to communicate with it. Normally one entry for a default router/gateway is all that is needed for communications between different subnets. Please see the next command for details.

```
store tcpip route del [host|net] <NETWORK>
```

Example: store tcpip route del net 192.75.12.0 1

Delete a static route to a particular TCP/IP host or subnet specified by <network> so the PrintNet knows how to communicate with it. Normally one entry for a default router/gateway is all that is needed for communications between different subnets. Please see the next command for details.

```
store tcpip tcp rxwin <PACKETS>
```

Example: store tcpip tcp rxwin 2

Determine the receive window size for the PrintNet. Usually the *packets* value ranges from 2 to 8, with the lower number allowing for more simultaneous TCP connections with the print server.

```
store tcpip tcp opts [-]zeroIPArp [-]keepalivedata
[-]protoCID
```

Example: store tcpip tcp opts keepalive

Control whether the PrintNet maintains a connection with a host when data cannot be accepted into its buffer. The *keepalivedata* option controls whether the keepalive packet contains a data byte for hosts that require it. If *zeroIPArp* is disabled then a PrintNet with an IP address of 0.0.0.0 will not allow IP access until the IP address is configured. If *zeroIPArp* is enabled on a PrintNet with an IP address of 0.0.0.0 then any attempted access with a valid IP address is assumed for this PrintNet and an Arp lookup is performed. When the *protoCID* is enabled, the PrintNet informs the printer when ftp, lpd protocol is used.

Default: enabled

## Chapter 12 Complete Command List

---

```
store tcpip from default|current
```

```
Example: store tcpip from default
```

Set all TCP/IP network settings back to factory defaults.

```
Example: store tcpip from current
```

Store all current TCP/IP network settings to flash memory so they are retained after a power cycle. This ensures all current settings match what is stored in flash memory.

```
store tn dest <DXPRN> mode 5250|3270
```

```
Example: store tn dest dlprn mode 3270
```

Store the TN protocol mode.

Default: 5250

```
store tn dest <DXPRN> host <IPADDRESS>
```

```
Example: store tn dest dlprn host 192.75.11.1
```

Store the IP address of the TN5250/3270 host

Default: Unconfigured (empty) IP address

```
store tn dest <DXPRN> port <PORTNUM>
```

```
Example: store tn dest dlprn port 27
```

Store the UDP port number of the TN server.

Default: 23

```
store tn dest <DXPRN> devicedesc <DEVNAME>
```

```
Example: store tn dest dlprn devicedesc MOCHA3812
```

Store the name of the printer device. The description entered will be the name of the printer device created on the AS/400 host for the current session.

Default: Unconfigured (empty) description.

```
store tn dest <DXPRN> connect <RESOURCENAME>
```

```
Example: store tn dest dlprn connect MYRESNM
```

Store the resource name for the host session. The resource name must be the same as the name of the printer device created on the host for the session.

Default: Unconfigured (empty) resource name



## Store Commands

---

store tn dest <DXPRN> msgqname <MSGQNAME>

Example: store tn dest dlprn msgqname QSYSOPR

Store the queue name to which system messages will be logged.

Default: QSYSOPR

store tn dest <DXPRN> msgqlib <MSGQLIB>

Example: store tn dest dlprn msgqlib \*LIBL

Store the queue library to which system messages will be logged.

Default: \*LIBL

store tn dest <DXPRN> WSCSTname <WSCSTname>

Example: store tn dest dlprn WSCSTname \*NONE

Store the queue name to which system messages will be logged.

Default: \*NONE

store tn dest <DXPRN> WSCSTlib <WSCSTlib>

Example: store tn dest dlprn WSCSTlib \*LIBL

Store the queue library to which system messages will be logged.

Default: \*LIBL

store tn dest <DXPRN> [-] autoconnect

Example: store tn dest dlprn autoconnect

Store the state of the autoconnect flag. If the autoconnect flag is enabled the PrintNet tn client will attempt a connection and binding with the specified tn host automatically on power-up. This connection sequence will be repeated every 60 seconds until successful or the autoconnect flag is disabled.

See "tn dest <dxprn> start | stop" command.

Default: disabled

## Chapter 12 Complete Command List

---

```
store tn dest <DXPRN> copytimeout
```

Example: `store tn dest dlprn copytimeout 1000`

Store the value of the copytimeout. When consecutive TN5250/3270 jobs are sent to the PrintNet, they are treated differently depending on how soon they arrive. In an attempt to provide a perception of collation when multiple copies are sent from one host, if the time between jobs is less than the copytimeout value then they are treated as copies and the job is given precedence over other host documents. This keeps documents, which are sent in rapid succession together as if they were copies of the same document. A higher value improves the likelihood of collation but impacts performance.

Default: 500

```
store tn from default|current
```

Example: `store tn from default`

Store all tn default settings or current settings to flash memory so that they are retained after power up.

## Set Commands

---

These settings alter the current or working settings in memory only. Therefore, they will be lost if the PrintNet is power cycled. To ensure this does not happen, issue a `save` command so the current settings get written to flash memory.

```
set dest <DEST> name <NEW_NAME>
```

Example: `set dest d1prn name laser`

Change the current name of the `<dest>` to a new name as indicated by `<new_name>`. These names are case sensitive.

```
set dest <DEST> backchannel [prn]
```

Example: `set dest d1prn backchannel prn`

Establish a return path for printer feedback for a given destination (`<dest>`). The PrintNet I/O port is bi-directional, however, you will most likely use the same I/O port to which the destination is currently sending jobs.

```
set dest <DEST> model <MODEL>
```

Example: `set dest d1prn model m4`

Associate a model with a destination. Jobs sent to the named destination (`<dest>`) are processed according to the options defined in the named model.

```
set dest <DEST> logpath <LOGPATH>
```

Example: `set dest d1prn logpath l4`

Associate a logpath with a destination. Jobs sent to the named destination (`<dest>`) are logged according to the settings defined in the named logpath.

## Chapter 12 Complete Command List

---

```
set dest <DEST> service [[-]socket] [[-]lpd] [[-]ftpd]
[[-]tn]
```

Example: `set dest dlprn service`

Set the destination (<dest>) to handle only certain print services. To add a service, specify the service name. To disable a service, use “-” before the name. The available services are described in the following table.

Services	
socket	Direct socket printing via TCP/IP.
lpd	LPR printing with TCP/IP, including LPR clients on any platform.
ftpc	File Transfer Protocol Client. This protocol initiates file transfers from an ftp server.
ftpd	Printing using the File Transfer Protocol (FTP) via TCP/IP.
tn	Printing using the TN5250/3270 session.

```
set dest from default
```

Set all destination settings back to factory defaults.

```
set dest from stored
```

Set all current destination settings to the values stored in flash memory.

```
set logpath <LOG_NAME> name <NEW_NAME>
```

Example: `set logpath l1 name pagecount`

Change the current name of the logpath (<logpath>) to a new name as indicated by <new\_name>. These names are case sensitive.

## Set Commands

---

```
set logpath <LOG_NAME> type [[-]job] [[-]pfault]
```

```
Example: set logpath l2 type job user printer
```

Establish the type of printer and print job logging to be done within this <logpath>. The option is:

**job**                    Job ID, username, etc.

**pfault**                Printer fault

```
set logpath <LOG_NAME> email <EMAIL>@<IPADDRESS>
```

```
Example: set logpath l3 user@printronix.com
```

Determine where the log information should be sent for a print job or attached printer. The choice is:

**email**                Particular user's email address. This address is set using the `set sysinfo email emailname@IPaddress` or `emailname@domain.com` command.

```
set logpath from default|stored
```

Set all logpath settings back to factory defaults or the values stored in flash memory.

```
set lpd [-]bytecount
```

```
Example: set lpd -bytecount
```

Set the job control on the file size of a Line Printer Daemon (LPD). If bytecount is enabled, the printer does not allow the LPD client to send a job with an unconventional file size. Usually the unrecognized numeric operand in the LPD Receive Data File command attributes to this behavior. The print job stream is canceled and its TCP connection is closed.

Default: Disabled.

```
set lpd [-]offlinedata
```

The offlinedata flag helps minimize host disconnects when the printer goes offline for an extended time. Enable this option if you experience host disconnects when the printer goes offline.

## Chapter 12 Complete Command List

---

```
set model <MODEL> name <NEW_NAME>
```

Example: `set model m1 name landscape`

Change the current name of the model (<model>) to a new name as indicated by <new\_name>. These names are case sensitive.

```
set model <MODEL> banner [text] [after]
```

Example: `set model m2 banner text`

Determine whether a banner page should be added for print jobs passing through the <model> mapped destination/queue. By default, banner pages are added to the front of the job. If `after` is set, the banner page will come at the end.

```
set model <MODEL> stty [[-]onlcr] [[-]descramble]
[xtab <1-16>|none]
```

Example: `set model m3 stty onlcr`

Control extra job processing done by the <model>. The processing options are:

**onlcr** Carriage return insertion for Unix text jobs. Adds carriage returns to text jobs with solitary linefeeds. This will prevent stair-stepped output or output running off the right side of the page.

**descramble** Automatic descrambling of print jobs passing through which have been scrambled using Printronix proprietary Unix scramble utility, `npscrumble`.

**xtab** Tab expansion from 1 to 16 spaces.

```
set model <MODEL> header [<STRING>]
```

Example: `set model m1 header 0x20`

Set a header string to be sent to the printer at the start of any print jobs passing through this <model>. The headerstring (<string>) can consist of up to nine elements. An example element is a hexadecimal code (e.g., `0x04`) or a pre-defined variable on the print server (e.g., `$FF` for a formfeed). Use `list var` to see all available variables. To erase the header, send the command with no *headerstring* value; for example 'set model m1 header'.

## Set Commands

---

```
set model <MODEL> trailer [<STRING>]
```

**Example:** `set model m7 trailer $FF`

Set a trailer string to be sent to the printer at the end of any print jobs passing through this <model> . The trailerstring (<string>) can consist of up to nine elements. An example element is a hexadecimal code (e.g., 0x04) or a pre-defined variable on the print server (e.g., \$FF for a formfeed). Use *list var* to see all available variables. To erase the trailer, send the command with no *trailerstring* value; for example 'set model m1 trailer'.

```
set model <MODEL> config [config_num]
```

Set a printer configuration number *config\_num* to be loaded prior to printing a job on the specified model. If the command is sent with *config\_num* set to 0, the factory configuration is loaded before the job prints. If *config\_num* is in the range 1 through 8, the corresponding configuration number is loaded before the job prints. To return to the default state where no configuration is loaded, send the command with no *config\_num* value; for example 'set model m1 config'. When no new configuration is loaded, the current configuration settings will be in effect for any jobs sent to model <model>. To see which configuration, if any, will be loaded at the start of a job, use the command 'list model' or 'list model <model>'.

```
set model from default
```

Set all model settings back to factory defaults.

```
set model from stored
```

Set all current model settings to the values stored in flash memory.

## Chapter 12 Complete Command List

---

`set snmp`

To add a user named `snmp` with root privileges, follow the steps below:

1. Login to the Ethernet as a root user.
2. Add a user named `snmp`:  
`set user add snmp`
3. Set the user type to `root`:  
`set user type snmp root`
4. Set the password for the `snmp` user:  
`set user passwd snmp snmppassword`
5. Save the changes:  
`save`

The user `snmp` is now created and `snmppassword` is the only community string which will allow write access.

`set snmp manager <INDEX> <IPADDRESS> <TRAP-COMMUNITY>`

The PrintNet continuously generates traps. To set the PrintNet to send traps to a particular SNMP manager, use this command to add an SNMP manager to the trap table.

<index> is the index number of the trap table. <ipaddress> is the IP address of the SNMP manager receiving traps. <trap-community> is the community string sent along with the trap information.

`set snmp trapport <INDEX> <UDP_PORT>`

Set the UDP port number in the SNMP trap manager table. This value should correspond to the port number monitored by the SNMP manager application running on the host at the IP address specified in the 'set snmp manager' command.

<index> is the index number of the SNMP trap manager table. <udp\_port> is the desired UDP port number. Acceptable values are 162, and 49152 through 65535.



## Set Commands

---

```
set snmp trap <INDEX> [-]active
```

Enable or disable an SNMP trap manager table entry.

The *index* is the index number of the SNMP trap manager table. “active” enables the table entry, “-active” disables the entry.

```
set snmp emailaddr <INDEX> <EMAILADDRESS>
```

The PrintNet can also send SNMP alert messages to a desired e-mail address. To specify an e-mail address to send alert messages to, use this command to add the e-mail address to the SNMP alert table.

<index> is the index number of the SNMP trap manager table. The *emailaddress* is the desired e-mail address of the form user@domain.com.

```
set snmp emailformat <INDEX> [-]short
```

Enable or disable the short e-mail message format for an SNMP alert table entry. When enabled, the short e-mail format can be used when messages will be viewed on devices having a limited display size (a cellular phone or pager, for example).

<index> is the index number of the SNMP alert table. “short” enables the short e-mail format, “-short” disables it.

```
set snmp shortmsglen <INDEX> <LENGTH>
```

Specify the length of the short e-mail message format for an SNMP alert table entry. This command is effective only when the short e-mail message format for an SNMP alert table entry is enabled.

<index> is the index number of the SNMP alert table. “length” specifies the length of the short e-mail message, and has an acceptable range of 15 to 80 characters.

```
set snmp email <INDEX> [-]active
```

Enable or disable sending e-mail alert messages for an SNMP alert table entry.

<index> is the index number of the SNMP alert table. “active” enables sending e-mail alert messages, “-active” disables it.

## Chapter 12 Complete Command List

---

```
set snmp alerts <index> [-]all | [[-]warning]
[[-]offline] [[-]mediainput] [[-]mediaoutput]
[[-]mediapath] [[-]marker] [[-]cutter] [[-]barcode]
[[-]scanner] [[-]intervention] [[-]consumable]
[[-]label][[-]powercart] [[-]rfid]
```

Example: `set snmp alerts 1 warning -cutter`

Specifies which alert groups are enabled for reporting via an SNMP manager, e-mail alert message, and/or Unix syslog daemon. See Table 2 on page 54 for a description of specific printer events belonging to each group.

The *index* is the index number of the SNMP manager/alert table.

“-all” disables and “all” enables reporting of alerts in all alert groups. Individual alert groups can be selectively enabled or disabled via combinations of alert group switches. For example, to enable warning alerts and disable cutter alerts for SNMP table entry 1, enter the following:

```
set snmp alerts 1 warning -cutter
```

```
set sysinfo label|name [<STRING>]
```

Example: `set sysinfo name salesprinter`

Set a descriptive name defined by `<string>` for PrintNet identification purposes. This is not used in the operation of the print server in any way.

```
set sysinfo contact [<STRING>]
```

Example: `set sysinfo contact Paul_Harris`

Set a person or department to contact in case of print server trouble.

```
set sysinfo location [<STRING>]
```

Example: `set sysinfo location salesdept`

Set the physical location of the PrintNet. This is for identification purposes and is not used in the operation of the print server in any way.

```
set sysinfo prnserial [<STRING>]
```

Example: `set sysinfo prnserial 000123456789`

Sets the printer serial number.

```
set sysinfo smtpserver <IPaddress> [port <PORTNUM>]
```

```
Example: set sysinfo smtpserver 192.75.11.5 port 25
```

Define the SMTP (Simple Mail Transfer Protocol) server IP address or domain name and port number where the mail is stored on your network.

Default: Unconfigured, 25

```
set user add|del <NAME>
```

```
Example: set user add eng
```

Add or remove a user on the PrintNet defined by <name>.

### IMPORTANT

**Do not delete the root user, or you will be unable to configure any further settings on the print server. You will have to go back to factory defaults to correct this problem.**

```
set user passwd <NAME> [<PASSWORD>]
```

```
Example: set user passwd eng mplex1
```

Assign a password to a defined user on the PrintNet.

```
set user type <NAME> root|guest
```

```
Example: set user type eng root
```

Assign root or guest privileges to a particular user defined by *username*. Guest permissions allow viewing of settings only.

Root permissions allow complete control of the PrintNet.

```
set user from default
```

Set all user settings back to factory defaults.

```
set user from stored
```

Set all current user settings to the values stored in flash memory.

```
set user passwd snmp <COM_NAME>
```

Set the new SNMP R/W community name as the <com\_name> value.

## Chapter 12 Complete Command List

---

`set var <VAR> [<VARIABLE-STRING>]`

**Example:** `set var LANDSCAPE 0x1b 0x26 0x6c 0x31 0x4f`

Define a new variable to be used in header, trailer, or switch strings on the PrintNet and call it `<variable-string>`. `<variable-string>` can be a space-separated list of words, hexadecimal numbers (e.g., `0x04`), or references to other pre-defined variables. It is easiest to make up the `<variable-string>` with hexadecimal values, as shown in the example.

**NOTE:** One variable counts as one element within header and trailer strings.

Defined variables are referenced in strings by placing a “\$” before the variable name (e.g., `set model m1 trailer $FF`).

`set var from default`

Set all variable settings back to factory defaults.

`set var from stored`

Set all current variable settings to the values stored in flash memory.

### List Commands

---

These commands list the current or working settings for a particular section within the command shell. To view stored settings in flash memory, insert `stored` after `list`. For example, `list prn` shows the current printer settings but `list stored prn` shows the settings in flash memory. Normally these should match. To view default settings in flash memory, insert `default` after `list`.

`list all`

Lists all current settings.

`list arp`

List the current ARP table that the PrintNet adheres to in a TCP/IP network.

`list dest [destination]`

List the current destination settings (e.g., names and mapped I/O ports, models, logpaths, and services.).

`list diff`

List the differences between the current settings and the stored settings in flash memory. Normally, you want these values to match, so issue a `save` command followed by a `reset` command.

`list ifc`

Lists the current PrintNet interface settings (e.g., link integrity).

`list logins`

List any active user logins on the PrintNet.

`list logpath [logpath]`

List the current logpath settings (e.g., names and mapped destinations).

## Chapter 12 Complete Command List

---

`list model [model]`

List the current model settings (e.g., names and mapped destinations). With no *model* parameter, a table of values for name, type, banner, config and the size in bytes of header and trailer are shown for all models m1 through m8. When the *model* parameter is supplied, the specific bytes used in the header and trailer are shown, along with the banner type, data type and configuration number for that specific model.

`list net`

List all current TCP/IP network settings (e.g., IP address and subnet mask).

`list pping`

List all the current periodic ping setting.

`list pserver`

List the current general print server settings (e.g., print server).

`list ptrcfg`

List the printer configuration

`list ptrmgmt`

List the current printer management port numbers.

`list snmp`

List the Trap Table containing SNMP Managers.

`list sysinfo`

List the current PrintNet system information (e.g., contact name and protocol stacks enabled).

`list tcpip`

List all current TCP/IP network settings (e.g., IP address and subnet mask).

`list test`

List the status of output tests on the I/O ports.

`list tn`

List all current tn protocol settings.

`list uptime`

Lists how long the PrintNet has been up and running from the last reset.

## Miscellaneous Commands

---

`list user`

List the current user definitions (e.g., user names and types).

`list var`

List all pre-defined variables including any newly created ones. Any of these defined variables can be referenced in a string by placing a "\$" before the variable name (e.g., `set model ml trailer $FF`).

`list dhcp`

List all DHCP information for the PrintNet provided that DHCP is enabled.

`list lpd`

List the Line Printer Daemon (LPD) information, such as whether the bytecount is enabled or disabled.

## Miscellaneous Commands

---

These commands do not fall under any specific section of the command shell, but they are used quite frequently.

`save [default]`

Save the current settings to flash memory so they are available after power cycles. `Sysinfo`, `destination`, `model`, `logpath`, `variable`, `user`, and I/O port settings will be saved. If `default` is specified as well, factory settings will be saved, overwriting any new settings you have configured.

`reboot`

Perform a warm boot or hardware reset to simulate a power-on reset. This restores current settings to those stored in flash memory, since the flash memory settings will be read and loaded into memory upon bootup.

`reset`

Perform a warm boot or hardware reset to simulate a power-on reset. This restores current settings to those stored in flash memory, since the flash memory settings will be read and loaded into memory upon bootup.

## Chapter 12 Complete Command List

---

`load [default]`

Load the settings stored in flash memory and use them as the current or working settings. If `default` is specified as well, factory settings will be loaded.

`lpstat [jobID]`

Example: `lpstat`

Display active and queued jobs and printer status for a given *printer* or *jobID*. Specifying one of these parameters will shorten the output and focus on the particular I/O port or print job specified.

`cancel jobID`

Example: `cancel d1prn-10`

Remove a job from an I/O port queue. Use `lpstat` to find a particular job ID first.

`start emi|fox`

Example: `start fox prn`

Begin a test on the PrintNet. The tests available are:

**fox**            A continuous stream of text sent to the attached printer. This is a good test for troubleshooting hardware as long as the attached printer supports text output.

**emi**            This is reserved.

`stop`

Stop the current test running.

`disable destination/ftpc/ftp/telnet`

Example: `disable`

Disable a protocol or disable a *destination* so jobs cannot be queued to it. You can also disable `ftpc`, `ftp`, or `telnet` protocol using the `disable` command.



## Miscellaneous Commands

---

`enable destination|printermgr|ftpc|ftp|telnet`

**Example:** `enable printermgr`

Enables the printer debug port to allow remote printer management software to function. You can enable `ftpc`, `ftp`, or `telnet` protocols using the `enable` command.

`close tcp TCPindexnumber <SD> | all`

**Example:** `close tcp 3`

Close the a TCP/IP connection between a TCP/IP host and the PrintNet. `<SD>` is the socket destination. The `TCPindexnumber <SD>` can be retrieved from “debug tcp” output.

`ping [-s] hostIPAddress [datasize [packetnumber]]`

**Example:** `ping 192.75.11.30`

ping another TCP/IP host specified by `hostIPAddress` on the PrintNet network. `datasize` is the datagram packet size which defaults to 64 bytes if no size is included in the syntax and `packetnumber` is the number of requests to be sent.

**NOTE:** To use a host or IP name instead of the address, you must have set the DNS server on the PrintNet. Use the command `set sysinfo dns...` to do this.

`tn dest destination start|stop`

**Example:** `tn dest dlprn start`

Set the `tn autoconnect` flag temporarily, to enable (start) or disable (stop). See “store `tn dest destination [-]autoconnect`” command for further definition.

`chr <STRING>`

Echo `<string>` or redirect `<string>` to an I/O port using the `chr <string> ioport`.

`keycode`

Determine the hexadecimal value for a key to be used as the escape character with the PrintNet built-in `telnet` command.

`? (Help)`

Lists all available commands.

**Chapter 12 Complete Command List**

---

---

# 13

## *Extra Features*

---

### PrintNet Security

---

There are TCP access lists available to restrict host connections with the device.

#### Users and Passwords

---

The PrintNet supports two user types:

<code>root</code>	Access to everything within the print server including all configurable settings.
<code>guest</code>	Ability to list settings only.

Passwords can be set for each user type. However, most often you will just set a password for the `root` user to protect the PrintNet configuration. `Guest` users cannot alter the print server configuration in any way.

To configure a `root` password on your PrintNet:

1. Load a Web browser on a network station that can communicate with the print server over TCP/IP. The commands to set a `root` password are:

Syntax:

```
set user passwd username password
save
```

Example:

```
set user passwd root your_password_for_root
save
```

## Chapter 13 PrintNet Security

---

2. Direct your Web browser to URL:

`http://NICIPAddress/adminConf.html`  
(e.g., `http://192.75.11.9/adminConf.html`).

**NOTE:** If prompted for a “User ID” and password first, type in `root` for the user ID and press ENTER at the password prompt (since there is no password by default).

3. At the “Administration Configuration” HTML form that displays, scroll down to the “Passwords” section.
4. Click within the “Old” field beside the “Root Password” heading and enter the existing root password. By default, there is no root password, so you can go to the next step without typing anything in this field.
5. Within the “Root Password” section, click within the “New” field and enter the new root password.
6. Within the “Root Password” section, click within the “Confirm” field and enter the new root password again. Remember this is case sensitive.
7. Click on the SUBMIT button when done and physically repower the print server to make the new setting take effect.

From this point on, anytime you log in to the PrintNet as `root`, you will need to specify this password or your login attempt will fail.

**NOTE:** To clear this password or change it, use the same “Administration Configuration” HTML form. Just enter the appropriate “Old” password and put in the new one (or nothing if you do not want a root password any longer). The commands directly on the PrintNet are:

```
set user from default
save
```

### Reset the PrintNet Password

---

Occasionally a user will set a root user password on the PrintNet and then forget it. This is the procedure to reset the root password back to the default (no password).

1. Turn the printer on.
2. Take the printer offline and unlock the front panel by pressing the up and down arrows keys at the same time, then releasing.
3. Press all four arrow keys (up, down, prev, next) at the same time, and release.
4. Press the right (next) arrow until PNE Access appears.
5. Press the down arrow and then the right (next) arrow until "E-NET To DEFAULT" appears.
6. Press Enter.
7. Re-program the IP address information from the front panel.

**NOTE:** Steps 1 – 5 also clears the IP address information and sets the PrintNet back to the factory default.

### TCP Access Lists

---

Within TCP/IP environments, the PrintNet can restrict host access to destinations/queues and remote command (e.g., rsh, rcmd, remsh, and telnet) execution services. This is done using an access list similar in function to the Unix .rhosts file.

**NOTE:** Access list settings are not configurable through the HTML forms provided with the PrintNet.

To view the current access list on the print server:

1. Start a Telnet session with the PrintNet.

Syntax:

```
telnet NICIPaddress
```

2. Log in as `root` and press ENTER at the password prompt since there is no password by default (or your password for your home set).

3. List the current access list.

Syntax:

```
list tcpip
```

If the list is empty, all hosts have access to the PrintNet services. If there are entries in the list, only those hosts specified have access to printing and remote command execution.

To add and delete access list entries, the commands are:

Syntax:

```
store tcpip tcp access add|del hostIPAddress|  
networkaddress  
reset
```

where *hostIPAddress* is the IP address of a TCP/IP host on your network and *networkaddress* is the address of a subnet on your network.

Example:

```
store tcpip tcp access add 192.75.11.25  
store tcpip tcp access add 192.75.12.0  
store tcpip tcp access del 192.75.11.25  
reset
```

**NOTE:** Although the maximum number of entries in the access list is 10, each entry can refer to a network rather than a specific host. This allows all hosts on that specified network and any individual hosts specified in the list to have access.

---

## PrintNet Naming Schemes

---

A single I/O Port destination can be configured with a variety of model and logpath combinations. For instance, once you set the parameters for m1 and l1, you can assign the model and logpath to more than one I/O port destination such as d1prn, d2prn, and d8prn. You may now use the same set of model and logpath parameters more than once without having to redefine those parameters each time for another I/O Port destination.

## Periodic Ping

---

This feature when enabled executes background ping from the print server to its default gateway. The operation is executed on every user defined period. This mechanism has no TCP traffic from the print server to anything on the network to keep route information alive. Since every member in the VLAN is subject to aging from bridging cache, a switch or bridge in between may be forgotten in the table at which port the printer was connected. If one ping is run from printer server to its default gateway through the switch, the switch learns again and the route is seen. The problem will not be seen with TCP since the ACKs keep the bridge relearning in a switch. Periodically send ICMP Echo Request between a print server and its gateway that is typically situated in the same VLAN and connected with the same switch or bridge.

The printer server allows a periodic group of ping packets [1 – 5] to be issued by a set time [1– 5] minutes, to the gateway value the PrintNet has from its routing table. This feature can be enabled or disabled. The default is disable.

## Chapter 13 Periodic Ping

---

This periodic ping is different from the normal ping process. The purpose of this ping is not an attempt at dead gateway detection. There is no ping client created in the print server and the ICMP Echo Reply packets received from the gateway are deleted without being processed by the ping client. This reduces the processing load on the print server. The data size of ICMP Echo Request Message is set to 16 bytes such that the Ethernet frame is set to 64 bytes to minimize the impact of bandwidth on the network. This process applies to all the active PrintNet interfaces.



---



# *Troubleshooting Tips*

## **Windows Troubleshooting Tips**

---

This section provides information on possible solutions to some standard Windows and PrintNet configuration errors.

### **Technical Support**

---

If you require technical support, please have the following information available when you call:

1. What level of software are you running?
2. What type of attachment do you have?
3. What is your host operating system?
4. Give a detailed description of the problem.
5. How often, and when, does the problem occur?
6. Give a detailed description of your network and the components attached.
7. Provide printer configuration and E-Net test page in either hardcopy or softcopy if possible.

## **PrintNet cannot be Found on the Network**

---

Please follow these tips to determine what the problem may be with your PrintNet configuration.

- Have you assigned the PrintNet a unique and valid IP address which corresponds with the other IP addresses on your network? For example, are you sure no other device is using this IP address? To find whether the IP address is unique, unplug your ethernet cable and ping the IP address to make sure it is not alive.
- Are you sure you are trying to talk to the PrintNet from a Windows station on the same subnet? The print server can only be seen locally unless you configured a routing entry earlier.
- If you look at the back of the printer, is the STAT LED flashing once a second, or is it quicker than that? A slower, once-a-second rate indicates that the print server is in fact configured with an IP address. A faster rate means it knows nothing about this, so you may need to try the configuration process again.
- Have you confirmed that the network connection to the PrintNet is working correctly? Trying different network cables and locations will help narrow down the problem.

## **HTML Configuration Forms will not Display**

---

- Can you ping PrintNet from the Windows station? If not, refer to “PrintNet cannot be Found on the Network” on page 210.
- Have you used the correct URL for the PrintNet home page? It should be `http://PrintNetIPAddress` (e.g., `http://192.75.11.9`).
- Is HTTP support enabled? If not, refer to “Web Browser/HTTP Problem” on page 213.

### **Errors Occur when Defining an LPR Printer**

---

- Can you ping the PrintNet from your Windows NT station? If not, please refer to “PrintNet cannot be Found on the Network” on page 210.
- Did you specify the correct IP address or host name for the PrintNet in the first field of the “Add LPR Compatible Printer” box?
- Did you specify a valid destination/queue on the PrintNet in the second field of the “Add LPR Compatible Printer” dialogue box? If so, did you also enter it in lowercase letters?

### **Cannot Browse the PrintNet on the Network**

---

- Have you looked under the right Windows workgroup? By default, the PrintNet will be found under “WORKGROUP.”
- Are you able to browse other Windows stations and devices on the network from this same station?
- Has this Windows station been given enough time to update its registry so it can see this newly added workgroup device? Sometimes Windows stations can take considerable time, depending on the size of the network.

## Printer Errors when Printing or No Output

---

- Is there a large job currently printing which is taking up all of the printer resources? Usually when printing from Windows 95/98 stations, a busy printer can cause Windows to display a printer error message. This is because it demands immediate printer attention rather than holding the data until the printer is ready again. The best way around this is to use a central spooling station like an NT server.
- Have you tried restarting the spooler under “Control Panel:Services”? Sometimes this is needed to get printing started.

**NOTE:** As a last resort, you may want to reboot the Windows station. Sometimes this is the only option to completely clear this situation. The PrintNet usually has nothing to do with this problem.

## TCP/IP Access Problem

---

If you can ping the printer from a workstation, but you cannot Web browse, Telnet, or print to the printer through the PrintNet, there may be an incorrect entry in the TCP access list. In order for this workstation to use the PrintNet interface in this case, one of two things must happen.

- The TCP list must have an entry added to grant access to this workstation, or
- All entries must be deleted from the TCP list to grant all workstations/hosts access to the above TCP services.

To view the current access list, use the printer control panel to access the configuration menu (see the *User's Manual* for configuration menu information). From the DIAGNOSTICS/Printer Tests menu choose the Ethernet Test Page. When the page prints, look under the “TCP Sockets” section for the TCP access list entries.

## Web Browser/HTTP Problem

---

To add/delete a TCP access list entry, refer to “TCP Access Lists” on page 205.

**NOTE:** When the following procedure is used, the TCP access list will be cleared, but all IP addresses will need to be entered again after the procedure is complete.

To reset all Integrated PrintNet TCP/IP values to the factory defaults when access is impossible, contact your Printronix service representative for assistance.

If you are still experiencing difficulty accessing or browsing the printer, contact the Customer Solutions Center for further assistance.

## Web Browser/HTTP Problem

---

In some cases, you may not be able to browse the printer Web page simply because the PrintNet HTTP may be turned off.

If you cannot ping the PrintNet IP address, make sure the IP Address, subnet mask, and default gateway are set correctly by checking the Ethernet Parameters menu from the operator panel. See the *User's Manual* for configuration menu information.

If you can ping the PrintNet IP address but cannot access the Web pages, perform the following procedure to verify the PrintNet HTTP is turned on.

1. **telnet** into the PrintNet and log in as **root**. There is no password by default.
2. At the system prompt, enter the following commands:  

```
config http on
save
reset
```
3. After approximately 30 seconds, point your browser to the PrintNet IP address. The printer Web pages should now be accessible.

If you are still experiencing difficulty accessing or browsing the printer, contact the Customer Solutions Center for further assistance.

## Windows NT 4.0 or 2000 Host Setup Problems

The installation procedure covered earlier in this chapter assumes that the PrintNet is configured with the correct IP address, subnet mask and gateway (if required), and that the administrator can ping and telnet to the PrintNet from the server console. If this is not the case, use the printer front panel to configure the PrintNet before proceeding.

### Installing Microsoft TCP/IP Printing

The PrintNet installation for Windows NT 4.0/2000 also requires the “Microsoft TCP/IP Printing” service on the server. To install this service, click the Network icon in the Control Panel and click the Services tab. Click **Add Service** and select Microsoft TCP/IP printing.

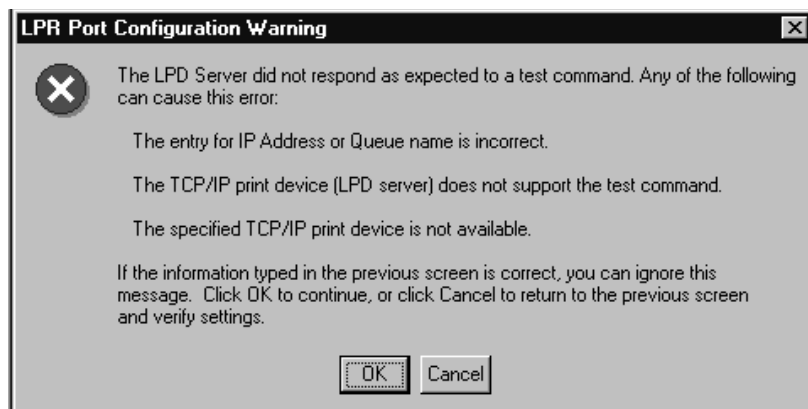
- Do you have administrative privileges?

This installation requires administrator privileges.

- “LPR port” is not listed.

Cancel the installation and install the Microsoft TCP/IP printing service on the server.

- LPR configuration warning.



## Windows NT 4.0 or 2000 Host Setup Problems

---

The Ethernet cable is not plugged in or the printer is not turned on. This message is a communication failure between the NT/2000 server and the PrintNet. Check cabling, IP address settings, gateway, etc.

- Test page does not print or prints incorrectly:
  1. Is the printer online? Re-send test page.
  2. The print queue name should be d1prn; however, the name can be changed. To verify the queue names, print an E-Net Test Page. Refer to your *User's Manual* for information.
  3. The Printronix NT print driver requires P-Series emulation active on the printer. The Generic/Text driver should print in any printer emulation.
  4. Delete then re-install the Microsoft TCP/IP Print service on the server.

If you are still experiencing difficulty accessing or browsing the printer, contact the Customer Solutions Center for further assistance.

## Unix Troubleshooting Tips

---

This section provides information on possible solutions to some standard configuration errors. If you require technical support, please have as much of the following information available when you call:

1. What level of software are you running?
2. What type of attachment do you have?
3. What is your host operating system?
4. How often, and when, does the problem occur?
5. Give a detailed description of the problem.
6. Give a detailed description of your network and the components attached.

### PrintNet Cannot be Found on the Network

---

- Have you configured the PrintNet with a unique and valid IP address which corresponds with the other IP addresses on your network? For example, are you sure no other device is using this IP address?
- Are you sure you are trying to talk to the PrintNet from a Unix station on the same subnet? Currently, the print server can only be seen locally unless you configured it with a routing entry.
- If you look at the back of the printer, is the STAT LED flashing once a second or is it quicker than that? A slower, once-a-second rate tells you that the print server is in fact configured with an IP address. A faster rate indicates it knows nothing about this, so you may need to try the configuration process again.
- Have you confirmed that the network connection to the PrintNet is working correctly? Trying different network cables and locations will help narrow down the problem.



## Nothing Prints

---

- Can you ping the PrintNet from your Unix station? If not, please refer to “PrintNet Cannot be Found on the Network” shown above.
- Is the PrintNet able to communicate with the attached printer? To test this, you can:
  1. `Telnet` to the print server (e.g., `telnet 192.75.11.9`) and log in as `root`.
  2. Enter the command `start fox prn`.
  3. Execute `stop prn` right after starting the test.
  4. This test will send the same text line over and over to the attached printer.
- Is the job getting stuck in the Unix host queue? If so, check that the printer is online. If it is, there is a configuration error on the Unix station, so creating a new print setup may be needed.
- Is the control panel showing any activity to indicate it is receiving data? If so, but there is nothing printing, check if a manual form feed is needed. Also, ensure that the printer can support the type of job coming through.
- Do all jobs fail or just certain ones? For example, is it possible that jobs from a certain application are the only ones to fail? If so, check the type of data it sends to make sure it matches the printer emulation. Check the application printer configuration for mistakes.
- If you are using System V, was the spooler restarted?

## Stair-Stepped Output

---

Stair-stepped output is print which starts at the top left of the page but every line thereafter starts a little further over to the right. It also refers to Unix jobs that print one line of text at the top of a page followed by a series of blank pages.

This kind of output happens only with Unix text jobs if carriage return insertion is not incorporated into the print setup. The printer may be told to do a linefeed, but the Unix job does not specify anything about a carriage return to follow this.

To fix this, carriage return insertion must be enabled somewhere in the print setup. The easiest and most common location is on the PrintNet itself within the appropriate model. The feature is called “onlcr” and the command syntax is:

```
set model modelname stty onlcr
save
```

For example, if printing to the destination, `d1prn`, the associated model is `m1`. Therefore, the command is:

```
set model m1 stty onlcr
save
```

## No Form Feed or Extra Page Comes Out

---

Unix text jobs may also have problems outputting the last page of a job especially when the BSD Remote (LPD) print method is used. This means the form feed button has to be pressed on the printer to get this last page out.

To make this process automatic, tell the PrintNet to handle this task by setting this feature “on” in the appropriate model. The command syntax is:

```
set model modelName trailer $FF
save
```

For example, if printing to the destination, `d2prn`, the associated model is `m2`. Therefore, the command is:

```
set model m2 trailer $FF
save
```

For default destination model mappings of the PrintNet, please see “PrintNet Naming Schemes” on page 207.

## Front Panel Message – Dynamically Set Params Read Only

---

This is not an error. It is an informational message warning that the IP address has been dynamically set by either `dhcp`, `rarp`, or `bootp`.

To assign a static IP address, turn off the `rarp`, `bootp`, and `dhcp` on the PrintNet. Use the following procedure:

1. Telnet to the PrintNet. Login = root, password = (Enter key)

Telnet commands are:

```
store tcpip 1 opts -bootp -dhcp
store tcpip tcp opts -zeroIPArp
reset
```

Wait two minutes for the PrintNet to reset.

2. Program the IP address, Subnet Mask and Gateway (if required) from the front panel.

## Appendix A Unix Troubleshooting Tips

---

---

# B

## *Customer Support*

---

### Printronix Customer Support Center

---

**IMPORTANT** Please have the following information available prior to calling the Printronix Customer Support Center:

- Model number
- Serial number (located on the back of the printer)
- Installed options (i.e., interface and host type if applicable to the problem)
- Configuration printout:
  - Thermal Printer  
See "Printing A Configuration" in the *Quick Setup Guide*.
  - Line Matrix Printer  
Press PRT CONFIG on the control panel, then press Enter.
- Is the problem with a new install or an existing printer?
- Description of the problem (be specific)
- Good and bad samples that clearly show the problem (faxing or emailing of these samples may be required)

Americas	(714) 368-2686
Europe, Middle East, and Africa	(31) 24 6489 311
Asia Pacific	(65) 6548 4114
China	(86) 800-999-6836

<http://www.primtronix.com/support.aspx>

## Appendix B Printronix Supplies Department

---

### Printronix Supplies Department

---

Contact the Printronix Supplies Department for genuine Printronix supplies.

Americas	(800) 733-1900
Europe, Middle East, and Africa	33 (0) 1 46 25 19 07
Asia Pacific	(65) 6548 4116 or (65) 6548 4182
China	(86) 400-886-5598
India	(800) 102-7869

<http://www.printronix.com/supplies-parts.aspx>

### Corporate Offices

---

Printronix, Inc.  
15345 Barranca Parkway  
Irvine, CA 92618  
U.S.A.  
Phone: (714) 368-2300  
Fax: (714) 368-2600

Printronix Inc.  
c/o Printronix Nederland BV  
Bijsterhuizen 11-38  
6546 AS Nijmegen  
The Netherlands  
Phone: (31) 24 6489489  
Fax: (31) 24 6489499

Printronix Schweiz GmbH  
42 Changi South Street 1  
Changi South Industrial Estate  
Singapore 486763  
Phone: (65) 6542 0110  
Fax: (65) 6546 1588

---

Printronix Commercial (Shanghai) Co. Ltd  
22F, Eton Building East  
No.555, Pudong Av.  
Shanghai City, 200120, P R China  
Phone: (86) 400 886 5598  
Fax: (86-21) 5138 0564  
Visit the Printronix web site at [www.primtronix.com](http://www.primtronix.com)

**Appendix B Corporate Offices**

---



---



# C

## *Glossary*

<b>ARP</b>	Address Resolution Protocol. Associates a selected IP address with a network device Ethernet address.
<b>bps</b>	Bits per second.
<b>Centronics</b>	Parallel port interface standard found on most printers.
<b>daemon</b>	A continuously running process that handles system-wide functions like print spooling.
<b>default router</b>	Local device that forwards any IP packets destined for another subnet.
<b>destination</b>	Logical print queue on the PrintNet to which hosts send their print jobs. There are eight destinations by default.
<b>DHCP</b>	Dynamic Host Configuration Protocol. Allows a network device to discover its IP address dynamically upon bootup. The IP address does not need to be stored within the device itself permanently.
<b>Download Mode</b>	Refers to the condition of the PrintNet when in a startup condition, downloading configuration information.
<b>DNS</b>	Domain Name Server. Host providing responses to queries for a given host name IP address.

---

<b>EEPROM</b>	Electrically Erasable/Programmable Read-Only Memory.
<b>factory defaults</b>	Settings shipped with the PrintNet.
<b>Factory Settings</b>	S2 jumper position stating all factory default settings are to be used while the PrintNet is up and running.
<b>Firmware Panic</b>	Unrecoverable errors detected by the PrintNet firmware force the Print Server into Firmware Panic mode. Manually reset the PrintNet to resume operation.
<b>Flash</b>	Stores firmware code and configurable settings. Allows for upgrades without replacing hardware inside the PrintNet.
<b>FTP</b>	File Transfer Protocol. Used for transferring files from one TCP/IP host to another and used in the upgrade process.
<b>gateway</b>	Hardware device that translates data between two incompatible networks.
<b>gateway address</b>	The IP address of a gateway.
<b>Hardware Exception</b>	Bus errors, address errors, and illegal instructions force the PrintNet into this PrintNet non-operational mode.
<b>HTML</b>	HyperText Markup Language. Format used for documents viewable on the World Wide Web.
<b>ifnum</b>	Interface Number. Represents the network interface. With a PrintNet, this will always be "1" for Ethernet.
<b>interface script</b>	Unix host filter file that processes the print job before it is sent over the network to the PrintNet.

---

<b>IP Address</b>	The Internet Protocol Address. A numeric address such as 123.45.61.23 which identifies a printer or server in a LAN or WAN.
<b>LAN</b>	Local Area Network.
<b>LED</b>	Light Emitting Diode. The printer has an LED display which shows the status of the printer to the operator.
<b>logpath</b>	Determines the type of print job and printer logging needed per job. One logpath is associated with every destination.
<b>LPD/LPR</b>	Line Printer Daemon. The most common TCP/IP remote printing protocol that crosses all hardware utilizing IP.
<b>MAC</b>	Machine Address Code.
<b>MIB</b>	Management Information Base. A set of variables (database) managed by an SNMP manager application.
<b>model</b>	Defines how a print job should be processed (e.g., banner pages added, ASCII to PostScript conversion) as it passes through the PrintNet. One model is associated with every destination.
<b>NetBIOS</b>	Network Basic Input Output System. Common interface among PC networks.
<b>Monitor Mode</b>	Refers to the condition of the PrintNet with no configuration or IP address loaded.
<b>npsh</b>	Extensive built-in command shell within the PrintNet.
<b>PDF</b>	Portable Document Format. Encodes different types of documents enabling them to be read across multiple platforms.



<b>Persistent DHCP</b>	When this option is enabled, the IP Address, Gateway, and Subnet Mask obtained through DHCP is saved. If the DHCP server does not provide an address, the device will use the previously saved DHCP IP address. This option only works when DHCP is enabled. The default is disabled.
<b>ping</b>	Standard command to test a TCP/IP connection. (e.g., <code>ping 192.75.11.9</code> )
<b>print path</b>	Three-stage path a print job takes when it is sent from a host to a printer through the PrintNet.
<b>protocol</b>	A set of rules or conventions governing the exchange of information between computer systems or between a printer and a host computer. For computer printers, a protocol is the coding convention used to convey and print data. A printer protocol includes codes for printing text and graphics, as well as codes instructing the printer to perform special operations and machine-to-machine communication codes.
<b>PSERVER</b>	Print Server. A Novell print method where the PrintNet continuously polls the Novell file server print queue looking for print jobs.
<b>RAM</b>	Random Access Memory. Volatile memory within the PrintNet that contains current/working settings. Settings are lost once the power is removed.
<b>RARP</b>	Reverse Address Resolution Protocol. Allows a network device to discover its IP address dynamically upon bootup. The IP

---

	address does not need to be stored within the device itself permanently.
<b>ROM</b>	Read-Only Memory.
<b>router</b>	A device that forwards IP packets to their destination. Also called a gateway.
<b>RPRINTER</b>	Remote Printer. A Novell print method where the PrintNet waits for jobs to be sent to it from a defined PSERVER.
<b>SNMP</b>	Simple Network Management Protocol. A standard protocol used to monitor network devices called "SNMP agents."
<b>socket</b>	TCP connection between two hosts consisting of a source and destination TCP port number at each end.
<b>subnet mask</b>	A binary value used to divide IP networks into smaller sub-networks or subnets. This mask is used to help determine whether IP packets need to be forwarded to other subnets.
<b>TCP/IP</b>	Transmission Control Protocol/Internet Protocol. Suite of protocols that act as the base protocol for the Internet.
<b>TCP port</b>	A logical connection point in the software of a TCP host or device. When two IP devices talk, they establish a socket which consists of a source and destination TCP port number on both ends.
<b>telnet</b>	Command and protocol to establish a terminal connection between two hosts on an IP network.
<b>UTP</b>	Unshielded Twisted Pair. A cable used for telephone and computer-to-computer connections.
<b>WAN</b>	Wide Area Network.



---

# Index

## Symbols

? command, 176

## Numerics

10/100Base-T  
speed setting, 21

## A

Access lists, TCP, 205  
Access methods, npsh, 175  
ADDTCPIFC, configuring with, 103  
ADDTCPRTE, router definition, 105  
Administration, configuration, 56  
AFP file printing, 115  
AFP with CRTPSFCFG on V3R2,  
configuring, 123  
Agent model, printer monitoring, 171  
AIX 4, PrintNet configuration, 79  
AIX NetView/6000, monitoring, 173  
AIX printing, 81  
AIX, remote queue time-out setting, 81  
Alert groups, 53  
Alternate FTP printing, 83  
ARP, Unix, 70  
AS/400  
automatic remote output queue, 110  
configuring as an IPDS printer, 115  
configuring for ASCII, 103  
configuring for printing, 106  
CRTLINETH, 101

hostname, 105  
IPDS configuration checklist, 116  
local domain, 105  
network sharing, 139  
printer sharing parameters, 140  
printing AFP files, 115  
printing IPDS files, 115  
printing SCS files, 115  
remote printer queue name, 106  
TCP/IP host table entry, 105  
troubleshooting, 143  
verify IPDS configuration, 138  
verify printing, 113  
AS/400 ASCII  
troubleshooting, 114  
AS/400 troubleshooting  
cannot PING the printer, 143  
clipped data, 144  
PSF/400 terminates when  
initialized, 143  
spooled files disappear without  
printing, 144  
spooled print file remains in PND  
status, 144  
ASCII  
configuring AS/400, 103  
setting up for printing, 106  
Auto Connect, TN5250/3270, 49

## Index

---

Automatic remote output queue,  
AS/400, 110

### B

Back Channel, Print Path, 40  
Banner Page, 42  
BOOTP, Unix, 72  
Browse PrintNet, troubleshooting, 211

### C

Change destination names, PrintNet, 67  
Coax Printer Support FMD, 145  
Command list  
    List commands, 166  
    store commands, 165  
    TN5250, 165  
    TN5250 Auto Connect command, 166  
Command prefixes, 176  
    npsh, 176  
Command Shell, 175  
    ways to access, 27  
Commands  
    ?, 176  
    complete list, 177  
    getting help, 176  
    list, 197  
    miscellaneous, 199  
    set, 187  
    store, 177  
Communication routers, Windows, 66

### Configuration

    administration, 56  
    AFP with CRTPSFCFG on V3R2, 123  
    Log Path, 44  
    network, 36  
    Print Model, 41  
    Print Path, 38  
    PrintNet for AIX 4, 79  
    PSF for IPDS on V4R2 and above, 131  
    PSF/400 for IPDS on V3R2, 120  
    PSF/400 for IPDS on V3R7 and  
        above, 126  
    SNMP, 50  
    System, 59  
    TN5250/3270, 46  
Configuration checklist, MVS, 86  
Configuration menu, PrintNet, 31  
Configuration Screens, TN3270E, 159  
Configuration tools, 25  
Connecting to the network, 25  
Control panel message, Dynamically Set  
Params Read Only, 219  
CRTLINETH, line descriptions, 101  
Customer Support Center, 221

### D

Define LPR printer, error, 211  
Destination settings, Print Path, 39  
Destinations  
    models, 19  
    PrintNet, 19  
Device Description, TN5250/3270, 48  
Device Type, TN5250/3270, 49



Direct socket printing, 84  
Disable SNMP Protocol, 174  
Document conventions, 22  
Dynamically Set Params Read Only message, 219

### E

E-mail alert posting, 51  
Errors, defining LPR printer, 211

### F

Filter, Print Model, 42  
Font Identifier, TN5250, 169  
FTP printing, 82

### G

Getting Help command, 176  
Getting started, PrintNet with AS400 running TN5250, 166  
Guest user, PrintNet, 203

### H

Header String, Print Model, 42  
Help, 62  
Help command, getting, 176  
Home page, URL, 27  
Host configuration  
    Unix, 74  
Host IP, TN5250/3270, 47  
HP-UX, 75  
HTML forms, 27  
HTTP, troubleshooting, 213

### I

I/O Port, status, 62  
Installation  
    HP-UX, 75  
    Solaris 2.6, 76  
Installation Solaris 7, 76  
Installation, PrintNet, 25  
Interface, TCP/IP Network, 37  
IPDS configuration  
    checklist, AS/400, 116  
    verify on AS/400, 138  
IPDS file printing, 115  
IPDS printer, configuring on AS/400, 115

### J

Job formatting, TN5250, 167

### L

Line descriptions, CRTLINETH, 101  
List commands, 197  
    TN5250, 166  
Log Path  
    configuration, 44  
    Logpath Port, 45  
    Logpath Type, 44  
    Name, 44  
Logical printer architecture, 17  
Logpath Port, Log Path, 45  
Logpath Type, Log Path, 44  
LPR/LPD Host setup, 77

## Index

---

### M

Manager model, printer monitoring, 171  
Manual  
    notes, 23  
    notices, 23  
Manual LPR/LPD Host setup, 77  
Manual system, V Host setup, 74  
Message Queue Library, TN5250/3270, 48  
Message Queue Name, TN5250/3270, 48  
MIB, 172  
Microsoft TCP/IP printing, 214  
Miscellaneous commands, 199  
Mode, TN5250/3270, 47  
Models, 19  
    setting a formfeed, 219  
    setting onlcr, 218  
MVS  
    configuration checklist, 86  
    define printer to JES, 91  
    JES spool printer sharing, 97  
    port switching printer sharing, 99  
    printer connection, 90  
    requirements, 85

### N

Name  
    Log Path, 44  
    Print Model, 41  
    Print Path, 40  
Naming schemes, PrintNet, 207  
Network  
    configuration, 36  
    connection, 25

    PrintNet cannot be found, 210  
    status, 62  
    TCP/IP, 36  
Network sharing, AS/400, 139  
No extra page, troubleshooting, 219  
No form feed, troubleshooting, 219  
Notes, 23  
Notices, 23  
Npsh  
    access methods, 175  
    command prefixes, 176

### O

Onlcr, 218

### P

Passwords, 58  
    PrintNet, 203  
    reset, 205  
Periodic Ping, 207  
PNE, 174  
Port, TN5250/3270, 47  
Prefixes, command, 176  
Print Model, 42  
    Banner Page, 42  
    configuration, 41  
    Filter, 42  
    Header String, 42  
    Name, 41  
    Printer Configuration, 43  
    Trailer String, 42

- Print Path
  - Back Channel, 40
  - configuration, 38
  - destination settings, 39
  - Name, 40
  - Selected Logpathl, 40
  - Selected Model, 40
  - Services, 40
- Printer
  - errors, 212
  - sharing parameters, AS/400, 140
- Printer Configuration
  - Print Model, 43
- Printer Inventory Manager, TN3270E, 150
- Printer management implementation, 171
- Printer monitoring
  - Agent model, 171
  - Manager model, 171
  - MIB, 172
  - SNMP, 173
  - tools, 173
- Printing
  - AIX, 81
  - Alternate FTP, 83
  - ASCII, 106
  - configuration, AS/400, 106
  - direct socket, 84
  - FTP, 82
  - troubleshooting, 217
  - verification, AS/400, 113
- PrintNet, 15
  - cannot be found, 210
  - cannot be found on network,
    - troubleshooting, 216
  - change destination names, 67
  - configuration for AIX 4, 79
  - configuration menu, 31
  - configuration, Windows, 64
  - destinations, 19
  - guest user, 203
  - installation, 25
  - naming schemes, 207
  - passwords, 203
  - queues, 19
  - reset password, 205
  - root user, 203
  - running AS400 with TN5250, 166
  - security, 203
  - special features, 15
  - users, 203
  - verification, 26
- PrintNet Enterprise Suite, 174
- Program materials, TN3270E, 146
- PSF for IPDS
  - on V4R2 and above, configuring, 131
- PSF/400 for IPDS on V3R2, configuring, 120
- PSF/400 for IPDS on V3R7 and above, configuring, 126

## Index

---

### Q

Queues  
    models, 19  
    PrintNet, 19

### R

Resource Name, TN5250/3270, 48  
Root user, PrintNet, 203  
Routers, Unix, 73  
Routing, TCP/IP Network, 38

### S

SCS file printing, 115  
Security, PrintNet, 203  
Selected Logpath, Print Path, 40  
Selected Model, Print Path, 40  
Services, Print Path, 40  
Set commands, 187  
Setup through Data Stream, 28  
Shell, command, 175  
SNMP, 173  
    community name, 174  
    configuration, 50  
    manager alert posting, 50  
SNMP Protocol, Disable, 174  
Solaris 2.6, 76  
Solaris 7, 76  
Special features, PrintNet, 15  
Speed setting, 10/100Base-T, 21  
Stair-stepped output, troubleshooting, 218  
Start/Stop Auto Connect, TN5250/3270, 49

### Status

    I/O Port, 62  
    menu, 61  
    Network, 62  
Store commands, 177  
    TN5250, 165  
Supplies Department, 222  
Syslog alert posting, 51  
System  
    configuration, 59  
    information, 56

### T

TCP access lists, 205  
TCP/IP  
    access, troubleshooting, 212  
    configuring AS/400 for ASCII, 103  
TCP/IP Network, 36  
    Interface, 37  
    Routing, 38  
TCPIP Configuration, TN3270E, 149  
Technical support, 209  
Telnet, 28  
Telnet commands, TN5250, 165  
TN3270E  
    Configuration Screens, 159  
    Printer Inventory Manager, 150  
    Programs materials, 146  
    TCPIP Configuration, 149  
    VTAM Definitions, 147  
    z/OS Configuration, 145

### TN5250

- Auto Connect command, 166
- command list, 165
- Font Identifier, 169
- job formatting, 167
- running AS400, 166
- set up connection device via
  - telenet, 164
- set up print queue on AS/400, 163
- Telnet commands, 165
- user supplied values, 165

### TN5250/3270

- Auto Connect, 49
- configuration, 46
- Device Description, 48
- Device Type, 49
- Host IP, 47
- Message Queue Library, 48
- Message Queue Name, 48
- Mode, 47
- Port, 47
- Resource Name, 48
- Start/Stop Auto Connect, 49
- WSCST Library, 49
- WSCST Name, 49

### Tools, printer monitoring, 173

### Trailer String

- Print Model, 42

### Troubleshooting

- AS/400, 143
- AS/400 ASCII, 114
- cannot browse PrintNet on
  - Network, 211
- defining LPR printer, 211
- HTML configuration forms, 210
- HTTP, 213
- no extra page, 219
- no form feed, 219
- printer errors, 212
- printing, 217
- Printnet cannot be found, 210
- PrintNet cannot be found on Network,
  - 216
- stair-stepped output, 218
- TCP/IP access problem, 212
- Unix, 216
- Web browser, 213
- Windows, 209
- Windows 2000 Host setup, 214
- Windows NT 4.0 Host setup, 214

## U

### Unix

- crossing routers, 73
- environment, 69
- Host configuration, 74
- manual system V Host setup, 74
- PrintNet configuration, 70
- troubleshooting, 216
- using ARP, 70
- using BOOTP, 72

## Index

---

### Unix troubleshooting

Dynamically Set Params Read Only  
message, 219

URL, home page, 27

Users, PrintNet, 203

Using ARP, Windows, 64

### V

V Host setup, manual system, 74

Verification, PrintNet, 26

VTAM Definitions, TN3270E, 147

### W

#### Web browser

troubleshooting, 213

Web server, overview, 29

#### Windows

communication routers, 66

configuration, 63

environment, description, 63

mandatory configuration, 64

optional configuration, 64

PrintNet configuration, 64

troubleshooting, 209

using ARP, 64

#### Windows 2000

Host setup troubleshooting, 214

#### Windows NT 4.0

Host setup troubleshooting, 214

WSCST Library, TN5250/3270, 49

WSCST Name, TN5250/3270, 49

### X-Z

#### z/OS

communications control unit, 87

connectivity problems, 99

define printer to PSF, 92

printer sharing, 97

printing IPDS, 86

TCP/IP profile, 87

verifying TCP/IP-attached printer, 96

z/OS Configuration, TN3270E, 145





257367-001B